



American Autowire



1978-83 Malibu
1978-87 Monte Carlo
1978-87 El Camino

Gauge Cluster Kit
Installation Instructions
(510147)

Important facts about this kit.

1. The dash panel used in this picture is used by permission of Covan's Classic.
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.

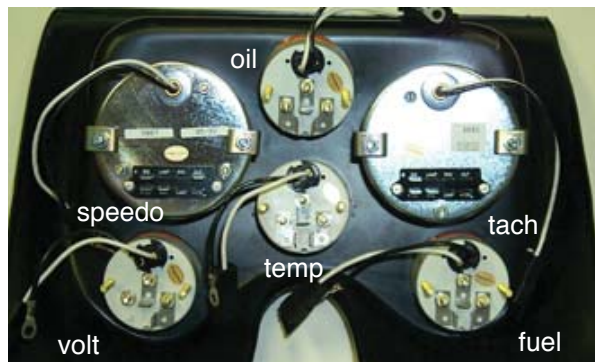


STEP 2:

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.



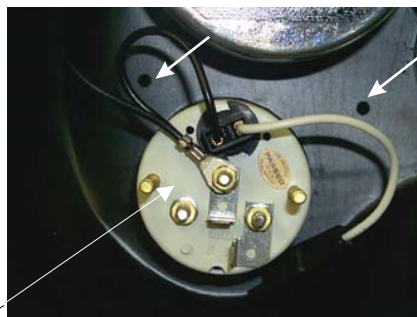
STEP 3: Insert the gauges into the housing in the locations shown.



STEP 4:

Drill the 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

Optional

red	brake	pink
amber	check engine	pink

The pink power wire can be used to power both these LED lights.

STEP 10:

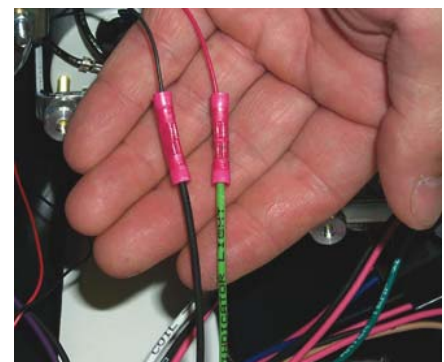
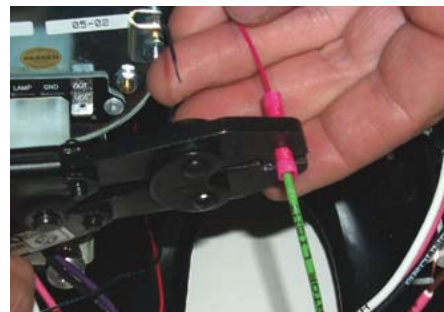
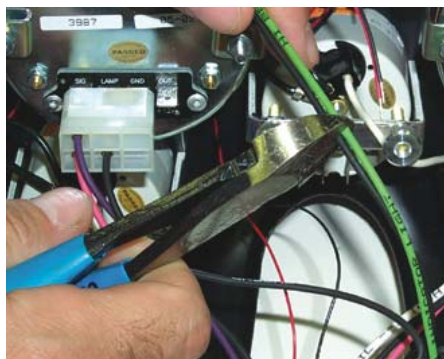
Install butt connectors, as shown, matching the wire functions noted above with the proper LED. Trim wires from the harness to the desired length before crimping.

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 and the check engine light 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 tan wire. As noted above, the red lead will connect to the pink power lead wire.

If you are using the amber check engine LED lamp, remove the factory lamp socket and attach the black lead wire from this LED lamp to the factory brown and white striped wire. As noted above, the red lead will connect to the pink power lead wire. If you want to run this wire through the cluster disconnect plug, extra terminals are provided in the kit to allow this connection through one of the vacant cavities in the disconnects.

LED color	function	signal ground wire color
red	brake	tan
amber	check engine	brown / white stripe



Step 11:

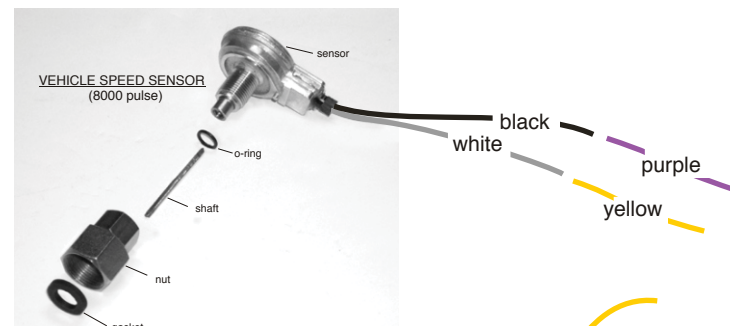
This is a completed LED splice.

