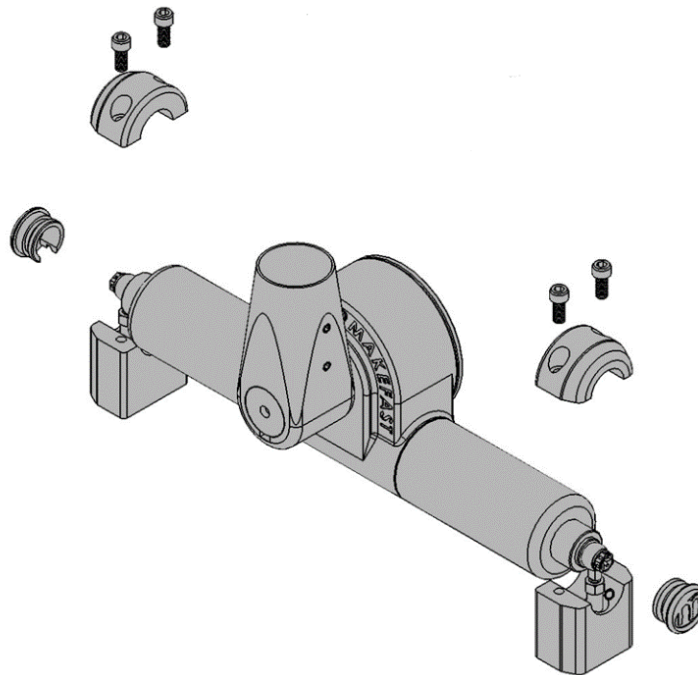


# MAKEFAST GROUP

## Bimini Owners Manual

*Installation and User manual*



---

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VERSION 00

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**SAFETY**



DO NOT USE THE EQUIPMENT ABOVE +50°C (+122°F)



DO NOT USE THE EQUIPMENT BELOW -15°C (+5°F)



RISK OF ELECTRIC SHOCK



SOME PARTS CAN BE RECYCLED



INSTALLATION/USER MANUAL, READ BEFORE OPERATING THE EQUIPMENT



HIGH PRESSURE OIL CAN CAUSE SEVERE INJURY

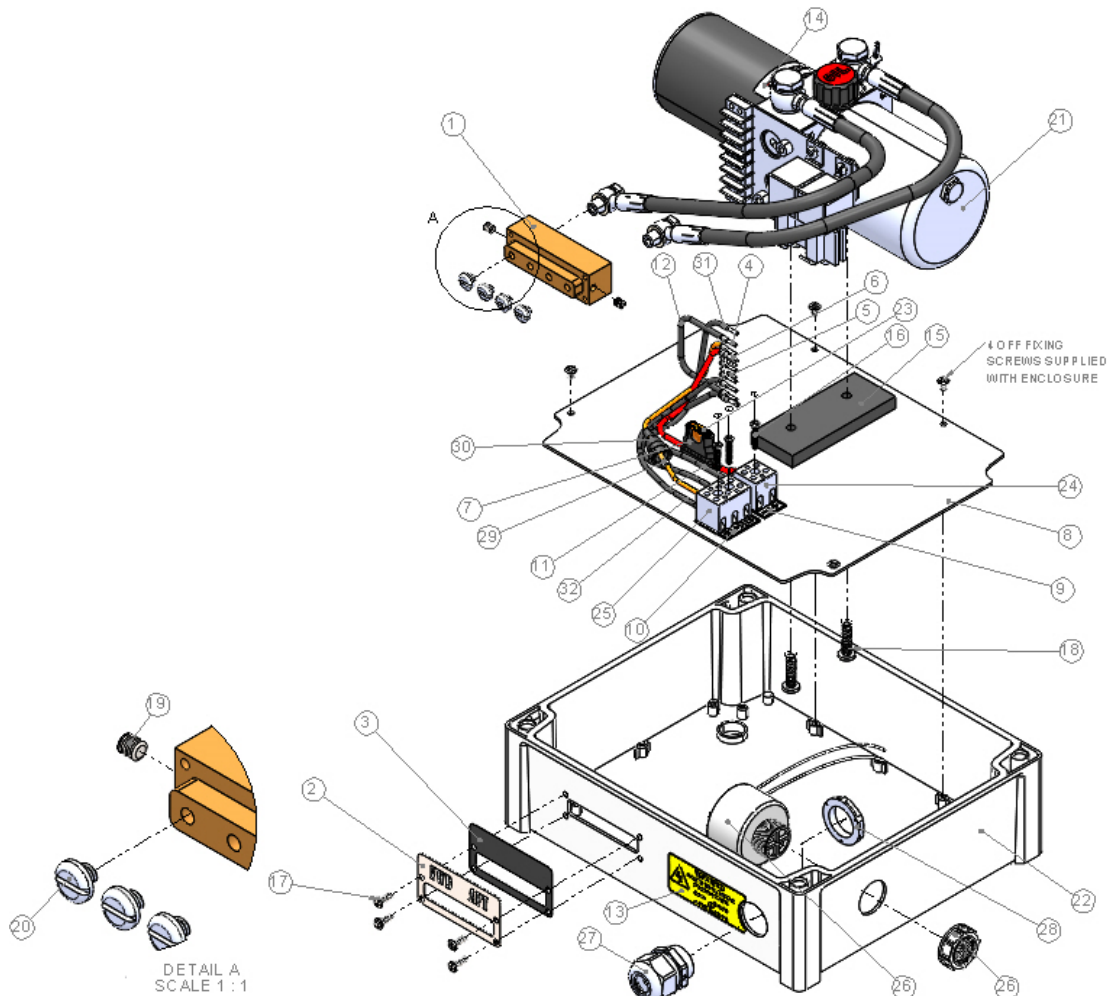


SPECIAL WARNING, READ CAREFULLY

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**BIMINI HYDRAULIC UNIT (12V) OVERVIEW**

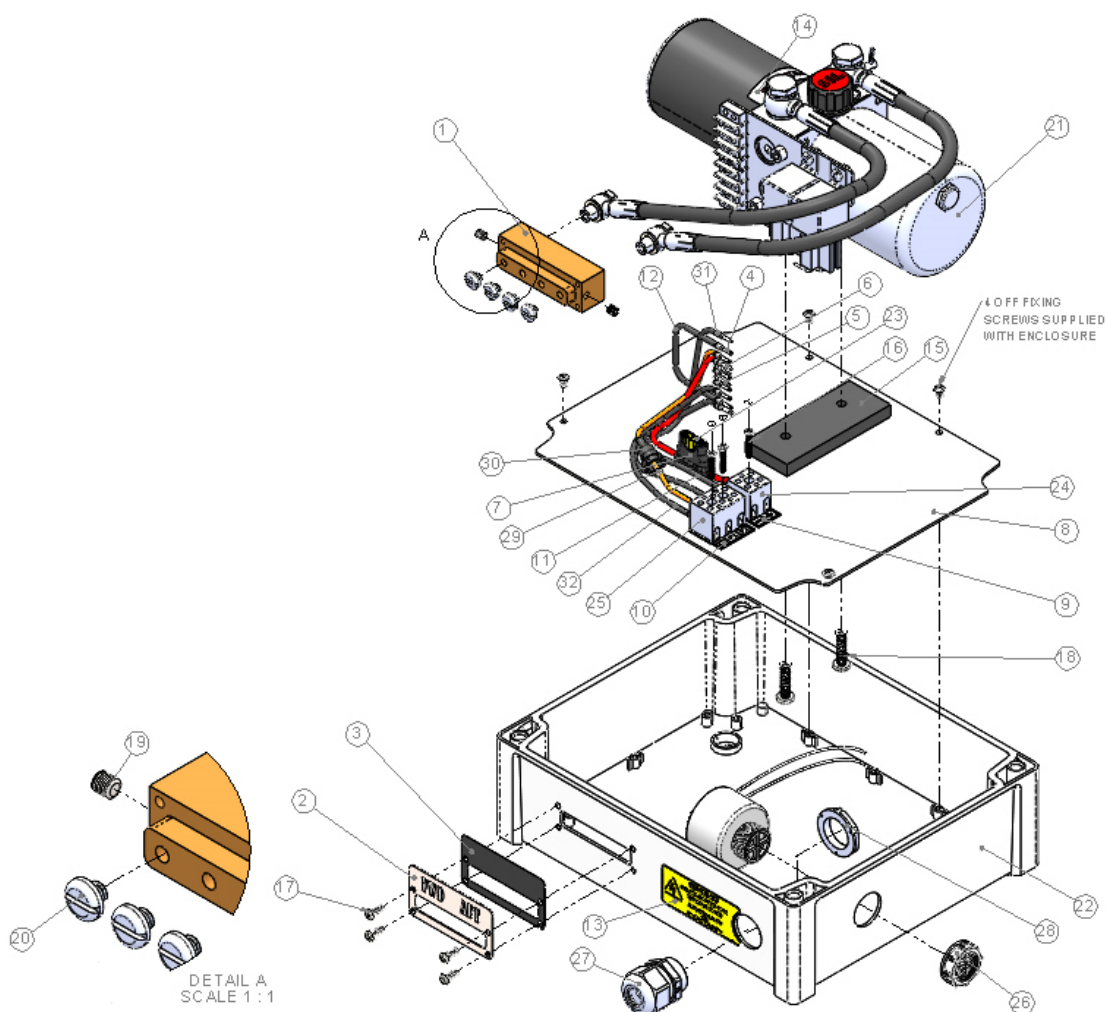


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	LENGTH	ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	LENGTH
1	HPU-001-12	MANIFOLD BLOCK	1		16	ZSM03PP20	M3X20MM PAN HEAD BOLT A4	3	
2	HPU-001-17	LEGEND PLATE	1		17	ZSM04P12	M4 X 12mm PAN HEAD BOLT	4	
3	HPU-001-4	LEDGER PLATE GASKET	1		18	ZSM06P25	M6X25 POZI-PAN M/C SCREW A4	2	
4	V45161	INSULATED CRIMP BOOTLACE FERRULE, BLACK, 8mm PIN LG, 2mm PIN DIA, 1.5MM <sup>2</sup> WIRE	10		19	ZSM06PGS06	M6X6MM GRUB SCREW A4	2	
5	V45162	INSULATED CRIMP BOOTLACE FERRULE, WHITE, 8mm PIN LG, 1.3mm PIN DIA, 0.5MM <sup>2</sup> WIRE	2		20	ZZ050060500002	NYLON 66 SCREW 050060500002 (M6X5MM)	4	
6	V45163	INSULATED CRIMP BOOTLACE FERRULE, GREY, 8mm PIN LG, 2.6mm PIN DIA, 2.5MM <sup>2</sup> WIRE	4		21	ZZHP-PUMP-12V	HYDRAULIC POWER PACK (HPR1102HPRMSBXX8377)	1	
7	V48122	40A INLINE FUSE HOLDER (FGFGDFGQWW35)	1		22	ZZHPU-002M	FIBOX ABS ENCLOSURE MACHINED	1	
8	V48123	MOUNTING PLATE	1		23	ZZRS2193570	40A BLADE FUSE RS 219-3570	1	
9	V48124	POWER CONNECTION TERMINAL DECAL	1		24	ZZRS220853	2 WAY NON-FUSED TERMINAL BLOCK (220-853) (2716020)	1	
10	V48125	SWITCH CONNECTION TERMINAL DECAL	1		25	ZZRS220904	3 WAY, NON-FUSED TERMINAL BLOCK (828-9037) (8716033)	1	
11	V48126	BLACK TRI-RATED CABLE, 2.5MM <sup>2</sup>	1	0.160M	26	ZZRS430091	SOUNDER SPS-04-928VA-WHITE	1	
12	V48126	BLACK TRI-RATED CABLE, 2.5MM <sup>2</sup>	1	0.090M	27	ZZRS4442953	M25X1.5 CABLE GLAND	1	
13	V48131	WARNING/ELECTRICAL SUPPLY DECAL	1		28	ZZRS4443007	M25X1.5 CABLE GLAND LOCK NUT	1	
14	V48135	NON REVERSIBLE TEMPERATURE LABEL	1		29	ZZRS563453	1.5A GLASS CARTRIDGE FUSE	1	
15	V48137	SPACER	1		30	ZZRS7032815	IN-LINE FUSE HOLDER	1	
					31	ZZRS7174173	BLACK TRI-RATED CABLE, 1.5MM <sup>2</sup>	1	0.230M
					32	ZZRS7174173	BLACK TRI-RATED CABLE, 1.5MM <sup>2</sup>	1	0.180M

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**BIMINI HYDRAULIC UNIT (24V) OVERVIEW**



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	LENGTH
1	HPU-001-12	MANIFOLD BLOCK	1	
2	HPU-001-17	LEGEND PLATE	1	
3	HPU-001-4	LEDGER PLATE GASKET	1	
4	V45161	INSULATED CRIMP BOOTLACE FERRULE, BLACK, 8mm PIN LG, 2mm PIN DIA, 1.5MM <sup>2</sup> WIRE	10	
5	V45162	INSULATED CRIMP BOOTLACE FERRULE, WHITE, 8mm PIN LG, 1.3mm PIN DIA, 0.5MM <sup>2</sup> WIRE	2	
6	V45163	INSULATED CRIMP BOOTLACE FERRULE, GREY, 8mm PIN LG, 2.6mm PIN DIA, 2.5MM <sup>2</sup> WIRE	4	
7	V48122	40A INLINE FUSE HOLDER (FGFGDFGQWW35)	1	
8	V48123	MOUNTING PLATE	1	
9	V48124	POWER CONNECTION TERMINAL DECAL	1	
10	V48125	SWITCH CONNECTION TERMINAL DECAL	1	
11	V48126	BLACK TRI-RATED CABLE, 2.5MM <sup>2</sup>	1	0.160M
12	V48126	BLACK TRI-RATED CABLE, 2.5MM <sup>2</sup>	1	0.090M
13	V48131	WARNING/ELECTRICAL SUPPLY DECAL	1	
14	V48135	NON REVERSIBLE TEMPERATURE LABEL	1	
15	V48137	SPACER	1	

ITEM NO	PART NUMBER	DESCRIPTION	QTY	LENGTH
16	ZSM03PP20	M3X20MM PAN HEAD BOLT A4	3	
17	ZSM04P12	M4 X 12mm PAN HEAD BOLT	4	
18	ZSM06P25	M6X25 POZI-PAN M/C SCREW A4	2	
19	ZSM06PGS06	M6X6MM GRUB SCREW A4	2	
20	ZZ050060500002	NYLON 66 SCREW 050060500002 (M6X5MM)	4	
21	ZZHP-PUMP-24V	HYDRAULIC POWER PACK (HPR2102HPRMSBXX8550)	1	
22	ZZHPU-002M	FIBOX ABS ENCLOSURE MACHINED	1	
23	ZZRS2200842	20A BLADE FUSE RS 787-4136	1	
24	ZZRS220853	2 WAY NON-FUSED TERMINAL BLOCK (220-853) (2716020)	1	
25	ZZRS220904	3 WAY, NON-FUSED TERMINAL BLOCK (828-9037) (8716033)	1	
26	ZZRS430091	SOUNDER SPS-04-928VA-WHITE	1	
27	ZZRS4442953	M25X1.5 CABLE GLAND	1	
28	ZZRS4443007	M25X1.5 CABLE GLAND LOCK NUT	1	
29	ZZRS563453	1.5A GLASS CARTRIDGE FUSE	1	
30	ZZRS7032815	IN-LINE FUSE HOLDER	1	
31	ZZRS7174173	BLACK TRI-RATED CABLE, 1.5MM <sup>2</sup>	1	0.230M
32	ZZRS7174173	BLACK TRI-RATED CABLE, 1.5MM <sup>2</sup>	1	0.180M

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**SAFETY**

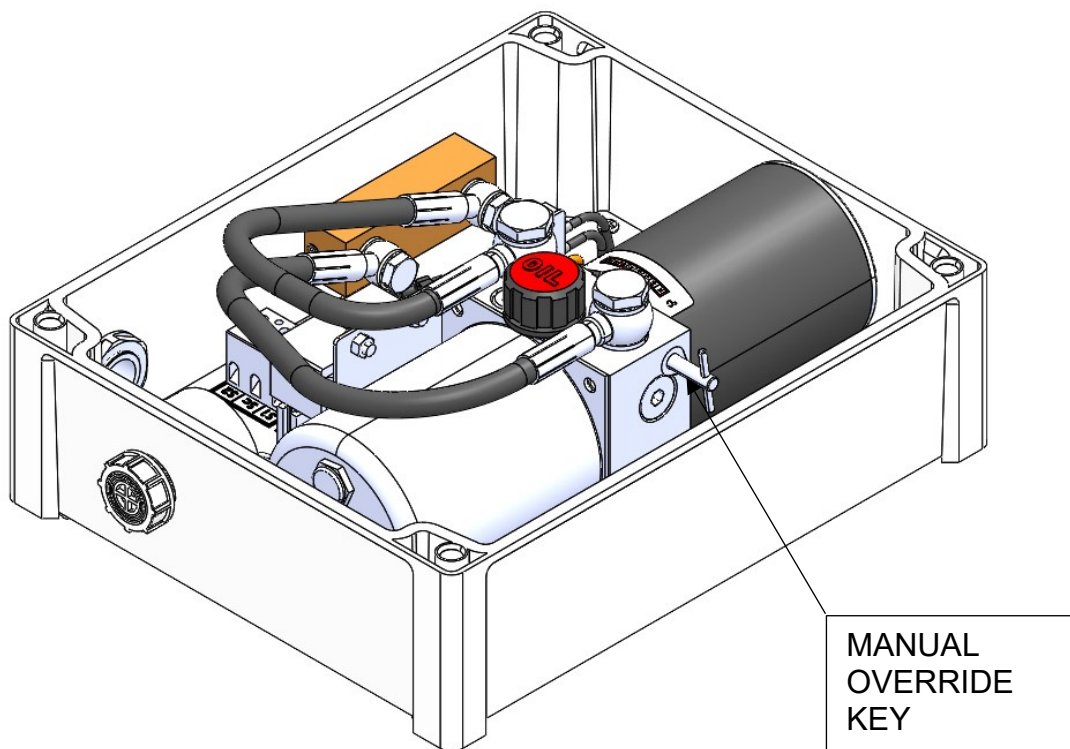
**This equipment should only be installed by authorised & competent personnel**

The user is responsible to third parties for all matters resulting from use of this equipment. improper use could result in;

- danger to life and limb
- risk of electric shock
- damage to property or other system components
- reduced performance for which it was intended

**Important – manual override**

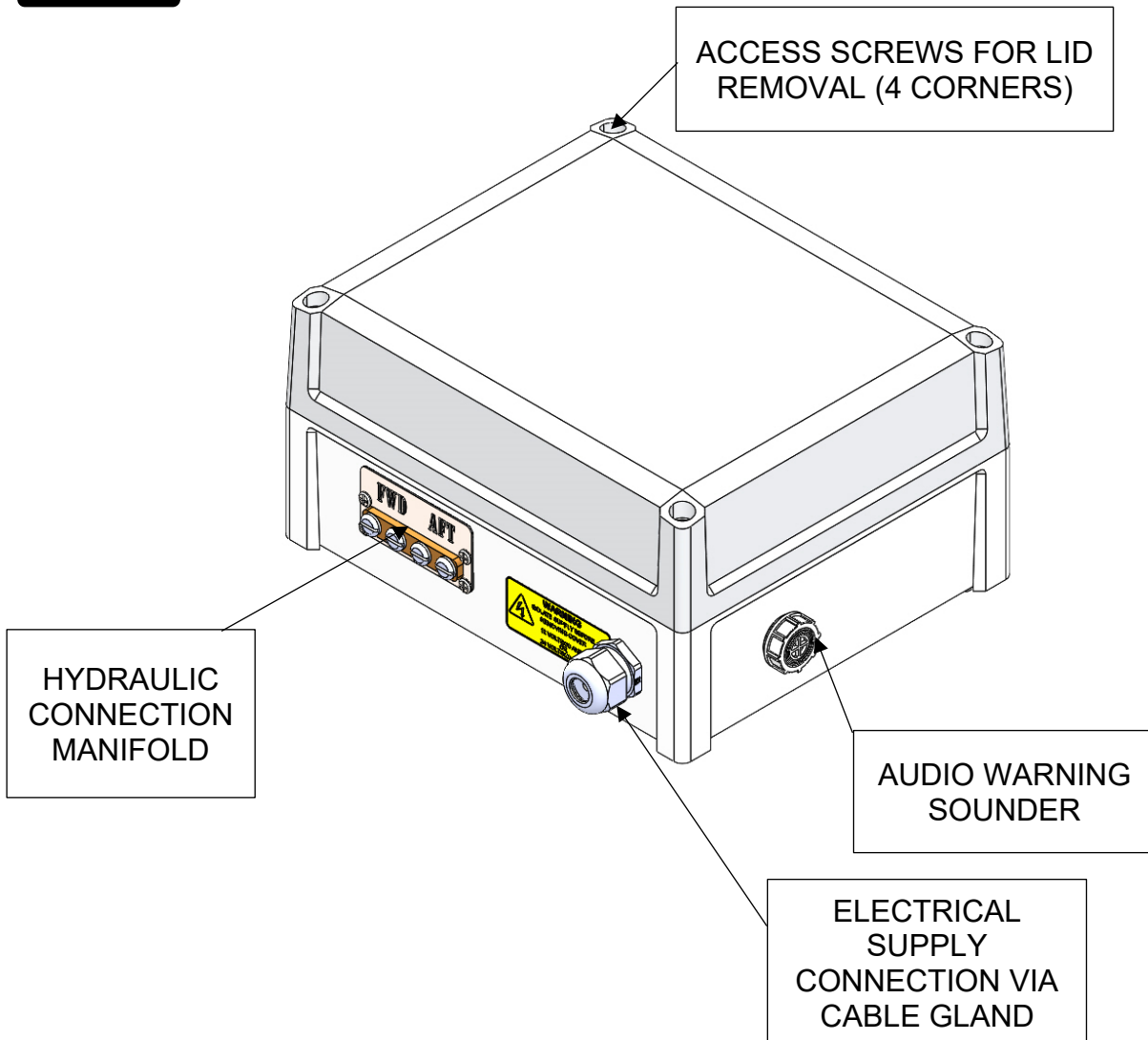
in the event of a system failure, the canopy, bathing platform or anchor handler can be manually operated by removing to cover from the unit & winding the key in an anti-clockwise direction. the key is located on the rear face of the block as indicated below. once opened this will allow the equipment to be pushed back into the stowed position.

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## INSTALLATION

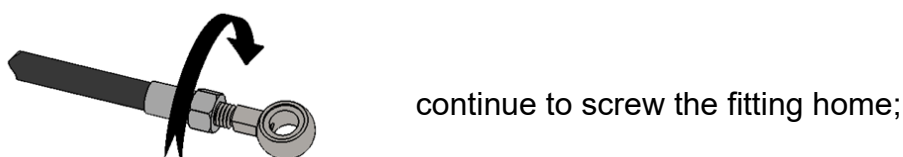
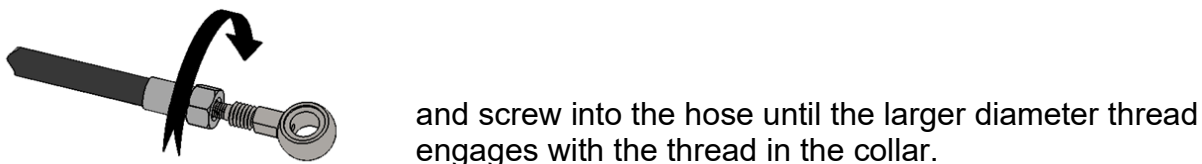
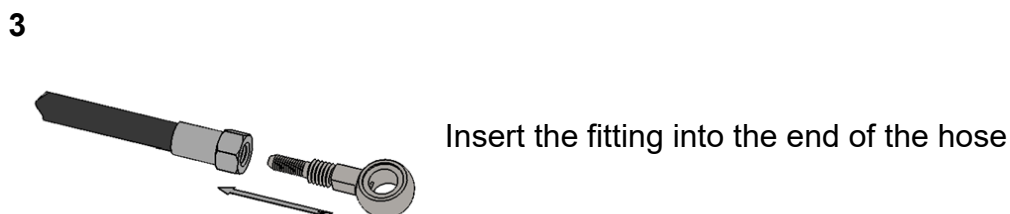
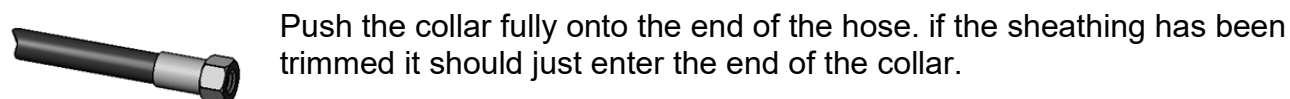
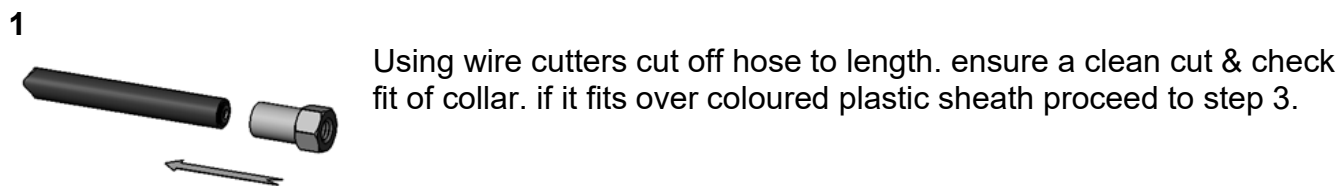
This equipment should only be installed by authorised & competent personnel



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## ASSEMBLY OF HYDRAULIC HOSES AND FITTINGS



### Legal note:

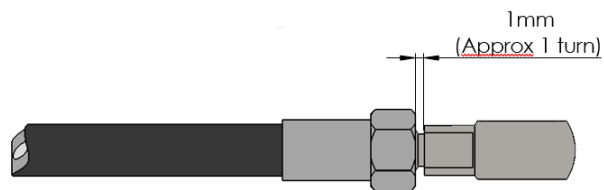
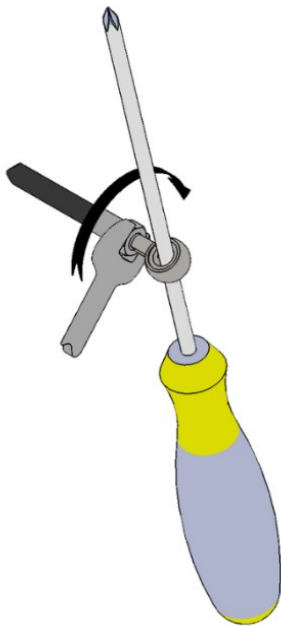
Installation and repair of MAKEFAST Ltd sunroofs and canopies must only be undertaken by MAKEFAST authorised engineers, using approved technical information, tools, and spares. MAKEFAST installations and service instructions must always be referenced during repairs and maintenance. MAKEFAST does not accept any liabilities for defect or damages caused by maintenance or repair by un-authorized parties.



**ASSEMBLY OF HYDRAULIC HOSES AND FITTINGS (Continued)****4**

finally tighten using an 8mm spanner on the collar and a screw driver or bar through the banjo. **do not overtighten.**

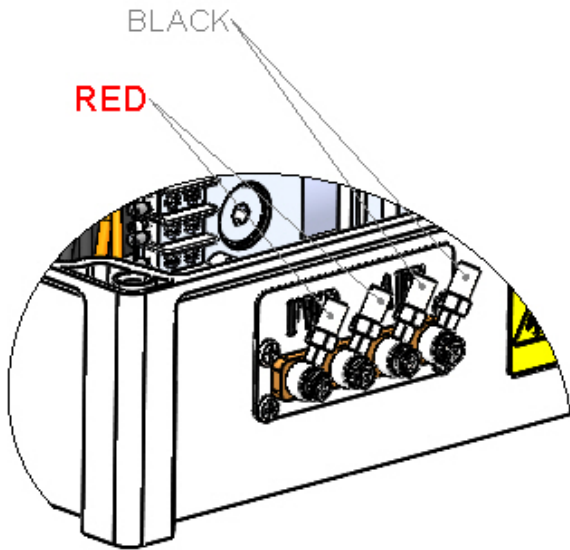
Back off the fitting about 1 turn, this will allow the banjo to twist as required on installation.

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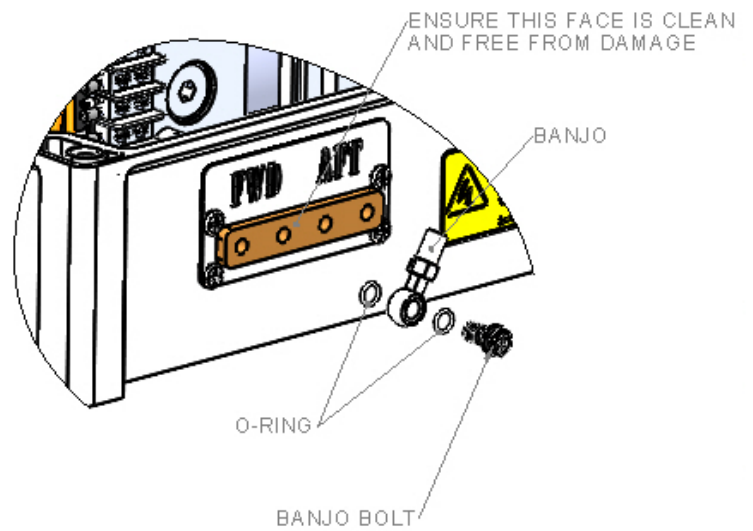
**HYDRAULIC HOSE CONNECTIONS**

After assembly of the hose fittings, connect the hoses to the actuator cylinder or the hydraulic connection manifold as showing in **fig 1**. Ensure O-rings are seated correctly, and all interfaces are clean and free from damage. Tighten banjo bolts firmly but **do not overtighten**.



HOSE CONNECTIONS  
 HOSES SHOULD BE CONNECTED SO THAT THE SAME ENDS OF EACH ACTUATOR ARE CONNECTED TO **FWD & AFT** OTHERWISE ACTUATORS WILL OPERATE IN THE OPPOSITE DIRECTIONS

**FIG 1**

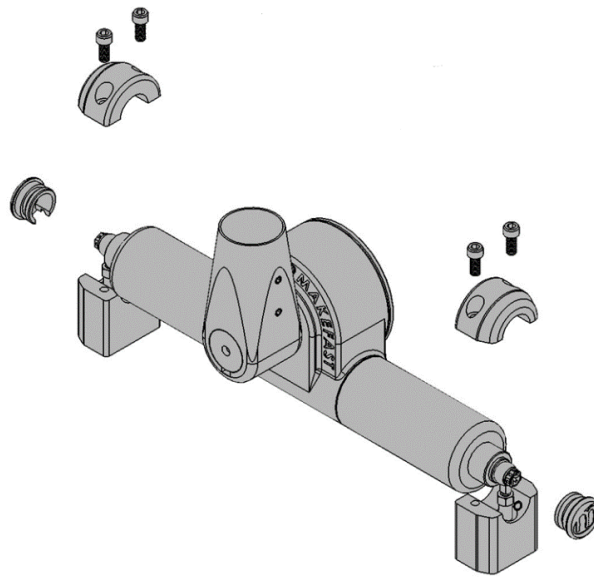


**FIG 2**

**Legal note:**

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## ACTUATOR INSTALLATION



When supplied the ram will be at one end of its stroke. Tighten the banjo bolt **finger tight only** at this stage.

Align the hoses centrally in the mounting brackets, settle the cylinders into the seating's and fit the ring clamps. fully tighten banjo fittings

Turn the actuator in the mountings to achieve basic port-starboard alignment then tighten the clamp bolts. tap the covers into place. Adjustment of these initial alignments may need further adjustment.

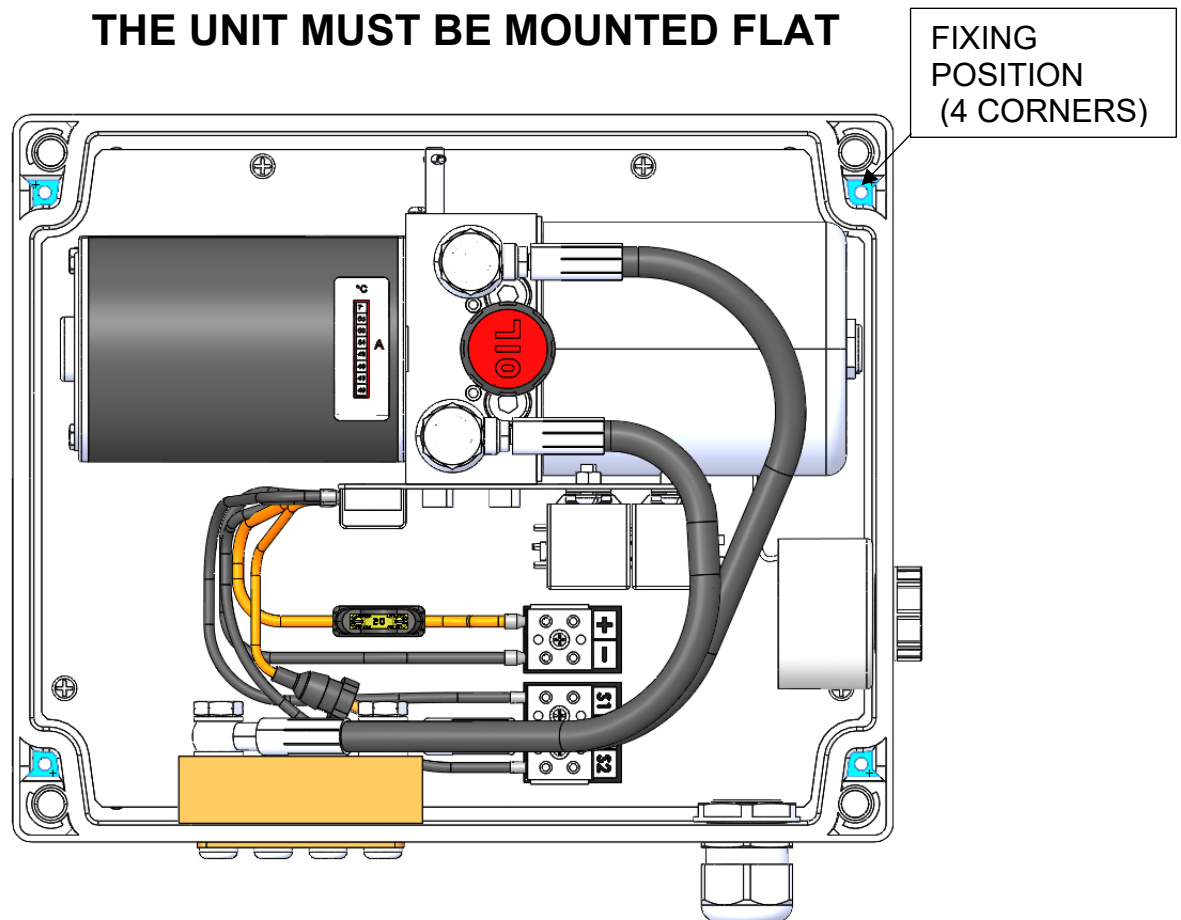
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## BIMINI HYDRAULIC UNIT INSTALLATION

Install the hydraulic pump unit in a convenient, accessible and ventilated position (where the unit will not be exposed to excessive ambient temperatures) and secure with 4 fixings through the holes illustrated below:



**ENSURE THE MANUAL OVERRIDE KEY REMAINS ACCESSIBLE IN CASE OF AN EMERGENCY (SEE PAGE 5).**

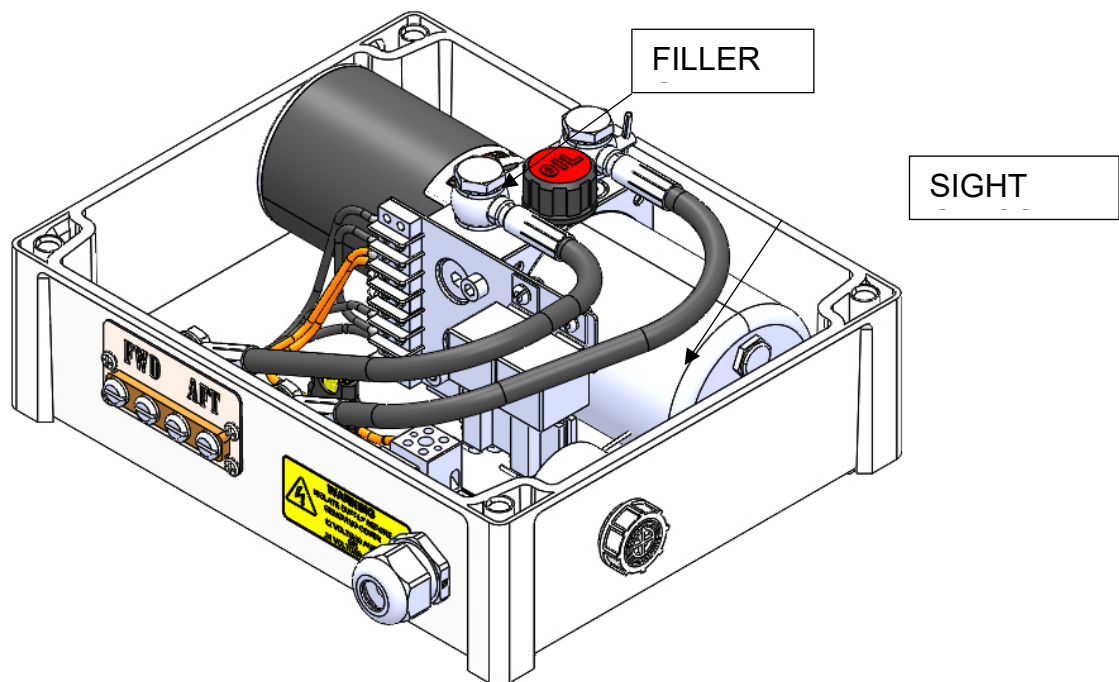
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## COMMISSIONING

Although the pump will contain some hydraulic fluid, this will need to be topped up once all hydraulic connections have been made (see pages 7 & 8).

**Do not attempt to operate the pump with insufficient hydraulic fluid present** the filler cap and sight glass locations are in the illustration below:



Unscrew the filler cap and add hydraulic fluid (**see technical data for oil specification**) until the level can be seen in the sight glass. The red dot in the centre of the sight glass can be used as a 'fill to' indicator. **Do not overfill.**

Once the hydraulic fluid is sufficiently topped up, all hydraulic and electrical connections have been made **and checked**, check the pump motor operates in both directions by briefly operating the main switch.

Proceed to remove air from the hydraulic system and continue to top up the hydraulic fluid as necessary. only operate the pump in line with its operating parameters (see page 13). **Do not continue to operate the pump if the movement of the equipment stops, gets jammed or reaches the end of its expected travel. doing so may cause the motor to burn out.** Operate the main switch in the desired direction to traverse the actuator output shafts.

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**NOTE**

Installations with long hoses may take some time to 'pick up' and some foaming of the hydraulic fluid in the pump tank is likely. Stop operation periodically to allow this to subside. Continue to monitor the hydraulic fluid level via the sight glass and top up as necessary.

Continue to operate the actuators back and forth until all air is fully removed from the system and the oil level is consistent. All hydraulic connections should be checked for leaks. **Do not continue to operate the pump if the movement of the equipment stops, gets jammed or reaches the end of its expected travel. Doing so may cause the motor to burn out.**

**The pump may have become warm whilst carrying out the bleeding process, if this is the case allow the pump to cool down before continuing operation.**

**Use the thermal indicator located on the body of the pump to monitor the temperature during installation (& general operation) ensuring the maximum allowable temperature is not exceeded.**

**Do not remove this label as this may invalidate your warranty.**

**Note**

The actuators will not be properly synchronized until they are operating together under load.

When all appears satisfactory, fit the main frame of the canopy into the tube sockets. Fit the canopy and test the system under load, this will synchronize the actuators and complete the installation.

**Replace the filler cap securely.**

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## AUDIO WARNING SOUNDER

The audio warning sounder tone and volume can be adjusted (see table below) or silenced if required. To do this the sounder must be disconnected from the terminal block on the pump unit (refer to the wiring diagrams on pages 15 & 16).



**The audio sounder is a safety device intended to alert persons to the operation of the bhu, if silenced (disconnected) the user does so at their own risk & makefast accept no liability.**

Use this table to select the desired tone. these are selectable on the rear of the sounder unit, as is the volume selection.

No.	Tones	Code 12345
1	Alternating 800/970 Hz at 2 Hz	11111
2	Sweeping 800/970 Hz at 7 Hz	11110
3	Sweeping 800/970 Hz at 1 Hz	11101
4	Continuous at 2850 Hz	11100
5	Sweeping 2400-2850 Hz at 7 Hz	11011
6	Sweeping 2400-2850 Hz at 1 Hz	11010
7	Slow Whoop	11001
8	Sweep 1200-500 Hz at 1 Hz	11000
9	Alternating Tones 2400/2850 Hz at 2 Hz	10111
10	Intermittent 970 Hz at 1 Hz	10110
11	Alternating tones 800/970 Hz at 1 Hz	10101
12	Intermittent 2850 Hz at 1 Hz	10100
13	970 Hz 1/4 sec on 1 sec off	10011
14	Continuous 970 Hz	10010
15	554 Hz for 100 ms and 440 Hz for 400 ms	10001
16	Intermittent 660 Hz 150 ms on 150 ms off	10000
17	Intermittent 660 Hz 1.8 sec on 1.8 sec off	1111
18	Intermittent 660 Hz 6.5 sec on 13 sec off	1110
19	Continuous 660 Hz	1101
20	Alternating 554/440 Hz at 1 Hz	1100
21	Intermittent 660 Hz at 1 Hz	1011
22	Intermittent 2850 Hz 150 ms on 100 ms off	1010
23	Sweep 800-970 Hz at 50 Hz	1001
24	Sweep 2400-2850 hz at 50 Hz	1000
25	Intermittent 970 Hz 500 ms on 500 ms off	111
26	Intermittent 2850 Hz 500 ms on 500 ms off	110

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**TECHNICAL & PERFORMANCE SPECIFICATIONS**

DIMENSIONS	298 x 265 x 150
MAX FLOW	3 L/MIN
MAX CONTINUOUS PRESSURE	180 BAR
MAX PEAK PRESSURE	190 BAR
AMBIENT OPERATING TEMPERATURE	-15°C TO +50°C
IP RATING	TBA
SUPPLY VOLTAGE & CURRENT	DC 12V 40A/24V 20A MAX
RECOMMENDED OIL	PENTOSIN CHF 11S ISO 7308
PERMISSIBLE CONTAMINATION	17/14 ISO 4406 CLASS
OPERATING PARAMETERS	1 MINUTE @20°C DO NOT USE CONTINUOUSLY, ALLOW TO COOL
SOUNDER DECIBELS @1M (UNOBSTRUCTED)	92dB

**TROUBLE SHOOTING**

PROBLEM	CORRECTIVE ACTION
ACTUATORS TRAVEL IN OPPOSITE DIRECTIONS	CHECK 'FWD' & 'AFT' HOSE CONNECTIONS AT PUMP & REVERSE ONE PAIR IF NECESSARY
ACTUATORS TRAVEL IN OPPOSITE DIRECTIONS TO THE SWITCH	EITHER REVERSE S1 & S2 CONNECTIONS IN THE PUMP UNIT OR SWAP THE OUTER CONNECTIONS AT THE SWITCH
ACTUATORS DO NOT OPERATE AT ALL	CHECK FUSES IN PUMP UNIT AND REPLACE IF NECESSARY. CHECK POWER SUPPLY AT PUMP UNIT & OPERATING SWITCH. CHECK FOR AIR IN SYSTEM & BLEED IF REQUIRED. CHECK HYDRAULIC FLUID LEVEL
AUDIO SOUNDER DOESN'T WORK	CHECK UNIT IS NOT DISCONNECTED. CHECK VOLUME LEVEL

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## SERVICING & WARRANTY

Frequently inspect the pump unit & clean regularly. Check for any problems such as leaks, damage, or corrosion. The oil level should also be subject to regular checks.

As recommended by the pump manufacturer, the oil should be subject to regular service intervals and changes to maintain the cleanliness of the system, ensuring long term performance of the equipment.

**Failure to carry out regular oil changes in line with the guidelines may invalidate your warranty. Please refer to the makefast warranty procedure for more information.**

### Oil change – after 100 hours

It is recommended that the oil is fully drained from the whole system and replaced after 100 hours of use. This will ensure any assembly contamination is removed from the system.

### Oil change – after 3000 hours

It is recommended that the oil is fully drained from the whole system and replaced after 3000 hours of use. This will ensure any wear debris is removed from the system.

### Oil change – annually

It is recommended that the oil is fully drained from the whole system and replaced annually. This will ensure that the oil cleanliness, viscosity and overall performance is maintained.

**Ensure the correct oil specification is used (see page 13).**

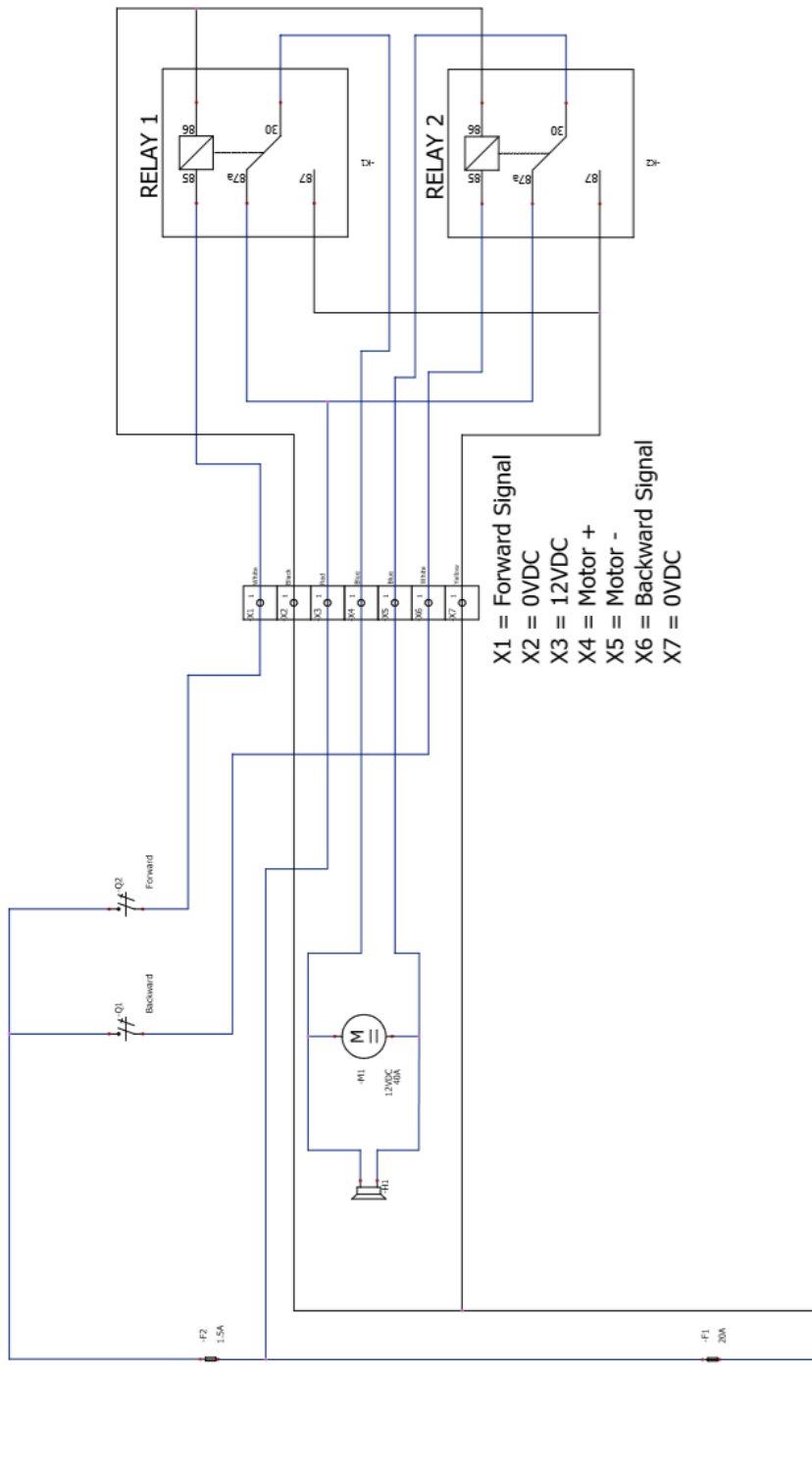
### Oil service record

OIL CHANGE INTERVAL	CARRIED OUT BY	DATE
100 HOURS		
3000 HOURS		
1 YEAR		
2 YEARS		
3 YEARS		
4 YEARS		
5 YEARS		

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**ELECTRICAL SCHEMATIC 12V SYSTEM**

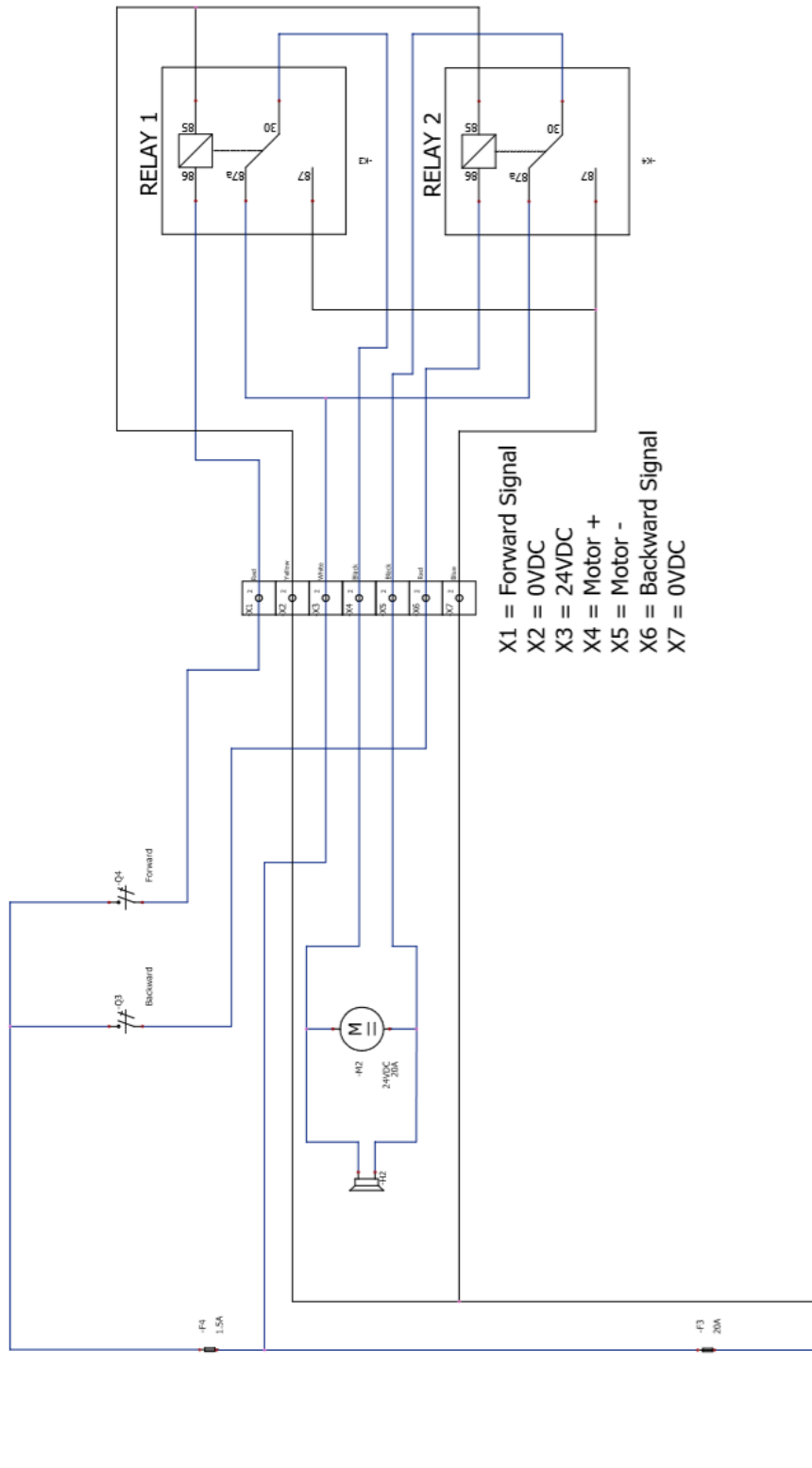


Electrical Supply = 12VDC 30A

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**ELECTRICAL SCHEMATIC 24V SYSTEM**



**Legal note:**

Installation and repair of MAKEFAST Ltd sunroofs and canopies must only be undertaken by MAKEFAST authorised engineers, using approved technical information, tools, and spares. MAKEFAST installations and service instructions must always be referenced during repairs and maintenance. MAKEFAST does not accept any liabilities for defect or damages caused by maintenance or repair by un-authorised parties.

## WARRANTY

**Any product defect notification must be accompanied by a serial number, date of purchase, contact name, address and daytime telephone number. If this information is not provided, Makefast Ltd may be unable to process your warranty claim.**

1. Makefast Ltd (We, Our, Us) warrants this Product (excluding labour, travelling and expenses) to be in free of manufacturing defects during the period of warranty. The period of warranty is 24 months and commences on the date of despatch of the Product from Makefast Ltd. Extended Warranty is available beyond the manufacturers 2-year standard Warranty. Please contact Makefast or your Boat Broker for details.
2. The Warranty consists of (at Makefast's discretion) either repair or replacement spare parts only that will be provided on an exchange basis and will either be new, equivalent to new or re-conditioned. All replaced spare parts and Products shall become the property of Makefast, and are required to be returned to Makefast for analysis, and acceptance of warranty terms.
3. Unless agreed in writing, the Warranty will not apply: (a) because you have not used, stored or fitted the Product properly; or because you are in breach of the terms of this warranty or the Contract terms, or have not followed Our instructions in the product manual, or because of damage or defect due to wilful neglect or negligence by anyone ; (b) to loss of quality, degradation of performance or actual damage that results from the use of spare parts or other replaceable items that are neither made nor recommended by Makefast; (c) to a loss of quality, degradation of performance or damage that results from the installation of, damage to, or modification to the Product by someone else other than Our representatives or because of damage that results from changes required by you or a Third Party; (d) to damage that results from your connection of other fittings or accessories to the Product which We have not approved or your connection of other equipment or software not approved by Us; (e) because of external causes outside Our control which shall include accident, fire disaster or burglary; (f) because of faults caused by shock or fall, sand, dust, dirt, damp or corrosion, leaky batteries, repair by unauthorised personnel; (g) because of any malfunction or specific requirement of any other item of hardware, which you have linked to the Product in respect of items not included in the Contract.
4. As far as the law allows, we will not be responsible for the following: (a) loss of income, profits (actual or anticipated), and contracts or for any other business-related loss; (b) indirect or consequential loss or damage howsoever caused; (c) compensation for fitting of replacement parts.
5. These conditions shall in all respect be governed and construed in accordance with English Law and subject to the exclusive jurisdiction of the English Courts.

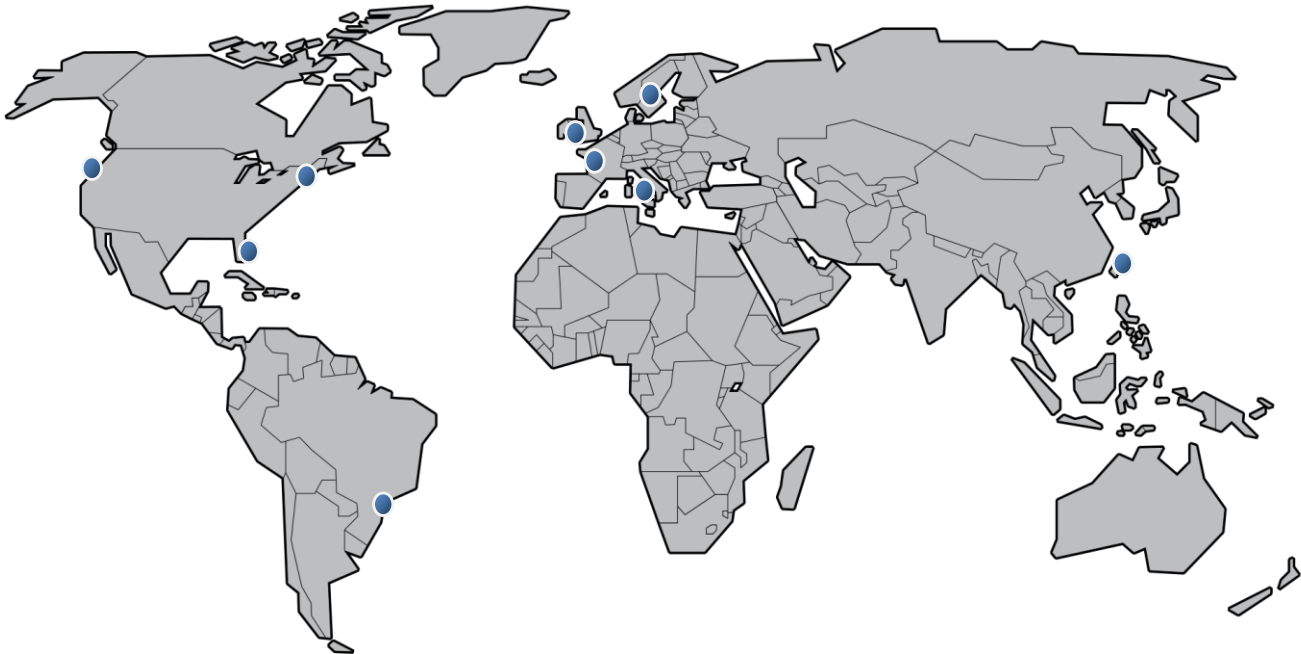
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## SERVICE CONTACT

Please ring Makefast Ltd +44 1686 629010 for contact details in the highlighted areas:



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