



User Instruction & Installation Manual

L300 110w Searchlight



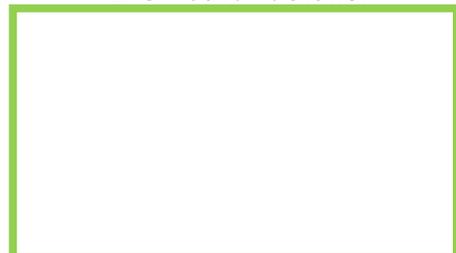
Product Reference Number:

- A6172 – 240v Deck
- A6173 – 240v Cabin
- A6174 – 240v Deck Pedestal
- A6175 – 240v Cabin Pedestal

Manufacturer's details:

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Manual Part Number: C27731

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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 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.

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 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 L300 110W LED searchlight has the following features:

- All marine grade materials and fixings;
- Powder coated finish;
- Full 450° horizontal rotation;
- Vertical movement $\pm 40^\circ$ (Deck & Deck Pedestal);
- Vertical movement $+30^\circ$ to -25° (Cabin & Cabin Pedestal);
- Instant re-strike. No cooling down time required;
- Economical 33,000 hour LED life;
- Toughened super clear Optiwhite front glass;
- Searchlight & Control Gear protected to IP66;
- Searchlight weight 12 Kgs, PSU weight 2.5 Kgs;

The searchlight also performs to the following optical data:

- Supply voltage – 90 to 250v;
- Luminous flux 13,900;
- Colour temperature 6500K;
- Range – 1129 metres;
- Divergence – 7° spot 20° flood;
- Temperature range: -50 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, using the template provided. 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.

In the case of cabin control models, a centre hole is also required to allow the mechanism to pass through. Fit the 'O' ring in position and bolt the searchlight down securely. On an uneven surface it is necessary to use a suitable sealant, such as silicone, to ensure a weatherproofed joint.

For cabin control models it is necessary to remove the Underdeck control assembly prior to installation. Using the Allen key provided, the five grub screws on the Underdeck mechanism should be loosened to allow the Underdeck control assembly to be removed. The outer tube can now be positioned through the centre hole. The searchlight base can now be securely fixed as stated above.

Upon installation, re-assemble the Underdeck control mechanism ensuring the grub screws are secure and the mechanism operates correctly.

Fitting Instructions for Cabin Model

Preparing the Mounting Position

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

Mounting the Searchlight

For Deck Models:

Fit the 'O' ring in position and bolt the searchlight base securely down. On an uneven surface it is necessary to use a suitable sealant, such as silicone, in order to ensure a weather proofed joint.

For Cabin/Cabin Pedestal Models:



1. Remove the Base Lock Wheel.



2. Replace Lock Wheel with M8 x 10 hexagon screw in the bottom fixing



3. Now remove the following items as these are only required on deck models Barrel Lock Wheel, Elevation Link and fixings



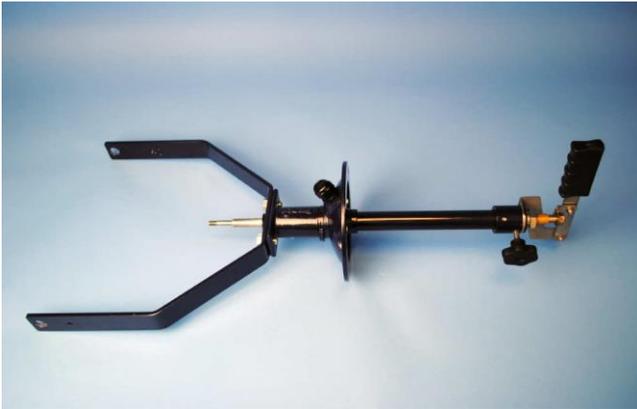
4. When installing the Under Deck mechanism, first separate the following items. U-Piece Assembly, M8 nyloc nut, M8 plain washer, M12 plain washer, Rubber Bellows, Bellows Top Bush and the Push Rod Top Bush



