MIST CANNON

S45AU USER MANUAL

OZmist®

TOTAL CLIMATE SOLUTIONS

AUSTRALIAS LEADING MIST SYSTEM MANUFACTURER

CONTENTS

A 31 Baker Street Wangaratta VIC 3677 T 1300 306 478 E enquiries@ozmist.com.au W ozmist.com.au

OZmist® TOTAL CLIMATE SOLUTIONS

OVERVIEW

Welcome to the S45AU Mist Cannon User Manual. The S45AU Mist Cannon is a state-of-the-art solution designed for efficient dust and odor suppression, as well as cooling and water evaporation applications. Built with precision and reliability in mind, this cannon combines advanced technology with robust construction to deliver unparalleled performance in industrial, commercial, and environmental settings.

Key Features

High-Pressure Pump: Operates at 1,000 psi, ensuring optimal mist generation without saturation.
Evaporation Efficiency: Capable of evaporating large volumes of water quickly, making it ideal for pond and water source management.
Dust & Odour Suppression: Effectively captures and neutralizes dust particles and odours, maintaining a clean and safe environment.
Versatile Applications: Suitable for a variety of environments, including construction sites, mining operations, waste management facilities, and more.
Durable Construction: Engineered with high-quality materials to withstand harsh conditions and prolonged use.

Applications

Dust Suppression: Minimizes dust emissions in construction, demolition, and mining sites, ensuring compliance with environmental regulations.
Odour Control: Neutralizes unpleasant odours in waste treatment plants, landfills, and composting facilities.
Water Evaporation: Accelerates the evaporation process for ponds and reservoirs, aiding in water management and conservation efforts.

Benefits

Enhanced Safety: Reduces airborne dust and odours, creating a safer and healthier work environment.
Operational Efficiency: Maximizes productivity by maintaining optimal conditions for workers and machinery.
Environmental Compliance: Helps meet regulatory standards for dust and odour emissions.
Cost-Effective: Offers a reliable and efficient solution with low operational and maintenance costs.
We are confident that the S45AU Mist Cannon will exceed your expectations and provide you with the performance and reliability you need for your specific applications. Thank you for choosing OZmist Total Climate Solutions.

Customer Success

Our S45AU Mist Cannon has been successfully implemented by a diverse range of clients, demonstrating its versatility and effectiveness across various industries. Some of our notable clients include:
Kennards Hire: Utilized our mist cannons for large-scale construction projects, ensuring dust control and compliance with environmental standards.
EnviroPacific: Employed the S45AU for odour suppression at waste treatment facilities, significantly improving air quality.
Nyrstar Port Pirie: Integrated our misting solutions into their operations to reduce dust and improve safety on multiple sites.

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W ozmist.com.au
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FIRST TIME OPERATION, FAQ'S & TROUBLESHOOTING: MUST READ!!

To ensure your OZmist S45AU Fog Cannon operates smoothly and efficiently, it's important to follow a few key steps. These simple procedures can help you avoid situations that could lead to delays, embarrassment, costly repairs, or damage to the machine.

Travel Latch: Before moving the cannon, even short distances on-site, always make sure the travel latch is securely fastened. This keeps the machine safe during travel. When you're ready to operate, remember to release the latch first. This simple step helps protect the mechanism from unnecessary stress.

Battery Isolator & Electrics: For battery longevity always turn off the battery isolator/contact at the end of each shift. In addition, every OZmist cannon with a generator has a cut-off feature that shuts down the machine if the water level drops (when using a tank) or if the generator runs out of fuel. When the electrical circuit stays open, the battery will drain, leaving you with a machine that won't start.
All operators, site managers and foremen should be aware of this.

Start-Up & Hard Reset Button: Anytime after a shutdown procedure, so before restart: Press the blue reset button twice (necessary for functionality).

Fault Mode: if for any reason your cannon goes into fault mode, it must be reset by pressing the blue reset button once. This step has been built in and must be taken into action to continue operating the machine.

The most common reasons for a machine to go into this mode are:

- Running Out of Water: Always ensure there is enough water to avoid triggering a fault.
- Contact on the Centre Oscillating Proxy Sensor: This will occur if the outside Proxys were to fail or not adjusted correctly and the centre proxy is triggered (this will shut down the entire cannon).

Emergency Shut Down: Always know the location and operation of the emergency shut-down switch. This is essential for quickly and safely turning the machine off, or in case of any issues.

