



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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Distributor details:

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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 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 35,537.
- Colour temperature 6000K.
- Range – 3,047 metres.
- Divergence – Spot 4° - Flood 10° .
- Temperature range: -50 to +60.

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:

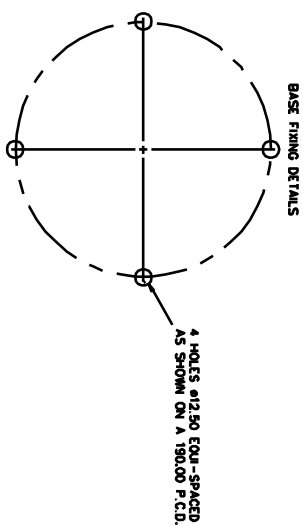
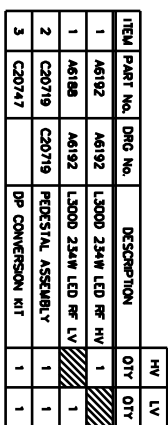
- Maintenance checks should be conducted before every voyage or at least every three months.
- Before checking, disconnect the equipment from the supply.
- Visually inspect the condition of the equipment.
- Any major or minor structural damage should be rectified immediately to reduce sympathetic wear.
- 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 |

[illegible]



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

| | | | | | |
|-------|--------|-----|------|----|----|
| A6193 | L300DP | LED | 234W | RF | HV |
| A6189 | L300DP | LED | 234W | RF | LV |

STANDARD PRACTICE
Disturb all cut/machined edges
Break corners R0.25(4x4) U.G.S.

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| | | | | |
|------------------------------|----|-------|------|--------------------------|
| DRAWN | LW | DATE | 8.18 | TOLRANCES |
| COCKED | | SCALE | 1:2 | |
| ALL DIMENSIONS IN MILLIMETRS | | | | General: ± Anguler: ± |

Save Coasting: 10 ISO 6062 CH
Die Coasting: 10 ISO 6062 CH
Wide centres & pores: 1

