



SL200

Minor Surgical Light Manual

QAM.SL200.0313.14



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1. GENERAL DESCRIPTION

The DARAY SL200 is a powerful minor-surgery light which is available in wall, ceiling or mobile versions. The SL200 differs from its predecessor in having variable intensity and a more robust method of mounting the light-head.

The SL200 is for use during minor procedures, although it is also suitable for diagnosis where a powerful light of natural daylight colour is required. The light uses a sophisticated reflector to produce a 'clean' light-patch with virtually no heat in the beam. A polycarbonate diffuser gives good shadow reduction whilst protecting the light-head's components. A BioProtect® handle is provided. All surfaces are smooth to aid cleaning and sterilisation.

The SL200C comprises 4 parts: a ceiling mount containing a transformer to convert mains voltage to a safe low voltage to power the light, a variable intensity controller and a suspension arm and a light-head.

The SL200W each comprises 4 parts: a wall mounting containing a transformer to convert mains voltage to a safe low voltage to power the light, a variable intensity controller and a suspension arm and a light-head.

There are 2 versions of the wall mounted power-supply module: one for use where the mains-electrical supply cables are 'chased' into a wall, and the other fitted with an IEC inlet so the mains may be supplied via a plug-in flex from a standard mains socket.

The SL200M comprises 3 parts: a base, an up-stand with a control box containing a variable intensity controller and a transformer to convert mains voltage to a safe low voltage to power the light, a suspension arm and a light-head assembly.

2. SPECIFICATION

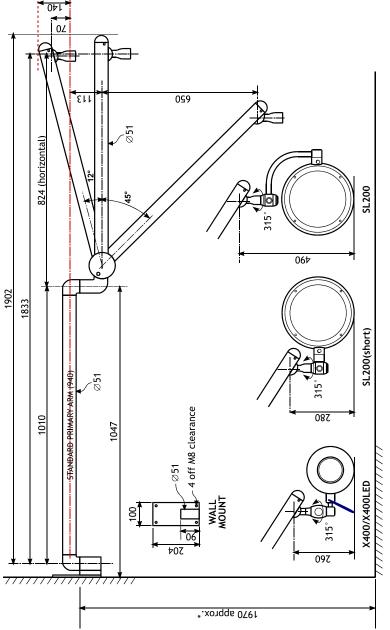
	SL200C/SL200W	SL200M
Light output at 1m	0 - 7	0,000 lux
Colour temperature	4,00	00 K, ±5%
Patch diameter at 1m	1	80mm
Power of lamp		100W
Operating voltage	2	4V AC
Input voltage	230 V 50 Hz ma	ins, class 1 (earthed)
SL200C/SL200W arm reach	1650mm	825mm
Jib arm vertical movement	+1!	5°, -45°
Quality approvals	CE, Medical-Device Dir	ective 93/42/EEC, EN60601

Serial Numbers and Labelling

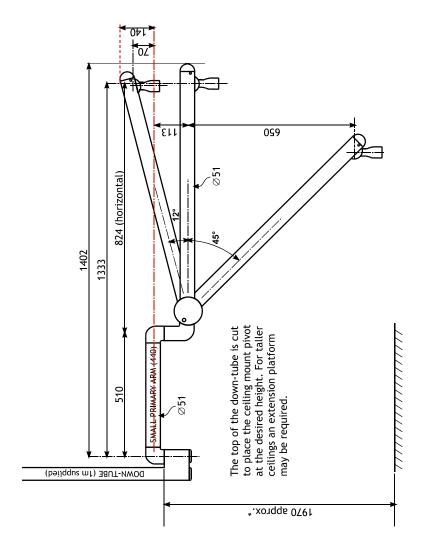
Each SL200 is assigned a unique serial number located on the mounting arm, and is also identified by a label on the arm.

The power-supply module carries its own identification and serial number.

WALL/CEILING MODEL (1)



*Dimension suggestion. For specific applications or environments, the mounting bracket should be installed at a height so that, when fitted, the light-head is as near to the required position as possible.



