

## Operating instructions

### SEARCHLIGHT SW300/ SW300A

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## 1. About these instructions

### 1.1 Symbols and reference marks in these instructions



**Danger!** When warnings are not observed lives are at risk.



**Danger of electric shock!** When warnings are not observed lives are at risk through electricity.



**Attention!** When warnings are not observed the environment and the appliance are at risk.



**Use disposable gloves!** In order to take care of the material and your health, use disposable gloves for the following operations.

1, 2, 3, ...

**Operating instructions** which should be followed in a particular sequence are numbered.

- **Operating instructions** which consist of only one step or need not be followed in any particular sequence are marked with bullets.

→ **Feedback** on actions which have been carried out are marked with an arrow.

- **Lists** start with a list dash.

### 1.2 For whom these instructions are meant

These instructions are intended for personnel which has to install, operate or service a WISKA searchlight SW300 or SW300A or one of its versions.



**Danger of electric shock!** Any electrical work regarding installation and repair must be carried only by a qualified electrician!

## 2. Safety

The following safety instructions have to be followed without fail! Else you put yourself and others at risk.

### 2.1 General

#### Proper use

The searchlights SW300 and SW300A are intended for illuminating large or distant objects. The range (1 lux at the target) of the searchlight is 840 metres to 1140 metres depending on lamp voltage and wattage.

It has been developed in particular for use on ocean-going vessels and for security applications on the shore.

Because of its brightness the searchlight must not be used to illuminate people close-by.

It is not suited for illuminating rooms on the ship or in buildings.



**Danger!** Unauthorized modifications and changes to the searchlight are not permitted since they can endanger people and damage the appliance. Non-observance will terminate approval of the appliance.

Only genuine spare parts may be used. Non-observance will result in termination of the warranty.



**Risk of burns!** Never touch without protection the searchlight while it is in use. The temperature of the casing can be up to 180°C. Always allow the searchlight to cool before starting maintenance or repair work. In case of burns always cool the injured place and call for medical aid.



**Risk of dazzling!** Never look into the lamp while it is operating. You put your eyesight at risk. Also never aim the searchlight directly at people.



**Risk of crushing! Risk of cuts!** Before you swivel or tilt the searchlight: Always make sure that no people are present near the searchlight. Their extremities could enter the drive mechanism and sustain serious injuries.

### 2.2 On handling halogen lamps



#### Transport

- Always store and transport halogen lamps in a way that breakage of the envelope is impossible.
- Leave the lamp in its package until you want to use it.
- Use the package when transporting the lamp.
- Never touch the lamp with your fingers.

#### Operation

- Before installation, check the lamp for fingerprints and dirt. Use an alcohol based solvent and a soft lintfree cloth to remove fingerprints before fitting the lamp.



- Use disposable gloves when handling the lamp. All fingerprints and dirt on the glass envelope of the lamp causes the service life to be shortened drastically.
- Check the lamp for scratches, cracks and other damage. Do not use damaged lamps.

#### Service life

- The halogen lamp has a mean service life of between 75 and 200 hours, depending on the lamp manufacturer and how often and how long the lamp is switched on.

#### Disposal

- Please dispose of defective lamps properly. There are no special compulsory requirements for disposal.

## 2.3 Safety features

#### Radiation/emission of dangerous particles.

- Halogen lamps emit a type of UV light which is harmful to the eye.
- If the halogen lamp explodes during operation, the casing will remain intact and prevents the escape of hot pieces of glass.

#### Overload protection

Electrical overload protection measures must be provided at the installation site. Please refer to chapter 3.2 *Technical Specifications* regarding the rating of the appliance.

#### Temperature

- To protect the optional electric pan & tilt unit FL20 of the searchlight from freezing at low ambient temperatures it can be equipped with a thermostatically controlled heater.



**Attention!** To ensure the minimum temperature in cold ambient conditions the external power supply for the remote control unit RCU should not be switched off.

- The thermostatically controlled heater switches itself on when the ambient temperature drops below 6°C.

## 2.4 Requirements for operation

### Protection class

The searchlight and the optional drive unit are classified as protection class IP56 in accordance with EN 60529/DIN VDE 0470 Part 1 (dust proof, jet-proof). To maintain this protection class all screw parts must be screwed tight. Electric cables may be lead into the appliance only through suitable cable and lead entries.

### Environmental requirements

- During proper operation the surface temperature of the casing reaches 180°C. Install the searchlight only near heat-resistant materials. To rule out any risk: Do not store any explosive or highly inflammable materials in the immediate vicinity of the searchlight. These are for example petrol, paper, and paints.
- Take care that the searchlight can move freely and its beam is not obstructed by objects. Note that the movement range of the searchlight depends on its pan & tilt position.

