DHR60LED
MAINTENANCE MANUAL

SINCE 1922

Den Haan Rotterdam

WARNING!
Read carefully before opening the navigation light!

ESD
This product, like all LED navigation lights, uses
semi-conductors that can be damaged by electrostatic
discharge (ESD). When handling, care must be taken so
the LEDs are not damaged.

The following precautions must be taken:
• Always remove the power from the navigation light before any
maintenance.
• Use a conductive wrist wrap attached to a good earth ground.
• Always discharge yourself by touching a grounded bare metal.
• Use an approved anti-static mat to cover your work surface.
• When in doubt always consult a qualified electrician.

Damage due to inappropriate handling is not covered by the warranty.

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MAINTENANCE KIT CONTENTS

Gasket Ø91x4mm (2x)
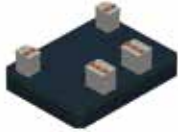
LED Driver

LED PCB
(Printed Circuit Board)

Base Plate Gasket

REQUIRED HAND TOOLS

- Slotted Screwdriver
- Wrench 14-15 and 16-17
- Torque Wrench 2-20
- Torque Screwdriver 1-5 Nm with Hex, Torx Tx10 and Slotted bits
- Multimeter
- Conductive wrist strap
- Anti-static mat

TROUBLE SHOOTING

Light is not working.
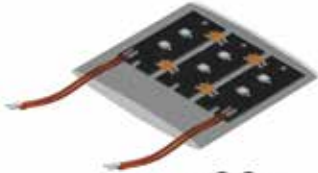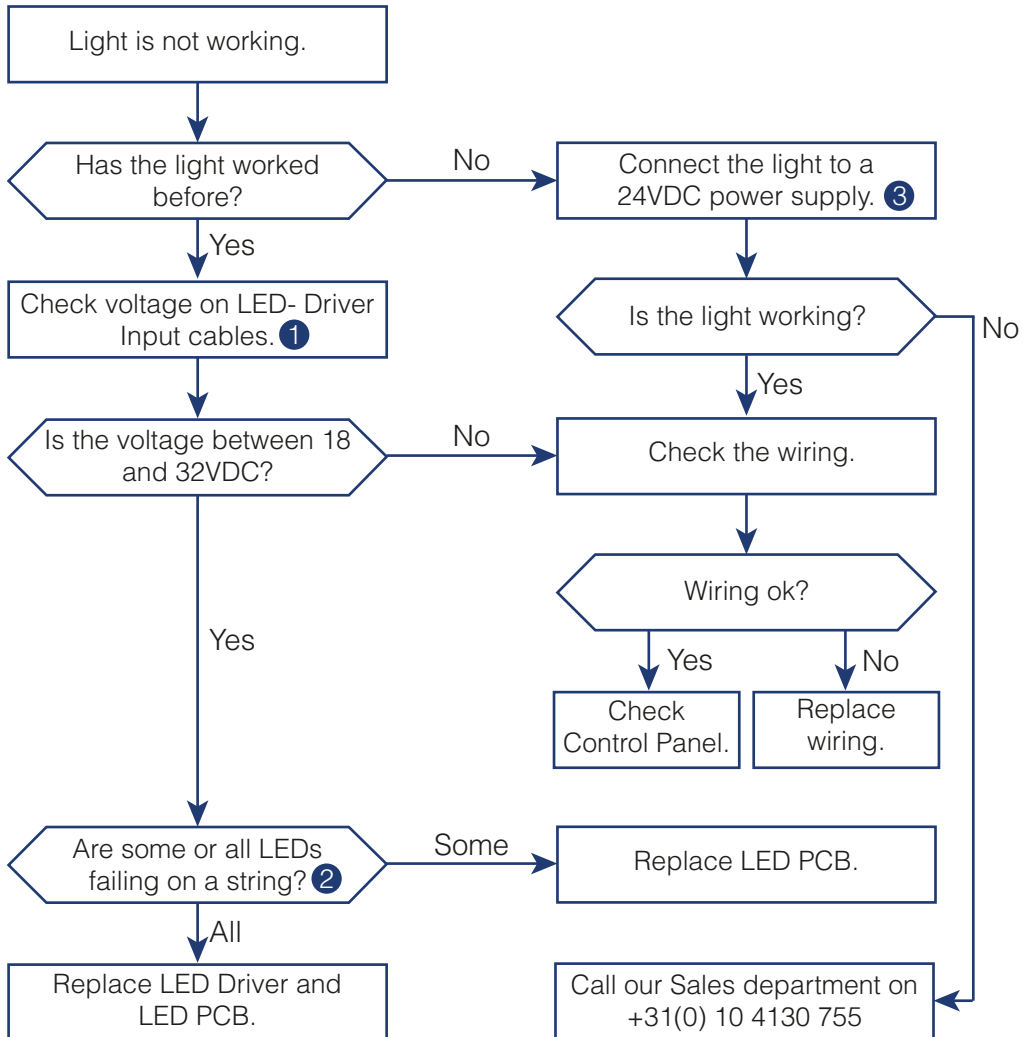
Has the light worked before? — No → Connect the light to a 24VDC power supply. ❸