WATERMIL

WASH

DESCRIPTION

L300DP LED 234W RF GA

| | |
|-------|---|
| A6193 | 1 |
|-------|---|

DO NOT SCALE DRAWING

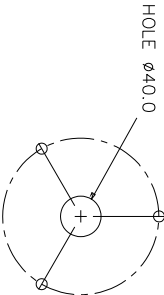
THIRD ANGLE PROJECTION



0 10 20 30 40 50mm

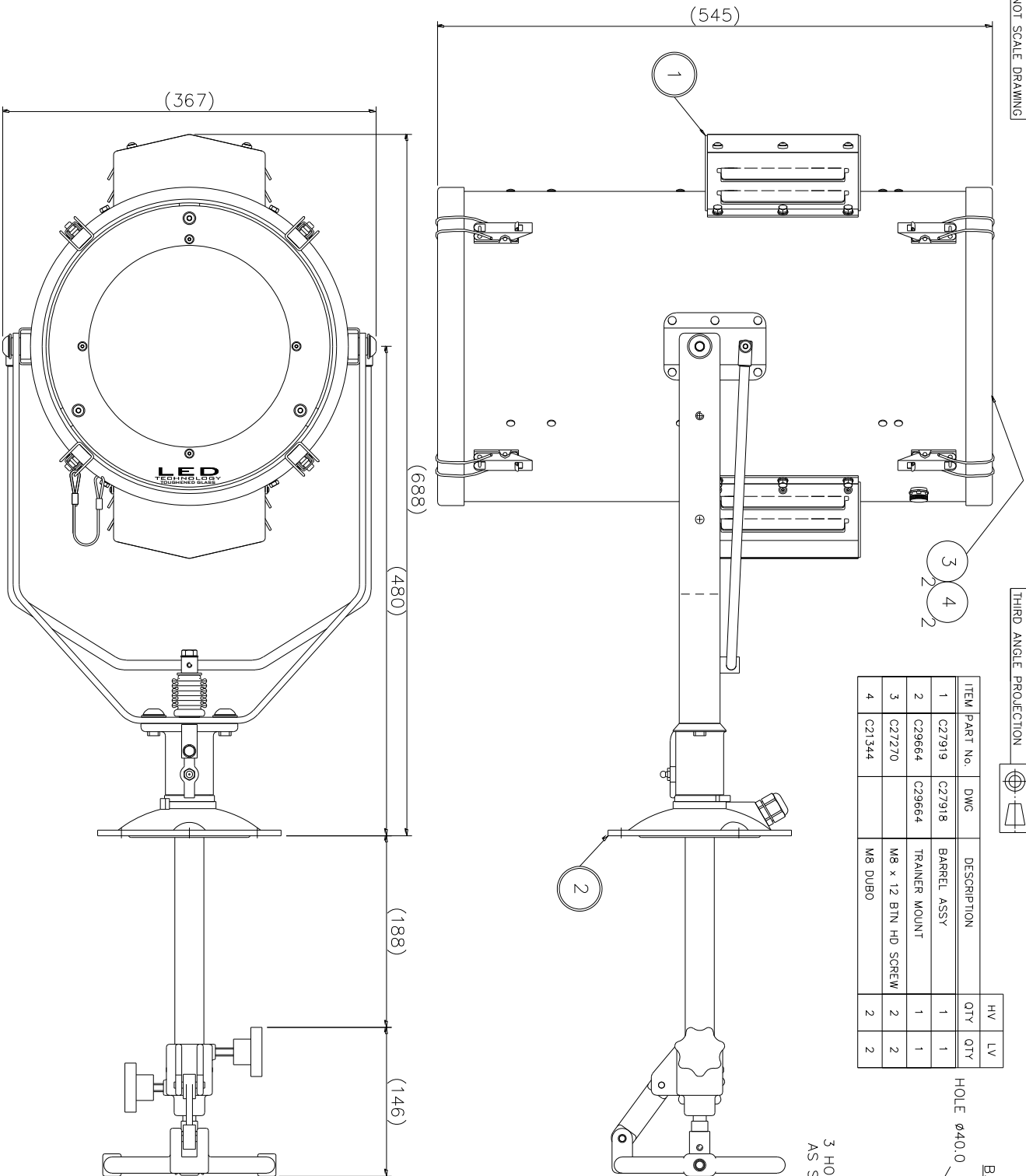
| ITEM | PART No. | DWG | DESCRIPTION | HV QTY | LV QTY |
|------|----------|--------|----------------------|--------|--------|
| 1 | C27919 | C27918 | BARREL ASSY | 1 | 1 |
| 2 | C29664 | C29664 | TRAINER MOUNT | 1 | 1 |
| 3 | C27270 | | M8 x 12 BTN HD SCREW | 2 | 2 |
| 4 | C21344 | | M8 DUBO | 2 | 2 |

BASE FIXING DETAILS



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

| NO | MODIFICATION DETAILS | DATE & BY |
|----|-------------------------------------|-----------|
| 1 | AS FIRST DRAWN | 15.2.0 A |
| 2 | LOWERING COVER ADDED | 15.2.0 A |
| 3 | UPDATED BARREL ASSY & 1/4" (C21927) | 15.2.0 A |



| |
|---------------------------------|
| STANDARD PRACTICE |
| Debur all cut/machined edges |
| Break corners R0.25(10x) U.O.S. |



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L300C LED 234W RF. G.A.

