



1968-72 GTO, Tempest, LeMans

Gauge Cluster Kit Installation Instructions (510101)

Important facts about this kit.

1. The dash panel used in this picture is used by permission of Covan's Thunder Road
2. This kit requires some modification to your original under dash wiring harness. It is not intended to be a complete plug and play interface. We strive to make the integration of this product as easy as possible. However, in many cases there are no mating connectors due to obsolescence of original factory connectors. This requires substitution of components that will require modifications on the part of the installer.
3. As mentioned throughout the documentation included here, it is important to read the instructions that come with the gauges. This is important to identify the type of gauge used and any special requirements the manufacturer may have for installation.
4. This harness is designed to be used for Autometer Series I and Series II short sweep gauges. The harness is not compatible with Autometer full sweep gauges as they include their own sender harness assemblies. This harness assembly addresses connection of the water temperature, oil pressure, fuel, voltmeter, speedometer, and tachometer gauges, as well as indicator lights for turn signals, high beam lights, and emergency brake (if originally equipped).
5. Vehicle grounding and specifically instrument panel grounding are extremely important to the operation of you gauges. Check your grounds as this is the most common problem concerning proper operation of your gauges.

STEP 1:

Install the blade terminals to the back of each of the 4 small gauges. Secure the terminal with a lock washer and nut. There are specific left, center, and right hand terminals. Install as shown in the photo.

NOTE: Voltmeters use the 'GND' and 'I' terminals only.

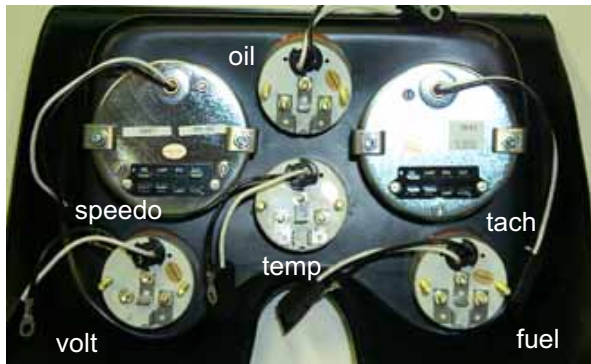


STEP 2:

Plug the appropriate lamp socket pigtails into the 4 smaller gauges. This picture shows the lamp socket on a Series I gauge. Series II gauges have an integral blade terminal for the lamp power and ground connection.



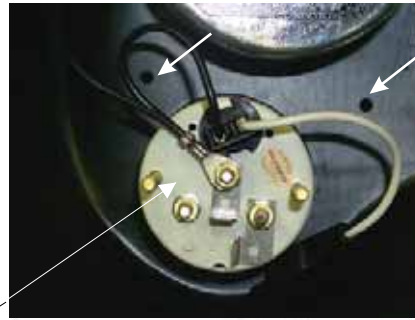
STEP 3: Insert the gauges into the housing in the locations shown.



STEP 4:

Drill 4 mounting holes for LED's, using a 5/32" drill bit, at the desired locations. Insert LED's in the hole from the front of the panel.

NOTE: The LED housings are a taper fit into the hole. Press the LED housing all the way in to tighten against the instrument panel.



STEP 5:

Connect the black ground wires from the lamp pigtails to the center ground studs of the smaller gauges as shown.

NOTE 1: This picture shows connection of individual light sockets as would appear on Series I gauges. The speedometer and tachometer have separate twist-in light sockets.



NOTE 2: This picture shows connection of lighting as would appear on Series II gauges. A separate blade terminal for power and ground exists for the internal lighting. The speedometer and tachometer have a specific lamp terminal within the 8 cavity plug.



STEP 6:

Install the mounting brackets on all the 6 gauges. The completed assembly is now ready for the connection of the wiring harness. Note that this assembly shows Series I gauges.



STEP 7:

Plug in gauge connections using the supplied connectors. Plug in the connectors in the order shown below. A typical plug-in is shown in this picture.

