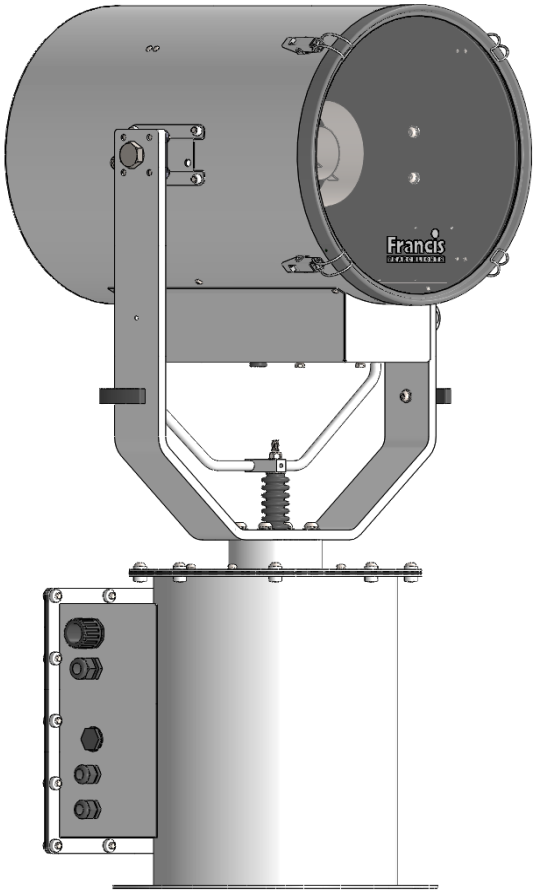


FH380RC 1200w Metal Halide Remote Control Searchlight

User / Installation Manual

Product Part Number:

A7138 – FH380RC 240v 1200w Metal Halide Variable Speed Remote Control Searchlight

Francis SEARCHLIGHTS

PLEASE NOTE!

www.francis.co.uk

Please read this manual before installation.

C27538 Issue 10 4.12.25 EC2056

CONTENTS

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 Metal Halide 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**.**
- Prevent rain, snow, condensation, and water droplets from contacting the lamp as this may cause bulb failure and possible shattering.
- Metal Halide bulbs run with a high internal pressure more than atmospheric. Whilst the construction is inherently strong, there is a slight risk of the bulb shattering.
- Never look directly into an illuminated searchlight as this may cause severe damage to eyesight. If it is necessary to inspect a lamp whilst in operation, always wear suitable protective goggles.
- Never attempt to clean a lamp whilst in use.
- 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 breaking a lamp for disposal, care must be taken to ensure the glass fragments are safely contained. This operation must be performed out of doors in free air. In all circumstances refer to the lamp manufacturer’s instructions packed with the lamp.
- 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

Electrical	
Input voltage:	240VAC
Input current:	6.5 Amp Max
Ballast output voltage:	92v AC
Ballast current:	13 Amps
Wattage:	1200w
Dimensions	
Height:	1136mm
Width:	561mm
Depth:	582mm
Weight: Searchlight – PSU Box	55Kgs – 23Kgs
Searchlight Performance	
Lamp power:	1200w
Range @ 1 Lux:	5805m
Lamp life (approx.)	1000h
Divergence:	2° - 10°
PBCP (Peak Beam Candle Power):	33,700,000 cd
Colour temperature:	6800K
Luminous flux:	110,000 lumens
Searchlight movement	
Pan rotation:	385°
Tilt elevation:	Up 30° & Down 35°
Pan speed:	Variable Speed 1 to 43°/sec
Tilt Speed:	Variable Speed 1 to 14°/sec
Material, colour, IP rating	
Searchlight barrel head:	Stainless Steel BS1449 304S31
Gearbox housing:	Stainless Steel BS1449 304S31
Crutch:	Aluminium BS1474 6082 T6
Paint finish powder coated & stove enamel paint:	Ash Grey BS4800 00A01, Umbra Grey RAL 7022
IP rating:	IP67 Gearbox – IP56 Searchlight & IP66 PSU Box
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.

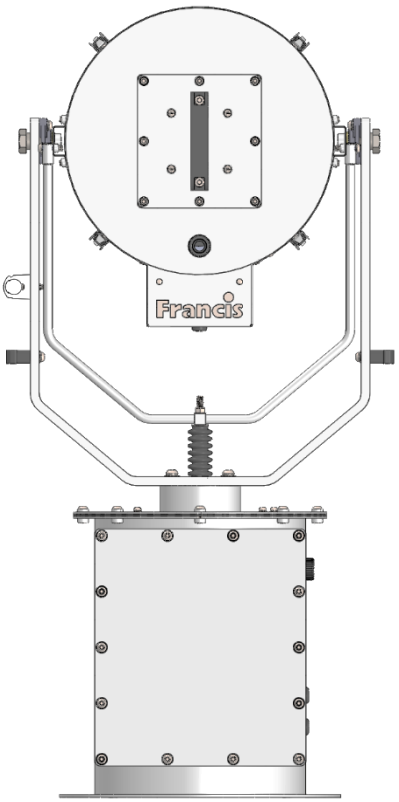
Safety Precautions

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.

