



## User Instruction & Installation Manual

### L230 LED 40 Watt Searchlight



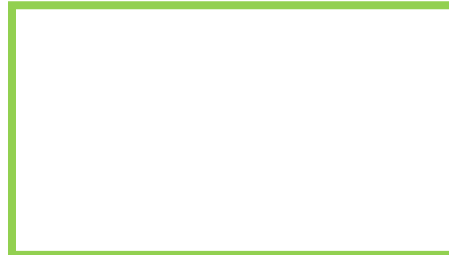
#### Product Reference Number:

**A6158 – 12/24v DECK**  
**A6159 – 12/24v CABIN**

#### *Manufacturer's details:*

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#### *Distributor details:*



Manual Part Number: C27604  
Issue: 3      EC1773      23/7/19

# CONTENTS

- 1 - Introduction
- 2 - Safety Precautions
- 3 - Technical Information
- 4 - Unpacking and Installation Instructions
- 5 - Electrical Installation
- 6 - Operating Instructions
- 7 - Fault Finding
- 8 - Maintenance and Servicing
- 9 - Wiring Diagrams & General Assemblies
- 10 - Spare Parts List

# 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 LED 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.

- The high luminance of the LED can cause severe damage to the eye if viewed directly. ALWAYS wear suitable protective goggles when viewing the LED;
- 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 LED has cooled sufficiently before removal;
- Due to the vast range of LED modules available it may appear possible that more powerful LED's can be used in the equipment than for which it was designed. Even when the unit will physically accept a higher wattage LED, 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 L230 LED 40w searchlight has the following features:

- All marine grade materials and fixings;
- Powder coated finish;
- Horizontal rotation 360°;
- Vertical movement  $\pm 35^\circ$ ;
- Instant re-strike. No cooling down time required;
- Economical 30,000 hour LED life;
- Toughened Opti White front glass;
- Luminous flux 4800;
- Colour temperature 6000K;
- Searchlight Weight 4Kg;

The searchlight also performs to the following optical data:

- Supply voltage – 12v or 24v;
- Range – 500 metres at 1 Lux;
- Divergence – 5°;
- 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 3 off holes Ø6.4mm on a 108mm P.C.D.

A central hole Ø50mm will be required to accept the movement of the control handle. Make sure to fit the Base-sealing gasket, when in the desired position bolt the searchlight firmly down. On an uneven surface a suitable sealant maybe required to provide a weatherproof seal.

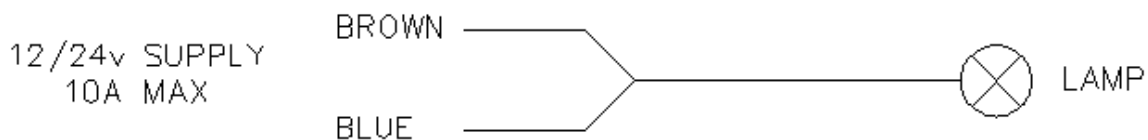
## 5 - Electrical Installation

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 LED fitted be applied to the LED 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/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) When wiring the negative supply, the direct connection to a battery or supply, or metal hull/object, should be avoided. It is advisable to use a suitable terminal block or connection.
- 7) For ease of use a single pole switch, of the appropriate rating, should be fitted in a convenient location. All cable lengths should be kept to a minimum.



## 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.

**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 LED to light.**

In the event of the LED failing to light the following steps should be taken:

- 1) Check that the supply is connected to the input of the LED and check all connections as per the wiring diagram C27603. On operation if the lamp does not light, switch off 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 reflector 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).