- | | |
|-----------|---------------------------|
| 1. FUEL | pink / black / tan |
| 2. TACH | pink / black / white |
| 3. TEMP | pink / black / dark green |
| 4. OIL | pink / black / dark blue |
| 5. VOLT | pink / black |
| 6. SPEEDO | pink / black / purple |



STEP 8:

Plug each lamp power wire (white) into the mating connectors on each gray wire (DASH LIGHTS) on the new harness.

NOTE:

The supplied wiring harness comes with plug-in female terminals for the power and ground terminals of the Series II type 2 1/16 inch and 2 5/8 inch gauges. This is a direct plug into the terminals on the gauge. If you are using Series I gauges, you will have to remove these terminals and connectors and install the male and female disconnect terminals supplied in the kit to connect the individual light sockets. This picture shows this connection type. Please refer to the instruction sheet in the 500928 Gauge Side Wiring sub-kit for a more detailed explanation of the differences in the gauges.



STEP 9:

Select an LED lamp from the panel, and attach the appropriate signal lead wire from the harness, as noted below. Each signal wire will attach to the red LED lead wire from the panel. Trim the wires from the harness to the desired length before crimping.

LED color	function	power wire color
blue	high beam	light green
green	left hand turn	light blue
green	right hand turn	dark blue
red	brake	pink

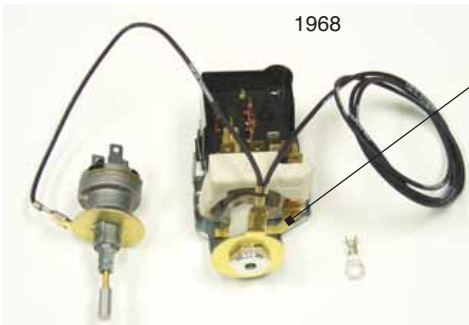
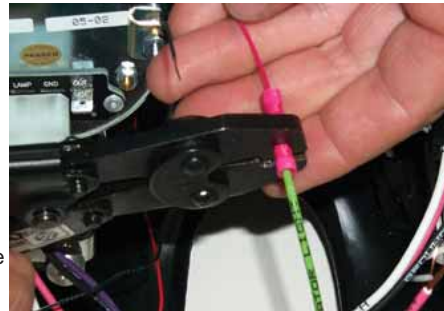
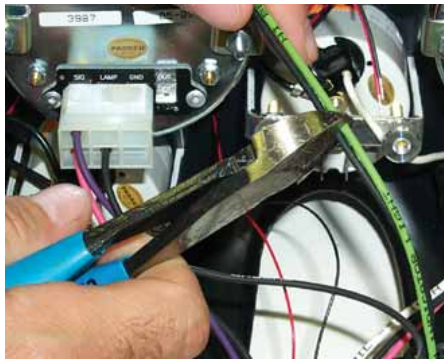
STEP 10:

Install butt connectors, as shown, matching the wire functions noted above with the proper LED. Trim wires from the harness to the desired length before crimping.

Match the black wire from each LED panel lamp with a black ground wire from the harness for all LED lamps except the red brake warning LED.

If you are using the red brake warning LED lamp, remove the factory lamp socket and attach the black lead wire from this LED lamp to the factory brown wire. As noted above, the red will connect to the factory pink wire.

LED color	function	signal ground wire color
red	brake	tan



STEP 11:

A grounding kit is included for your headlight and wiper switch. Connect as shown, routing to a good chassis ground with the supplied ring terminal.



