



User Instruction & Installation Manual

L300 234w RF LED Searchlight



Product Reference Number:

- A6192/A6188 – 240v/24v Deck
- A6193/A6189 – 240v/24v Deck Pedestal
- A6194/A6190 – 240v/24v Cabin
- A6195/A6191 – 240v/24v Cabin Pedestal

Manufacturer's details:

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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 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.

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 LED 300 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 20,000-hour LED life.
- Toughened super clear Opti white front glass.
- Precision made glass lenses.
- Remote focus facility.
- Sealing – IP56 Searchlight & Control Gear protected to IP66.
- Searchlight weight Deck 17 Kgs, Deck Pedestal 21Kgs, Cabin 20Kgs, Cabin Pedestal 24Kgs & PSU weight 4 Kgs.

The searchlight also performs to the following optical data:

- Supply voltage – 24 to 240v.
- Luminous flux 22,800.
- Colour temperature 6000K.
- Range – 1876 metres.
- Divergence – Spot 4° - Flood 10° .
- Temperature range: -20 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, 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.

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 LED 300 searchlight is as follows:

Referring to wiring diagram C27877 HV or C27879 LV, a supply is fed into the on/off control box, which then provides a common feed to the driver box & searchlight.

The following cables have been fitted as standard.

3 metres of 5 core 1.5mm cable from the control box to the driver box.

3 metres of 7 core 1.5mm cable from the searchlight to the driver box.

Cables required to be supplied by the customer: -

The Mains cable to the on/off Control box.

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 pan and tilt lock wheels. When in the desired position the lock wheels must be securely fastened to prevent damage.

The beam of the searchlight can be adjusted to give a variety of beam types. Using the yellow remote focus button on the Control Box, the desired beam can be achieved for any application. The beam will move continuously through 'spot' to 'flood'. To fix the beam type; simply release the button 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, 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 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

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.
 - 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
A6192	LED300 Deck General Assembly
A6193	LED300 Deck Pedestal General Assembly
A6194	LED300 Cabin General Assembly
A6195	LED300 Cabin Pedestal General Assembly
C27877	Wiring Diagram HV
C27879	Wiring Diagram LV
C27932	Driver Box Assembly HV
C27925	Driver Box Assembly LV
C21022	RF ON/OFF Control Unit LV

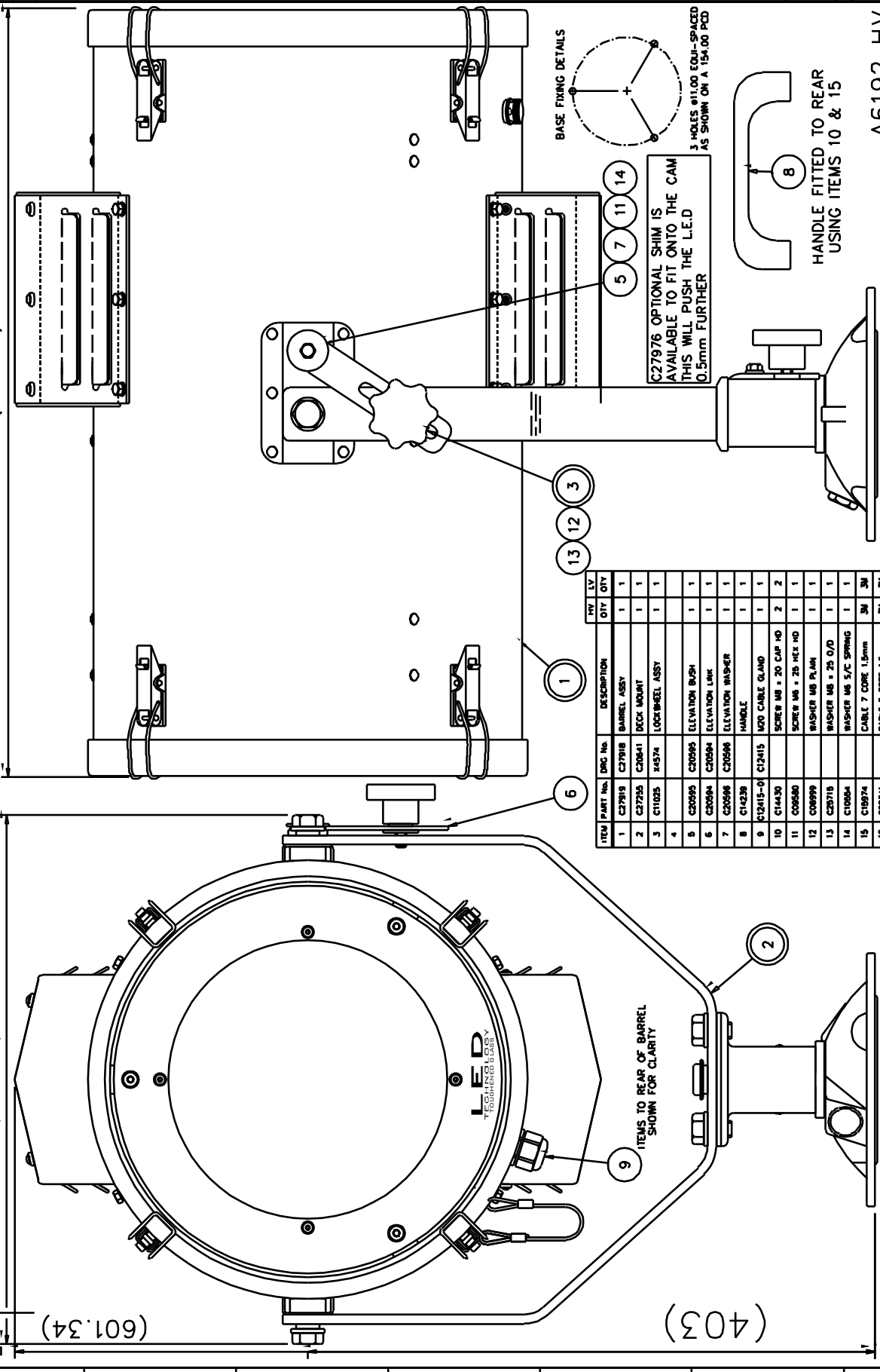
FIRST USED ON L300D 1.334 (601.34)