STEP 12:

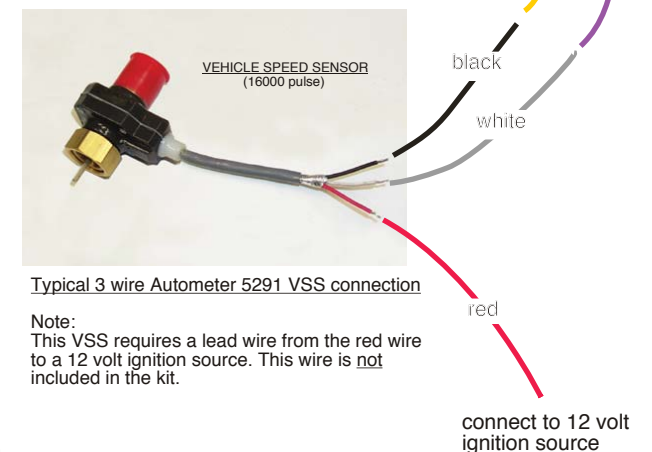
The speedometer connection has a separate long yellow wire with a ring terminal on the end. This wire is twisted around the purple vehicle speed sensor lead that is plugged into the speedometer connector. The purpose of this wire is to cancel out any signal interference to the speedometer and must be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



Typical 2 wire VSS connection



Typical 3 wire Autometer 5291 VSS connection

Note:
This VSS requires a lead wire from the red wire to a 12 volt ignition source. This wire is not included in the kit.

connect to 12 volt ignition source

STEP 14:

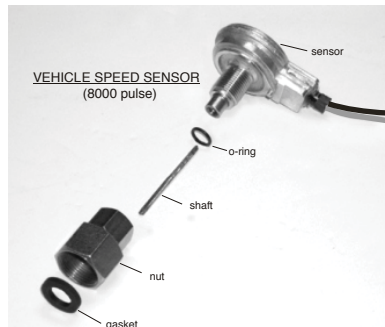
This completes the wiring of the gauge cluster. The next steps involve the preparation of the under dash harness to incorporate the mating plug connection for the gauge harness disconnect. There are two different instrument cluster designs for the 1969 Camaro.

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

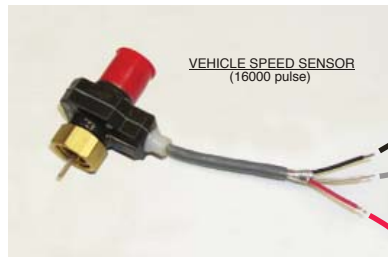
The second design is the optional factory gauge design that was available with factory gauges for tachometer, oil pressure, water temp., and ammeter. Under dash connections differ for each type of dash design. The following pages will identify the connections for each dash design.

STEP 15: 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 on the next page. 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 on the next page. 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.

