



User Instruction & Installation Manual

FSP300 Signalling Projector



Product Reference Number:

- A6233 – FSP300 DECK HV 110W LED
- A6234 – FSP300 DECK LV 110W LED
- A6235 – FSP300 DECK PEDESTAL HV 110W LED
- A6236 – FSP300 DECK PEDESTAL LV 110W LED

Manufacturer's details:

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Distributor details:

Manual Part Number: C29514
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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 to ensure optimum performance and service life.

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

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 always quote the Product Serial Number.

2 - Safety Precautions

The following instructions must be adhered to, 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 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 FSP300 110w LED searchlight has the following features:

- All marine grade materials and fixings.
- Powder coated and stove enamel paint finish.
- Parabolic glass reflector.
- High quality shutter mechanism for morse code.
- Signalling range minimum of 10 miles / 16km (daylight).
- Signalling speed of 12 words per minute.
- Pan rotation 450°.
- Vertical movement +45° to -45°.
- External focus mechanism 7° spot to 20° flood.
- Toughened super clear Optiwhite front glass.
- Sealing to IP66.
- Deck 16 Kgs – Deck Pedestal 19 Kgs – Driver Box 2.5Kgs.

The searchlight also performs to the following optical data:

- Supply voltage – 110/240vac.
- Luminous flux - 13,900.
- LED life – 33,000 hours.
- Colour temperature - 6500K.
- Range – 1089 metres @ 7° divergence.
- Divergence – 7° spot 20° flood.
- Temperature range -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, 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.

Using the template provided mark out and drill the fixing holes through the deck.

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

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.

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 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/ratings 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 FSP300 110W LED 110/240v searchlight is as follows.

Referring to wiring diagram C27730, a supply is fed into the driver junction box, which then provides a common feed to the searchlight.

Cables required to be connected by the customer: -

3 cores 1.5mm cable from the searchlight to the driver junction box, 5 metres supplied.

The 3 cores 1.5mm mains supply cable.

A typical installation and connection routine for the FSP300 110W LED 24v searchlight is as follows.

Referring to wiring diagram C28533, a supply is fed into the driver junction box, which then provides a common feed to the searchlight.

Cables required to be connected by the customer: -

3 cores 1.5mm cable from the searchlight to the driver junction box, 5 metres supplied.

The 3 cores 1.5mm mains supply cable.

6 - Operating Instructions

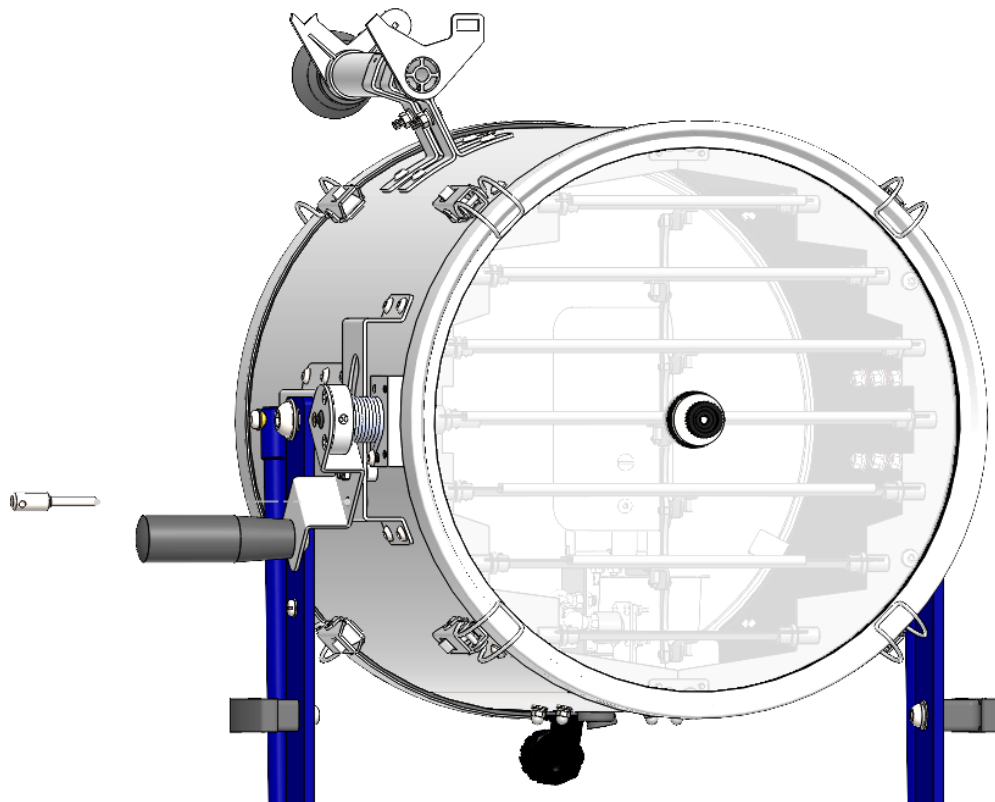
This equipment is designed for use out of doors, in free air. Never place anything on, or cover, the searchlight when in use as this may present a hazard.