**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.**

### **Notes for Lamp Fitting/Removal**

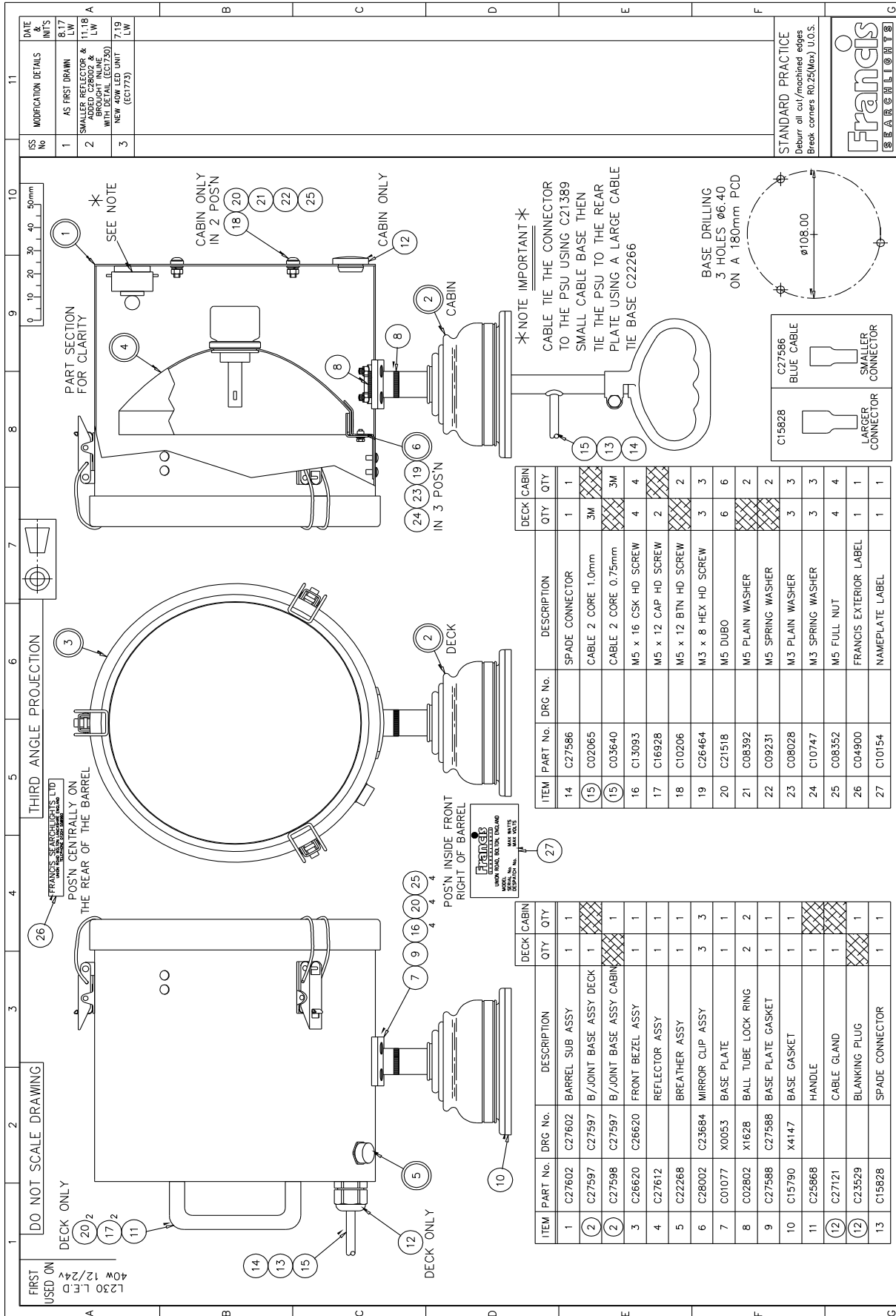
**Ensure all screws are retained carefully in a safe position;**

- Remove front bezel from searchlight by releasing the three latches;
- Remove the three M3 hex head screws that fasten the Mirror Clips to the Mirror Pads.
- Remove reflector & unclip lamp leads.
- For aid see Diagram **C27612**.