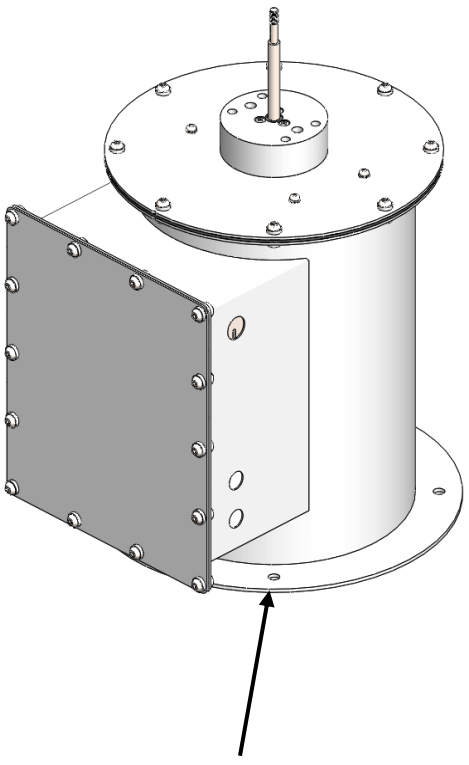
Preparing the Mounting Position

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 Ø350.00

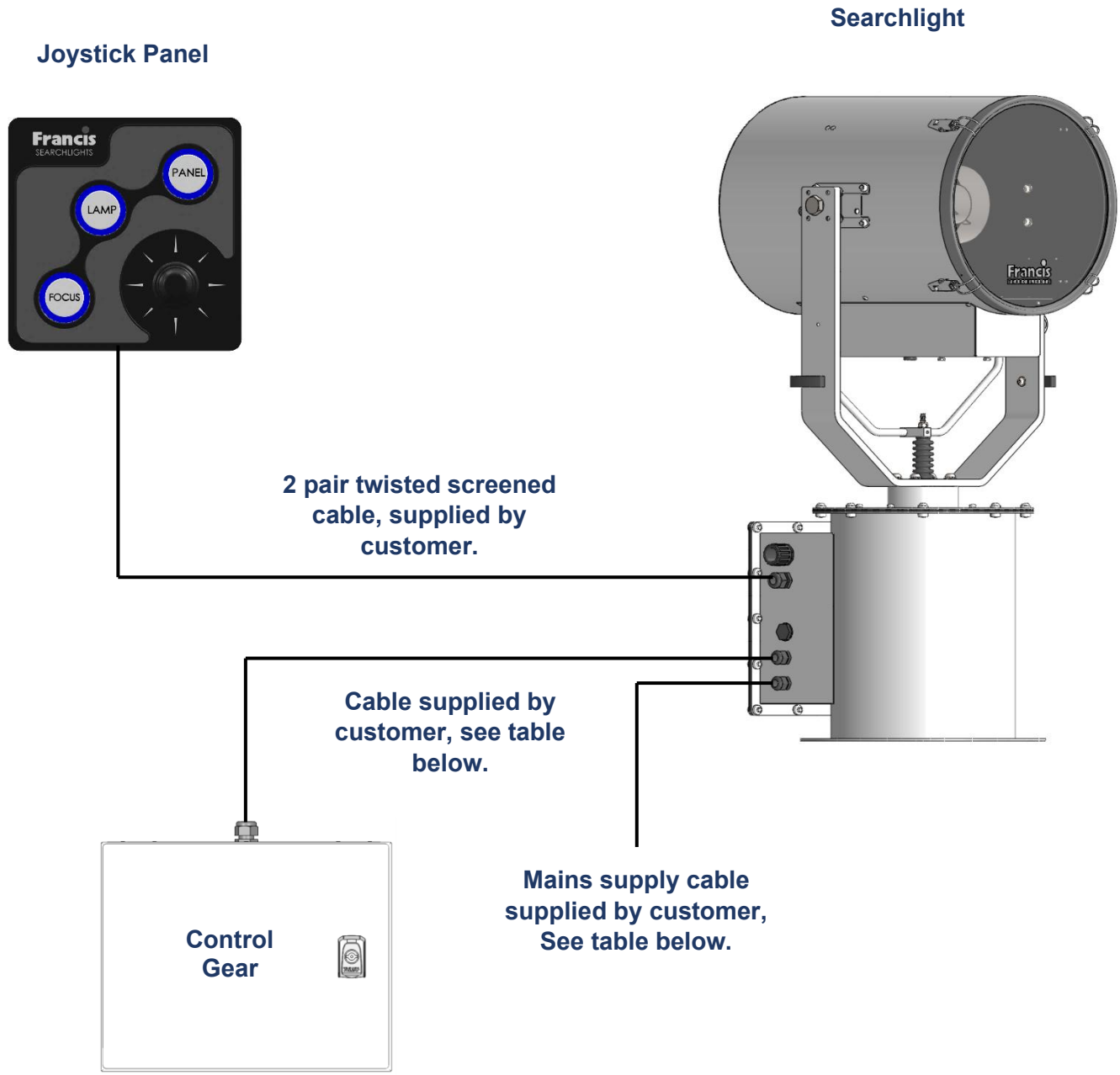
5 – Electrical Installation

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 C27424 (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, Control Gear, and joystick panel.

Cables required to be connected by the customer with the Control Gear mounted within 12m of the gearbox housing, if the Control Gear cannot be installed within 12m of the gearbox housing, then the correct cable should be fitted to compensate for the voltage drop. (See AC table on next page).

- 2 pair twisted 0.22mm 100ohm screened cable from the joystick panel to the gearbox housing.
- 5 cores 1.5mm cable from the Control Gear to the gearbox housing.
- 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	240v 1200w
Cable Size (mm^2)	Distance Max
3 core 1.5mm	54m
3 core 2.5mm	92m
3 core 4mm	147m
3 core 6mm	220m
3 core 10mm	388m

The following table below indicates the maximum length of cable to be used for Ballast AC cable, from the Control Gear to the gearbox housing.

Searchlight	1200w
Cable Size (mm^2)	Distance Max
5 core 1.5mm	12M
5 core 2.5mm	20M
5 core 4mm	33M
5 core 6mm	50M
5 core 10mm	85M

- 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 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

When fitting the lamp

- 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 sleeve should not be removed from the lamp 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 lamp house and power supply equipment.
- Always isolate the equipment from the supply before inserting a lamp.
- Before inserting the lamp ensure that all contacts are clean. Contacts must be renewed at the slightest sign of corrosion. Sanding or filing down corroded areas is not recommended as this will only make the conducting surface between the pin and lamp holder smaller, thus causing the lamp to overheat.
- Do not twist or bend the fused quartz 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 lamp holder must not exercise mechanical tensions on the lamp, neither during insertion nor operation. Contacts must not discolour during use.
- 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. Whenever removing a lamp, the protective sleeve must always be used for safety reasons.

Testing

Upon correct installation and connection to an electrical supply, the equipment can be tested to ensure its' correct performance. A competent person with some knowledge of electrical equipment must carry out this work.

Equipment required: multi-meter with leads & Ammeter.

Using the equation P=VI, the approximate power output of the equipment can be calculated in the following way:

- Using the multi-meter, take a voltage reading.
- Using the ammeter, take an amp reading from the live cable to the lamp.
- Multiply these figures together to give an approximate wattage (Power output).

For example:

- With the multi meter, test the AC voltage in the control gear across the ballast terminals 2 & 7. This should be approximately 92 volts.
- With the ammeter, test the current of the red lamp holder cable. It should read approximately 13 amps.
- Multiply these readings together, as shown above, to obtain the desired wattage required, usually about 1196watts.

Voltage reading = 92v, Amps reading = 13 amps

Therefore, Wattage = 92 x 13 = 1196 watts

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 centre and horizontal, 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 joystick 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.

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.

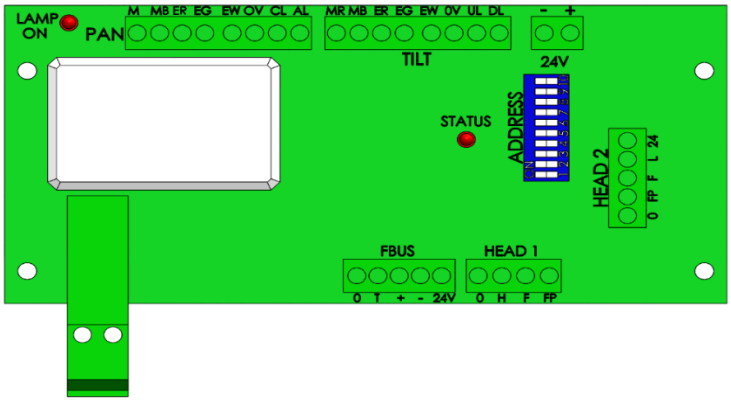
FBUS Address Switches

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 C30630). 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.

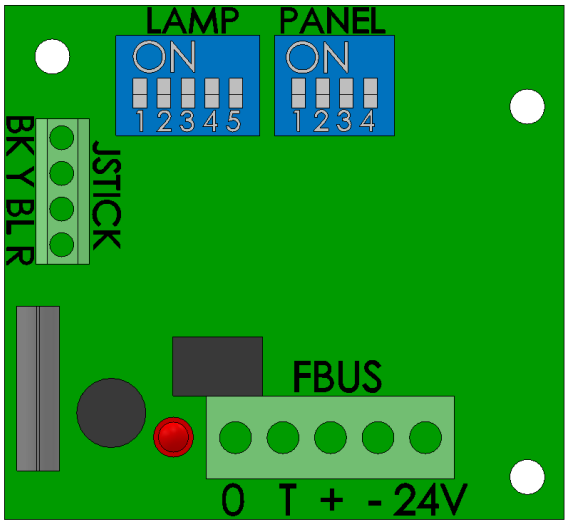
The address value is the sum of the numbers above which are active when the switch is on.

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.

