Philips LED 321521

Philips 321521 90-watt T15 SOX90 Low Pressure Sodium HID Light Bulb User Manual

Model: 321521 | Brand: Philips LED

1. Product Overview

The Philips 321521 90-watt T15 SOX90 Low Pressure Sodium (LPS) High-Intensity Discharge (HID) light bulb is engineered for high energy efficiency in both indoor and outdoor lighting applications. This specialized bulb emits a monochromatic yellow light, characteristic of LPS technology, making it suitable for environments where color rendering is not critical but high visibility and energy efficiency are paramount.

It features a robust design, including a vibration-resistant arc tube support system, providing enhanced durability against shock and vibration. This makes it an ideal lighting solution for demanding environments such as roadways, bridges, tunnels, security lighting, area flood lighting, railway crossings, and airport lighting.



Image 1.1: The Philips 321521 90-watt T15 SOX90 Low Pressure Sodium HID Light Bulb, showcasing its elongated glass envelope and bayonet base.

Key Features:

- **High Energy Efficiency:** Designed to provide significant light output with low power consumption.
- **Long Life:** Offers an average operational life of up to 18,000 hours, reducing the frequency of replacements.
- **Vibration Resistant:** Equipped with a rough service arc tube support system for enhanced durability in challenging conditions.
- **Standard Base:** Features a T-21 shape with a D.C. Bayonet Base (BY22D) for compatibility with appropriate fixtures.
- **Flexible Operating Position:** Can be operated horizontally with a tolerance of +/- 20 degrees.

2. Specifications

Detailed technical specifications for the Philips 321521 90-watt T15 SOX90 Low Pressure Sodium HID Light Bulb are provided below:

Attribute	Value
Brand	Philips LED
Model Number	321521
Wattage	90 watts
Voltage	112 Volts
Brightness	12155 Lumens (initial)
Color Temperature	1800 Kelvin (monochromatic yellow)
Bulb Shape Size	T21
Bulb Base	BY22D (D.C. Bayonet Base)
Average Life	18,000 Hours
Product Dimensions	20.79"W x 2.6"H (approximate)
Item Weight	1.06 pounds
Indoor/Outdoor Usage	Indoor, Outdoor
Light Source Type	HID (High-Intensity Discharge)



Image 2.1: A general color temperature chart illustrating the spectrum from warm (lower Kelvin) to cool (higher Kelvin). The Philips SOX90 bulb operates at 1800 Kelvin, producing a distinct monochromatic yellow light.

3. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your Philips SOX90 HID light bulb. Always ensure power is disconnected before beginning any installation or maintenance.

Safety Precautions:

- **Disconnect Power:** Always turn off the power supply to the fixture at the circuit breaker before installing or replacing the bulb.
- **Allow Cooling:** If replacing an existing bulb, allow it to cool completely before handling. HID bulbs can reach very high temperatures.
- **Wear Protective Gear:** Use gloves to avoid transferring oils from your skin to the bulb's glass, which can cause hot spots and reduce bulb life. Safety glasses are also recommended.
- **Handle with Care:** HID bulbs are fragile. Avoid dropping or subjecting them to impact.
- **Proper Fixture:** Ensure the fixture is designed for Low Pressure Sodium (LPS) HID bulbs of the correct wattage and voltage (90W, 112V) and has a compatible BY22D base. An appropriate ballast is required for operation.

Installation Steps:

1. Verify that the power to the lighting fixture is off.
2. Carefully remove the old bulb from the fixture, if applicable.
3. Align the BY22D base of the new Philips SOX90 bulb with the socket in the fixture.
4. Gently insert the bulb into the socket and twist or push as required by the fixture's design to secure it. Do not overtighten.
5. Ensure the bulb is seated firmly and correctly in the socket.
6. Once the bulb is securely installed, restore power to the fixture at the circuit breaker.

