

# Interchanges

Grote Part Number	Industry Standard Bulb Number	Color	Wattage	Bulb Cross Reference	Applications
94751-4	194	White	1.2W	194, W5W, W3W, 147, 152, 158, 159, 161, 168, 184, 192, 259, 280, 285, 447, 464, 501, 555, 558, 585, 655, 656, 657, 1250, 1251, 1252, 2450, 2652, 2821, 2921, 2825	Side marker, dome light, step light, trunk light, glove box, side repeater, license plate light
94752-4		Red			
94753-4		Amber			
94791-4	1156	White	4.8W	1156, 1073, 1093, 1129, 1141, 1159, 1295, 1459, 1619, 1651, 1680, 7506, 7527, 1195, 3296, 3497, Ba15s	Front/rear turn signal, tail light, brake light, reverse light
94793-4	1156NA	Amber			
94811-4	1157	White	4.8W	1157, 1016, 1034, 1075, 1130, 1154, 1158, 1493, 2057, 2357, 2397, 7528, P21, Bay15d	Front/rear turn signal, tail light, brake light
94812-4		Red			
94831-4	3156	White	4.8W	3156, 3456, 4156	Front/rear turn signal, tail light, brake light, reverse light
94851-4	3157	White			
94852-4		Red			
94853-4	3157NA	Amber			
94881-4	7440	White	4.8W	7440, 7441, 992	Front/rear turn signal, tail light, brake light, reverse light
94891-4	7443	White			
94871-5	3175	White	1.44W	3175, 3022, 3021, 6428, 6430, 7065	Step light, dome light, map light, license plate light
94781-5	212	White			
94761-5	194	White	2W	194, W5W, W3W, 147, 152, 158, 159, 161, 168, 184, 192, 259, 280, 285, 447, 464, 501, 555, 558, 585, 655, 656, 657, 1250, 1251, 1252, 2450, 2652, 2821, 2921, 2825	Side marker, dome light, step light, trunk light, glove box, side repeater, license plate light
94801-5	1156	White			
94821-5	1157	White	16W	1157, 1016, 1034, 1075, 1130, 1154, 1158, 1493, 2057, 2357, 2397, 7528, P21, Bay15d	Front/rear turn signal, tail light, brake light
94820-5		White/Amber			
94841-5	3156	White	16W	3156, 3456, 4156	Front/rear turn signal, tail light, brake light, reverse light
94861-5	3157	White			
94860-5		White/Amber			
94771-5	211	White	2W	211, 211-2	Step light, dome light, map light, license plate light
94900-5	N/A	N/A			
			N/A	N/A	Prevent "bulb out" error messages for certain applications

LED BULB REPLACEMENTS

# Grote LED Bulb Replacements

STEP UP TO THE EFFICIENCY AND RELIABILITY OF LED LIGHTING



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Display 00110  
(fully loaded)

# Replacement LED Bulbs Available for Most Popular 12V Lighting Applications

Replace your standard incandescent light bulbs with Grote's LED bulbs and you may never have to replace them again. Perfect for interior courtesy lights or exterior lights for "Off-Road" or "Show Vehicle" usage.



## Try Me Feature

- "Place anywhere" merchandising display includes innovative solar powered "Try Me" feature.
- Each individual LED bulb package has socket and metal contacts.
- Touch the back of the package to the header and press the button to see one bulb illuminated.

# Grote Program Advantages

Grote Program Advantages	Grote	Sylvania	Philips	Pilot	Putco	Street Glow	Jam Strait
Complete LED program, including ultra-high brightness and high brightness offerings	X				X	X	X
40-50% more LEDs per bulb in most applications. More LEDs = brighter bulbs	X						
High power bulbs feature LEDs from leading LED manufacturer	X	X	X		X		
Packaging with smallest footprint possible maximizes space for more SKUs	X					X	
Innovative display packaging utilizing "Try Me" feature with solar technology	X						
Environmentally friendly product packaging- no batteries inside	X	X	X		X	X	X
From the leader in Automotive LED innovation	X						
"Load Equalizer" technology. Bulbs will not cause "bulb out" error in most applications	X			X			X
Best value product for consumer	X						

## CANbus Load Equalizer

- CANbus is a vehicle communication standard designed to allow microcontrollers and devices to communicate with each other within a vehicle, without a host computer.
- A vehicle's bulb detection system uses current draw to determine if a bulb is functioning. The vehicle's on-board computer reads that the current used was below the normal threshold and triggers a "bulb out" warning. Halogen bulbs draw up to 1A of current. Equivalent LED draws only 0.30A.
- Current draw threshold levels vary between manufacturers, models, and even model years.



## "BULB OUT" WARNING SOLUTION

- Various vehicles were tested to determine the current draw threshold. It was determined that the "average" threshold is 0.65A of current draw at 13.8V.
- The test concluded that a bulb with 0.50-0.52A was the maximum allowable amount of current draw without compromising the life of the LEDs. This design is now exclusively on these bulbs.
- In the event that a vehicle's current draw threshold is higher than that of the LED bulb, a Load Equalizer will need to be used.
- Grote provides a Load Equalizer that creates a 2.5A draw on the circuit, which is higher than the current draw of any halogen mini bulb. The addition of the Load Equalizer will completely eliminate the "bulb out" warning.

## "BULB OUT" TECHNOLOGY IS AVAILABLE ON THE FOLLOWING BULBS:

- 94791-4
- 94793-4
- 94811-4
- 94812-4
- 94831-4
- 94851-4
- 94852-4
- 94853-4
- 94881-4
- 94891-4