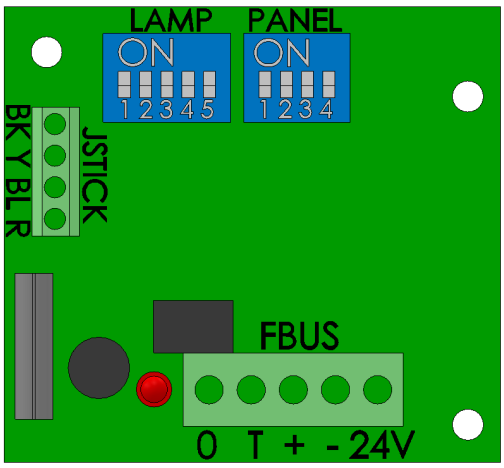
Standard Control Panel – Searchlight (Lamp) Address

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

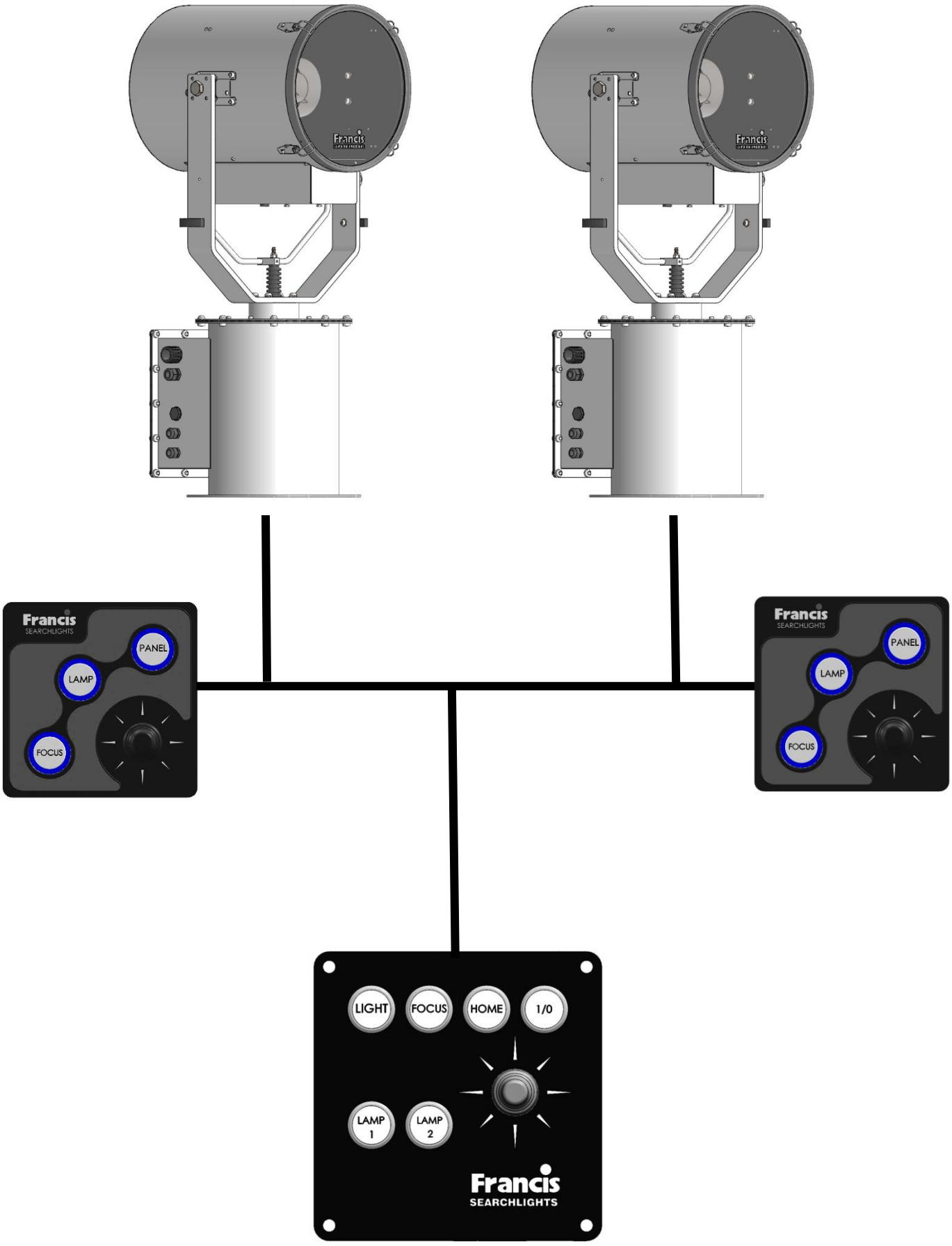
Every searchlight must have a unique address. The addresses should be sequential and should start from zero. If there were three searchlights in a system the addresses should be set to 0, 1 and 2.

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 lamp.

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 Lamp to light

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

1. Check that the mains supply is connected to the input of the ballast gear and check all connections as per the wiring diagram. On operating the lamp switch, if the lamp does not light, switch off mains supply and check all fuses.
2. Check the searchlight head. On your command get an operator to switch on the light for approximately 2 seconds. During this time listen for any noise (cracking or hissing) coming from within the barrel. If this arcing is heard switch off the supply at the mains. Remove the Rear Access Panel to expose the two supply leads from the ignitor to the lamp. Using a dry cloth wipe these leads to remove any dust, moisture or condensation that may have formed around the inside of the barrel. Replace rear access panel, and perform the check again, listening for the cracking. If the lamp still fails to ignite, switch off at the mains and replace the lamp in accordance with the safety procedures within the manual and the manufacturer's information.

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.

3. Before a metal halide 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 (up to 30,000 volts or higher). Switching the lamp on activates the ignitor. A cracking or hissing noise should be heard. The ignitor is housed on the rear access panel of the searchlight. If found to be faulty a new ignitor must be fitted.

Failure of Remote Focus Facility

The remote focus mechanism is controlled by a small electric motor situated on the lamp holder assembly within the searchlight barrel. If the focus of the light fails, the following procedure should be adopted:

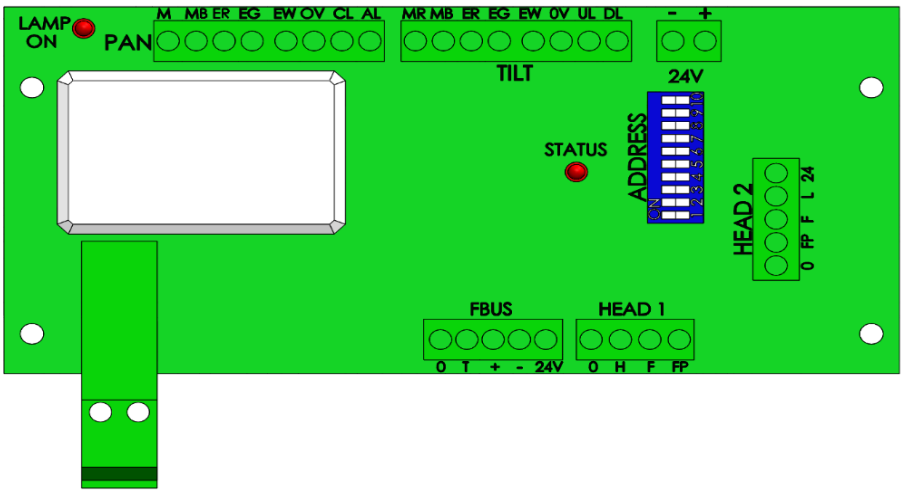
1. Remove the front bezel from the searchlight barrel and examine focus mechanism. If parts have become loose, tighten fasteners. The mechanism operates on a cam action, and this should be checked for correct positioning.
2. If the mechanism is okay, check the supply to the motor. This can be done by simply placing a multi-meter across the motor terminals.
3. If supply is present, this indicates that the motor has failed. Replace the focus motor ensuring that the assembly is correct.
4. If no supply is present, check the terminals 6 & 4 in the motor gearbox for 24 volts.