## 2.5 Maintenance / cleaning

Before carrying out maintenance or cleaning work

- Turn off the main switch
- Make sure that the entire electric system is de-energized.
- Wait until the searchlight has cooled

### 3. Overview of the appliance

#### 3.1 Assembly drawing

##### Basic configuration

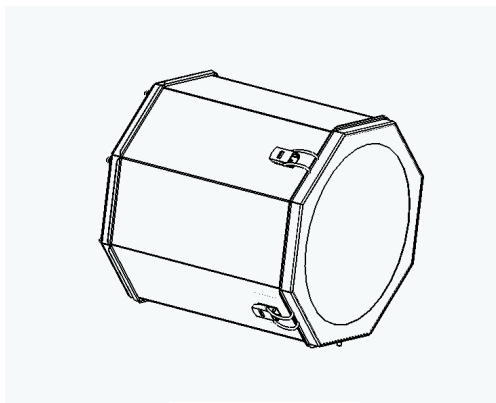


Fig. 3.1.1.

Configuration with electrical pan & tilt unit FL20.

Corresponding remote control unit RCU see pages 15 and 20.

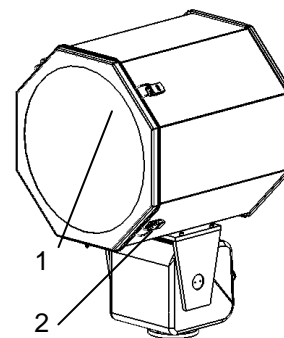


Fig. 3.1.2.

**Reference: Figure 3.1.2**

- 1 Searchlight head
- 2 Pan & tilt unit FL20

## 3.2 Technical specification

Searchlight SW300 (glass mirror)  
 Searchlight SW300A (aluminium reflector)  
 Pan & tilt unit FL20 230V 50/60Hz  
 Manufacturer WISKA Hoppmann & Mulsow GmbH

Searchlight type SW300/300A, halogen lamp 650 and 1000W - 230V version				
Photometric data:				
Searchlight type	SW300-650	SW300A-650	SW300-1000	SW300A-1000
Type of light	halogen			
Socket	GX9.5			
Operating voltage	230 VAC			
Luminous intensity	0.8 x10 <sup>6</sup> cd	0.6 x10 <sup>6</sup> cd	1.0 x10 <sup>6</sup> cd	0.7 x10 <sup>6</sup> cd
Range	890 metres	780 metres	1000	840
Divergence angle	5.5° I/10	8.0° I/10	8.5° I/10	8.5° I/10
Lamp power	650W		1000W	
Lamp start-up time	Immediately			
Mean lamp life	75.. 200 h	75.. 200 h	75.. 200 h	75.. 200 h
Mirror / reflector	Glass 300mm	Aluminium 300mm	Glass 300mm	Aluminium 300mm
Dazzle protection	yes	yes	yes	yes
Fixed focus	no	yes	no	yes
External lamp focussing	yes	no	yes	no
Casing:				
Material	Stainless steel 1.4301			
Colour	RAL 9016, traffic white			
Diameter	370mm	370mm	370mm	370mm
Depth	420mm	410mm	420mm	410mm
Weight	10kg	9.6kg	10kg	9.6kg
Protection class	IP 56	IP 56	IP 56	IP 56
Connecting cable	3 metres	3 metres	3 metres	3 metres

Searchlight type SW300/300A, halogen lamp 500 - 230V version		
Photometric data:		
Searchlight type	SW300-500	SW300A-500
Type of light	halogen	
Socket	GY9.5	
Operating voltage	230 VAC	
Luminous intensity	0.7 x10 <sup>6</sup> cd	0.5 x10 <sup>6</sup> cd
Range	840 metres	710 metres
Divergence angle	6.0° I/10	6.0° I/10
Lamp power	500W	
Lamp start-up time	Immediately	
Mean lamp life	75.. 200 h	
Reflector / mirror	Glass 300mm	Aluminium 300mm
Dazzle protection	yes	
Fixed focus	no	yes
External lamp focussing	yes	no
Casing:		
Material	Stainless steel 1.4301	
Colour	RAL 9016, traffic white	
Diameter	370mm	
Depth	420mm	410mm
Weight	10kg	9.6kg
Protection class	IP 56	
Connecting cable	3 metres	

Searchlight type SW300/300A, halogen lamp 250W - 24V version		
Photometric data:		
Searchlight type	SW300-250	SW300A-250
Type of light	halogen	
Socket	G6.35	
Operating voltage	24 VDC	
Luminous intensity	1.3 x10 <sup>6</sup> cd	1.0 x10 <sup>6</sup> cd
Range	1140 metres	1000 metres
Divergence angle	4.5° I/10	5.0° I/10
Lamp power	250W	
Lamp start-up time	Immediately	
Mean lamp life	75.. 200 h	
Reflector	Glass 300mm	Aluminium 300mm
Dazzle protection	yes	
Fixed focus	no	yes
External lamp focussing	yes	no
Casing:		
Material	Stainless steel 1.4301	
Colour	RAL 9016, traffic white	
Diameter	370mm	

Depth	420mm	410mm
Weight	10kg	9.6kg
Protection class	IP 56	
Connecting cable	3 metres	

