



## **SERVICE BULLETIN NO. SB-17-009**

Issue Date: 10/01/01

**SUBJECT: Grote Fluorescent Dome Light Informational Bulletin**

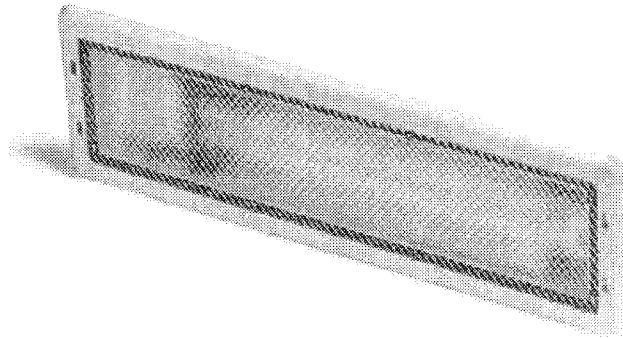
Grote has released the following the following Technical Tips bulletin on Fluorescent Dome lamp voltage requirements.

Any questions regarding this service bulletin should be directed to Utility's Field Service Department at 800-423-6591.

**Field Service Department  
UTILITY TRAILER MANUFACTURING COMPANY**

# GROTE TECHNICAL TIPS

## Fluorescent Dome Lamp Voltage Requirements



Until now, interior trailer lighting normally consisted of a string of incandescent dome lamps. While providing an inadequate amount of illumination for the electrical power consumed, this type of lighting fell short of meeting the needs of those operators working inside the trailer. In an effort to greatly improve the quality and amount of lighting within the trailer, Grote developed a fluorescent dome lamp, which provides maximum lighting capability at significantly reduced current draws. Fluorescent dome lamps typically produce 72 lumens/watt (5.73cp/w) of light output, compared to a typical incandescent dome lamp, which provides 17.5 lumens/watt (1.4cp/w) of light output.

Because of the significant light output capability of the fluorescent dome lamp in comparison to incandescent lamps (4:1 ratio), the number of dome lamps required in the interior of a trailer is greatly reduced. The basic rule of thumb is that 1 fluorescent dome lamp will replace 3 incandescent lamps. Grote recommends that a maximum of 4 dome lamps be used in any trailer application irrelevant of trailer length (Appendix A, Dome Lamp Outputs/ Incandescent lamp vs. Fluorescent lamp).

Another very important difference between a fluorescent dome lamp and an incandescent lamp is that the fluorescent dome lamp is controlled by an internal electronic ballast which requires a minimum voltage of 10.0 volts and a maximum of 14.0 volts to operate properly. Unlike an incandescent lamp, which will only "dim" if insufficient voltage is applied to its input, a fluorescent dome lamp not receiving sufficient voltage at its input (10.0 volts and greater) will not light properly and will cause the fluorescent tube to prematurely "burn out". The lack of proper operating voltage to the fluorescent dome lamp is due to excessive voltage drops within the electrical system feeding the lamps.

**Some precautions that need to be taken to ensure maximum supply voltage at the nose box of the trailer (Blue Auxiliary Circuit) are as follows:**

- The tractor battery and charging system must be maintained to deliver the maximum amount of voltage to the electrical circuits in the trailer. Grote has found that a 4 battery electrical system utilized in the tractor typically provides sufficient voltage to power the dome lamp circuits in the trailer.