## 9 - Wiring Diagrams & General Assemblies

<b>Drawing Number</b>	<b>Description</b>
A6158/A6159	L230 LED 40w 12/24v Deck/Cabin GA
C27612	Reflector Assembly (Lamp fitting/removal guide)
C27603	Wiring Diagram 12/24v





ISS No	MODIFICATION DETAILS	DATE & INT'S
1	AS FIRST DRAWN	8.17 L/W
2	SMALLER REFLECTOR & ADDED CERAMIC & WITH DETAIL (EC1730)	11.18 L/W
3	NEW 40W LED UNIT (EC1773)	7.19 L/W

ITEM	PART No.	DRG No.	DESCRIPTION	DECK CABIN	QTY
1	C27602	C27602	BARREL SUB ASSY		1
2	C27597	C27597	B/JOINT BASE ASSY DECK		1
2	C27598	C27597	B/JOINT BASE ASSY CABIN		1
3	C26620	C26620	FRONT BEZEL ASSY		1
4	C27612		REFLECTOR ASSY		1
5	C22268		BREATHER ASSY		1
6	C28002	C23684	MIRROR CLIP ASSY		3
7	C01077	X0053	BASE PLATE		1
8	C02802	X1628	BALL TUBE LOCK RING		2
9	C27588	C27588	BASE PLATE GASKET		1
10	C15790	X4147	BASE GASKET		1
11	C25868		HANDLE		1
12	C27121		CABLE GLAND		1
12	C23529		BLANKING PLUG		1
13	C15828		SPADE CONNECTOR		1

ITEM	PART No.	DRG No.	DESCRIPTION	DECK CABIN	QTY
14	C27586		SPADE CONNECTOR		1
15	C02065		CABLE 2 CORE 1.0mm		3M
15	C03640		CABLE 2 CORE 0.75mm		3M
16	C13093		M5 x 16 CSK HD SCREW		4
17	C16928		M5 x 12 CAP HD SCREW		2
18	C10206		M5 x 12 BTN HD SCREW		2
19	C26464		M3 x 8 HEX HD SCREW		3
20	C21518		M5 DUBO		6
21	C08392		M5 PLAIN WASHER		2
22	C09231		M5 SPRING WASHER		2
23	C08028		M3 PLAIN WASHER		3
24	C10747		M3 SPRING WASHER		3
25	C08352		M5 FULL NUT		4
26	C04900		FRANCIS EXTERIOR LABEL		1
27	C10154		NAMEPLATE LABEL		1

STANDARD PRACTICE  
Debur all cut/finished edges  
Break corners R0.25(Min) D.O.S.



DRAWN	LW	DATE	SCALE	TOLERANCES	General: ±	Angular: ±	MATERIAL	FINISH	DESCRIPTION
		8.17	1:2	ISO 8062	CT10				A6158 L230DECK L.E.D 40W 12/24V GA
CHECKED				ISO 8062	C18				A6159 L230CABIN L.E.D 40W 12/24V GA

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PART No./DRG No. A6158  
SHT 1

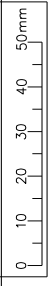
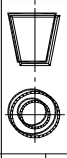
FRANCIS SEARCHLIGHTS LIMITED · UNION ROAD · BOLTON · BL2 2HU

