

FSP300RC 110w LED Remote Control Searchlight

User / Installation Manual

Product Part Number:

A7275 – FSP300RC 115/240v 110w LED Variable Speed Remote Control Searchlight

PLEASE NOTE!

Please read this manual before installation.



www.francis.co.uk

CONTENTS

1. Introduction
2. Safety Precautions
3. Technical Information
4. Unpacking and Installation Instructions
5. Electrical Installation
6. Start-up and Operating
 - 6.1. FBUS Data & Panel Addresses
7. Fault Finding
 - 7.1. Problems After Installation
 - 7.2. Obtaining Fault Status
8. Maintenance and Servicing
9. Wiring Diagram & General Assembly
10. Spare Parts List

General Information:

Francis Searchlights Ltd

Union Road, Bolton, BL2 2HJ

United Kingdom

T: 00 44 (0)1204 558 960

E: Sales@francis.co.uk

W: www.francis.co.uk

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 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 Number and Serial Number of the product you have, this is located on the name plate, inside the front of the barrel to the right.

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.

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.

- Only suitably qualified personnel may install the products.
- Never look directly into an illuminated searchlight as this may cause severe damage to eyesight. If it is necessary to inspect the LED whilst in operation, always wear suitable protective goggles.
- Should it be necessary to examine the LED with the rear 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.

3 – Technical Information

Electrical			
Input voltage:	24VDC	110VAC	240 VAC
Input current:	4.2A Max	1.2A Max	0.6A Max
Driver output voltage:	39v DC Max		
Driver current:	3A Max		
Wattage:	110w		
Dimensions			
Height:	1043mm		
Width:	527mm		
Depth:	442mm		
Weight: Searchlight	39Kgs		
Searchlight Performance			
LED power:	110w		
Range @ 1 Lux:	1089m		
LED life (approx..)	33,000h		
Divergence:	7° Spot 20° Flood		
Colour temperature:	6500K		
Luminous flux:	13,900 lumens		
Searchlight movement			
Pan rotation:	365°		
Tilt elevation:	Up 35° & Down 35°		
Pan speed:	Variable Speed 1 to 60°/sec		
Tilt Speed:	Variable Speed 1 to 17°/sec		
Manually operated shutter for Morse code			
Signalling range:	10 miles / 16Km (daylight)		
Signalling speed:	12 words per minute		
Material, colour, IP rating			
Searchlight barrel head:	Aluminium BSEN485 5251		
Gearbox housing:	Stainless Steel BS1449 304S31		
Crutch:	Stainless Steel BS1449 304S11		
Paint finish powder coated & stove enamel paint:	Ash Grey BS4800 00A01, May Green RAL 6017		
IP rating:	IP67 Gearbox – IP66 Searchlight		
Operating temperature:	-20°C to +50°C (-50°C on request)		
Certification approval:			
Lloyds TA:	IEC 60945: 2002		
Russian Maritime Register of Shipping:	Parts XI & XVII, Part IV		
ISO9001 2015:	Quality Management System		

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.

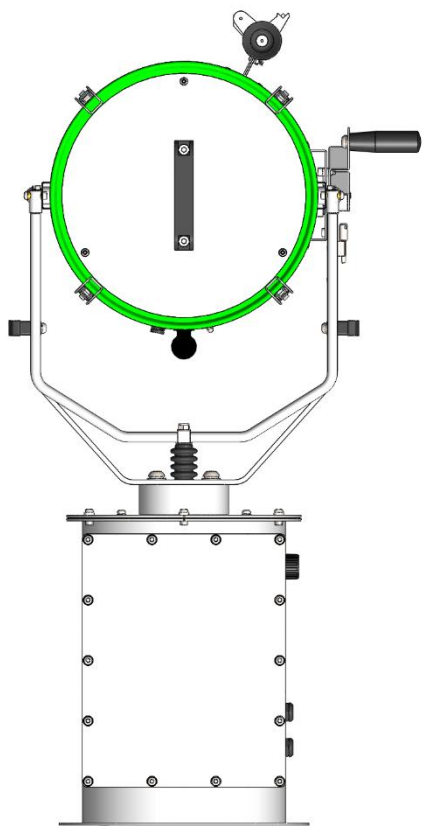
Safety Precautions

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.

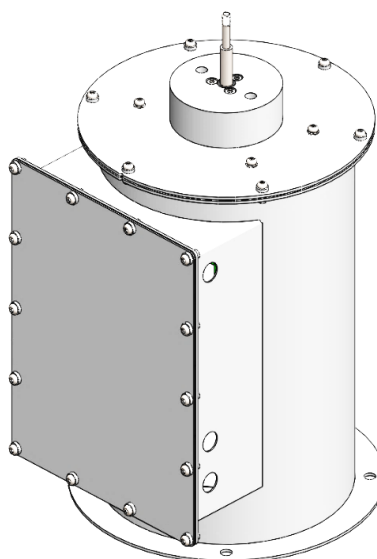
Preparing the Mounting Position

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. On an uneven surface it may be necessary to use a suitable sealant such as silicone, to ensure a weatherproofed joint.

Please refer to the drawing C27312 for the Joystick Panel cut out size, which you can find at the back of this manual.



Rear of Searchlight



**Base Fixings, 4 Holes Ø12.5
Equally Spaced on a Ø 290.00**

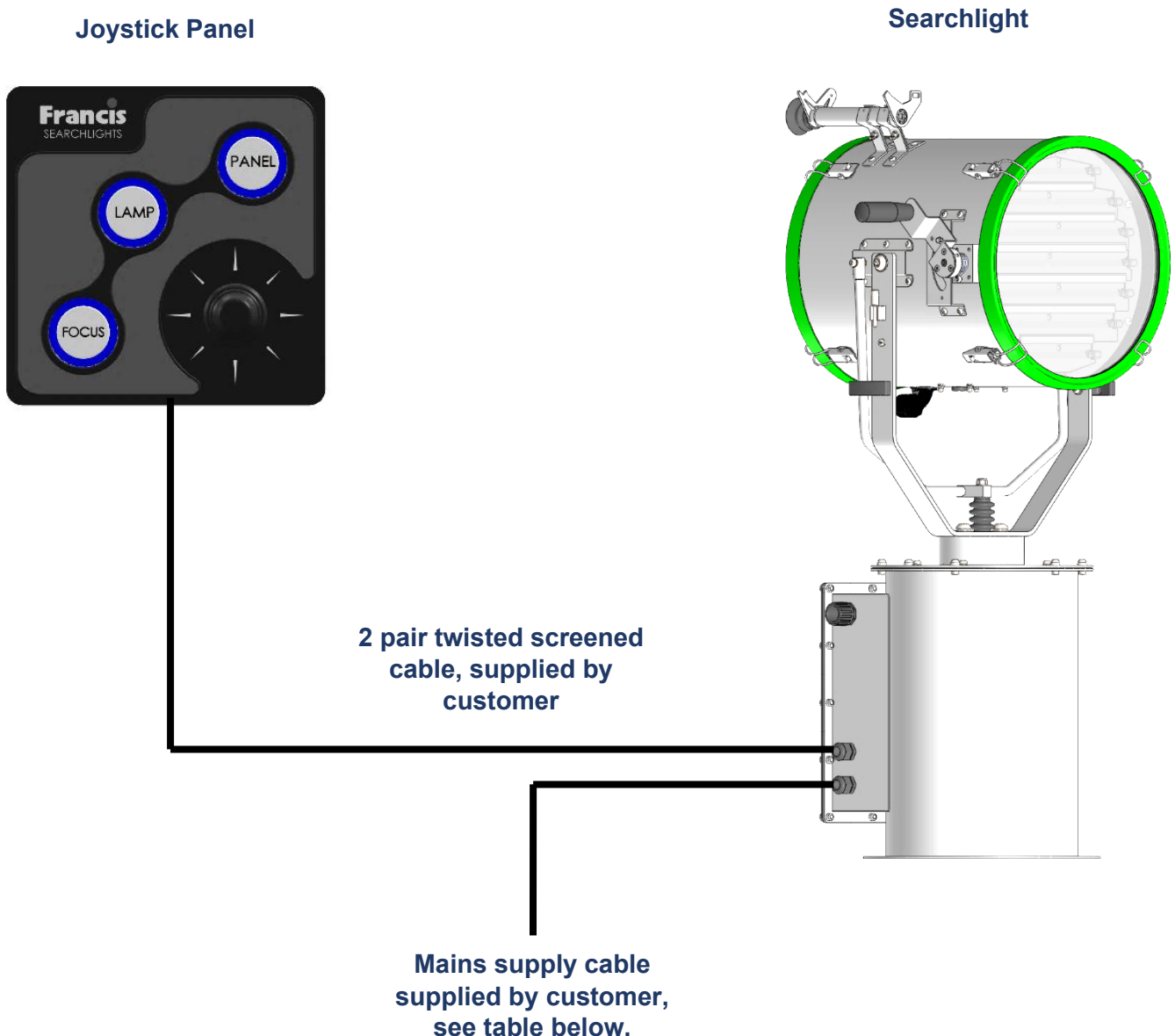
5 – Electrical Installation

For safety purposes, only competent personnel should perform the electrical installation. All equipment should be installed to current Electrical Regulations and Standards.

