



User Instruction & Installation Manual
LX230RC 100 Watt
HID Xenon Twin Head Searchlight



LX230 Twin Head

Product Reference Number:

A7214 - LX230RC 24v Twin Head
A7320 - LX230RC 110-240v Twin Head

Manufacturer's details:

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Manual Part Number: C28271

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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 Xenon 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.

- Because of the high internal pressure within the lamp, there is a risk of explosion in either a hot or cold state.
- During operation, this lamp emits intense UV radiation which is harmful to the eyes and skin. Suitable protection should be worn.
- The high luminance of the arc can cause severe damage to the eye if viewed directly. ALWAYS wear suitable protective goggles when viewing the lamp.
- Always use protective sleeves supplied with the lamp whilst handling.
- Should it be necessary to examine the lamp with the front bezel removed, always use a protective shield and wear goggles to ensure a safe working environment.
- 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 lamp has cooled sufficiently before removal.
- If undue force appears necessary to remove the lamp, the equipment should be inspected by a competent person or contact the manufacturer.
- When disposing of lamps, return the lamp, via the supplier, to the lamp manufacturer in its complete packaging.
- Due to the vast range of lamps available it may appear possible that more powerful lamps can be used in the equipment than for which it was designed. Even when the unit will physically accept a higher wattage or voltage lamp, this substitution is not recommended and is dangerous. This action will also void any warranties on the equipment.
- Always refer to the lamp manufacturer's technical data when dealing with lamps.

3 – Technical Information

This product has been designed to operate in accordance with the product specification. The LX230RC 100watt Remote Focus HID Xenon searchlight has the following features:

- All marine grade materials and fixings.
- Powder coated finish.
- Full 365° horizontal rotation.
- Vertical movement $\pm 20^\circ$.
- Pan rotation speed 24°/sec.
- Tilt rotation speed 4°/sec.
- Instant lamp re-strike. No cooling down time required.
- Economical 3000-hour lamp life.
- Toughened super clear Optiwhite front glass.
- Parabolic super pure aluminium reflector.
- Heater fitted in barrel.
- Fixed focus spot.
- Colour temperature 6000K.
- Sealing to IP66.
- Searchlight weight 19Kgs.
- Integral xenon PSU and lamp fitted as standard.

The searchlight also performs to the following optical data:

- Xenon HID light source.
- Lamp Wattage - 100 Watts.
- Supply voltage – 24v DC or 110/240v AC.
- Peak Beam Candlepower – 3,100,000lux.
- Range – 1,761 metres.
- Temperature range: -50°C

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.

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.

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 lamp fitted be applied to the lampholder 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:

Installation Guidelines

A typical installation and connection routine for the LX230RC 24v Twin Head searchlight is as follows:

Referring to wiring diagram C28218, a 24v supply is fed to the joystick panel.
The searchlight has been pre-wired with 4 meters of cable from the searchlight to junction box provided (12 core 1.5mm cable).

Cables required to be connected by the customer: -
12 core 1.5mm cable from the joystick panel to the junction box.
Supply cable to the junction box.

A typical installation and connection routine for the LX230RC 110/240v Twin Head searchlight is as follows:

Referring to wiring diagram C30271, a 110/240v supply is fed to the junction box.
The searchlight has been pre-wired with 4 meters of cable from the searchlight to junction box provided (12 core 1.5mm cable).

Cables required to be connected by the customer: -
12 core 1.5mm cable from the joystick panel to the junction box.
Supply cable to the junction 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 remotely positioned via the joystick control panel, with the facility for movement up, down, left, and right. When in the desired position the joystick should be released so that it returns to its' home position, dead centre.

The searchlight is also fitted with a breather at the rear of the searchlight which ensures a steady airflow to prevent any vacuum forming within the barrel.

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.

Setting to Work

Safe service in use necessitates the strict observance of the following precautions.

- Any article fabricated from quartz or glass is inherently fragile and care should therefore be taken, always, when handling lamps.
- Eye protection must be worn when handling lamps that have been removed from their packaging materials. The protective cover should not be removed from the lamp prior to use for safety reasons, as there is a remote possibility of the lamp shattering violently, especially if it is subjected to mechanical shock or vibration.
- Ensure that the power rating of the lamp to be fitted is suitable for the lamphouse and power supply equipment.
- Always isolate the equipment from the supply before inserting a lamp.
- Do not twist or bend the bulb when fitting the lamp as mechanical stresses **MUST** be avoided.
- When inserting or removing a lamp, always hold it securely by its' base to prevent breakage between base and bulb.
- The lampholder must not exercise mechanical tensions on the lamp, neither during insertion nor operation.
- For safety reasons, the lamp should be replaced once it has reached its' average life, and not later than 1.25 times the stated life. With continuing use, the risk of the lamp exploding increases due to alterations within the quartz.
- Before the protective sleeve is removed, suitable protection must be worn i.e face mask and gloves with wrist protection.
- Never touch the quartz bulb with bare hands, as fingerprints will make the glass cloudy and cause a severe loss of light. This may also cause recrystallisation and thus weaken the bulb material. Should the bulb be inadvertently touched, remove fingerprints with methylated spirit and a clean, soft paper towel. The bulb should then be wiped with distilled water. **NOTE: ALWAYS WEAR MASK AND GLOVES DURING CLEANING.**
- All packaging and the protective sleeve must be retained for re-use.