The searchlight can be positioned using the elevation and base plate lock wheels. When in the desired position the lock wheels should be securely fastened to maintain position. When not in use it is recommended that the searchlight is left in the down position to prevent sunlight from damaging the LED.

The FSP300 can be used for signalling or as a searchlight.

Searchlight Mode

To use as a searchlight, pull down the signalling lever so that the shutter is in the open position. Remove the shutter stop pin, which is attached to the crutch and insert into the lever guide bracket.

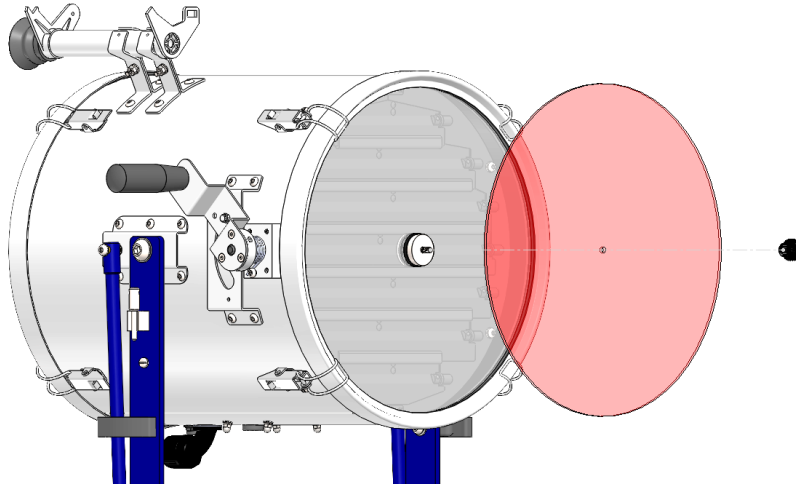


Signalling Mode

To use as a signalling projector, remove the shutter stop pin from the lever guide bracket and clip onto the crutch. All signalling is done manually by operating the signalling handle.

Fitting coloured filters

Unscrew the front glass central plastic thumbwheel, fit the required coloured filter, and re-fit the plastic thumbwheel.



The beam of the searchlight can be adjusted to give a variety of beam types. Using the lampholder focus wheel, the desired beam can be achieved for any application.

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

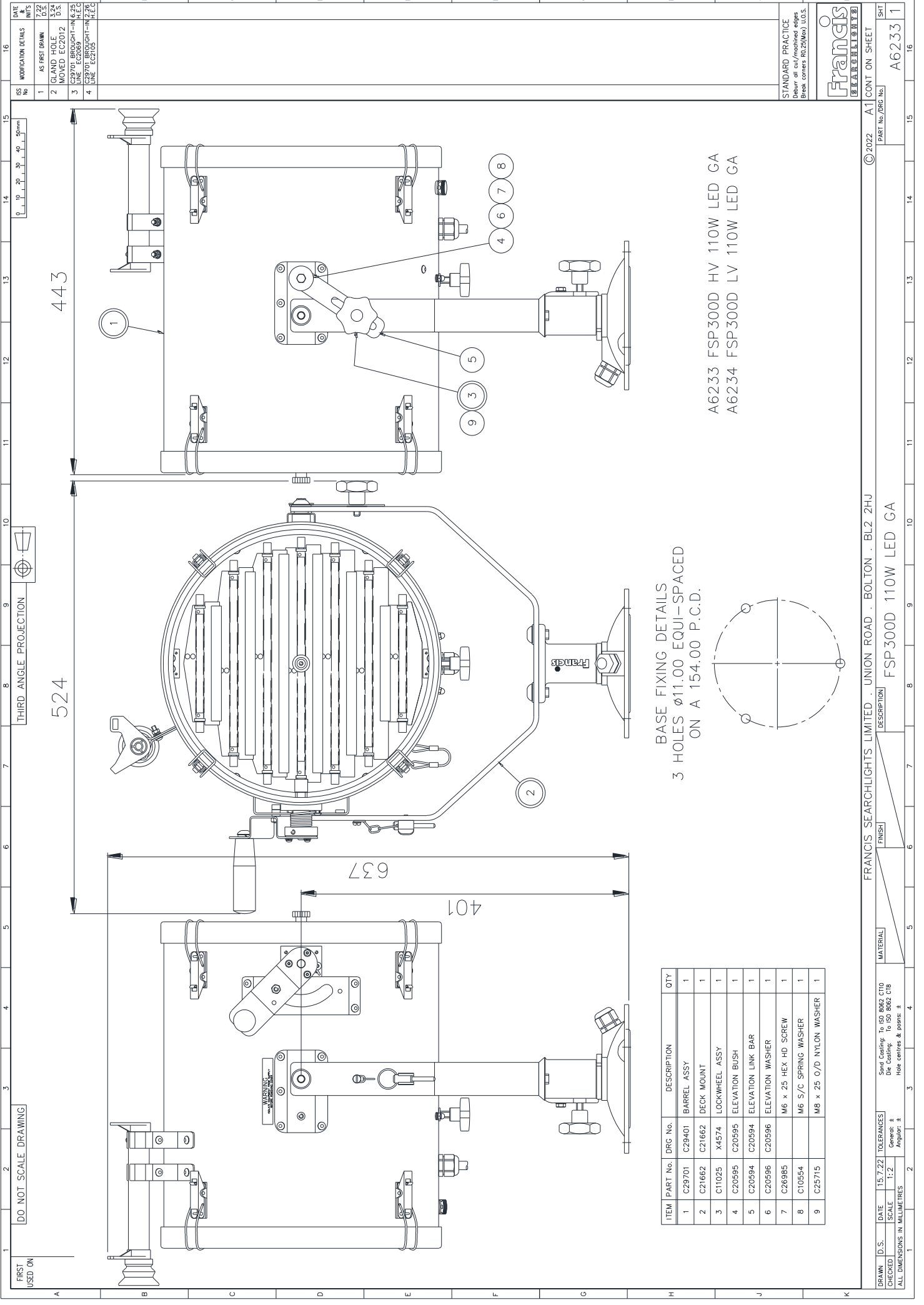
To prolong the service life and performance of your searchlight, the following maintenance guidelines are recommended:

- 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 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.
 - Remove the rear bezel.
 - Clean the reflector if required.
 - Check the reflector mounting gaskets. If signs of corrosion or damage are evident, replace, as necessary.
- 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, 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 Diagram & General Assembly

Drawing Number	Description
A6233	FSP300 Deck 110w LED General Assembly
A6235	FSP300 Deck Pedestal 110w LED General Assembly
C27730	Wiring Diagram 115/240v.
C28533	Wiring Diagram 24v.
C27704	Driver Box Assembly 110/240v
C28484	Driver Box Assembly 24v



DATE & UNITS	MODIFICATION DETAILS
15.7.22	1 AS FIRST DRAWN
1:2	2 GLAND HOLE MOVED EC2012
3.24 D.S.	3 C29701 BROUGHT-IN 6.25 H.E.C
	4 C20596 BROUGHT-IN 4.2 C

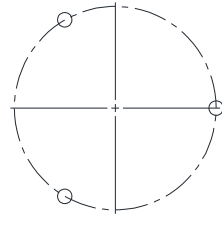
SS No	DATE	DESCRIPTION
1	15.7.22	AS FIRST DRAWN
2	3.24	GLAND HOLE MOVED EC2012
3	6.25	C29701 BROUGHT-IN H.E.C
4	4.2	C20596 BROUGHT-IN