DO NOT SCALE DRAWING

(376)

THIRD ANGLE PROJECTION

(576) (WITH HANDLE FITTED)

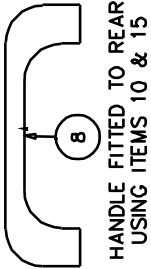


(403)

ITEM	PART No.	DRG No.	DESCRIPTION	REV	LVY	QTY	QTY
1	C27918	C27918	BARREL ASSY	1	1	1	1
2	C27295	C20641	DECK MOUNT	1	1	1	1
3	C11025	X4574	LOCKWHEEL ASSY	1	1	1	1
4							
5	C20995	C20995	ELEVATION BUSH	1	1	1	1
6	C20994	C20994	ELEVATION LINK	1	1	1	1
7	C20996	C20996	ELEVATION WASHER	1	1	1	1
8	C14239		HANDLE	1	1	1	1
9	C12415-01		MOD CABLE GLAND	1	1	1	1
10	C14430		SCREW M8 x 20 CAP HD	2	2	2	2
11	C09580		SCREW M8 x 25 HEX HD	1	1	1	1
12	C06999		WASHER M8 PL AN	1	1	1	1
13	C20718		WASHER M8 x 25 O/D	1	1	1	1
14	C10964		WASHER M8 5/C SPRING	1	1	1	1
15	C10974		CABLE 7 CORE 1.5mm	3M	3M	3M	3M
16	C20341		CABLE 5 CORE 1.5mm	3M	3M	3M	3M
17	C15039		RTV	A/R	A/R	A/R	A/R
18	C13883		MULTILOCK	A/R	A/R	A/R	A/R



C27976 OPTIONAL SHIM IS AVAILABLE TO FIT ONTO THE CAM THIS WILL PUSH THE L.E.D 0.5mm FURTHER



HANDLE FITTED TO REAR USING ITEMS 10 & 15

A6192 HV
A6188 LV

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

Francis
SEARCHLIGHTS LIMITED

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DRAWN	LW	DATE	B.16	TOLERANCES	Send Casting: To ISO 8052 CT10
CHECKED		SCALE	1:2	Generic: ±	Die Casting: To ISO 8052 C18
ALL DIMENSIONS IN MILLIMETRES			Angular: ±	Hole centres & piers: ±	

FINISH

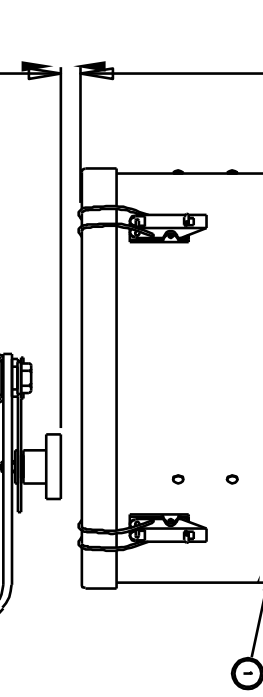
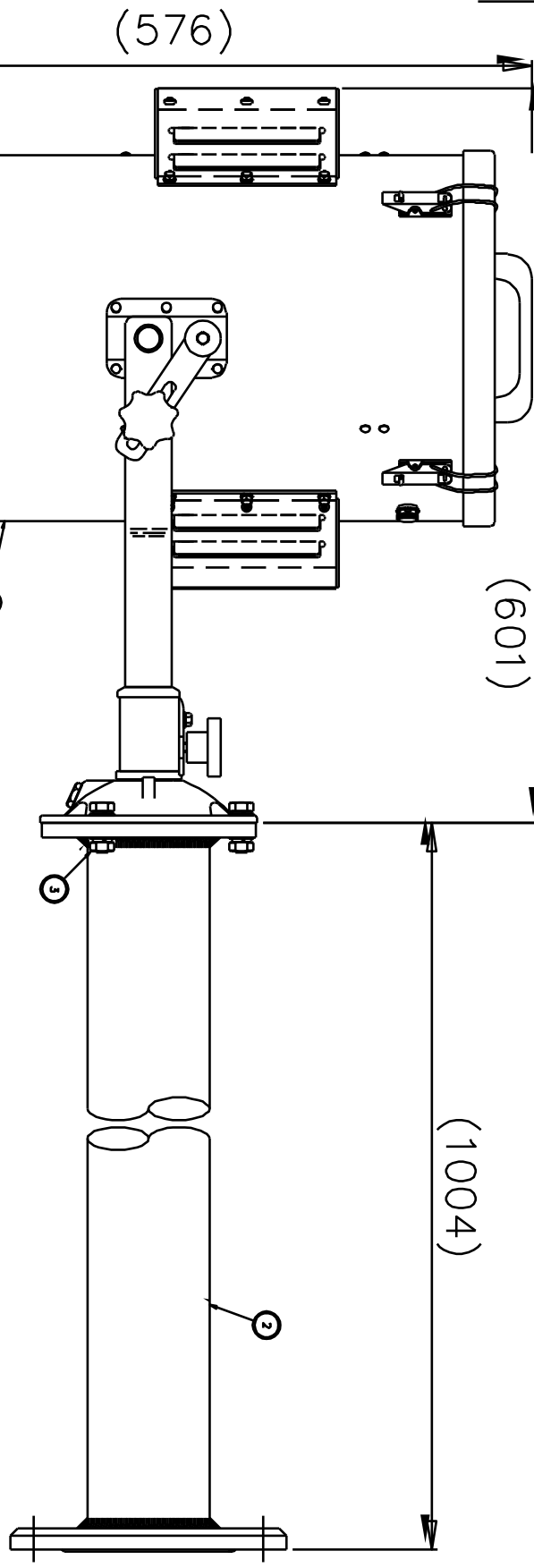
DESCRIPTION
L300D LED 234W RF G.A.