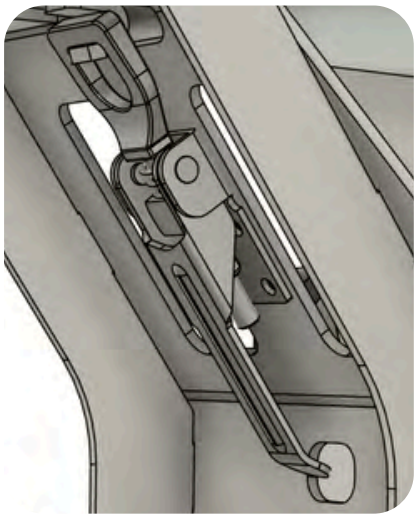
Low Water Cut-Off: Make sure to regularly monitor the water levels and understand how the low water cut-off feature works to prevent the machine from running out of water.

Water Filters: The frequency of changing water filters depends on water quality. If you notice the high-pressure gauge pulsing, this might mean the filters are getting dirty. It's a good idea to keep spare filters on hand and change them as needed. Filters are easy to get from OZmist or local suppliers.

Jockey Wheel (on T45 Trailer Model): When relocating the cannon around the site, always use a vehicle with the trailer properly hitched to the tow ball. Never attempt to move or rotate the unit when it's filled with water, as the jockey wheel isn't designed to handle that weight. This will help prevent damage to the wheel and ensure safe movement.