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 C30630), to access the speed controller PCB you will need to remove the 14 off M8 screws that hold the gearbox access panel in place, the status LED located near the top of the card (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 C30315 Item 5, 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 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.
- 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

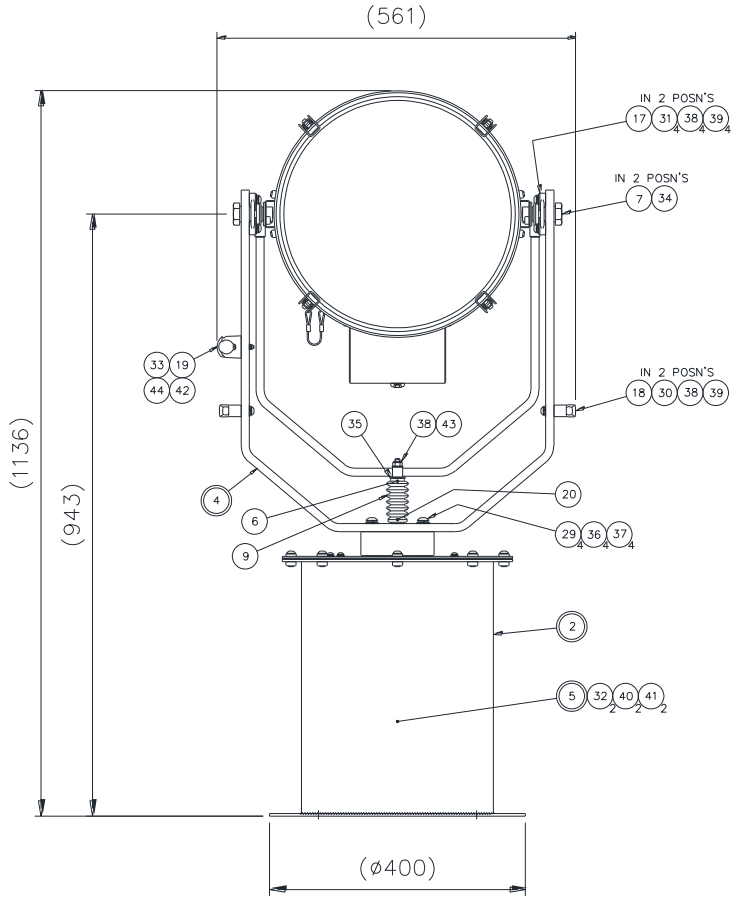
Drawing No:	Description
A7138	FH380RC 1200w 240v General Assembly
C27424	Wiring Diagram 240v
C27803	Wiring Diagram 115v
C27312	Joystick Panel Assembly
C26961	Control Gear Assembly
C21149	Barrel Assembly
C30630	Gearbox Assembly

FIRST USED ON

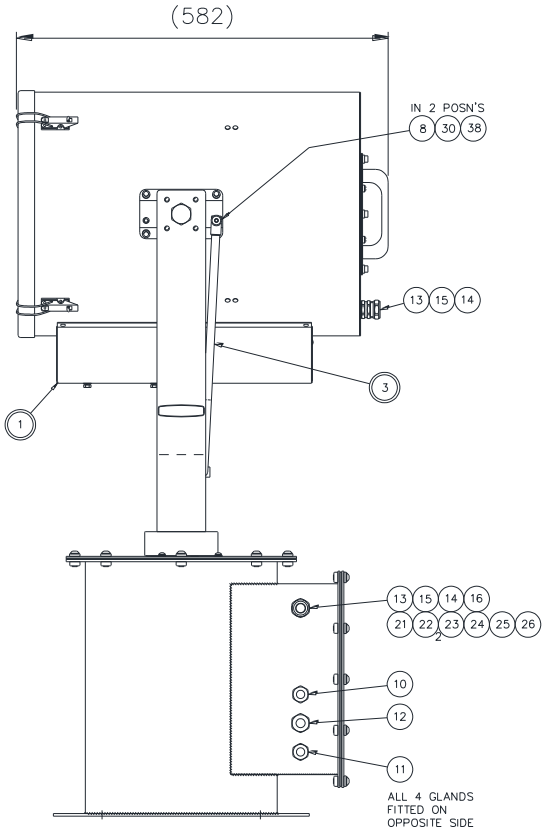
DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

0 10 20 30 40 50mm



BASE FIXINGS 4 HOLES ø12.50
EQUI-SPACED ON A 350.00 P.C.D.



ATTACH LABELS TO THE REAR BEZEL MOTOR UNIT COVER
27 28

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C21149	C21149	BARREL ASSY	1
2	C30630	C30630	MOTOR UNIT ASSY	1
3	C21235	C21235	U-PIECE ASSY	1
4	C26802	C26802	CRUTCH SUB ASSY	1
5	C30635	C30635	TERMINAL RAIL ASSY	1
6	C20270	C20270	BELLOWS TOP BUSH	1
7	C21821	C21821	TRUNNION BOLT	2
8	C23331	C23331	U-PIECE BUSH	2
9	C20281	C20281	BELLOWS	1
10	C27121		M20 CABLE GLAND	1
11	C10158		M20 CABLE GLAND	1
12	C12415		M20 CABLE GLAND	1
13	C13762		M20 CONDUIT GLAND	2
14	C22931		M20 CONDUIT GLAND LOCK NUT	2
15	C24710		M20 SEALING WASHER	2
16	C13751		M20 CONDUIT	2M
17	C21823		FLANGE BEARING	2
18	C20943		LIFTING HANDLE	2
19	C27294		M20 CABLE CLEAT (SIDE)	1
20	C21967		'O' RING	1
21	C13873		1.5mm S/C CABLE BLACK	5M
22	C13872		1.5mm S/C CABLE RED	2x 5M
23	C15112		1.5mm S/C CABLE G/Y	5M
24	C15838		1.5mm S/C CABLE BLUE	5M
25	C26799		1.5mm S/C CABLE BROWN	5M
26	C28905		1.5mm S/C CABLE GREY	5M
27	C22036		ISOLATE SUPPLY LABEL	2
28	C21464		230V WARNING LABEL	2
29	C08088		M10 x 30 BUTTON HD SCREW	4
30	C09208		M8 x 30 BUTTON HD SCREW	4
31	C23746		M8 x 25 BUTTON HD SCREW	8
32	C16335		M5 x 12 HEX HD SCREW	2
33	C15760		M4 x 30 PAN HD SCREW	1
34	C21278		M20 NYLON WASHER	2
35	C08370		M12 PLAIN WASHER	1
36	C08091		M10 PLAIN WASHER	4
37	C15313		M10 S/C SPRING WASHER	4
38	C06999		M8 PLAIN WASHER	13
39	C15041		M8 S/C SPRING WASHER	10
40	C08392		M5 PLAIN WASHER	2
41	C09231		M5 S/C SPRING WASHER	2
42	C04376		M4 PLAIN WASHER	1
43	C12354		M8 NYLOC NUT	1
44	C12351		M4 NYLOC NUT	1

ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	1.17 D.S.
2	GAS ARRESTORS REMOVED (EC1792)	2.19 LW
3	NEW SIDE CABLE CLEAT (EC1795)	1.20 LW
4	C27121 WAS C15293 (EC1797)	2.20 D.S.
5	PARVALUX HV HEATER COLOUR TERM (EC1935)	12.24 D.S.
6	INTEGRATED G/BOX UPDATE (EC2056)	12.25 D.S.