PART No./DRG No.
A6192

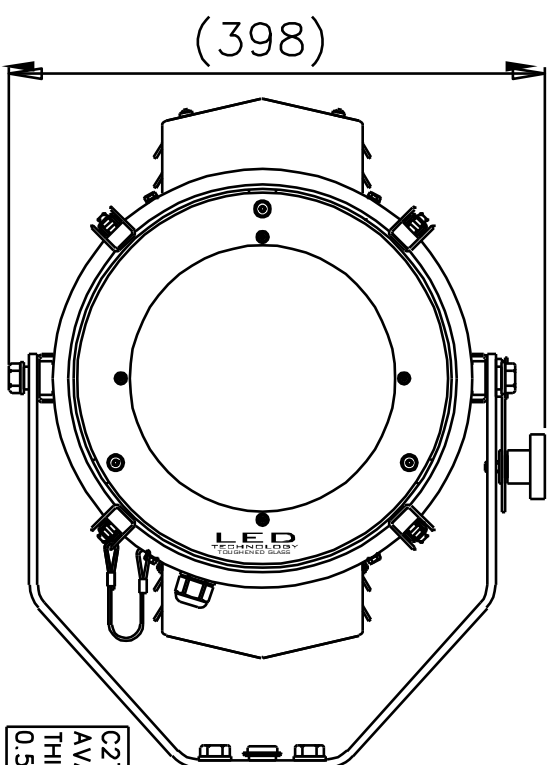
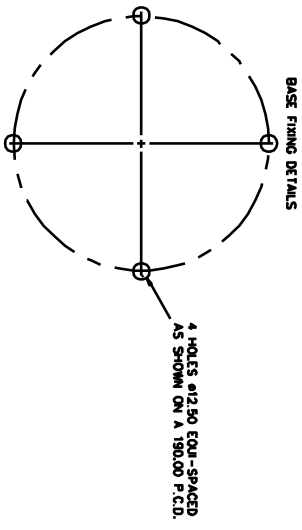
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SHT	1
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ITEM	DESCRIPTION	QTY	UNIT
1	AS PER DRAWING	1	EA
2	OPTIONAL SHIM KIT	1	EA
3	OPTIONAL SHIM KIT	1	EA



ITEM	PART NO.	DRG NO.	DESCRIPTION	QTY	UNIT
1	A6192	A6192	L3000 234W LED RF HV	1	EA
1	A6188	A6192	L3000 234W LED RF LV	1	EA
2	C20719	C20719	PEDESTAL ASSEMBLY	1	EA
3	C20747		DP CONVERSION KIT	1	EA