7- Fault Finding

All fault finding must be conducted by a competent person or qualified Electrical Engineer.

Failure of Lamp to ignite

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

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

Any further tests to be carried out with regards to lamp failure must be conducted by a competent electrical engineer and should not be carried out in an explosive atmosphere.

- 2) Before a xenon lamp will ignite, the electrically insulated gas between the electrodes must be ionised. This is done by the ignitor which produces a high frequency voltage. Switching the lamp on activates the ignitor. A cracking or hissing noise should be heard. The ignitor is housed within the rear of the searchlight barrel. If found to be faulty a new ignitor/ballast unit must be fitted.

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 reflector if required.
 - Ensure that the lampholder is free from corrosion or other damage.
- 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.

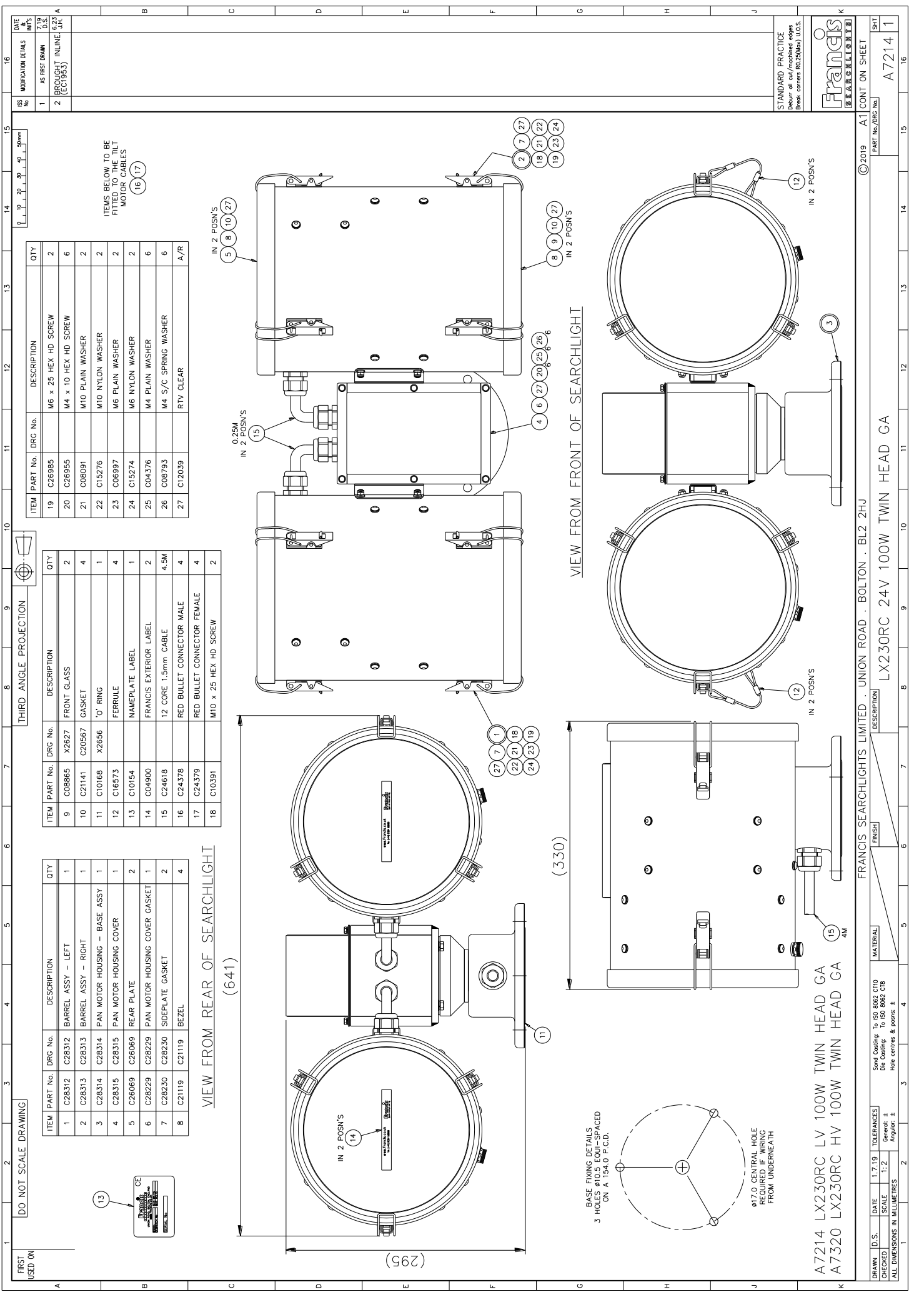
Notes for Lamp Fitting/Removal for LX230RC 100w remote focus HID Xenon.