Type Pan & tilt unit FL20

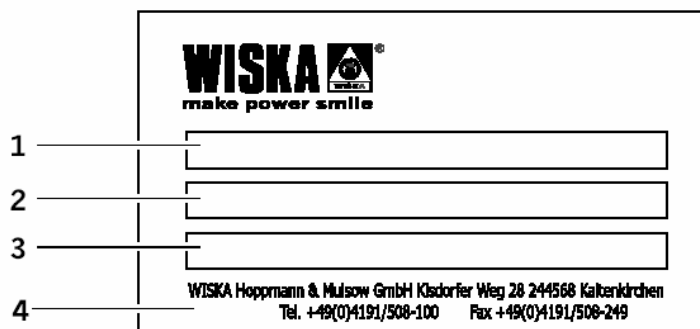
<b>Pan &amp; tilt unit FL20</b>	
Pan & tilt unit is made of seawater-resistant cast aluminium with adapter plate as holder for the searchlight	
Standby heater optional	
Connecting cable	3 metres
Input power	50W
Horizontal rotation	330°; 5°/s
Vertical tilt	±40° ; 2,4°/s
Height of drive unit with searchlight	appr. 736mm
Diameter base	120mm
Weight	13.8kg
Protection class	IP 67
Colour	RAL 9016

<b>Remote control unit RCU-E</b>	
Control unit with ON/OFF switch for searchlight and drive unit, joystick and indicator lamps for installation in a control panel.	
Front panel	120 x 200mm
Fitting size	90 x 170mm
Weight	2.1kg
Protection class	IP 23

<b>Remote control unit RCU-A</b>	
Control unit with ON/OFF switch for searchlight and drive unit, joystick and indicator lamps, with casing for surface mounting.	
Front	200 x 200mm
Overall height + joystick	80+ 85mm
Weight	2.5kg
Protection class	IP 23

### 3.3 Unit nameplates

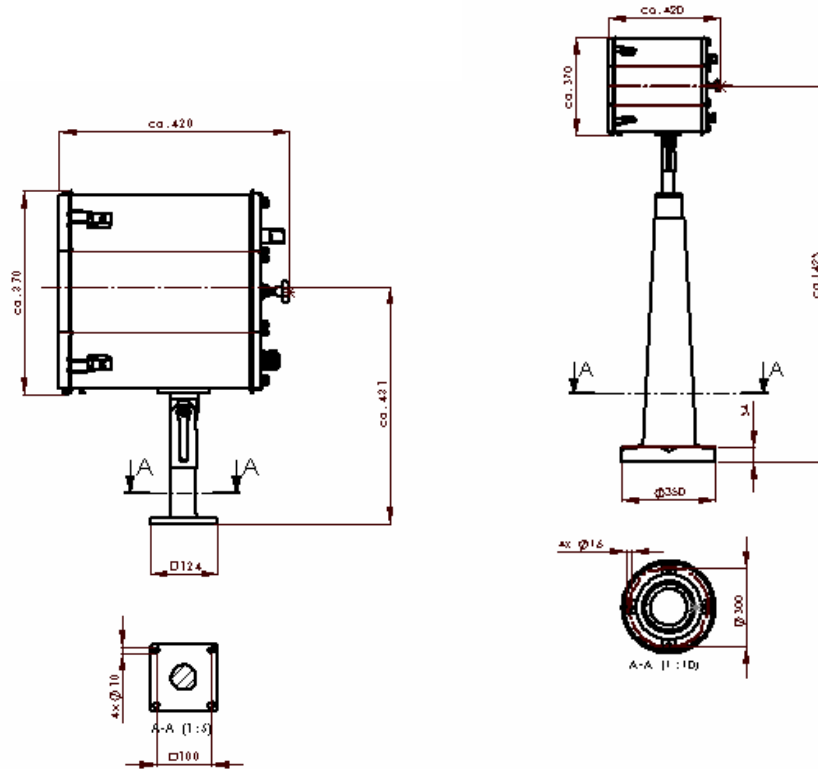
#### Data plate



- 1 Product designation
- 2 Product specification
- 3 Product serial number
- 4 Manufacturer

