



BOTTLE CRUSHER



Model : AFSMini v7elec

INSTRUCTION MANUAL

IMPORTANT!

**PRIOR TO OPERATION ALL USERS MUST READ THE
ENTIRE INSTRUCTION MANUAL**

Expleco Ltd has an ongoing development programme and the product
pictured may differ slightly in appearance.

Specifications are subject to change without notice.





WARNING

BEFORE USING THIS PRODUCT PLEASE READ THE FOLLOWING SAFETY PRECAUTIONS, TO AVOID PERSONAL INJURY. IT IS IMPORTANT TO UNDERSTAND THE APPLICATIONS, LIMITATIONS AND POTENTIAL HAZARDS ASSOCIATED WITH THIS PRODUCT.

1. This machine is designed to crush glass bottles **ONLY**
2. Do not use the AFSMini for any other use.
3. The machine is not intended for use by young or infirm persons.
4. Children or visitors should be kept well away from the machine and should not be permitted to handle the machine or power cord.
5. The machine is designed for interior use. Do not use the machine in wet conditions.
6. Do not use the machine near flammable liquids or gases.
7. The power supply cable should be checked and certified at 6 monthly intervals by a registered electrician.
8. The power supply must be capable of delivering 3phase 380-480v 5 wire 3 phases + Neutral and Ground. to suit country of application. Extension cords must not be used unless they are heavy duty cords that are rated for the current load.
9. Protective eyewear and ear protection is recommended to be worn.
10. If handling broken bottles protective gloves must be worn.
11. Before starting the machine check the sand level in 1m³ bag or Hopper Bin.
12. Do not use the machine if dust is emitting from the filter or inlet. This is an indication that the filter needs cleaning or bag needs emptying.
13. In the rare occurrence of a bottle jamming protective gloves must be worn prior to opening the chute and removing the jammed glass.
14. The main crusher housing is a designated LOCK OUT area. It is protected by an interlock however being a lock out area it must be incorporated in a Safety Operating Procedure to restrict access until the power supply is locked and tagged out in accordance with this procedure. Never service the machine, change components, or open the chute unless the Lock Out Procedure has been followed and power supply **HAS BEEN REMOVED FROM THE WALL SOCKET.**

OPERATING INSTRUCTIONS

1. Ensure that machine is plugged into a **3phase 380-480 volts 50/60hz 20A to suit country of application** . **Check input voltage on VFD controllers** and ensure that power supply is **exactly as specified and within the range** on the VFD controllers.
2. All motors are controlled by VFD drives (Variable Frequency drives). These drives have parameters preset at factory as shown on the wiring diagrams along with the motor nameplate specifications with regard to RPM, KW and Amperage. **IMPORTANT – The Customer must engage a qualified technical electrician to verify that the Motor nameplate data has been correctly input into each of the VFD.**

Because the machines are delivered in an unassembled state - Upon installation it is critical that the electrician ensure that the following checks are completed.

- **Polarity and phase rotation test**
 - **Main Crusher rotation anti clockwise looking from motor end.**
 - **All components are properly earthed and are tested for Earth continuity.**
 - **Fault Loop Tests are completed.**
 - **A lockable 32A 5 wire Isolation Switch must be installed on wall adjacent to the machine and this must switched off and locked out during any machine servicing or maintenance.**
3. The Main crusher and Conveyor speeds can be adjusted by using the small Potentiometers on the VFD. **Optimum speeds will need to be adjusted** to suit bottle type. Typical frequency/speed settings are shown in below table.

VFD Controller	Sand Mode	Cullet Mode
0.75kw Input Conveyor	30-40hz	30-40hz
5.5kw Crusher	50hz	35hz
1.5kw output Conveyor	Not Applicable	37 hz If Option Installed

Note if crusher motor stalls or is overloading then reduce the Input conveyor speed.

4. Check level of sand in 1m3 bag or Expleco Tipping Bin. The bag is capable of holding sand in the equivalent of 50 x 140L bins of bottles. Bag/Bin must never be overfilled. The Bag/Bin should be changed when it is $\frac{3}{4}$ full.



5. When changing bag ensure that the strap is securely fitted to the output chute to prevent dust escaping and ensure that the bag is sitting evenly on a pallet with the 4 hooks secured to ensure that the bag fills evenly. The bag hooks should firmly hold the loops and can be adjusted by tightening on bag cleats. Or When removing the Bin hopper ensure that clamps are removed and then properly replaced when hopper is re-installed.
6. Fit appropriate PPE equipment – Safety Glasses, Earmuffs and leather gloves.
7. Tip bottles into hopper using the manual bin lifter incorporated in the machine.
8. Some machines may also have an electric bin lifter as well as manual tipper. In these machines the manual lever should be removed and stored unless it is needed. Customer to select location of electric tipper switch to suit.



9. **IMPORTANT!** When machine is feeding bottles with possible non bottle contaminant - Ensure that a waste bin is located opposite the control station to enable non bottle debris to be removed from the conveyor feed and thrown into bin by operator.
10. Some machines have a Foot Switch that can be mounted on conveyor platform to give easy control of conveyor to operator.

11. The conveyor on/off buttons on control panel (fig 1) are configured not to operate until the crusher is started. This is to avoid bottles feeding into the crusher without it running.



MAIN CONTROL PANEL. fig 1.