continued on next page



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- A good quality “green” ABS coil cord needs to be used in tractor-trailer electrical system connections where the trailer has a fluorescent dome lamp system employed. The green coil cord must have an 8 gauge ground wire, and a 10 gauge Blue wire (Auxiliary circuit).
- The trailer “nose box” male terminals must be free of debris and any corrosion.
- The minimum voltage at the rear of the trailer “nose box” must be 11.5 volts or greater (under full load conditions, fluorescent dome lamp circuit switched on) for the fluorescent dome lamp system to function properly. This will help ensure that the voltage being supplied to any one fluorescent dome lamp in the circuit is greater than the minimum 10.0 volts necessary to operate the lamps properly.
- The period of time that the trailer fluorescent dome lamps are operating without the tractor engine on must be limited, to reduce the drain on the tractor batteries.
- As a rule, the maximum number of fluorescent dome lamps in simultaneous operation is 4. Having more than 4 lamps requires a detailed understanding of the trailers electrical system and power delivery capability. If more than 4 lamps are necessary, it will be compulsory to power the lamps via a second separate feed circuit. Under this circumstance only 4 lamps may be ON at any single time. All lamps need a minimum of 10 volts.
- In order to conserve electrical power, unused fluorescent dome lamps should be switched off.
- The fluorescent dome lamps produced after January 01, 2001 have an internal 3 ampere fuse, any replacement fuse must be 3 ampere.
- The fluorescent dome lamp is water resistant, however any direct water or cleaning spray must be avoided as moisture contamination has the potential of causing electrical shorts. Operating the lamps in this condition can cause high voltage shorts in the socket which would in turn damage the fluorescent ballast.
- The lamp should not be operated with the fluorescent tube out of its socket or the fixture lens off. Operating the lamps in this condition can damage the fluorescent ballast.
- The minimum operating temperature of the fluorescent lamp system is -17°C (0°F).
- A minimum of 6 inches of spacing between any cargo and the fluorescent dome lamp is recommended for adequate airflow between lamp and cargo.
- If the fluorescent lamp is experiencing start up problems, “flickering” of the fluorescent tube, this may be an indication of voltage drop or poor ground connections. If after the voltage at the rear of the nose box has been checked and found to be 11.5 volts or greater and the condition still persists, then the input power connection to the lamp must be checked to ensure 10.0 volts or greater (dome lamp input voltage must be checked with the dome lamp circuit on). The ground wire connection from the fluorescent fixture must also be checked to ensure there is a “good” solid ground connection.
- Dome lamp switches may contribute to voltage drop issues and these must be checked to ensure that they are functioning properly and that the terminals are not corroded.
- Grote has a full line of power delivery and electronic switching devices that are engineered to provide years of trouble free service. Customer satisfaction is guaranteed when these products are used in conjunction with Grote’s Fluorescent Dome Lamp. Go to [www.Grote.com](http://www.Grote.com) to see these products and many more in Grote’s on-line catalogue.

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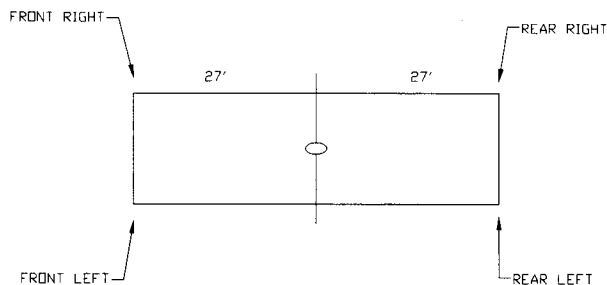
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**Measurements Are In Lux**  
**Trailer Dimensions: 8 Feet X 54 Feet**

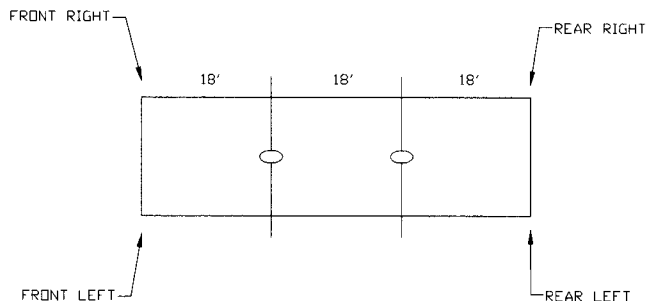
**One Lamp**

Incandescent		Fluorescent	
Front Left	0.057	Front Left	0.500
Front Right	0.060	Front Right	0.498
Center	50.540	Center	30.880
Rear Left	0.066	Rear Left	0.518
Rear Right	0.590	Rear Right	.523