Yes ↓

Check voltage on LED- Driver Input cables. ❶

Is the voltage between 18 and 32VDC? — No → Check the wiring.

Is the light working? — No →

Yes ↓

Check the wiring.

Wiring ok?

Yes → Check Control Panel.

No → Replace wiring.

Yes ↓

Are some or all LEDs failing on a string? ❷ — Some → Replace LED PCB.

All ↓

Replace LED Driver and LED PCB.

Call our Sales department on +31(0) 10 4130 755

❶ See page 11 for main and spare input on LED-Driver.
❷ The navigation light has a spare and main module in ONE lantern. So there is always one horizontal string of LEDs burning, top or bottom. Except the Manouvring light, on which the top and bottom strings are burning simultaneously.
❸ When using a (laboratory) power supply, switch of limiting current.

OPENING THE NAVIGATION LIGHT

1. Unplug the power cable of main and spare.

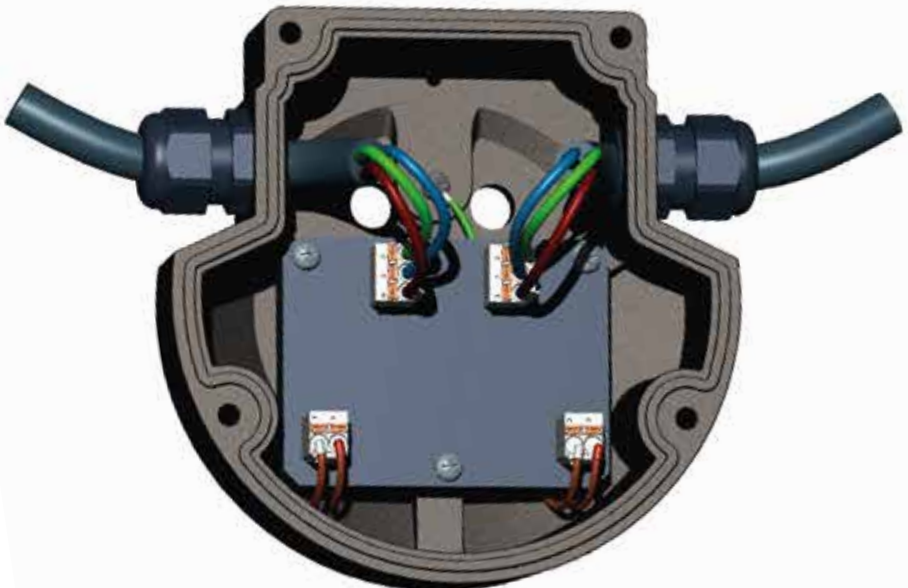2. Use the wrench to unbolt the four nuts of the mounting