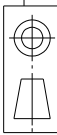


C27976 OPTIONAL SHIM IS AVAILABLE TO FIT ONTO THE CAM THIS WILL PUSH THE L.E.D. 0.5mm FURTHER

A6193 L3000P LED 234W RF HV
A6189 L3000P LED 234W RF LV

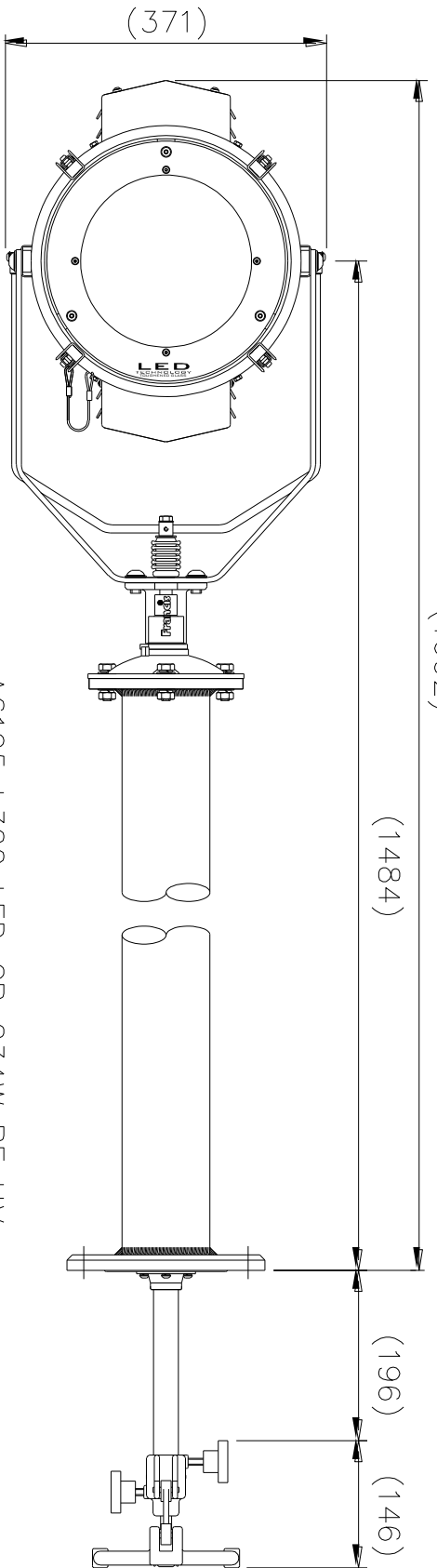
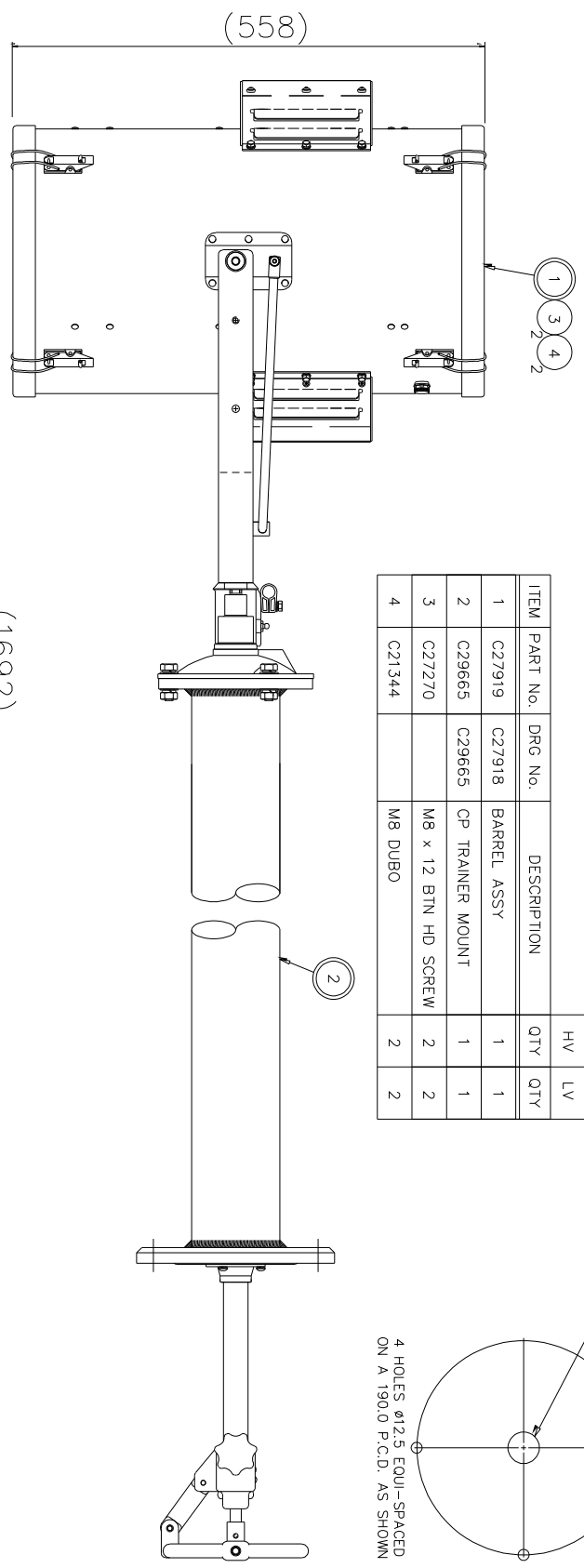
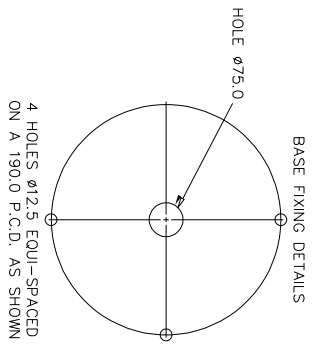
FIRST USED ON
DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION



ISS No	MODIFICATION DETAILS	DATE INT'S
1	AS FIRST DRAWN	4.18 D.S.
2	LOUVER COVER ADDED (E01827)	5.20 LW
3	UPDATED BARREL ASSY 9.22 WAS C27270 (E01927)	J.H.
4	UPDATED CP TRAINER MOUNT ADDED. (E01943)	1.23 J.H.