5. Remove the Blanking Plug from the Bellows Bottom Bush.



6. Insert the Under Deck through the centre hole making sure it's aligned as photos below



7. Fasten the Under Deck mechanism Using the 3 off M6 x 16 screws and spring washers



8. Re-Fit the following items:
Push Rod Top Bush



9. Bellows Top Bush.

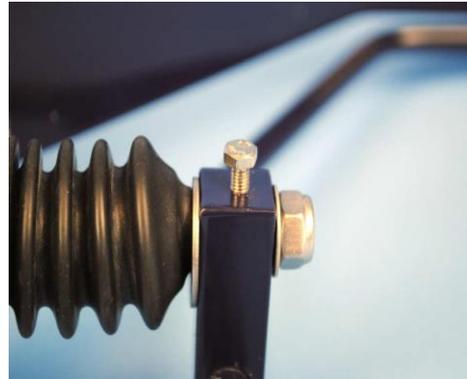


10. Bellows.



11. M12 plain washer. U-Piece Assy.
M8 plain washer. M8 nyloc nut.

12. Make sure the mechanism is in this position before tightening the M5 x 8 hexagon screw onto the flat of the push rod



13. U-Piece fixings.



14. Fix the U-Piece Assembly using U-Piece fixings make sure there is a plain washer both sides of the U-Piece Bush.



15. Completed.
Make sure the Searchlight pans and tilts correctly.

For Pedestal Models:

Mark out and drill through cabin roof using the template provided. Remove the cable gland in the base and replace with the blanking plug supplied. Secure the pedestal to the deck using appropriate fixings and then mount the searchlight to the pedestal and secure using the fixings provided. A drilled hole is also required in the deck to allow for the connection to an electrical supply. The searchlight is supplied with 3 metres of supply cable so that the installer can choose a suitable connection point.

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 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 L300 110W LED searchlight is as follows:

Referring to wiring diagram C27730, 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: -

3 cores 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 searchlight can be positioned using the elevation and base plate lockwheels. When in the desired position the lockwheels should be securely fastened to maintain position.

The beam of the searchlight can be adjusted to give a variety of beam types. Using the focus knob on the underside of the searchlight, the desired beam can be achieved for any particular application. The beam will move through 'spot' to 'flood'. In order to fix the beam type; simply release the knob at the desired position

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 an optional 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 LED to light.

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

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

8 - Maintenance and Servicing

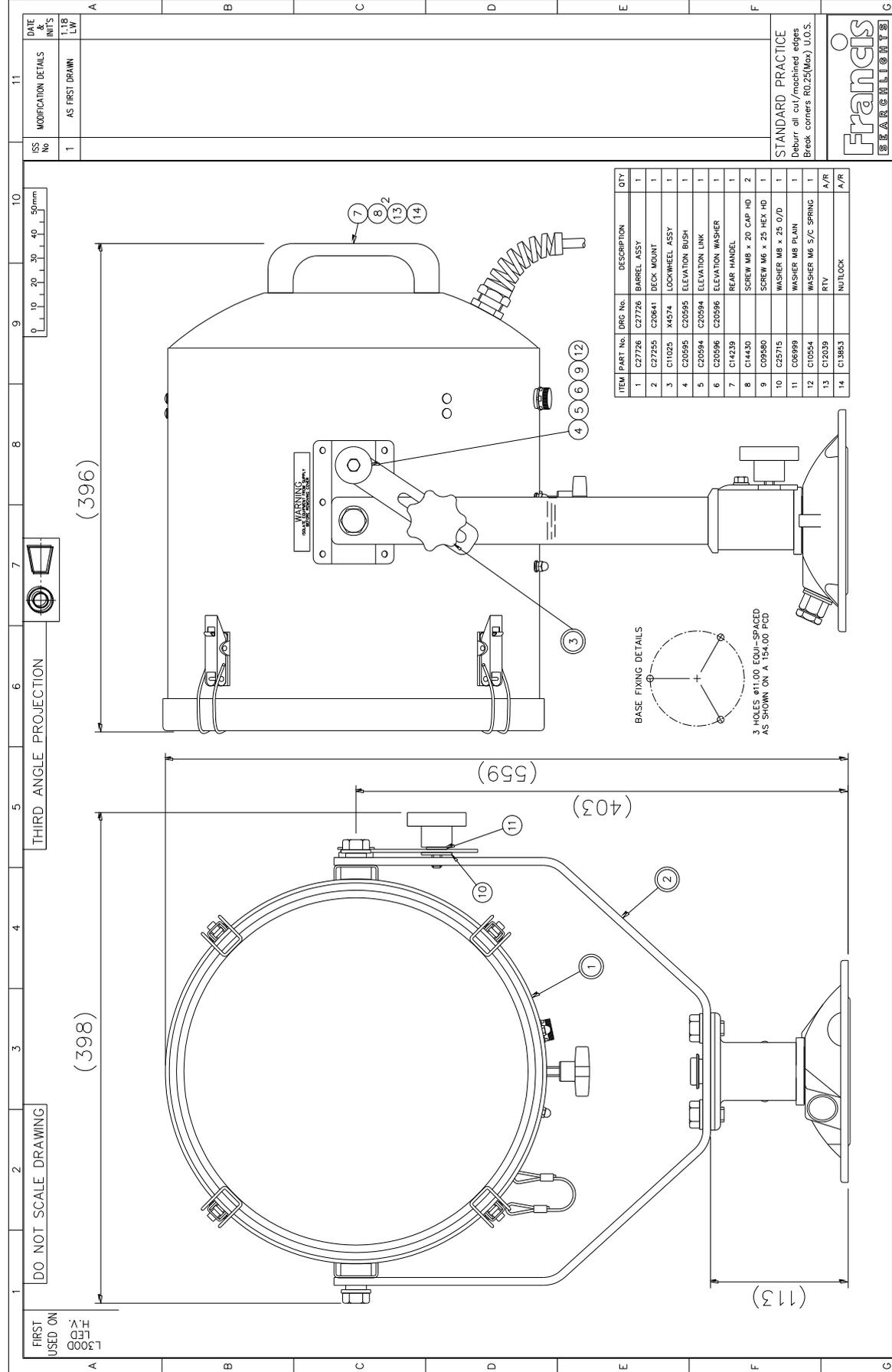
In order to prolong the service life and performance of your searchlight, the following maintenance guidelines are recommended:

