



## User Instruction & Installation Manual

### L.E.D 300 Searchlight



#### Product Reference Number:

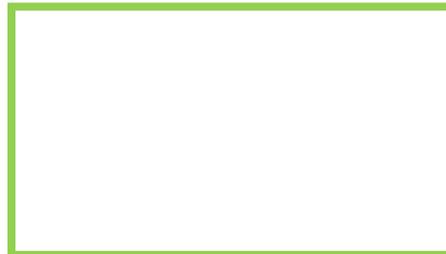
A6150 – 240v DECK

A6152 – 240v CABIN

#### *Manufacturer's details:*

Francis Searchlights Ltd  
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**Lancashire, BL2 2HJ, UK**  
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#### *Distributor details:*



Manual Part Number: C27409

Issue: 1 16.11.16

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## 1 - Introduction

**It is imperative that this manual is read carefully and understood before installing your equipment. For your future reference please keep this manual in a safe place.**

Thank you for specifying a product from the Francis Searchlights range. All Francis products are designed to give complete customer satisfaction and are manufactured to the highest engineering standards in order to ensure optimum performance and service life.

The Francis L.E.D range combines features proven over many years service in the most hazardous conditions in both marine and land installations.

In order to prolong the life and performance of your product, we recommend that you only specify Francis Searchlights spare parts. This will also ensure that any warranties on your equipment will not be invalidated. Information on spares ordering and parts is provided in this manual.

Should you ever need to contact Francis Searchlights Ltd. regarding your equipment, please quote the Product Serial Number at all times.

## 2 - Safety Precautions

The following instructions must be adhered to, in order to ensure a safe working environment and the safety of the user.

**Note: When unpacking or manoeuvring the searchlight into its fixing position, suitable lifting points must be used in order to prevent damage to the equipment or personal injury.**

- The high luminance of the L.E.D can cause severe damage to the eye if viewed directly. ALWAYS wear suitable protective goggles when viewing the L.E.D;
- Searchlights get hot. Never touch the unit when lit and always allow 15 to 20 minutes for cooling down after turning the searchlight off;
- Never place anything on or cover the searchlight when in use;
- Ensure the L.E.D has cooled sufficiently before removal;
- Due to the vast range of L.E.D modules available it may appear possible that more powerful L.E.D's can be used in the equipment than for which it was designed. Even when the unit will physically accept a higher wattage L.E.D, this substitution is not recommended and is dangerous. This action will also void any warranties on the equipment.

## 3 – Technical Information

This product has been designed to operate in accordance with the product specification. The L.E.D 300 searchlight has the following features:

- All marine grade materials and fixings;
- Powder coated finish;
- Full 360° horizontal rotation;
- Vertical movement +40° to -40°;
- Instant re-strike. No cooling down time required;
- Economical 20,000 hour L.E.D life;
- Toughened front glass;
- Luminous flux 19000;
- Colour temperature 6000K;
- G.R.P. control gear protected to IP67;

The searchlight also performs to the following optical data:

- Supply voltage – 90 to 250v;
- Peak Beam Candlepower – 2,711,280 lux;
- Range – 1647 metres;
- Divergence – Options Available Spot 4° - Mid 6° - Flood 8° ;
- Temperature range: -40 to +50

In order that the searchlight operates correctly it is imperative that competent personnel are responsible for the installation, operation and servicing of this equipment. Failure to adhere to this advice may cause premature failure or incorrect operation of the searchlight, which may damage the equipment or cause personal injury.

## 4 - Unpacking and Installation Instructions

The following instructions should be read and fully understood prior to installing the equipment to ensure that the correct procedures are followed and all safety precautions are observed.

**Note: If the equipment has been in storage for a considerable amount of time, it is advisable to conduct a routine maintenance check on all parts before installation.**

### **Safety Precautions**

This equipment should not be connected to an electrical supply before being installed. Installation procedures should be adhered to in order to ensure a safe working environment and reduce the risk of damage or personal injury.