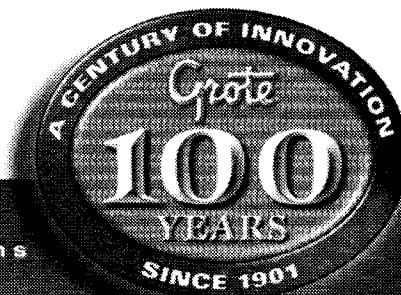
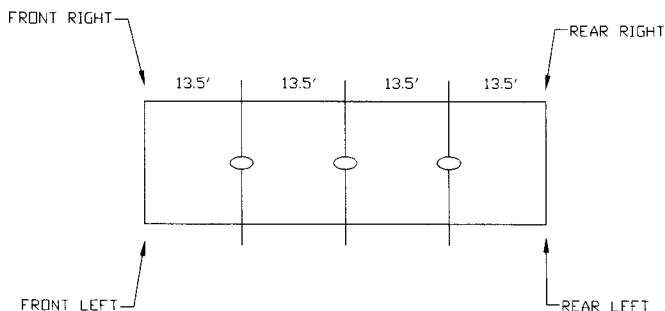
**Two Lamps**

Incandescent		Fluorescent	
Front Left	0.242	Front Left	1.153
Front Right	0.251	Front Right	1.341
Center	4.040	Center	21.420
Rear Left	0.251	Rear Left	1.341
Rear Right	0.242	Rear Right	1.153



**Three Lamps**

Incandescent	Fluorescent	Incandescent	Fluorescent
Front Left	0.502	Front Left	2.605
Front Right	0.522	Front Right	2.892
Center	52.090	Center	34.600
Rear Left	0.522	Rear Left	2.892
Rear Right	0.502	Rear Right	2.605



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## Recessed Fluorescent Dome Lamp Warranty

Grote Industries warrants the Recessed Fluorescent Dome Lamp to be free from defects in material and workmanship under normal use and service for a period of two years. The repair or replacement shall be at the exclusive remedy under this warranty and Grote Industries shall not be responsible for any costs or expenses incidental thereto, including but not limited to transportation, freight and postage.

This warranty specifically excludes failure of fluorescent tubes and labor. Grote shall not be liable for incidental or consequential damages, including but not limited to: loss of use of vehicle, rental of substitute, loss of time, loss of work, inconvenience, transportation expenses, telephone, lodging, loss of revenue, loss of and/or damage to personal property for or arising out of breach of any express or implied warranty.

### Warranty Return and Replacement Instructions

To be eligible for limited warranty consideration, either contact your Grote sales representative or call Grote customer service at 800.628.0809 (In Canada call 800.268.5612). Upon issuance of a returned goods authorization number, return the failed product, freight prepaid to Warranty at Grote Industries Inc., 2600 Lanier Drive, Madison Indiana 47250. In Canada, return the product to Warranty at Grote Industries Co., 393 Nugget Ave., Toronto M1S 4G3. Any product under the terms of the respective limited warranty will be replaced directly to the original consumer/purchaser only. Items received by Grote will not be returned unless accompanied by a specific written request. The product to be returned will be those items not covered under the warranty and will be returned to sender freight collect.



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# Fluorescent Lamp Decal Application

A copy of the decal that will be applied on the outside front wall of the trailer is included with this mailing. For proper adhesion, the surface of the trailer should be clean from grease and road grime prior to the application of the decal.

## Attention

- The Fluorescent Lamp requires a supply voltage of 10.0 volts minimum and 14.0 volts maximum at the lamp input wires when lamps are ON (at full load). If premature lamp failure occurs, check lamp supply voltage.
- During deliveries, the lamps must have the required voltage at their inputs of 10.0 volts minimum and 14.0 volts maximum to operate properly.
- It is recommended that a Green ABS coil cord with an 8 gauge ground wire, and a 10 gauge Blue wire be utilized, if fluorescent dome lamps are used.
- Dome lamp circuit must be OFF, prior to moving the trailer.
- The maximum number of Fluorescent Dome Lamps that can be on at any one time is 4.
- Dome Lamp internal fuse must be 3 amps maximum.
- Cargo must not be stacked up to the lamps. A distance of 6 inches should be left.