- 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

Drawing Number	Description
A6172	LED300 110W Deck General Assembly
A6173	LED300 110W Cabin General Assembly
A6174	LED300 110W Deck Pedestal General Assembly
A6175	LED300 110W Cabin Pedestal General Assembly
C27730	Wiring Diagram
C27704	Junction Box Assembly



ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C27726	C27726	BARREL ASSY	1
2	C27255	C20641	DECK MOUNT	1
3	C11025	X4574	LOCKWHEEL ASSY	1
4	C20595		ELEVATION BUSH	1
5	C20594		ELEVATION LINK	1
6	C20596		ELEVATION WASHER	1
7	C14239		REAR HANDLE	1
8	C14430		SCREW M6 x 20 CAP HD	2
9	C09580		SCREW M6 x 25 HEX HD	1
10	C25715		WASHER M6 x 25 O/D	1
11	C09399		WASHER M6 FLANK	1
12	C10554		WASHER M6 S/C SPRING	1
			RTV	A/R
14	C18653		NUTLOCK	A/R

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

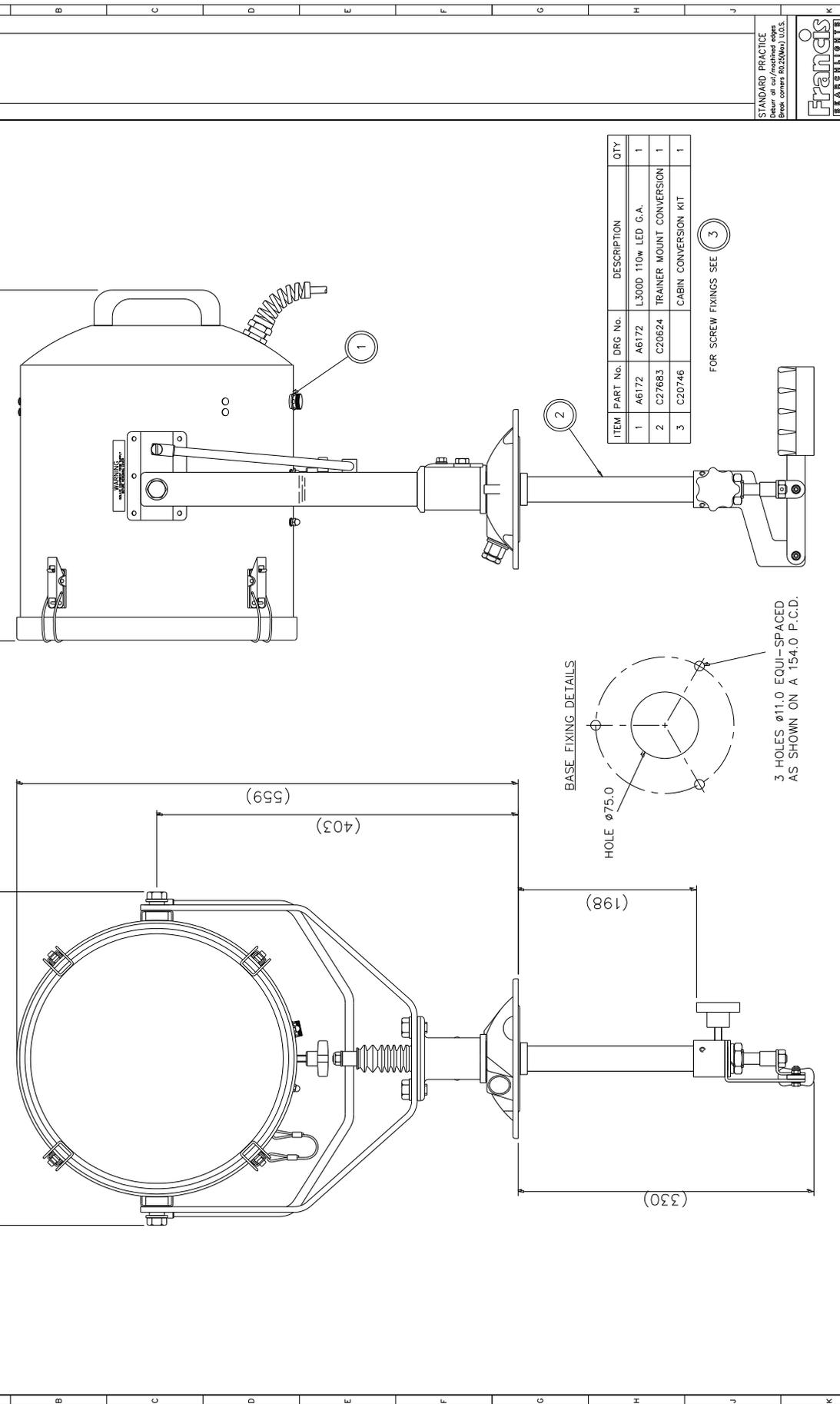


ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	

DO NOT SCALE DRAWING
 THIRD ANGLE PROJECTION
 0 10 20 30 40 50mm
 DATE & INIT'S
 1.18 LW