ITEM	PART No.	DRG No.	DESCRIPTION	HV		LV	
				QTY	QTY	QTY	QTY
1	C27919	C27918	BARREL ASSY	1	1		
2	C29665	C29665	CP TRAINER MOUNT	1	1		
3	C27270		M8 x 12 BTN HD SCREW	2	2		
4	C21344		M8 DUBO	2	2		



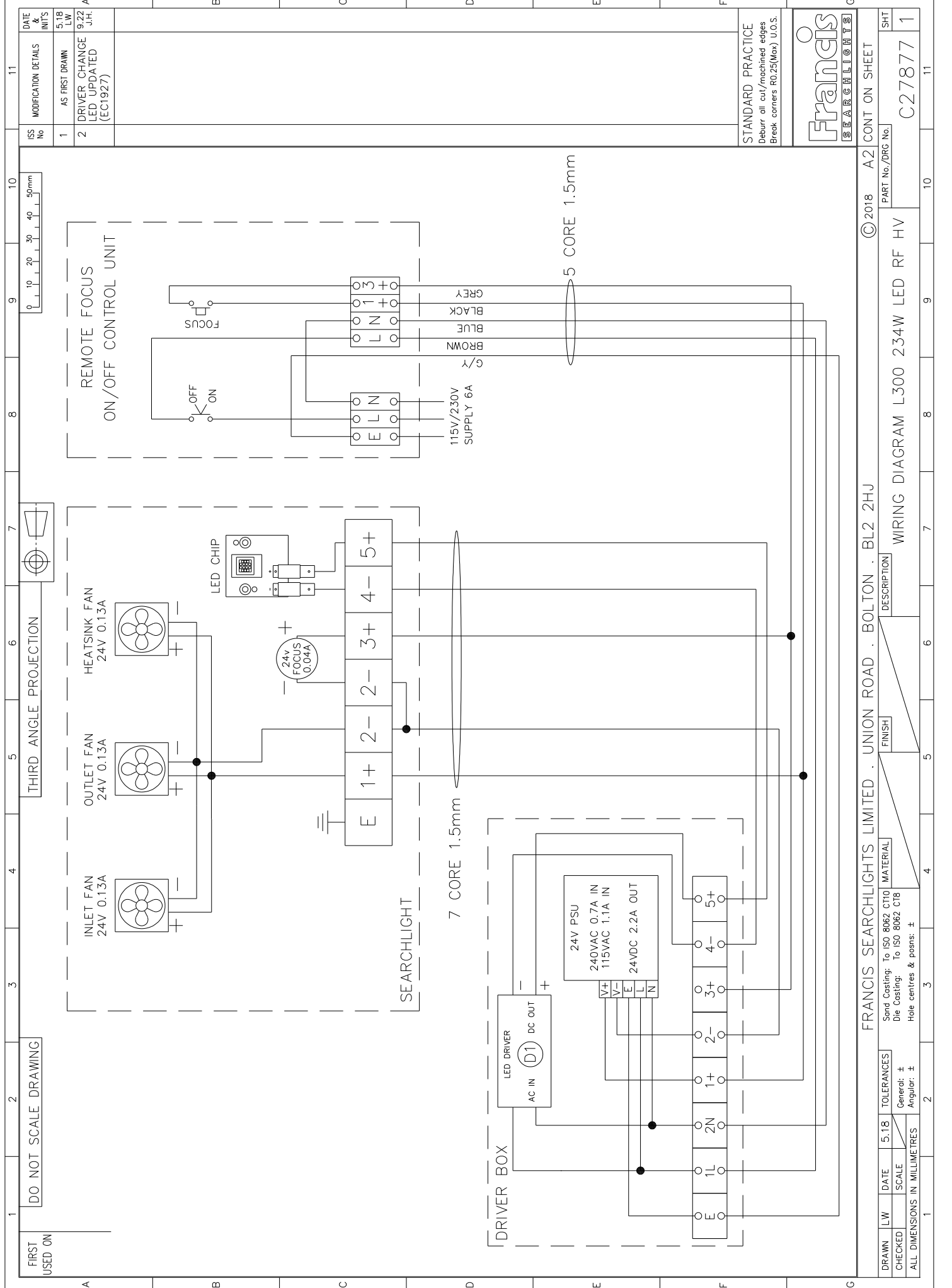
A6195 L300 LED CP 234W RF HV
A6191 L300 LED CP 234W RF LV

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DRAWN	D.S.	DATE	4.18	TOLERANCES	General: ± Angular: ±	Material	FINISH	DESCRIPTION	PART No./DRG No.	SHT
CHECKED	SCALE	1:4				Send Castings: To ISO 8062 C110 Die Castings: To ISO 8062 C18		LED300 234W RF CABIN PEDESTAL GA	A2	CONT ON SHEET
ALL DIMENSIONS IN MILLIMETRES										