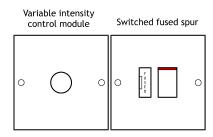
installed at a height so that, when fitted, the light-head is as near to the required position as possible. *Dimension suggestion. For specific applications or environments, the mounting bracket should be

4. OPERATION

WALL/CEILING MODELS

The SL200 wall and ceiling models are intended to be powered by a switched fused spur. The fuse should be rated at 5A. Alternatively provide another form of fused isolation.

Installation of the supplied variable intensity controller is optional.



Connect the SL200 to the mains and turn on at switched fused spur.

Where fitted, operate the variable intensity control on the power-supply module by pushing the knob.

Turn on the light using the switch on the head mounting. Set the required light intensity by rotating the intensity control knob.

If the light does not illuminate try pushing/rotating the intensity control knob. If there is still no illumination, change the lamp - see Section 4.

Note: Further fault investigation should be undertaken by only a qualified electrician.

Use the handle to steer the light-patch to where you want it; in the interests of cross-infection control, avoid touching any other part of the light. The suspension arm swivels at the mounting and at the joint between the primary and jib arms. The jib arm allows the light-head to be moved up and down. The light-head itself can rotate 350° on the jib arm, and be tilted $\pm -90^{\circ}$ from the horizontal.

After use, isolate the power on the wall, as well as the light-head switch,

MOBILE MODELS

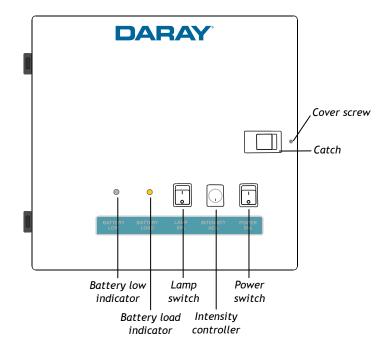
Plug the light into the mains and switch on the mains switch on the front of the PSU. Adjust the output intensity with the dimmer control on the front of the PSU.

The handle on the light-head should be used to point the light-patch where it is required. The three castors on the base have brakes which can be used to help keep the base from moving whilst the light-head position is adjusted.

Always turn the light off at the mains when it will not be used for any significant length of time.

Warning: Only move the SL200 mobile light using the handle.

BATTERY BACK-UP MODULE



The optional battery back-up module restores power if normal mains power is interrupted or impaired. It also has the advantage of the addition of a light intensity control.

To operate, turn the power switch (POWER SW.) on, turn the lamp switch (LAMP SW.) on and turn the intensity controller from 'OFF' through 'ON' and adjust to the desired level. If the light is off, check the on/off switch on the light-head.



Intensity controller

If normal mains power is interrupted or impaired the battery backup will take over immediately and will provide power to illuminate the SL200. When this happens, the battery load indicator (BATTERY LOAD) LED will light.

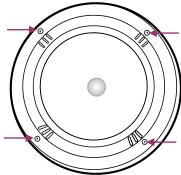
NOTE: There is no intensity control when running on battery power.

When the battery has almost run out of charge, the battery low indicator (BATTERY LOW) LED will light. It is essential that normal mains power is restored at this point to prevent the loss of illumination.

When the module is connected to the mains with the power switch on, the internal batteries are continuously charged whether the lamp is on or off.

5. LAMP REPLACEMENT

TURN OFF the mains power.



Remove the diffuser by undoing the 4 crosshead screws.

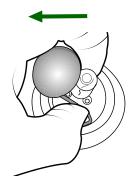
Remove the 'blue' filter. Note: take care when handling the blue borosilicate glass filter. It is fragile and costly to replace.

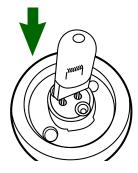
Gently move the lamp shield to one side

The shield can be refitted, if it comes out of its retaining groove, by squeezing the sides of the wire holder.

Remove the lamp by moving it from side to side and pulling it gently out of its holder.







Holding a replacement lamp by its plastic packaging, insert the wire connectors into the lamp holder.