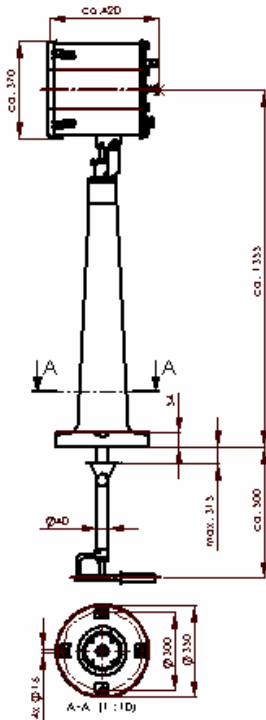
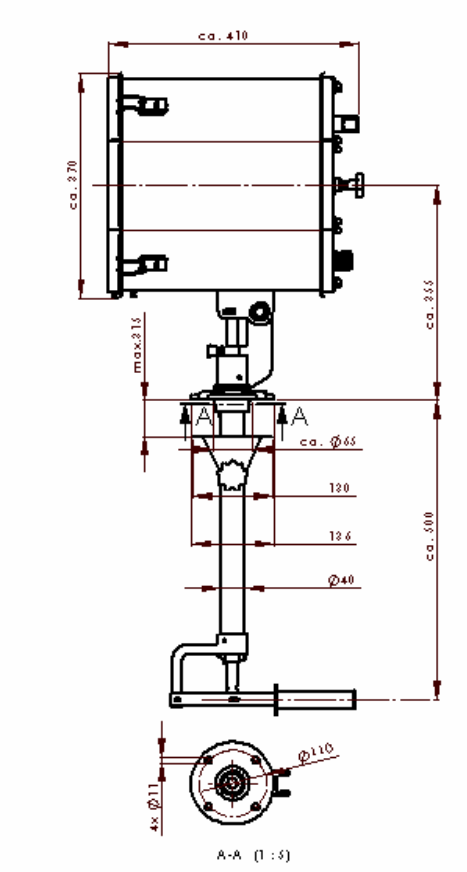
### 3.4 Dimensions

#### Searchlight Deck (D) base and Deck/Pedestal (DP)



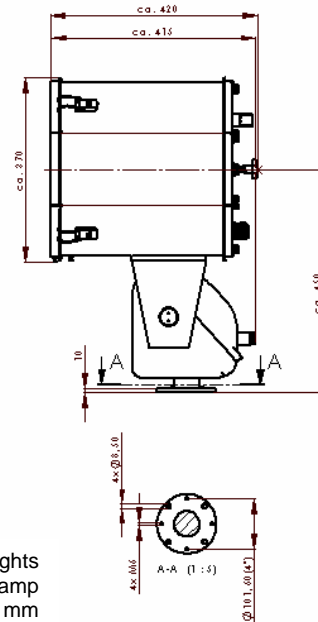
The depth of searchlights equipped with lamp focussing devices is 420 mm instead of 410 mm.

Searchlight Cabin (C) and Cabin/Pedestal (CP)



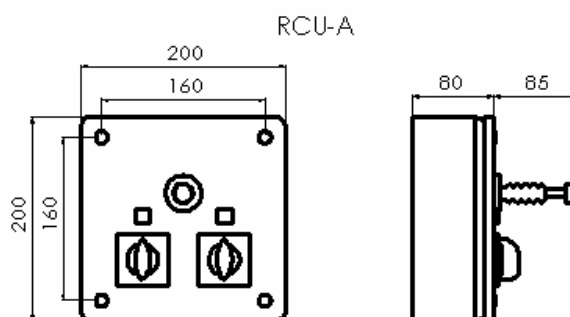
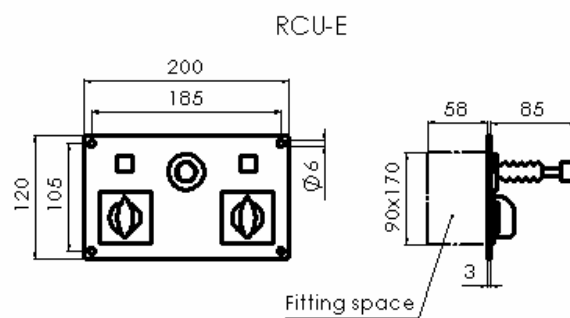
The depth of searchlights equipped with lamp focussing devices is 420 mm instead of 410 mm.

**Searchlight with pan & tilt unit FL20 (RC/FL20) and Remote Control unit RCU**



The depth of searchlights equipped with lamp focussing devices is 420 mm instead of 410 mm.

**Remote control unit RCU**



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## 4. Installation

### 4.1 Unpacking

Check that the consignment is complete. Do not operate the appliance if any part is missing or has been damaged during transport. Please contact WISKA or our distribution partner in your country. You will find these addresses on the back of these instructions and on the Internet under [www.wiska.de](http://www.wiska.de). Please remember to protect the environment and recycle all packaging.

### 4.2 Assembly

#### **Assembly of the searchlight with the pan & tilt unit FL20**

If the searchlight was ordered with the pan & tilt unit FL20, then the searchlight is delivered pre-installed on the pan & tilt unit.

Because of the weight of the searchlight, on-site fitting requires at least two people.

1. To secure the searchlight, drill four holes in a circle with a diameter of 101.6 mm. See Chapter 3.4 *Dimensions*.
2. Place the drive unit on top and screw together.
3. Connect the earth cable.

#### **Installation with a Deck (D) base or Deck/Pedestal (DP)**

As an alternative the searchlight can be put on a matching base (D) or pedestal (P).

Because of the weight of the searchlight, on-site installation requires at least two people.

1. To secure the searchlight four holes must be drilled according to drawings in Chapter 3.4 *Dimensions*.
2. Place the unit on top and screw together.
3. Connect the earth cable.