FRANCIS SEARCHLIGHTS LIMITED · UNION ROAD · BOLTON · BL2 2HJ	© 2018 A2 CONT ON SHEET
Send Casting: To ISO 8062 CT10 Die Casting: To ISO 8062 CT8	PART No./DRG No. A6172
FINISH	DESCRIPTION L300D 110W LED HV G.A.
TOLERANCES General: ± Angular: ±	SHT 1
ALL DIMENSIONS IN MILLIMETRES	11

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DO NOT SCALE DRAWING		THIRD ANGLE PROJECTION		FRONT VIEW		TOP VIEW		LEFT SIDE VIEW		RIGHT SIDE VIEW		REAR VIEW		ISOMETRIC VIEW	



DATE	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18
MODIFICATION DETAILS	1	AS FIRST DRAWN													
STANDARD PRACTICE	Detail all cut/machined edges Break corners R2.5(Min) (0.03)														
FRANCIS	SEARCHLIGHTS LIMITED														
© 2018	A1	CONT ON SHEET													1
PART No./DRG No.	A6173														
DESCRIPTION	L300 110w LED CABIN G.A.														
MATERIAL	FRANCIS SEARCHLIGHTS LIMITED . UNION ROAD . BOLTON . BL2 2JU														
TOLERANCES	Spot Callings to ISO 8013 Dim Callings to ISO 8013 Apply to hole centres & points														
SCALE	1:1														
UNIT	MILLIMETRES														