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



© 2022	A1	CONT ON SHEET
PART No./DRG No.	A6233 1	

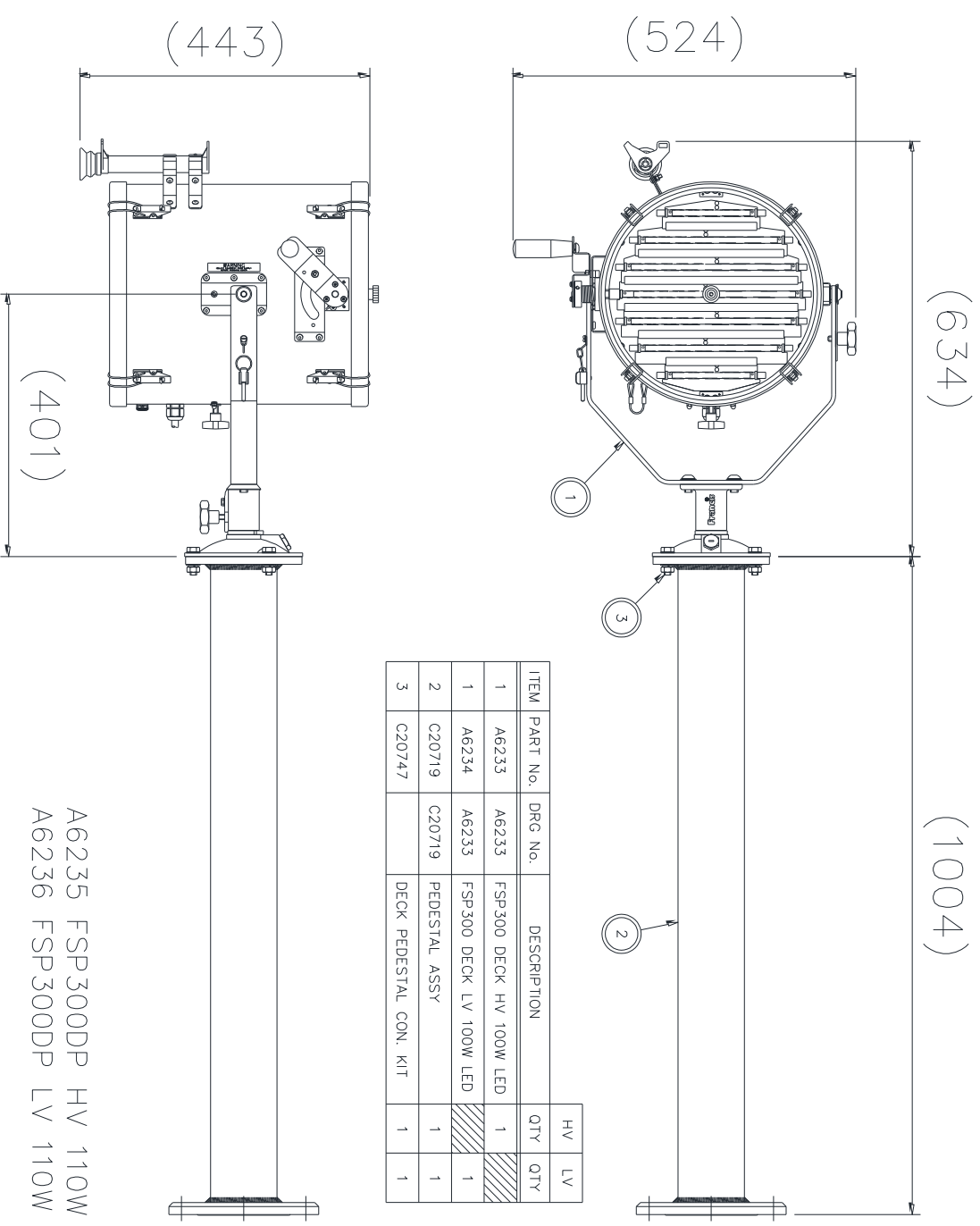
BASE FIXING DETAILS
 3 HOLES Ø11.00 EQUI-SPACED
 ON A 154.00 P.C.D.



ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C29701		BARREL ASSY	1
2	C21662		DECK MOUNT	1
3	C11025		LOCKWHEEL ASSY	1
4	C20595		ELEVATION BUSH	1
5	C20594		ELEVATION LINK BAR	1
6	C20596		ELEVATION WASHER	1
7	C26985		M6 x 25 HEX HD SCREW	1
8	C10554		M6 S/C SPRING WASHER	1
9	C25715		M8 x 25 O/D NYLON WASHER	1

DRAWN	D.S.	DATE	15.7.22	TOLERANCES	±
CHECKED		SCALE	1:2	Gener: ±	Angulr: ±
ALL DIMENSIONS IN MILLIMETRES					
FINISH					
MATERIAL					
FRANCIS SEARCHLIGHTS LIMITED . UNION ROAD . BOLTON . BL2 2HU					
DESCRIPTION					
FSP3000 110W LED GA					
PART No./DRG No.					
A6233 1					
SHEET					
1					

1	AS FIRST DRAWN	7.22	A
2	GLAND HOLE MOVED EC2012	3.24	A
3	A6233 BROUGHT-IN LINE EC2069	6.25	A
4	A6233 BROUGHT-IN LINE EC2105	2.26	A



ITEM	PART No.	DRG No.	DESCRIPTION	HV QTY	LV QTY
1	A6233	A6233	FSP300 DECK HV 100W LED	1	1
1	A6234	A6233	FSP300 DECK LV 100W LED	1	1
2	C20719	C20719	PEDESTAL ASSY	1	1
3	C20747		DECK PEDESTAL CON. KIT	1	1