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# GROTE FIELD MANAGERS

## Technical Hot Line for Emergencies

### Dave Kendall

Warranty Administrator  
(800) 628-0809 X-278

## Arizona

### Tom Hillegas

Field Sales Manager  
Bus: (928) 474-6472  
Mobile: (982) 978-2716

## California

### Ray Sterck

OEM Sales Manager  
Bus: (714) 524-9267  
Mobile: (314) 409-6202

### Scott Steinhardt

Western Regional Manager  
Bus: (310) 545-9023  
Mobile: (949) 636-4216

### Mark Matas

Field Sales Manager  
Bus: (949) 631-5952  
Mobile: (714) 697-7015

### Michael Turner

Field Sales Manager  
Bus: (916) 645-6060

## Florida

### Mac McKinley

Field Sales Manager  
Bus: (813) 653-9323  
Mobile: (813) 230-6399

## Georgia

### Paul Forrester

Field Sales Manager  
Bus: (706) 348-1355  
Mobile: (770) 354-6815

## Illinois

### Weldon Angelo

Field Sales Manager  
Bus: (618) 931-8760  
Mobile: (618) 406-6189

### Bob Russell

Field Sales Manager  
Bus: (630) 653-7361  
Mobile: (630) 624-5968

## Indiana

### Dean Metzger

OEM Sales Manager  
Mobile: 409-6204

### Jack Ison

OEM Sales Manager  
Bus: (812) 265-8408  
Mobile: (314) 409-6200

### Steve Field

Field Sales Manager  
Mobile: (317) 432-5275

## Massachusetts

### PJ McGinnis

Eastern Regional Manager  
Bus: (978) 263-2429  
Mobile: (508) 878-0416

## Missouri

### Mike Grote

National Fleet Manager  
Mobile (314) 409-6199

### Steve Fox

Field Sales Manager  
Bus: (816) 525-1441  
Mobile: (816) 695-7829

## North Carolina

### Bill Bates

Field Sales Manager  
Bus: (336) 292-8605  
Mobile: (336) 210-9158

## Nebraska

### John Nolan

Field Sales Manager  
Bus: (402) 571-0890  
Mobile: (314) 409-6197

## New York

### Brant Schneider

Field Sales Manager  
Bus: (315) 636-7884  
Mobile: (315) 427-0394

## Ohio

### Mike Lane

Central Regional Manager  
Bus: (330) 725-2119  
Mobile: (314) 409-6198

### Nan Brewer

Field Sales Manager  
Bus: (740) 392-4834  
Mobile: (740) 501-1277

## Oregon

### Kelby Ridenour

OEM Sales Manager  
Mobile: (503) 720-0272

## Rhode Island

### Brian Ryder

Field Sales Manager  
Bus: (401) 334-1867  
Mobile: (401) 965-6620

## Tennessee

### Page Large

OEM Sales Manager  
Mobile: (615) 828-2389

### Ron Buyers

Field Sales Manager  
Bus: (931) 433-1792  
Mobile: (901) 606-5824

## Texas

### Mark Blackford

Southern Regional Manager  
Bus: (972) 317-7253  
Mobile: (214) 695-4312

### Bruce Davis

National Accounts Sales Manager  
Bus: (972) 296-6161  
Mobile: (972) 567-6518

### Tab Brede

Field Sales Manager  
Bus: (972) 390-7342  
Mobile: (972) 489-9135

### Bob Latham

Field Sales Manager  
Bus: (281) 479-5754  
Mobile: (281) 455-9650

## Virginia

### Shelton Shepherd

OEM Sales Manager  
Mobile: (314) 409-6203



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