CAUTION: use only LB4059 replacement lamps from DARAY. These are special lamps and the use of any other type would seriously impair the performance of your light.

 $\mbox{\sc CAUTION:}\ \mbox{\sc do}\ \mbox{\sc not}\ \mbox{\sc touch}\ \mbox{\sc the lamp quartz}\ \mbox{\sc envelope}\ \mbox{\sc with your fingers.}$

Refit the lamp shield, glass filter and the diffuser.

CAUTION: Do not overtighten the screws that secure the blue borosilicate glass filter. This can cause the material to crack and it is costly to replace.

6. FUSE REPLACEMENT

CAUTION: fuses normally blow for a reason. Investigate likely faults before changing fuses.

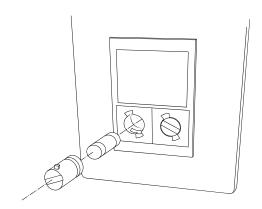
CAUTION: isolate the unit from the mains before accessing the fuses.

SL200 MOBILE

Both the live and neutral conductors are fused. The fuses are contained in a holder which is located on the side of the control box.

Using a flat-blade screwdriver, unscrew the caps by pushing and turning anti-clockwise.

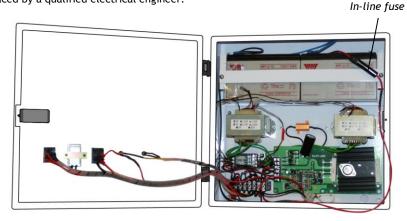
Refit new fuses and screw in the caps by pushing and turning clockwise. Do not over-tighten.



BATTERY BACK-UP MODULE

The optional battery back-up module has an internal in-line fuse.

If there is no power output from the batteries, when normal mains power is interrupted, the internal in-line fuse may have blown. Because of the risk of electric shock and the risk of permanent damage to the battery back-up module, this fuse must only be checked or replaced by a qualified electrical engineer.



Inside the battery back-up module

7. MAINTENANCE

Cleaning and disinfection.

WARNING: Do not use strong chemical cleaning agents such as 'Dettox' to sterilise the light. Do not use any abrasive materials to clean the light. CAUTION the light is not waterproof, so do not use excessive cleaning fluid amounts.

Suitably protect hands. Wipe the light using clean tissue or soft towelling - pay special attention to the switch areas. Apply to all surfaces a 1% solution of sodium hypochlorite using a soft cloth. Within 10 minutes, remove the chemical from all surfaces using a damp, soft cloth. The chemical will cause corrosion of metal parts, if it is not thoroughly removed.

Apply Isopranol to the surfaces - this is an alcohol-based fluid which evaporates without leaving any residue and can be obtained as an impregnated-cloth applicator.

Note: Do not attempt to remove the light-head steering handle.

Routine maintenance.

The SL200 is designed and manufactured to stringent quality standards. Observing the following procedures will help to maintain the light's optimum performance.

Light-head

Clean all exterior surfaces	As required	Disinfecting and cleaning directions - see above
Remove diffuser and clean internal surfaces and reflector surface	As required	Disinfecting and cleaning directions - see above

Ceiling mount

Operation	Suggested Intervals	
Inspect 6 button head socket screws for tightness and check that washers are fitted under head	Six Monthly	Tighten with appropriate Allen key.
Check that down post is rigidly mounted to the ceiling (do not exert undue force).	Annually	If any movement found - immediately advise your full service dealer.

Wall mount

Operation	Suggested Intervals	
Check for security of fixing to wall	Annually	Investigate any looseness - ensure your building contractor is consulted if looseness found.

Arm

Operation	Suggested Intervals	
On wall-mounted units, lift the arm so its spigot is almost clear of the bush in the wall-mount plate and re-lubricate if required.	Six monthly	
On ceiling mount units, support the arm and remove the 3 screws retaining the adaptor into the down-tube. Lower the arm until the adaptor and key can be removed. Slide sleeve up and inspect for lubrication. Re-lubricate spigot and sleeve if required. Re-assemble.	Six monthly	
Check tightness of all fixing screws	Annually	
Check balance of jib over whole range.	One month after installation and then annually.	If unbalanced, follow the procedure, below. If tendency is to fall from fully up, insert key in capstan hole furthest away and with jib fully up move capstan by pulling key towards you. Repeat until no fall at top. Reverse capstan if rise at bottom of jib movement.