FIRST USED ON
L300CP
A6175

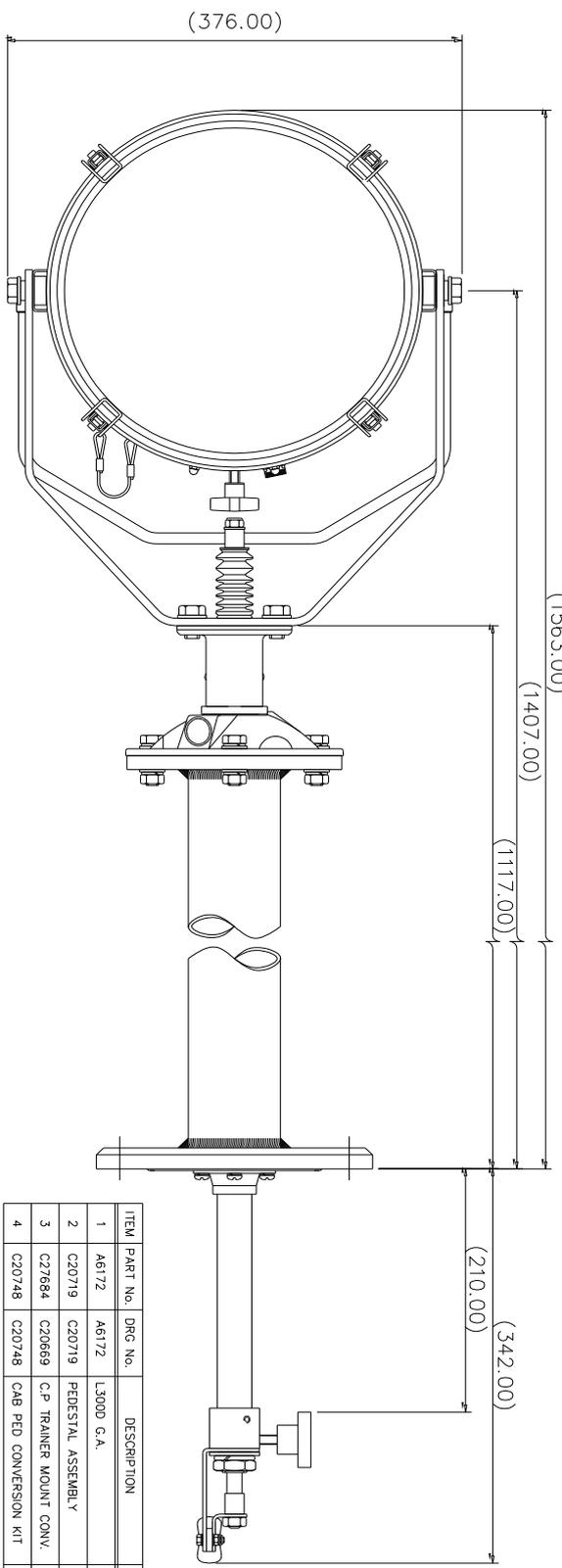
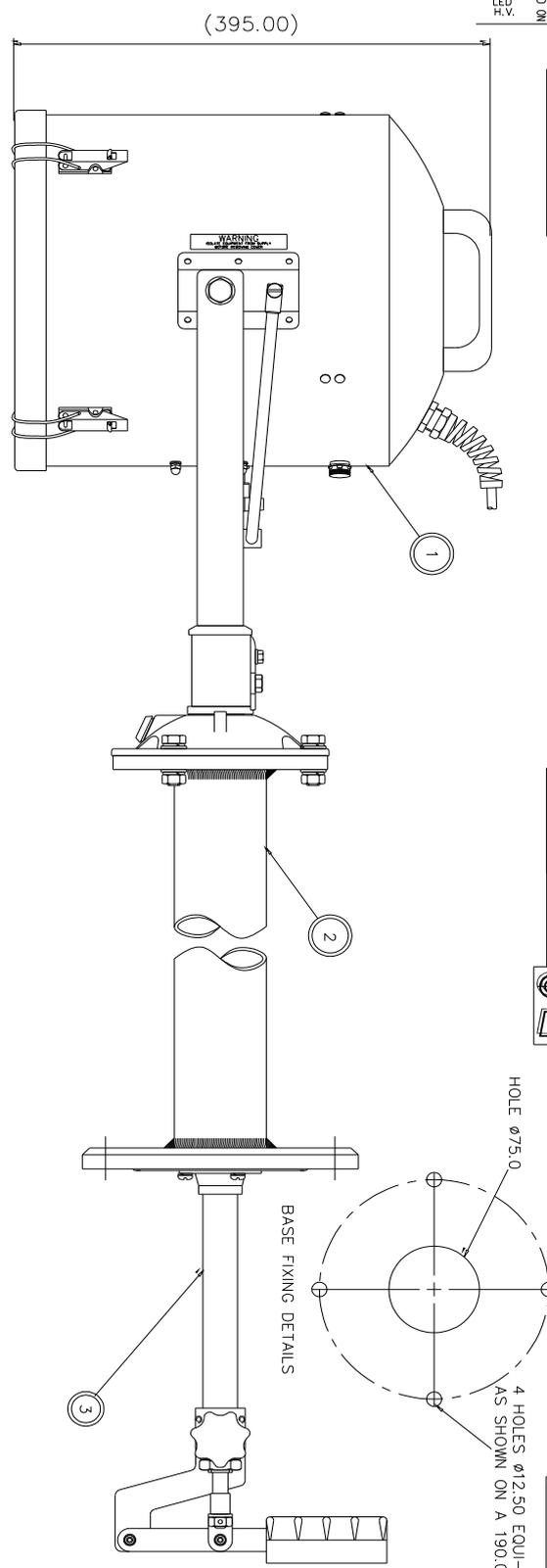
DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION



1:10
1:20
1:40
1:80
1:160
1:320
1:640
1:1280

REV	DESCRIPTION	DATE
1	AS FIRST DRAWN	11/18



ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	A6172	A6172	L300D G.A.	1
2	C20719	C20719	PEDESTAL ASSEMBLY	1
3	C27684	C20669	C/P TRAINER MOUNT CONV.	1
4	C20748	C20748	CAB PED CONVERSION KIT	1

FOR SCREW FIXING KIT SEE ④

STANDARD PRACTICE
Drawn in full/finished edges
Break corners R0.25(km) U.S.S.



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

L300CP 110W LED HV G.A.

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CONT ON SHEET

PART No./Dwg. No.
A6175

SHT
1

DRAWN	LW	DATE	1:18	TOLERANCES
CHECKED	SCALE	1:2	General: 4 Angular: 1	Spot Callings to ISO 8082 C10 Din Callings to ISO 8082 C18 Hole centres & points: 1

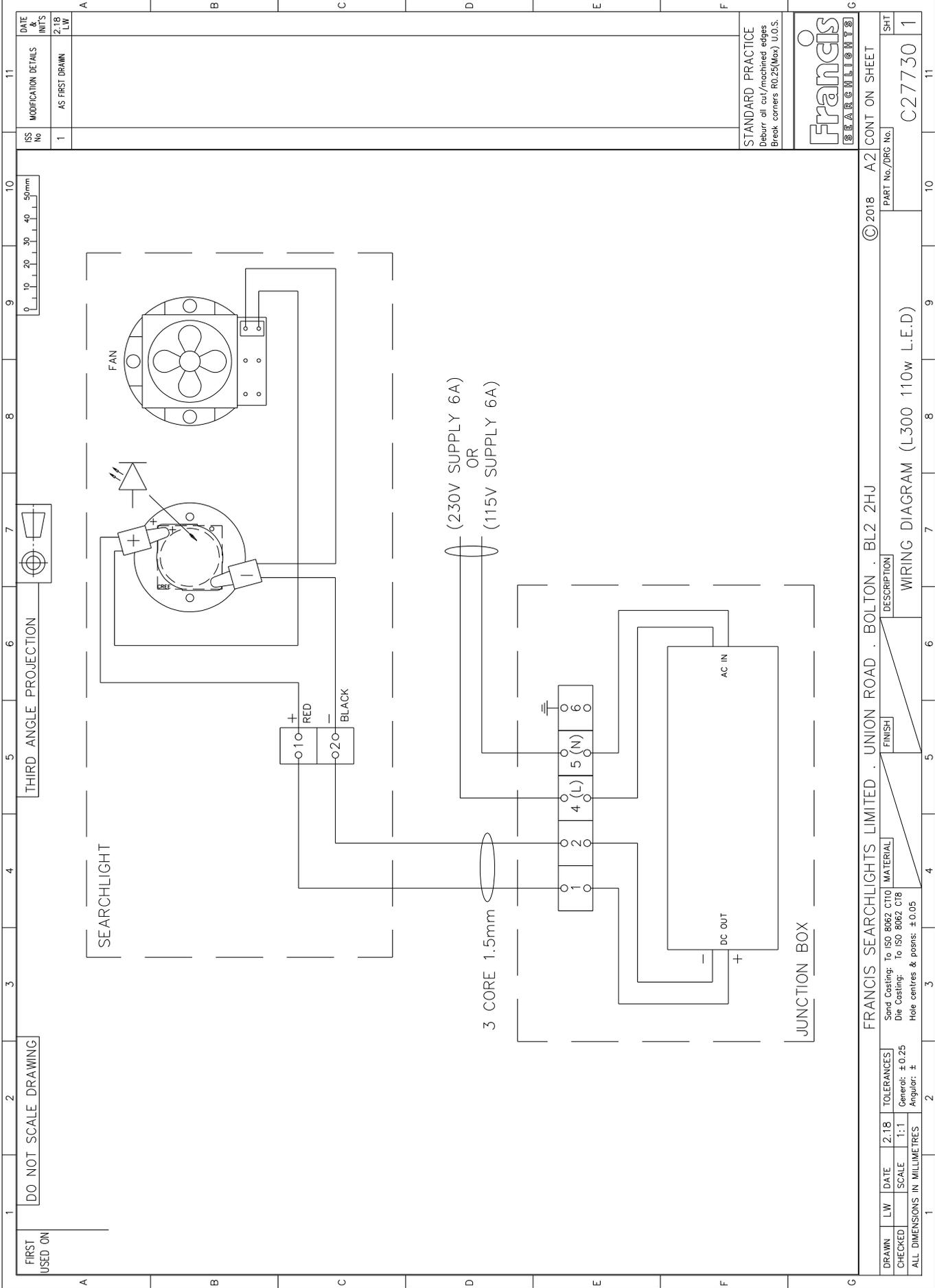
MATERIAL

FINISH

DESCRIPTION