A6194 L300C LED 234W RF HV
A6190 L300C LED 234W RF LV

PART No./Dwg No.
A6194

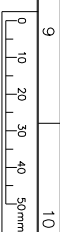
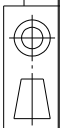
SHT 1

| | | | | |
|-------------------------------|-------|------|-------|------------|
| DRAWN | LW | DATE | 1.1.7 | TOLERANCES |
| CHECKED | SCALE | 1:1 | 1:2 | As per 1 |
| ALL DIMENSIONS IN MILLIMETRES | | | | As per 1 |

FIRST USED ON

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION



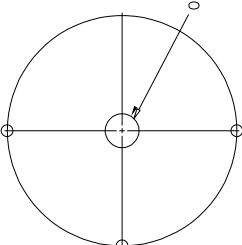
ISS No

MODIFICATION DETAILS

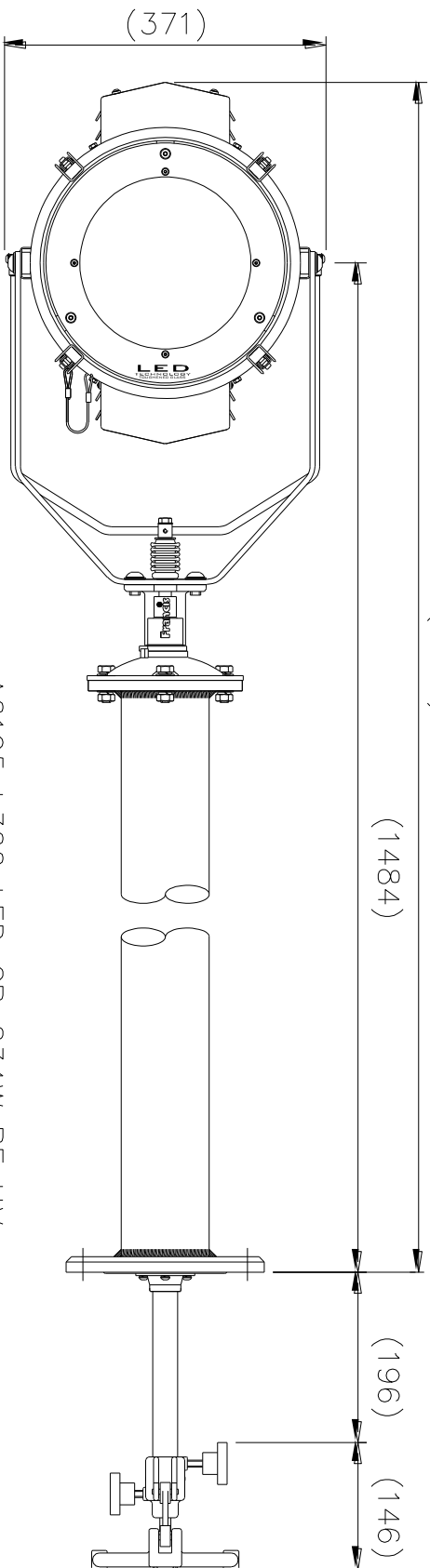
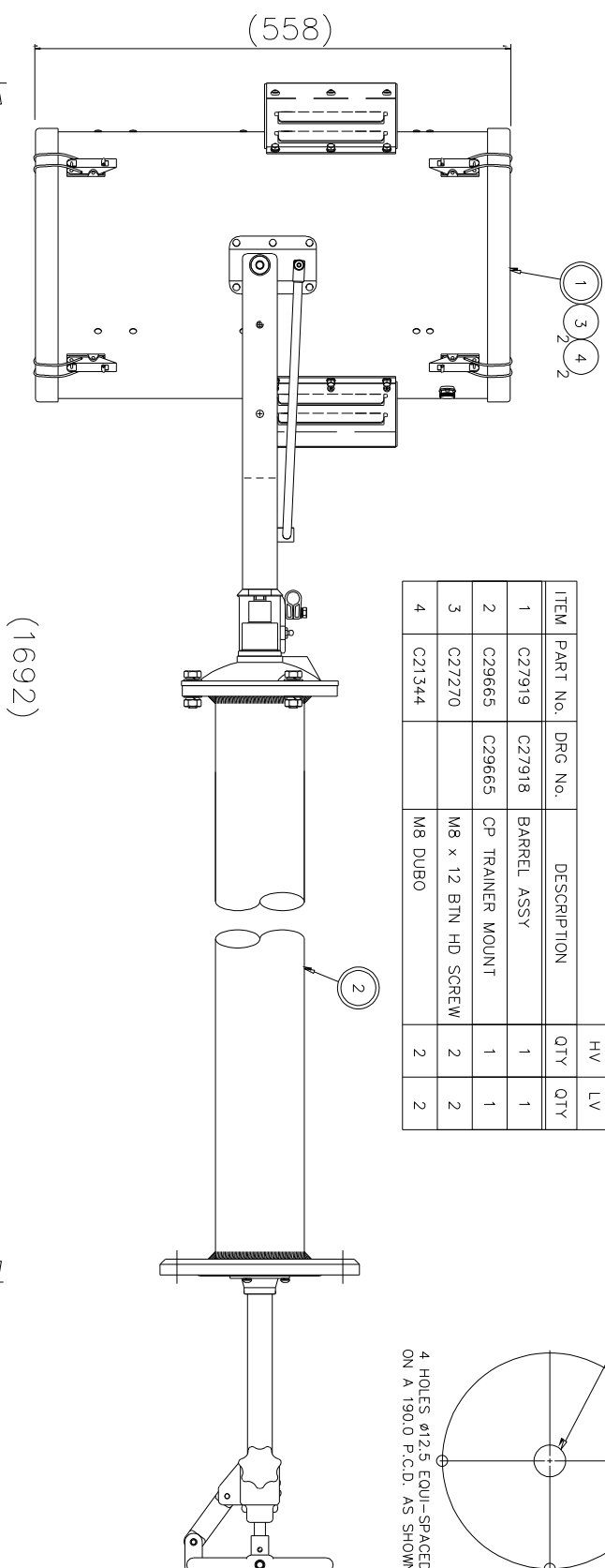
DATE