A6235 FSP300DP HV 110W LED GA
 A6236 FSP300DP LV 110W LED GA

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



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

FSP300DP 110W LED GA

FINISH

MATERIAL

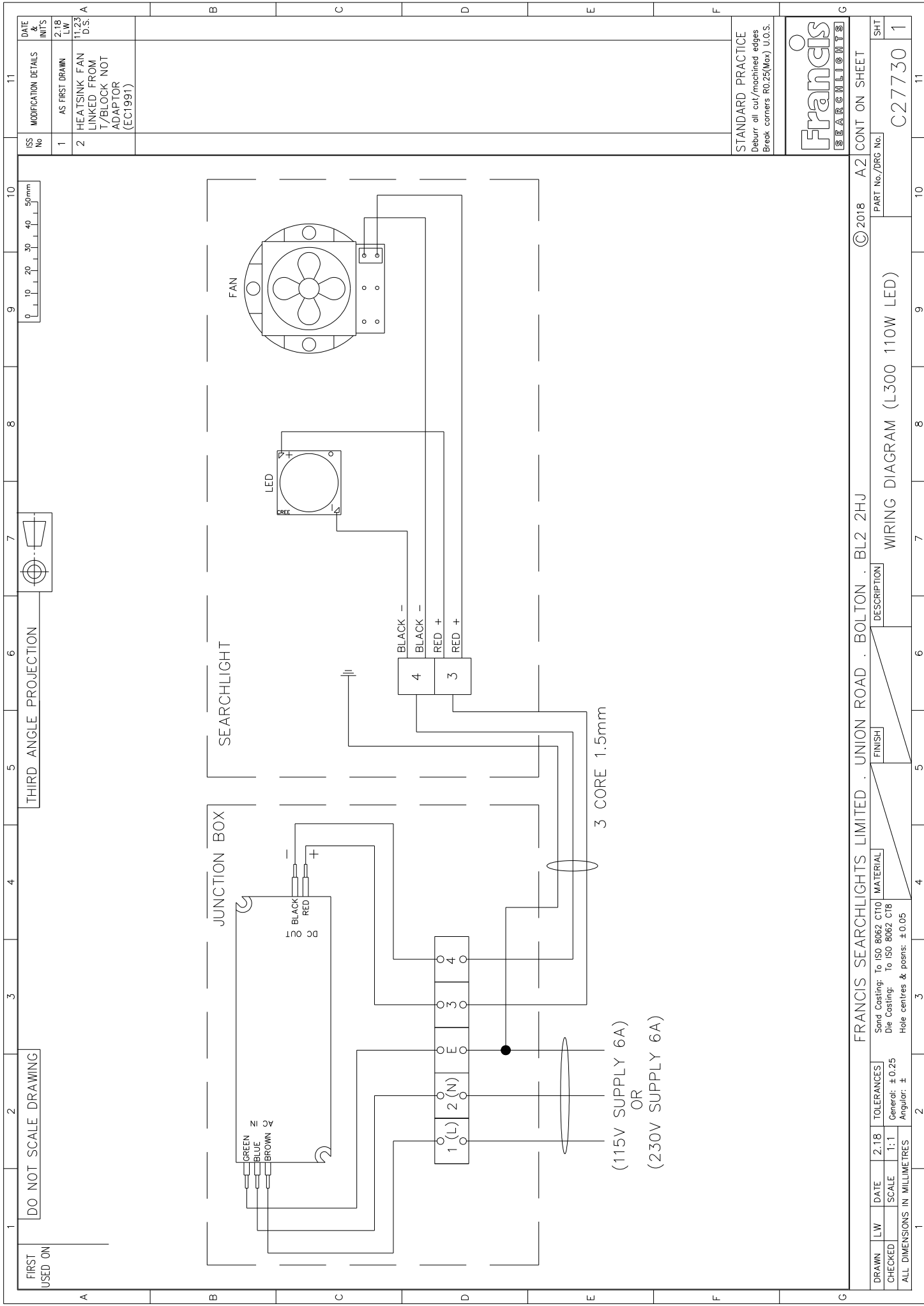
DRG No./DRG No.

PART No./DRG No.

A6235 1

DRAWN	D.S.	DATE	7.22	TOLERANCES	General: ±	Angular: ±
CHECKED	SCALE	1:5	ALL DIMENSIONS IN MILLIMETRES			

Send Casting: To ISO 8062 CT10
 Die Casting: To ISO 8062 C18
 Hole centres & posns: ±