A6195 1



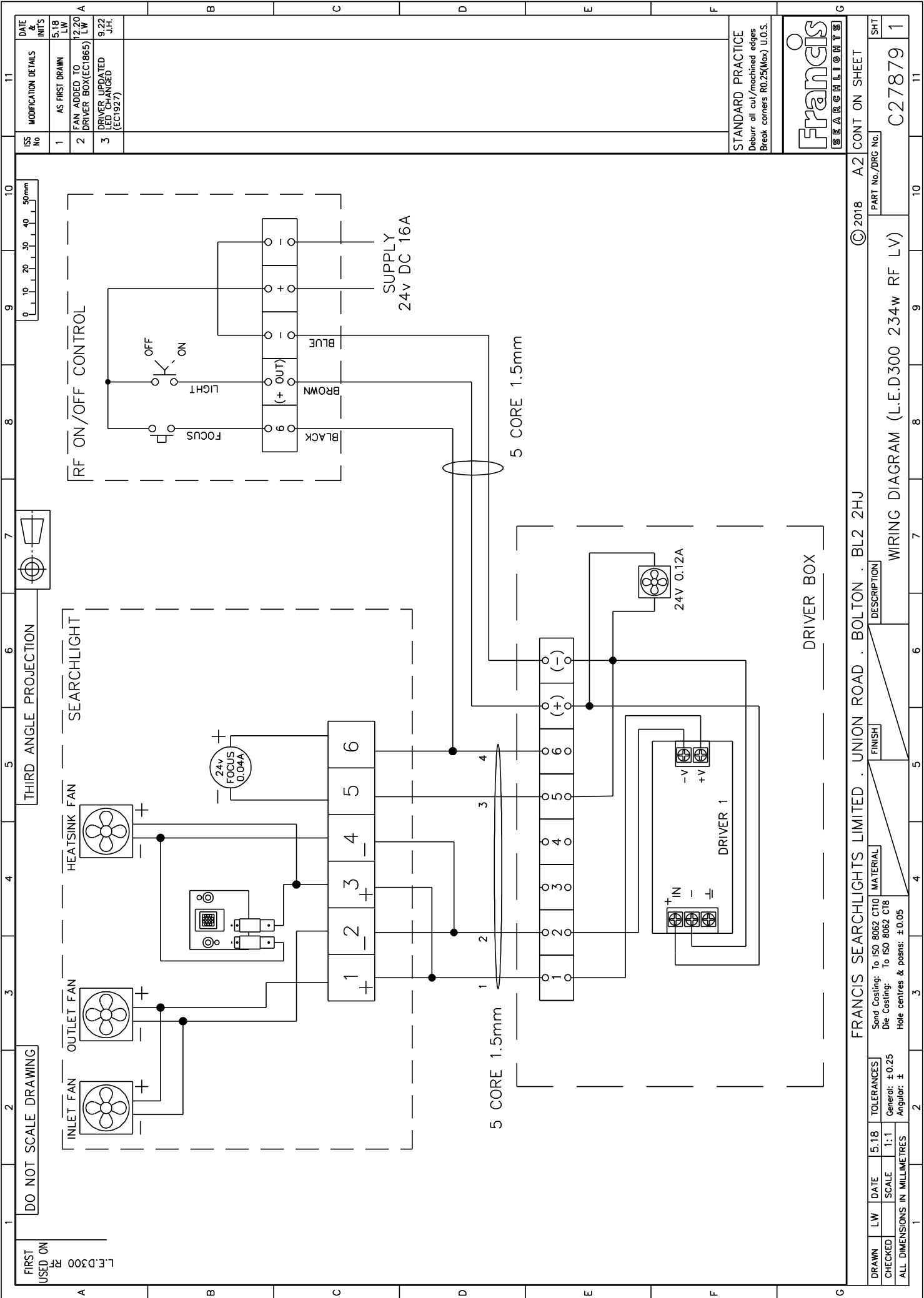
DATE & UNITS	MODIFICATION DETAILS	ISS No
5.18 LW	AS FIRST DRAWN	1
9.22 J.H. A	DRIVER CHANGE LED UPDATED (EC1927)	2

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



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PART No./DRG No.	C27877	SHT 1

DRAWN	LW	DATE	5.18	TOLERANCES	MATERIAL	DESCRIPTION
CHECKED		SCALE		General: ±	To ISO 8062 CT10	FINISH
ALL DIMENSIONS IN MILLIMETRES				Angular: ±	To ISO 8062 CT8	WIRING DIAGRAM L300 234W LED RF HV
				Hole centres & posns: ±		



ISS No	MODIFICATION DETAILS	DATE & INT'S
1	AS FIRST DRAWN	5.18 LW
2	FAN ADDED TO DRIVER BOX (EC1865)	12.20 LW
3	DRIVER UPDATED LED CHANGED (EC1927)	9.22 J.H.

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



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PART No./DRG No.	C27879 1	
SHT	1	

FRANCIS SEARCHLIGHTS LIMITED · UNION ROAD · BOLTON · BL2 2HU		
Send Coasting: To ISO 8062 CT10	FINISH	
Die Coasting: To ISO 8062 C18	DESCRIPTION	
Hole centres & posns: ±0.05	WIRING DIAGRAM (L.E.D300 234w RF LV)	
DRAWN LW	DATE 5.18	TOLERANCES
CHECKED	SCALE 1:1	General: ±0.25
ALL DIMENSIONS IN MILLIMETRES		Angular: ±

1 2 3 4 5 6 7 8 9 10 11

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

POSITION ITEM 16 CENTRALLY ON LID

DATE 10.16 D.S. 12.18 LW 8.19 LW 8.22 J.H.