3. Flip the navigation light upside down and place it on a work mat or towel to prevent scratches.

4. Use screwdriver with a hex bit to unscrew the 4 socket head screws.

Result

REMOVING THE LED DRIVER

 1. Use the slotted screwdriver to unplug
the wiring from the LED Driver.

 2. Use the wrench to loosen the
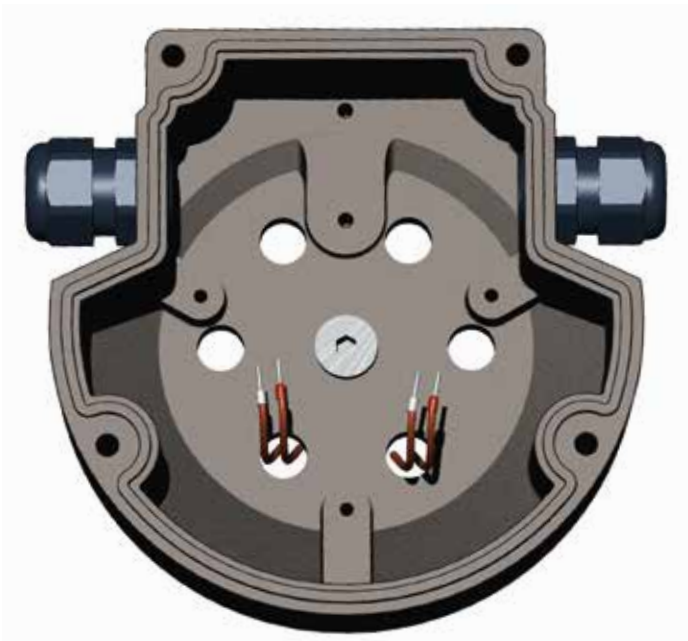cable glands.

3. Remove the power cables.

4. Take the navigation light and place it
on the anti-static mat.

 5. Use the slotted screwdriver to unscrew the 4 screws holding
the LED Driver and earth.

6. Remove the LED Driver.

Result

REMOVING THE LED PCB

1. Use the hex bit and the screwdriver to unscrew the countersunk hex socket screw at the center.

2. Remove the housing, lens, gaskets and/or screen. Be careful, the glass lens is no longer secured.

   NOTE: Don't try to loosen the cover. The cover and heatsink are glued together.

3. Use the torx bit and the screwdriver to remove LED PCB.

Result

REPLACING THE LED PCB

! IMPORTANT: Use the conductive wrist strap and attach to earth before handling the LED PCB.

1. Use the torx bit with the torque screwdriver to remove the LED PCB.

2. Remove the protective bag from the LED PCB.

3. Use a torx bit with the torque screwdriver to mount the LED PCB to the heatsink. (Torque 1.7Nm)
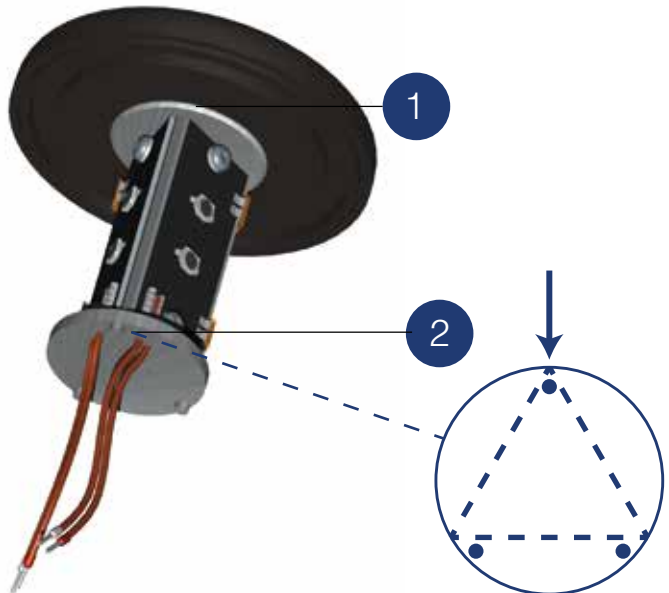
! NOTE: Use an insulation washer. **1**
Check if the wiring is at the same side as allignment pin.
(This is the only pin of three which alligns with the triangular heatsink.) **2**

Result

ESD Sensitive!

REASSEMBLING HEATSINK

1. Replace both gaskets Ø91x4mm.

(!) 2. Check if the gaskets are in the correct slots. If not, **moisture ingress** will occur. ①

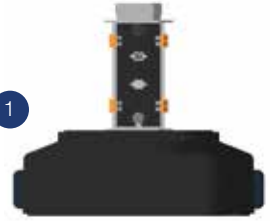3. Check the position of the heatsink. ②

(!) 4. The screen has its own slot in cover and housing, check this before fixing the housing.
If not, **moisture ingress** will occur. ③

(⬡↘) 5. Use a hex bit with the torque screwdriver to screw the countersunk hex socket at the center of the housing.
(Torque 5,75Nm)

Front view
All-round/Port/Starboard

Front view
Stern/Towing

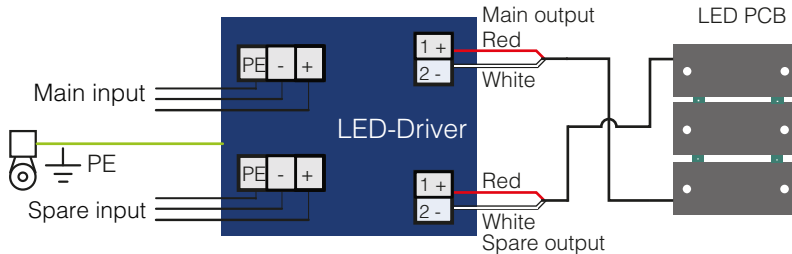## Result

ESD Sensitive!