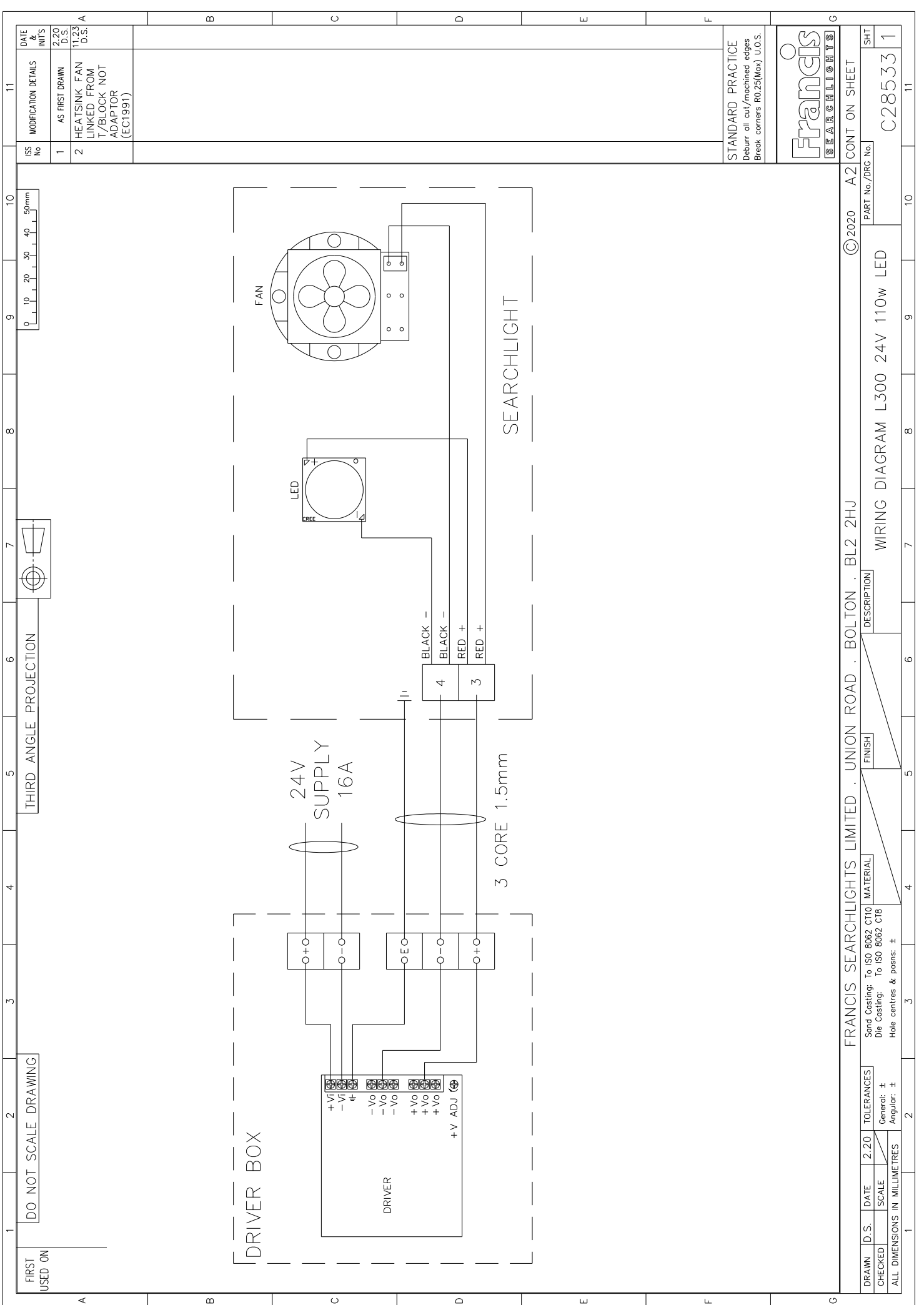
ISS No	MODIFICATION DETAILS	DATE & INT'S
1	AS FIRST DRAWN	2.18 LW
2	HEATSINK FAN LINKED FROM T/BLOCK NOT ADAPTOR (EC1991)	11.93 D.S.

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



© 2018	A2 CONT ON SHEET
PART No./DRG No.	C27730 1
DESCRIPTION	WIRING DIAGRAM (L300 110W LED)
FINISH	
MATERIAL	
Sand Casting: To ISO 8062 CT10	
Die Casting: To ISO 8062 C18	
Hole centres & posns: ± 0.05	
TOLERANCES	
General: ± 0.25	
Angular: ±	
SCALE	1:1
ALL DIMENSIONS IN MILLIMETRES	

DRAWN	LW	DATE	2.18	TOLERANCES	
CHECKED		SCALE	1:1	General: ± 0.25	
		ALL DIMENSIONS IN MILLIMETRES		Angular: ±	
FRANCIS SEARCHLIGHTS LIMITED · UNION ROAD · BOLTON · BL2 2HJ		© 2018		A2 CONT ON SHEET	
PART No./DRG No.		C27730 1		SHT	
DESCRIPTION		WIRING DIAGRAM (L300 110W LED)		11	
FINISH				10	
MATERIAL				9	
Sand Casting: To ISO 8062 CT10				8	
Die Casting: To ISO 8062 C18				7	
Hole centres & posns: ± 0.05				6	
				5	
				4	
				3	
				2	



ISS No	1	MODIFICATION DETAILS	11
DATE & UNITS	2.20 D.S.	AS FIRST DRAWN	
	11.23 D.S.	HEATSINK FAN LINKED FROM T/BLOCK NOT ADAPTOR (EC1991)	A

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

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 PART No./DRG No. C28533 1
 SHT