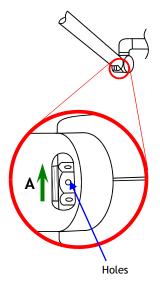
ADJUSTMENT OF ARM BALANCE TO ELIMINATE DRIFT

Insert a small implement (e.g. hex wrench 2mm AF) into one of the holes and turn capstan in the direction of Arrow A until desired balance is obtained.

Note: To eliminate rise in the jib at the fully down position turn the capstan in the opposite direction to Arrow A.

To assist in making this adjustment, it may be necessary to remove the arm joint cover: Remove the 2 snap in plugs and the 2 screws, allowing the cover half mouldings to be separated and the moving cover to slide down the jib arm. This provides better access to the slot through which the capstan nut is adjusted.

Note: When re-assembling, ensure that the moving cover is correctly positioned with the 'T' notation on the component at the 'Top'.



8. INSTALLATION/ASSEMBLY

CAUTION: this product must be earthed.

Installation - Ceiling Mount

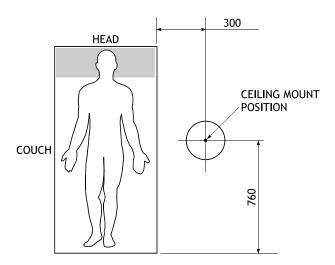
Check you have the following items:

Ceiling-mount plate assembly and cover
Down-tube
Kit of fittings D10522
Limited-rotation device D10524
Light-head and suspension arm
Power supply module

Determine where to mount light:

Determine where to mount light from the positioning and ceiling-load forces diagrams, below:

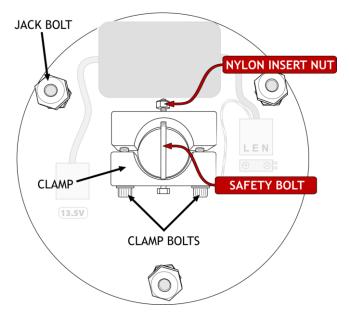
WARNING: please note that this information is provided for guidance only and that a qualified builder or structural engineer should be consulted if you have any doubt about the suitability of the proposed mounting position.



WARNING: the light-head operates from a low-voltage supply produced by a transformer in the ceiling mount assembly and fed through the suspension arm. On NO ACCOUNT should the arm be connected directly to mains voltages.

Fitting the ceiling plate

Remove the clamp bolts, safety bolt/nylon insert nut and the clamp. Keep these parts in a safe place for use later.



Fix the plate to the ceiling with bolts, screws or studs and nuts through the centre of each jack bolt. Do not fully tighten the fasteners at this point.

Note: The nuts thread-locked to the upper end of the 3 jack bolts act as pressure pads. These pressure pads must be seated firmly against the mounting surface.

The jack bolts can then be used to adjust the position of the ceiling plate and downtube.

Fitting the Down-tube

A 1 metre length of down-tube is included with all ceiling mount kits, and must be securely fitted in accordance with these instructions.

The down-tube should be cut to length on-site to suit the particular ceiling height and application.

Note when installed the down-tube must leave clearance above the ceiling mount plate to prevent the cable being trapped.

For determining the cut point, we suggest measuring the distance between the ceiling mounting plate, and a point about 1900mm above the floor.

The length of the down-tube should be altered to suit the room dimensions and the particular application for which the light is to be used.

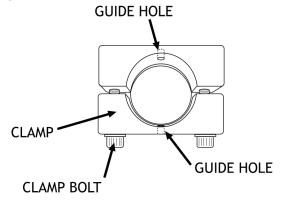
De-burr as necessary.

NOTE: For suspended ceilings, the ceiling hole trim and retaining band should be placed over the downtube BEFORE proceeding.

