

TECHNICAL - HID LAMP/BALLAST FAULT FINDING CHART



First identify the type of problem, then test for the cause by following the numerical sequence shown. (ie: 1, then 2, etc).

PROBLEM	LAMP TYPE	CIRCUIT TYPE	A	B	C	D	E	F	G	H	I
			End of lamp life	Incorrect type of lamp	New lamp not yet run in properly	Mains supply current capacity	Mains supply voltage dips	Photo-control switching incorrectly	Ballast failed	Capacitor failed	Ignitor failed
Lamps won't start - single luminaires	MV MH	Reactor Reactor CWA	1	5						5	
	HPS	Reactor CWA	1	6						7	
Lamps won't start - groups of luminaires (or brand new installations)	MV MH	Reactor Reactor CWA		1							
	HPS	Reactor CWA		1							
Lamps cycling on and off - single luminaires	MV MH	Reactor Reactor CWA	3								
	HPS	Reactor CWA	1								
Lamps cycling on and off - groups of luminaires	MV MH	Reactor Reactor CWA		1							
	HPS	Reactor CWA		1							
Different lamp colours	MV MH HPS		2 2	1 1	3		4				

A: END OF LAMP LIFE At the end of a lamp's life, the voltage requirements exceed the output ability of the ballast. The usual failure mode for Mercury lamps is low light output, followed by failure to start. For Metal Halide and Sodium, imminent failure causes low or varying light levels, colour shifts, and lamp instability (cycling on and off). It should be understood that in the early stages of failure, the lamp may operate for many hours before cycling "off" - the "on" period steadily decreases until the lamp fails completely. Cycling lamps should be replaced immediately to prevent ballast or ignitor damage.

B: INCORRECT LAMP Lamp's wattage, lamp voltage and current, burning position and type must ALL be compatible with the control equipment used to run it. Problems with lamp starting can also be caused by using a lamp with internal ignitor in a circuit which also has an ignitor, or vice-versa. New (but incorrect) lamps often strike and run OK for many hours, then start to give problems like poor starting, lamp cycling and colour differences.

C: NEW LAMP NOT YET RUN-IN PROPERLY New lamps go through a burn-in period, which may extend for up to 100 hours or more. The usual result is noticeable colour variation between lamps. Metal Halide lamps are noted for this, but the colour will stabilise as the burn-in period ends. It is important to understand that variations to colour will always be noticed between lamps from different manufacturers, and between old and new lamps of the same type.

D: MAINS SUPPLY CURRENT CAPACITY The ability of the mains to supply sufficient current and the correct voltage is critical in HID lighting circuits. When Reactor control gear starts, the current drawn exceeds the normal running current. As CWA gear starts the current drawn slowly increases until the lamps are fully lit. In all cases the mains supply must be capable of meeting the maximum current draw of the particular circuit, whilst providing the correct rated voltage.

E: MAINS SUPPLY VOLTAGE DIPS The usual cause of voltage dips is overloaded circuits, and the starting of large motors and welders. Mild dips usually only cause a lamp colour shift, but severe dips will cause the lamps to extinguish. The voltage dip tolerance of Reactor ballasts is much lower than CWA control gear.

F: PHOTO-CONTROL SWITCHING INCORRECTLY Problems can occur from electrical failure, or from an incorrect amount of light reaching the photocell. First, cover the eye of the cell with electrical tape to verify fixture and cell operation. If the fixture fails to operate, electrically bypass the photocell to identify the problem source. Problems with light reaching the cell can be solved by re-positioning the cell or fixtures, or by using special cell caps to regulate the light.

G: BALLAST FAILED Ballasts are surprisingly rugged devices, and usually a visual check will confirm if the ballast is damaged or not. Repeated failures (often in conjunction with capacitor failures) are usually caused by high amplitude spikes on the mains supply, which can be traced with the use of a scope and the Power Company's assistance. Note: Ballast failure due to overheating, which is caused by not replacing failed lamps immediately, is not covered by the manufacturer's warranty.

H: CAPACITOR FAILED In Reactor circuits the capacitor is used as a power factor correction device, so open circuits will not cause operational faults. In CWA circuits the capacitor is fundamental to operation, and the lamp will not operate with a faulty capacitor. To test a capacitor, substitute a known good unit.

I: IGNITOR FAILED Ignitors are required in Reactor Metal Halide, Reactor Sodium and CWA Sodium circuits to generate the required lamp starting voltages. Ignitors are not required for most CWA Metal Halide circuits. To test an ignitor, substitute a known good unit. It should be noted that the ignitor and lamp must be EXACTLY matched. Ignition voltage varies from 800 to 5000 Volts, and the duration of and number of starting pulses is critical for correct starting. Many older ignitors and systems will not reliably strike the more modern high-tech HID lamps (especially from Europe) which are becoming more widely used, causing unexplained starting problems.

The information contained here is given in good faith, as a guide to assist in determining the most probable cause for problems with HID installations. In some cases there may be other factors involved, or more than one cause, so this guide may not be definitive in finding the actual cause.