1	2	3	4	5	6	7	8	9	10	11
DO NOT SCALE DRAWING	THIRD ANGLE PROJECTION									

FRANCIS SEARCHLIGHTS LIMITED . UNION ROAD . BOLTON . BL2 2HJ	DESCRIPTION	FINISH	MATERIAL
WIRING DIAGRAM L300 24V 110w LED			
Send Casting: To ISO 8062 CT10			
Die Casting: To ISO 8062 CT8			
General: ±			
Angular: ±			
Hole centres & posns: ±			

DRAWN	D.S.	DATE	2.20	TOLERANCES	
CHECKED	SCALE				
ALL DIMENSIONS IN MILLIMETRES					

11	10	9	8	7	6	5	4	3	2	1
DATE & INITIALS	MODIFICATION DETAILS	ISS No								DATE & INITIALS
1.18 LW	AS FIRST DRAWN	1								1.18 LW
8.19 LW	NEW DRIVER & CHASSIS PLATE (EC1776)	2								8.19 LW

STANDARD PRACTICE		Deburr all cut/machined edges		Break corners R0.25(Max) U.O.S.	
Francis SEARCHLIGHTS		©2018		A2 CONT ON SHEET	
PART No./DRG No.		C27704		SHT 1	

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C27705	C27705	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



THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

FIRST USED ON L300 110w LED

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

BASE FIXINGS M4 239 x 165

DRIVER BOX ASSY 240V DECK

FRANCIS SEARCHLIGHTS LIMITED	UNION ROAD	BOLTON	BL2 2HU
Send Casting: To ISO 8062 CT10	MATERIAL	FINISH	DESCRIPTION
Die Casting: To ISO 8062 CT8			
Hole centres & posns: ±			

DRAWN	LW	DATE	1.18	TOLERANCES
CHECKED		SCALE	1:1	General: ±
ALL DIMENSIONS IN MILLIMETRES				Angular: ±

1	2	3	4	5	6	7	8	9	10	11
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TOLERANCES		1.18	
SCALE		1:1	
General		±	
Angular		±	

1	2	3	4	5	6	7	8	9	10	11
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TOLERANCES		1.18	
SCALE		1:1	
General		±	
Angular		±	

1	2	3	4	5	6	7	8	9	10	11
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TOLERANCES		1.18	
SCALE		1:1	
General		±	
Angular		±	

1	2	3	4	5	6	7	8	9	10	11
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TOLERANCES		1.18	
SCALE		1:1	
General		±	
Angular		±	

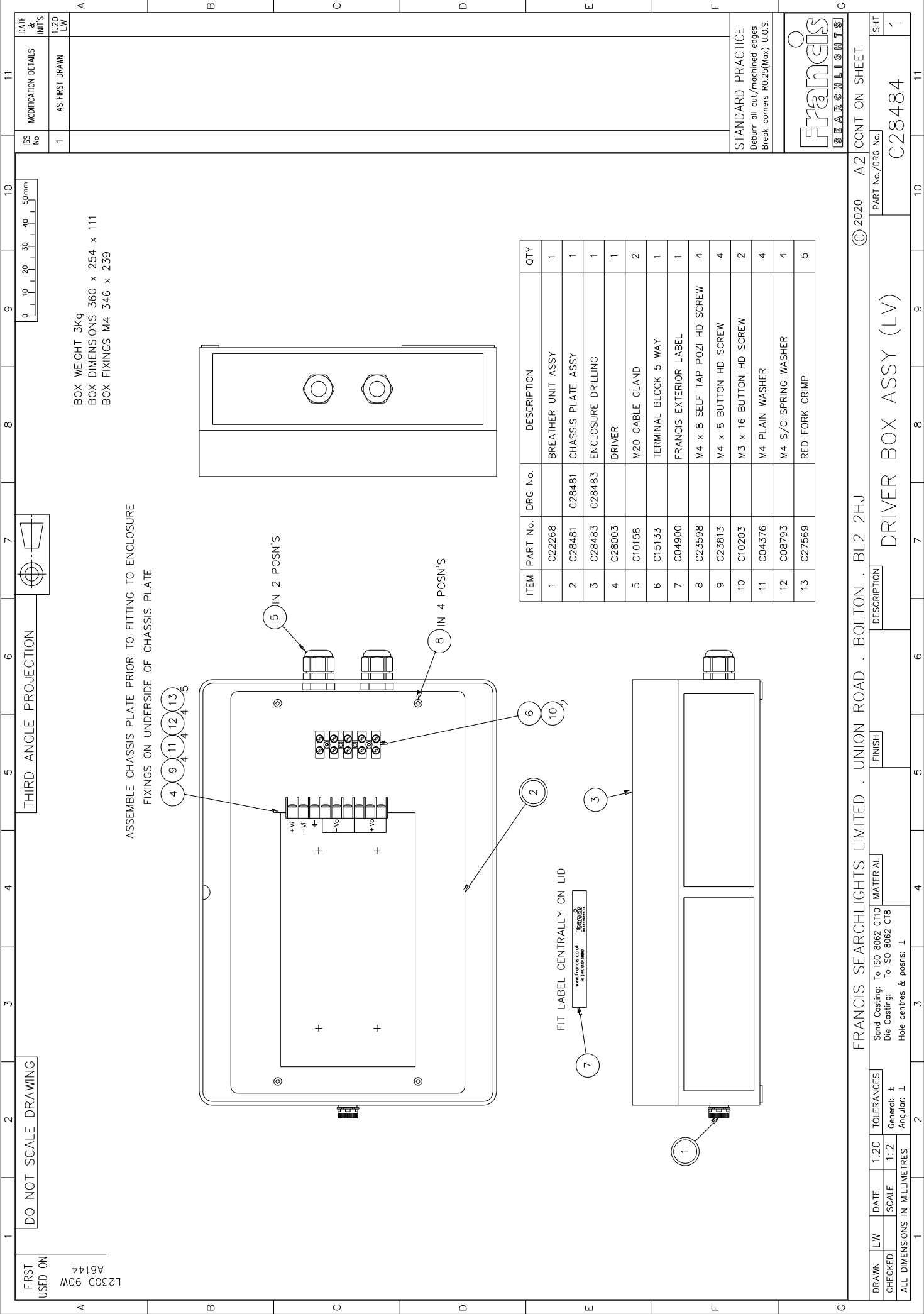
1	2	3	4	5	6	7	8	9	10	11
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TOLERANCES		1.18	
SCALE		1:1	
General		±	
Angular		±	