Referring to wiring diagram C27732 115/240v (at the back of the manual), a supply is fed to the gearbox housing, which then provides a common feed to the motor gearbox, searchlight, and joystick panel.

Cables required to be connected by the customer: -

- 2 pair twisted 0.22mm 100ohm screened cable from the joystick panel to the gearbox housing.
- Mains supply cable to the gearbox housing.



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 lamp holder contacts.

Method of Electrical Connection

- Disconnect the supply before working on the electrical system.
- The searchlight must be connected to a fused electrical supply, using suitably sized cable.
- If the searchlight is located a considerable distance from the supply, provision must be made in the cable size to overcome the voltage drop.

The following table below indicates the maximum length of cable to be used for the supply cable, from the mains supply to the gearbox housing.

Searchlight	115v 110w	230v 110w
Cable Size (mm ²)	Distance Max	Distance Max
1.5	141M	592M
2.5	239M	

- Whenever possible cable terminations should be made below deck and with approved terminal devices.
- 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.
- For 115/240v AC products, the following colour coding system should be used for the customer supply cable:

Brown	-	Live
Blue	-	Negative
Green/Yellow	-	Earth

Note: This equipment must be earthed.

6 – Start-up and Operating

Start-Up

When the main power is first applied to the searchlight, the searchlight will carry out a self-test, it will Pan to the left limit and Tilt down to the limit, once this is complete, the searchlight will then move to the forward and down position to prevent sunlight from damaging the LED, during this please do not try and operate the searchlight while this test is being carried out. Once the searchlight is back at centre the searchlight can then be operated normally, by pressing the Panel button on the control panel.

Operating

Switch On

The panel is activated using the PANEL button. This will illuminate brightly when the panel is active. Alternate operations of the PANEL button will switch the panel on and off.

Lamp Control

When the panel is active pressing the LAMP, button will switch the lamp on or off. If the control panel is switched off with the PANEL button the lamp will switch off.

Focus Control

The lamp focus can be adjusted using the FOCUS button. Lamp focus will adjust continuously whilst FOCUS is pressed.

Beam Direction

The beam direction can be adjusted using the joystick when the panel is active. Moving the joystick left or right will pan the beam clockwise or anticlockwise. Moving the joystick up or down will move the beam up or down. The speed of movement is proportional to the movement of the joystick. It is possible to move the beam in both directions at once by moving the joystick diagonally.

Home

The searchlight can be returned to a pre-set home position. By default, this is dead ahead with the beam level although different positions can be programmed as described below. To send the searchlight to the home position switch the panel off then press the LAMP button.

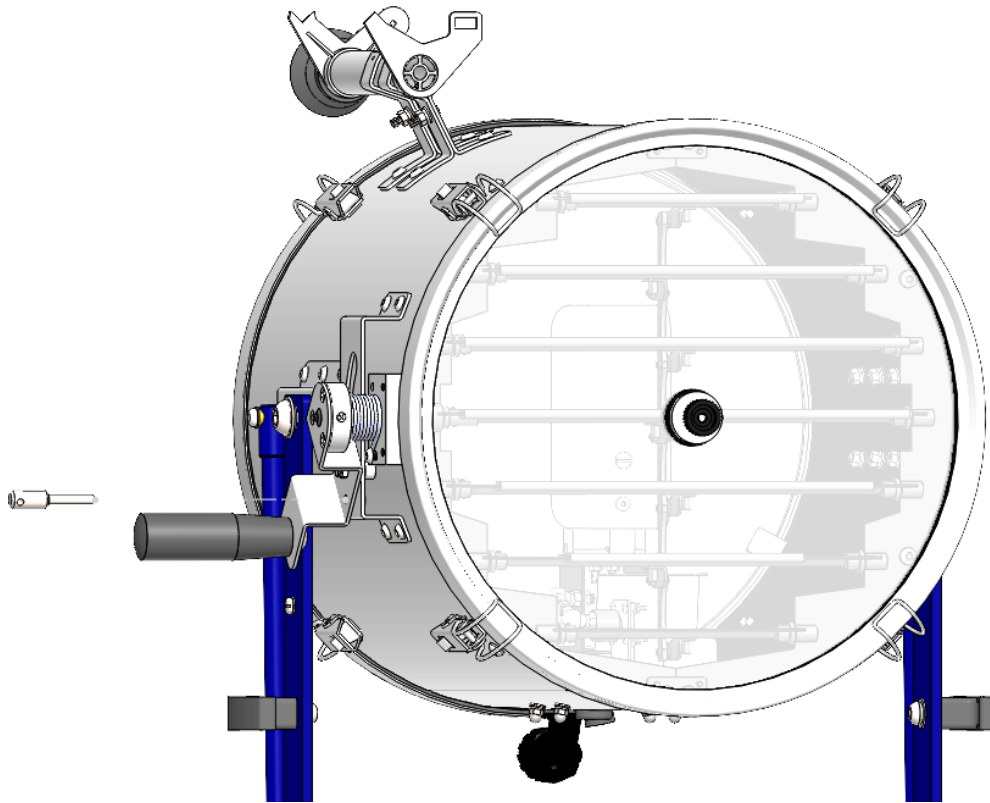
Set New Home Position

To set a new home position move the searchlight to the new desired home position. Switch the panel off then press the joystick down to its limit and press the lamp button. The current position will now be the new home position. It is recommended that the “down” home position is not altered to prolong the life of the LED.

The FSP300RC 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.

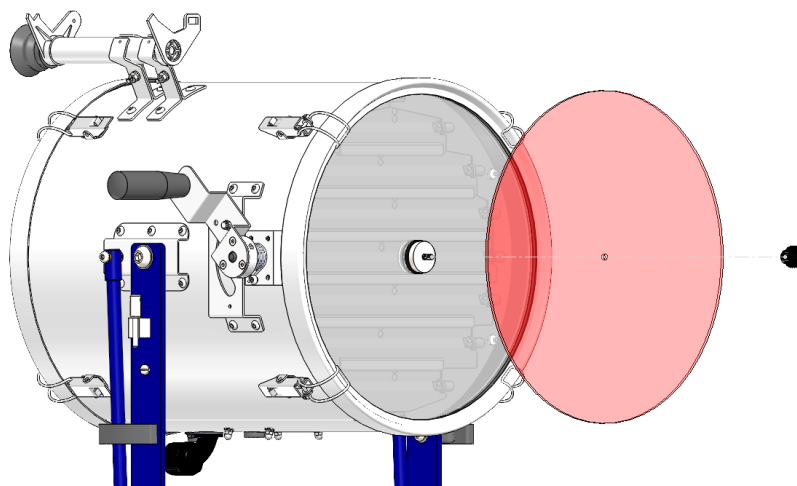


Signalling Mode

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 filers

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



Set Motion Limit (only available when Remote Focus is fitted)

The searchlight travel can be limited in either axis or either direction. To set a new limit switch the panel on and move the searchlight to the desired limit position. Switch the panel off then press and hold the focus button whilst moving the joystick full travel in the direction of the desired limit. Hold in this position for 4 seconds. For example, to set a limit to the tilt up motion; -

1. Switch panel on and drive searchlight to desired tilt up limit position.
2. Switch panel off.
3. Press and hold the FOCUS button and hold joystick in the full up position for 4 seconds.
4. Tilt up motion will now be inhibited above the current position.

Clear Motion Limits

Motion limits as set above can be cleared by switching the panel off then pressing and holding the focus button and lamp buttons together for 10 seconds.

Adjusting Panel Illumination

The panel illumination and indicators intensity can be adjusted to suit ambient light levels. To adjust the intensity, switch the panel on then switch it off with the PANEL button and keep the PANEL button pressed. To increase intensity, move the joystick to the right. To decrease move to the left. Note that the panel button must be kept depressed whilst the joystick is moved. All indicators will illuminate whilst adjustments are performed. Adjustment is complete when the panel button is released.



6.1 - FBUS Data & Panel Addresses

The Francis bus (FBUS) is a custom communication protocol based on RS485 two wire bi-directional communication hardware. The system provides a simple bi-directional link between searchlights and control panels. The system allows given panels to communicate with different searchlights and allows several panels to communicate with the same searchlight.