MODIFICATION DETAILS

ISS No 1 2 3 4

AS FIRST DRAWN

CHASSIS PLATE FIXINGS SCREWS MOVED (EC1737)

CHASSIS PLATE CHASSIS PLATE (EC1776)

BOX WAS C27258 NOW C28483. NEW LID & CHASSIS PLATE C29033 ADDED. (EC1927)

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

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

Part No./DRG No. C27259 1

DESCRIPTION DRIVER BOX ASSY (DECK)

FINISH

MATERIAL To ISO 8062 CT10

To ISO 8062 C18

TOLERANCES General: ±

Angular: ±

Scale 1:2

ALL DIMENSIONS IN MILLIMETRES

Hole centres & posns: ±

Die Casting: ±

Sand Casting: ±

Scale 1:2

General: ±

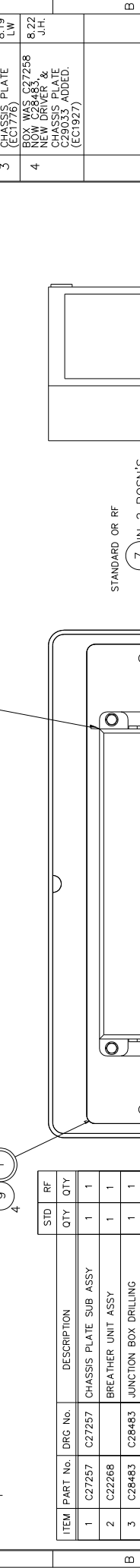
Angular: ±

ALL DIMENSIONS IN MILLIMETRES

Hole centres & posns: ±

Die Casting: ±

Sand Casting: ±



ITEM	PART No.	DRG No.	DESCRIPTION	STD QTY	RF QTY
1	C27257	C27257	CHASSIS PLATE SUB ASSY	1	1
2	C22268		BREATHER UNIT ASSY	1	1
3	C28483		JUNCTION BOX DRILLING	1	1
4	C29601		LED DRIVER	1	1
5	C29033		24V DRIVER	1	1
6	C15133		TERMINAL BLOCK (32A)	1	1
7	C10158		M20 CABLE GLAND	2	2
7	C12415-01	C12415	M20 CABLE GLAND	1	1
7	C12415		M20 CABLE GLAND	1	1
8	C26955		M4 x 10 HEX HD SCREW	4	4
9	C23598		M4 x 8 SELF TAP POZI HD SCREW	4	4
10	C10203		M3 x 16 BUTTON HD SCREW	2	2
11	C14502		M3 x 6 BUTTON HD SCREW	2	2
12	C04376		M4 PLAIN WASHER	4	4
13	C08793		M4 S/C SPRING WASHER	4	4
14	C08028		M3 PLAIN WASHER	2	2
15	C10747		M3 S/C SPRING WASHER	2	2
16	C21464		230V WARNING LABEL	1	1

BOX WEIGHT 3Kg

BOX DIMENSIONS 360 x 254 x 111

BOX FIXINGS M4 346 x 239

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Part No./DRG No. C27259 1

DESCRIPTION DRIVER BOX ASSY (DECK)