### **Preparing the Mounting Position**

Mark out and drill the fixing holes through the deck. If anti-vibration mounts are to be fitted, the fixing holes for the mounts should also be marked out and drilled. Prior to manoeuvring the searchlight into its' fixing position, the AV mounts should be fitted to the base. When in the desired position, bolt the searchlight firmly down.

## 5 - Electrical Installation

For safety purposes, only competent personnel should perform the electrical installation. All equipment should be installed to current Electrical Regulations and Standards.

In order to obtain the maximum light output from the searchlight, it is essential that the full operating voltage of the L.E.D fitted be applied to the L.E.D contacts.

### **Method of Electrical Connection**

- 1) Disconnect the supply before working on the electrical system;
- 2) The searchlight must be connected to a fused electrical supply, using suitably sized cable;
- 3) If the searchlight is located a considerable distance from the supply, provision must be made in the cable size in order to overcome the voltage drop.
- 4) Whenever possible cable terminations should be made below deck and with approved terminal devices;
- 5) If a spare auxiliary fuse or circuit breaker is not available, one of the correct type and rating should be fitted and connected to a positive supply. It is advisable to locate a bus bar or main connection and avoid any direct connection to the supply:
- 6) For 110/220v AC products, the following colour coding system should be used for the customer supply cable:

Brown	- Live
Blue	- Negative
Green/Yellow	- Earth

## **Installation Guideline**

A typical installation and connection routine for the L.E.D 300 searchlight is as follows:

Referring to wiring diagram C27317, a supply is fed into the control gear enclosure, which then provides a common feed to the searchlight.

Cables required to be connected by the customer: -

5 core 1.5mm cable from the Control Gear to the Searchlight,

(Customer may need to provide a suitable junction box to this cable, 3 metres supplied).

The Mains cable to the Control Gear is to be supplied by the customer.

## **6 - Operating Instructions**

This equipment is designed for use out of doors, in free air. Never place anything on, or cover the searchlight when in use as this may present a hazard.

The beam of the searchlight cannot be adjusted.

Using the template provided mark out and drill the fixing holes through the deck or cabin roof. In case of cabin control models, a centre hole is also required to allow the mechanism to pass through.

On an uneven surface when bolting down the searchlight it is necessary to use a suitable sealant, such as silicone, in order to ensure weather proofed joint.

Please note that if a heater is fitted, it is advisable to leave the heater permanently in the 'ON' position in order to remove any condensation. The heater specified on this equipment is self-regulating and will shut off when the dew point temperature is reached.

**This product should not be used for any purpose other than for which it was designed. Any modifications to the product should not be undertaken without consulting the manufacturer.**

## **7- Fault Finding**

All fault finding must be conducted by a competent person or qualified Electrical Engineer.

### **Failure of L.E.D to light.**

In the event of the L.E.D failing to light the following steps should be taken:

- 1) Check that the mains supply is connected to the input of the L.E.D driver and check all connections as per the wiring diagram. On operation if the L.E.D does not light, switch off mains supply and check all fuses;