Loosely refit the clamp and clamp bolts. Fit the down-tube in the clamp and tighten the clamp bolts to firmly hold it in place. Drill a 6mm hole completely through the tube via the guide holes in the clamp and fit the safety bolt and nylon insert lock nut supplied.

NOTE: TO ENSURE THE USER'S SAFETY, THE SAFETY BOLT AND NYLON INSERT LOCK NUT MUST BE FITTED PROPERLY

Feed the end of the low-voltage cable assembly through the tube.



Tighten both clamp screws fully and evenly until the tube is firmly clamped.

Adjust the 3 large bolts such that the down-tube is absolutely vertical. Tighten the fixing bolts or screws to firmly clamp the jack bolts tight against the joist, tighten the thin locknuts and re-check that the down-tube remains vertical, and the mounting plate has no movement. If necessary, repeat the adjustment.

Run the low-voltage cable to the mounted power-supply module, feed it through the grommet on the top of the module and connect it to the 2-way terminal block wired to the low-voltage output from the transformer.

Refit the module to its mounted rear plate.

NOTE: For suspended ceilings cut a clearance hole in a ceiling tile, replace the tile and slide the trim up the downtube until it is firmly against ceiling tile, then roll the trim retaining band upward until it holds the trim in position.

NOTE: For conventional ceilings fit the cover, holding it in place with the retaining band from the fitting kit.

Install the primary arm

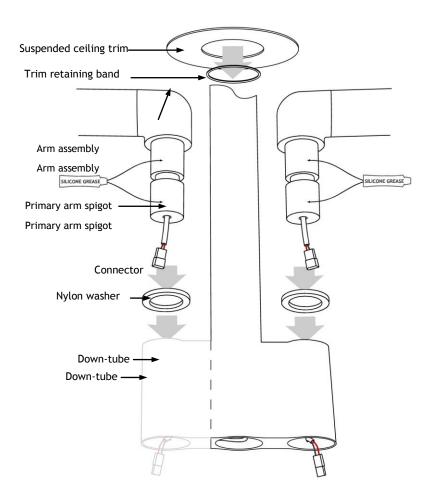


To ensure the smooth rotation of the arm, it is essential that the primary arm spigot is **lightly** lubricated before assembly.

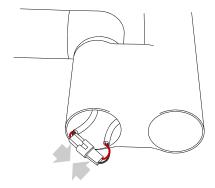
A sachet of silicon grease is provided.

Place the nylon washer over the primary arm spigot.

Insert the primary arm spigot into the down-tube.

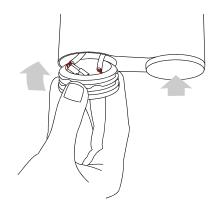


Join the connector from the primary arm to the connector from the down-tube.



Fit the supplied bungs.

Make sure to sit the joined connectors inside the bung before fitting to prevent the cable from being damaged.



Fit the jib-joint cover (see p.22).

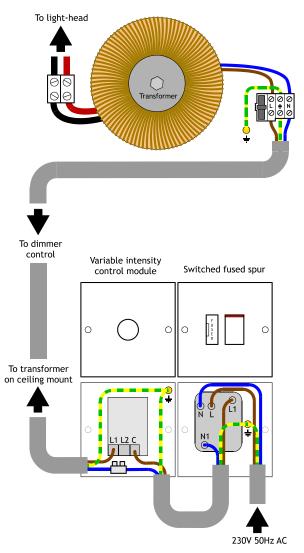
Fit the light-head (see p.23).

Check everything for tightness and safety.

Check the arm and head for freedom of movement.

Rebalance the jib arm if necessary (see p.11).

Wiring the SL200C



SL200C wiring diagram

The variable intensity control module should be mounted on a wall at a convenient position for the user.

Provide a suitable, earthed electrical supply to the variable intensity control module via a switched, fused spur.

Run a 1.5mm² twin and earth cable to the ceiling plate 230V terminal block.