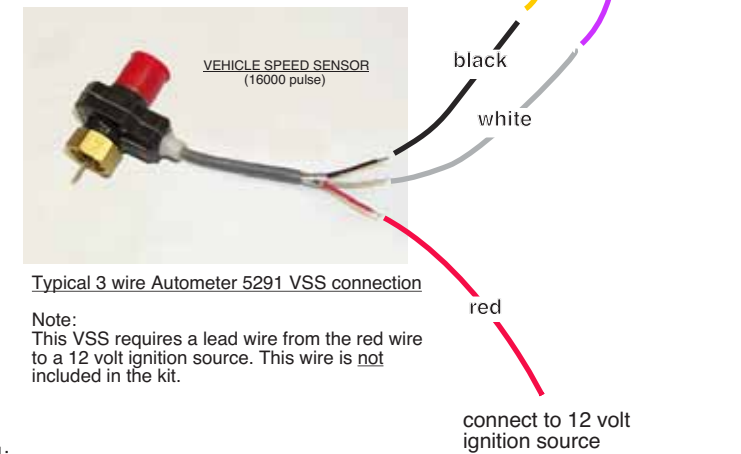
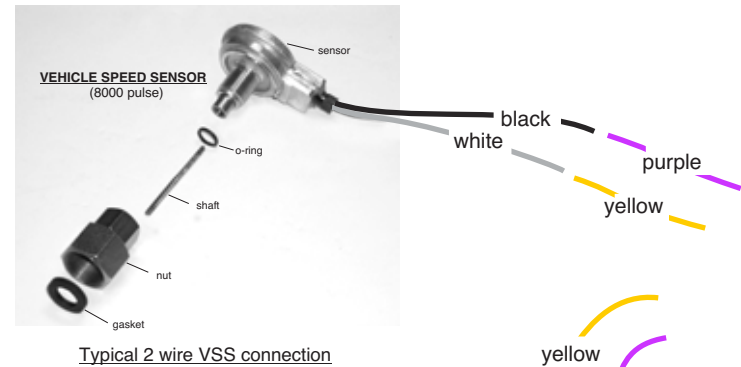
A grounding kit is included for your headlight and wiper switch. Connect as shown, routing to a good chassis ground with the supplied ring terminal.

STEP 12:

The speedometer connection has a separate long yellow wire with a ring terminal on the end. This wire is twisted around the purple vehicle speed sensor lead that is plugged into the speedometer connector. The purpose of this wire is to cancel out any signal interference to the speedometer and must be grounded to a good chassis ground after the instrument cluster is finally installed.

STEP 13:

This kit uses an electronic programmable speedometer which requires a vehicle speed sensor that replaces the original speedometer cable at the transmission. Below are the connections for the various vehicle speed sensors that may be supplied in your kit.



STEP 14:

This completes the wiring of the gauge cluster. The next steps involve the preparation of the under dash harness to incorporate the mating plug connection for the gauge harness disconnect. There are two different instrument cluster designs for the 1967-69 Firebird.

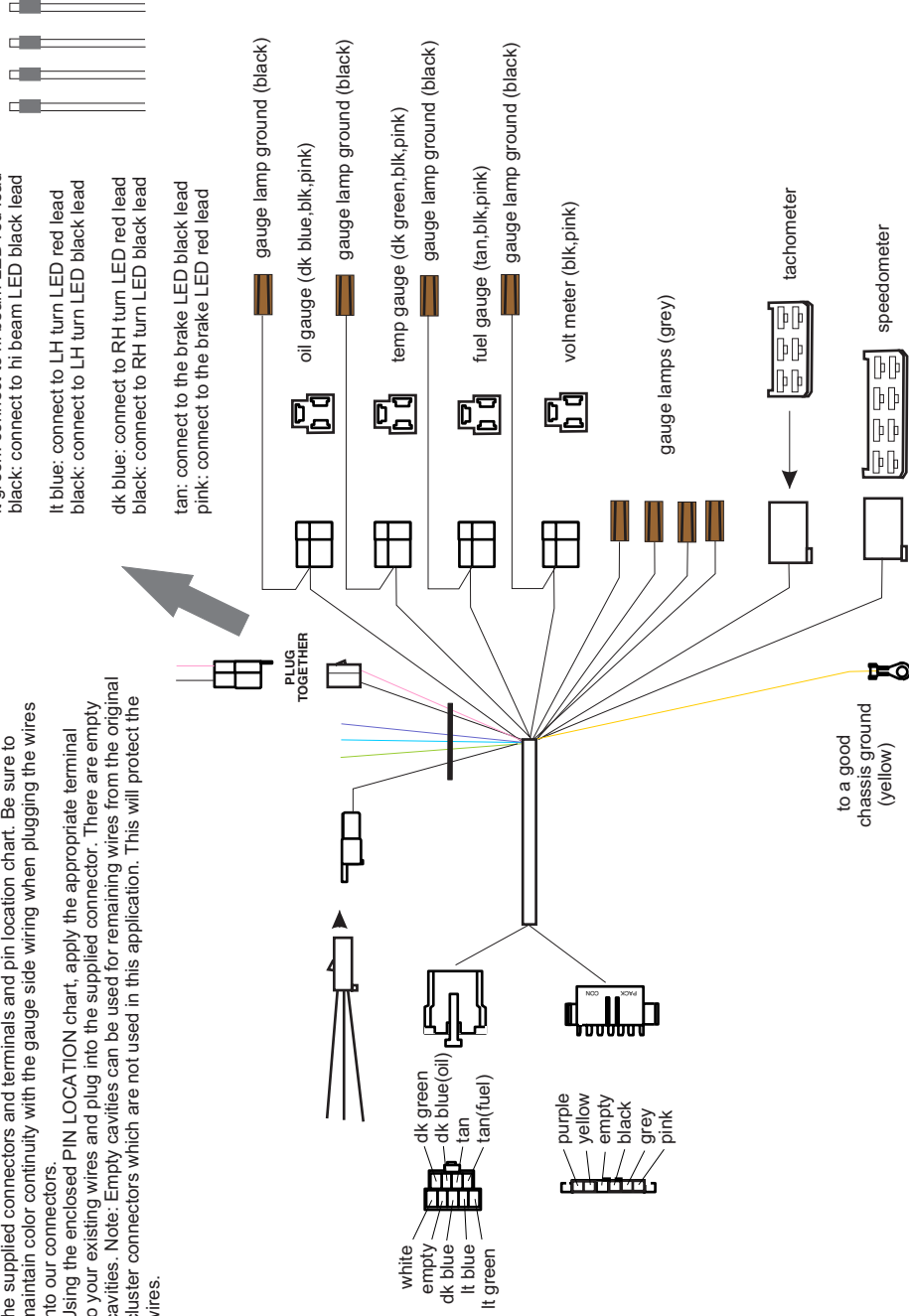
The first design is the warning light dash design that was only available with warning lights for oil pressure, water temp., and generator.