**Installation of Cabin (C) or Cabin/Pedestal (CP) version:**

As an option, the configuration with a base (D) or pedestal (P) can also be fitted with a manual internal operating mechanism to Cabin (C) or Cabin/Pedestal (CP). The linkage of the internal operating mechanism is situated in the pipe of the base or of the pedestal and has to be connected at the lower end. To this end a central hole for guiding through the 50mm operating tube must be drilled in addition to the mounting bores already described. See Chapter 3.4 *Dimensions*.

**Fitting of the remote control unit RCU**

In case the searchlight has been fitted with a pan & tilt unit, the remote control unit RCU is also required.

The remote control unit RCU is available as a version for wall mounting and as a version for flush mounting in a suitable console. Electrically and functionally both appliances are identical.

Prior to fitting, make the necessary holes and recesses, see Chapter 3.4. *Dimensions*.

Take care to select cables with suitable cross section for the cable length.

## 4.3 Electrical connections



**Danger of electric shock!** Electrical connections must only be made by suitably qualified personnel. Make sure that the mains terminal is without electricity and that during fitting electricity cannot be connected accidentally.

The circuit diagram is enclosed separately or can be found in Chapter 3.5. *Circuit diagram*.

**Electrical specification**

Mains voltage 230 VAC, 50/60Hz.

Necessary mains fuse: see circuit diagram.

**Watertight connection of all leads (IP56).**

**Attention!** To ensure protection class IP56, all cable entry points must be made watertight.

- Tighten cable screw connections, so that the seals contract tightly around the conductors.
- Connect all cables in accordance with the circuit diagram (see the circuit diagram which is enclosed separately or Chapter 3.5. *Circuit diagram*.)

**Note:** The searchlight cables and the pan & tilt unit cables may be connected up directly or via a junction box.

**Mains connection**

- Please observe any applicable national and international regulations.

**Prior to commissioning**

- Check that fitting has been carried out correctly. Cables

- connected incorrectly may lead to damages.
- Check that protective multiple earthing has been carried out correctly.
  - Put back the fuse.

## 5. Operation

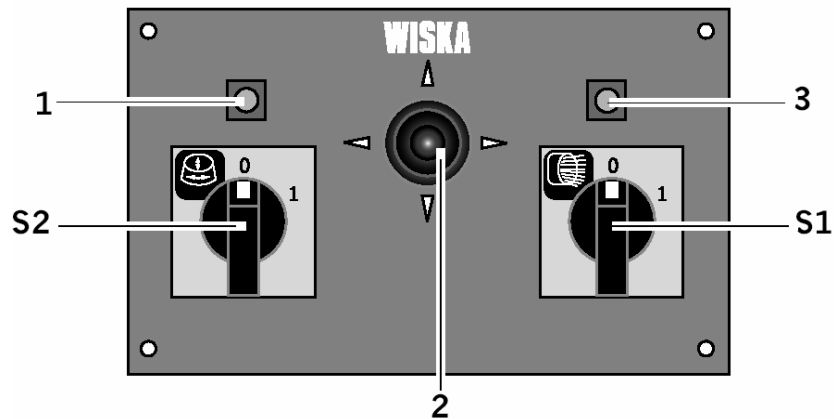
Operation of the searchlight with the pan & tilt unit and the associated remote control unit RCU will now be described.

If your configuration does not have this operating feature then special attention should be paid to the following points.



- To aim the searchlight, use the handles provided for this purpose. Never touch the searchlight housing during operation. - **Danger of burns!**
- Before switching on and during operation - always make sure nobody is in front of the searchlight. - **Risk of dazzling!**
- In your case the switch S1, described in Chapter 5.2., for switching on the searchlight, is not in the remote control unit RCU unit but is placed separately. Since there is no electro-mechanical drive unit, there is no switch S2 and no joystick.
- Continue reading with Chapter 5.2 *Switching on*.

### 5.1 Remote control unit RCU



- 1** Indicator light for pan & tilt unit
- S2** ON/OFF switch for pan & tilt unit
- 2** Joystick for pan & tilt unit
- S1** ON/OFF switch for searchlight S1
- 3** Indicator light for searchlight

### 5.2 Switching on



**Risk of burns!** Never touch without protection the searchlight while it is in use. The temperature of the casing can be up to 180°C. In case of burns cool the injury straightaway and call for medical aid.



**Risk of dazzling!** Never look into the lamp while it is operating. You put your eyesight at risk. Also never aim the searchlight directly at people. Before switching on, always

ensure that nobody is immediately in front of the searchlight.

1. Switch on mains switch S8 at the optional fuse box. This will supply the optional remote control unit RCU and the heater in the optional pan & tilt unit FL20 with electricity.



**Attention!** With the ambient temperature below 6°C, before starting the pan & tilt unit please wait until the internal heater (if provided) has heated the drive unit to at least 6°C.