Installation - Wall Mount

Check you have the following items:

Wall-mount plate

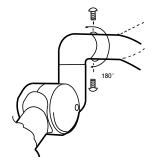
Light-head on suspension arm

Power supply module

To prevent damage in transit, the arm assembly is packed and delivered with the spigot in the ceiling-mount configuration.

For wall mounting, turn the primary arm through 180 degrees, as follows:

- Place the arm on a non-scratch surface remove the 2 screws as shown.
- Turn the primary arm through 180 and refit the 2 screws tightly, ensuring the cable is not trapped.



Determine where to mount the light bearing in mind the following wall-load forces diagram:

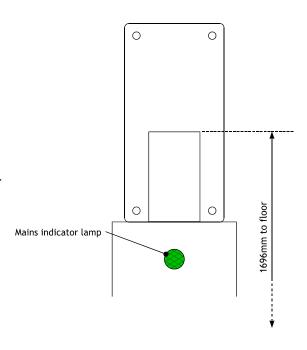
The top of the bracket into which the primary arm fits should be 1696 mm above the floor

WARNING consult a building engineer, if in doubt.

Secure the plate to the wall, ensuring that it is truly vertical.

To ensure the smooth rotation of the arm, lightly grease the spigot on the primary arm.

WARNING: the light-head operates from a low-voltage supply produced by a transformer in the power-supply module and fed through the suspension arm. On NO ACCOUNT should the arm be connected directly to mains electricity.



Fit the power-supply module directly under the wall plate.

Remove the rear plate from the power-supply module by slackening the screw in each of the 4 corners.



To ensure the smooth rotation of the arm, **lightly** grease the spigot on the primary arm with the silicone grease provided. Slide the spigot into the bracket on the wall-mount plate, feeding the low-

voltage cable from the primary arm through the top of the power-supply module.

Connect the low-voltage cable to the **2-way** terminal block wired to the low-voltage output from the transformer.

The power-supply module requires an earthed mains electrical supply either fed into its rear or into a socket on the side depending on the module supplied.

Connect the incoming mains cable to the 3-way 'LEN' terminal block in the module.

Fasten the module's earth-bond wire to the rear-plate's earth stud.

Refit the module to its mounted rear plate.

Fit the jib-joint cover (see p.22).

Fit the light-head (see p.23).

Check everything for tightness and safety.

Check the arm and head for freedom of movement.

Rebalance the jib arm, if necessary (see p.11).

Provide power to the power-supply module and check that the mains indicator illuminates.

Turn on the light using the switch on its mounting swivel and check that the light illuminates and that the dimmer control works.

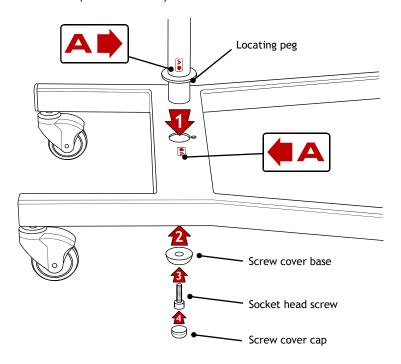
Assembly - Mobile Mount

Fit the lower section of the up-stand to the base, mating the locating peg on the lower up-stand section with its associated hole on the base.

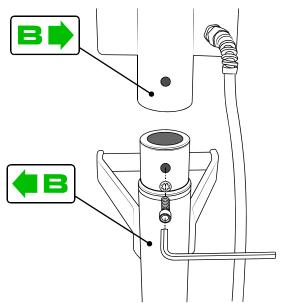
Fit the socket-head screw through the screw cover base and screw tightly into the up-stand using a hex wrench.

Fit the screw cover cap.

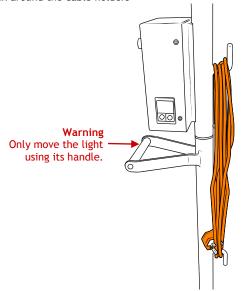
Refer to the 'peel-off' assembly marks as shown.



Fit the upper section of the up-stand to the lower section of the up-stand with the screw and shake-proof washer using the hex wrench provided.