Ensure all screws are retained carefully in a safe position.

- Remove lamp from packaging, ensuring protective jacket is still in place.
- Remove front & rear bezels from searchlight by unfastening the six clips.
- Remove the four M3 x 8 cap head screws that attach the reflector to the side tilt brackets.
- Un-clip the lamp leads at the rear & then remove the reflector assembly.
- Remove the three M3 x 10 button head screws that retain the front lamp plate & the lamp in its holder.
- Once the front 2 plates have been removed the lamp can now be removed by freeing one lead at a time through the centre bore in the lamp holder boss & lamp holder plate.
- Remove new lamp from protective packaging.
- Replace the lamp by reversing the above procedure.
- For ease, attach the lamp leads from the front of searchlight before attaching the reflector. Then take up the slack in the leads from the rear of the searchlight once the reflector is back in position.

9 – General Assembly and Wiring Diagrams

Drawing Number	Description
A7214	LX230RC 24v 100w General Assembly
C28218	Wiring Diagram 24v
C30271	Wiring Diagram 110/240v
C28222	Control Panel Assembly
C26225	Junction Box Assembly 24v
C30272	Junction Box Assembly 110/240v
C30266	Pedestal Assembly Kit (Optional)



IS No	MODIFICATION DETAILS	DATE & SIGNED
1	AS FIRST DRAWN	7/9 J.H.K.
2	PROLIGHT INLINE (C1935)	6/23 J.H.K.

ITEMS BELOW TO BE FITTED TO THE MOTOR CABLES

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
19	C26985		M6 x 25 HEX HD SCREW	2
20	C26985		M4 x 10 HEX HD SCREW	6
21	C08091		M10 PLAIN WASHER	2
22	C15276		M10 NYLON WASHER	2
23	C06997		M6 PLAIN WASHER	2
24	C15274		M6 NYLON WASHER	2
25	C04376		M4 PLAIN WASHER	6
26	C08793		M4 S/C SPRING WASHER	6
27	C12039		RTV CLEAR	A/R

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
9	C08865	X2627	FRONT GLASS	2
10	C21141	C20567	GASKET	4
11	C10168	X2656	O' RING	1
12	C16573		FERRULE	4
13	C10154		NAMEPLATE LABEL	1
14	C04900		FRANCIS EXTERIOR LABEL	2
15	C24618		12 CORE 1.5mm CABLE	4.5M
16	C24378		RED BULLET CONNECTOR MALE	4
17	C24379		RED BULLET CONNECTOR FEMALE	4
18	C10391		M10 x 25 HEX HD SCREW	2

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C28312	C28312	BARREL ASSY - LEFT	1
2	C28313	C28313	BARREL ASSY - RIGHT	1
3	C28314	C28314	PAN MOTOR HOUSING - BASE ASSY	1
4	C28315	C28315	PAN MOTOR HOUSING COVER	1
5	C26069	C26069	REAR PLATE	2
6	C28229	C28229	PAN MOTOR HOUSING COVER GASKET	1
7	C28230	C28230	SIDEPLATE GASKET	2
8	C21119	C21119	BEZEL	4

VIEW FROM REAR OF SEARCHLIGHT
(641)

VIEW FROM FRONT OF SEARCHLIGHT

DATE	D.S.	1:7.19	TOLERANCES
CHECKED	SCALE	1:2	General: ± Angular: ±
ALL DIMENSIONS IN MILLIMETRES			

MATERIAL	DESCRIPTION
FRANCIS SEARCHLIGHTS LIMITED . UNION ROAD . BOLTON . BL2 2HU	LX230RC 24V 100W TWIN HEAD GA

FINISH	DESCRIPTION
Sand Casting: To ISO 8062 C10 Die Casting: To ISO 8062 C18 hole centres & pins: ±	

STANDARD PRACTICE	CONT ON SHEET
in our publications See page 102 (Nov) 11.05.	A1
© 2019	PART No./DRG No.
	A7214 1
	SHT
	A7214 1

FRANCIS SEARCHLIGHTS LIMITED . UNION ROAD . BOLTON . BL2 2HU
LX230RC 24V 100W TWIN HEAD GA

A7214 LX230RC LV 100W TWIN HEAD GA
A7320 LX230RC HV 100W TWIN HEAD GA

BASE FIXING DETAILS
3 HOLES ø10.5 EQUI-SPACED
ON A 154.0 P.C.D.

