

TPOC Tech Session to Install LED Gauge Lamps

By John Maloney

TPOC TECH SESSIONS - The Team Pantera Orange County (ocpanteras.com) chapter of POCA hosts at least one and sometimes two events every month plus a general membership meeting throughout the year. Two of the events each year are technical sessions, that address minor upgrades or maintenance of member Panteras. A recent TPOC tech session involved installing LED dash gauge lamps from Pantera Electronics (pantera-electronics.com) in place of the original Pantera incandescent dash lamps.

Recent TPOC tech sessions have been held at Rod and Phyllis Kunishige's lovely home in Huntington Beach. This is an ideal location for our tech sessions. It has a three car garage with alley access, many automotive tools, ample parking and a drive-on lift in one of the garage bays.

TPOC INTEREST IN THE LED GAUGE LAMPS - A presentation on the Pantera Electronics LED gauge lamps was made at a TPOC general membership meeting, two months prior to the tech session, to determine the membership level of interest in the LED dash gauge lamps. The presentation included a side by side 13.8 volt power-on comparison of two different light output incandescent lamps and two different color (white and hybrid green) Pantera Electronics LED lamps.

With adequate interest expressed, a group order was placed with Pantera Electronics for 11 sets (6 lamps in a set) of LED dash gauge lamps, 3 white and 8 hybrid green. Nine of the members bought them with the intent of installing the LED gauge lamps in their Pantera themselves. Two of the members opted to have their LED gauge amps installed at the tech session.

LED LAMP CHARACTERISTICS - The original Pantera dash light bulbs provide weak illumination for night time driving. Pantera Electronics sells LED gauge lamps that provide more than three times the emitted light of the original Pantera gauge lamps while drawing less than 1/2 the electrical current and with sixteen times the operating life. Pantera Electronics sells their LED gauge lamps as a set of six, in five colors; white, green, blue, hybrid green and hybrid blue. The hybrid LEDs have two white LEDs and two smaller green or blue LEDs. There are six Pantera dash gauges, each with a single T3-1/4 size lamp, that the TPOC tech session upgraded from incandescent to the Pantera Electronics LED lamps. Four in the center console (ammeter, fuel, engine temperature and engine oil pressure gauges), one in the speedometer and one in the tachometer.

The original gauge lamps in the Pantera are 3.7 Watt #194 incandescent miniature glass T3-1/4 wedge base bulbs that emit 25 lumens of light. Over the 44 plus years since many of our Panteras were new, many of the original gauge bulbs have been upgraded with 5 Watt #168 bulbs with 50% increased light output. The Pantera Electronics white LED is part number LGL-01 which draws 1.9 Watts of power and emits 100 lumens of light. The Pantera Electronics hybrid green LED is part number LGL-HG01 which draws 1.4 Watts of power and emits 90 lumens of light. The characteristics of four different Pantera dash lamps are compared in the following table.

T3-1/4 Lamp Description	Part Number	Electrical Power Draw (Watts)	Emitted Light (Lumens)	Lamp Life (Hours)
Incandescent Bulb	#194	3.7	25	2,500
Incandescent Bulb	#168	5.0	38	1,500
Pantera Electronics White LED	LGL-01	1.9	100	40,000
Pantera Electronics Hybrid Green LED	LGL-HG01	1.4	90	40,000

It can be seen from the table that the Pantera Electronics LEDs produce 3.6 to 4.0 times the emitted light of the original Pantera #194 incandescent bulb, while drawing roughly one half of the electrical power and lasting 16 times as long. At this time, the Pantera Electronics dash gauge LEDs lamps are the only LEDs that will fit in place of the T3-1/4 miniature bulbs.

INSTALLATION OF LED DASH GAUGES - Pantera Electronics ships an installation manual with each set of 6 LED dash gauge lamps. Also, it can be downloaded from their web site (pantera-electronics.com). The installation manual is very helpful and builds confidence that you can install the LEDs despite your inexperience as an automotive electrical technician.