PART No./Dwg. No.
A6175

SHT
1



ISS No	1
MODIFICATION DETAILS	AS FIRST DRAWN
DATE & INTS	2.18 LW

ISS No	1
MODIFICATION DETAILS	AS FIRST DRAWN
DATE & INTS	2.18 LW

ISS No	1
MODIFICATION DETAILS	AS FIRST DRAWN
DATE & INTS	2.18 LW

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MODIFICATION DETAILS	AS FIRST DRAWN
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DATE & INTS	2.18 LW

ISS No	1
MODIFICATION DETAILS	AS FIRST DRAWN
DATE & INTS	2.18 LW

11
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2
1

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

SEARCHLIGHT

FAN

3 CORE 1.5mm

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

JUNCTION BOX

DC OUT

AC IN

RED
BLACK

1 2 4 5 (N) 6

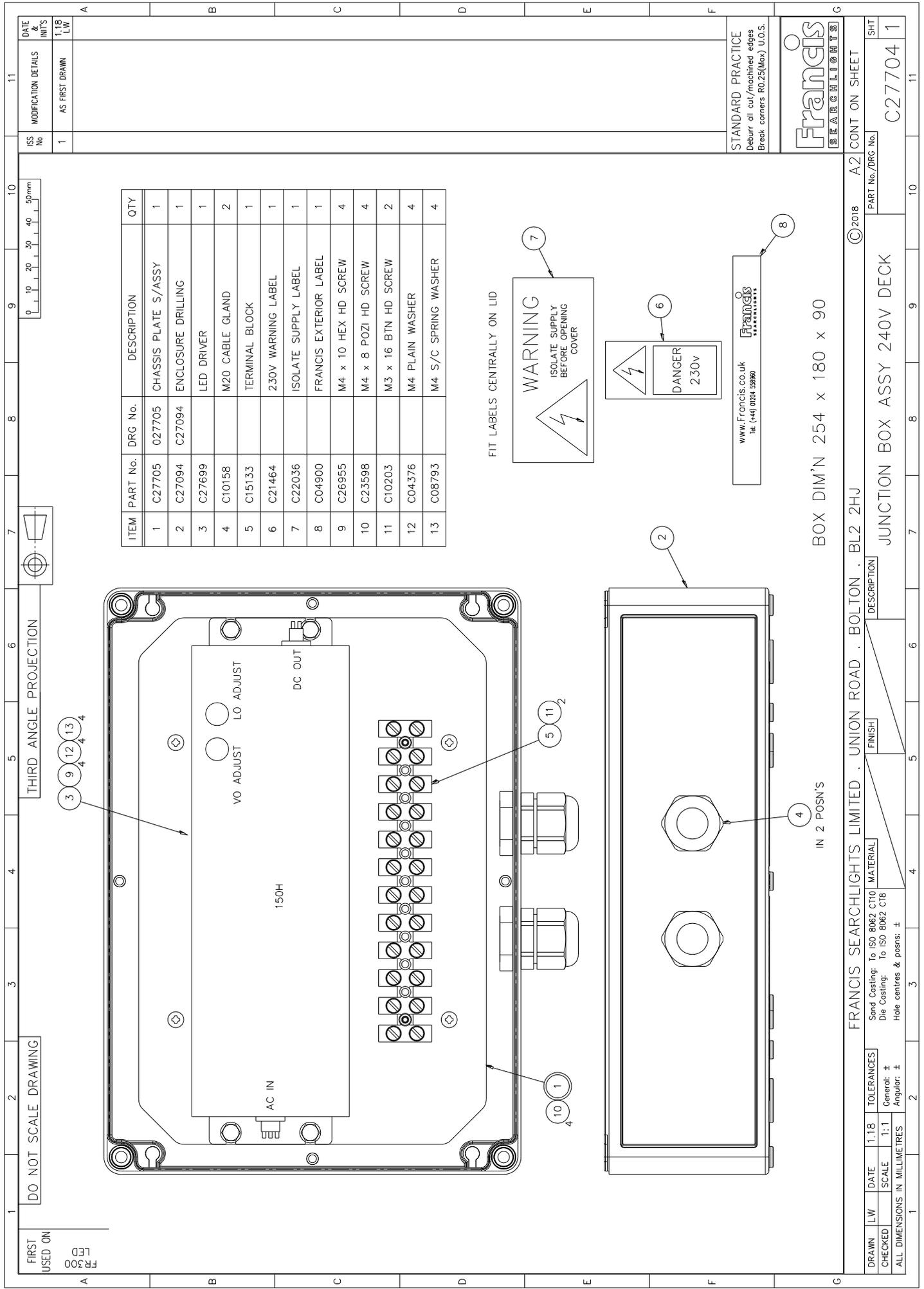
11
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1

