

Customizing Custom Instruments

DESIGN A ONE-OFF GAUGE CLUSTER FOR YOUR RIDE.



The level of sophistication attained in automotive instrumentation has come a long way in the annals of history. According to the Merriam-Webster dictionary, the first known use of the term “idiot light” was in 1966, but we believe it must have been the first time the oil light came on right after some poor soul blew up the engine in his brand-new 1934 Hudson. That’s right, it was Hudson that first introduced idiot lights in place of real gauges and, unfortunately, it was a popular trend that found its way well into the muscle car era (and beyond).

Engine info-starved hot rodders retaliated by tacking on oil pressure, ammeter, and water temperature gauge clusters under the dashboard and strapped tachometers onto the steering column or atop the dash. The only problem was such retrofits were bulky. Tachometers obscured the speedometer and underdash gauge packs took the driver’s eye away from the road. Add an amateur’s untrained eye for design and customized dashboard styling ranged from pretty cool to exceptionally ugly.

The next phase in custom instrumentation was the entry of the aftermarket with professionally designed custom-made plug-and-play packages. The inclusion of ammeter gauges, whether factory installed or retrofitted, was discovered to be a high-amperage fire hazard and replaced with voltmeters. Well, that was then. Today, a car owner can easily find great looking instrument packages and gauge clusters that marry vintage dashboards with modern computerized drivetrains.

A good example of what’s available off-the-shelf in direct-fit, plug-and-play



custom gauge clusters comes from Classic Instruments, a Boyne City, Michigan, company that designs and manufactures completely in-house. For instance, Classic Instruments offers part number CV64A, a '64-'65 Chevelle package that includes a 140-mph speedometer; 8,000-rpm tachometer; and volt, fuel, oil pressure, and coolant temp quad gauges. On the end of the CV64A part number an N, T, or W suffix denotes style selection.

In the case of Ed Zinke and his '64 Chevelle Malibu convertible, the search for improved instrumentation began with installing an aftermarket factory-style tachometer. The addition of the tach to a stock cluster was a much-needed improvement, but retaining idiot lights accompanied with poorly





marked and dimly illuminated original gauges was unacceptable.

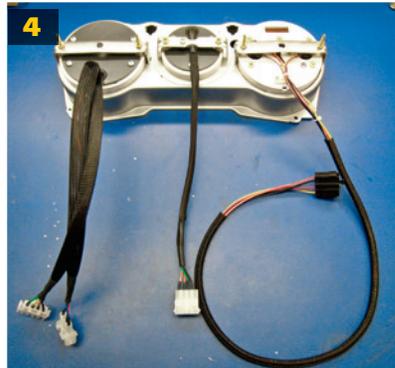
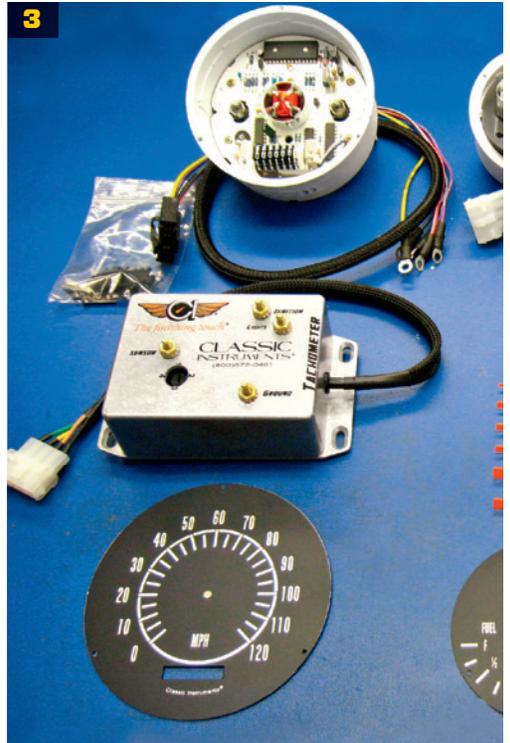
Ed decided to go all out and desired a custom-designed one-off instrument cluster that no one else had. Ed wanted the stock location, optional center-mounted tachometer moved to the right and equal in size to the speedometer as found on similar era Corvettes. Next, the fuel and engine monitoring gauges should be centered, and to closely maintain a factory appearance Ed desired the typeface should match a stock '64 Chevelle.

This is where the custom shop service offered by Classic Instruments entered the picture. Commissioning Classic Instruments to custom design and build an instrument cluster to one's exact desired specifications is a simple



01
The stock Chevelle Malibu instrument cluster is chock full of idiot lights and came with a clock. Even in the best condition, 1964 dial face illumination is dismal.

02
Classic Instruments utilizes a water jet to cut delicate aluminum dial face material to exact factory original dimensions. Note the perfectly formed odometer opening in the speedo dial face.

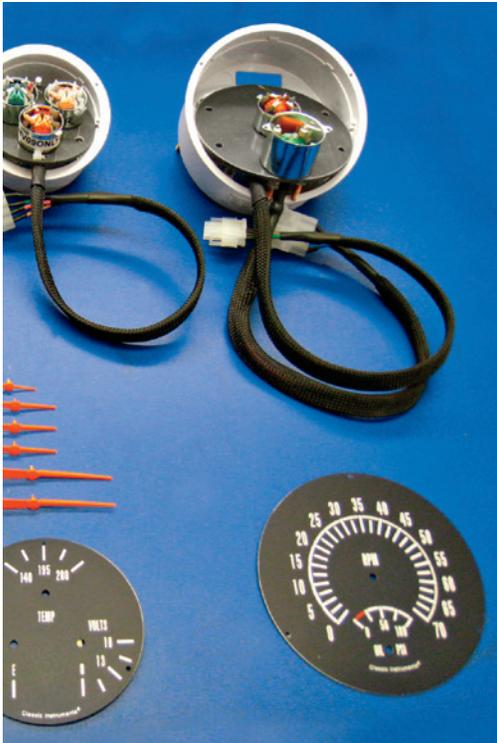


03

To get the gauges to this point of completion, several conversations have taken place between the car owner and Classic Instruments' designers/engineers.