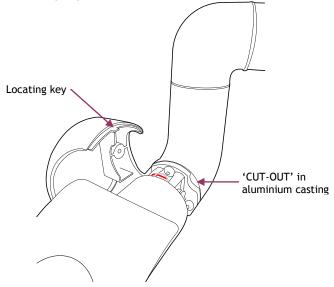
Wrap flex around the cable holders



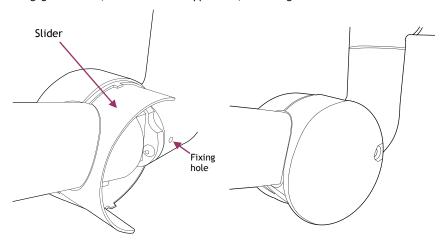
Fit the jib-joint cover (see p.23).

Fit the light-head (see p.24).

Installation - Fit the jib-joint cover



Covers are marked 'L' and 'R' on their inside faces as viewed from the end of arm. Engage the slider, with its 'T' mark uppermost, into the groove inside the cover.



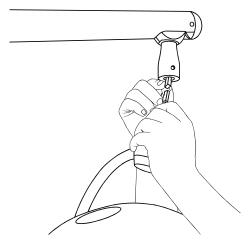
- Align holes in cover and painted elbow. 'Nip up' the screw to secure.

 DO NOT OVERTIGHTEN
 - 3.
 - **OVERTIGHTEN** Fit a plug in each hole 4.
 - Carefully check the operation of arm and the jib-joint cover.

Fit opposite cover **DO NOT**

Installation - Fitting the light-head

Connect the light-head connector to the connector in the arm

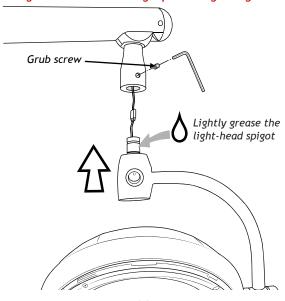




Apply a **little** grease to the light-head spigot and insert it into the arm, being careful not to trap the cable/connector.

Supporting the light-head in one hand, tighten the locking grub-screw with the hex key provided.

NOTE: Make sure the grub-screw is not too tight preventing the light-head from rotating.



9 SPARE PARTS

CAUTION: Use only genuine DARAY replacement lamps as other types may seriously impair the optical performance of the product.

ITEM NO	PART NAME	TYPE	PART NO
1	Replacement Lamp	24V, 100W	LB4059
2	Fuse	1A 20mm	D10873

Returns Policy

IMPORTANT!

Before returning your item, you must call us on 0844 375 9000

We want you to be completely satisfied with your purchase. If you need to return goods purchased from DARAY Ltd, please read the following information carefully.

The DARAY Ltd returns policy provides guidance on when you can return goods we have supplied, and what you can expect from us once you do. To see our detailed returns policy and procedure visit www.daray.co.uk/returns

TYPE OF RETURN	REMEDY
DAMAGED GOODS OR DOA* Goods which are physically damaged on delivery, or which do not function.	We must be notified within 24 hours of receipt.
GOODS DEVELOPING A FAULT	Within 14 days of delivery we will replace the item as DOA*.
Goods which have developed a fault within the warranty period.	If the fault develops after 14 days, but within the warranty period, we will initiate the returns procedure.
NON WARRANTY Goods which have developed a fault outside the warranty period.	If a fault develops outside the warranty period, we will initiate the returns procedure.
OTHER Any situation which is not covered by the above.	We will try to help, but we cannot normally offer a refund.

^{*}DOA - dead on arrival

For additional clarification, please refer to our terms and conditions at www.daray.co.uk/terms.

In a small number of cases, we may determine that a replacement would not work any better than the original product we supplied. In such cases we will only offer a refund rather than a replacement for qualifying returns.

Replacement bulbs are not eligible for returns, unless they are faulty or damaged.

Spare parts ordered on our website or from supplied part codes are not be eligible for credit. We will accept returns and exchange for the correct item.

If you purchase an item incorrectly you can return it within 14 days and it can be exchanged for another product of equal or high value, excluding transportation charges incurred.