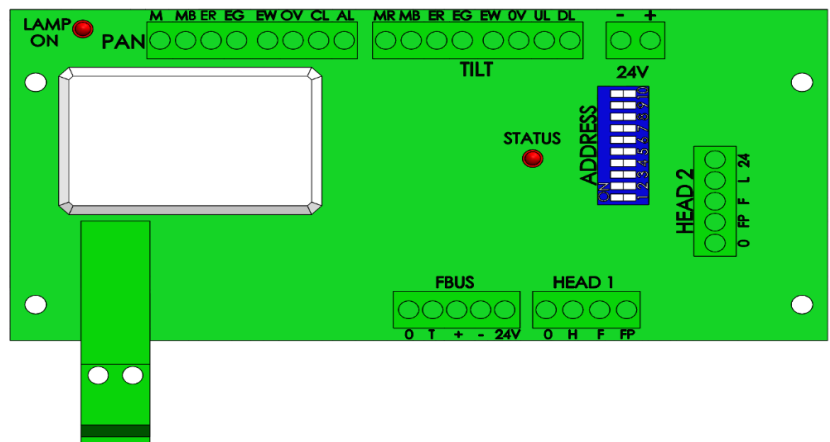
FBUS Address Switches

Setting Searchlight Address Value

The searchlight address is set using the Dip switches on the Speed Controller PCB located inside the Gearbox Assembly (see drawing C30355). With the address switches using simple binary input.

Each switch has a binary value as details below; -

Dip Switch	Searchlight
10	1
9	2
8	4
7	8
6	16



If only 1 Searchlight is used, then all switches will be set to off.

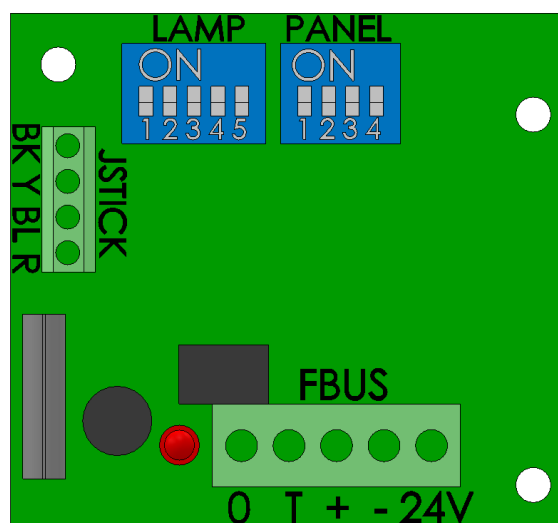
The address value is the sum of the numbers above which are active when the switch is on.

For example, if switches 8 and 10 are on, and all others are off, the address value would be 5.

Note that switches 1-3 are not used for address selection and should be switched off.

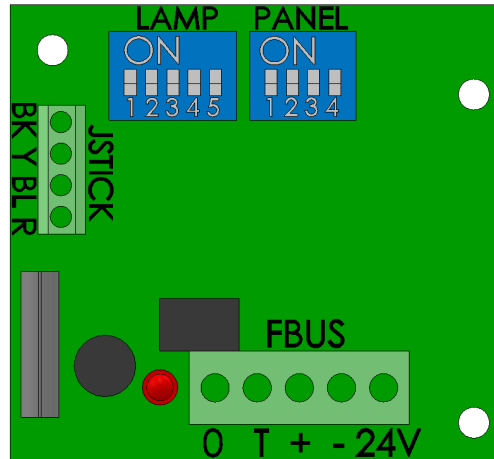
Standard Control Panel – Searchlight (Lamp) Address

Dip Switch	Searchlight
1	16
2	8
3	4
4	2
5	1



Standard Control Panel – Control Panel Address

Dip Switch	Control Panel
1	8
2	4
3	2
4	1



EXAMPLES

Standard control panel – panel address set to 5

Switch 1 = Off

Switch 2 = On (Value 4 added to address)

Switch 3 = Off

Switch 4 = On (Value 1 added to address)

$$4 + 1 = 5$$

Speed control card - lamp address set to 11

Switch 6 = Off

Switch 7 = On (Value 8 added to address)

Switch 8 = Off

Switch 9 = On (Value 2 added to address)

Switch 10 = On (Value 1 added to address)

$$8 + 2 + 1 = 11$$

ADDRESSING SYSTEM

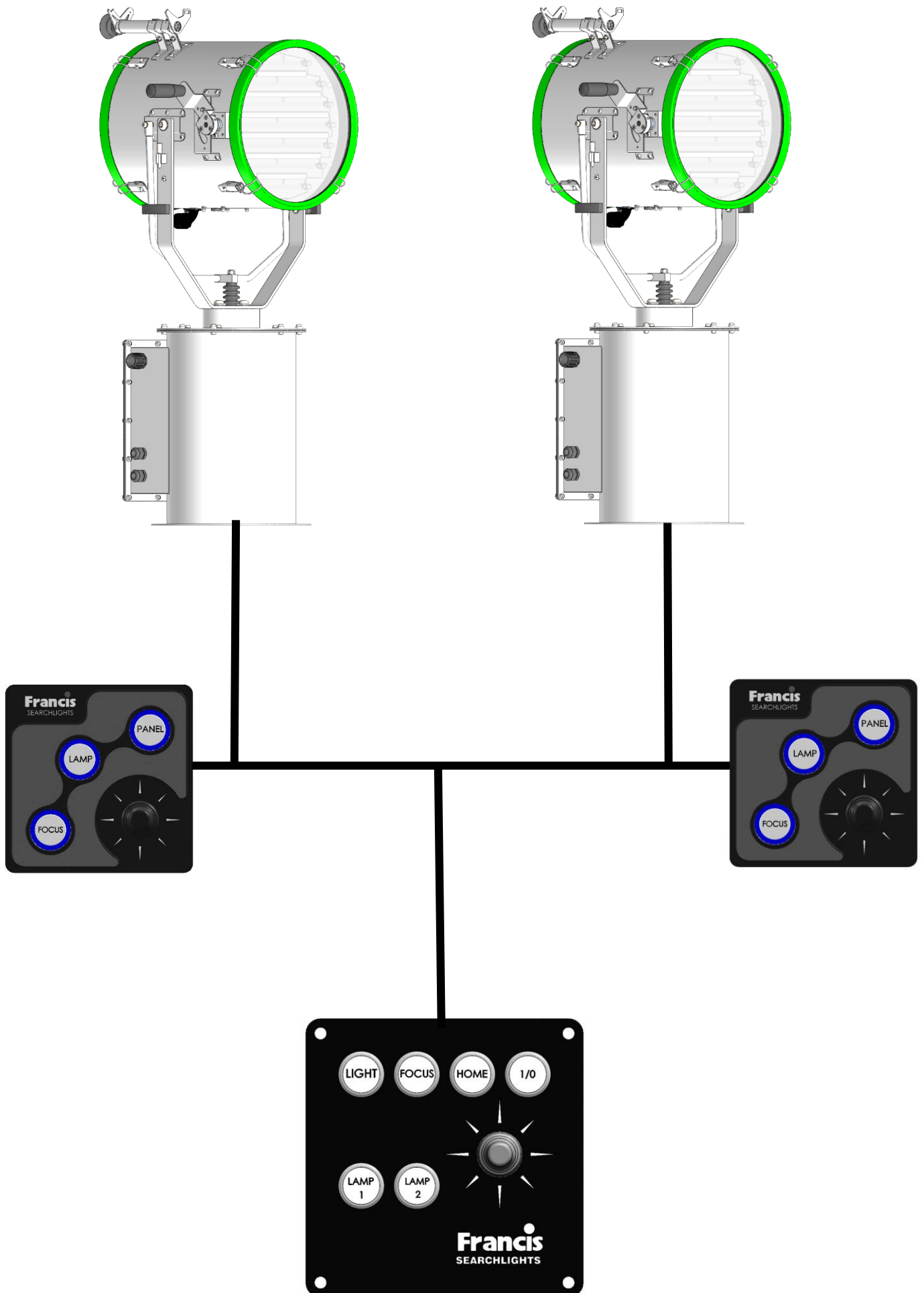
Every searchlight must have a unique address. The addresses should be sequential and should start from zero. If there were three searchlights in a system the addresses should be set to 0, 1 and 2.

Control panel – panel addresses use the same system being sequential and start from zero.

It is essential that all panels have a unique address with no duplication however note that searchlights and panels can be the same address. For example, on a system with two panels and two searchlights, the panel addresses will be 0 and 1 and the lamps addresses will be 0 and 1.

Control panel lamp addresses are defined by the system configuration. If two panels are used to control the same searchlight, they must still have individual panel addresses, but the lamp addresses can be set to the same address value as the searchlight which is to be controlled. Any number of panels can control the same searchlight.

Multiple Searchlights, Control Panels and Master Control Panel



7 – Fault Finding

7.1 Problems at Installation

- If the searchlight completes the Self-Test, e.g., Pan left, Tilts down then returns to centre and the LEDs on the joystick panel are not illuminate, then please check the 4 data cables connections on the FBUS connector located on the back of the control panel assembly, as these data cables could be swapped around, you can check the voltages on the 4 connections, you should get as shown below:
 - 0 & + = 3.9v DC
 - 0 & - = 0.9v DC
 - 24 & 0 = 18-24v DC
- If the searchlight completes the Self-Test, e.g., Pan left, Tilts down then returns to centre and the LEDs on the joystick panel are illuminated, but you are unable to control the searchlight via the control panel, then please check the data + & - connections on the FBUS connector located on the back of the control panel assembly, as these data cables could be swapped around.
- If you have more than 1 searchlight in the installation and 2 or more searchlights are moving at the same time in the same direction, then please check the dip switch settings on the speed controller PCB, see **Setting Searchlight Address Value**.