FINISH

MATERIAL To ISO 8062 CT10

To ISO 8062 C18

TOLERANCES General: ±

Angular: ±

Scale 1:2

General: ±

Angular: ±

ALL DIMENSIONS IN MILLIMETRES

Hole centres & posns: ±

Die Casting: ±

Sand Casting: ±

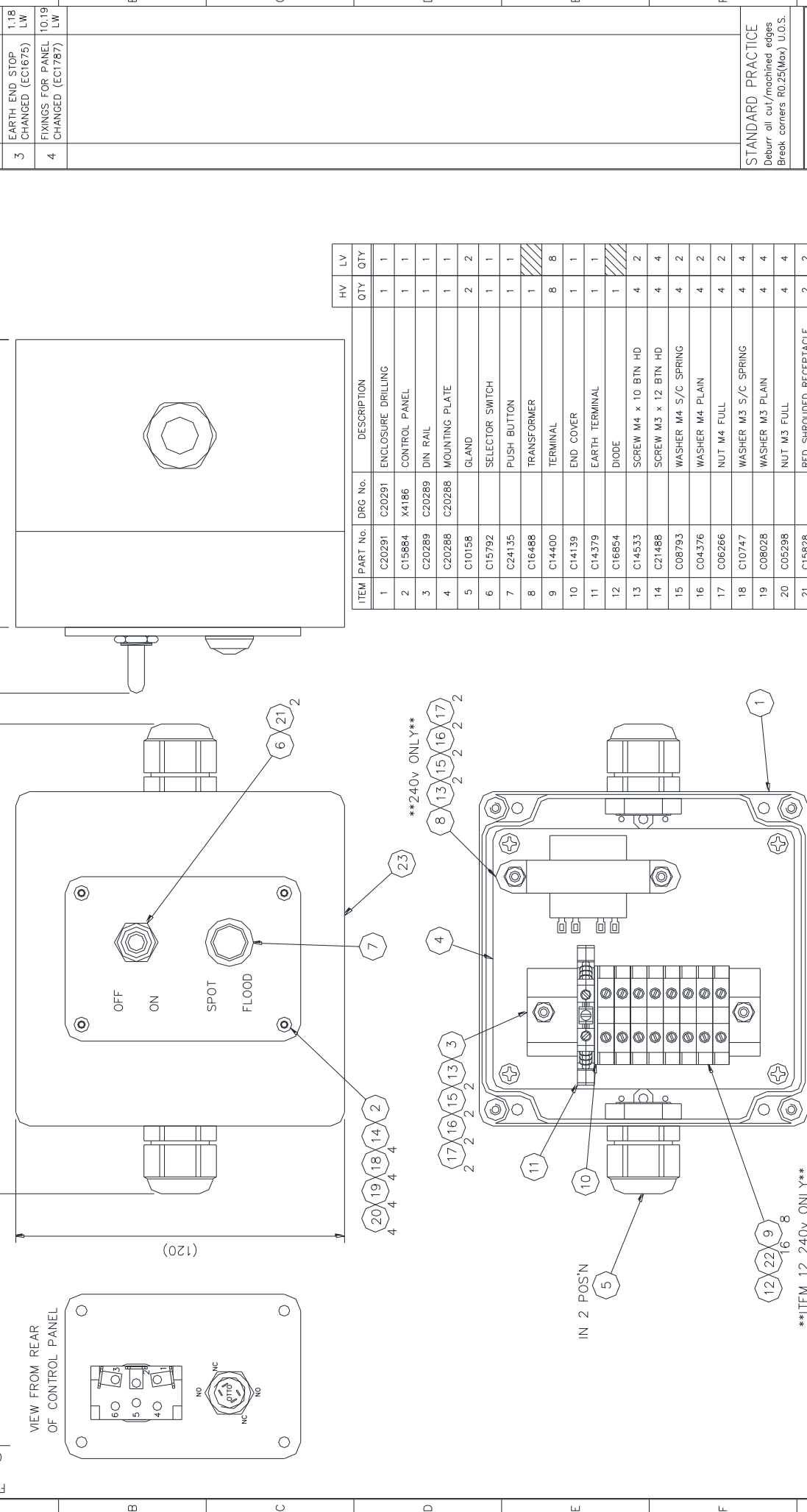


11 10 9 8 7 6 5 4 3 2 1

100 90 80 70 60 50 40 30 20 10 0

11 10 9 8 7 6 5 4 3 2 1

ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	12.99 D.S.
2	DESIGN CHANGE PROPOSED BY: (EC1365)	10.11 LW
3	EARTH END STOP CHANGED (EC1675)	1.18 LW
4	FIXINGS FOR PANEL CHANGED (EC1787)	10.19 LW



ITEM	PART No.	DRG No.	DESCRIPTION	QTY	HV	LV
1	C20291	C20291	ENCLOSURE DRILLING	1	1	1
2	C15684	X4186	CONTROL PANEL	1	1	1
3	C20289	C20289	DIN RAIL	1	1	1
4	C20288	C20288	MOUNTING PLATE	1	1	1
5	C10158		GLAND	2	2	2
6	C15792		SELECTOR SWITCH	1	1	1
7	C24135		PUSH BUTTON	1	1	1
8	C16488		TRANSFORMER	1	1	1
9	C14400		TERMINAL	8	8	8
10	C14139		END COVER	1	1	1
11	C14379		EARTH TERMINAL	1	1	1
12	C16654		DIODE	1	1	1
13	C14533		SCREW M4 x 10. BTM HD	4	4	4
14	C21488		SCREW M3 x 12. BTM HD	4	4	4
15	C08783		WASHER M4 S/C SPRING	4	4	4
16	C04376		WASHER M4 PLAIN	4	4	4
17	C06266		NUT M4 FULL	4	4	4
18	C10747		WASHER M3 S/C SPRING	4	4	4
19	C08028		WASHER M3 PLAIN	4	4	4
20	C05298		NUT M3 FULL	4	4	4
21	C15628		RED SHROUDED RECEPTACLE	2	2	2
22	C15411		TERMINAL MARKER	16	16	16
23	C21464		230V WARNING LABEL	1	1	1

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

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DRAWN D.S. DATE 12.99 TOLERANCES Sand Casting: To ISO 8062 CT10 Die Casting: To ISO 8062 CT8
CHECKED RF & SCALE 1:1 General: ± Angular: ±
ALL DIMENSIONS IN MILLIMETRES Hole centres & posns: ±

DESCRIPTION
C21022 RF ON/OFF CONTROL UNIT 24V
C21021 RF ON/OFF CONTROL UNIT 240V

PART No./DRG No. C21022 1

SHT 1

10 – Spare Parts List

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

Part Number	Description
Searchlight	
C29668-01	LED Replacement Kit
C27224-00	Front Glass
C20567-00	Front Glass Gasket
C22268-01	Breather Assembly
C27820-00	Fan (Top & Bottom Vents)
C27820-00	Fan (Heatsink)
C16410-00	Focus Motor
C16534-00	Focus Motor Cover
C27143-00	Lens Ø200mm
C27144-00	Lens Ø180mm
C27145-00	Lens Ø114mm
C27146-00	Lens Ø77mm
C27147-00	Lens Ø74mm
C11025-01	Pan & Tilt Lock Wheel Assembly (Deck & Deck Pedestal)
C11026-01	Pan & Tilt Lock Wheel Assembly (Cabin & Cabin Pedestal)
C10168-00	Base 'O' Ring (Deck & Cabin)
C10169-00	Spigot 'O' Ring (Deck & Cabin)
C21967-00	Bellows Bottom Bush 'O' Ring
C08926-00	Push Rod Seal
C20634-00	Pedestal Base 'O' Ring (Deck Pedestal)
C10170-00	Pedestal Base 'O' Ring (Cabin Pedestal)
C20281-00	Bellows (Cabin & Cabin Pedestal)
Driver Box	
C29601-00	LED Driver HV (1 Used)
C29600-00	LED Driver LV (1 Used)
C29033-00	24V PSU HV (1 Used)
C22104-00	Fan (24V - LV Only)
Control Unit	
C25792-00	On/Off Selector Switch
C24135-00	Focus Pushbutton

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.