REASSEMBLING LED DRIVER

1. Use a slotted bit with a torque screwdriver to screw the 4 screws and secure the LED Driver into place. (Torque 1,5 Nm)

2. Connect the wiring to the LED Driver. Check that the red and white ferrules on the ends of the cables are correctly installed in the connector on the LED Driver.

3. Tighten the cable glands with a wrench.

Result
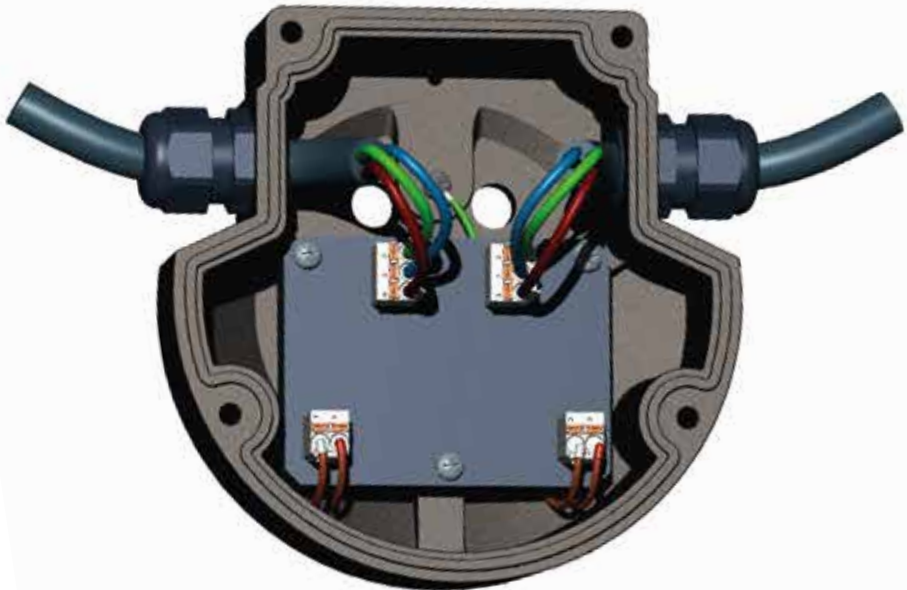
CLOSING THE LIGHT

1. Replace the base plate gasket.

2. Screw the four hex socket screws of the base plate in the housing with a hex bit and the torque screwdriver. (Torque 3Nm)

3. Bolt the navigation light to the mounting plate with a torque wrench. (Torque 6-8Nm)

   NOTE: Always use the insulation washers to prevent galvanic corrosion.