Failure of LED to light

- Firstly, check supply at lamp holder connecting block (within searchlight barrel). If supply is present, disconnect unit from power supply before removing the LED. If noticeable damage is present, the LED will have failed. The LED can also be checked for continuity using a multi-meter. Replace LED ensuring all precautions and instructions previously outlined in this manual are adhered to.

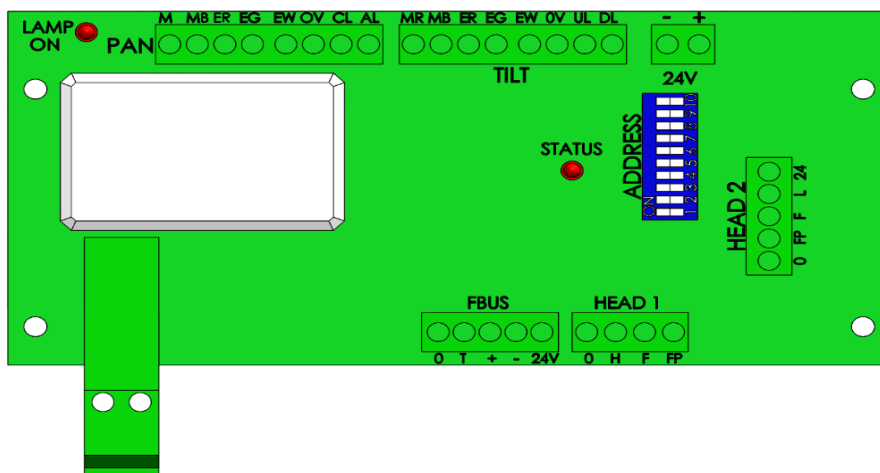
7.2 - Problems After Installation

Please note, if the searchlight does not complete the self-test, you will not be able to operate the searchlight in any direction or switch the lamp on. Please refer to section **7.3 Obtaining Fault Status** below, to confirm the fault.

Once you have confirmed the fault via the control panel, please contact Francis Searchlights for ordering the required parts, sales@francis.co.uk

If the control panel is not communicating with the searchlight and none of the LED's on the control panel are lighting up, then you will need to access the speed controller PCB inside the gearbox (see drawing C30355), to access the speed controller PCB you will need to remove the 14 off M6 screws that hold the gearbox access panel in place, the speed controller PCB is positioned behind the chassis plate, you can see the Status LED flashing through the hole in the plate.

The Status LED (labelled "STATUS") on the speed controller PCB, shown below.



During faults normal status LED operation is overridden. The status LED will flash red several times with the number of flashes corresponding to the specific fault. If there are multiple faults the LED will flash accordingly with a gap between each fault flash sequence. Fault details are provided on the next page, with the number of flashes indicated on the left.

The Status LED has several functions as detailed below.

Software Version

When power is applied to the speed control card the status LED will flash green. The number of flashes corresponds to the software version.

FBUS Normal operation

When the system is operating from FBUS the status LED will illuminate static green. If used with later control panels the status LED will be on most of the time but will briefly go off every few seconds.

When a valid FBUS data signal is received the LED will switch off momentarily to indicate data reception. If data is continuous the LED will flash green slowly.

If the Status LED does not light up, then please check the 24v DC supply from the PSU within the gearbox, as shown on drawing C30355 Item 7, if there is no output from the PSU then this will need to be replaced.

7.3 - Obtaining Fault Status

Fault codes can be accessed, with the control panel switched off, press the PANEL button and keeping the PANEL button pressed for 10 seconds. Fault codes are indicated by the PANEL button flashing several times related to the fault. Fault codes are detailed below. If more than one fault is present the PANEL button will indicate them in sequence.

1. Pan Limit. – Either of the pan limit switches operated. Note that this may not actually be a fault. The LED will flash when a limit switch is operated under normal circumstances i.e., the lamp is at the limit of travel. This will also indicate when a variable limit is reached.
2. Tilt Limit. – Either of the tilt limit switches operated. Note that this may not actually be a fault. The LED will flash when a limit switch is operated under normal circumstances i.e., the lamp is at the limit of travel. This will also indicate when a variable limit is reached.
3. Pan motor trip. – The pan motor is taking excessive current or has a short circuit. The pan motor will be disabled. To reset, press lamp button.
4. Tilt motor trip. – The tilt motor is taking excessive current or has a short circuit. The tilt motor will be disabled. To reset, press lamp button.
5. Focus motor trip. – The focus motor is taking excessive current. The motor will be disabled for a period when this occurs. Fault indication will remain until power is removed or the fault is corrected.
6. FBUS interface over current. – The speed control card supplies 24VDC to the remote-control panels. The supply is protected by a self-resetting PTC fuse. 6 flashes indicate the fuse has tripped.
7. Anti-condensation heater output over current. – The 24VDC anti condensation heater output is taking excessive current. The heater output will switch off. To restore this output, remove the supply from the speed control card for a period.
8. Limit Switch Error. Some lamp types do not use all or some limit switches. If an invalid limit switch input is detected it is probable the speed control card is set to the wrong product or there is a wiring error.
9. Datum Error. The start-up datum system has not completed correctly.
10. Product type not set or corrupt. The product type has not been set, has been set incorrectly or is corrupt.
11. Supply voltage out of tolerance. The 24V supply is outside the range 18-30V.

8 - Maintenance and Servicing

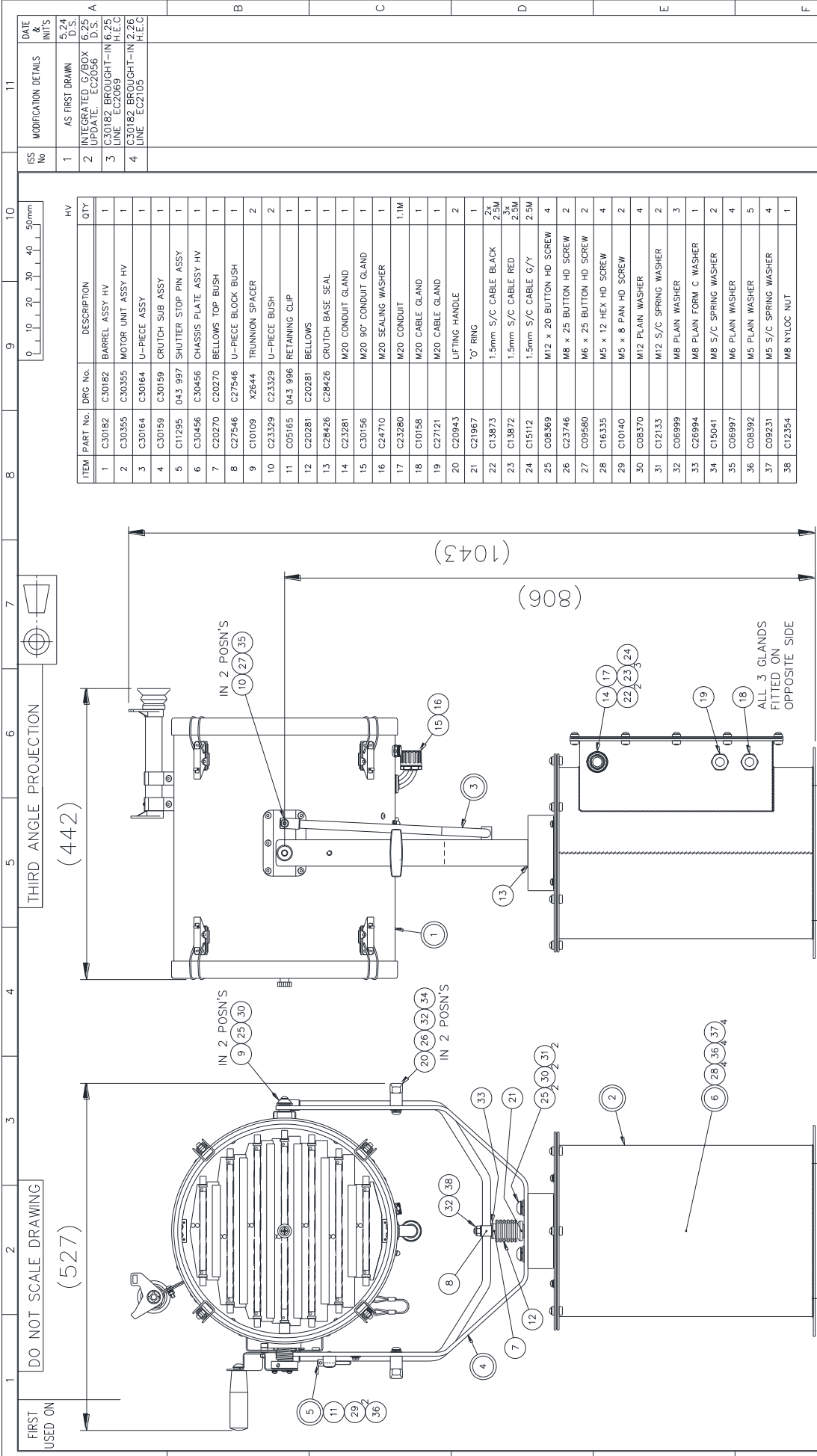
To prolong the service life and performance of your searchlight, the following maintenance guidelines are recommended:

- 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 and rear bezel.
 - Clean the front glass inside and out using a proprietary glass cleaner.
 - Clean the reflector if required.
 - Ensure that the lamp holder is free from corrosion or other damage.
- It is advisable to check all seals and gaskets for signs of degradation. Renew if necessary.
- The searchlight is fitted with a breather unit. This ensures a steady airflow to prevent any vacuum forming within the barrel.
- 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 Francis who will be able to advise the best course of action for your product.