04

The backside of the completed custom order Classic Instruments cluster reveals plugs that simplify connecting the gauge wiring to the car's main wiring harness. An electric speedometer replaces the Chevelle's original mechanical speedometer.



process that begins with downloading a buildsheet from Classic Instruments' website. Every design decision is covered in detail from specifying clock direction of the pointers for each gauge to the size and range desired.

For example, a person might prefer the pointers on the right side of cluster operate in a counter-clockwise direction and the driver-side one's clockwise. Range can mean 160 mph instead of 120, and a tachometer scale can be raised in its rpm reading. Special graphics might include anything from a custom typeface (font) and color to the image of one's favorite dog or cat on the dial faces. One feature all Classic Instrument packages have in common, whether Direct-Fit, or one-off custom, is brilliant illumination of the dial faces. Installation of a custom-ordered gauge package is accomplished by following the same procedures as installing any Classic Instruments cluster. *SB*



05
The cluster for Ed's Chevelle is unique due to its three-gauge arrangement in the center with the oil pressure gauge incorporated within the tachometer face. Ed considered a 160-mph speedometer, but it would have dictated smaller numerals.

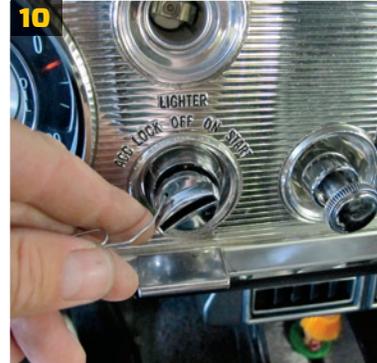
06
Removing the stock Chevelle gauge cluster starts with removing the speedometer cable from behind the speedometer then unscrewing all the screws retaining the bezel with a Phillips number two screwdriver.

07
Releasing the light switch knob is accomplished by depressing the spring-loaded button on the backside of the light switch, and pulling the knob (shaft) forward.

08
Next, snap ring pliers are inserted into the two slots of the right-hand threaded retainer, unscrewing it until the light switch can be removed from behind.



9



10



11

09

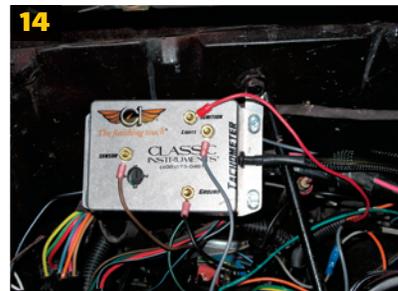
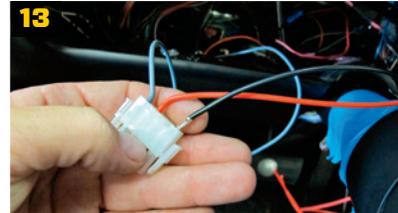
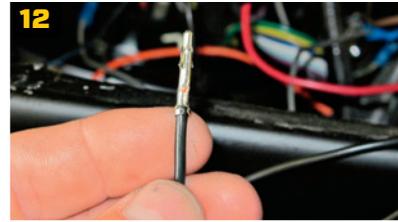
At left are the sending units for the coolant (water) temperature and oil pressure gauges. The box in between is the Sky Drive GPS unit. GPS speedometers are more accurate and eliminate dealing with the transmission or differential gearing.

10

Inserting the pointy end of a paper clip into the small hole on the key switch will release the lock cylinder from the switch, facilitating removal.

11

Good chassis ground: The gauge cluster ground strap harness (five leads) was connected to an existing steel brace connected to the firewall under the dashboard.

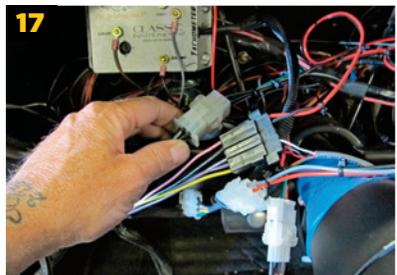


12
Similar to a Klein, an Eastwood crimping tool was used to crimp the pin connectors supplied with Classic Instruments installation kit.

13
The pin connectors push into the plug. Standardized fare, the red wire (positive) is constant power (+12VDC) and the black is negative ground. The light blue wire is the left turn indicator.

14
Classic Instruments' control box directs relaying 12-volt current and impulses to the tachometer and dash lights.

15
The stock '64 Chevelle cluster detached from the bezel housing and Classic Instruments' gauge cluster bolted directly to the existing mounting holes in the bezel.



16
A taste of Corvette styling, the owner specified that the tachometer and speedometer match in diameter and location. Notice that numbered increments replace the nebulous factory slashes for gauge readings.

17
The easiest way to install the gauge cluster was to bring it close enough to connect the electrical plugs by reaching through the dash and then reattach the cluster to the dashboard.

18
Do not use Teflon tape on the threads of any of the sending units as this will prevent establishing a good ground.



SOURCES:

Classic Instruments
844-342-8437
classicinstruments.com

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