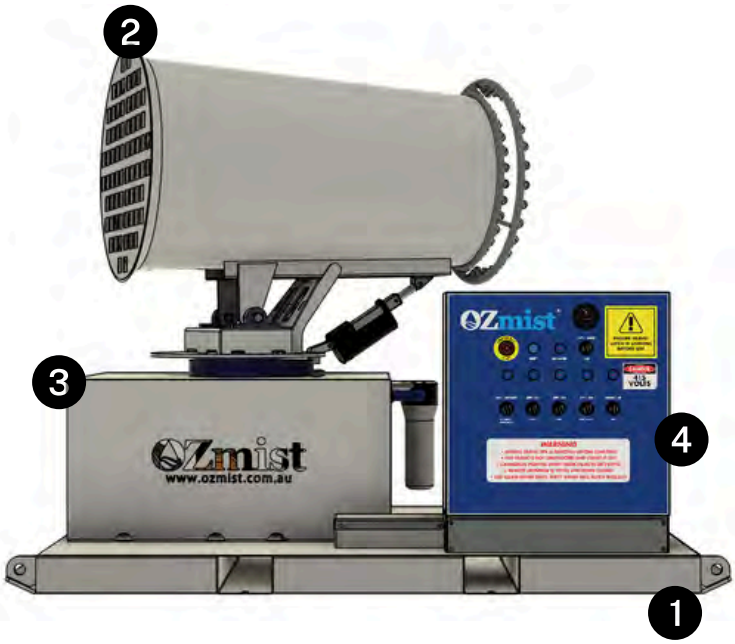
Battery Isolation Switch

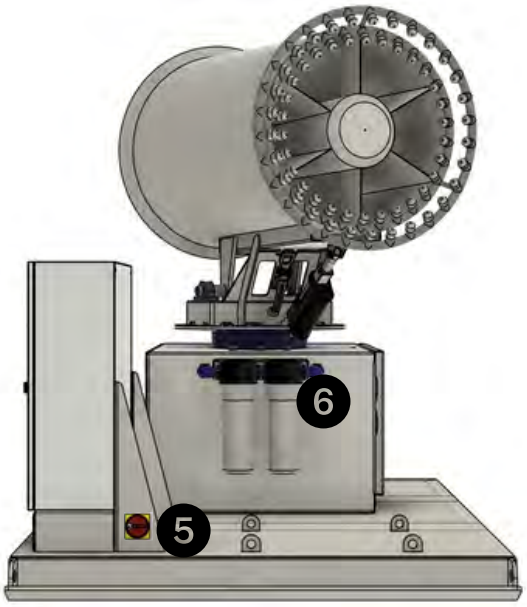
filter Housing with Cartridge

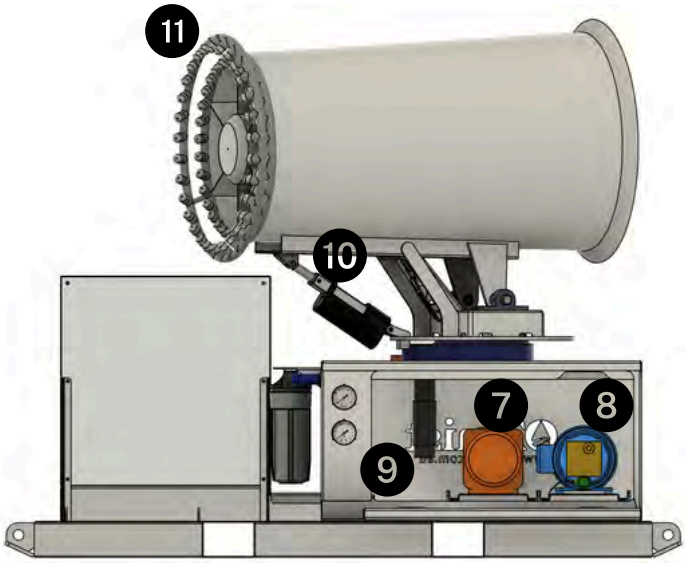


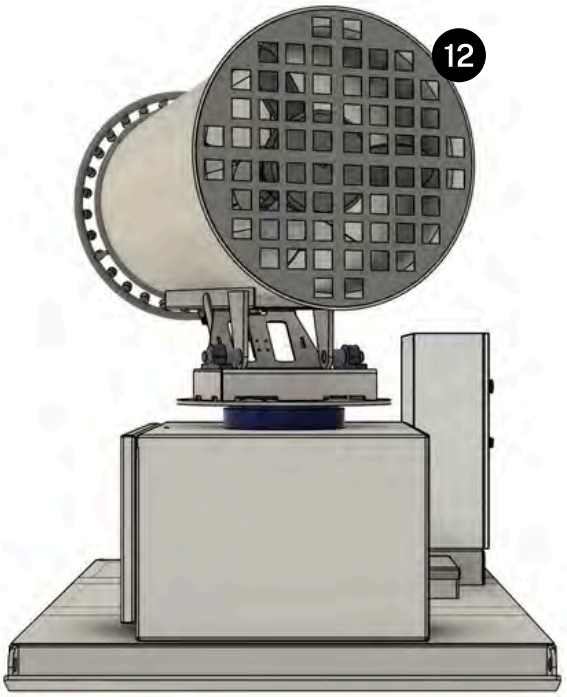
Transit Latch - Locked Position

COMPONENTS & CONTROLS

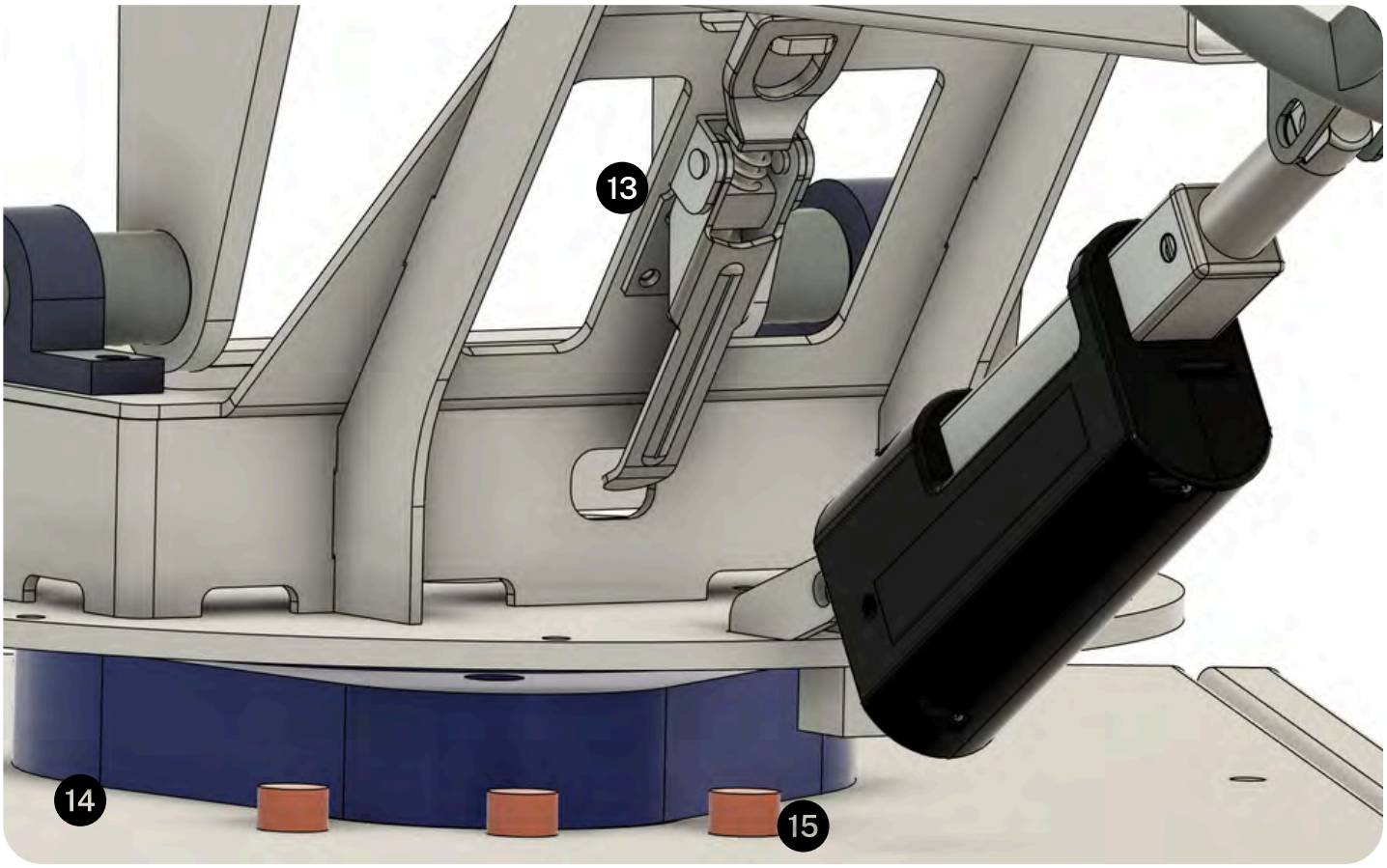








COMPONENTS & CONTROLS



COMPONENTS & CONTROLS

COMPONENTS & CONTROLS

The S45AU Mist Cannon is equipped with various components that are essential for its operation and maintenance. This section of the user guide provides a detailed breakdown of each component, including its location and function. Familiarizing yourself with these components will ensure proper usage and facilitate easier troubleshooting and maintenance. Each numbered part corresponds to the labels found in the accompanying diagrams, allowing for quick identification and reference.

1. S45AU Reinforced Skid Chassis
2. Cannon Casing, this houses the Mist Ring, Fan Motor and Impeller
3. Turret Box, this houses the Oscillation Motor, Transfer Pump & Pressure Pump
4. Operation Control Panel (see below for more information)
5. Battery Isolation Switch, only supplied on Cannons with a Generator fitted
6. Dual Filter Cartridges, contain 1 x 10u & 1 x 5u Filter Cartridge
7. Transfer Pump, delivers water from the Supply Feed to High-Pressure Pump
8. High-Pressure Pump fitted with an adjustable Low-Pressure Cut-off Switch
9. Oscillation Motor, this controls all left & right Cannon movements