9 - Wiring Diagram & General Assembly

Drawing No:	Description
A7275	FSP300RC 110w LED RF Explorer General Assembly
C27732	Wiring diagram 115/240v
C27312	Joystick Panel Assembly Remote Focus
C30456	Chassis Plate Assembly
C27867	LED Replacement Instructions
C30182	Barrel Assembly 115/240v
C30355	Gearbox Assembly 115/240v



ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	5.24 D.S.
2	INTEGRATED G/BOX UPDATE - EC2056	6.25 D.S.
3	C30182 BROUGHT-IN LINE EC2069	6.25 H.E.C
4	C30182 BROUGHT-IN LINE EC2105	2.26 H.E.C

ITEM	PART No.	DRG No.	DESCRIPTION	QTY	HV
1	C30182	C30182	BARREL ASSY HV	1	
2	C30355	C30355	MOTOR UNIT ASSY HV	1	
3	C30164	C30164	U-PIECE ASSY	1	
4	C30159	C30159	CRUTCH SUB ASSY	1	
5	C11295	043 987	SHUTTER STOP PIN ASSY	1	
6	C30456	C30456	CHASSIS PLATE ASSY HV	1	
7	C20270	C20270	BELLOWS TOP BUSH	1	
8	C27546	C27546	U-PIECE BLOCK BUSH	1	
9	C10109	X2644	TRUNNION SPACER	2	
10	C23329	C23329	U-PIECE BUSH	2	
11	C05165	043 996	RETAINING CLIP	1	
12	C20281	C20281	BELLOWS	1	
13	C28426	C28426	CRUTCH BASE SEAL	1	
14	C23281		M20 CONDUIT GLAND	1	
15	C30156		M20 90° CONDUIT GLAND	1	
16	C24710		M20 SEALING WASHER	1	
17	C23280		M20 CONDUIT	1.1M	
18	C10158		M20 CABLE GLAND	1	
19	C27121		M20 CABLE GLAND	1	
20	C20943		LIFTING HANDLE	2	
21	C21967		'O' RING	1	
22	C13873		1.5mm S/C CABLE BLACK	2x 2.5M	
23	C13872		1.5mm S/C CABLE RED	3x 2.5M	
24	C15112		1.5mm S/C CABLE G/Y	2.5M	
25	C08369		M12 x 20 BUTTON HD SCREW	4	
26	C23746		M8 x 25 BUTTON HD SCREW	2	
27	C09580		M6 x 25 BUTTON HD SCREW	2	
28	C16335		M5 x 12 HEX HD SCREW	4	
29	C10140		M5 x 8 PAN HD SCREW	2	
30	C08370		M12 PLAIN WASHER	4	
31	C12133		M12 S/C SPRING WASHER	2	
32	C06999		M8 PLAIN WASHER	3	
33	C26994		M8 PLAIN FORM C WASHER	1	
34	C15041		M8 S/C SPRING WASHER	2	
35	C06997		M6 PLAIN WASHER	4	
36	C08392		M5 PLAIN WASHER	5	
37	C09231		M5 S/C SPRING WASHER	4	
38	C12354		M8 NYLOC NUT	1	

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

Francis SEARCHLIGHTS

© 2024 A2 CONT ON SHEET

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

DESCRIPTION: FSP300RC 110W LED HV MANUAL SIGNALLING PROJECTOR

FINISH: To ISO 8062 CT10

MATERIAL: 10 ISO 8062 C18

TOLERANCES: 5.24 General: ±

DATE: 5.24

SCALE: 1:4

Angular: ±

Hole centres & posns: ±

ISS No: 1

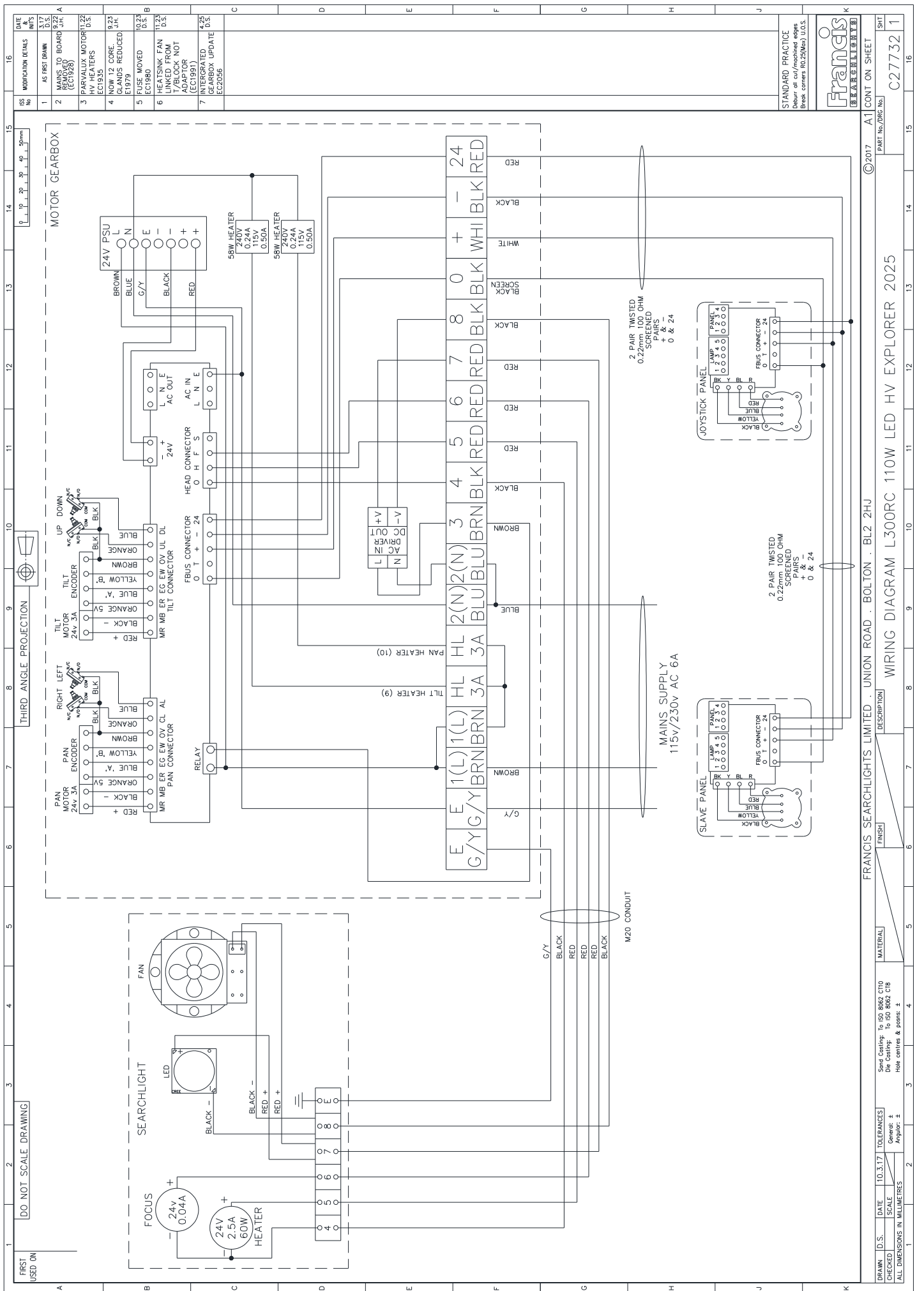
MODIFICATION DETAILS: AS FIRST DRAWN

DATE & INIT'S: 5.24 D.S.