## 8 - Maintenance and Servicing

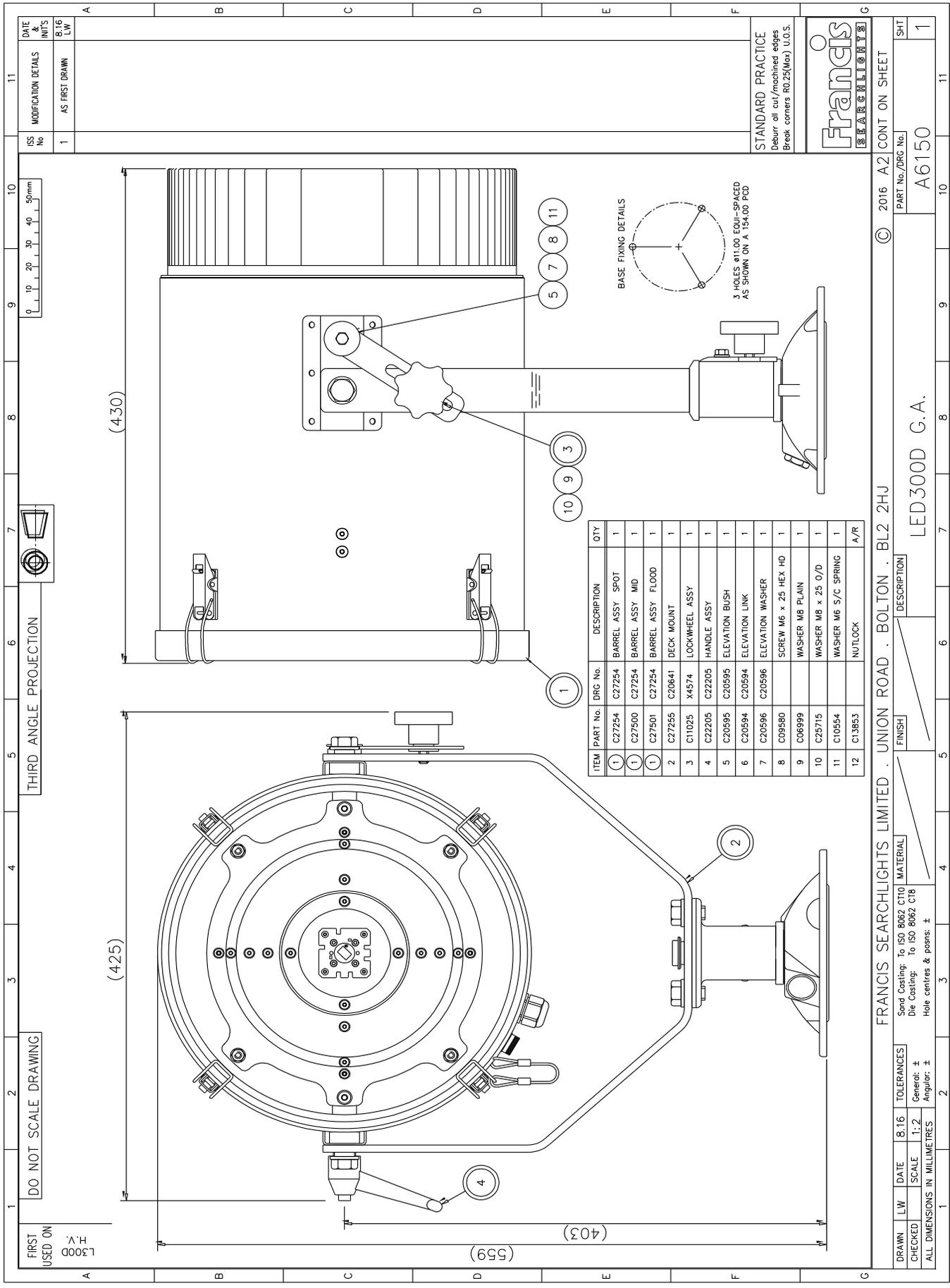
In order to prolong the service life and performance of your searchlight, the following maintenance guidelines are recommended:

- Maintenance checks should be conducted before every voyage or at least every three months;
- Before checking, disconnect the equipment from the supply;
- Visually inspect the condition of the equipment;
- Any major or minor structural damage should be rectified immediately in order to reduce sympathetic wear;
- After inspection it may be necessary to clean the inside of the searchlight. The following procedure should be adhered to:
  - Remove the front bezel;
  - Clean the front glass inside and out using a proprietary glass cleaner;
  - Clean the lenses if required;
- It is advisable to check all seals and gaskets for signs of degradation. Renew if necessary;
- Upon completing all maintenance requirements the searchlight should be tested for full working order (approximately 20 minutes).
- Every six months the external movement mechanisms i.e. lockwheels, elevation and pan mechanisms, should be lightly lubricated.