Hid Lamp Troubleshooting Guide

Ron Gilster, Helen Heneveld



Hid Lamp Troubleshooting Guide:

The Electrician's Troubleshooting and Testing Pocket Guide John E. Traister, H. Brooke Stauffer, 2000 Whether you are an electrician or a consulting or plant engineer if you use portable meters to test maintain and troubleshoot electrical equipment and systems this quick look up pocket sized resource delivers key information where you need it most on the job

Roadway Lighting Handbook United States. Federal Highway Administration. Office of Traffic Operations, 1978 [A Complete Guide to the Language of Lighting](#) McGraw-Edison Company. Halo Lighting Division, 1983 **Lighting Design & Application**, 1975 **Standard Handbook of Plant Engineering** Robert C. Rosaler, 1995 Here is the best single guide to efficient cost effective plant engineering from construction to internal operation maintenance and management of the plant facility With contributions from more than 70 well known leaders in their specialties this new edition of Standard Handbook of Plant Engineering offers you state of the art information on the basic plant facility plant operation equipment repair and replacement methods and much more Packed with tables formulas charts graphs and checklists the Second Edition now features greater emphasis on practical hands on information in the areas of maintenance cost control maintenance management and staff training more than 40% new material with all sections revised and updated and software listed for most topics a Board of Advisors specifically chosen to select new and expanded coverage and both metric and S I units for ease of use in domestic and international markets Covering virtually every aspect of modern plant engineering the new edition of this definitive handbook will give you the expertise required to keep manufacturing and service facilities operating at peak productivity [Popular Mechanics Do-it-yourself Encyclopedia: Drill presses to energy savings guide](#), 1986

Ultimate Guide to Home Repair and Improvement, Updated Edition Editors of Creative Homeowner, 2019-01-01 The most complete home improvement manual on the market this book offers more than 2 300 photos 800 drawings and understandable practical text Readers will find essential instruction on plumbing and electrical repairs heating and cooling roofing and siding cabinets and countertops and more Information is also provided on tools materials and basic skills plus 325 step by step projects with how to photo sequences The Ultimate Guide to Home Repair Improvement also includes a remodeling guide and a resource guide Top to bottom inside and out this is the single ultimate resource book for home projects and repairs This manual is highly recommended Library Journal The definitive how to reference and instructional guide for anyone seeking to re model renovate repair or maintain any aspect of their residence Midwest Book Review

Illumination Guidelines for Nighttime Highway Work Ralph D. Ellis (Ph.D.), Scott Amos, Ashish Kumar, National Cooperative Highway Research Program, 2003 *Complete Building Equipment Maintenance Desk Book* Sheldon J. Fuchs, 1993 **Unleash Your Inner Mechanic: The Empowered Guide to Car Maintenance, Repairs, and Road Trips** Pasquale De Marco, Are you ready to take control of your car s maintenance repairs and road trips Look no further than Unleash Your Inner Mechanic The Empowered Guide to Car Maintenance Repairs and Road Trips This comprehensive guide

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Better Homes and Gardens Complete Guide to Home Repair, Maintenance and Improvement Better Homes and Gardens,1994-04 *JOH, Journal of Housing* ,1975 Your Ultimate Motorcycle Maintenance Guide Pasquale De Marco,2025-04-24 In the realm of motorized exhilaration motorcycles stand as testaments to power speed and the unbridled spirit of freedom For those who succumb to the allure of these mechanical marvels maintaining and repairing them becomes a sacred duty a means to ensure their faithful steeds remain reliable companions on the open road This comprehensive guide meticulously crafted for the discerning motorcycle enthusiast is your gateway to unlocking the secrets of motorcycle care With unparalleled clarity and precision it empowers you with the knowledge and skills to keep your prized possession running smoothly and looking its best Whether you re a seasoned rider with years of experience or a novice just starting out this book caters to all levels of expertise Delve into the intricacies of your motorcycle s components their functions and the art of maintaining them properly Master essential techniques and procedures from routine maintenance tasks like oil changes and brake inspections to more complex repairs involving the engine transmission and electrical system With this book as your trusted guide you ll gain the confidence to troubleshoot common motorcycle problems identifying and resolving issues before they escalate into major headaches You ll also discover the importance of safety precautions ensuring that you work on your motorcycle safely and effectively Beyond mere technical instruction this book is an invitation to explore the fascinating world of motorcycle maintenance and repair Its engaging writing style and user friendly layout make it a pleasure to read and understand Whether you re looking to save money by

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Manual Robert D Christ, Robert L. Wernli Sr, 2013-10-16 Written by two well known experts in the field with input from a broad network of industry specialists The ROV Manual Second Edition provides a complete training and reference guide to the use of observation class ROVs for surveying inspection and research purposes This new edition has been thoroughly revised and substantially expanded with nine new chapters increased coverage of mid sized ROVs and extensive information on subsystems and enabling technologies Useful tips are included throughout to guide users in gaining the maximum benefit from ROV technology in deep water applications Intended for marine and offshore engineers and technicians using ROVs The ROV Manual Second Edition is also suitable for use by ROV designers and project managers in client companies making use of ROV technology A complete user guide to observation class ROV remotely operated vehicle technology and underwater deployment for industrial commercial scientific and recreational tasks Substantially expanded with nine new chapters and a new five part structure separating information on the industry the vehicle payload sensors and other aspects Packed with hard won insights and advice to help you achieve mission results quickly and efficiently

Hid Lamp Troubleshooting Guide Book Review: Unveiling the Power of Words

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