10. Actuator, this controls the Up & Down Cannon angle
11. Stainless Steel Mist Ring with 60 x 0.5mm Mist Nozzles
12. Cannon Fan Grill and 5.5kw Fan Motor with 3 Blade Impeller
13. Transit Latch is used to hold the Cannon when not in use
14. Slew Bearing, this is the gear used when Left & Right Oscillation is used
15. 3 x Proximity Sensors are used, two outside are limit sensors the centre is a kill switch
16. Control Board, this is where the S45AU is controlled or switched to remote control

STARTUP & OPERATION PROCEEDURE

Safety Check (Pre-Startup)

1. Positioning: Place the cannon on a flat surface.
2. Travel Latch: Disengage the travel latch from the underside of the cannon.
3. Fan Check: Ensure the fan spins freely without any obstructions.
4. Nozzles: Verify that all 60 nozzles are in place and secure.
5. Pump Maintenance: Slide the high-pressure pump from the turret box and check the oil level.
6. Cable Tie: Remove the cable tie from the generator isolation switch (if installed).

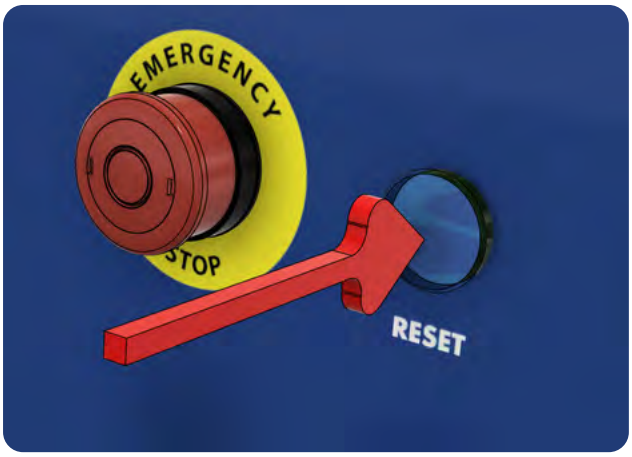
Pre-Startup Checklist

1. Fuel Check: Verify the fuel level in the generator.
2. Water Supply: Ensure there is sufficient water being supplied to the Pump. Our Pressure Pump requires a feed of 18psi to 50psi with a flow of 18L/min.
3. Remote Control: If using the remote, ensure the antenna and remote are removed from the control panel and in good condition.
4. Power Connection: Ensure the 32A plug is connected to the supplied generator and turned on.