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

Francis SEARCHLIGHTS

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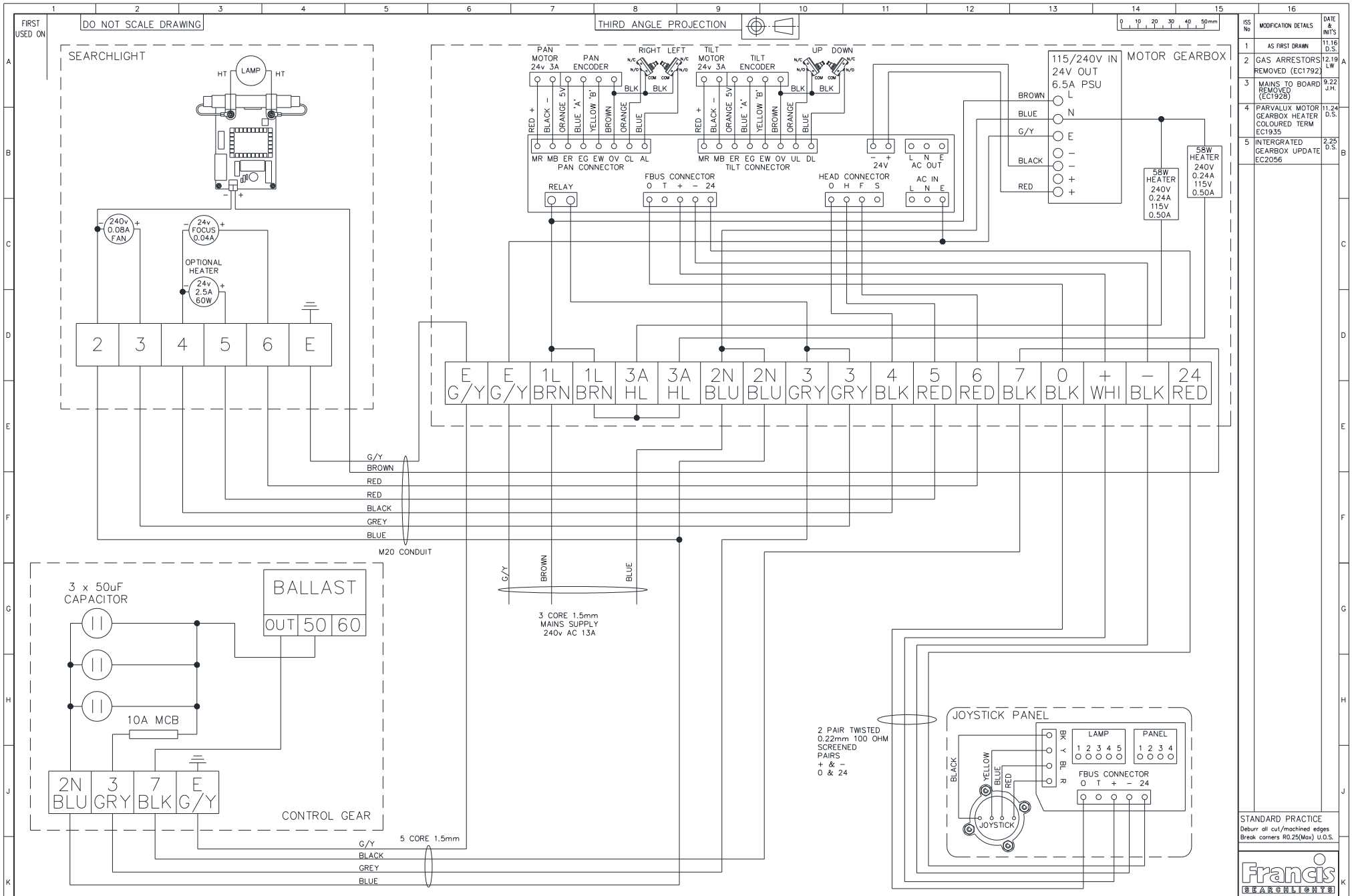
A1 CONT ON SHEET

DRAWN	D.S.	DATE	20.1.17	TOLERANCES	Sand Casting: To ISO 8062 CT10 Die Casting: To ISO 8062 CT8 Hole centres & posns: ±	MATERIAL
CHECKED		SCALE	1:4	General: ± Angular: ±		FINISH
ALL DIMENSIONS IN MILLIMETRES						DESCRIPTION

FH380RC 1200W V/S GA 2025

PART No./DRG No. A7138 SHT 1



ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	11.16 D.S.
2	GAS ARRESTORS REMOVED (EC1792)	12.19 LW
3	MAINS TO BOARD REMOVED (EC1928)	9.22 J.H.
4	PARVALUX MOTOR GEARBOX HEATER COLOURED TERM EC1935	11.24 D.S.
5	INTERGRATED GEARBOX UPDATE EC2056	2.25 D.S.

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

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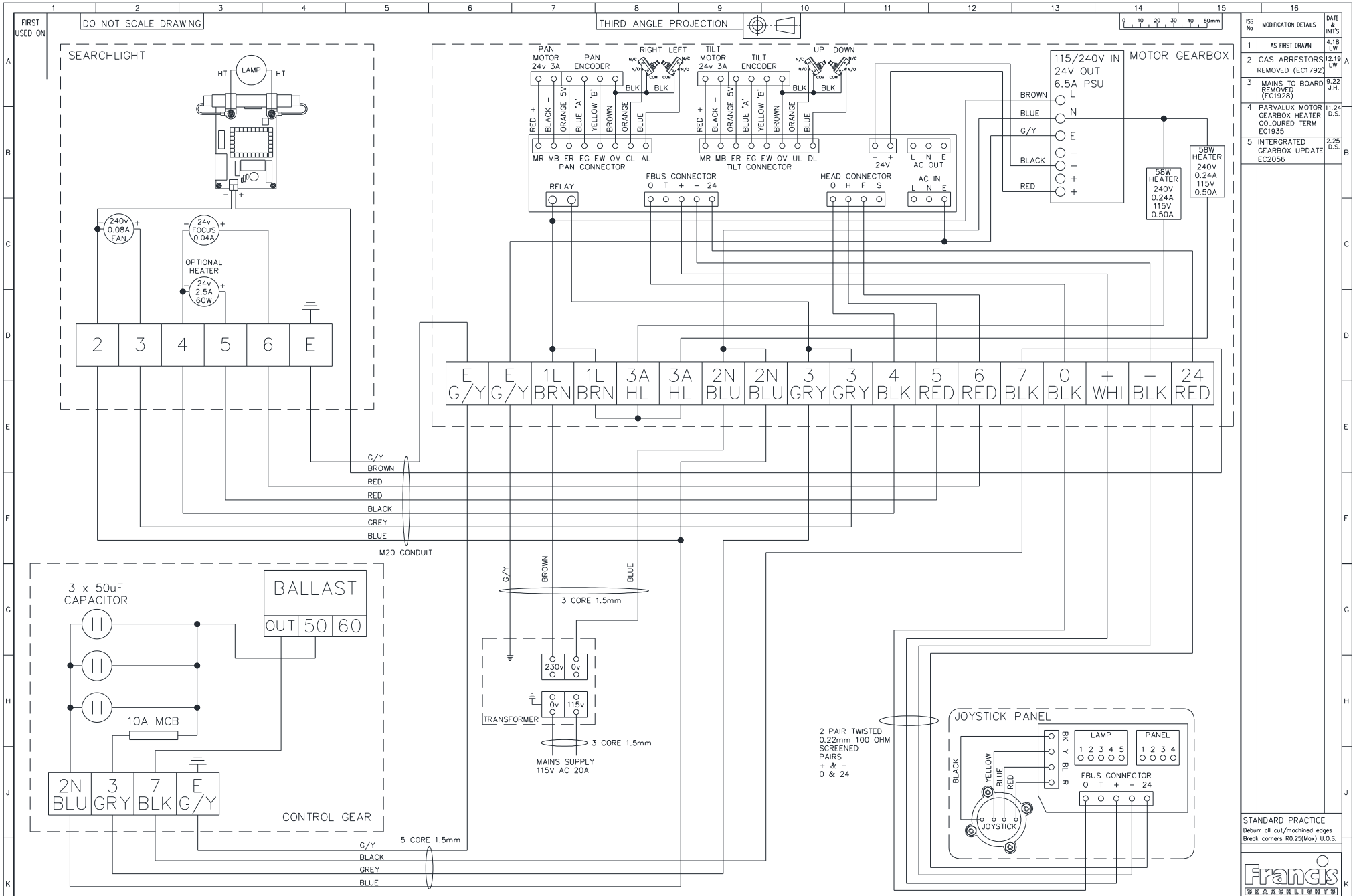
A1 CONT ON SHEET