| ITEM | PART No. | DRG No. | DESCRIPTION | HV QTY | LV 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 |

BASE FIXING DETAILS



4 HOLES ø12.5 EQUI-SPACED ON A 190.0 P.C.D. AS SHOWN



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 |
| CHECKED | SCALE | 1:4 | General: ± | |
| | | | Angular: ± | |

Send Casting: To ISO 8062 C110
Die Casting: To ISO 8062 C18
Hole centres & posns: ±

MATERIAL

FINISH

DESCRIPTION

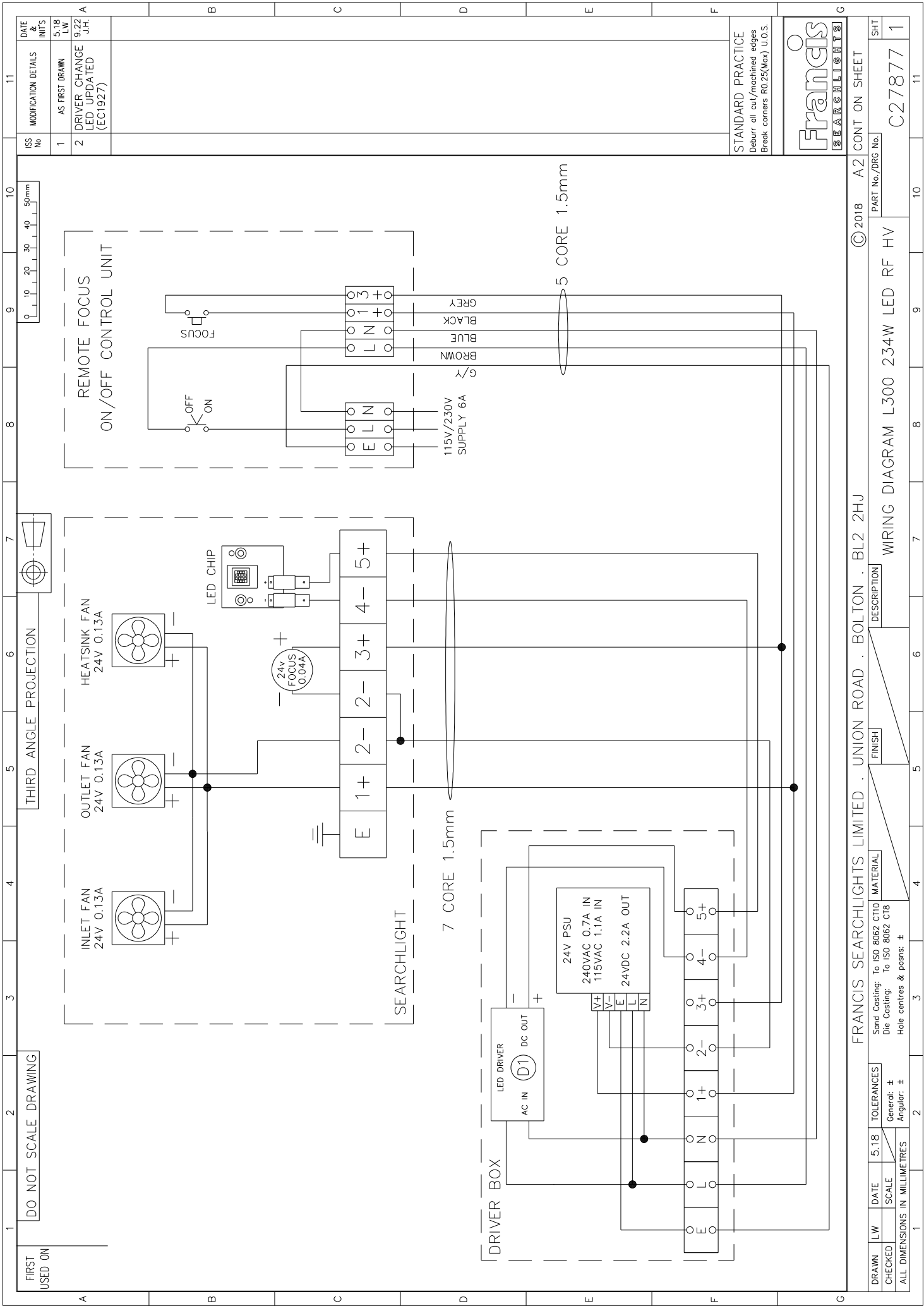
LED300 234W RF CABIN PEDESTAL GA

PART No./DRG No.