Makinex/Honda 16kVA Generator before being modified to fit our S45AU

Startup Procedure

1. Isolation Switch: Ensure the isolation switch is in the closed position.
2. Emergency Stop: Disengage the emergency stop.
3. Generator Start: Open the choke on the generator, turn the key to start the engine, and then close the choke (refer to Makinex/Honda manual).
4. Reset Button: Press the blue reset button twice (necessary for functionality).
5. Cannon Positioning: Use the up and down switch to raise the cannon and the left and right switch to position it manually.
6. Fan Activation: Switch on the fan and wait approximately 15 seconds for it to reach full speed.
7. Mist Activation: Turn the mist switch to the "on" position and check that each nozzle is misting.
8. Manual or Automatic Targeting:
    - For manual targeting, use the fan's up/down/left/right switches.
    - For automatic left and right rotation, turn the oscillation switch to the on position.



The Reset Button must be pressed Twice for the S45AU to operate

Startup Without Makinex/Honda Generator

1. Power Source: Ensure the cannon's 32A plug is connected to a suitable power source and turned on.
    - Note: The S45AU Cannon is rated to 15.7 amps, accounting for the fan motor, oscillation motor, transfer pump, and high-pressure pump during operation.
2. Follow Standard Startup: Follow the standard startup procedure from steps 1 and 3 above.

POST OPERATION & TRANSPORT

After Use Procedure

1. Positioning: Center the cannon over the generator and lower it all the way down into its cradle.
2. Travel Latch: Engage the travel latch to prevent any movement of the cannon.
3. Stop Button: Activate the stop button on the control panel.
4. Power Off: Switch off the main power supply on the generator and remove the plug. If storing the machine for long periods, switch the circuit breakers to the off position.
5. Remote Control Storage: After disconnecting the generator, open the control panel and store the remote control and antenna if they have been used.
6. Generator Isolation Switch: Ensure the isolation switch is in the open position, this will prevent any residual electricity bleed that can flatten the battery.

Engage Battery Isolator to avoid unwanted battery discharge

Transport Procedure

1. Travel Latch: Ensure the cannon is lowered into its cradle and the travel latch is engaged.
2. Forklift Points: Use the forklift points on both long sides of the S45AU, be careful not to damage the switches on the control panel.
3. Dimensions: The S45AU unit measures 1900mm x 1200mm x 1500mm at 650kg making it practical for transport on most trucks and utes.
4. Securing the Load:
   - When transporting the S45AU on a ute or truck, secure the load with load-rated straps.
   - Ratchet straps can be run across the top of the turret box, but avoid the three proximity sensors and the control panel and make sure not to pinch any hoses or electrical cables.
5. Protection: If transporting on an open-air vehicle, cover the cannon to protect it from bugs and other elements.

The S45AU can only be picked up on the long edge

MAINTENANCE

Servicing Procedure
The OZmist S45AU Mist Cannon is equipped with one of OZmist's renowned industrial pump units, capable of pressurizing 18 liters of water per minute at 1000 PSI (70 bar). Known for their reliability and performance, our pumps require proper maintenance to ensure longevity.

Checking the Oil

1. Access the Pump:
   - Undo the catch on the turret door and lower the lid.
   - Remove the pin that stops the high-pressure pump from sliding out on its rails.
   - Slide the pump out on its rails to access the silver canister on top of the pump.
2. Oil Level Check:
   - Unscrew the cap on the silver canister.
   - Check that the oil level is halfway up the silver canister.
   - If the oil level is below halfway, top up with 10W-50 fully synthetic oil.