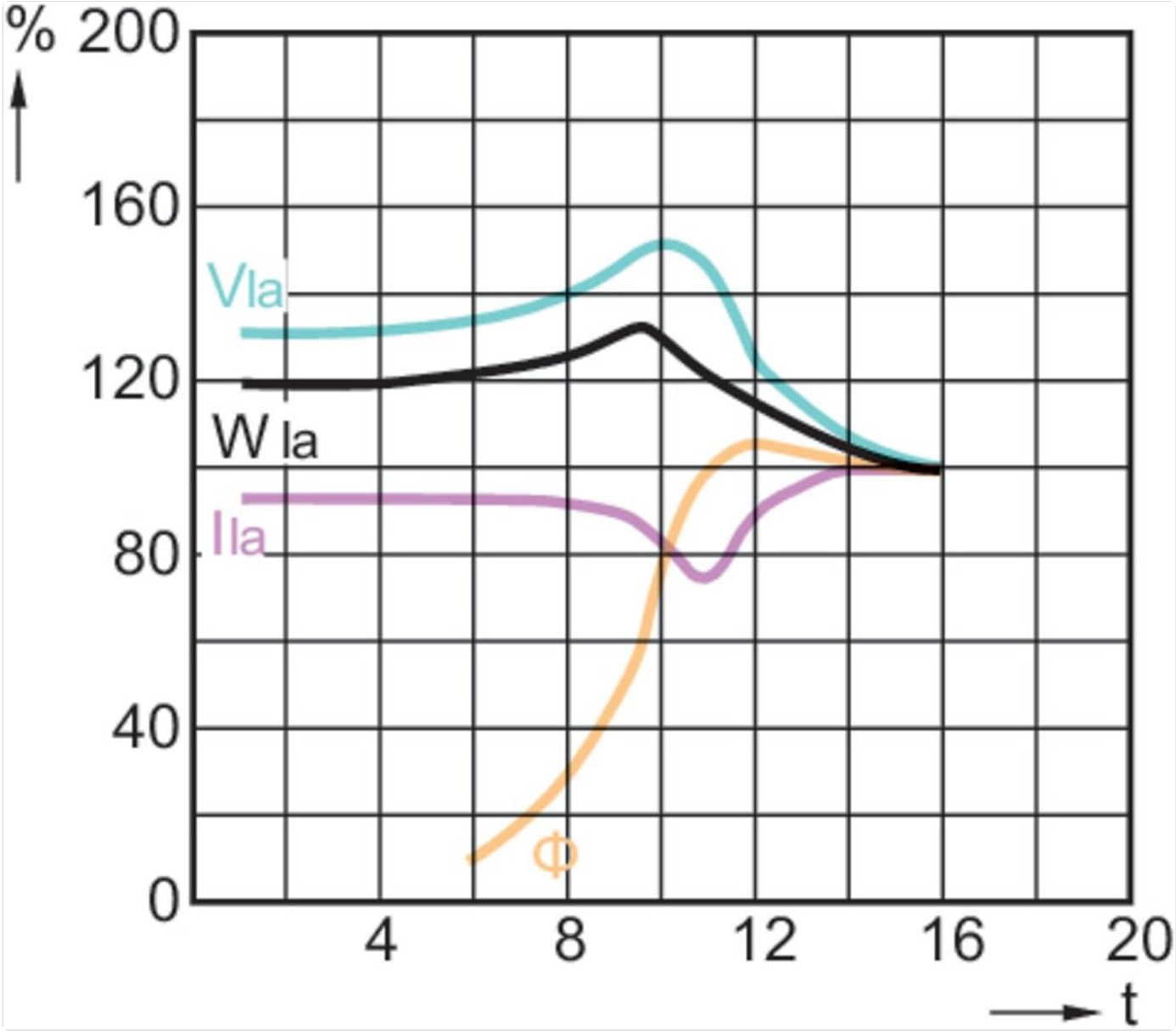


Image 3.1: Close-up view of the Philips SOX90 bulb's BY22D bayonet base, illustrating the connection points for proper installation into a compatible fixture.

4. Operating Instructions

The Philips SOX90 Low Pressure Sodium HID bulb requires a specific warm-up period to reach full brightness and stable operation. Understanding its operational characteristics is key to maximizing its performance and lifespan.

Initial Start-up and Warm-up:

- Upon initial power-up, the bulb will emit a faint glow and gradually increase in brightness.
- Low Pressure Sodium lamps typically take several minutes to reach full light output and stable color. During this warm-up phase, the light color will transition to its characteristic monochromatic yellow.

- Avoid cycling the power (turning off and on rapidly) during the warm-up period, as this can shorten the bulb's lifespan.

Operating Position:

- This bulb is designed for horizontal operation with a tolerance of +/- 20 degrees. Operating outside this range may affect performance and lifespan.

Performance Over Time:

The light output of HID lamps, including LPS bulbs, gradually decreases over their operational life. The graph below illustrates a typical lumen maintenance curve for this type of bulb, showing the percentage of initial light output remaining over burning hours.