**If in any doubt as to the correct servicing procedures to adopt please contact your distributor/agent or the manufacturer who will be able to advise the best course of action for your product.**

## 9 - Wiring Diagrams & General Assemblies

<b>Drawing Number</b>	<b>Description</b>
A6150	L.E.D300 Deck GA
A6152	L.E.D300 Cabin GA
C27317	Wiring Diagram
C27259	Junction Box Assembly Spot, Mid, Flood Instructions



FIRST USED ON  
L3000  
H.V.

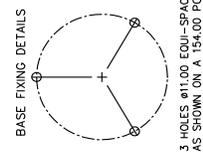
DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION



ISS No	1
DATE & INTS	8.16 LW
MODIFICATION DETAILS	AS FIRST DRAWN

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C27254	C27254	BARREL ASSY. SPOT	1
1	C27500	C27254	BARREL ASSY. MID	1
1	C27501	C27254	BARREL ASSY. FLOOD	1
2	C27255	C20641	DECK MOUNT	1
3	C11025	X4574	LOCKWHEEL ASSY	1
4	C22205	C22205	HANDLE ASSY	1
5	C20595	C20595	ELEVATION BUSH	1
6	C20594	C20594	ELEVATION LINK	1
7	C20596	C20596	ELEVATION WASHER	1
8	C09580		SCREW M6 x 25 HEX HD	1
9	C06999		WASHER M8 PLAIN	1
10	C23715		WASHER M8 x 25 O/D	1
11	C10554		WASHER M8 S/C SPRING	1
12	C13853		NU/LOCK	A/R



STANDARD PRACTICE  
Deburr all cu/machined edges  
Break corners R0.25(Max) U.O.S.



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Part No./DRG No. A6150

DESCRIPTION LED3000 G.A.