DRAWN	D.S.	DATE	24.11.16	TOLERANCES
CHECKED		SCALE		General: ± Angular: ±
ALL DIMENSIONS IN MILLIMETRES				Sand Casting: To ISO 8062 CT10 Die Casting: To ISO 8062 CT8 Hole centres & posns: ±

MATERIAL | FINISH | DESCRIPTION

WIRING DIAGRAM FH380RC 1200W 240V V/S 2025

PART No./DRG No. C27424 SHT 1



ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	4.18 LW
2	GAS ARRESTORS REMOVED (EC1792)	12.19 LW
3	MAINS TO BOARD REMOVED (EC1928)	9.22 J.H.
4	PARVALUX MOTOR GEARBOX HEATER COLOURED TERM EC1935	11.24 D.S.
5	INTERGRATED GEARBOX UPDATE EC2056	2.25 D.S.

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

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A1 CONT ON SHEET

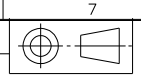
DRAWN	LW	DATE	4.18	TOLERANCES	MATERIAL	FINISH	DESCRIPTION
CHECKED		SCALE		General: ± Angular: ±			WIRING DIAGRAM FH380RC 1200W 240V V/S 2025
ALL DIMENSIONS IN MILLIMETRES				Sand Casting: To ISO 8062 CT10 Die Casting: To ISO 8062 CT8 Hole centres & posns: ±			

PART No./DRG No. C27803 SHT 1

FIRST USED ON

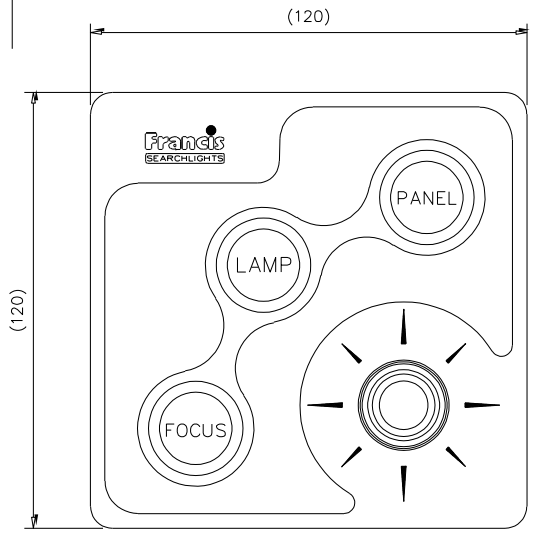
DO NOT SCALE DRAWING

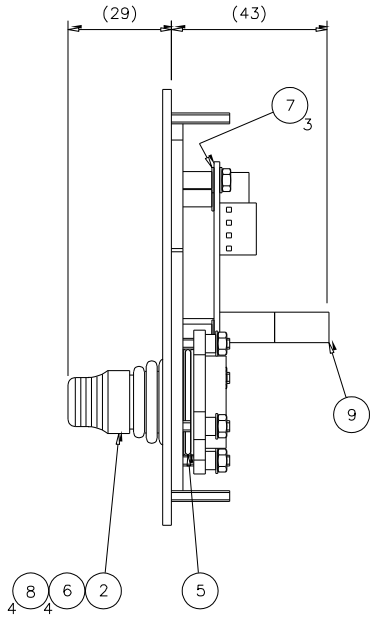
THIRD ANGLE PROJECTION

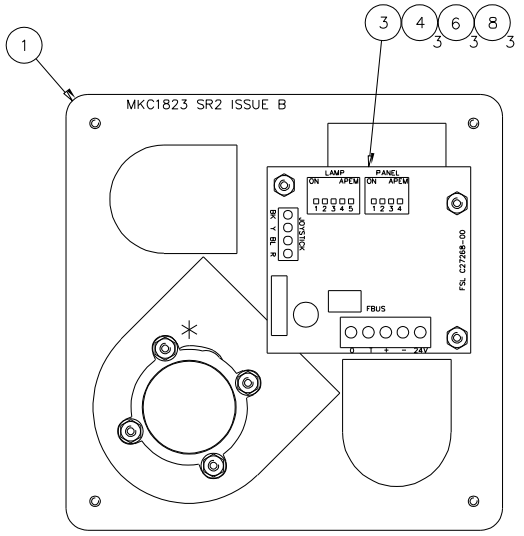


0 10 20 30 40 50mm

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.





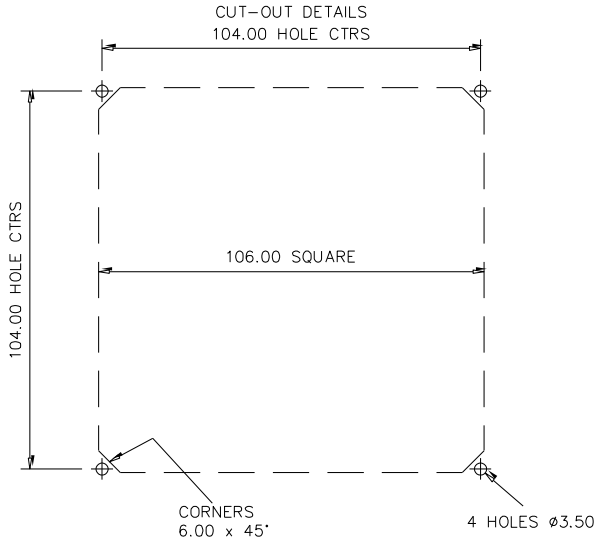


NOTES

PLACE 'O' RING OVER THE JOYSTICK REAR
'O' RING IS REQUIRED TO STOP THE JOYSTICK FROM ROTATING

POSITION THE JOYSTICK WITH THE
INDICATOR AT THE TOP AS SHOWN *
& CLAMPING RING NOTCH TO THE RIGHT
DO NOT OVER TIGHTEN THE NUTS.

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

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A2

CONT ON SHEET

DRAWN	D.S.	DATE	10.16	TOLERANCES	
CHECKED		SCALE	1:1	General: ±	
ALL DIMENSIONS IN MILLIMETRES				Angular: ±	

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

MATERIAL

FINISH

DESCRIPTION

3 BUTTON CONTROL PANEL ASSY (2017)

PART No./DRG No. C27312

SHT 1

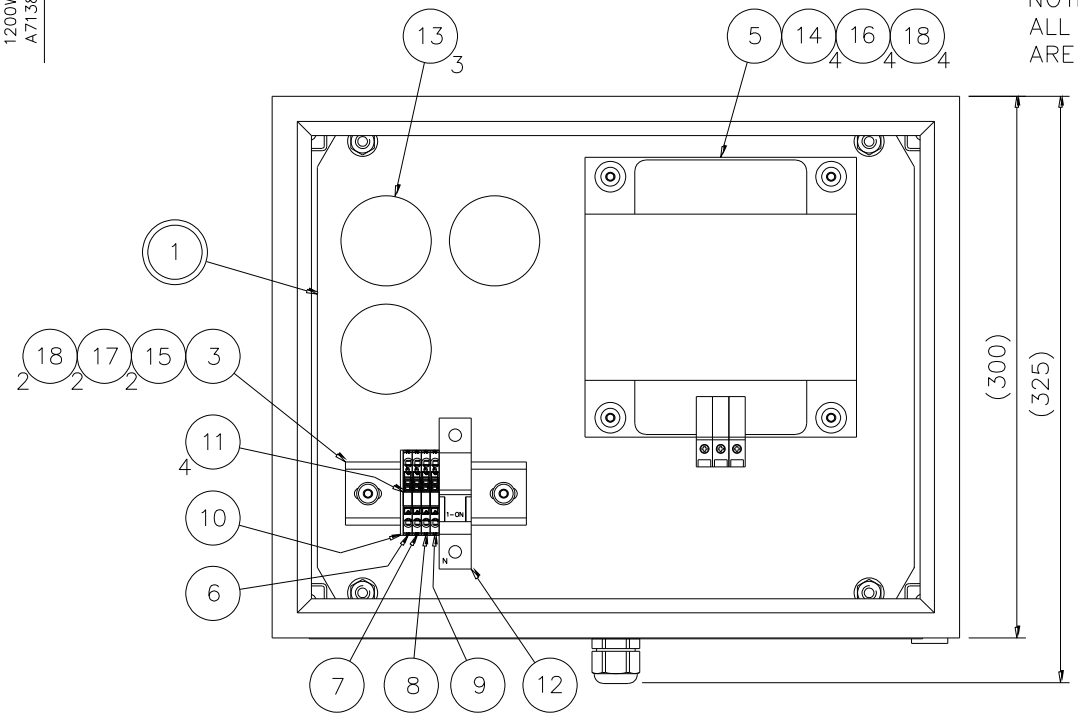
FIRST USED ON FH380RC 1200W A7138

DO NOT SCALE DRAWING

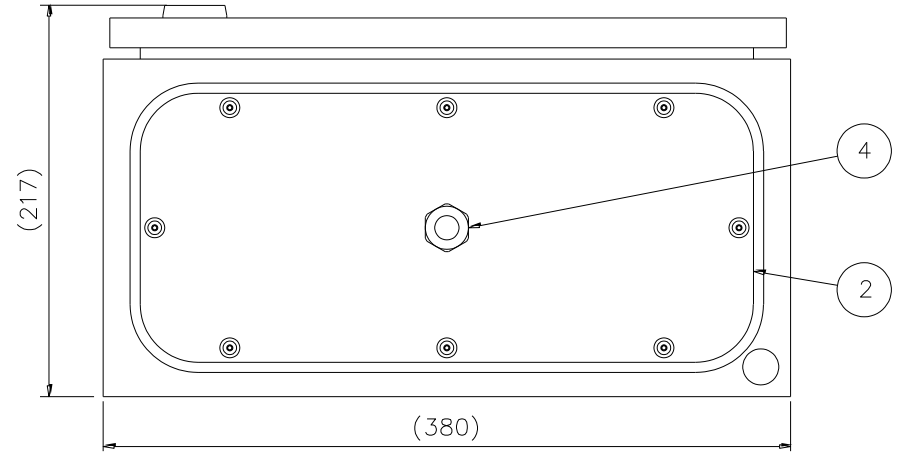
THIRD ANGLE PROJECTION

0 10 20 30 40 50mm

NOTE: –
ALL FIXINGS FOR THE CHASSIS PLATE, GLAND PLATE ARE SUPPLIED WITH THE ENCLOSURE



HINGE THIS SIDE
VIEW WITH LID REMOVED



ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C24586	C24586	CHASSIS PLATE SUB ASSY	1
2	C27774	C21928	GLAND PLATE	1
3	C24144	C24143	DIN RAIL	1
4	C12415		M20 GLAND	1
5	C23496		BALLAST	1
6	C28876		TERMINAL – BLUE	1
7	C28878		TERMINAL – GREY	1
8	C28877		TERMINAL – BLACK	1
9	C28879		TERMINAL – EARTH	1
10	C28882		END PLATE	1
11	C15411		TERMINAL MARKERS	4
12	C26986		10A MCB	1
13	C20235		CAPACITOR 50uF	3
14	C08990		M6 x 12 BTN HD SCREW	4
15	C23954		M6 x 10 BTN HD SCREW	2
16	C06999		M8 PLAIN WASHER	4
17	C06997		M6 PLAIN WASHER	2
18	C10554		M6 S/C SPRING WASHER	6

ENCLOSURE BASE FIXINGS
340 x 260 M8 FIXINGS

ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	7.15 LW
2	PSU ENCLOSURE CHANGED (EC1891)	3.21 LW
3	COLOURED TERMINALS	12.24 D.S.