1	2	3	4	5	6	7	8	9	10	11
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TOLERANCES		1.18	
SCALE		1:1	
General		±	
Angular		±	

1	2	3	4	5	6	7	8	9	10	11
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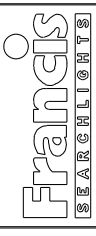


BOX WEIGHT 3Kg
 BOX DIMENSIONS 360 x 254 x 111
 BOX FIXINGS M4 346 x 239

ASSEMBLE CHASSIS PLATE PRIOR TO FITTING TO ENCLOSURE
 FIXINGS ON UNDERSIDE OF CHASSIS PLATE

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C22268		BREATHER UNIT ASSY	1
2	C28481		CHASSIS PLATE ASSY	1
3	C28483		ENCLOSURE DRILLING	1
4	C28003		DRIVER	1
5	C10158		M20 CABLE GLAND	2
6	C15133		TERMINAL BLOCK 5 WAY	1
7	C04900		FRANCIS EXTERIOR LABEL	1
8	C23598		M4 x 8 SELF TAP POZI HD SCREW	4
9	C23813		M4 x 8 BUTTON HD SCREW	4
10	C10203		M3 x 16 BUTTON HD SCREW	2
11	C04376		M4 PLAIN WASHER	4
12	C08793		M4 S/C SPRING WASHER	4
13	C27569		RED FORK CRIMP	5

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



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 PART No./DRG No. C28484
 SHT 1

FRANCIS SEARCHLIGHTS LIMITED · UNION ROAD · BOLTON · BL2 2HJ
 DESCRIPTION DRIVER BOX ASSY (LV)
 FINISH
 Material: To ISO 8062 CT10
 Die Casting: To ISO 8062 C18
 Hole centres & posns: ±

DRAWN	DATE	1.20	TOLERANCES
L230D 90W			General: ±
A6144			Angular: ±
FIRST USED ON			ALL DIMENSIONS IN MILLIMETRES
DO NOT SCALE DRAWING			SCALE 1:2
THIRD ANGLE PROJECTION			

10 – Spare Parts List

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

Part Number	Description
C11025-01	Lock Wheel Assembly
C27691-01	110W LED Spares Kit
C27715-01	LED Cooler
C28083-01	LED Cooler Harness
C27713-00	LED Adaptor
C27699-01	LED Driver (115/240V Input)
C28003-01	LED Driver (24v Input)
C02512-00	Shutter Return Spring
C01461-00	Eyepiece
C21657-00	Signalling Handle
C28955-00	Filter Front Glass
C20567-00	Front Glass & Rear Plate Gasket
C05403-00	Reflector
C29393-01	Lamp Holder Assembly
C14501-00	Focus Wheel Seal
C16761-00	Lamp Holder AV Mount
C08827-00	Lamp Holder Spring
C29413-01	Focus Wheel Assembly.
C10168-00	'O' Ring Seal (Deck)
C20634-00	'O' Ring Seal (Deck Pedestal)
C22268-01	Breather
C28956-00	Red Filter
C28957-00	Green Filter
C28958-00	Blue Filter
C30154-00	Orange Filter

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 always quote searchlight model and serial number. This will enable a fast response to your spares' requirements.