Changing the Oil

1. Prepare for Draining:
   - Remove the pin/bolt and slide the pump out on its rails until you locate the brass oil drain plug on the underside of the pump unit.
   - Place a suitable container under the pump to catch the oil.
2. Drain the Oil:
   - Remove the drain plug to allow oil to flow into the container.
   - Remove the cap from the top of the silver canister and store it safely.
   - Once all oil has drained, replace and firmly tighten the drain plug.
3. Refill with Oil:
   - Slowly pour oil into the silver canister, allowing air to bubble and escape.
   - Fill until the oil level is halfway up the silver canister.
4. Post-Oil Change:
   - Run the pump for a short period to circulate the new oil.
   - Check the oil level again and top up if necessary.

Oil Specification

- Only use 10W-40 or 10W-50 fully synthetic oil in our pumps.

Additional Maintenance

- Change the oil every 500 hours of operation.
- Regularly check the oil level to ensure it remains at the correct level.
- **Refer to the Makinex generator user manual supplied with each mist cannon for their recommended service intervals.**

Proper maintenance will ensure the longevity and optimal performance of your OZmist S45AU Mist Cannon.

Only use 10W-40 or 10W-50 full synthetic Oil when servicing

The Reservoir only needs to be filled half way

MAINTENANCE

Servicing Procedure

Nozzles
Each cannon is fitted with 60 high-pressure misting nozzles. It is important to visually inspect these nozzles periodically to check for blockages.
Follow these steps if you identify a blocked nozzle:

1. Shutdown:
   - Shut down the unit completely.
2. Nozzle Removal:
   - Once the unit has stopped, carefully remove the face of the blocked nozzle (refer to the image in the manual) ensuring you do not lose any of the small components inside.
3. Cleaning:
   - Wash the blocked nozzle face in clean water.
   - For calcium build-up, soak the nozzle face in a product such as CLR Clear.

Nozzles consist of 5 Parts - Face / Body / Shuttle / Rubber Ball

Water Filtration
There are two inline 10" cartridge filters installed on the outside of the turret box. Regular maintenance of these filters is crucial to prevent issues with the high-pressure pump and to avoid machine downtime.
Here's how to manage your filters:

1. Filter Types:
   - The filter closest to the water inlet is a 10-micron filter.
   - The second filter is a 5-micron filter.
2. Regular Checks:
   - Check these filters regularly as a blocked filter can cause problems with the high-pressure pump.
3. Filter Replacement:
   - Use the appropriate tooling provided with each mist cannon to remove and replace the filters.
   - Filters can be purchased from most plumbing supply stores.
4. Clean Filters:
   - Running the machine with dirty filters can allow dirt to travel through the system clogging the nozzles, and starve the pump of water..

5-Micron & 10-Micron Filters are used in all Cannons

By maintaining clean nozzles and filters, you ensure the optimal performance and longevity of your OZmist S45AU Mist Cannon.

Filter Housing Spanners are sent with every Mist Cannon

MAINTENANCE

Spare Parts and Tools
When you purchase one of our mobile mist cannons, a toolbox containing essential spare parts and documentation is provided. This toolbox ensures you have everything needed for machine operation and maintenance. This toolbox should be kept in a dry location.

Consumable Products
The following consumables are included in the toolbox:

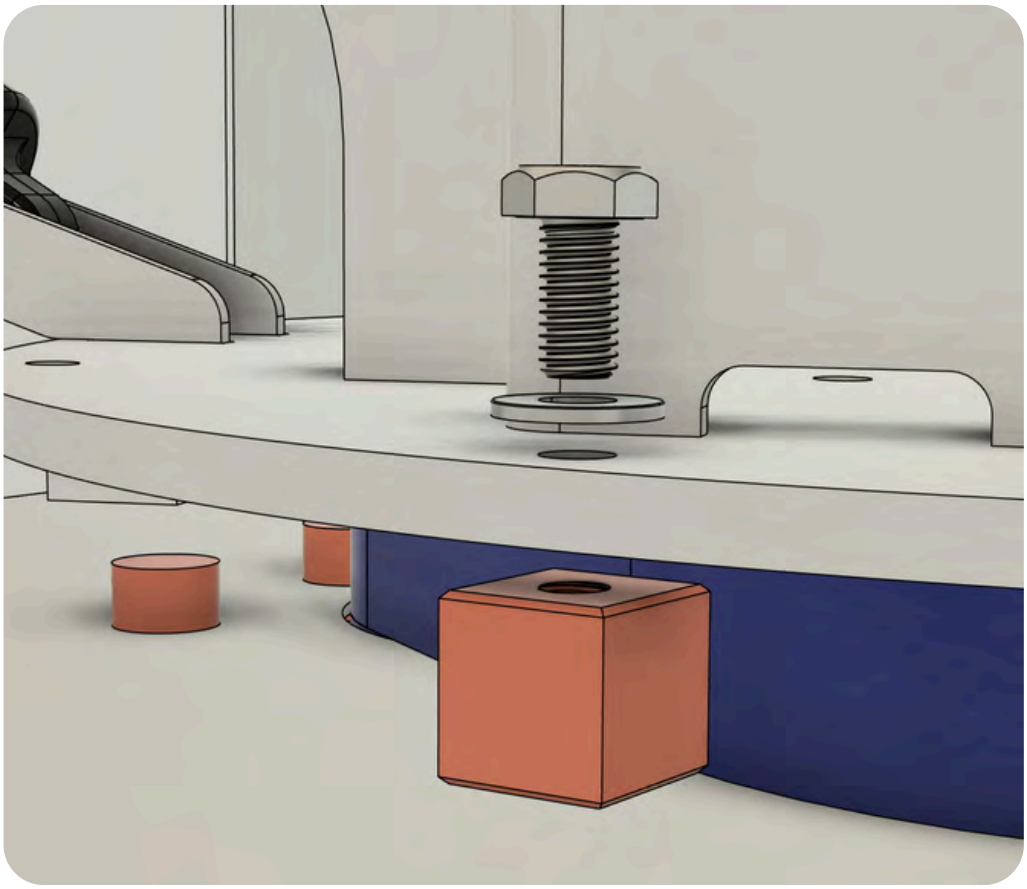
- Replacement 5-micron cartridge filters
- Replacement 10-micron cartridge filters
- Replacement 0.5mm high-pressure misting nozzles
- 1-litre bottle of 10W-50 fully synthetic oil

Components and Tools
The toolbox also contains essential components and tools for maintaining and operating your mist cannon:

- Oscillation blocks for limiting the machine's left and right rotation.
- Plastic spanner for removing the filter housing for inspection and replacement.
- Makinex / Honda Generator Manual

These spare parts and tools are provided to ensure that your OZmist S45AU Mist Cannon operates efficiently and is easy to maintain. If tools or consumables require replacing, these can be purchased by contacting OZmist. See more in our spare parts pages below.

Both Filter Housings and Gauges are replaceable



Each machine is supplied with two Oscillation Blocks

REMOTE CONTROL OPERATION

Remote Operation
The S45AU Mist Cannon can be operated remotely for convenience and efficiency. This section details the remote operation procedure and the functions of the remote control buttons.

Battery Requirements
- The remote control requires 2 x AA batteries, which are supplied, installed, and tested by OZmist upon purchase of the cannon.

Remote Control Buttons
- **Green Button**: Turns the remote ON (not the mist cannon).
- **Red Button**: Turns the remote OFF (not the mist cannon).
- **Button A**: Starts the fan.
- **Button B**: Starts the misting pump. Note that it takes 15-20 seconds to ramp up if the fan has just started.
- **Buttons C & D**: Adjust the pitch angle of the cannon and mist projection.
- **Buttons E & F**: Function as manual left and right oscillation control.
- **Button G**: Engages automatic oscillation mode.
- **Button H**: Currently has no function.

Important Notes
- Always turn the remote off by pressing the Red button once remote operation is no longer required and the cannon is switched back to manual control. This ensures the remote does not run out of battery.

Remote Signal Reception
- The remote signal is received by an antenna stored within the electrical cabinet. For the full 100m range, the antenna needs to be removed and stuck to the external surface of the electrical cabinet using its magnetic base.
- These antennas must not be lost or damaged.

Replacement of Remote Control Unit
- If a remote control unit is lost or damaged beyond repair, the entire remote control module must be replaced as each module uses its own frequency.
- This replacement can be completed by industrial electricians or the cannon can be shipped back to OZmist for the repair at the client's cost.

By following these guidelines, you can effectively and efficiently operate the S45AU Mist Cannon using the remote control.

The Remotes should be stored in the Electrical Cabinet of the Cannon when not in use.

Every Remote Module is unique to its own Cannon

FREQUENTLY ASKED QUESTIONS (FAQ)

FAQ

Q: Why is the generator running but the fan will not start?

- Ensure Secure Connections: Make sure the power cable is securely connected to the generator.
- Check Main Power Switch: Verify that the main power switch on the generator is turned on.
- Reset Button: Ensure that the Blue Reset Button has been pressed twice once the Generator is running.
- Monitor Incoming water pressure: Ensure the water feed has ample supply, if this is too low the pressure switch on our Pump will trigger and put the Cannon into fault.
- Safety Inspection: If issues persist, turn off the generator and seek assistance from qualified personnel to inspect the overload switch inside the control panel.