FINISH To ISO 8062 CT10 MATERIAL

Sand Casting: To ISO 8062 CT10 MATERIAL

Die Casting: To ISO 8062 CT8

Hole centres & posns: ±

TOLERANCES  
General: ±  
Angular: ±

SCALE 1:2

DATE 8.16

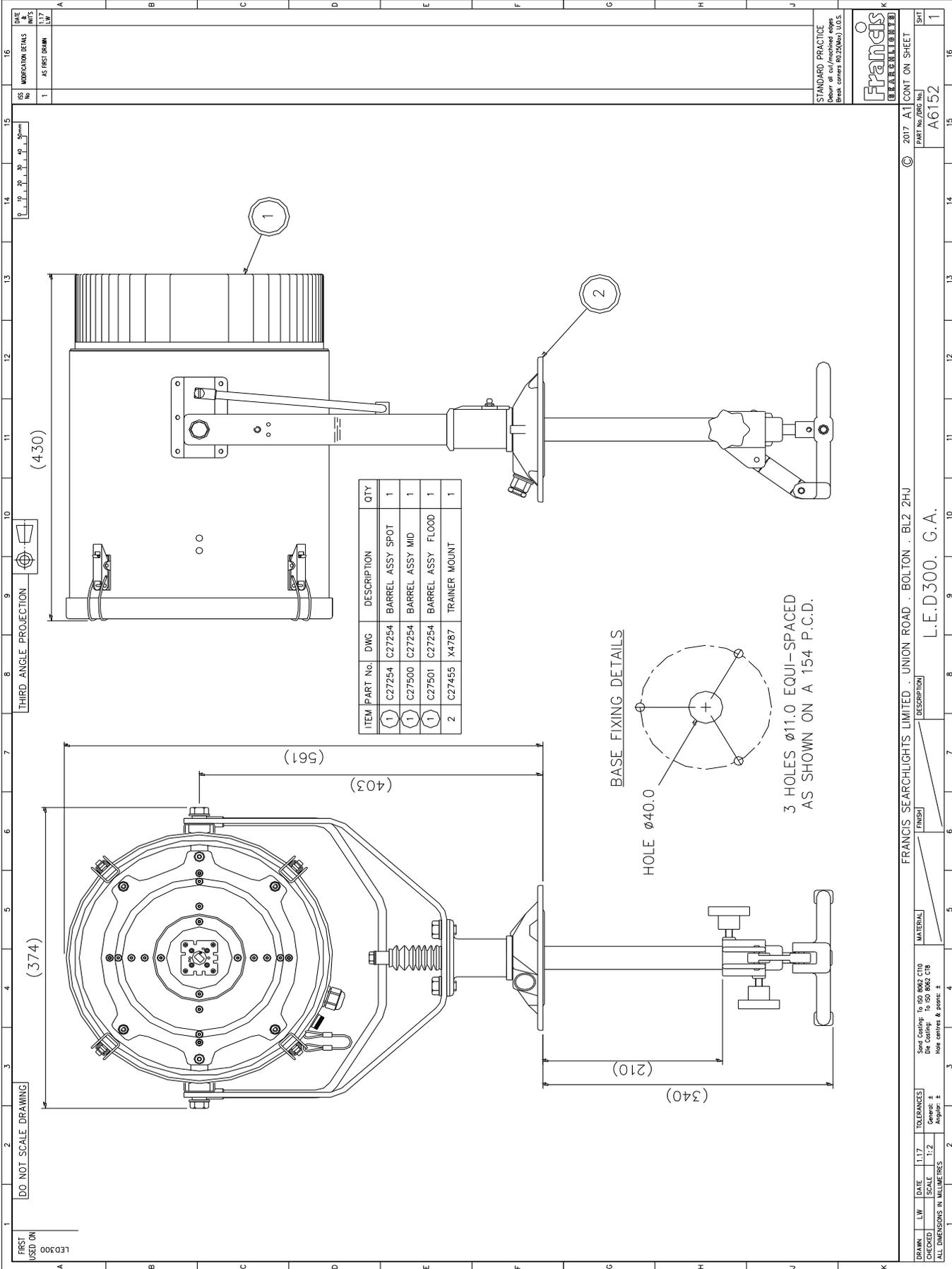
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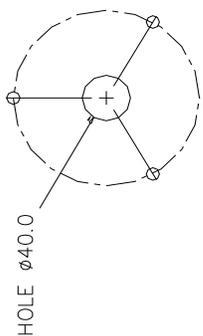
PART No./DRG No. A6150

SHT 1



ITEM	PART No.	DWG	DESCRIPTION	QTY
1	C27254	C27254	BARREL ASSY SPOT	1
1	C27500	C27254	BARREL ASSY MID	1
1	C27501	C27254	BARREL ASSY FLOOD	1
2	C27455	X4787	TRAINER MOUNT	1