The second design is the optional factory gauge design that was available with factory gauges for tachometer, oil pressure, water temp., and ammeter. Under dash connections differ for each type of dash design. The following pages will identify the connections for each dash design.

STEP 15:

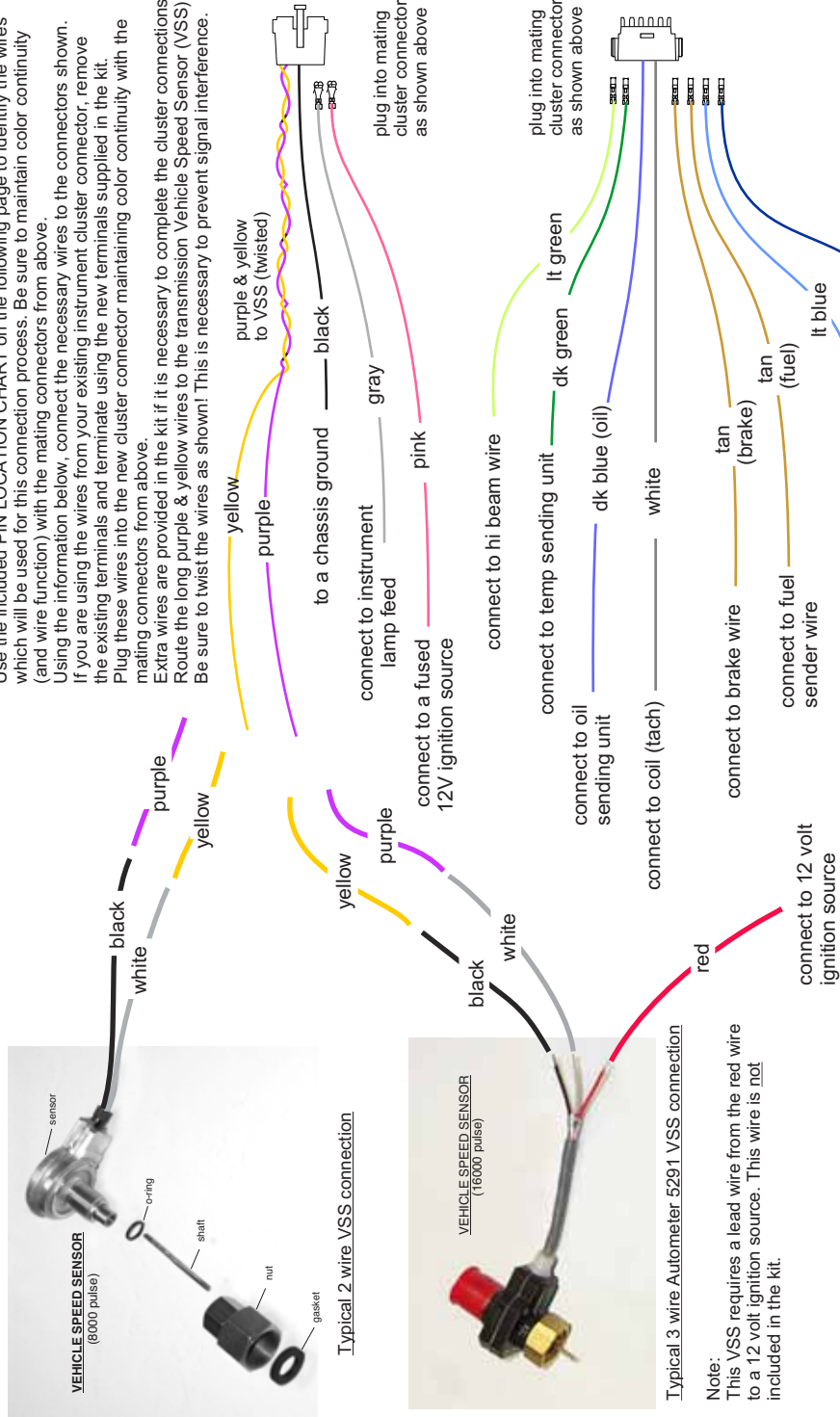
Connect your existing instrument cluster wires to the new wiring kit using the supplied connectors and terminals and pin location chart. Be sure to maintain color continuity with the gauge side wiring when plugging the wires into our connectors.

Using the enclosed PIN LOCATION chart, apply the appropriate terminal to your existing wires and plug into the supplied connector. There are empty cavities. Note: Empty cavities can be used for remaining wires from the original cluster connectors which are not used in this application. This will protect the wires.



DASH SIDE CONNECTIONS

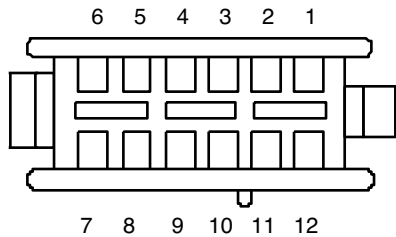
Use the included PIN LOCATION CHART on the following page to identify the wires which will be used for this connection process. Be sure to maintain color continuity (and wire function) with the mating connectors from above. Using the information below, connect the necessary wires to the connectors shown. If you are using the wires from your existing instrument cluster connector, remove the existing terminals and terminate using the new terminals supplied in the kit. Plug these wires into the new cluster connector maintaining color continuity with the mating connectors from above. Extra wires are provided in the kit if it is necessary to complete the cluster connections. Route the long purple & yellow wires to the transmission Vehicle Speed Sensor (VSS). Be sure to twist the wires as shown! This is necessary to prevent signal interference.



1968-69 Pontiac GTO, Tempest, Lemans Dash Printed Circuit Connector Pin Locations

Printed Circuit Cluster Connector Pin Locations

1968-69 GTO Tempest LeMans



This view is looking into the connector, opposite the wire entry.