ø17.0 CENTRAL HOLE
REQUIRED IF WIRING
FROM UNDERNEATH

ITEMS BELOW TO BE FITTED TO THE MOTOR CABLES

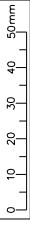
ITEM PART No. DRG No. DESCRIPTION QTY

DATE & SIGNED

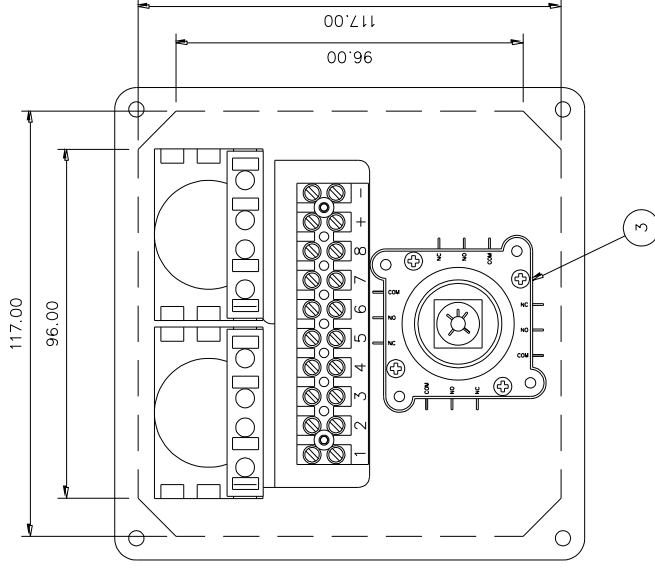
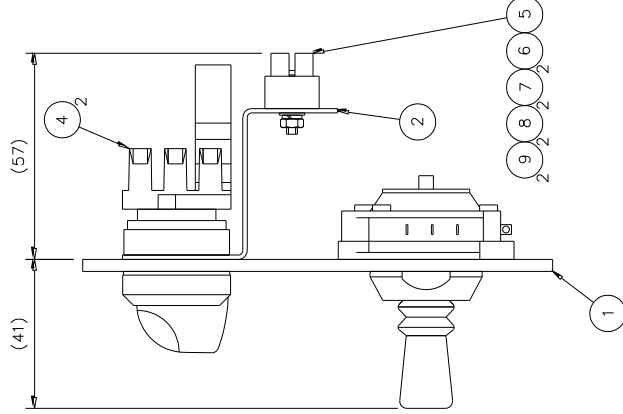
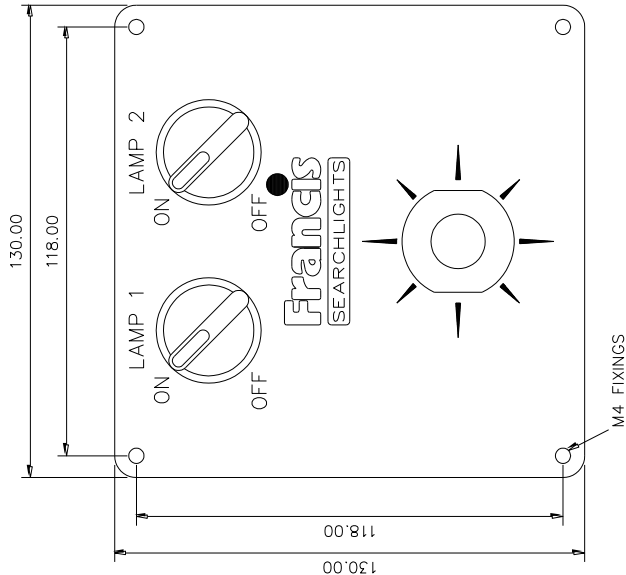
DO NOT SCALE DRAWING

FIRST USED ON
L2330RC
24V 100W
TWIN HEAD
C28222

THIRD ANGLE PROJECTION

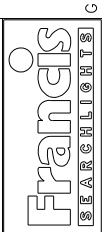


ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C28221	C28221	CONTROL PANEL	1
2	C23970	C23970	DIN RAIL BRACKET	1
3	C14444		JOYSTICK	1
4	C14143		SELECTOR SWITCH	2
5	C15056		TERMINAL BLOCK 10 WAY	1
6	C10203		M3 x 16 BUTTON HD SCREW	2
7	C08028		M3 PLAIN WASHER	2
8	C10747		M3 S/C SPRING WASHER	2
9	C05298		M3 FULL NUT	2



ISS No	MODIFICATION DETAILS	DATE INTS
1	AS FIRST DRAWN	5.19 D.S.