1. Switch on switch S1. The lamp should light up immediately.
2. Now switch on the pan & tilt unit (if provided) with the switch S2 on the remote control unit RCU. Now the pan & tilt unit FL20, too, is operational and can be moved by means of the joystick.
4. In case the lamp does not light up, replace the lamp as described in Chapter 7.3. *Replacing the lamp.*

### 5.3 Switching off

- Turn off the searchlight with the lamp switch. When you use the remote control unit RCU, this is the switch S1 on the RCU.
- In case you use a pan & tilt unit, you may now switch this off with switch S2 on the RCU. This deactivates control with the joystick.



**Attention!** The optional heater in the pan & tilt unit remains switched on for as long as the external power supply of the RCU is not switched off, in order to maintain operational availability of the pan & tilt unit even at low temperatures.

### 5.4 External lamp focussing

The searchlight is equipped, depending on the type of searchlight, with an external focussing device for the halogen lamp. The handwheel for focussing can be found on the rear of the searchlight. It can be used to vary how the light cone diverges.

Set the focus with the handwheel according to your requirements.

## 6. Maintenance

### 6.1 Cleaning

Should this be necessary, clean the front glass from outside. Check the functioning of the mounting clips and look for rust. It is not necessary to clean the inside of the searchlight. In the course of time a thin coloured film will deposit on the mirror surface. This is not harmful and will not reduce the lamp power.



**Risk of dazzling!** Ensure that the searchlight cannot be switched on while it is being cleaned.

## 7. Replace defective parts

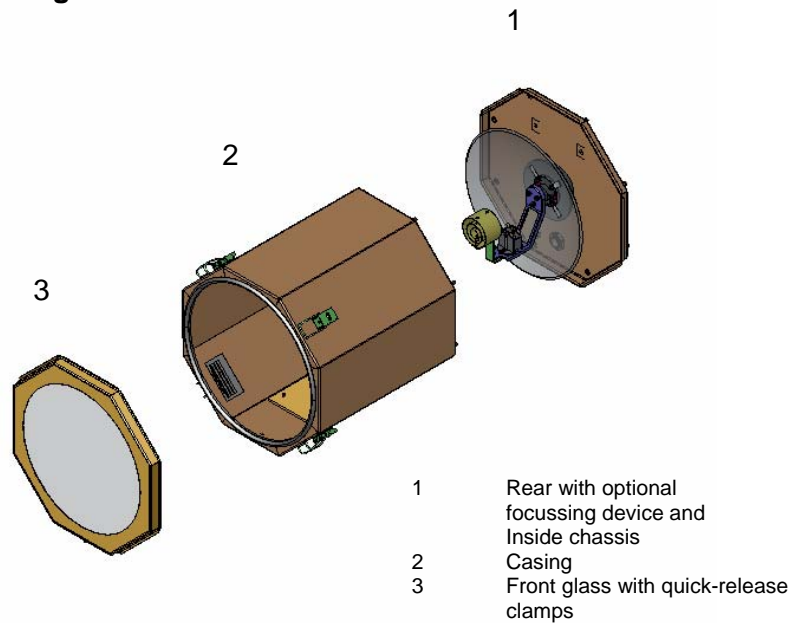
### 7.1 Before the work starts

1. Switch off the mains switch S8 at the external fuse box.
2. Make sure that the entire electric system is de-energized and cannot be switched on again accidentally.
3. Wait until the searchlight has cooled down.
4. Read Chapter 2.2 *On handling halogen lamps*.
5. When handling halogen lamps take care not to damage them.

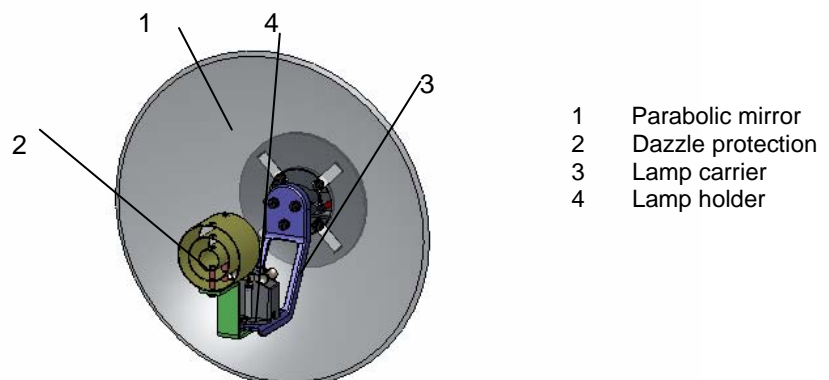
## 7.2 Constructional overview

The following figures are intended to help you better understand how the searchlight is constructed before you start to replace parts. Please follow the instructions on the subsequent pages when replacing parts.

### Searchlight head



### Inside chassis



All functional components are mounted on the inside chassis. It is screwed directly to the rear of the lamp and can be removed together with latter out of the casing when the rear is unscrewed.