A6195 1

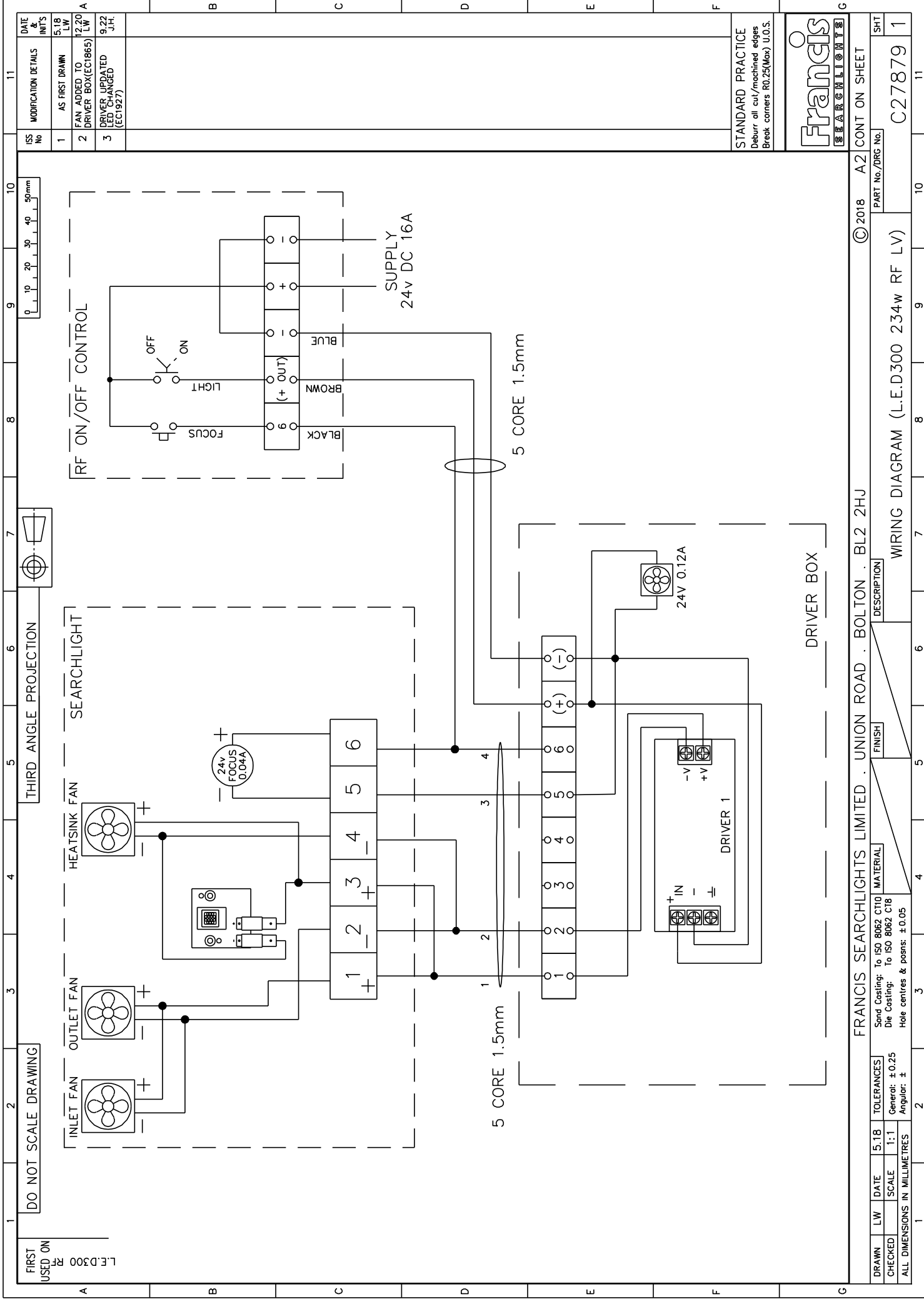
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STANDARD PRACTICE
Deburr all cut/machined edges
Break corners R0.25(Max) U.O.S.