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



©2019	A2	CONT ON SHEET
PART No./DRG No.	C28222	
SHT	1	

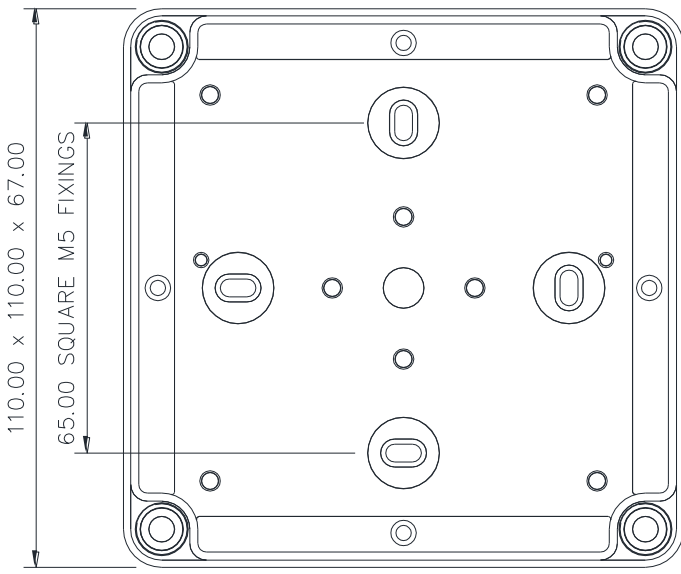
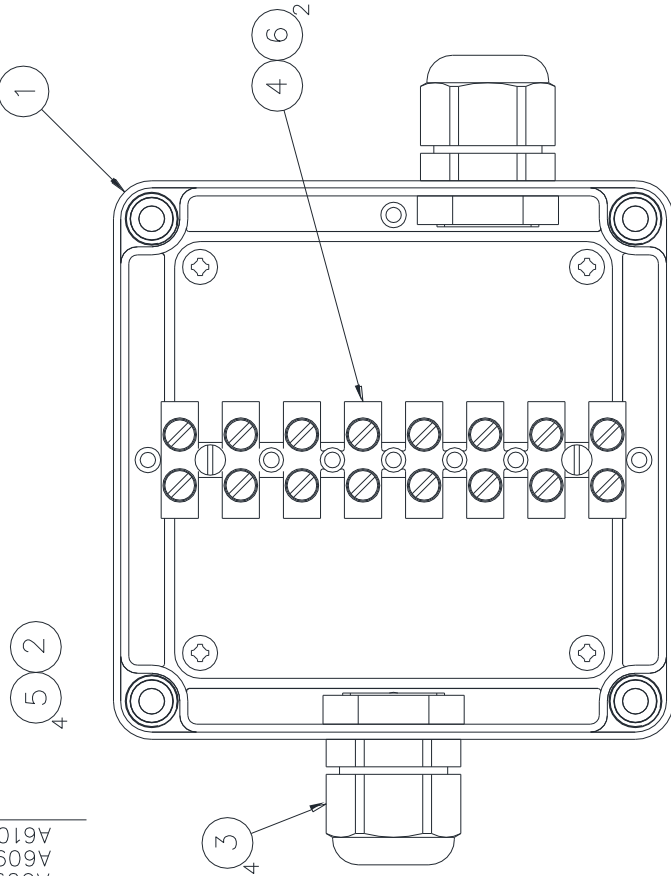
FRANCIS SEARCHLIGHTS LIMITED · UNION ROAD · BOLTON · BL2 2HU		DESCRIPTION	
FINISH	CONTROL PANEL ASSY		
MATERIAL	To ISO 8062 C10		
Send Casting:	To ISO 8062 C18		
Die Casting:	To ISO 8062 C18		
TOLERANCES	General: ±		
Scale:	1:1		
Angular:	±		
ALL DIMENSIONS IN MILLIMETRES			
Hole centres & posns: ±			

FIRST USED ON
 C2309
 A6091
 A6098
 A6099
 A6103

DO NOT SCALE DRAWING

THIRD ANGLE PROJ

VIEW WITH LID REMOVED

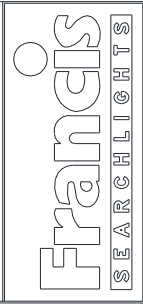


ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C26224	C26224	ENCLOSURE	1
2	C26223	C26223	CHASSIS PLATE S/ASSY	1
3	C10158		M20 CABLE GLAND	2
4	C15133		TERMINAL BLOCK (8WAY)	1
5	C23598		SCREW $\phi 4 \times 8$ PAN POLYIMATE	4
6	C10129		SCREW M3 x 20 BUTTON HD	2