PART No./DRG No.: A2

SHT: A275

1



FIRST USED ON

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

MOTOR GEARBOX

ISS No	MODIFICATION DETAILS	DATE INTS
1	AS FIRST DRAWN	3.17
2	WAS TO BOARD REVISED (EC1928)	9.22
3	PARVALUX MOTOR 11.22 HV HEATERS EC1935	11.22
4	NOW 12 CORE. GLANDS REDUCED EC1960	11.22
5	FUSE MOVED EC1960	10.25
6	HEATING FAN 11.22 T/BLOCK NOT ADAPTOR (EC1991)	11.22
7	INTERGRATED GEARBOX UPDATE EC2056	4.25

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



© 2017 A1 CONT ON SHEET
 PART No./REV No.
 C27732 1

FRANCIS SEARCHLIGHTS LIMITED . UNION ROAD . BOLTON . BL2 2HU
 WIRING DIAGRAM L300RC 110W LED HV EXPLORER 2025

DRAWN	D.S.	DATE	10.3.17	TOLERANCES
Send Centring to ISO 8662 C170				
Checked				
ALL DIMENSIONS IN MILLIMETRES				

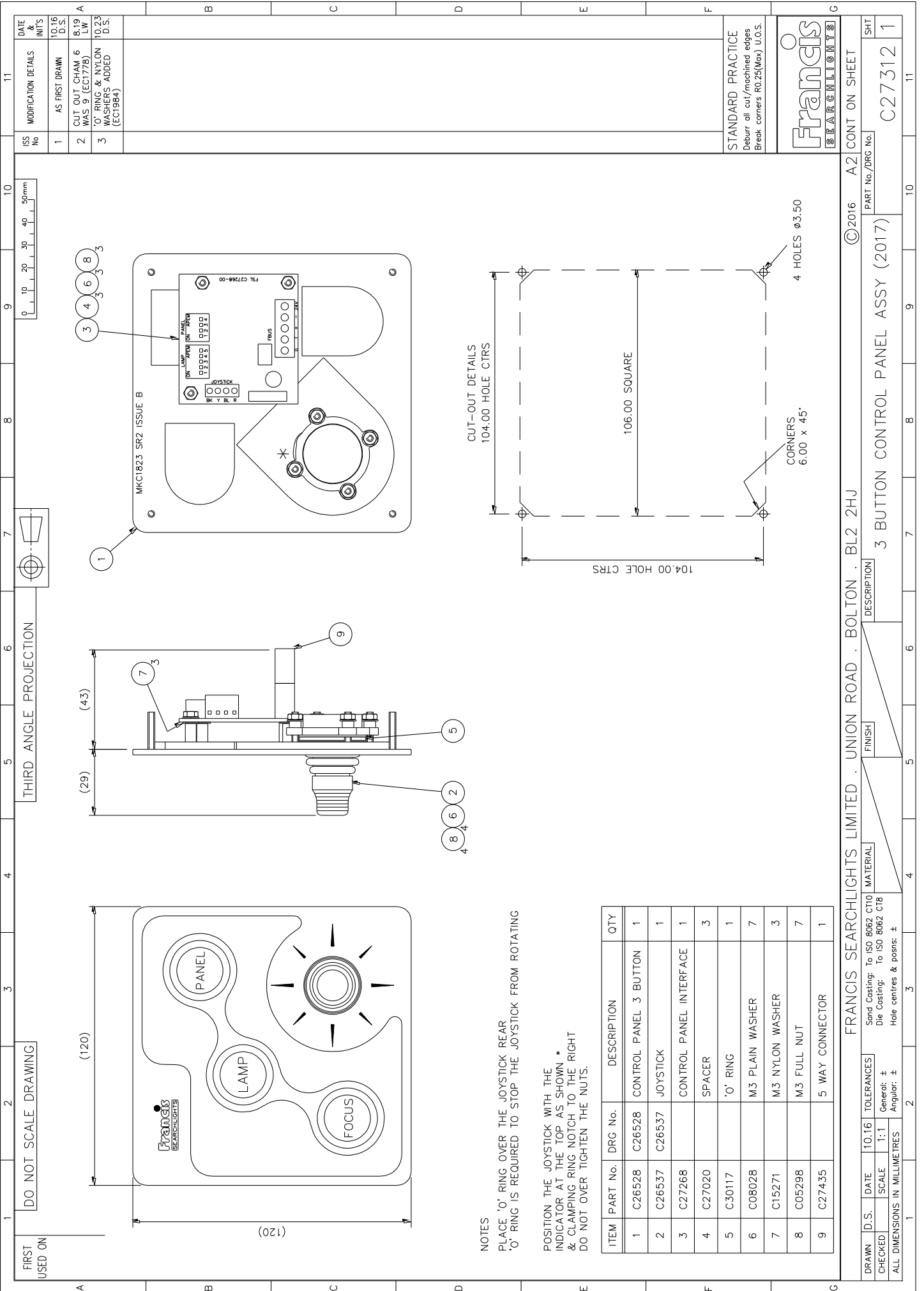
FINISH	DESCRIPTION

MATERIAL	DESCRIPTION

FINISH	DESCRIPTION

MATERIAL	DESCRIPTION

FINISH	DESCRIPTION



1 DO NOT SCALE DRAWING

2

3

4

5 THIRD ANGLE PROJECTION

6

7

8

9

10 50mm

11

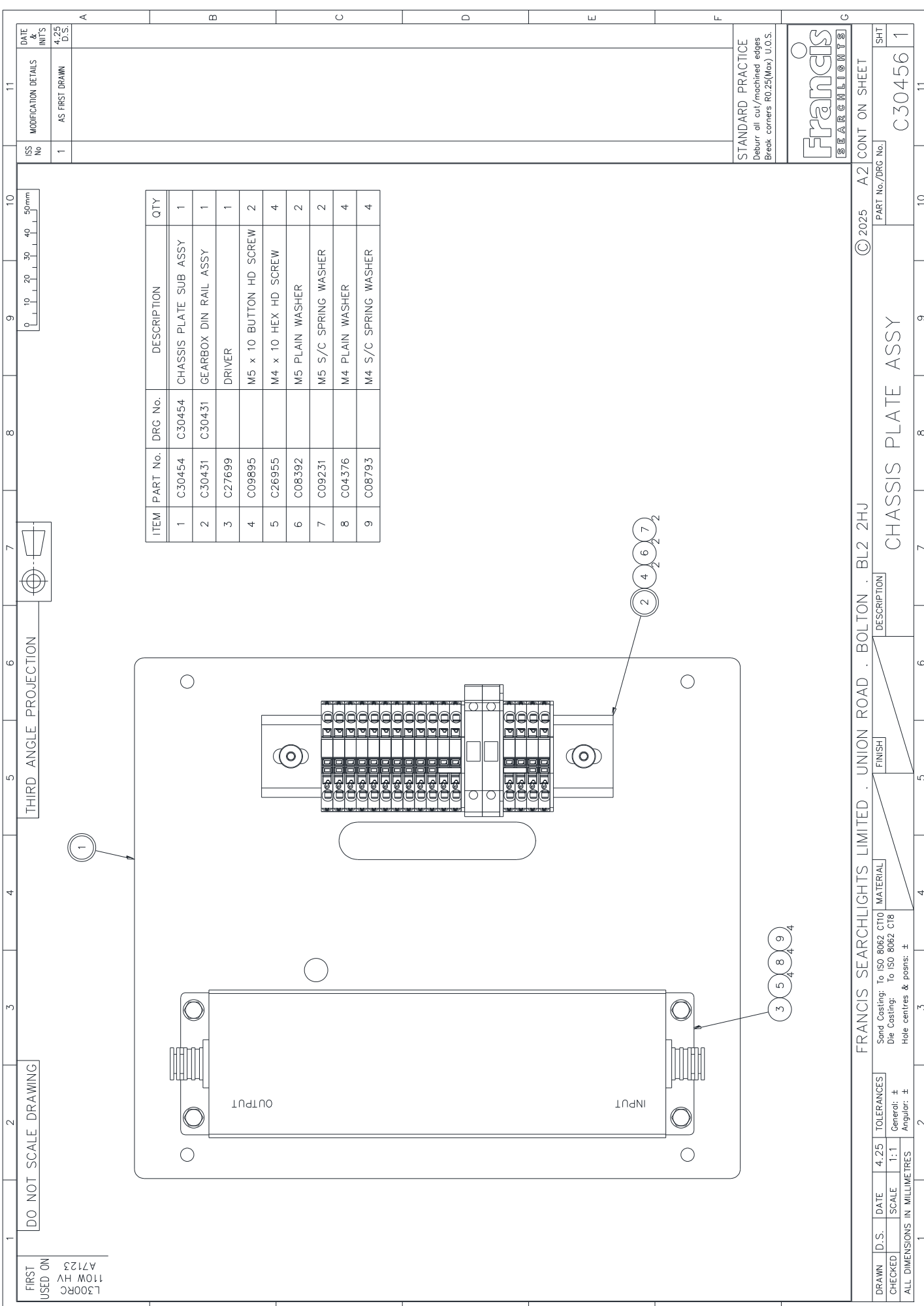
ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	10.16 D.S.
2	CUT OUT CHAM. 6 WAS 9 (EC1778)	8.19 LW
3	'O' RING & NYLON WASHERS ADDED (EC1984)	10.23 D.S.