<u>Circuit No</u>	<u>Function</u>	<u>Wire Color</u>	<u>1968 Factory gauge pin location</u>	<u>1968 Warning light pin location</u>	<u>1969 Factory gauge pin location</u>	<u>1969 Warning light pin location</u>
8	Instrument Lights	Gray	4,8	4,8	4,8	4,8
11	High Beam Indicator	Light Green	1	1	1	1
14	Left Turn Indicator	Light Blue	9	9	9	9
15	Right Turn Indicator	Dark Blue	2	2	2	2
25	Alternator Light	Brown	5	7	5	7
30	Fuel Tank Sender	Tan	7	5	7	5
31	Oil Pressure Sender	Dark Blue	10	10	10	10
152	Brake Warning	Black	12	12		
33	Brake Warning	Tan			12	12
35	Coolant Temp Sender	Dark Green	6	6	6	6
139	12 volt fused power	Pink / black stripe	11	11	11	11
121	Tachometer	Brown	see note 3	see note 3	see note 3	see note 3

Notes:

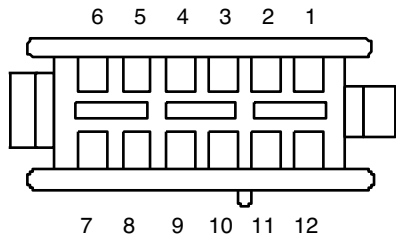
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1. All cars were equipped with an alternator charge light.
2. 1968-69 cars require the grounding wires for the headlight and wiper switches.
3. Factory gauge cars used an optional hood mounted tachometer.

1970-71 Pontiac GTO, Tempest, Lemans Dash Printed Circuit Connector Pin Locations

Printed Circuit Cluster Connector Pin Locations

1970-71 GTO Tempest LeMans



This view is looking into the connector, opposite the wire entry.

<u>Circuit No</u>	<u>Function</u>	<u>Wire Color</u>	<u>1970 Factory gauge pin location</u>	<u>1970 Warning light pin location</u>	<u>1971 Factory gauge pin location</u>	<u>1971 Warning light pin location</u>
8	Instrument Lights	Gray	4,8	4,8	4,8	4,8
11	High Beam Indicator	Light Green	1	1	1	1
14	Left Turn Indicator	Light Blue	9	9	9	9
15	Right Turn Indicator	Dark Blue	2	2	2	2
25	Alternator Light	Brown	5	7	5	7
30	Fuel Tank Sender	Tan	7	5	7	5
31	Oil Pressure Sender	Dark Blue	10	10	10	10
33	Brake Warning	Tan	12	12	12	12
35	Coolant Temp Sender	Dark Green	6	6	6	6
39	12 volt fused power	Pink	11	11	11	11
121	Tachometer	Brown	see note 3	see note 3	see note 3	see note 3

Notes:

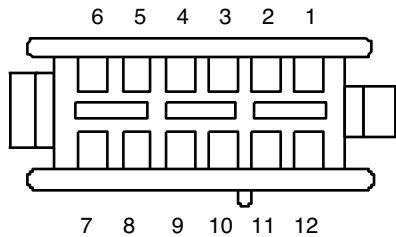
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1. All cars were equipped with an alternator charge light.
2. 1970-71 cars require the grounding wires for the headlight and wiper switches.
3. Factory gauge cars used an optional hood mounted tachometer.

1972 Pontiac GTO, Tempest, Lemans Dash Printed Circuit Connector Pin Locations

Printed Circuit Cluster Connector Pin Locations

1972 GTO
Tempest
LeMans



This view is looking into the connector, opposite the wire entry.

Circuit No	Function	Wire Color	1972 Factory gauge w/seat belt warn pin location	1972 Warning light pin location
8	Instrument Lights	Gray	4,8	4,8
11	High Beam Indicator	Light Green	2	1
14	Left Turn Indicator	Light Blue	9	9
15	Right Turn Indicator	Dark Blue	3	2
25	Alternator Light	Brown	6	7
30	Fuel Tank Sender	Tan	7	5
31	Oil Pressure Sender	Dark Blue	10	10
33	Brake Warning	Tan	12	12
35	Coolant Temp Sender	Dark Green	5	6
39	12 volt fused power	Pink	11	11
206	Seat Belt Warning	Black	1	
121	Tachometer	Brown	see note 3	see note 3

Notes:

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1. All cars were equipped with an alternator charge light.
2. 1972-73 cars require the grounding wires for the headlight and wiper switches.
3. Factory gauge cars used an optional hood mounted tachometer or an optional in dash tachometer. Both these tachometers were wired with a separate tachometer harness which will not be used in this installation.

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