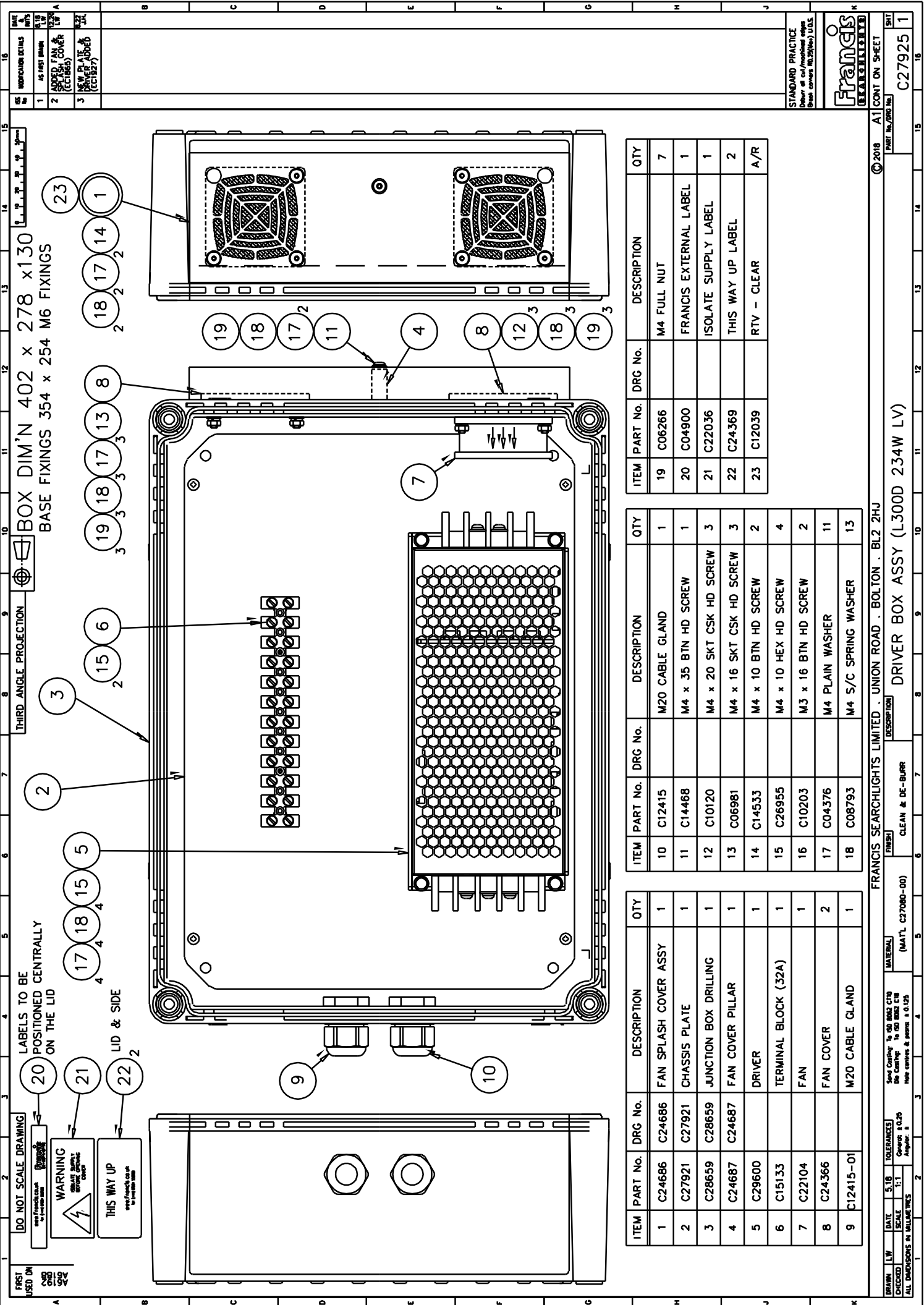


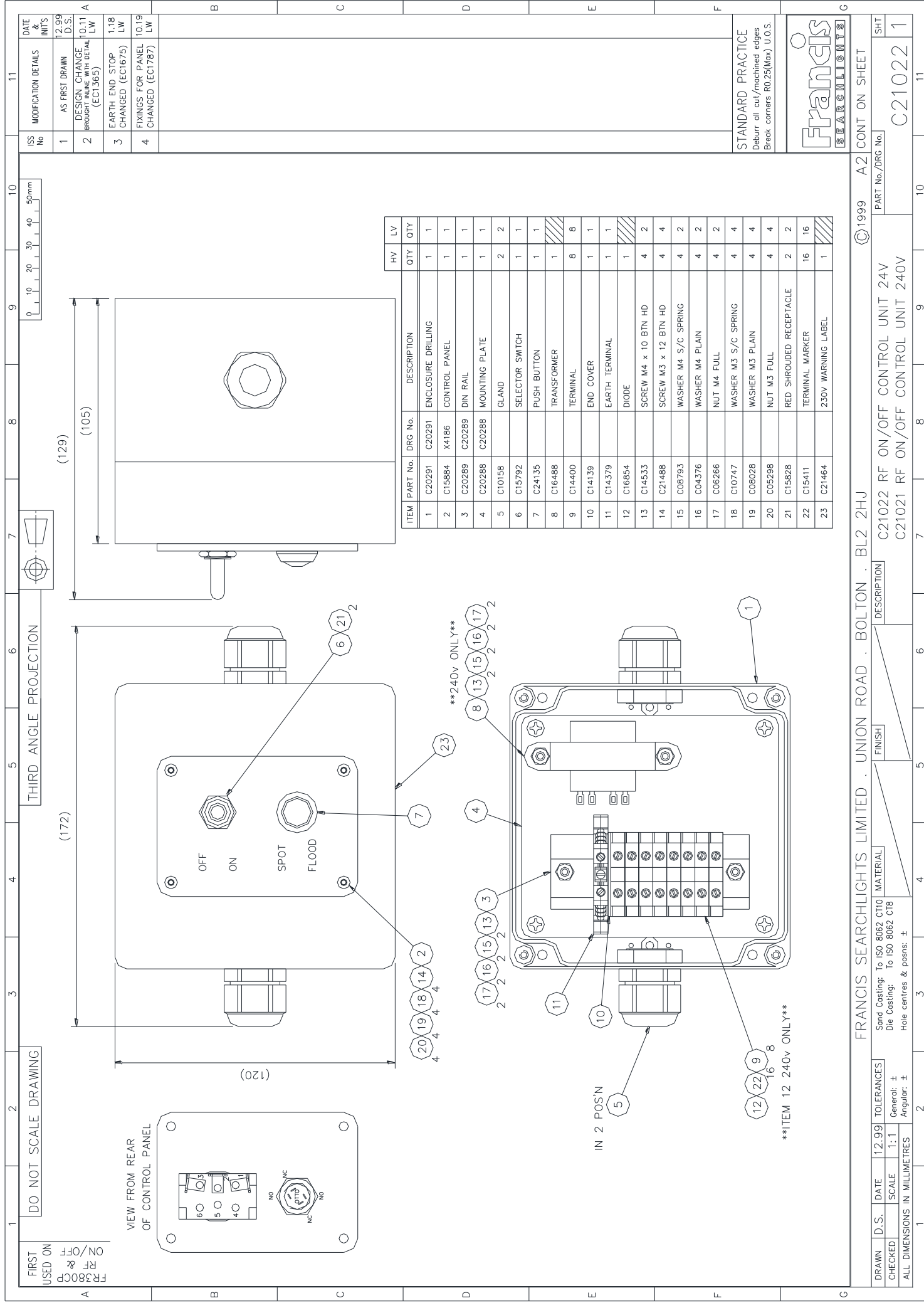
| ISS No | MODIFICATION DETAILS | DATE & INIT'S |
|--------|------------------------------------|---------------|
| 1 | AS FIRST DRAWN | 5.18 LW |
| 2 | DRIVER CHANGE LED UPDATED (EC1927) | 9.22 J.H. |

| | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| STANDARD PRACTICE Debur all cut/machined edges Break corners R0.25(Max) U.O.S. | | | | | | | | | | |
| Francis SEARCHLIGHTS | | | | | | | | | | |
| © 2018 A2 CONT ON SHEET | | | | | | | | | | |
| PART No./DRG No. C27877 | | | | | | | | | | |
| SHT 1 | | | | | | | | | | |
| WIRING DIAGRAM L300 234W LED RF HV | | | | | | | | | | |



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





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

| DRAWN | D.S. | DATE | TOLERANCES | | MATERIAL | FINISH | DESCRIPTION | PART No./DRG No. | SHT | | | |
|-------------------------------|------|------|------------|-------|---|--------|-------------|------------------|------------------------------------|------------|------------|----|
| | | | CHECKED | SCALE | | | | | | General: ± | Angular: ± | |
| ALL DIMENSIONS IN MILLIMETRES | | | | | | | | | | | | |
| 1 | | | | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| | | | | | Sand Casting: To ISO 8067 CT10 Die Casting: To ISO 8062 CT8 Hole centres & posns: ± | | | | C21022 RF ON/OFF CONTROL UNIT 24V | | | |
| | | | | | | | | | C21021 RF ON/OFF CONTROL UNIT 240V | | | |
| | | | | | | | | | | | C21022 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 | |
| C15792-00 | 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.