12. Turn crusher on using the **Green** Crusher **Start** button. Then turn on the conveyor using the **Green** Conveyor **Start** button. Conveyor **Start** will not be active until Crusher **Start** has been turned on.
13. **The operator must remain on the platform to observe and remove any non-bottle waste.** The conveyor can be stopped and started using the Conveyor **red Stop** and **green Start** buttons. The Foot Switch can also be used to control the Conveyor. The Stop/Start buttons override the footswitch.
14. All plastic bottles, Aluminium cans, bottle openers, and metal or rock or dense non bottle product **MUST** be removed from the conveyor. Failure to do so can cause severe damage to the machine. If the machines are set to Cullet mode then Aluminium cans can be fed into machines particularly if machine is being used to crush full bottles and/or can.
15. To shut down the machine turn conveyor off using the **red** conveyor **Stop** button and then allow crusher to continue running for 10 seconds and then turn crusher off using **red** Crusher **Stop** button.
- 16. Only use the emergency stop for an emergency. It is important to understand that activation of Emergency Stop may cause machine to stop during glass crushing and this partially crushed glass will jam the machine on restart. So for Normal non-emergency shutdown operator MUST follow 13. Above.**
17. The hopper has an adjustable flap to minimise bottle stacking up. Adjust to ensure that not more than 2-3 bottles travel with each cleat.



18. The Waste Tray located at base of hopper, must be continually monitored and emptied as required. Failure to do so will damage cleats on the conveyor. The waste can be tipped onto the conveyor and crushed as needed. If tray is full of liquid it is best that the waste be dumped into a general waste bin.

Bottle Jam

1. The crusher motor is protected by a VFD high current protection device that is configured to shut down BOTH the crusher and conveyor in the event of a restriction or blockage caused by a bottle jam or a foreign object that has not been removed from the conveyor by the operator. **It is important that the installing Electrician ensures that this function is properly configured and operational.** Contact www.expleco.com if in doubt.
2. In the event of such shut down a properly trained person will need to apply the LOCK OUT procedure to open the chute and remove the blocked material.
3. Once the material has been removed and the crusher mechanism is freely rotating, then the machine can be taken out of lockout, chute closed and restarted.
4. Once the crusher is operating properly the Conveyor can be restarted for normal operation.

Conveyor Jam

1. In the event of a jam or blockage on the conveyor, the VFD control unit will shut down the conveyor only. The crusher will remain running to ensure that it completes its crushing process and does not become blocked.
2. It is likely that the offending material causing the conveyor blockage is easily seen and can be removed by the operator. The VFD automatically resets after 30 seconds so that the conveyor can be restarted using the **green Start B** button.
3. In the event that the conveyor blockage is not immediately visible, then after 5-10 seconds (to ensure crusher is empty) the crusher should be shut down using the **red Stop A** button.
4. It is possible that bottles can block above the crusher mechanism in such a way that the crusher continues to operate. In this case the bottles can stack up and cause the conveyor to jam where it is not visible.

5. The Chute will need to be opened and jammed material removed.
6. In the event of such shut down a properly trained person will need to apply the LOCK OUT procedure to open the chute and remove the blocked material.

CHUTE and HOUSING CLEANING

1. If the bottles are not dry or partially full when crushed (which is often the case) Then it is recommend to wash the chute and main housing on a weekly basis or as required. Some oily or syrup like liquids can cause the screens to block and this will require cleaning as detailed below.
2. Fit a wheely bin below the outlet chute and wash residual built up sand from corners and side of housing and screen with a spray nozzle on a hose or water blaster. After washing let dry and spray the mechanism and housings liberally with WD40 or CRC corrosion protection product. If machine is not going to be operated for long periods it is critical that screen should be washed and sprayed with WD40 to reduce corrosion of the specialised wearplate.

Filter Clean/Replacement

1. If visible dust is seen coming from the filter or main inlet, it is an indication that the filter needs cleaning or the 1m3 bag or Hopper Bin is overfull.
2. Primary filter clean can be achieved by tapping on top of filter with knuckles so that the accumulated dust is dislodged from the primary filter and falls down into bag.
3. If sand is damp or wet then the filter should be removed and cleaned with compressed air or vacuum cleaner.

Bearing grease.

1. The Main Bearings are pre-greased at the factory but **MUST** be greased prior to operation. Fig 3.
2. If the machine makes an intermittent or consistent squeak the main bearing will need greasing.

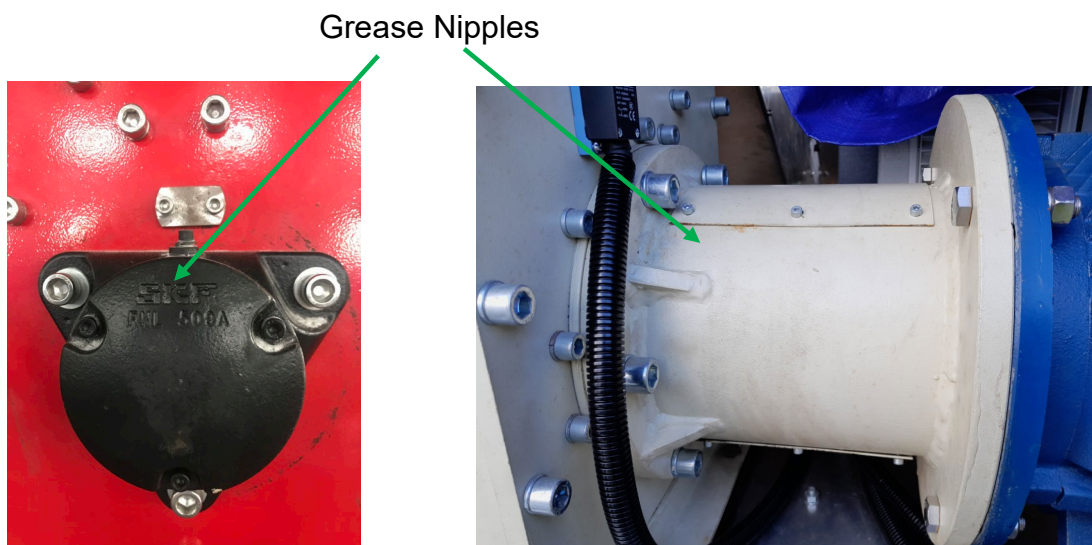


Fig 3

3. With the machine running pump (General Purpose High Temp Grease) grease into the grease nipple on the top of the main bearings. Wait between each pump and when squeak stops give one more pump. Do not over grease.
4. As a rough rule of thumb you may find that you need to grease once every 10 bags or Bins.

Consumable Items

1. The GLAFS mini has specialised internal components which are made from high tech abrasion resistant materials which eventually need replacing. These parts are readily available for purchase from Expleco or your machine supplier. The parts must be installed by a factory approved service technician.

2. The consumable items and indicative life are as follows.

- | | |
|----------------------------|---|
| • 24 x Oscillating Hammers | replace with every 3 rd screen |
| • Main Screen | replace when worn thru approx. 10-30 tonne of bottles depending on bottle types and screen cleaning |
| • Top screen shroud | replace with every 3 rd screen |
| • Main Bearing | replace when noisy |
| • 1m3 bags. PE Lined | life dependent on handling. AVOID EXPOSURE TO UV LIGHT |
| • 10mm liner plates | estimated with 3 rd hammer replacement |

Note! Cullet components Have a very high Life and are to be changed as needed.

Replacement of Consumable items

Please refer to exploded view drawings at back of this manual

Electrical and Wiring Diagrams

Please refer to exploded view drawings at back of this manual

Due to wide variation in compliant Plug and Receptacle in many markets, the AFSMINI is supplied with 5m of 5 wire heavy insulated power cord. 3 phase + Neutral and Ground.

The factory will need to install a properly rated Lock-Out receptacle and plug that is compliant with local electricity regulations.

Danfoss FC51 manual is supplied with the machines to set up the VFD drive parameters. **A fully qualified electrical technician will need to be engaged to ensure that the VFD settings are optimised. If in doubt contact www.expleco.com**

The FC51 manual can be used to set parameters of both Danfoss VFD's.

Residual risks and Disposal

All parts of the machines are able to be recycled. There are no residual toxic or hazardous substances or materials used in the manufacture of the machines. At the end of the machines useful life it is important that the machine and its parts are disposed of in an environmentally safe manner and in accordance with the local laws in place at the time of disposal.

Trouble Shooting

Trouble	Probable cause	Remedy
Squeak or Whistling Noise	<ol style="list-style-type: none"> 1. Dry Bearing 2. Main Shaft Misalignment 	<ol style="list-style-type: none"> 1. Grease Bearing 2. Contact supplier and have shaft re-aligned.
Unusual Vibration or knocking sound	<ol style="list-style-type: none"> 1. Main Shaft Misalignment 2. Damaged Hammers or Flail Shaft 	<ol style="list-style-type: none"> 1. Contact supplier and have shaft re-aligned. 2. Replace damaged Hammer Set.
Crusher Motor Stops	<ol style="list-style-type: none"> 1. Bearing Failure 2. Power Supply Inadequate 3. Extension cord too long. 4. Main Shaft Misalignment as referred above. 5. Glass or Foreign Object Blockage 6. Input speed too high. 	<ol style="list-style-type: none"> 1. replace main Bearing 2. Check Power Supply. 3. Use shorter or Heavy Duty Extension. 4. Contact supplier and have shaft re-aligned. 5. Clear Blockage 6. Reduce input speed on input conveyor VFD
Conveyor and Crusher Stops At same time	<ol style="list-style-type: none"> 1. Glass or Foreign Object Blockage 2. Bottle Jam in machine that has then jammed conveyor 	<ol style="list-style-type: none"> 1. Clear Blockage 2. Clear Blockage
Dust is visible from inlet and/or filter	<ol style="list-style-type: none"> 1. Full Bag 2. Main Filter clogged 	<ol style="list-style-type: none"> 1. Change bag 3. Clean or replace main filter.

GUARANTEE

Expleco Limited guarantees this product from defects of materials and workmanship for a period of twelve months from date of purchase provided that the product is used in accordance with the recommendations set out in this instruction manual and with voltage and current limits set out on the motor plate. Expleco Limited will at its own option make good, replace the complete machine (or defective component) with the same or similar product, or provide credit for any product manufactured or supplied by it, which proves to be defective within the limits set out above provided that always no repairs, modifications or alterations to the product have been undertaken or attempted, other than by the company or its authorised agents. Should the purchaser wish to make a claim under the guarantee, the product should be returned pre-paid to the place of purchase.

To obtain the warranty the purchase receipt must be returned with the machine. This guarantee is in addition to and does not take away from any rights available to the consumer under the Consumer Guarantees Act.

A TWELVE MONTH GUARANTEE APPLIES TO THIS PRODUCT FOR LIGHT INDUSTRIAL USE ONLY USING WHEELED BINS TO MANUALLY FILL HOPPER. (hotels, lodges, resorts, sporting venues and other intermittent light industrial sites like breweries)

If fork lifts or front end loaders are to be used to fill the hopper and continuous operation is envisaged then the AFSMaxi machine should be used.

THE GUARANTEE IS APPLICABLE FROM THE ORIGINAL DATE OF PURCHASE

TO OBTAIN THE WARRANTY THE PURCHASE RECEIPT MUST BE RETURNED WITH THE MACHINE.

THE GUARANTEE EXCLUDES:

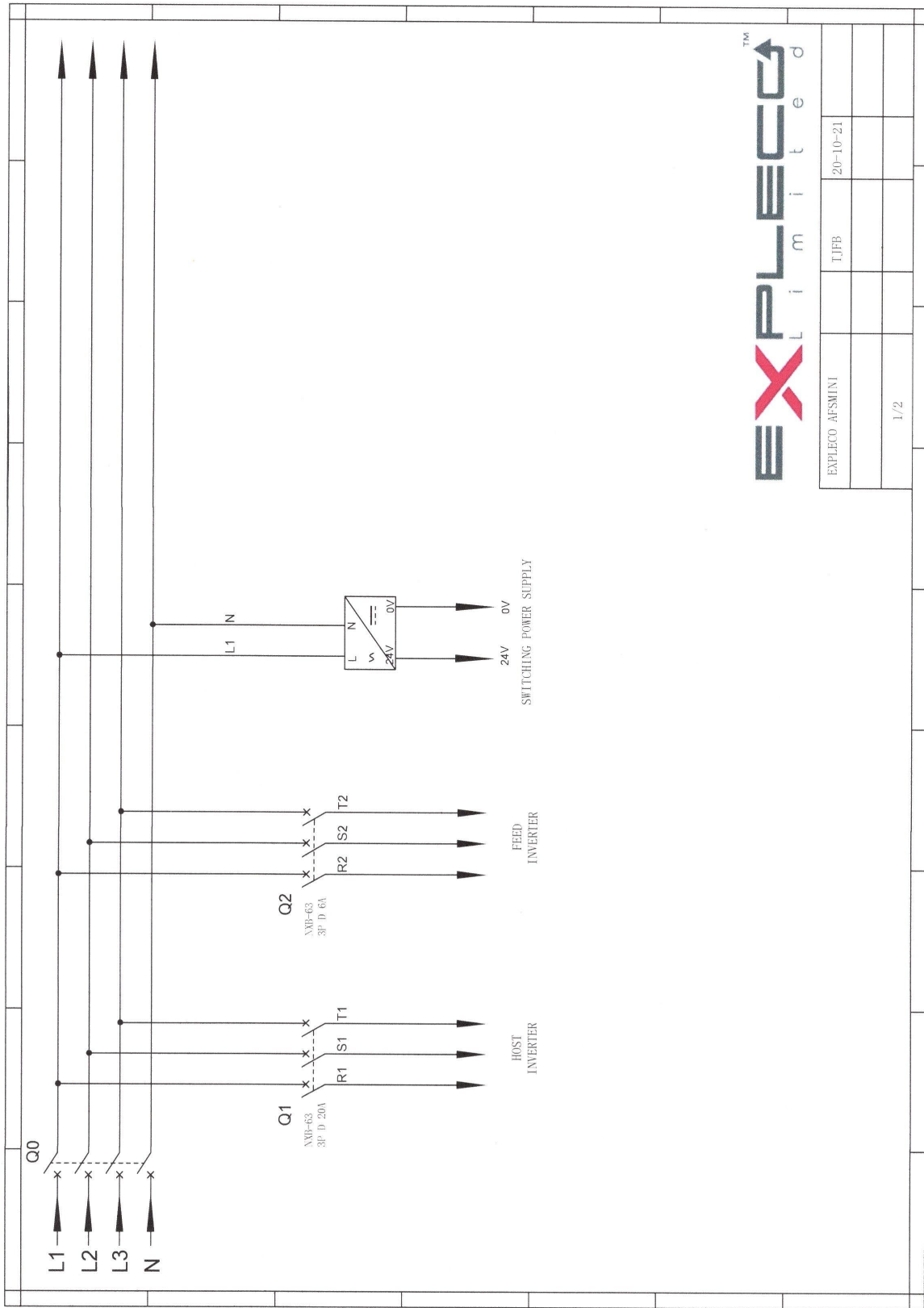
- **DAMAGE, MALFUNCTION OR FAILURE DUE TO NEGLIGENCE, MISUSE OR ABUSE**
- **DAMAGE MALFUNCTION OR FAILURE DUE TO USE IN CONTINUOUS AND/OR HEAVY INDUSTRIAL APPLICATIONS.**
- **DAMAGE, MALFUNCTION OR FAILURE DUE TO USE IN APPLICATIONS THAT THE MACHINE IS NOT DESIGNED TO PERFORM.**
- **CONSUMABLE COMPONENTS AND ACCESSORIES.**
- **REPAIRS, MODIFICATIONS, OR ALTERATIONS ATTEMPTED OR MADE TO THE MACHINE BY OTHER THAN AN AUTHORISED AGENT.**
- **NOTE – Any indicative consumable part lives cannot be specifically guaranteed due to such a wide range of bottles and screen wear that is beyond the control of EXPLECO Ltd**



Sales and Service Enquiries

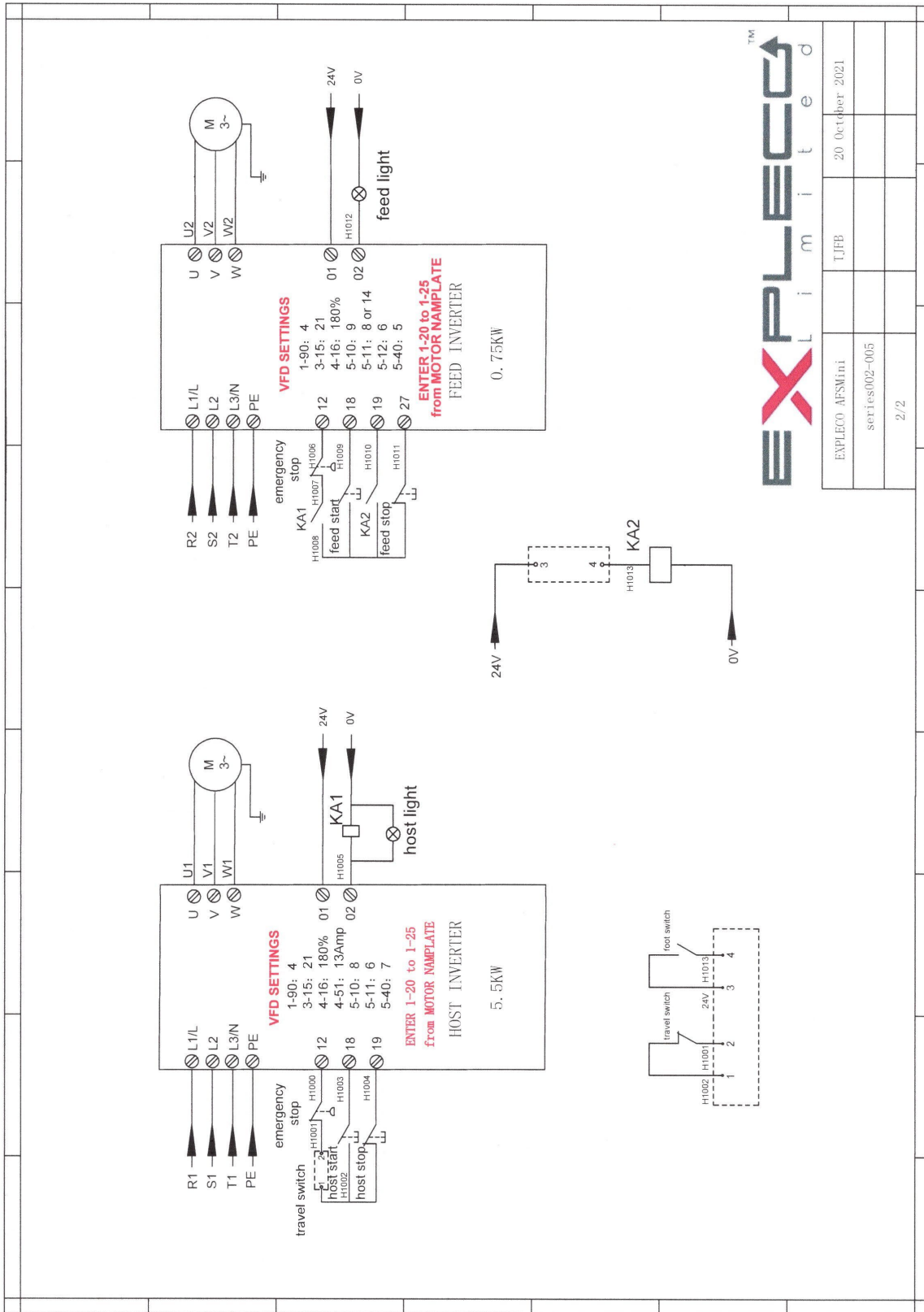
www.expleco.com tel. +64 3 5729105 mob +64 21 324216

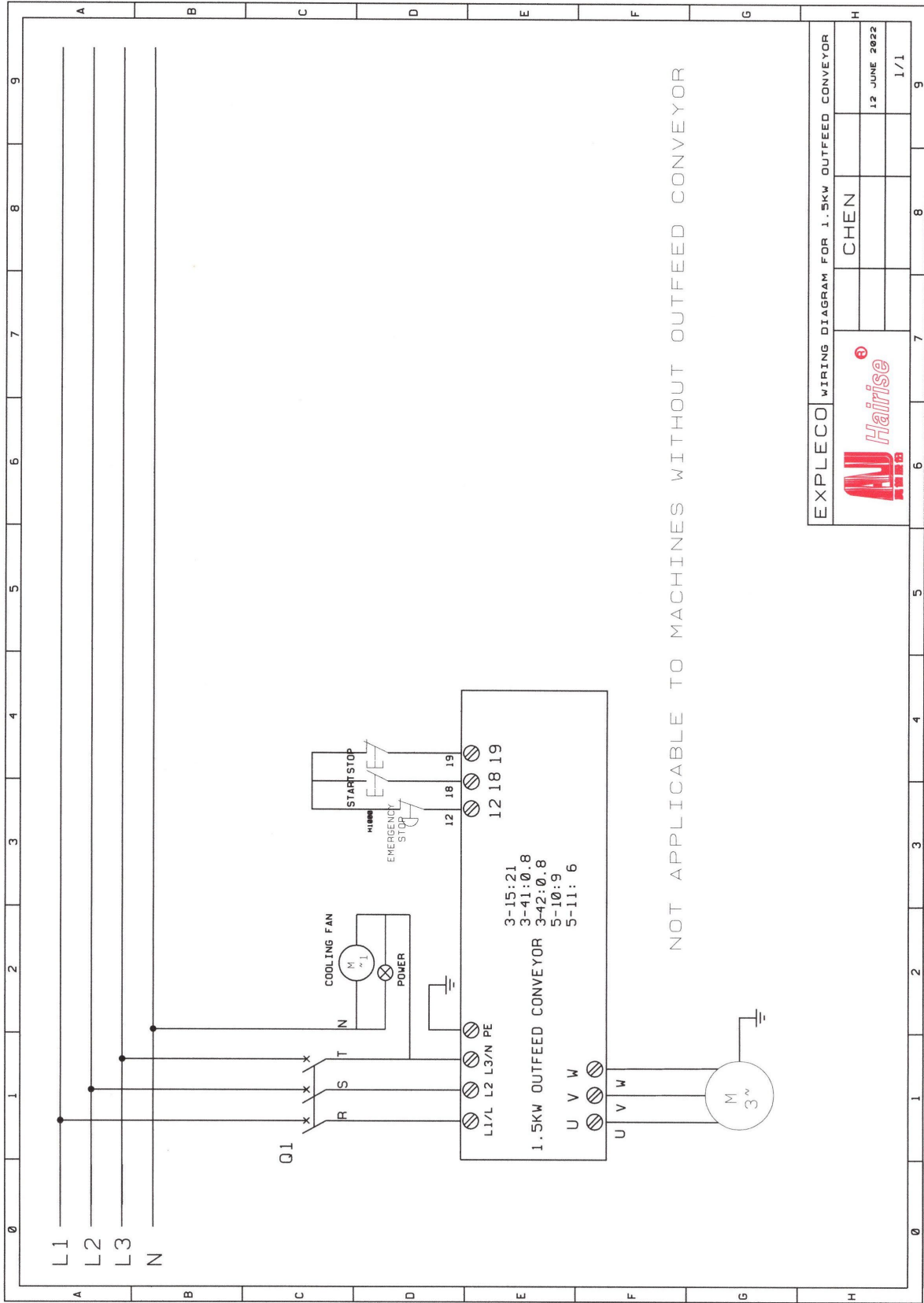
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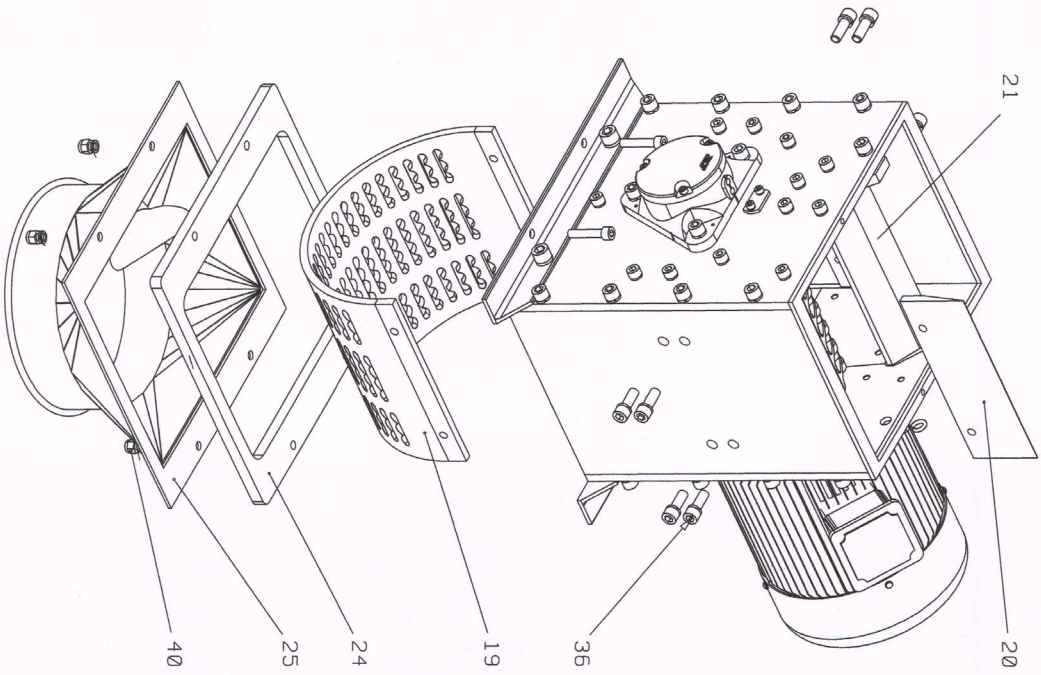
EXPLECOTM
L i m i t e d

EXPLECO AFSMINI	TJFB	20-10-21
1/2		





EXPLECO WIRING DIAGRAM FOR 1.5KW OUTFEED CONVEYOR	
AV	<i>Hairise</i>
CHEN	1.2 JUNE 2022
1/1	1/1



UNDO 40 AND REMOVE 25&24
 UNDO 35 ON BOTH SIDES
 KNOCK SCREEN DOWN USING
 HAMMER AND BAR
 PUSH NEW SCREEN UP FROM
 BOTTOM AND RE FASTEN

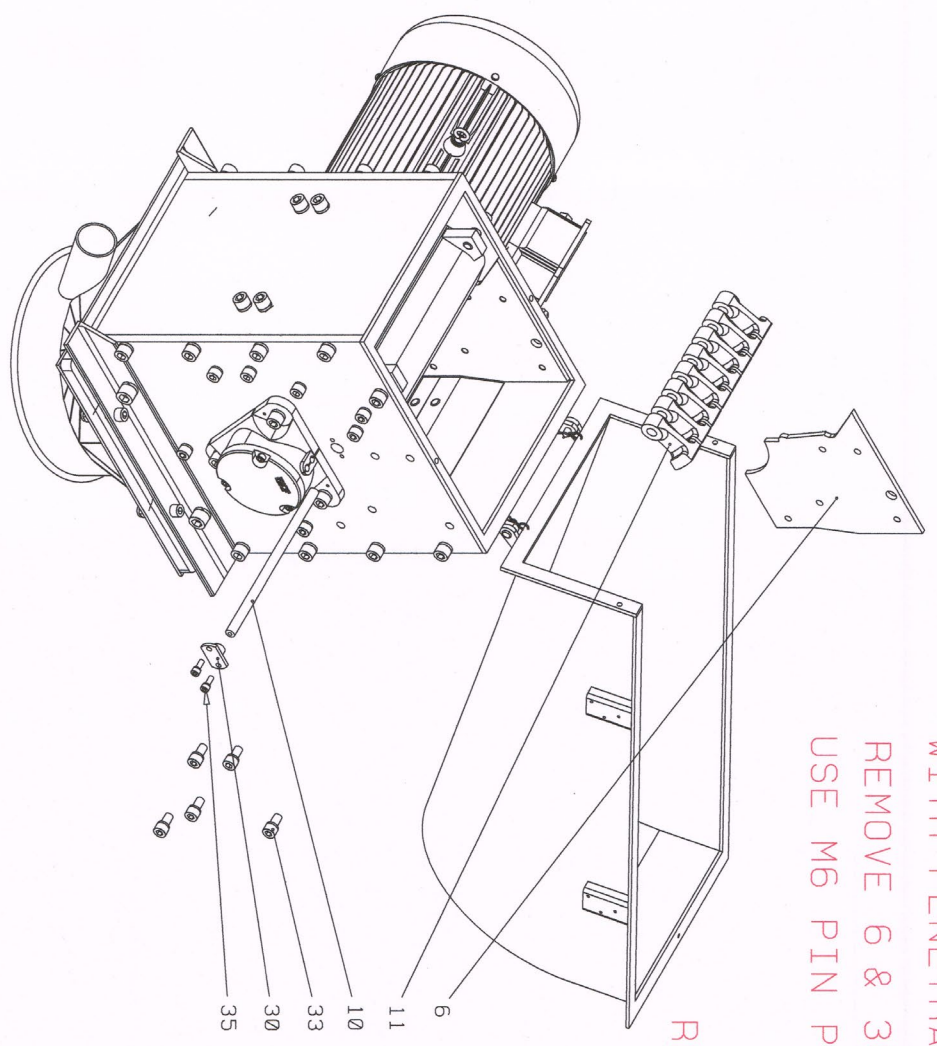
IMPORTANT
 ENSURE SCREEN SLOT PATTERN
 MATCHES ORIENTATION OF 19

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 2011

AFSMINI Screen Replacement	
EXPECO CL AFSMINI	
for EXPECO LIMITED	
Borneitt Offshore Design Ltd	
2011	
SCALE	1:3 ON A3
DATE	09-05-20
CHECKED	TJFB
DRAWN BY	TJFB
DESIGN	001

LIBERALLY SPRAY HAMMER PINS
WITH PENETRANT OIL 24hrs Before
REMOVE 6 & 30
USE M6 PIN PULLER TO REMOVE PINS

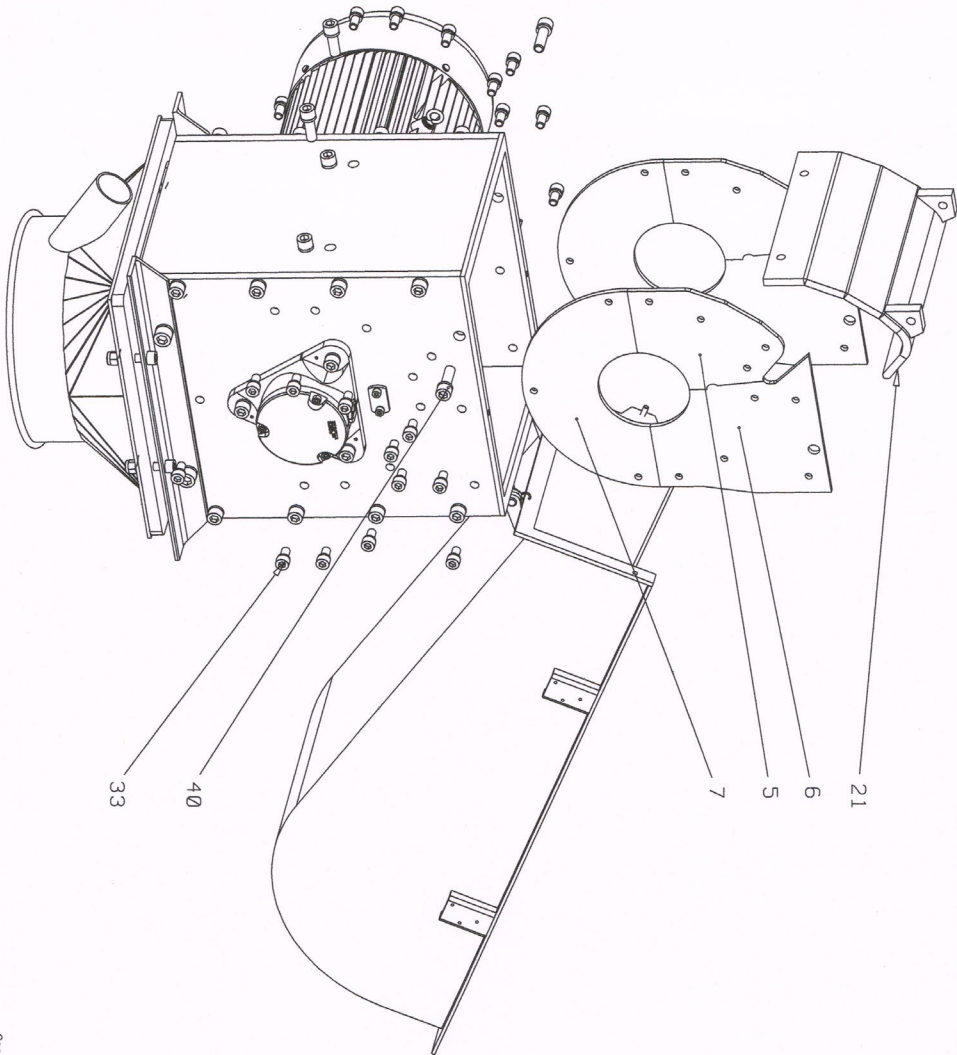
IMPORTANT
REPLACE HAMMERS WITH
CORRECT ORIENTATION



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AFSMINI Hammer Replacement	
EXPLECO GL AFSMINI	
FOR EXPLECO LIMITED	
Borneo Offshore Design Ltd	
No. 100, Borneo Road, Borneo, Sarawak	
SCALE	1:5 ON A3
DATE	05-05-28
DESIGNER	TJFB
CHECKED	TJFB
DRAWN	TJFB
SHEET	001

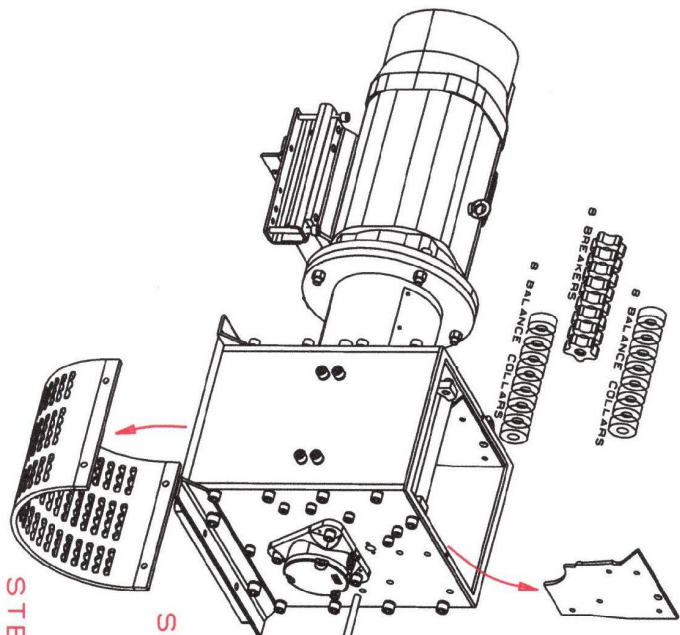
REMOVE 21 AND WEAR PLATES
BY REMOVING ALL BOLTS 33 & 40



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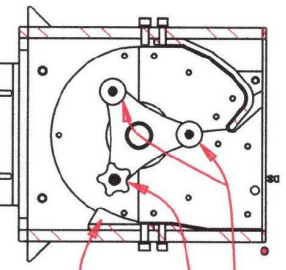
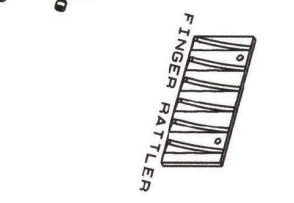
AFSMini Wearplate Replacement	
EXPLECO GL AFSMini	
for EXPLECO LIMITED	
Borrett Offshore Design Ltd	
Marine Design & Fabrication - Specialist	
SCALE	1:1.5 ON A3
ISSUED BY	TJFB
DATE	20-06-20
CHECKED BY	TJFB
DESIGN	Approved Drawing of Production Use
DRAWING NO.	001

CULLETT CONVERSION AFSM1N1



STEP 1 - REMOVE SCREEN

STEP 2 REMOVE LINER PLATE



STEP 3 - REMOVE HAMMER PIN AND HAMMERS

STEP 4 - FIT 16 BALANCE COLLARS
8 BREAKERS

STEP 5 - FIT FINGER RATTLER
AND REFIT LINER PLATE

16 BALANCE COLLARS
8 BREAKERS
FINGER RATTLER