ALL DIMENSIONS IN MILLIMETRES

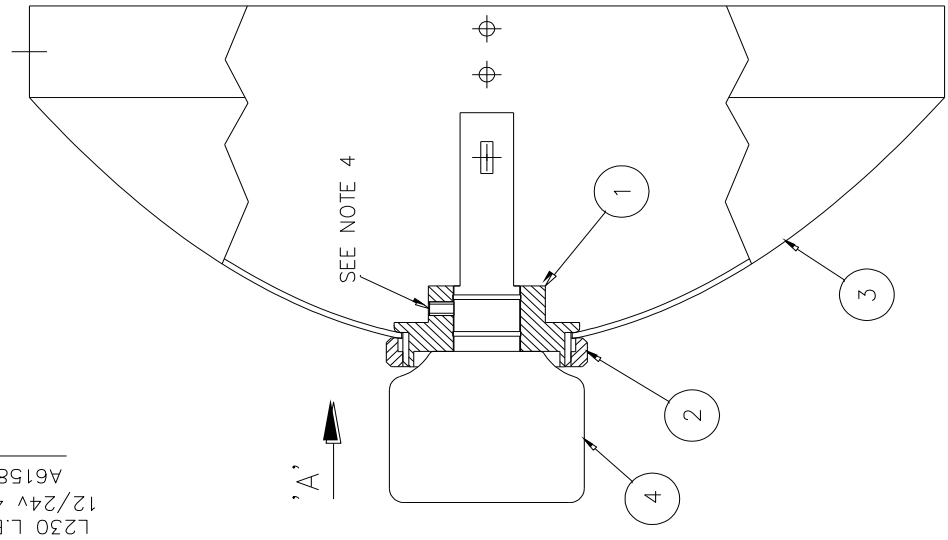
FIRST USED ON  
L230 L.F.D  
12/24V 40W  
A6158

DO NOT SCALE DRAWING

THIRD ANGLE PROJ



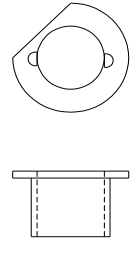
ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	8.17 LW
2	SMALLER REFLECTOR NOW USED (EC1730)	11.18 LW
3	NEW DESIGN FROM 23.7.19 (EC1773)	7.19 LW



1. FIT THE LAMPHOLDER (ITEM 1) & NUT (ITEM 2) TO THE REFLECTOR
2. PLACE THE LAMP THROUGH THE LAMPHOLDER, SEE ARROW 'A'
3. POWER ON THE LED & ROTATE THE LED TO ACHIEVE BEST BEAM
4. ONCE BEST BEAM IS ACHIVED NIP UP THE M3 GRUB SCREW (M3 x 5 GRUB SCREW IS SUPPLIED WITH THE LAMP)

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C28164	C28164	LAMPHOLDER	1
2	C28165	C28165	LAMPHOLDER NUT	1
3	C25988	C25988	REFLECTOR	1
4	C28166		LED FAN UNIT	1