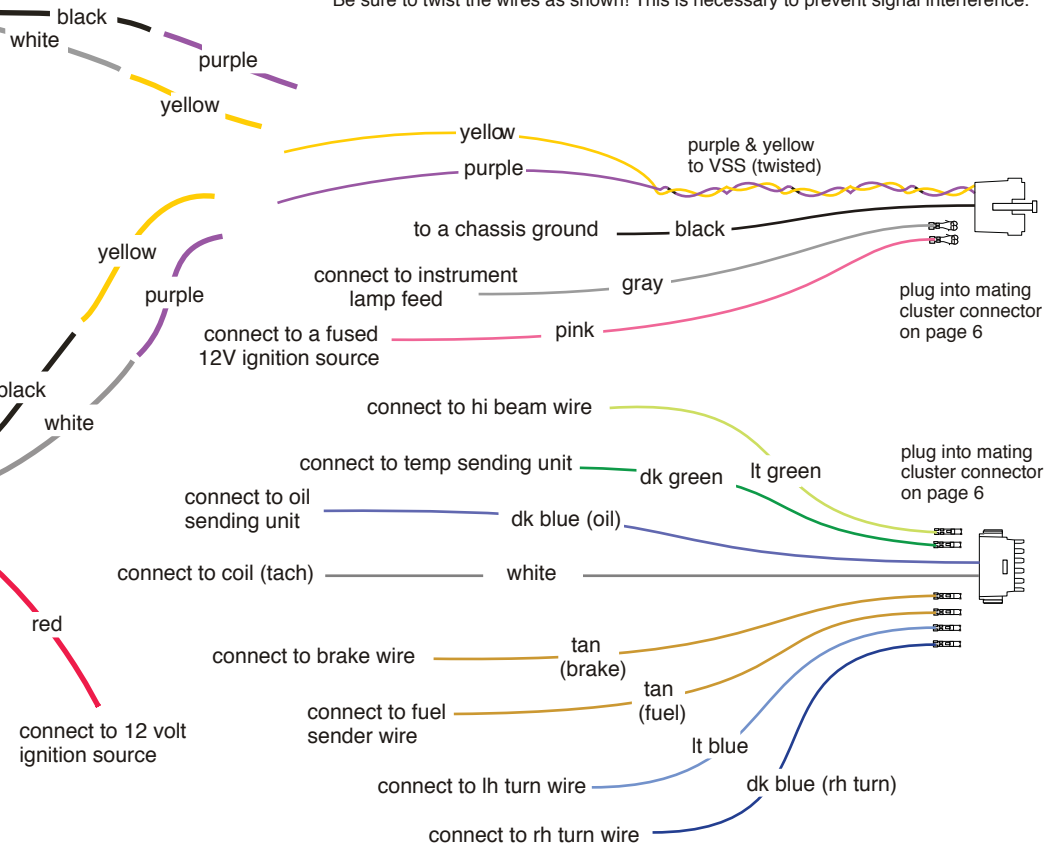


Typical 2 wire VSS connection



Typical 3 wire Autometer 5291 VSS connection

Note:
This VSS requires a lead wire from the red wire to a 12 volt ignition source. This wire is not included in the kit.



STEP 16: INSTRUMENT CLUSTER SIDE CONNECTIONS

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.

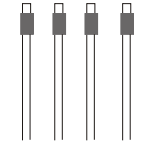
Using the enclosed PIN LOCATION chart, apply the appropriate terminal to your existing wires and plug into the supplied connector. There are empty cavities. Note: Empty cavities can be used for remaining wires from the original cluster connectors which are not used in this application. This will protect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

LONG BARE LEADS

lt green: connect to hi beam LED red lead
black: connect to hi beam LED black lead

lt blue: connect to LH turn LED red lead
black: connect to LH turn LED black lead

dk blue: connect to RH turn LED red lead
black: connect to RH turn LED black lead