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C26528	C26528	CONTROL PANEL 3 BUTTON	1
2	C26537	C26537	JOYSTICK	1
3	C27268		CONTROL PANEL INTERFACE	1
4	C27020		SPACER	3
5	C30117		'O' RING	1
6	C08028		M3 PLAIN WASHER	7
7	C15271		M3 NYLON WASHER	3
8	C05298		M3 FULL NUT	7
9	C27435		5 WAY CONNECTOR	1

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

Francis
SEARCHLIGHTS

FRANCIS SEARCHLIGHTS LIMITED . UNION ROAD . BOLTON . BL2 2HU	© 2016	A2	CONT ON SHEET
DRAWN D.S.	DATE 10.16	TOLERANCES	Scale Casting: To ISO 8062 CT10
CHECKED	SCALE 1:1	General: ±	Die Casting: To ISO 8062 C18
ALL DIMENSIONS IN MILLIMETRES		Angular: ±	Hole centres & posns: ±
DESCRIPTION		FINISH	MATERIAL
3 BUTTON CONTROL PANEL ASSY (2017)			
PART No./DRG No.		SHT	
C27312		1	



DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION



ISS No	1
MODIFICATION DETAILS	AS FIRST DRAWN
DATE IN/TS	4.25 D.S.

FIRST USED ON
L309RC
110W HV
A7123

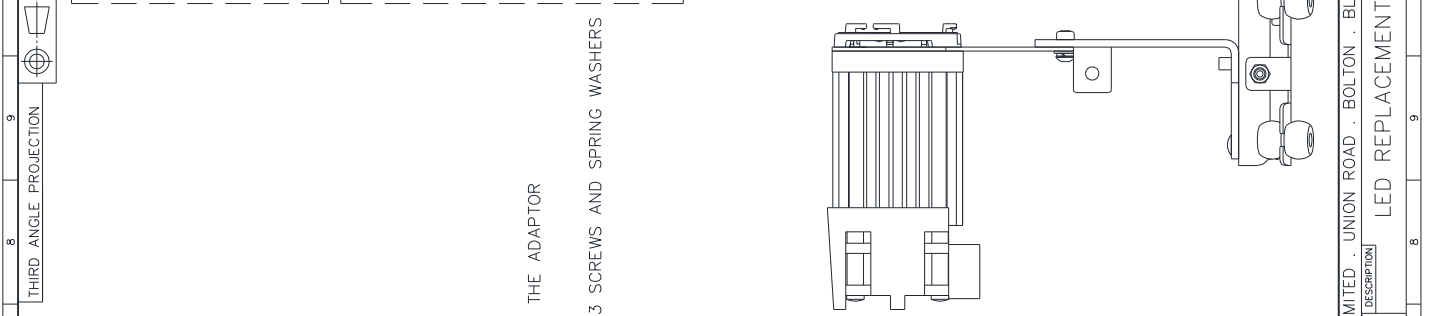
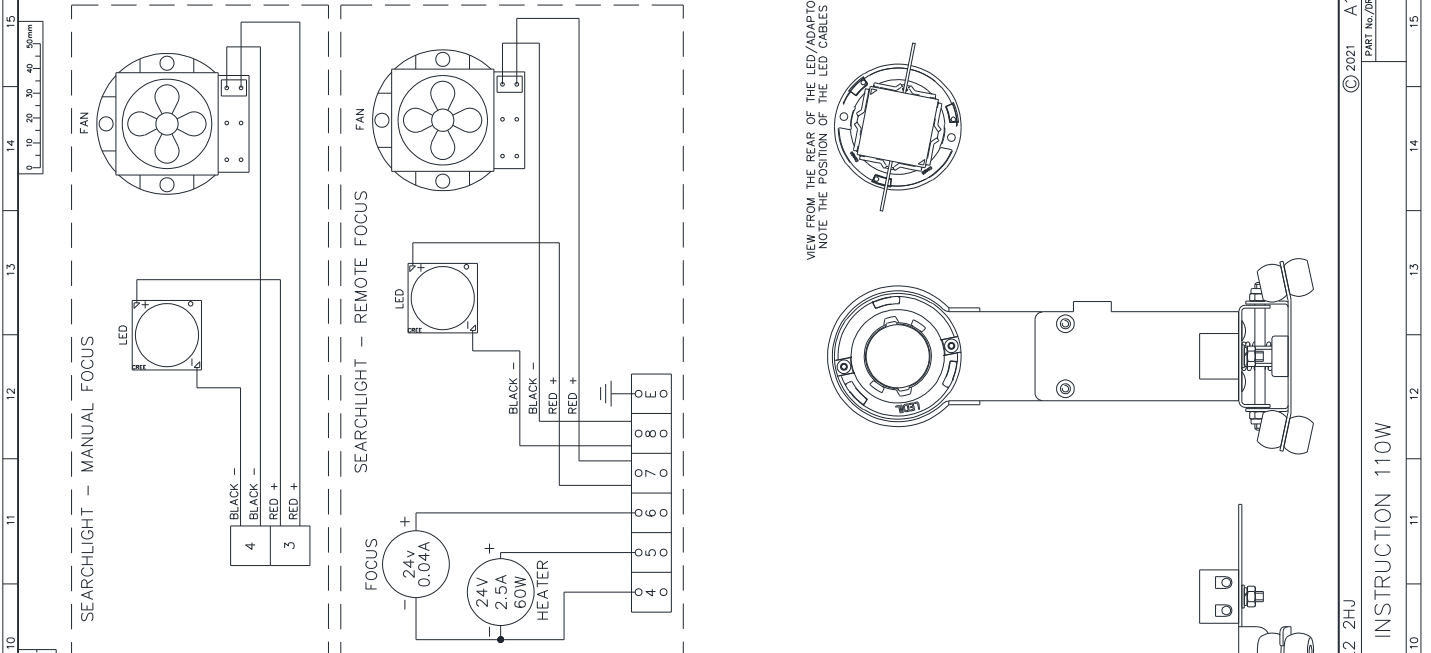
STANDARD PRACTICE
Deburr oil cut/machined edges
Break corners R0.25(Max) U.O.S.



DRAWN		D.S.	DATE	4.25	TOLERANCES	Francis SEARCHLIGHTS LIMITED . UNION ROAD . BOLTON . BL2 2HJ		© 2025	A2	CONT ON SHEET
CHECKED	SCALE	1:1	General: ±	Angular: ±	MATERIAL	FINISH	DESCRIPTION	PART No./DRG No.	C30456	SHT
ALL DIMENSIONS IN MILLIMETRES								CHASSIS PLATE ASSY		1

Sand Casting: To ISO 8062 CT10
Die Casting: To ISO 8062 CT8
Hole centres & posns: ±

ISS No	16
MODIFICATION DETAILS	
1	AS FIRST DRAWN 12.21.03
2	VERSION 2 EC1991 10.31.03



- 1...RELEASE THE FOUR LATCHES & REMOVE THE REAR BEZEL ASSEMBLY
- 2...RELEASE THE LED WIRES THAT ARE CONNECTED TO THE TERMINAL BLOCK
- 3...UNSCREW THE TWO M4 SCREWS THAT HOLD THE COOLER SUPPORT
- 4...REMOVE THE LED ADAPTER BY UNDOING THE FOUR M3 SCREWS THE LED CAN NOW BE REMOVED
SOMETIMES THE OLD LED MAY HAVE TO BE PRISED OFF THE COOLER AS THE THERMAL COMPOUND ACTS AS A ADHESIVE AFTER SEVERAL YEARS USE
- 5...BEFORE FITTING THE NEW LED ENSURE THE FIXING AREA ON THE COOLER HAS BEEN CLEANED & IS TOTALLY FREE OF DEBRIS
- 6...APPLY THERMAL COMPOUND TO THE REAR OF THE LED FACE BEFORE RE ATTACHING THE NEW LED
- 7...WHEN FITTING THE NEW LED, MAKE SURE THE LED IS CLIPPED INTO THE ADAPTOR BEFORE ATTACHING TO THE HEATSINK (WITH THE CORRECT POLARITY.)
- 8...WHEN FITTING THE NEW LED, MAKE SURE THE LED IS LOCATED IN THE SQUARE CUTOUT IN THE ADAPTOR BEFORE ATTACHING TO THE HEATSINK
- 9...THE NEW LED ADAPTER/LED CAN NOW BE REFITTED TO THE COOLER USING JUST 2 OFF M3 SCREWS AND SPRING WASHERS
- 10...RE-ATTACH THE COOLER SUPPORT
- 11...FIT THE LED & HEATSINK CABLES INTO THE TERMINAL BLOCK AS PER WIRING DIAGRAM
NOTE BOTH THE LED AND HEATSINK CABLES NOW GO TO THE TERMINAL BLOCK
- 12...RE-FIT THE REAR BEZEL ASSEMBLY