The most important tip in the installation manual is probably how to ensure that the lamp socket has enough spring pressure to retain the LED gauge lamp. First disconnect the positive cable from the battery to avoid blow a fuse or even burning up certain of the wiring. "If the LED Gauge Lamp fits loose in the lamp socket use a small screw driver or small nail and push the contacts closer to each other. If the LED Gauge Lamp is installed loose it may fall out into the gauge and the gauge will have to be removed to dump out the LED Gauge Lamp. Then the installation will have to be repeated." This isn't too bad on the four center console gauges, but is a major setback for the tachometer and speedometer because they are difficult to remove and replace.

The TPOC tech session installed the LED gauge lamps in two Panteras. The first Pantera, a 1972 Pre-L serial number 3977, is owned by Judy McCartney and her son Brad Johnson. This Pantera has the dual cowl that mounts the tachometer and speedometer about 7 inches apart. The second Pantera, a 1974 L Pantera, serial number 5578, is owned by Rod and Phyllis Kunishige with the single cowl that mounts the tachometer and speedometer very close together.

Hybrid green LEDs were installed in both Panteras. The four LED dash gauge lamps in the center console are readably installable. In fact, this was performed by Brad Johnson and Rod Kunishige, the Pantera owners themselves. Removing the three thumbscrews that retain the center console to the dash, allows the center console to be moved outward from the dash enough to access the rear face of the four gauges with the wiring still in place. The lamp socket for each gauge is then removed from the gauge, the incandescent bulb is then removed from the socket, the lamp socket contacts are then moved closer together to provide enough spring pressure to properly retain the LED lamp, the LED lamp is pushed into the socket and the socket is reinstalled into the rear face of the gauge. After all four LED lamps are installed, temporally connect the positive battery cable to provide power. Turn on the dash lights and rotate the lamp socket back and forth through about 90 degrees to find the desired brightness and uniformity across the face of the gauge. At this point it will be seen that the four gauges are not illuminated the same. This is due to differences in the internal construction of the gauges.



Center Console Gauges Illuminated With Hybrid Green LEDs

Replacing the incandescent gauge lamps in the cowl mounted tachometer and speedometer with LED gauge lamps is more difficult and time consuming than those in the center console. Al Arakawa, a TPOC board member, installed the tachometer and speedometer LED lamps in both Panteras at the TPOC tech session. Al had some prior experience, since he successfully installed the Pantera Electronics white LEDs in his own Pantera, prior to the tech session. The gauge lamps are located on the rear face of the tachometer and speedometer at the 12 o'clock position. Therefore, it is helpful to loosen but not remove the thumb screws which allows rotating the tachometer and speedometer to lower the height of the lamps improving access as described in the Pantera Electronics installation manual. It is also helpful if not mandatory to remove the driver's seat to allow adequate access to the gauge lamps located on the back face of the tachometer and speedometer. It's a good idea to have a second person standing by to hand you tools and help pull you out of the "hole" in which you are laying, when you need a break or are done.



Al Arakawa Working on the Tachometer and Speedometer Gauge Lamps

With the dash gauge lamps in the tachometer and speedometer located at the 12 o'clock position in the gauge, the upper portions of these gauges are better illuminated than the lower

portions. The mileage and odometer portions of the speedometer are well illuminated. The photo of the hybrid green LED illuminated tachometer and speedometer in the dual cowl Pre-L-Pantera shows the improvement over the incandescent lamps.



Tachometer and Speedometer Gauges Illuminated with Hybrid Green LEDs

CONCLUSIONS - The TPOC tech session successfully installed the six Pantera Electronics dash LED lamps in two Panteras. It took about three hours per Pantera, the most time consuming portion being installing the LEDs in the tachometer and speedometer. The Pantera Electronics installation manual was very helpful. The few lessons learned are mentioned earlier.

Pantera Electronics is the only manufacturer of electronic technology designed exclusively for the de Tomaso Pantera. The dash gauge LED lamps are only one of their many products.

Thanks to Scott Couchman TPOC President and Jon Hass of Pantera Electronics for reviewing this article.

AUTHOR - John Maloney has owned his 1972 Pre-L Pantera serial number 3269 since July 1975. After 46 years, Pantera 3269 has only 35,000 miles on it. Following retirement as a Mechanical Engineer in 2012, John started the restoration of Pantera 3269, the major work being a bare metal prepared yellow pearl multi-stage paint job. The restoration approach has been to keep it original with the exception of certain upgrade items such as LED gauge lamps, leather seats, steel braided brake hoses and big bore headers.