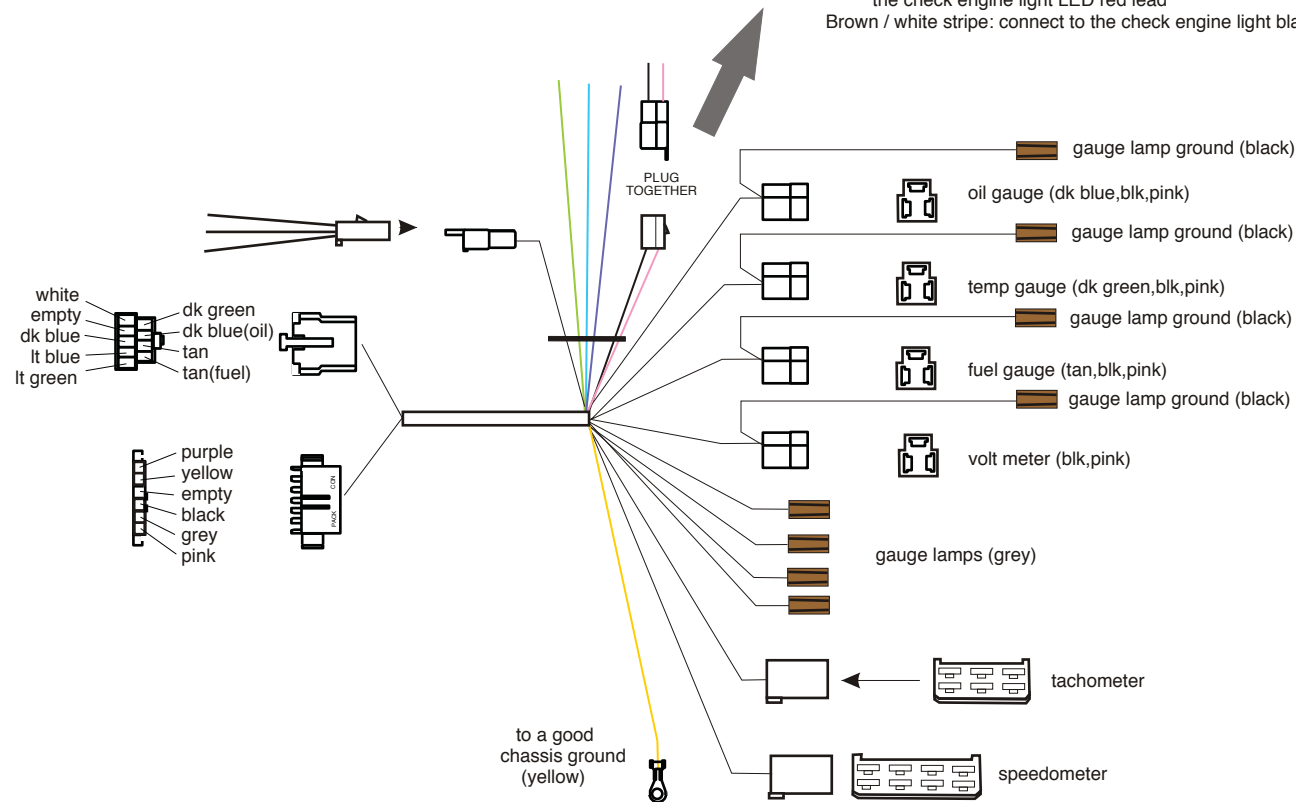


OPTIONAL

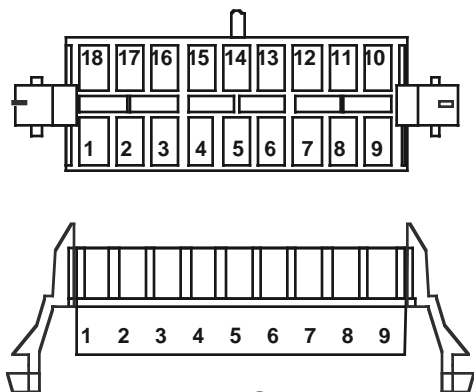
Tan: connect to the brake LED black lead

Pink: connect to the brake LED red lead and / or the check engine light LED red lead

Brown / white stripe: connect to the check engine light black lead



**Printed Circuit
Cluster Connector
Pin Locations
1978-80**



**Printed Circuit
Cluster Connector**

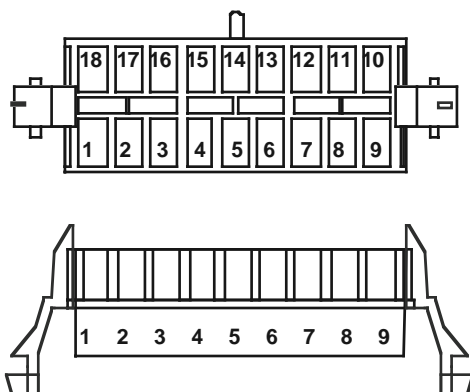
**DASH PRINTED CIRCUIT CONNECTOR PIN LOCATIONS
1978 - 80 "A" BODY (MALIBU)**

Circuit Number	Circuit Function	Wire Color	Factory Gauges	Warning Lights	Notes
			Pin Loc	Pin Loc	
40	12 Volt Fused Battery	Orange	18	1	
237	Seat Belt Warning Light	Yellow	13	2	
35	Coolant Temperature Sender	Dark Green	3	3	
39	12 Volt Ignition	Pink / black stripe	5	5	
30	Fuel Gauge Sender	Pink	4	6	
14	Left Turn Indicator	Light blue	6	7	
11	High Beam Indicator	Light Green	12	8	
8	Instrument Cluster Lights	Gray	5	9	
150	Ground	Black	9	12	
15	Right Turn Indicator	Dark Blue	8	13	
25	Alternator Charge Light	Brown		14	1
39	12 Volt Ignition	Pink / black stripe	16	15	
33	Brake Warning Light	Tan / white stripe	15	16	
31	Oil Pressure Sender	Tan	2	17	
8	Instrument Cluster Lights	Gray	18	18	
931	Choke Light	Dark Green / white stripe	14	2	
121	Tachometer Filter	White	17	3	

Notes:

1. Alternator charge light exists in warning light applications only. May not be present in all applications.
2. The choke heater light wire is present for some factory applications and depends on original equipment.
3. The tachometer connection branches from the cluster connector to a separate single contact female connector that mates with a separate teacometer harness.