## 7.3 Replacing the lamp

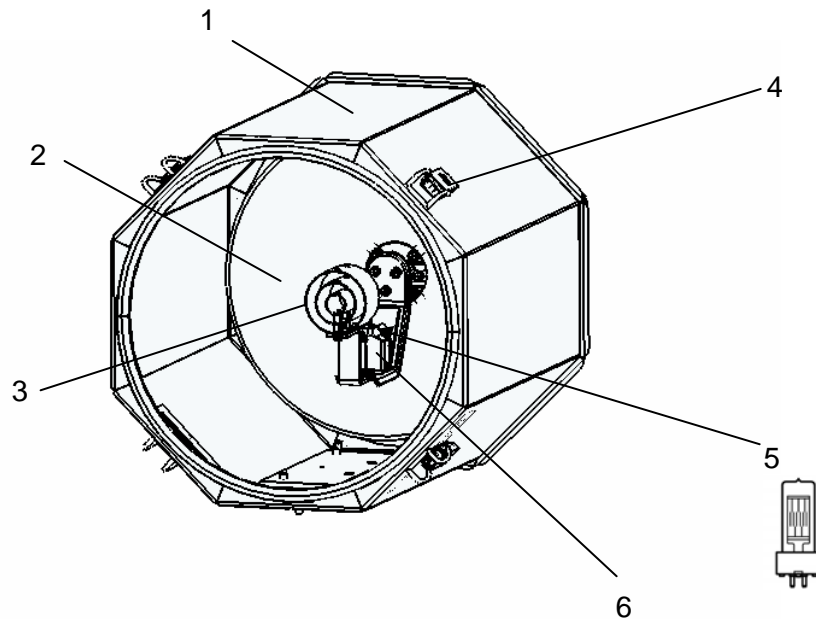
### The lamp is defective if

- it does not light up when switched on,
- the lamp electrodes are burnt out,
- the glass envelope is black.

Also replace the lamp when it has reached the mean service life of 75-200h (depending on manufacturer).

**Danger!** All persons carrying out these repairs must have been instructed by a qualified person and made aware of risks and all necessary safety precautions.

You must first read Chapter 7.1 *Before the work starts*.



### Replacing the lighting means:

1. Loosen the quick-release clamps **4** on the front side and carefully place the front glass out of the way.

**Note:** The halogen lamp **5** is situated vertically in the lamp holder **6** and partly covered by the dazzle protection **3**. When you replace the lamp you can watch it in the reflector mirror **2**.

2. Pull the defective lamp upwards out of its base.
3. Place the lamp out of the way without breaking it.

**Attention!** Before fitting the new lamp, check it for fingerprints, scratches and cracks. Never use any damaged lamps. Remove fingerprints and dirt with a soft lint free cloth and an alcohol based solvent.

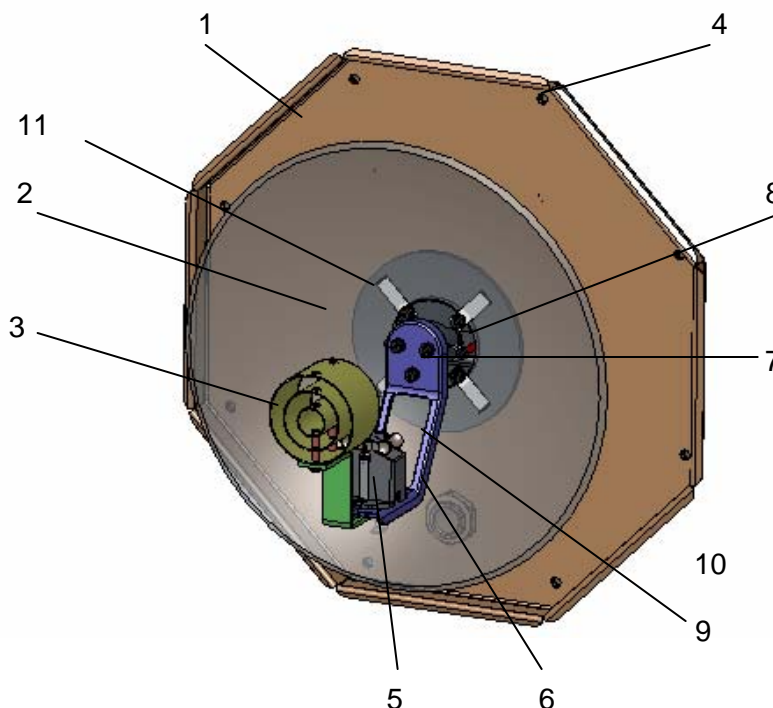
4. Open the packaging of the new lamp.
5. Take care not to touch the lamp envelope with your fingers. Use disposable gloves when handling the lamp in

- order to avoid fingerprints.
6. Insert the new lamp in the lamp holder until it snaps into place.
  7. Put back the front glass and close the quick-release clamps.
  8. Please dispose of the defective halogen lamp properly.