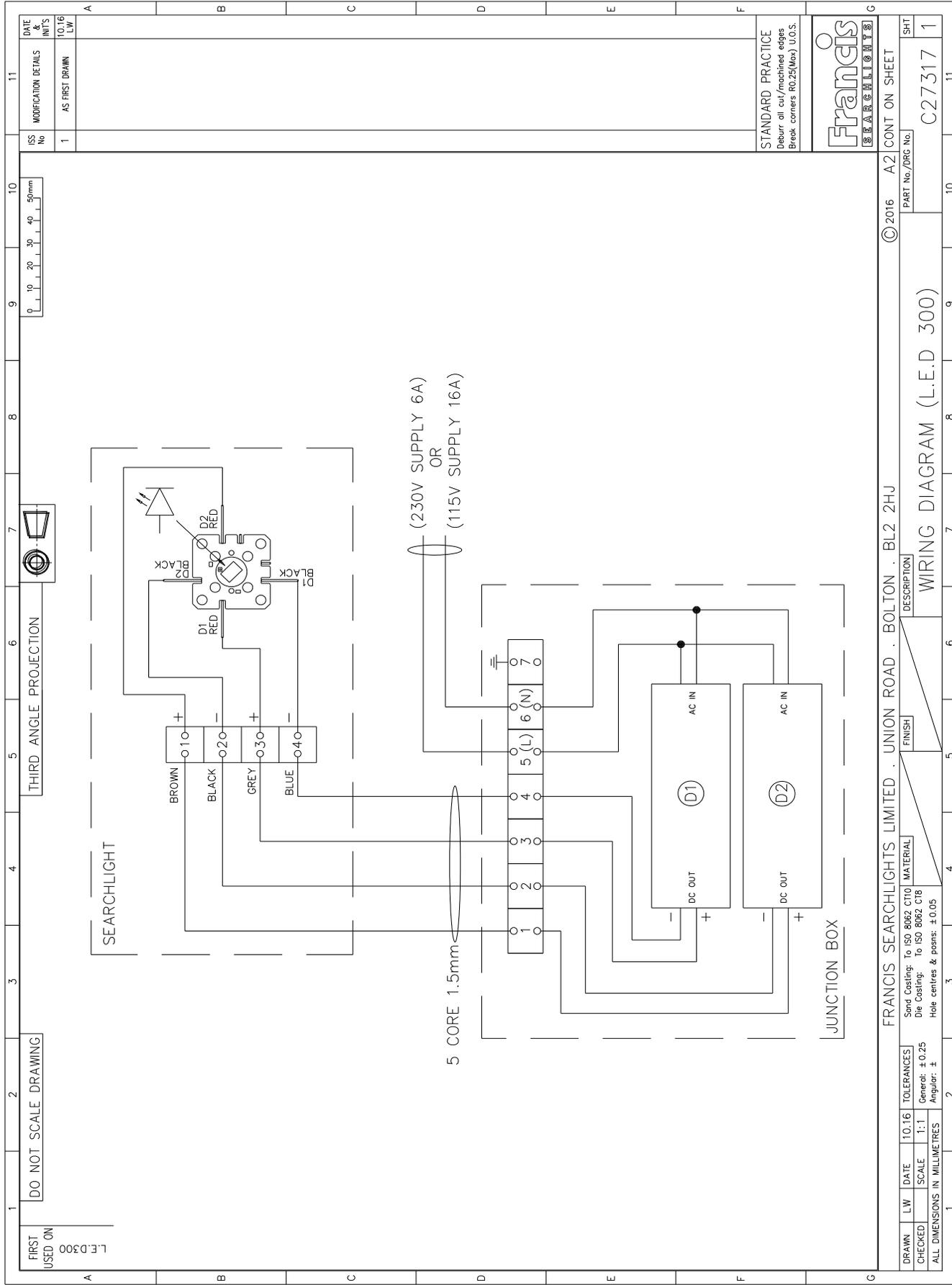
BASE FIXING DETAILS



3 HOLES Ø11.0 EQUI-SPACED AS SHOWN ON A 154 P.C.D.

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ISS No	1	DATE	10.16
MODIFICATION DETAILS	AS FIRST DRAWN	INIT'S	LW

FIRST USED ON L.E.D.300

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

SEARCHLIGHT

5 CORE 1.5mm

(230V SUPPLY 6A) OR (115V SUPPLY 16A)

JUNCTION BOX

SEARCHLIGHTS

STANDARD PRACTICE

Deburr all cut/machined edges

Break corners R0.25(Max) U.O.S.

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Francis

SEARCHLIGHTS

Part No./DRG No.