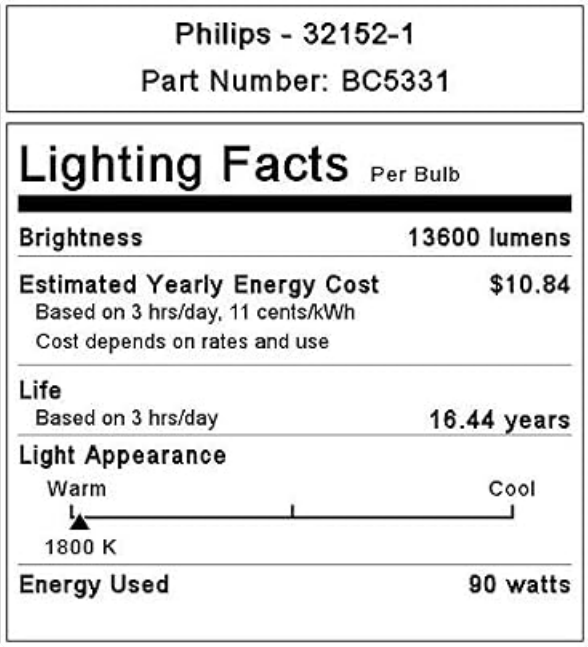


Image 4.1: Graph depicting the typical light output degradation of a Low Pressure Sodium lamp over its burning hours. The Y-axis represents light output as a percentage of total installation, and the X-axis represents burning hours, indicating a gradual decrease in brightness over time.

5. Maintenance

Regular maintenance helps ensure optimal performance and extends the life of your Philips SOX90 light bulb and fixture.

Cleaning:

- **Fixture Cleaning:** Periodically clean the exterior of the lighting fixture to remove dust, dirt, and debris that can accumulate and reduce light output. Use a soft, damp cloth.
- **Bulb Cleaning:** If the bulb itself becomes dirty, ensure the power is off and the bulb is cool. Gently wipe the glass envelope with a clean, dry, lint-free cloth. Avoid using abrasive cleaners or excessive moisture.

Replacement:

- Replace the bulb when it reaches the end of its rated life (approximately 18,000 hours) or when light output significantly diminishes.
- Follow the "Setup and Installation" safety precautions and steps when replacing the bulb.
- Always replace with a bulb of the same type and wattage (Philips 90-watt T15 SOX90) to ensure compatibility with the existing ballast and fixture.

6. Troubleshooting

If your Philips SOX90 light bulb is not functioning as expected, consult the following troubleshooting guide:

Problem	Possible Cause	Solution
Bulb does not light up	No power to fixture, loose bulb, faulty ballast, expired bulb.	Check circuit breaker. Ensure bulb is securely seated. Consult an electrician to check ballast. Replace bulb if at end of life.
Bulb flickers or cycles on/off	Incorrect voltage, failing ballast, bulb nearing end of life.	Verify correct voltage supply. Consult an electrician to check/replace ballast. Replace bulb.
Low light output	Bulb nearing end of life, dirty bulb/fixture, incorrect ballast.	Replace bulb. Clean bulb and fixture. Ensure ballast matches bulb specifications.
Bulb takes too long to warm up	Cold ambient temperature, aging bulb, ballast issue.	Normal for HID bulbs, especially in cold. Replace bulb if excessively slow. Consult electrician for ballast check.

If issues persist after attempting these solutions, it is recommended to consult a qualified electrician or lighting professional.

7. Safety Information and Disposal

Adhering to safety guidelines is paramount when handling and disposing of HID light bulbs.

General Safety:

- Do not operate the bulb without a suitable ballast.
- Ensure the fixture provides adequate ventilation to prevent overheating.
- Avoid direct eye exposure to the operating bulb, as the intense light can be harmful.
- Do not use in dimming circuits unless explicitly stated as compatible by the manufacturer.

Disposal:

Low Pressure Sodium lamps contain a small amount of sodium, which is a reactive metal. While generally considered safe in intact bulbs, proper disposal is important.

- Do not dispose of spent bulbs in regular household waste.
- Contact your local waste management authority or recycling center for information on proper disposal or recycling of HID lamps in your area.
- Some regions may have specific regulations for the disposal of lamps containing certain materials.

8. Warranty and Support

For specific warranty information regarding your Philips 321521 90-watt T15 SOX90 Low Pressure Sodium HID Light Bulb, please refer to the documentation provided with your purchase or visit the official Philips Lighting website. Warranty terms typically cover manufacturing defects for a specified period.

For technical support, product inquiries, or to report an issue, please contact Philips customer service or visit their support portal. Contact information can usually be found on the product packaging or the Philips Lighting official website.

Manufacturer: Philips Lighting
Brand: Philips LED
Model: 321521

© 2023 Philips Lighting. All rights reserved. Information subject to change without notice.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question