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

Francis
SEARCHLIGHTS

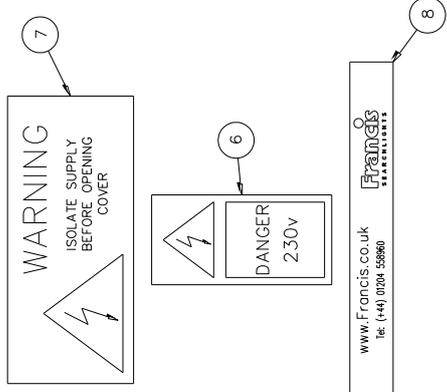
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DRAWN	LW	DATE	2.18	TOLERANCES	Sand Casting: To ISO 8062 CT10 Die Casting: To ISO 8062 C18 Hole centres & posns: ± 0.05
CHECKED	LW	SCALE	1:1	General: ± 0.25 Angular: ±	
ALL DIMENSIONS IN MILLIMETRES					
FRANCIS SEARCHLIGHTS LIMITED · UNION ROAD · BOLTON · BL2 2HJ					
FINISH				DESCRIPTION	
MATERIAL				WIRING DIAGRAM (L300 110w L.E.D)	
PART No./DRG No.				C27730	
SHT				1	



ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C27705	027705	CHASSIS PLATE S/ASSY	1
2	C27094	C27094	ENCLOSURE DRILLING	1
3	C27699		LED DRIVER	1
4	C10158		M20 CABLE GLAND	2
5	C15133		TERMINAL BLOCK	1
6	C21464		230V WARNING LABEL	1
7	C22036		ISOLATE SUPPLY LABEL	1
8	C04900		FRANCIS EXTERIOR LABEL	1
9	C26955		M4 x 10 HEX HD SCREW	4
10	C23598		M4 x 8 POZI HD SCREW	4
11	C10203		M3 x 16 BTN HD SCREW	2
12	C04376		M4 PLAIN WASHER	4
13	C08793		M4 S/C SPRING WASHER	4

FIT LABELS CENTRALLY ON LID



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



BOX DIM'N 254 x 180 x 90

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

DRAWN	LW	DATE	1.18	TOLERANCES
CHECKED	SCALE	1:1	General: ±	Angular: ±
ALL DIMENSIONS IN MILLIMETRES				
Sand Casting: To ISO 8062 CT10		MATERIAL		
Die Casting: To ISO 8062 CT8		FINISH		
Hole centres & posns: ±		DESCRIPTION		
PART No./DRG No.		JUNCTION BOX ASSY 240V DECK		
CONT ON SHEET		SHT		
C27704		1		

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A2

CONT ON SHEET

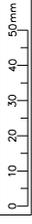
Francis SEARCHLIGHTS

IN 2 POS'N'S

DO NOT SCALE DRAWING

FIRST USED ON
FR300 LED

THIRD ANGLE PROJECTION



ISS No	1	DATE & MODIFICATION DETAILS	11
LW		AS FIRST DRAWN	
LW			

10 – Spare Parts List

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

Part Number	Description
C27691-01	LED Replacement Kit
C27713-00	LED Adapter
C08884-00	Reflector
C27224-00	Front Glass
C20567-00	Front Glass Gasket
C27699-00	LED Driver
C22268-01	Breather Assembly

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.