C27317

SHT

1

11

10

9

8

7

6

5

4

3

2

1

11

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9

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7

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5

4

3

2

1

FRANCIS SEARCHLIGHTS LIMITED . UNION ROAD . BOLTON . BL2 2HU

Material: Sand Casting: To ISO 8062 CT10 Die Casting: To ISO 8062 CT8

Finish: Hole centres & posns: ± 0.05

Description

WIRING DIAGRAM (L.E.D 300)



DATE	16
MODIFICATION DETAILS	
SS No	1
AS FIRST DRAWN	
BY	
CHKD	
APP'D	

DATE	16
MODIFICATION DETAILS	
SS No	1
AS FIRST DRAWN	
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CHKD	
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DATE	16
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SS No	1
AS FIRST DRAWN	
BY	
CHKD	
APP'D	

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

REAR PILLARS LOCATE INTO HOLES WITHIN THE HEATSINK

IN 4 POS'N M6 NUTS

IN 2 POS'N M6 SCREWS

IN 2 POS'N FIXING BRACKETS

SCREWS & NUTS RETAINING THE FIXING BRACKETS

IN 4 POS'N

1 OFF M6 LOCK NUT ON EACH OF THE SUPPORT PILLARS FOR MID

2 OFF M6 LOCK NUTS ON EACH OF THE SUPPORT PILLARS FOR FLOOD

NO LOCK NUT ON EACH OF THE SUPPORT PILLARS FOR SPOT

TO ADJUST THE BEAM ANGLE FROM MID TO SPOT OR FLOOD UNDO THE FOUR M6 NUTS ON THE SUPPORT PILLARS & THE TWO M6 SCREWS ON THE SIDE FIXING BRACKETS & THEN REMOVE THE L.E.D LENS ASSY FROM THE BARREL NOW REMOVE THE TWO SIDE FIXING BRACKETS BY UNDOING THE M5 SCREWS & NUTS THAT HOLD THE BRACKETS & REPLACE WITH EITHER

SPOT BRACKET C27247

FLOOD BRACKET C27451

REPLACE THE TWO REAR PILLARS WITH EITHER

75.30 C27238 (SPOT-PILLAR)

81.30 C27453 (FLOOD-PILLAR)

WHEN FITTING THE FLOOD PILLAR THERE SHOULD BE TWO M6 LOCKING NUTS ON EACH OF THE FOUR SUPPORT PILLARS

WHEN FITTING THE SPOT PILLAR THERE SHOULD BE NO M6 LOCKING NUTS ON THE FOUR SUPPORT PILLARS

PRE FITTED ITEMS IF MID ORDERED

78.30±0.10 C27452 (MID-PILLAR)

MID BRACKET C27450

36.50

STANDARD PRACTICE  
Drawn at 2x/As-machined edges  
Break corners R0.25(Min) U.O.S.

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Francis

UNION ROAD · BOLTON · BL2 2HU

SPOT, MID, FLOOD INSTRUCTIONS

DESCRIPTION

FINISH

MATERIAL

Small Casting: 1x ISO 8825 C10  
Large Casting: 1x ISO 8825 C10  
Heat treated & Polished

TOLERANCES

General: ±0.10

Asympt: ±0.05

DATE

SCALE

1:2

DRWN

LW

8/16

2

1

1

1

1

## 10 – Spare Parts List

The following spare parts can be ordered directly from the manufacturer:

<b>Part Number</b>	<b>Description</b>
C27229-00	L.E.D Module
C27230-00	L.E.D Adapter
C27224-00	Front glass
C20567-00	Front glass gasket
C27231-00	L.E.D Driver
C22268-01	Breather Assembly
C27247-01	Spot Bracket
C27238-01	Spot Pillar
C27450-01	Mid Bracket
C27452-01	Mid Pillar
C27451-01	Flood Bracket
C27453-01	Flood Pillar

In order to prolong the life and performance of your product, we recommend that you only specify Francis Searchlights spare parts. This will ensure that any warranties on your equipment will not be invalidated.

When ordering spare parts please contact the Sales Department at Francis Searchlights Limited. Please quote searchlight model and serial number at all times. This will enable a fast response to your spares' requirements.