Result

EXPLODED VIEW

PARTS LIST

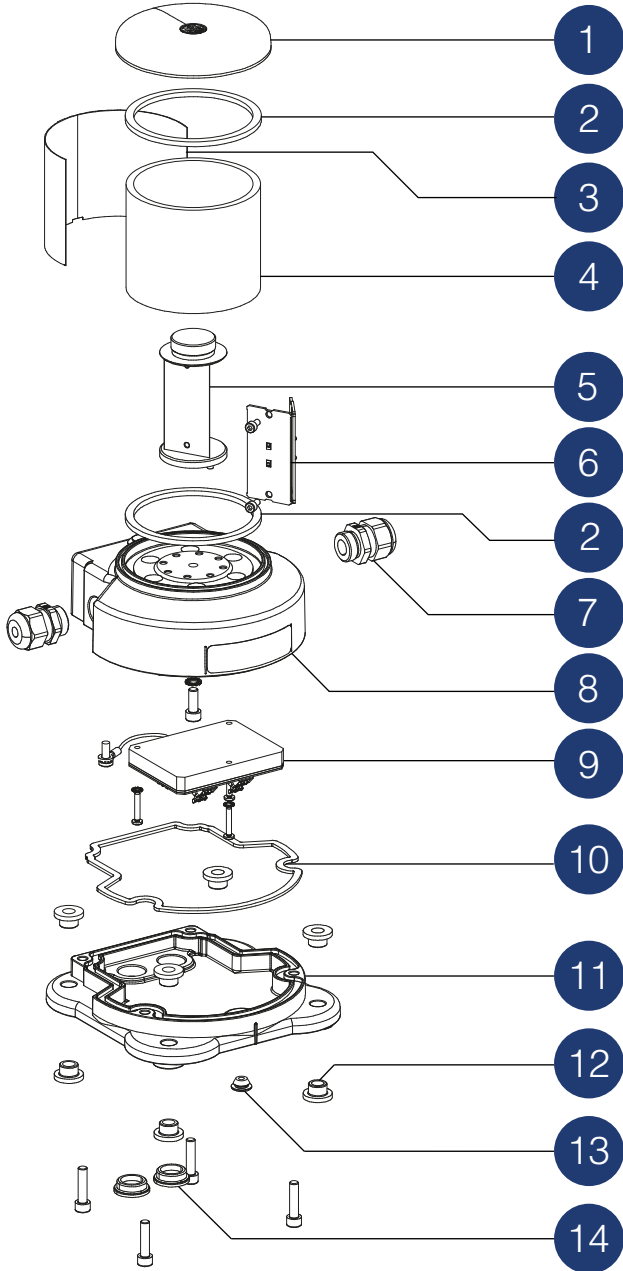| Item	Part	Partnumber
1	Cover	60.99.00.90
2	Gasket Ø91x4mm	60.99.00.51
3	Screen side lights	60.99.00.80
	Screen masthead	60.99.00.81
	Screen stern / towing	60.99.00.82
	Screen 180˚	60.99.00.83
	Screen Direction light	60.99.00.84
4	Glass tube	60.99.00.52
5	Heatsink	60.99.00.91
6	LED PCB Starboard	60.99.00.21
	LED PCB Port	60.99.00.22
	LED PCB Masthead	60.99.00.23
	LED PCB Stern	60.99.00.24
	LED PCB Towing	60.99.00.25
	LED PCB All Round White / Manoeuvring	60.99.00.26
	LED PCB All-Round Red	60.99.00.27
	LED PCB All-Round Green	60.99.00.28
	LED PCB All-Round Yellow	60.99.00.29
	LED PCB All-Round Blue / Direction light	60.99.00.30
7	Cable gland M20x1.5	60.99.00.53
	Gasket 28x20x1,5	60.99.00.54
8	Housing	
9	LED Driver 350mA (Starboard, Stern, All-Round Green, White, Blue and Direction)	60.99.00.11
	LED Driver 500mA (Port, Towing, All-Round Red &Yellow)	60.99.00.12
	LED Driver 700mA (Masthead)	60.99.00.13
	LED Driver Manoeuvring	60.99.00.17
10	Base plate gasket	60.99.00.55
11	Base plate	
12	Insulation Sleeve Ø8,5	60.99.00.56
13	Membrane Vent	60.99.00.58
14	Plug M20x1.5	60.99.00.57
	Gasket 28x20x1,5	60.99.00.54

AVAILABLE MODELS

Sector lights	Min. Visibility	Colour	Power	Art. Code
Starboard	2 NM	Green	3 W	60.01.00.00
Port	2 NM	Red	4,5 W	60.02.00.00
Masthead	5 NM	White	8,5 W	60.03.00.00
Stern	2 NM	White	3 W	60.04.00.00
Towing	2 NM	Yellow	4,5 W	60.04.09.00

All-round lights	Min. Visibility	Colour	Power	Art. Code
White	2 NM	White	3 W	60.06.00.00
Manoeuvring	5 NM	White	9 W	60.06.10.00
Red	2 NM	Red	4,5 W	60.07.00.00
Green	2 NM	Green	3 W	60.08.00.00
Yellow	2 NM	Yellow	4,5 W	60.09.00.00
Blue	2 NM	Blue	3 W	60.10.00.00

Special sector	Min. Visibility	Colour	Power	Art. Code
Suez stern light	2 NM	Red	4,5 W	60.04.07.00
Convoy light	-	Blue	3 W	60.04.10.00
Panama steering light	-	Blue	3 W	60.10.00.05

All-round screened	Min. Visibility	Colour	Power	Art. Code
White	2 NM	White	3 W	60.06.01.80
Red	2 NM	Red	4,5 W	60.07.01.80
Green	2 NM	Green	3 W	60.08.01.80
Yellow	2 NM	Yellow	4,5 W	60.09.01.80

ADVANCED MARITIME SIGNALLING SOLUTIONS

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