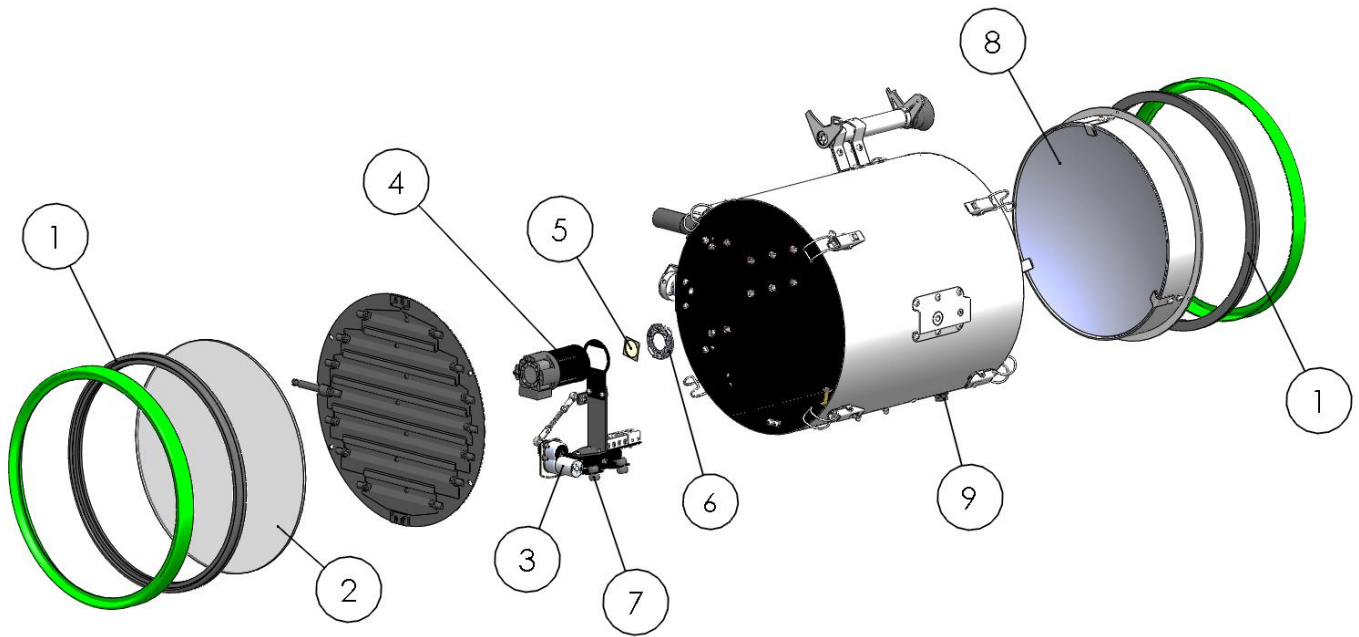
DRAWN	D.S.	DATE	6.12.21	TOLERANCES	General: ±
CHECKED		SCALE	1:1	As per 1:	
FIRST USED ON		Send Casting to ISO 9002 OT10			
36		Date: 06/05/08			
37		Hole centres & posns: ±			
38		MATERIAL			
39		FINISH			
40		DESCRIPTION			
41		LED REPLACEMENT INSTRUCTION 110W			
42		PART No./REV No.			
43		C27867 1			
44		SHT			
45		16			

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

© 2021 A1 CONT ON SHEET

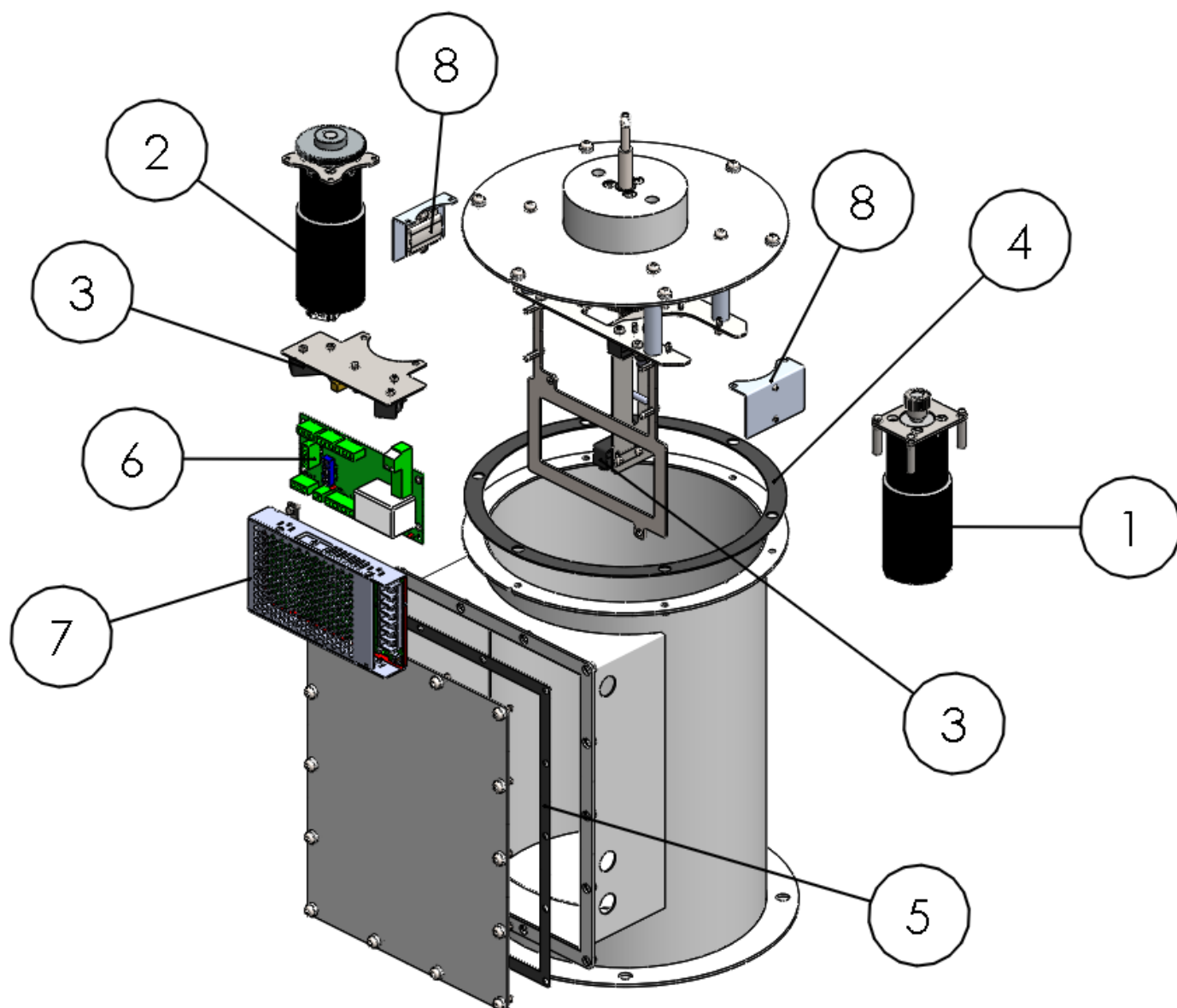
Francis

C30182 115/240v Barrel Assembly



Item Number	Part Number	Description	Quantity
1	C20567-00	Gasket	2
2	C28953-00	Front Glass	1
3	C28025-01	Focus Motor Assembly	1
4	C27715-01	LED Heatsink	1
5	C27691-01	LED Replacement Kit	1
6	C27713-00	LED Adaptor	1
7	C16761-00	Lamp Holder AV Mount	4
8	C05403-00	Reflector	1
9	C22268-00	Breather Assembly	1

C30355 Gearbox Assembly 115/240v



Item Number	Part Number	Description	Quantity
1	C29501-01	Pan Motor Assembly	1
2	C29500-01	Tilt Motor Assembly	1
3	C29275-00	Micro-switch	4
4	C23234-00	Pedestal Sealing Gasket	1
5	C30361-01	Rear Sealing Gasket	1
6	C29535-01	Speed Controller PCB	1
7	C29162-00	PSU	1
8	C23277-00	Heater 115/240v	2

10 - Spare Parts List

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

Part Number	Description
-------------	-------------

Searchlight Spares

C20567-00	Gasket
C28955-00	Filter Front Glass
C28025-01	Focus Motor Assembly
C27715-01	LED Heatsink
C27691-01	LED Replacement Kit
C27713-00	LED Adaptor
C16761-00	Lamp Holder AV Mount
C05403-00	Reflector
C22268-01	Breather Assembly
C01461-00	Eyepiece
C21657-00	Signalling Handle
C20281-00	Bellows
C28596-00	Red Filter
C28597-00	Green Filter
C28958-00	Blue Filter
C30154-00	Orange Filter

Motor Gearbox Spares

C29501-01	Pan Motor Assembly
C29500-01	Tilt Motor Assembly
C29275-00	Micro switch
C23234-00	Pedestal Sealing Gasket
C30361-00	Rear Cover Sealing Gasket
C29535-01	Speed Controller PCB
C29162-00	PSU
C23277-00	Heater 115/240v

Joystick Panel Spares

C26537-01	Joystick
C27268-00	Joystick Controller PCB

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 sales@francis.co.uk . Please always quote the searchlight model and serial number, which you can find within the front of the barrel head to the right, on the name plate. This will enable a fast response to your spares' requirements.