**Printed Circuit
Cluster Connector
Pin Locations
1981**



**Printed Circuit
Cluster Connector**

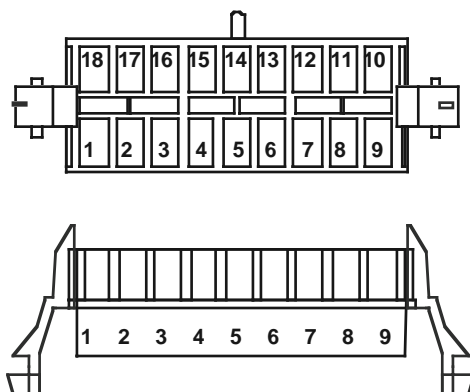
**DASH PRINTED CIRCUIT CONNECTOR PIN LOCATIONS
1981 "A" BODY (MALIBU)**

Circuit Number	Circuit Function	Wire Color	Factory Gauges		Warning Lights	
			Pin Loc	Notes	Pin Loc	Notes
25	Alternator Charge Light	Brown	1		14	1
31	Oil Pressure Sender	Tan	2		17	
35	Coolant Temperature Sender	Dark Green	3		3	
30	Fuel Gauge Sender	Pink	4		6	
8	Instrument Cluster Lights	Gray	5		9	
14	Left Turn Indicator	Light blue	6		7	
15	Right Turn Indicator	Dark Blue	8		13	
150	Ground	Black	9		12	
419	Check Engine Light	Brown / white stripe	10	2		2
39	12 Volt Ignition	Pink / black stripe	11	3	15	3
11	High Beam Indicator	Light Green	12		8	
237	Seat Belt Warning Light	Yellow	13		2	
931	Choke Light	Dark Green / white stripe	14	4		
33	Brake Warning Light	Tan / white stripe	15		16	
39	12 Volt Ignition	Pink / black stripe	16		5	
121	Tachometer Filter	White	17	5		
40	12 Volt Fused Battery	Orange	18		1	
8	Instrument Cluster Lights	Gray	5		18	

Notes:

1. Alternator charge light exists in warning light applications only. May not be present in all applications.
2. The check engine light wire exists in 1981 and up vehicles utilizing computer controlled engine management. Several applications utilize a separate check engine light that does not incorporate a lead wire in the cluster connector.
3. This 12 volt ignition wire exists in 1981 and up vehicles utilizing computer controlled engine management. This wire is present when the check engine light circuit 419 is included in the cluster connector.
4. The choke heater light wire is present for some factory applications and depends on original equipment.
5. The tachometer connection branches from the cluster connector to a separate single contact female connector that mates with a separate teacometer harness.

**Printed Circuit
Cluster Connector
Pin Locations
1978-87**



**Printed Circuit
Cluster Connector**

DASH PRINTED CIRCUIT CONNECTOR PIN LOCATIONS
1982 - 83 "G" BODY (MALIBU)
1978 - 87 "G" BODY (MONTE CARLO, EL CAMINO)

Circuit Number	Circuit Function	Wire Color	Factory Gauges		Warning Lights	
			Pin Loc	Notes	Pin Loc	Notes
25	Alternator Charge Light	Brown	1		1	1
31	Oil Pressure Sender	Tan	2		2	
35	Coolant Temperature Sender	Dark Green	3		3	
30	Fuel Gauge Sender	Pink	4		4	
8	Instrument Cluster Lights	Gray	5		5	
14	Left Turn Indicator	Light blue	6		6	
15	Right Turn Indicator	Dark Blue	8		8	
150	Ground	Black	9		9	
419	Check Engine Light	Brown / white stripe	10	2	10	2
489	Check Engine Light	Yellow	10	2	10	2
39	12 Volt Ignition	Pink / black stripe	11	3	11	3
11	High Beam Indicator	Light Green	12		12	
237	Seat Belt Warning Light	Yellow	13		13	
931	Choke Light	Dark Green / white stripe	14	4	14	4
33	Brake Warning Light	Tan / white stripe	15		15	
39	12 Volt Ignition	Pink / black stripe	16		16	
121	Tachometer Filter	White	17	5		
40	12 Volt Fused Battery	Orange	18		18	

Notes:

1. Alternator charge light exists in warning light applications only. May not be present in all applications.
2. The check engine light wire exists in 1981 and up vehicles utilizing computer controlled engine management. The wire color changes depending on original equipment and year of vehicle.
3. This 12 volt ignition wire exists in 1981 and up vehicles utilizing computer controlled engine management.
4. The choke heater light wire is present for some factory applications and depends on original equipment.
5. The tachometer connection branches from the cluster connector to a separate single contact female connector that mates with a separate tachometer harness.