SEE DO FOR LABEL
 WEIGHT 260g
 IP66

ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	2.13 LW
2	C26223 UPDATED & C26224 UPDATED TO MATCH NEW C23709 BOX EC2095	9.25 H.E.C

STANDARD PRACTICE
 Deburr all cut/machined edges
 Break corners R0.25(Max) U.O.S.
 TOLERANCES U.O.S: -
 General: ± 0.25
 Angular: \pm
 Hole centres & posns: ± 0.125
 Sand Casting: To ISO 8062 CT10
 Die Casting: To ISO 8062 CT8



©2013 A3 CONT ON SHEET
 PART No./DRG No. C26225
 SHT 1

FRANCIS SEARCHLIGHTS LIMITED, UNION ROAD, BOLTON, BL2 2HJ	DESCRIPTION
JUNCTION BOX ASSY (LX230RC 12v)	
MATERIAL	FINISH
DATE 2.13	
SCALE 1:1	
ALL DIMENSIONS IN MILLIMETRES	

FIRST USED ON
A7320
LX230RC
21+

DO NOT SCALE DRAWING

(130)

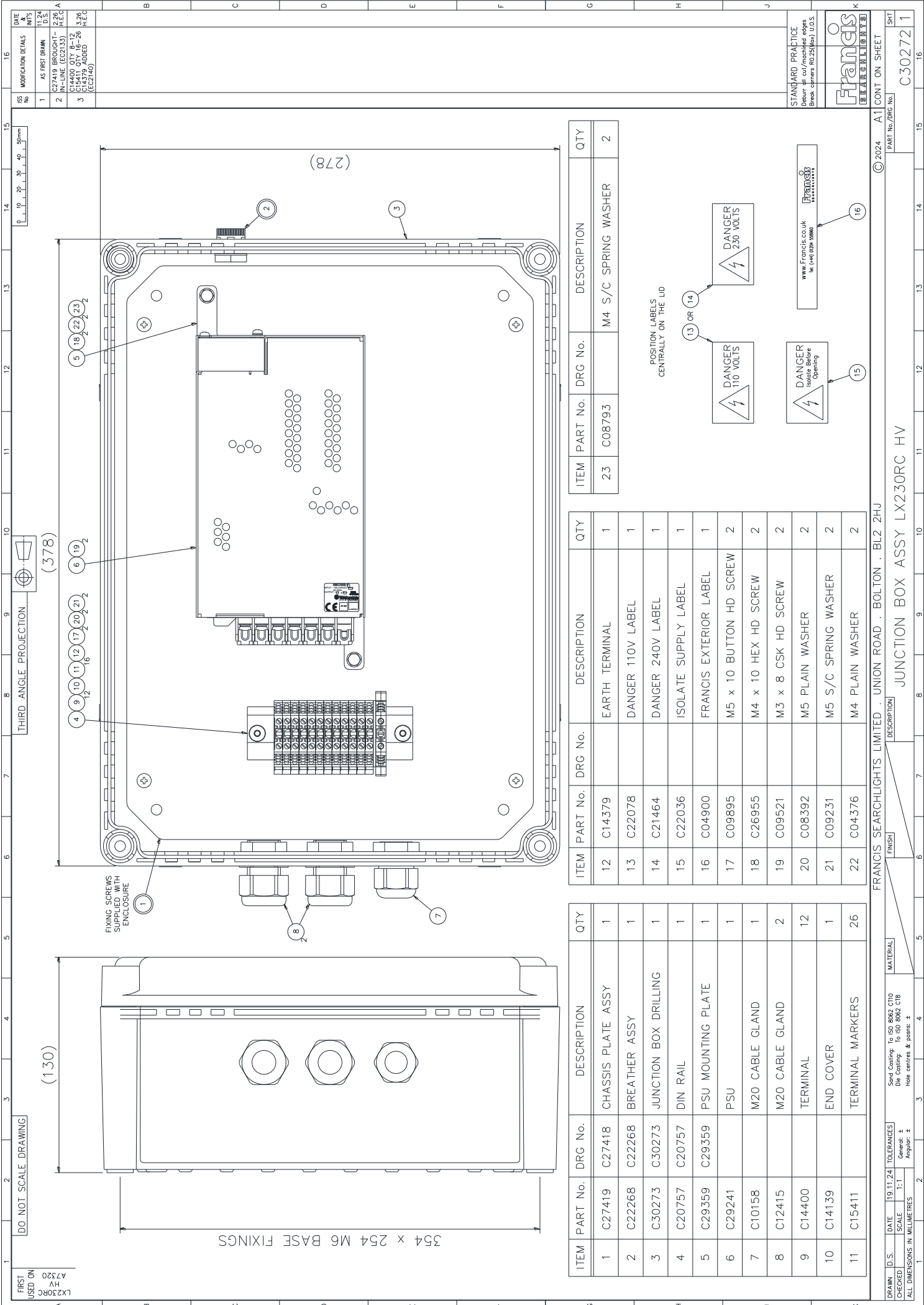
354 x 254 M6 BASE FIXINGS

FIXING SCREWS
SUPPLIED WITH
ENCLOSURE

THIRD ANGLE PROJECTION

(378)

(278)



ISS No	MODIFICATION DETAILS	DATE & UNITS
1	AS FIRST DRAWN	11.24.11
2	C27419 BROUGHT IN-LINE (EC2153)	17.02.12
3	C14400 QTY 8-12 (EC2140) C15411 QTY 16-26 (EC2140)	17.02.12 17.02.12

STANDARD PRACTICE
Drawn off cut/meshed edges
Break corners R0.25(4x) U.L.O.S.

Francis
FRANCIS SEARCHLIGHTS LIMITED

© 2024
PART No./DRG No.
A1
CONT ON SHEET
SHT
C30272
1

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C27419	C27418	CHASSIS PLATE ASSY	1
2	C22268	C22268	BREATHER ASSY	1
3	C30273	C30273	JUNCTION BOX DRILLING	1
4	C20757	C20757	DIN RAIL	1
5	C29359	C29359	PSU MOUNTING PLATE	1
6	C29241		PSU	1
7	C10158		M20 CABLE GLAND	1
8	C12415		M20 CABLE GLAND	2
9	C14400		TERMINAL	12
10	C14139		END COVER	1
11	C15411		TERMINAL MARKERS	26
12	C14379		EARTH TERMINAL	1
13	C22078		DANGER 110V LABEL	1
14	C21464		DANGER 240V LABEL	1
15	C22036		ISOLATE SUPPLY LABEL	1
16	C04900		FRANCIS EXTERIOR LABEL	1
17	C09895		M5 x 10 BUTTON HD SCREW	2
18	C26955		M4 x 10 HEX HD SCREW	2
19	C09521		M3 x 8 CSK HD SCREW	2
20	C08392		M5 PLAIN WASHER	2
21	C09231		M5 S/C SPRING WASHER	2
22	C04376		M4 PLAIN WASHER	2
23	C08793		M4 S/C SPRING WASHER	2

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

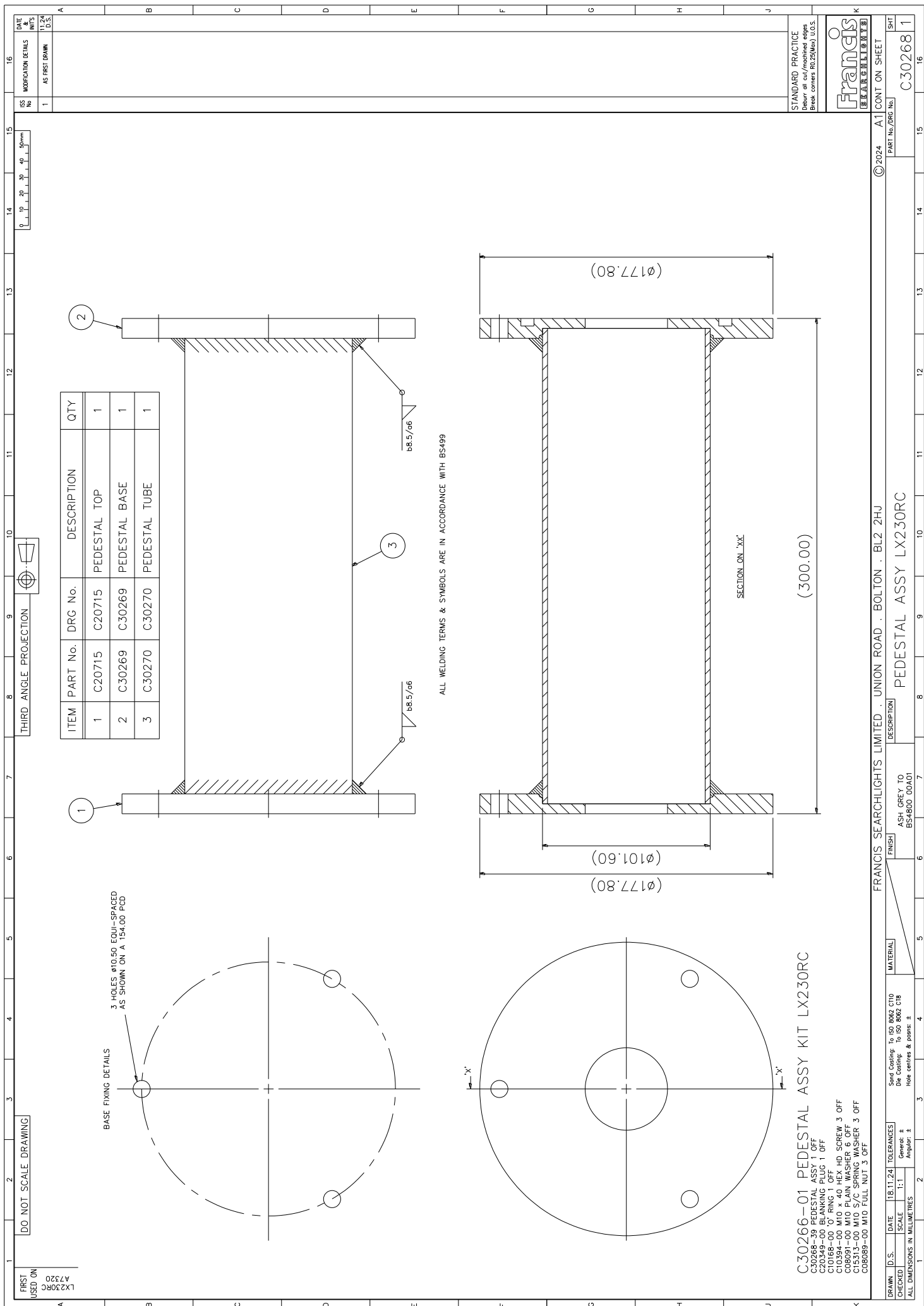
DESCRIPTION
JUNCTION BOX ASSY LX230RC HV

FINISH

MATERIAL

DATE 19.11.24 TOLERANCES
SCALE 1:1
Sand Casting: To ISO 8062 CT10
Die Casting: To ISO 8062 C18
Hole centres & posns: ±
General: ±
Angular: ±

ALL DIMENSIONS IN MILLIMETRES



FIRST USED ON
LX230RC
A7520

DO NOT SCALE DRAWING

BASE FIXING DETAILS
3 HOLES $\phi 10.50$ EQUI-SPACED
AS SHOWN ON A 154.00 PCD

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C20715	C20715	PEDESTAL TOP	1
2	C30269	C30269	PEDESTAL BASE	1
3	C30270	C30270	PEDESTAL TUBE	1

ALL WELDING TERMS & SYMBOLS ARE IN ACCORDANCE WITH BS499

C30266-01 PEDESTAL ASSY KIT LX230RC
 C30268-39 PEDESTAL ASSY 1 OFF
 C20349-00 BLANKING PLUG 1 OFF
 C10168-00 O' RING 1 OFF
 C08091-00 M10 HD. SCREW 3 OFF
 C08091-00 M10 PLAN. WASHER 6 OFF
 C15313-00 M10 5/C SPRING WASHER 3 OFF
 C08089-00 M10 FULL NUT 3 OFF

DATE	18.11.24	TOLERANCES	General: ±
SCALE	1:1	Angled: ±	
CHECKED		ALL DIMENSIONS IN MILLIMETRES	
DRAWN	D.S.	DATE	18.11.24
FINISH	ASH GREY TO BS4500 00A01	MATERIAL	Send Casting: To ISO 8062 C10 Die Casting: To ISO 8062 C10 Hot centres & parts: ±
DESCRIPTION	PEDESTAL ASSY LX230RC	FRANCIS SEARCHLIGHTS LIMITED . UNION ROAD . BOLTON . BL2 2HU	
PART No./DRG No.	C30268 1	© 2024	A1 CONT ON SHEET
SHT	1	Francis	SEARCHLIGHTS

10 – Spare Parts List

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

Part Number	Description
Searchlight Spares	
D25858	100w Xenon Lamp
C25857-01	100w Ballast & Ignitor Unit
C08865-00	Front glass
C12888-00	Front Glass Infra-Red (Optional)
C21141-00	Front glass gasket
C22268-01	Breather Assembly
C25988-00	Reflector
C28025-01	Tilt Motor Assembly
C26119-00	Tilt Timing Belt
C27103-01	Pan Motor Assembly
C10168-00	Base 'O' ring
C26103-00	Bearing Housing Gasket
C27288-00	Searchlight Heater
C28022-00	Micro Switches (Tilt)
C22382-00	Micro Switches (Pan)
C28229-00	Pan Motor Housing Cover Gasket
C29241-00	PSU (110/240v version)

Joystick Spares

C14143-00	On / Off Switch
C14444-00	Joystick

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.