If you send us goods that do not qualify for return, you will invalidate your claim to any refund, and you will be obliged to compensate DARAY Ltd for the cost of return postage and any other reasonable costs incurred processing the goods.

Your statutory rights are not affected.

Warranty

TERMS AND CONDITIONS OF WARRANTY

- To qualify for this warranty you must register on www.daray.co.uk or return to DARAY Ltd (DARAY) the duly completed warranty-registration form accompanying the product.
- 2. DARAY warrants this product (excluding lamp) against faulty material and workmanship during the period of the warranty. The period of warranty is the period stated on your warranty card and commences on the date of purchase of the product. In the event that the product is not in good working order DARAY will provide, during the warranty period, a free repair service within the United Kingdom. The warranty is subject to proof of purchase being provided; therefore, you should retain your original receipt.
 - 2.1 The repair service consists of the provision of spare parts and/or replacement products (at DARAY's discretion) which will be provided on an exchange basis and will either be new, equivalent to new or reconditioned. All replaced spare parts and products shall become the property of DARAY.
 - 2.2 DARAY's only obligation under this warranty is the provision of the service as set out above.
 - 2.3 All products are returned to DARAY at the customer's cost and risk. Products to be returned should be adequately packed. For the address to send returns to please visit www.daray.co.uk
- DARAY's arrangements for providing service provided under this warranty may include the use of subcontractors.
- 4. This warranty does not cover damage or defects in the Product caused by or resulting from:
 - Wilful neglect or negligence by anyone other than DARAY;
 - Improper use, storage or handling of the product;
 - Use of non-DARAY approved parts (such as replacement lamps) not compatible with the Product;
 - Fire, accident or disaster;
 - Use of non-DARAY modifications other than in accordance with DARAY's instructions;

Attachment of fittings and accessories not approved by DARAY;

Repairs, modifications carried out by service personnel not approved by DARAY;

- Damage caused by chemical corrosion from cleaning agents not approved by DARAY.
- Failure to use or install the product in accordance with the manufacturer's instructions.
- 5. Nothing in this warranty shall have the effect of restricting or excluding the liability of DARAY in respect of:
 - a) Death and personal injury caused by the negligence of DARAY, or for fraud;
 - b) Under the Consumer Protection Act 1987 to a person who has suffered damage caused by a defective product or to a dependant or relative of such a person;
 - c) Direct damage to your property caused by the proven negligence of DARAY.
- 6. This agreement does not give any rights other than those expressly set out above and in particular, DARAY will not be responsible for any loss of income, profits or contracts or any direct or indirect consequential loss, damage caused to or suffered by the purchaser as a direct result of this agreement.
- 7. This warranty is offered (subject to these terms and conditions) in addition to, and does not affect your statutory rights.
- 8. DARAY may disclose your details and other personal information to companies within the DARAY group including any subsidiary company or sub contractor of DARAY for the purposes of performing our obligations hereunder.
- 9. You must not resell outside the UK any products supplied by DARAY and covered by the Export of Goods (Control) Order 1992 (or any law that replaces it) with out obtaining all necessary licences. You also agree not to sell the product in the UK if you know or think that the person buying the product intends to export it without getting the necessary licences. You agree to impose similar conditions to these on anyone you sell the product to.
- 10. These conditions shall in all respect be governed and construed in accordance with English law and the exclusive jurisdiction of the English courts.



Alternatively register online at www.daray.com

Warranty Registration Please complete and return to our freepost address.

5 Year Warranty

Name:	Address:
Company:	
Email:	
Phone:	
Fax:	Purchased from:
Freepost plus RRAS-YGXE-SLBC	Date of purchase:
Daray Ltd Marquis Drive Swadlincote	Occasionally Daray would like to send you information about our special offers and promotions. If you do not wish to recieve such information please tick here:
DE12 6EJ	Privacy statement: DARAY will not pass on your details to any third party.
Please note:	Product:
tear i warrang includes paris and labour (return to base) Year 2 - 5 includes parts only	Serial No: