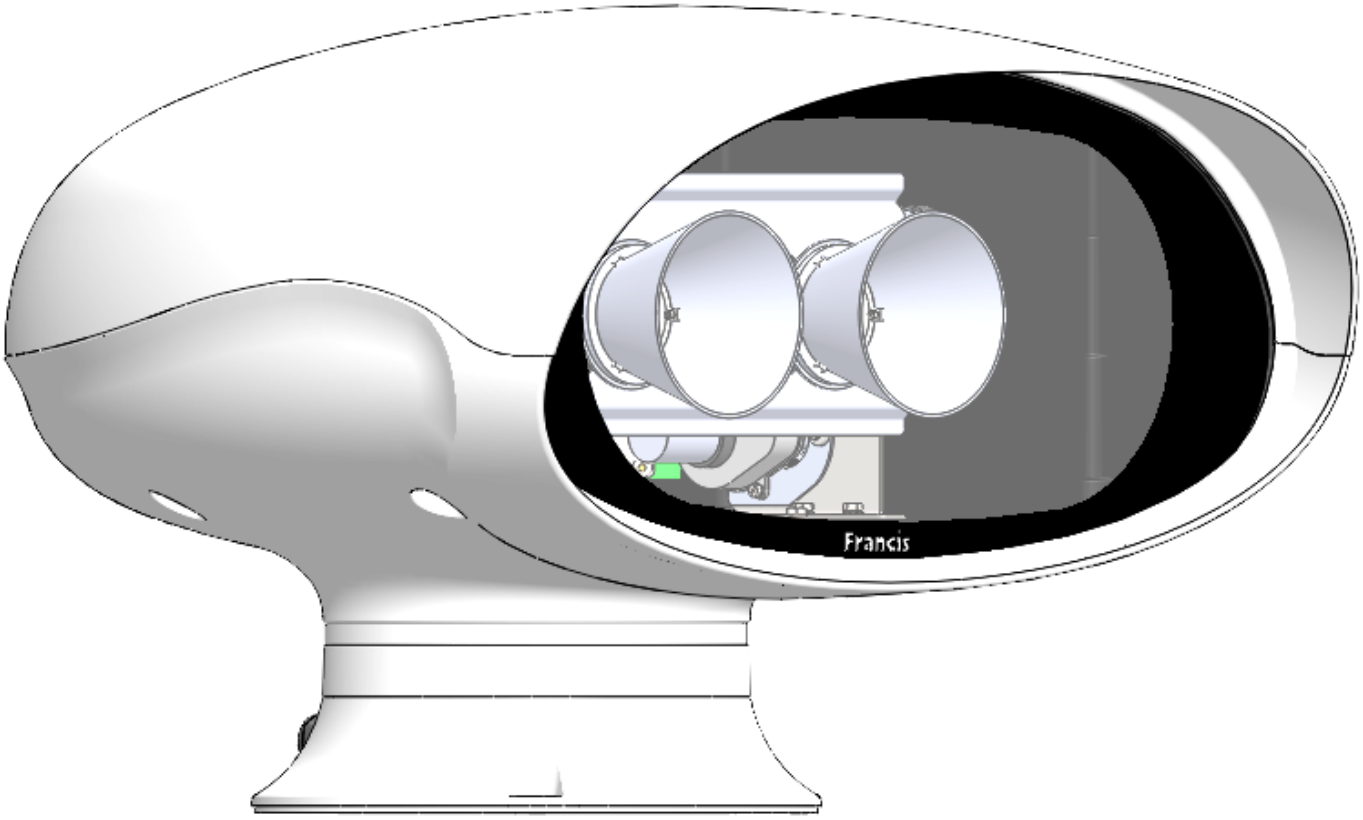


VL500RC 150W LED Remote Control Searchlight

User / Installation Manual

Product Part Number:

A7193 – VL500RC 110/240V 150w LED Variable Speed Remote Control Searchlight

PLEASE NOTE!

Please read this manual before installation.

Francis SEARCHLIGHTS

www.francis.co.uk

C27846 Issue 11 25.06.25 EC2066

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 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 driver box name plate.

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 a searchlight whilst in operation, always wear suitable protective goggles.
- 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:	110VAC 240 VAC
Input current:	2A MAX 1A Max
Driver output voltage:	75v DC Max
Driver current:	2A Max
Wattage:	150w
Dimensions	
Searchlight Height:	340mm
Width:	500mm
Depth:	533mm
Weight:	17Kgs
Driver Box Height:	412mm
Width:	278mm
Depth:	130mm
Weight:	4Kgs
Searchlight Performance	
LED power:	150w
Range @ 1 Lux:	1068m
LED life (approx.)	33000h
Divergence:	8°
Colour temperature:	6500K
Luminous flux:	18,800 lumens
Searchlight movement	
Pan rotation:	350°
Tilt elevation:	Up 13° & Down 19°
Pan speed:	Variable Speed 1 to 36°/sec
Tilt Speed:	Variable Speed 1 to 3.5°/sec
Material, colour, IP rating	
Searchlight barrel head:	Aluminium LM6 Die Casting
Paint finish powder coated & stove enamel paint:	Signal White to RAL 9003
IP rating, Searchlight, Driver Box:	IP66 Searchlight – IP66 PSU
Operating temperature:	-20°C to +50°C
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.

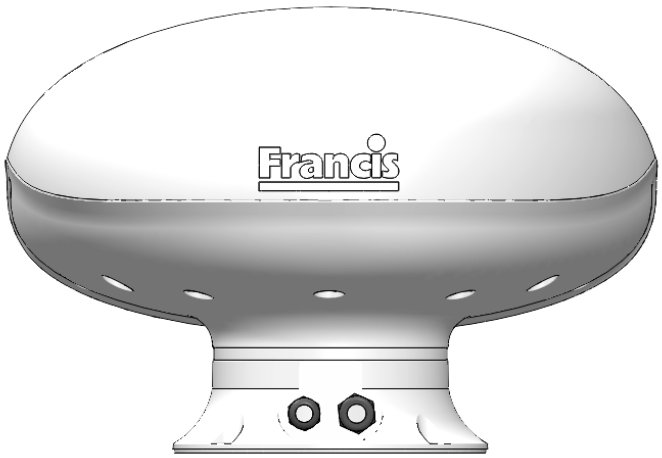
Safety Precautions

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 C27313 for the Joystick Panel cut out size.



Rear of Searchlight

Base Fixings, 4 Holes Ø8.2
Equally Spaced on a Ø220.00

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.

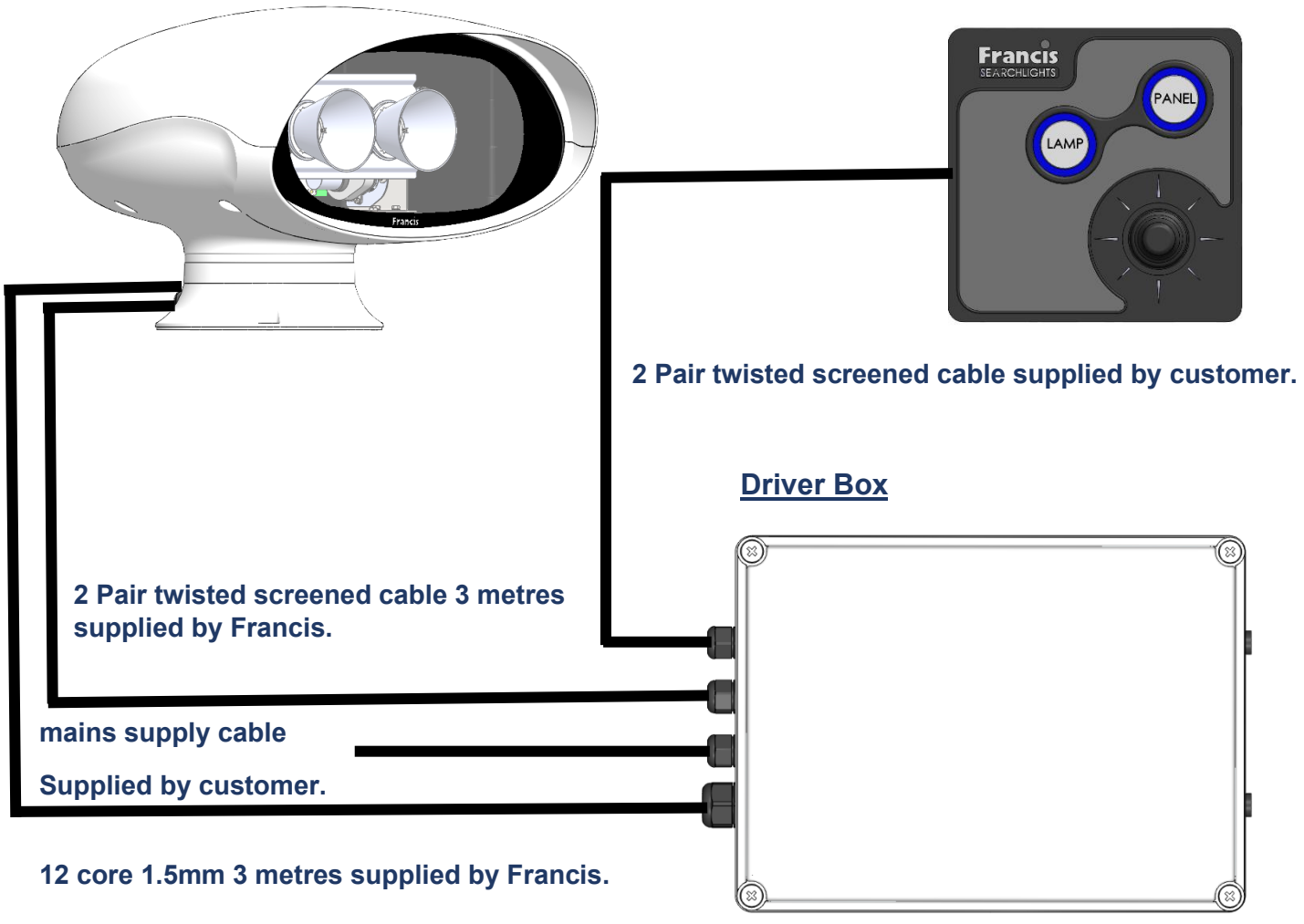
Referring to wiring diagram C27828 (at the back of the manual), a supply is fed to the driver box, which then provides a common feed to the searchlight and joystick control panel.

The searchlight has been pre-wired with 3 meters of cable from the Searchlight to driver box provided.

If the installation requires the junction box to be mounted more than 3m away from the searchlight, then we would recommend additional junction box is installed to connect the additional cable. The correct cable should be fitted to compensate for the voltage drop over the distance between both junction boxes.

Cables to be supplied by the customer:

- 2 pair twisted 0.22mm 100ohm screened cable from the joystick panel to the driver box.
- Mains supply cable to the junction box.



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 LED 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 driver box.

Searchlight	115v 150w	230v 150w
Cable Size (mm^2)	Distance Max	Distance Max
1.5	85M	355M
2.5	143M	600M

The following table below indicates the maximum length of cable to be used for the DC cable, from the searchlight to the driver box.

Searchlight	150w
Cable Size (mm^2)	Distance Max
12 cores 1.5	30M

- 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 the reflector will Tilt down to the limit, once this is complete, the searchlight will then move to the centre position, 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 light on or off.
If the control panel is switched off with the PANEL button the light will switch off.

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.

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

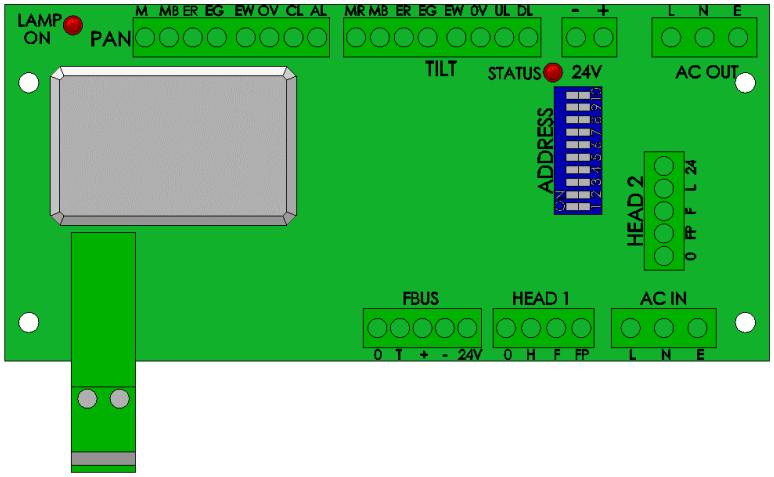
The Francis bus (FBUS) is a custom communication protocol based on RS485 two wire bi-directional communication hardware. The system provides a simple bi-directional link between searchlights and joystick panels. The system allows given panels to communicate with different searchlights and allows several 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 Searchlight (see drawing A7193). 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.

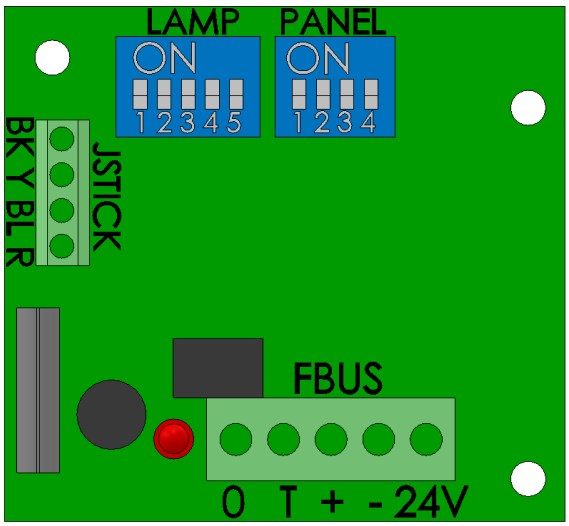
The address value is the sum of the numbers above which are active when the switch is on.

For example, if dip 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.

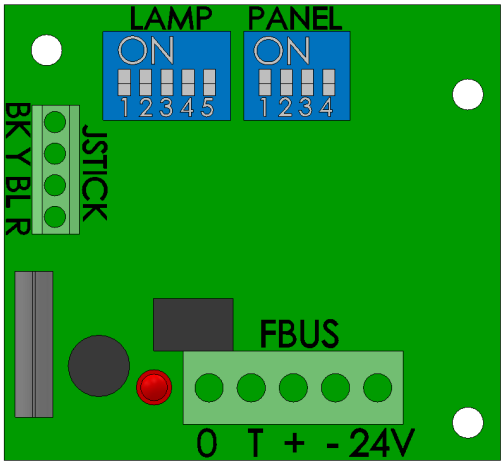
Standard Joystick Panel – Searchlight (Lamp) Address

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



Standard Joystick Panel – Control (Panel) Address

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



EXAMPLES

Standard joystick 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

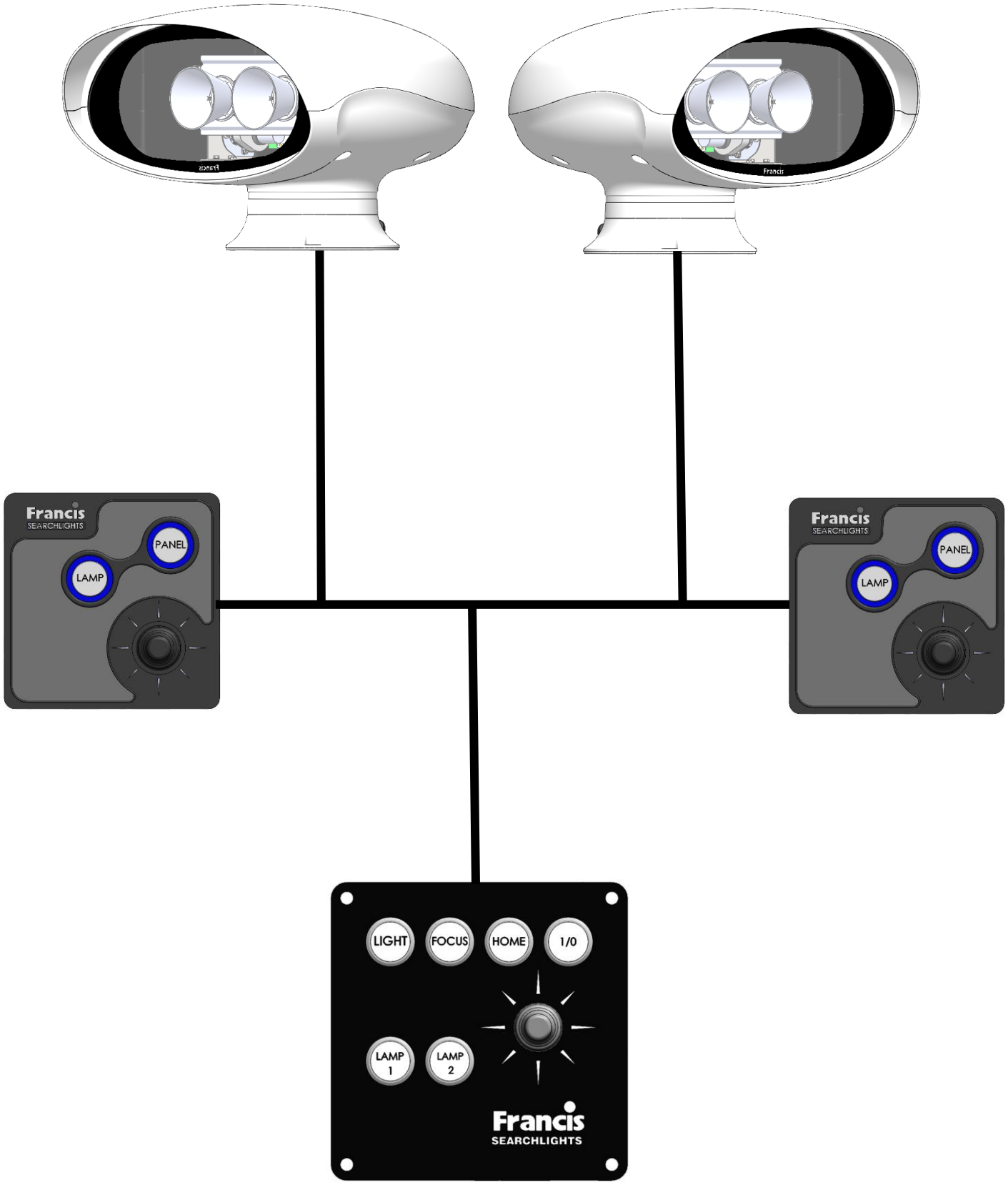
Every searchlight must have a unique address. The addresses should be sequential and should start from zero. If there were three searchlights in a system the addresses should be set to 0, 1 and 2.

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 light, they must still have individual panel addresses, but the lamp addresses can be set to the same address value as the lamp which is to be controlled. Any number of panels can control the same light.

Multiple Searchlights, Joystick Panels and Master Joystick 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 & + = 2.2v DC
    - 0 & - = 2.2v 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 joystick panel, then please check the data + & - connections on the FBUS connector located on the back of the joystick panel assembly, as these data cables could be swapped around.

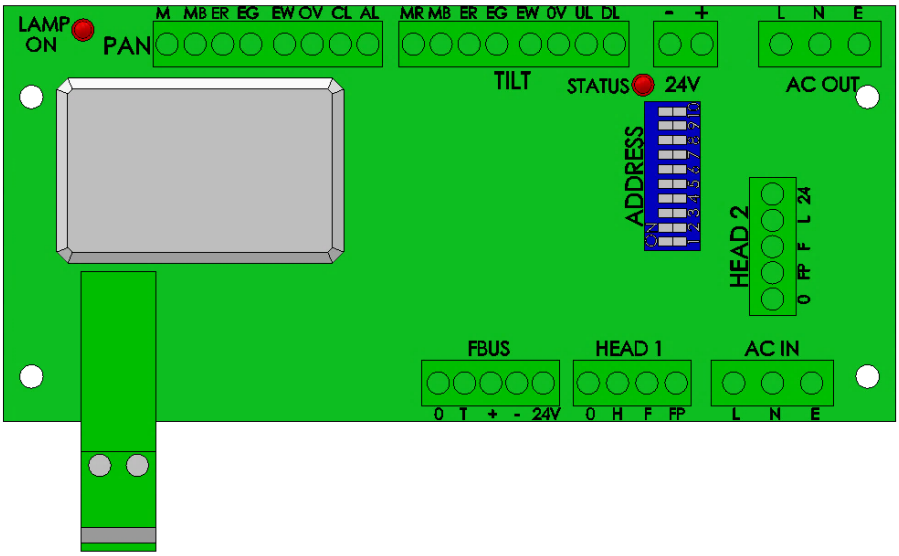
- If you have more than 1 searchlight in the installation and 2 or more searchlights are moving at the same time in the same direction, then please check the dip switch settings on the speed controller PCB, see **Setting Searchlight Address Value.**

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 joystick panel, please contact Francis Searchlights for ordering the required parts, sales@francis.co.uk

If the joystick panel is not communicating with the searchlight and none of the LED's on the joystick panel are lighting up, then you will need to access the speed controller PCB inside the searchlight (see drawing A7193), to access the speed controller PCB, you will need to remove the 5 off M8 bolts & washers, that are located beneath the searchlight head, then you can access the speed controller PCB, the Status LED located near the top of the card (labelled "STATUS") on the speed controller PCB, as 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. 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 driver box, as shown on drawing C27842 Item 6, 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 joystick 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 over current. – The pan 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.

4. Tilt motor over current. – The tilt 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.

5. Focus motor over current. – 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. This fault indicates the 24VDC output is taking excessive current. The FBUS supply output will switch off. To restore this output, remove the supply from the speed control card for a period.

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 searchlight. The following procedure should be adhered to:
    - Clean the front glass using a proprietary glass cleaner.
    - Clean the reflector if required.
- It is advisable to check all seals and gaskets for signs of degradation. Renew if necessary.
- The searchlight is fitted with two breather units. This ensures a steady airflow to prevent any vacuum forming within the head.
- 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

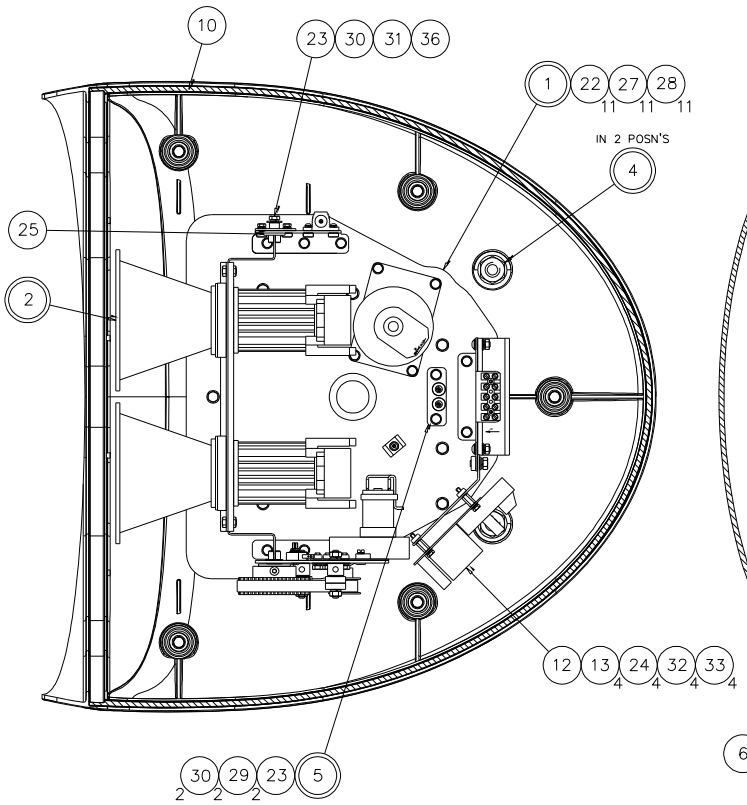
Drawing No:	Description
A7193	VL500RC 150W General Assembly
C27828	Wiring Diagram
C27313	Joystick Panel Assembly
C27842	Driver Box Assembly
C27862	LED Replacement Instructions

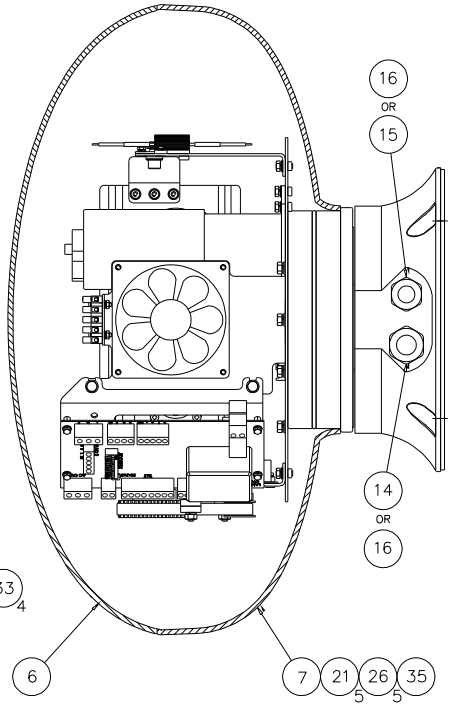
FIRST USED ON

DO NOT SCALE DRAWING

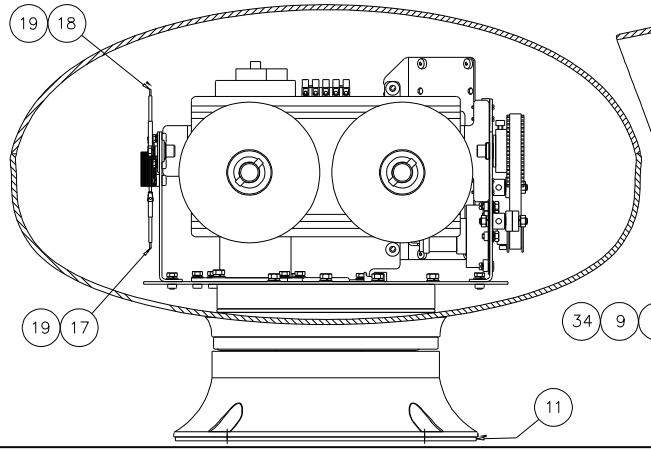
THIRD ANGLE PROJECTION

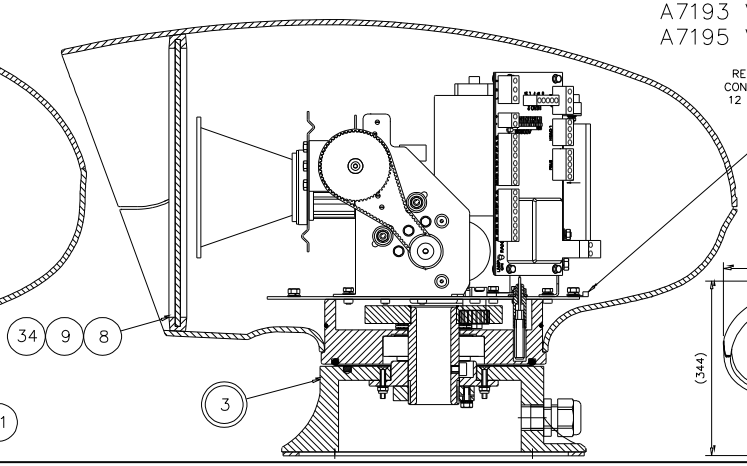
ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C29809	C29809	COMPONENT PLATE ASSY	1
2	C27838	C27838	REFLECTOR PLATE ASSY	1
3	C29520	C29520	PAN GEAR HOUSING ASSY	1
4	C22268	C22268	BREATHER ASSY	2
5	C28859	C28857	PROXIMITY SWITCH ASSY	1
6	C25050		HOUSING UPPER	1
7	C25051		HOUSING LOWER	1
8	C26139	C26139	FRONT GLASS	1
9	C26184	C26184	FRONT GLASS GASKET	1
10	C26183	C26183	SEALING STRIP (RIM)	1
11	C26475	C26475	BASE GASKET	1
12	C29536		SPEED CONTROLLER PCB	1
13	C16436		PILLAR	4
14	C12415	C12415	M20 CABLE GLAND	1
15	C27121		M20 CABLE GLAND	1
16	C20349		M20 BLANKING PLUG	2
17	C17022		0.75mm SILICONE CABLE RED	400 mm
18	C17023		0.75mm SILICONE CABLE BLACK	400 mm
19	C12841		CABLE SLEEVE BLACK	2
20	C16215		M5 UN-INSULATED CRIMP	1
21	C26474		M8 x 90 CAP HD SCREW	5
22	C16335		M5 x 12 HEX HD SCREW	11
23	C14644		M4 x 8 HEX HD SCREW	3
24	C26464		M3 x 8 HEX HD SCREW	4
25	C15275		M8 NYLON WASHER	1
26	C21344		M8 DUBO WASHER	5
27	C08392		M5 PLAIN WASHER	11
28	C09231		M5 S/C SPRING WASHER	11
29	C04376		M4 PLAIN WASHER	2
30	C08793		M4 S/C SPRING WASHER	3
31	C20637		M4 x 12 O/D WASHER	1
32	C08028		M3 PLAIN WASHER	4
33	C10747		M3 S/C SPRING WASHER	4
34	C12039		CLEAR RTV	A/R
35	C08906		GREASE	A/R
36	C13853		LOCTITE TL42	A/R





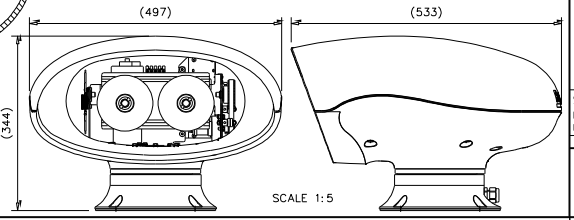
A7193 VOYAGER 2 150W LED 115/240V GA 2023
A7195 VOYAGER 2 150W LED 24V GA 2023





REMOVE PAINT
CONNECT TO THE
12 CORE CABLE
20

BASE FISINGS
4 HOLES Ø8.2
EQUI-SPACED ON A 220.00 P.C.D.



SCALE 1:5

ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	6.18 D.S.
2	GLAND REPLACED (EC1759)	5.19 LW
3	PROXIMITY SWITCH ASSY ADDED (EC1860)	11.20 LW
4	REFLECTOR BKT REDUCED 4mm (EC1930)	11.22 J.H.
5	C15977 NOW C16215 (EC1939)	12.22 J.H.
6	PARVALUX (EC1935)	1.23 D.S.

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

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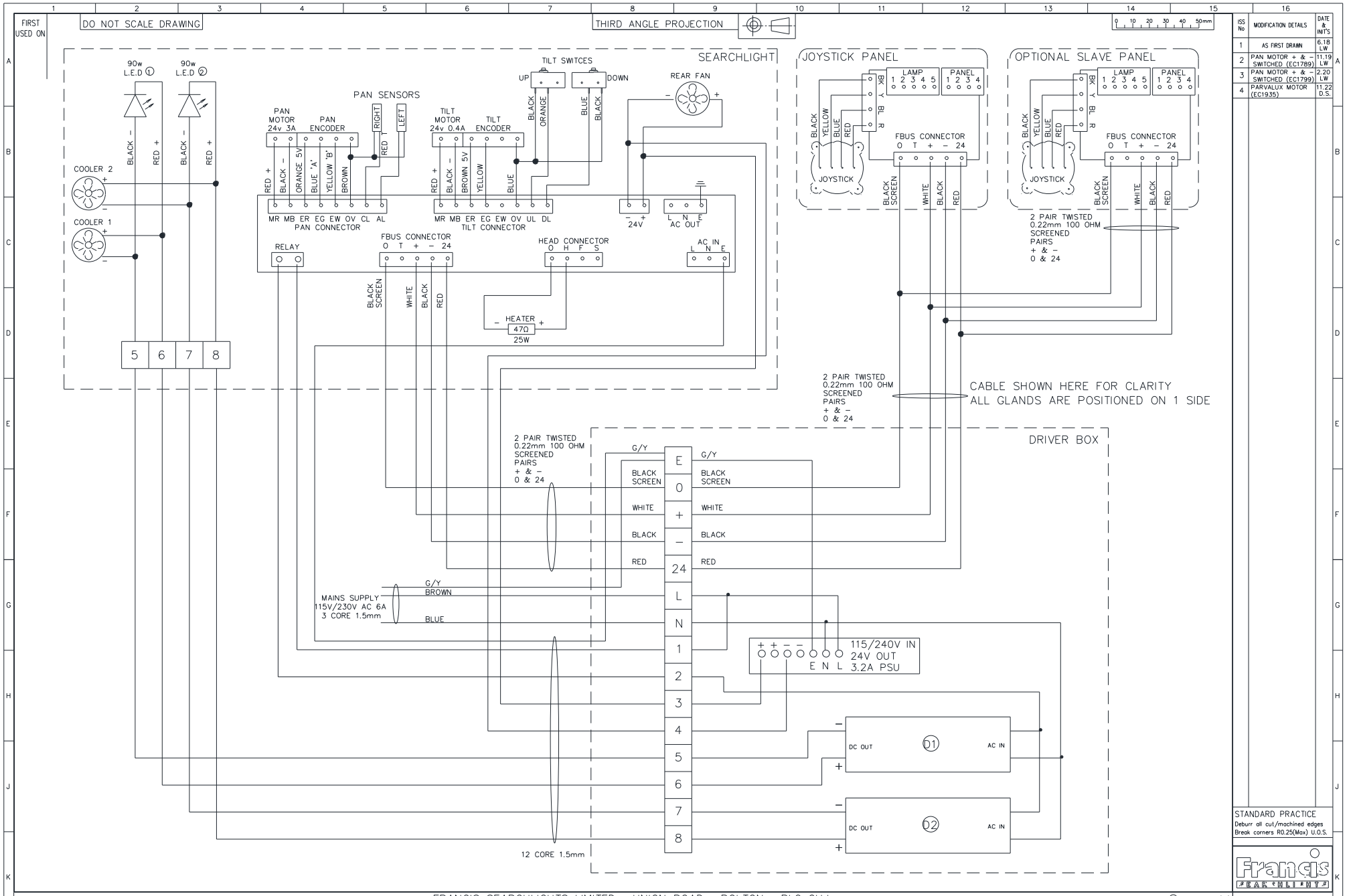
A1 CONT ON SHEET

DRAWN	D.S.	DATE	6.18	TOLERANCES	Sand Casting: To ISO 8062 CT10	MATERIAL	FINISH
CHECKED		SCALE	1:2	General: ±	Die Casting: To ISO 8062 CT8		
ALL DIMENSIONS IN MILLIMETRES				Angular: ±	Hole centres & posns: ±		

DESCRIPTION: VOYAGER 2 150W LED GA 2023

PART No./DRG No.: A7193

SHT 1



ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	6.18 LW
2	PAN MOTOR + & − SWITCHED (EC1789)	11.19 LW
3	PAN MOTOR + & − SWITCHED (EC1799)	2.20 LW
4	PARVALUX MOTOR (EC1935)	11.22 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	6.18
CHECKED		SCALE	

ALL DIMENSIONS IN MILLIMETRES

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

MATERIAL | FINISH | DESCRIPTION

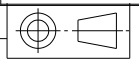
WIRING DIAGRAM (VL500 HV LED)

PART No./DRG No. C27828 SHT 1

FIRST USED ON

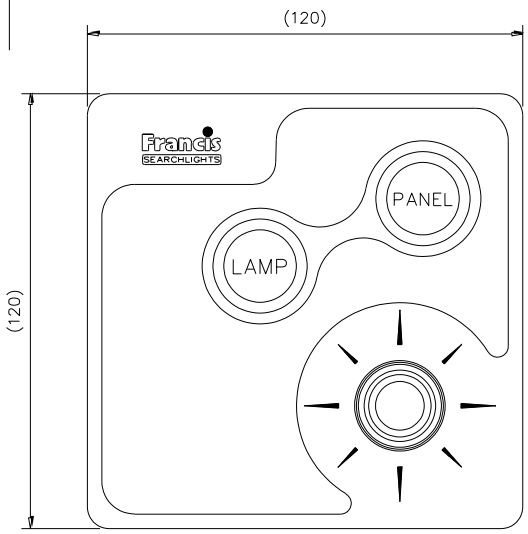
DO NOT SCALE DRAWING

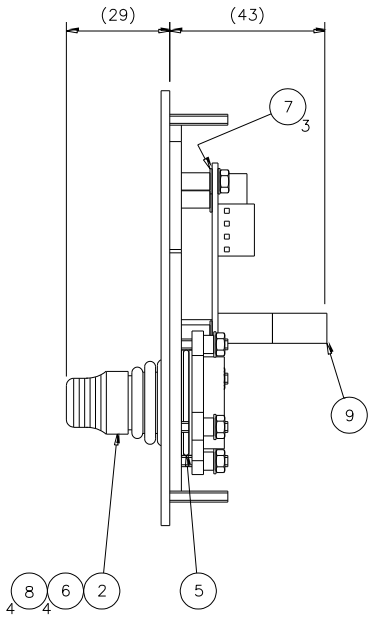
THIRD ANGLE PROJECTION

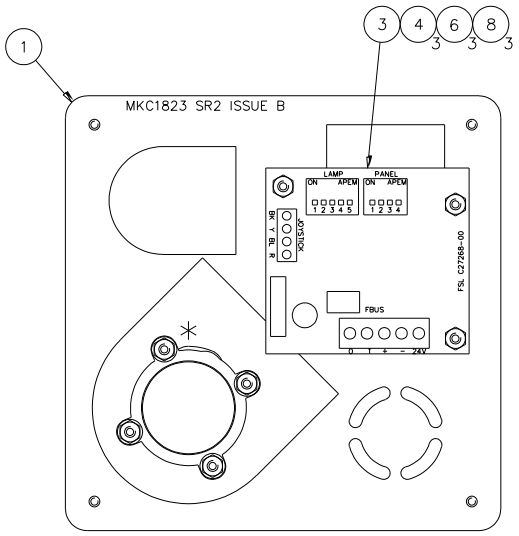


0 10 20 30 40 50mm

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.





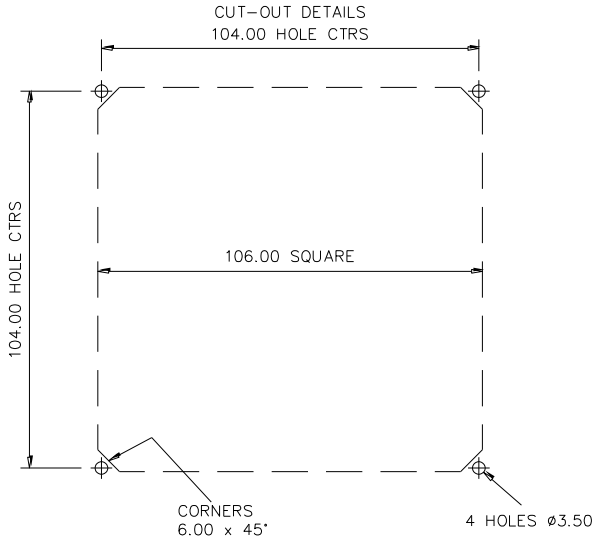


NOTES

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	C26529	C26528	CONTROL PANEL 2 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

2 BUTTON CONTROL PANEL ASSY (2017)

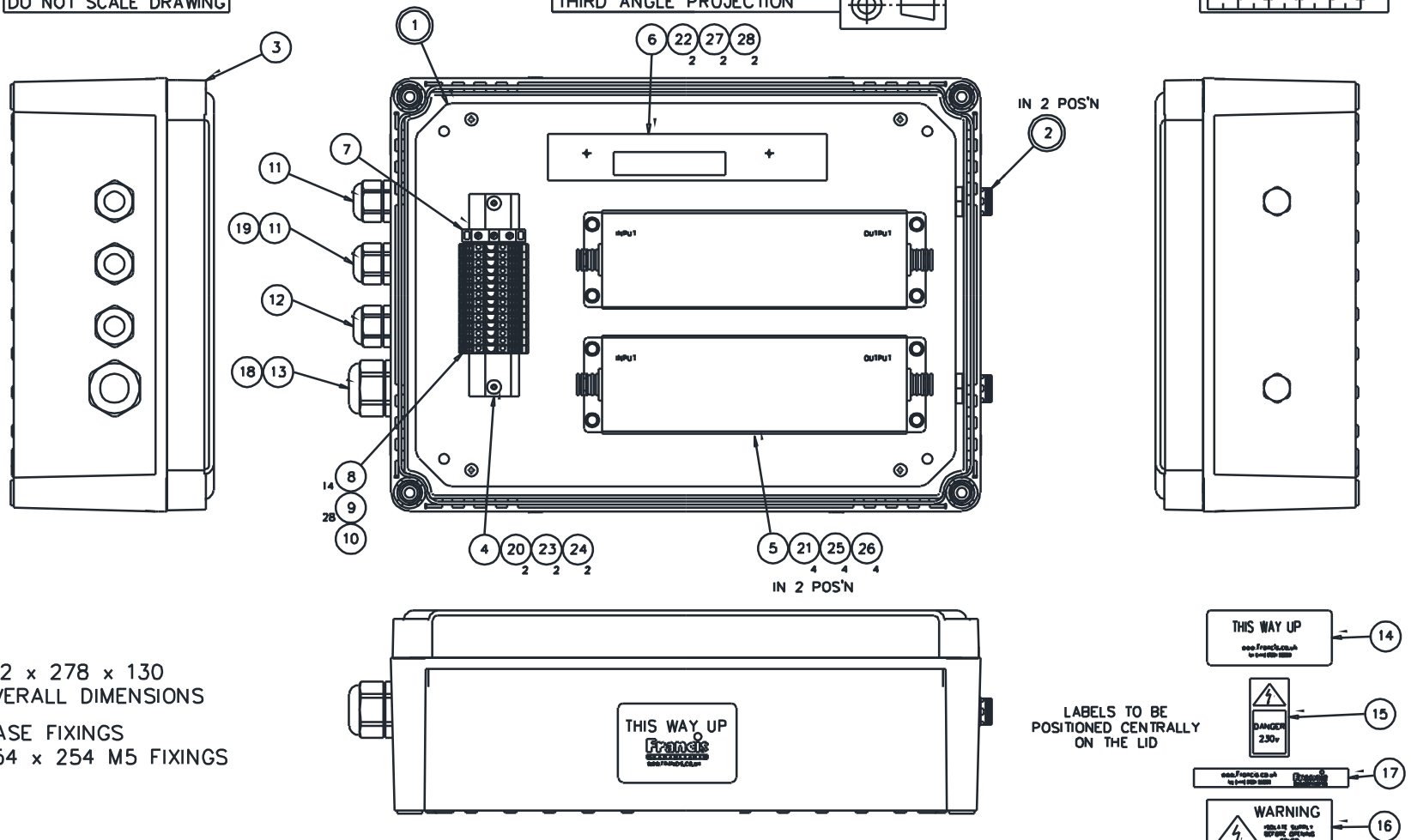
PART No./DRG No. C27313

SHT 1

FIRST USED ON VL500 A7193

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION



412 x 278 x 130
OVERALL DIMENSIONS

BASE FIXINGS
354 x 254 M5 FIXINGS

LABELS TO BE POSITIONED CENTRALLY ON THE LID

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C27840	C27839	CHASSIS PLATE S/ASSY	1
2	C22268		BREATHER UNIT ASSY	2
3	C27841	C27841	ENCLOSURE DRILLING	1
4	C17223	X4965	DIN RAIL	1
5	C27699		L.E.D DRIVER	2
6	C29162		24V PSU	1
7	C14379		EARTH TERMINAL	1
8	C14400		TERMINAL	14
9	C15411		TERMINAL MARKER	28
10	C14139		END COVER	1

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
11	C27121		CABLE GLAND	2
12	C10158		CABLE GLAND	1
13	C15450		CABLE GLAND	1
14	C24369		THIS WAY UP LABEL	2
15	C21464		230v LABEL	1
16	C22036		ISOLATE SUPPLY LABEL	1
17	C04900		FRANCIS EXTERNAL LABEL	1
18	C24618		12 CORE 1.5mm CABLE	4M
19	C24827		3 PAIR TWISTED SCREENED CABLE	4M
20	C09895		M5 x 10 BTN HD SCREW	2

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
21	C26955		M4 x 10 HEX HD SCREW	8
22	C10207		M3 x 8 BTN HD SCREW	2
23	C08392		M5 PLAIN WASHER	2
24	C09231		M5 S/C SPRING WASHER	2
25	C04376		M4 PLAIN WASHER	8
26	C08793		M4 S/C SPRING WASHER	8
27	C08028		M3 PLAIN WASHER	2
28	C10207		M3 S/C SPRING WASHER	2
29				
30				

ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	6.15 LW
2	NEW DRIVER & CHASSIS PLATE (EC1776)	8.19 LW
3	MAINS CABLE REMOVED & CABLE TO JOYSTICK REMOVED (EC1838)	7.20 LW
4	C29162 WAS C26545 & CHASSIS PLT MOD (EC1925)	9.22 J.H.
5	C29162 24V PSU FIXING M3 WAS M4 (EC2086)	6.25 H.E.C

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

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A2 CONT ON SHEET

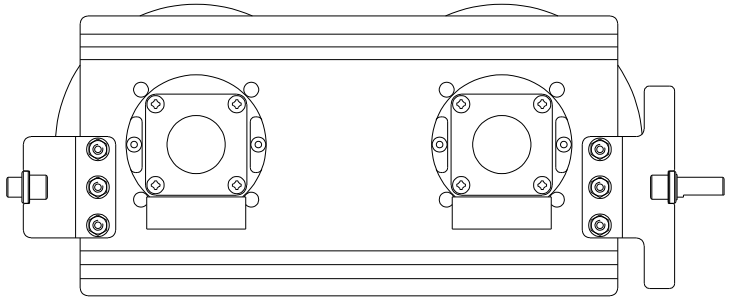
DRAWN	LW	DATE	6.18	TOLERANCES	Sand Casting: To ISO 8062 CT10	MATERIAL	FINISH	DESCRIPTION	PART No./DRG No. / SHT
CHECKED		SCALE	1:2	General: ±	Die Casting: To ISO 8062 CT8			DRIVER ENCLOSURE ASSY (VL500 150w)	C27842 / 1
ALL DIMENSIONS IN MILLIMETRES				Angular: ±	Hole centres & posns: ±				

FIRST USED ON VOYAGER 2 150W LED A7193

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

0 10 20 30 40 50mm



STORE ALL SCREWS SAFELY FOR RE ATTACHING

1...LOOSEN & REMOVE THE FIVE M8 SOCKET BOLTS WITH THE DUBO WASHERS THAT ARE LOCATED BENEATH THE SEARCHLIGHT HEAD SEE SHEET ONE FOR DETAILS

2...REMOVE THE UPPER HOOD OFF THE SEARCHLIGHT & STORE SAFELY ALONG WITH THE BOLTS AND WASHER IN A SAFE AREA

3...REMOVE THE REFLECTOR BY TWISTING IT OFF THE LED HOLDER

4...UNSCREW THE TWO M3 SCREWS THAT FASTEN THE LED HOLDER TO THE LED COOLER & REMOVE HOLDER

5...RELEASE THE WIRES OF LED THAT ARE CONNECTED TO THE REAR TERMINAL BLOCK, NOTING WERE THEY WERE CONNECTED

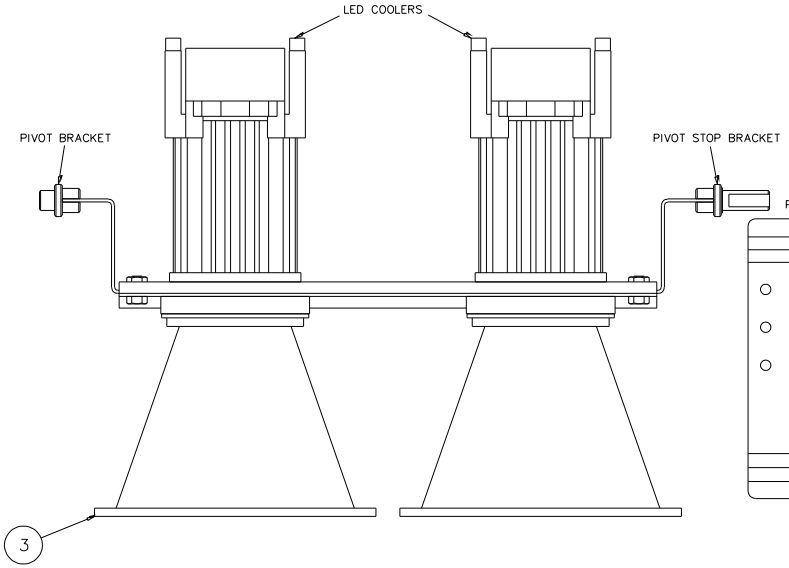
6...THE LED CAN NOW BE REMOVED BY PASSING THE WIRES THROUGH THE HOLES WITHIN THE REFLECTOR BRACKET
SOMETIMES THE OLD LED MAY HAVE TO BE PRISED OFF THE COOLER AS THE HEATSINK COMPOUND ACTS AS A ADHESIVE AFTER SEVERAL YEARS USE

7...BEFORE FITTING THE NEW LED ENSURE THE FIXING AREA ON THE COOLER HAS BEEN CLEANED & IS TOTALLY FREE OF DEBRIS

8...APPLY A SMALL BEAD OF THERMAL COMPOUND TO THE HEATSINK FACE & CAREFULLY SPREAD EVENLY BEFORE RE ATTACHING THE NEW LED

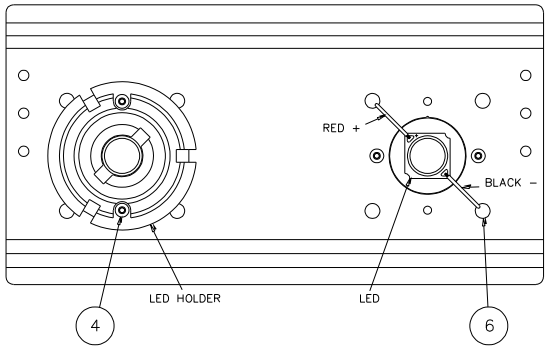
9...RECONNECT THE LED WIRES TO THE TERMINAL BLOCK BY FIRSTL PASSING THE CABLES THROUGH THE HOLES IN THE REFLECTOR PLATE

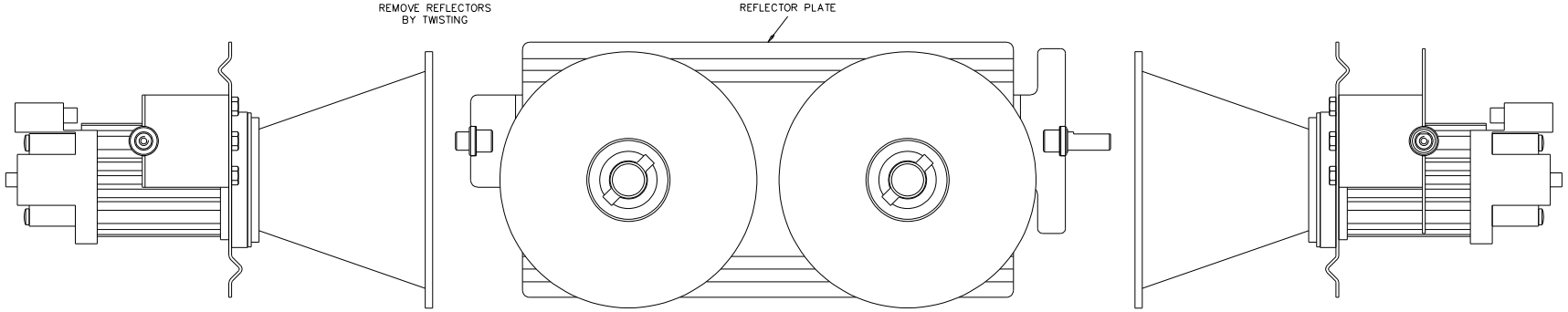
10...WHEN REPLACING THE SEARCHLIGHT HOOD ENSURE THE GROOVE IN THE HOOD ALIGNS CORRECTLY WITH THE GLASS GASKET
REPLACE THE BOLTS & WASHERS & ENSURE THEY ARE FASTENED SECURLY



VIEW WITH REFLECTOR & PIVOT BRACKETS REMOVED

VIEW REFLECTOR, PIVOT BRACKETS & LED HOLDER REMOVED





ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	2.2.23 D.S.

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

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DRAWN	D.S.	DATE	15.2.23	TOLERANCES	Sand Casting: To ISO 8062 CT10	MATERIAL	FINISH
CHECKED		SCALE	1:1	General: ±	Die Casting: To ISO 8062 CT8		
ALL DIMENSIONS IN MILLIMETRES				Angular: ±	Hole centres & posns: ±		

DESCRIPTION: LED REPLACEMENT INSTRUCTIONS (SHEET 1)

PART No./DRG No. C27862 SHT 1

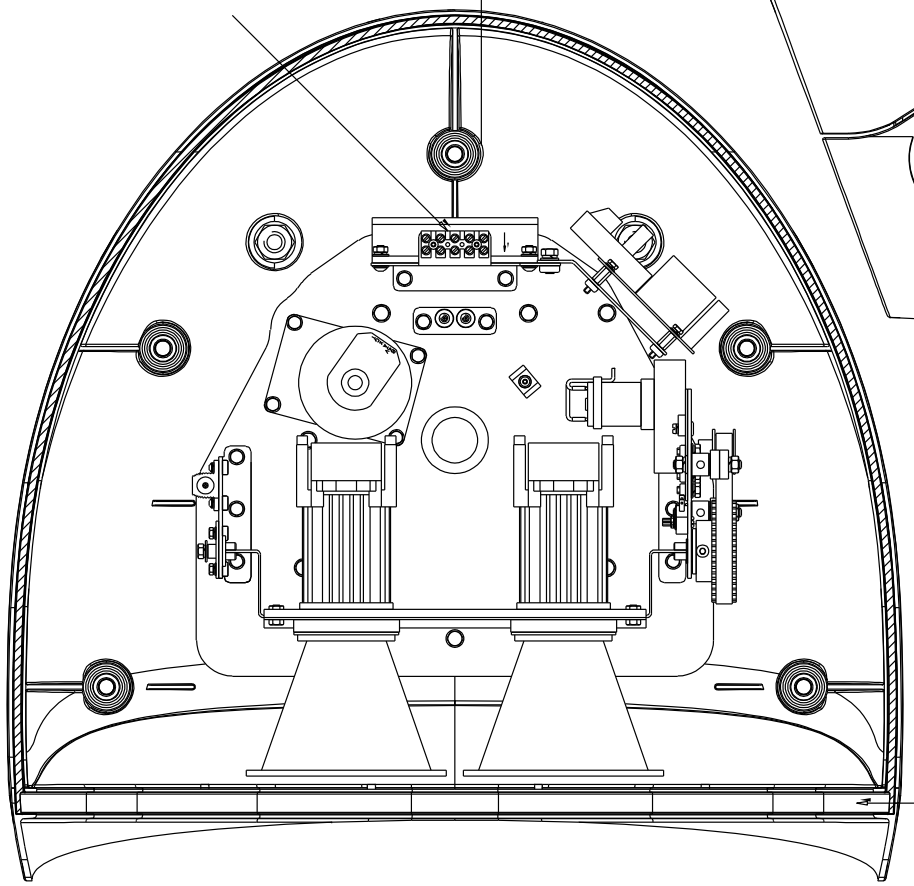
FIRST USED ON VOYAGER 2 150W LED A7193

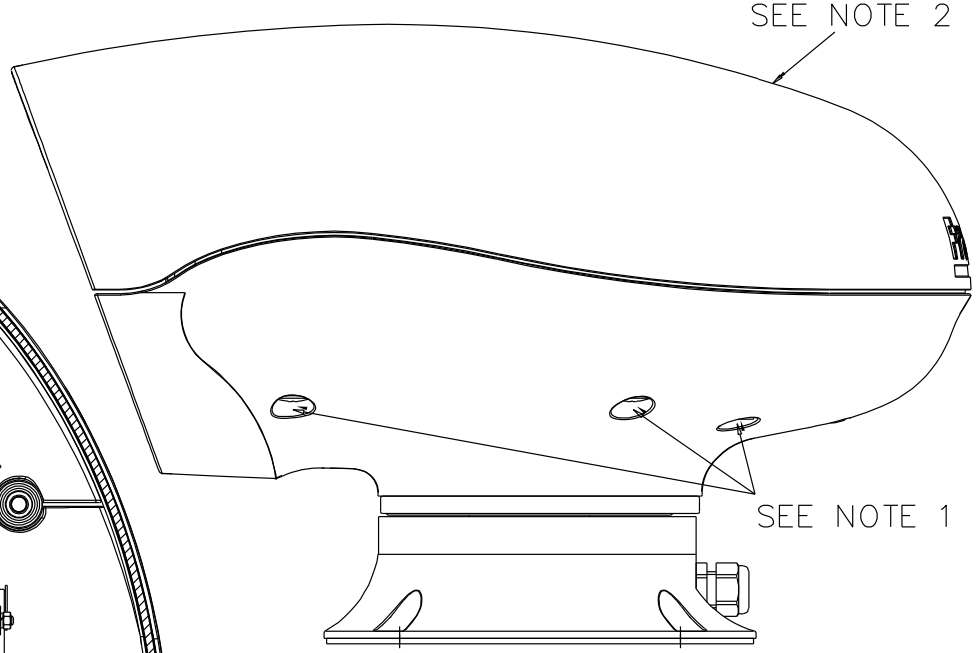
DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

0 10 20 30 40 50mm

ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	2.23 D.S.





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

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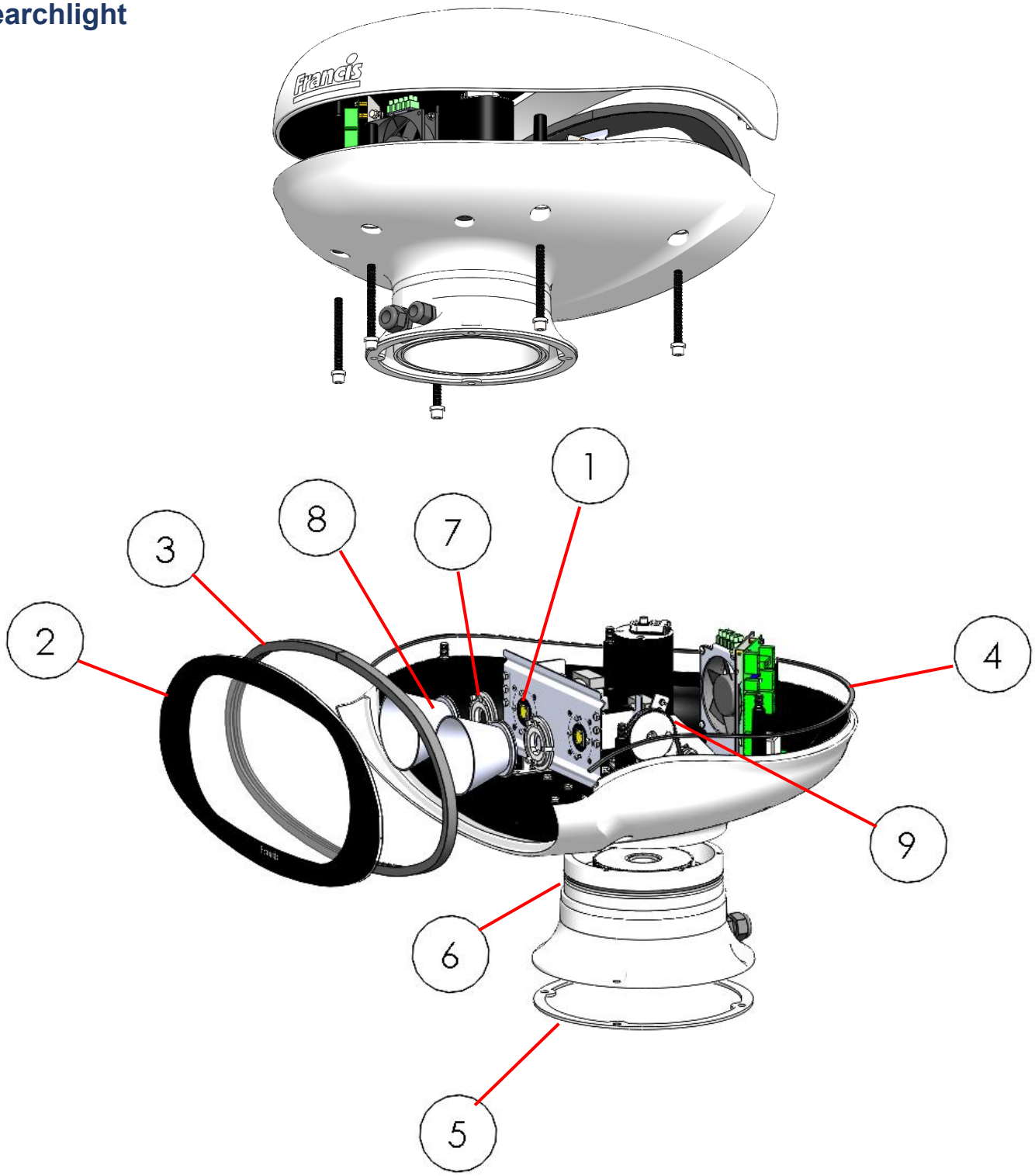
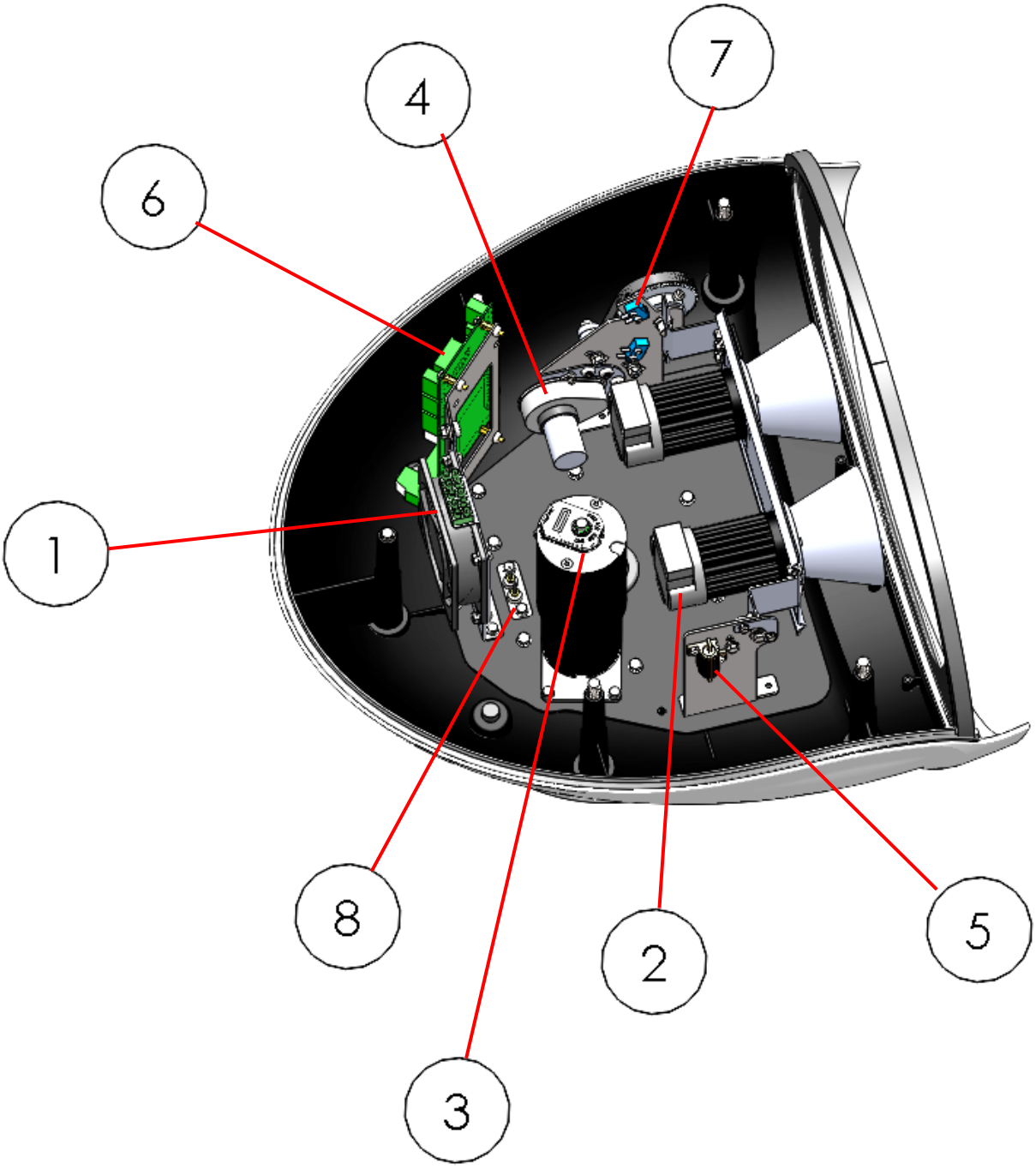
DRAWN	D.S.	DATE	2.23	TOLERANCES	Sand Casting: To ISO 8062 CT10	MATERIAL	FINISH	DESCRIPTION	PART No./DRG No.
CHECKED		SCALE	1:2	General: ±	Die Casting: To ISO 8062 CT8			LED REPLACEMENTS INSTRUCTIONS (SHEET 2)	C27862
ALL DIMENSIONS IN MILLIMETRES				Angular: ±	Hole centres & posns: ±				SHT 2

Searchlight



Item Number	Part Number	Description	Quantity
1	C28068-01	LED Replacement Kit	2
2	C26139-00	Front Glass	1
3	C26184-00	Front Glass Gasket	1
4	C26183-00	Sealing Strip Gasket	1
5	C26475-00	Base Gasket	1
6	C23808-00	Base ‘O’ Ring	1
7	C27013-00	LED Holder	2
8	C27014-00	Reflector	2
9	C26843-00	Pulley Belt	1

Searchlight



Item Number	Part Number	Description	Quantity
1	C27820-00	Fan	1
2	C27835-01	Cooler	2
3	C29521-01	Pan Motor Assembly	1
4	C28654-01	Tilt Motor Assembly	1
5	C27288-00	Heater	1
6	C29536-01	Speed Controller PCB	1
7	C27650-00	Tilt Microswitch	2
8	C25022-00	Proximity Switch	2

10 - Spare Parts List

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

Part Number	Description
Searchlight Spares	
C28068-01	LED Replacement Kit
C27835-01	Cooler
C27014-00	Reflector
C27013-00	LED Holder
C27820-00	Fan
C26139-00	Front Glass
C26184-00	Front Glass Gasket
C26183-00	Sealing Strip Gasket
C26475-00	Mounting Base Gasket
C23808-00	Base ‘O’ Ring
C28025-01	Focus Motor Assembly
C28654-01	Tilt Motor Assembly
C29521-01	Pan Motor Assembly
C27288-00	Heater
C26843-00	Pulley Belt
C29536-01	Speed Controller PCB
C27650-00	Tilt Micro Switch
C25022-00	Proximity Switch (Pan)
Driver Box Spares	
C27699-01	Driver
C29162-00	24v PSU Converter
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 find on the driver box name plate. This will enable a fast response to your spares’ requirements.