## 7.4 Replacing the main mirror:



**Danger!** These repairs must be carried out by a qualified electrician!  
 Make sure first of all to read Chapter 7.1 *Before the work starts.*



### Removal:

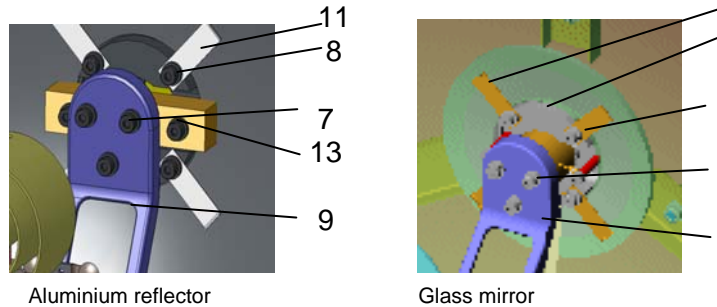
1. Loosen the eight screws **4** on the rear **1** of the searchlight.
2. The rear **1** of the searchlight is screwed to the inside chassis. Pull the rear together with the inside chassis out of the searchlight casing.
3. Place the unit on a safe and clean work surface.
4. Remove the halogen lamp and place it somewhere safe.

**Note:** So that the reflector **2** can be replaced, first of all the lamp carrier **9** with the lamp holder **5** and the dazzle protection **3** must be removed. Because the electrical connections **6** at the lamp holder **5** cannot be undone, the connections at the rear of the reflector mirror **2** have to be disconnected, so that the lamp carrier **9** can be removed.

5. Unscrew the rear **1** from the inside chassis.
6. Remove the plug which connects the internal wiring with the power cable. It is located between the reflector and the rear.

7. The power cable **6** of the lamp is passed to the front through an opening in the centre of the reflector **10**.
8. You have to sever the cables behind the reflector before you can remove the reflector/mirror. Sever the cables in such a way that at a later point there is enough length for re-establishing a secure connection after a new reflector has been fitted.

**Note:** Depending on whether your searchlight uses a glass mirror or aluminium reflector, fitting the reflector is different, as shown below.



Aluminium reflector

Glass mirror

The reflector/mirror is held by the four leaf springs **11**.

9. Loosen the three retaining screws **7** of the lamp carrier.
10. Take off the lamp carrier **9** and carefully pass the connecting cable through the opening in the base element **12** without damaging the cable, and put the lamp carrier to one side.

When you use a glass mirror:

11. Loosen the four screws **8** and remove the leaf springs.
12. Cut open the silicone seam with a knife and remove the reflector from the holder.

When you use an aluminium mirror:

13. Loosen the four screws **8** and remove the reflector leaf springs **11**.
14. Loosen the two screws of the Lamp carrier mounting device **13**
15. Cut open the silicone seam with a knife and remove the reflector from the holder.

**Fitting**

When you use a glass mirror:

1. Glue the new mirror with silicone to the holder. Allow to dry for 24 hours!
2. Fit reflector and screw firmly with the leaf springs **11** and the screws **8**.

**Attention!** Only use gas-free silicone!

The vapours from gas-containing silicone deposit on and destroy the lamp.

When you use an aluminium mirror:

3. Position the reflector on the central holder **12**.
4. Fasten the new reflector in place with the four screws **8**.

For all versions:

5. Take the lamp carrier **9** with the fitted lamp base and the dazzle protection.
6. Push the connecting cable through the opening in the centre of the reflector holder. Take care not to damage the cable or scratch the reflector.
7. Fasten the lamp holder again using the three screws **7**.
8. Reconnect the open connecting cables, which you severed during dismantling, to the plug connector (socket).  
Observe the relevant recognized technical rules!
9. Connect socket and plug of the plug connection
10. Reassemble the rear and the inside chassis.
11. Insert the halogen lamp again.
12. Push the inside chassis with the fitted rear of the appliance into the casing.
13. Screw the rear to the appliance.

## 8. Disposal

Electrical components contain ecologically harmful substances. Dispose of them properly or return the defective parts to WISKA. The address is on the back of these instructions.

## 9. Spare parts

### Searchlight head SW300 or SW300A

Designation	Art. No.
Front frame with front glass S 300	78100
Front glass	88413
Glass mirror (for SW300)	87202
Aluminium reflector (for SW300A)	87894
Silicone paste	88019
Halogen lamp 1000W, 230V	87320
Halogen lamp 1000W, 115V; GX9.5	87322
Halogen lamp 650W, 230V; GX9.5	87488
Halogen lamp 500W, 230V; GY9.5	87313
Halogen lamp 250W, 24VDC; G6.35	87310
Socket for halogen lamp GX9.5	87098
Socket for halogen lamp GY9.5	87086
Socket for halogen lamp G6.35	87010

### Remote control unit RCU

Designation	Art. No.
Joystick (XD2-GE3) (230VAC)	87342
ON/OFF switch	87341
Indicator lamp	87494

### Pan & tilt unit FL20

Designation	Art. No.
Pan motor kit 24VDC	21584
Pan motor kit fast 24VDC	21586
Pan motor kit 230VAC	21582
Tilt motor kit 24VDC	21583
Tilt motor kit fast 24VDC	21585
Tilt motor kit 230 VAC	21581

All other parts should be procured only in co-ordination with the WISKA Sales Department.

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