REMOVE & DISCARD H1 FITTING FROM LAMP



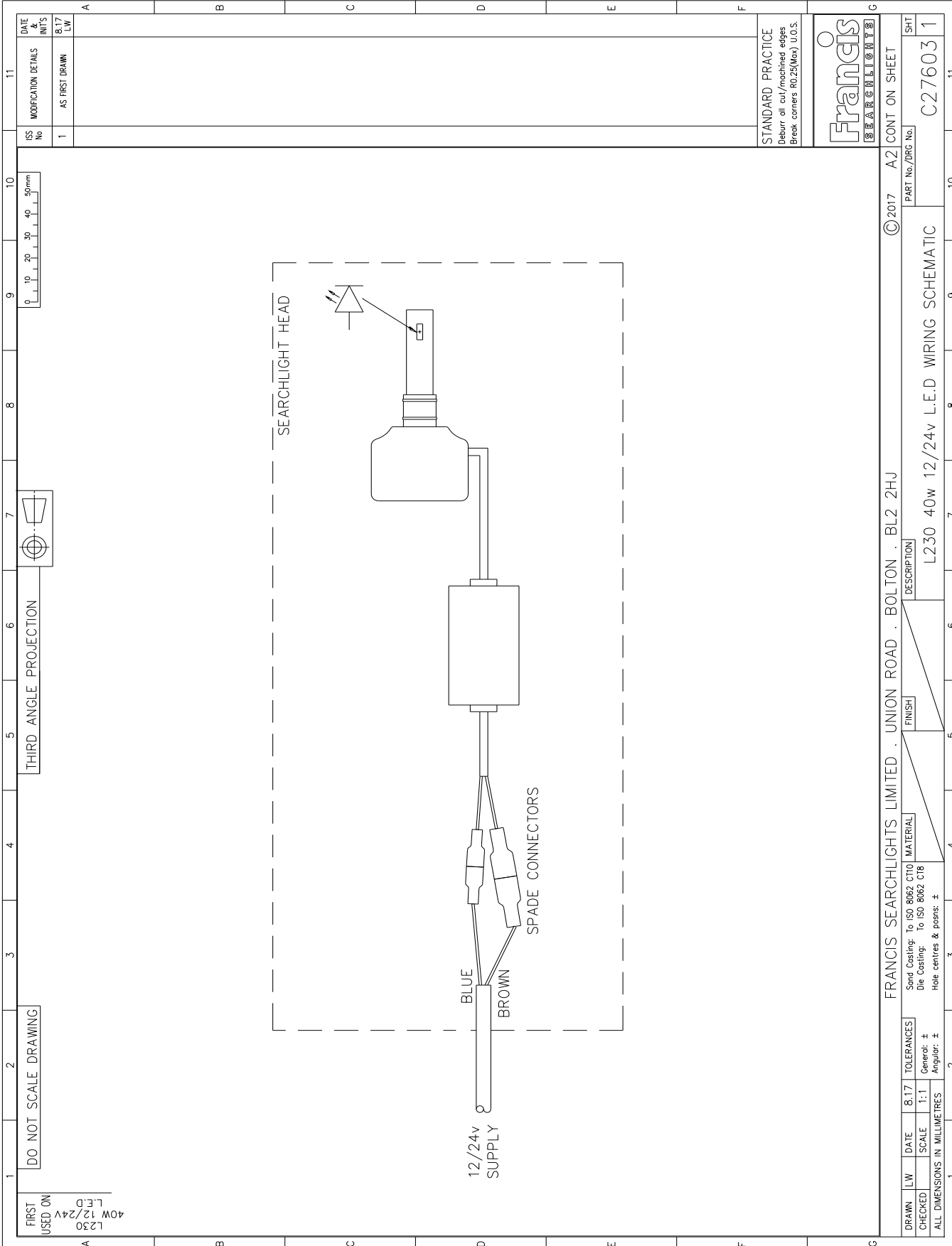
**STANDARD PRACTICE**  
Deburr all cut/machined edges  
Break corners R0.25(Mex) U.O.S.

**TOLERANCES U.O.S: -**  
General: ± 0.25  
Angular: ±  
Hole centres & posns: ± 0.125

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



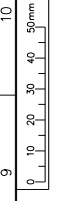
DRAWN LW		DATE 8.17	MATERIAL	FRANCIS SEARCHLIGHTS LIMITED, UNION ROAD, BOLTON, BL2 2HJ		© 2017	A3	CONT ON SHEET
CHECKED	SCALE 1:1	FINISH		DESCRIPTION	PART No./DRG No.	SHT	1	
ALL DIMENSIONS IN MILLIMETRES				REFLECTOR ASSY	C27612			



FRST USED ON  
40W 12/24V  
L.E.D  
L230

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION



ISS No	1	MODIFICATION DETAILS	AS FIRST DRAWING	DATE & UNITS	8.17 LW
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STANDARD PRACTICE  
Debur all cut/machined edges  
Break corners R0.25(Max) U.O.S.



© 2017	A2	CONT ON SHEET
PART No./DRC No.	C27603 1	
DESCRIPTION	L230 40w 12/24v L.E.D WIRING SCHEMATIC	
FINISH		
MATERIAL		
Sand Casting: To ISO 8062 CT10		
Die Casting: To ISO 8062 CT8		
Hole centres & posns: ±		
TOLERANCES	8.17	
General: ±	1:1	
Angular: ±		
ALL DIMENSIONS IN MILLIMETRES		

## 10 – Spare Parts List

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

<b>Part Number</b>	<b>Description</b>
C15790-00	Base Gasket
C26630-00	Front Glass
C21141-00	Front Glass Gasket
C22268-01	Breather Assembly
C28166-00	LED Unit
C25988-00	Reflector

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.