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

Francis SEARCHLIGHTS

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 A2

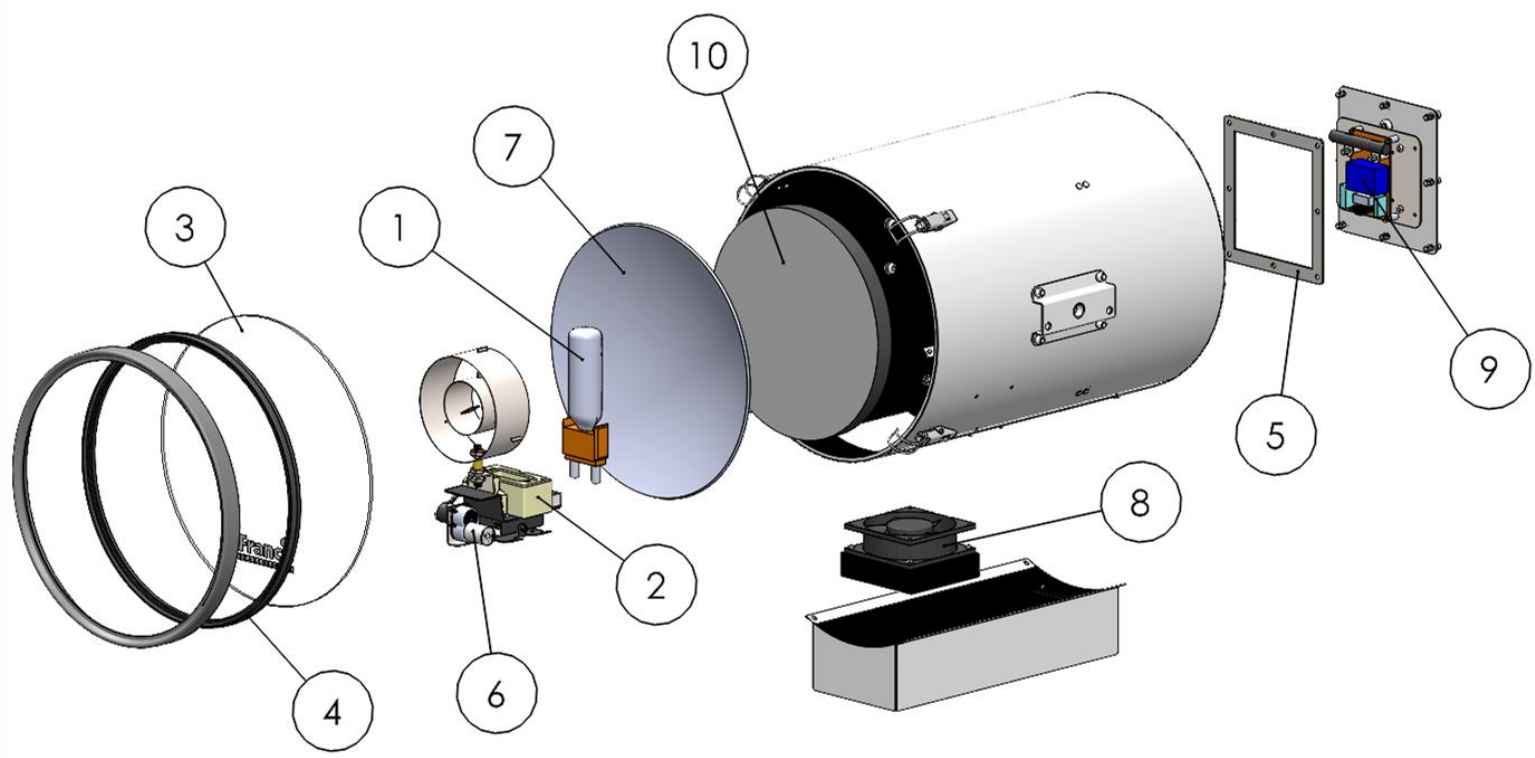
CONT ON SHEET

DRAWN	LW	DATE	7.15	TOLERANCES	Sand Casting: To ISO 8062 CT10
CHECKED		SCALE	1:2	General: ±	Die Casting: To ISO 8062 CT8
ALL DIMENSIONS IN MILLIMETRES				Angular: ±	Hole centres & posns: ±

MATERIAL | FINISH | DESCRIPTION: 1200w RC METAL HALIDE CONTROL GEAR ASSY

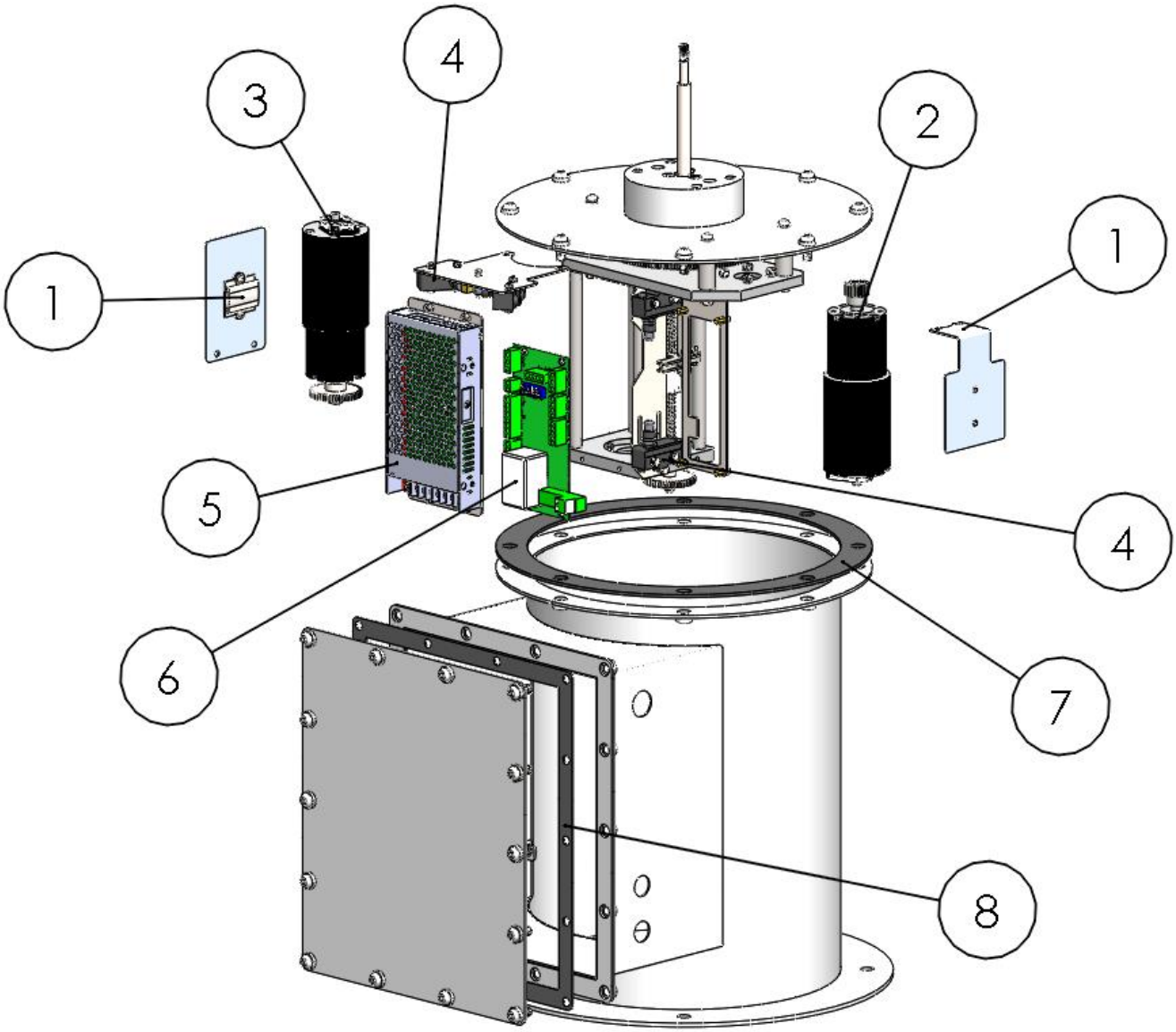
PART No./DRG No.: C26961 | SHT: 1

C21149 Barrel Assembly



Item Number	Part Number	Description	Quantity
1	D15746	1200w Metal Halide Lamp	1
2	C09868-00	Lamp Holder G38	1
3	C08919-00	Front Glass	1
4	C22011-00	Front Glass Gasket	1
5	C23127-00	Rear Cover Gasket	1
6	C28025-01	Focus Motor Assembly	1
7	C08885-00	Reflector	1
8	C22790-00	Fan	1
9	C16880-00	Igniter	1
10	C16807-00	Insulation Disc	1

C30630 Gearbox Assembly



Item Number	Part Number	Description	Quantity
1	C23277-00	Heater	2
2	C29547-01	Pan Motor Assembly	1
3	C29468-01	Tilt Motor	1
4	C29275-00	Micro-switch	4
5	C29162-00	24v PSU	1
6	C29534-01	Speed Controller PCB	1
7	C22381-00	Ped Top Sealing Gasket	1
8	C30291-00	Rear Cover Sealing Gasket	1

10 - Spare Parts List

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

Part Number	Description
Searchlight Spares	
D15746	1200w Metal Halide Lamp
C09868	Lamp Holder G38
C08919-00	Front Glass
C22011-00	Front Glass Gasket
C23127-00	Rear Cover Gasket
C28025-01	Focus Motor Assembly
C08885-00	Reflector
C22790-00	Fan
C16880-00	Igniter
C16807-00	Insulation Disc
C20281-00	Bellows
C24118-00	3A Gearbox Din Rail Fuse
C16506-00	Transformer 115v in 230v out
Control Gear Spares	
C23496-00	Ballast
C26986-00	10A MCB
C20235-00	50µF Capacitor
Motor Gearbox Spares	
C23277-00	Heater
C29547-01	Pan Motor Assembly
C29468-01	Tilt Motor
C29275-00	Micro switch
C29162-00	24v Power Supply Unit
C29534-01	Speed Controller PCB
C22381-00	Pedestal Top Sealing Gasket
C30291-00	Rear Cover Sealing Gasket
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 searchlight model and serial number, which you can within the front of the barrel head to the right, on the name plate. This will enable a fast response to your spares' requirements.