Q: Why won't the cannon tilt up from its homed position?

- Stop Button: Confirm that the stop button is disengaged.
- Power Check: Ensure that there is power by checking if the green light on the control board is illuminated.
- Reset Button: Ensure that the Blue Reset Button has been pressed twice once the Generator is running.
- Latch Pressure: If the cannon has been slightly raised with the travel latch locked, causing pressure on the latch preventing it from undoing, hold down the down switch while the machine is running until the latch can be safely undone.
- Qualified Assistance: If issues persist, turn off the generator and seek assistance from qualified personnel to inspect the circuit breaker inside the control panel.

Q: Why is the mist cannon not giving a consistent mist?

- Blocked Filters: The primary cause of inconsistent mist is blocked filters, which can starve the misting pump. This not only causes loss of mist quality but can also cause costly or irreversible damage to the high-pressure pump.
- Filter Maintenance: Regularly check and replace filters to ensure optimal performance and prevent damage.

OZmist Contact Details
Email: enquiries@ozmist.com.au
Office Phone: 1300 306 478
Address: 31 Baker Street, Wangaratta VIC 3677

Additional FAQs

Q: What are the startup procedures for the S45AU Mist Cannon?

- Before Starting: Perform a safety check, ensure the cannon is on a flat surface, disengage the travel latch, check the fan and nozzles, and verify the oil level in the high-pressure pump.
- Starting: Check fuel and water levels, ensure remote and antenna conditions, connect and turn on the 32A plug, ensure the isolation switch and emergency stop are properly set, start the generator, and engage the misting system.

Q: What are the after-use and transport procedures for the S45AU Mist Cannon?

- After Use: Center and lower the cannon, engage the travel latch, activate the stop button, engage the generator isolator switch, and store the remote and antenna.
- Transporting: Secure the load with rated straps, double-check the cannon's position and travel latch, and cover the cannon if transported on an open-air truck or ute.

Q: How do I service the S45AU Mist Cannon?

- Nozzles: Regularly inspect and clean the misting nozzles to prevent blockages.
- Water Filtration: Check and replace the 5-micron and 10-micron cartridge filters regularly to maintain optimal performance and prevent dirt from reaching the nozzles.
- Pump Maintenance: Change the oil every 300 hours of operation and regularly check the oil level. Use only 10W-40 or 10W-50 fully synthetic oil.

Q: What spare parts are provided with the S45AU Mist Cannon?

- Consumable Products: Replacement 5-micron and 10-micron cartridge filters, 0.5mm high-pressure misting nozzles, and a 1-litre bottle of 10W-50 fully synthetic oil.
- Tools and Components: Oscillation blocks for limiting rotation, and a plastic spanner for filter housing inspection and replacement.

Q: How do I operate the S45AU Mist Cannon remotely?

- Remote Control Functions: Green button to turn on the remote, red button to turn off the remote, button A to start the fan, button B to start the misting pump, buttons C and D to adjust the pitch angle, buttons E and F for manual oscillation control, and button G for automatic oscillation mode.
- Antenna Placement: Remove and place the antenna on the external surface of the electrical cabinet for a full 100m range.
- Replacement of Remote Control Unit: If the remote is lost or damaged, the entire remote control module must be replaced, which can be done by industrial electricians or at OZmist.

WARRANTY

OZMIST
LIMITED WARRANTY AGAINST DEFECTS POLICY
This document sets the limited warranty against defects for certain products manufactured by Ozmist Pty Ltd ACN 096 811 488 (referred to in these terms and conditions as 'Ozmist', 'we', 'us', or 'our'). A person or organisation who has purchased an Ozmist product will be referred to in this document as 'you' or 'your'.

Ozmist warrants that the products that it sells directly to you are free from defects in workmanship. Our products are put through tests and inspections before they are sold to you. If within the Warranty Period defined below, you believe a product you have purchased from us does not comply with this warranty, then you must follow the process set out in this warranty document.

Australian Consumer Law Disclaimer
Our goods and services come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.
This warranty is in addition to your rights under the Australian Consumer Law.

2. What the Warranty Covers
This warranty applies:
1. To any Ozmist products, including parts of a product, except as excluded in clause 3 (Product);
2. and
3. For 1 year from the date you purchased the Product from us (Warranty Period).

3. Exclusions
This warranty does not cover any consumables, including but not limited to nozzles, pumps, internal seals, water filters, nylon tubes and similar components of a Product.
This warranty also does not cover any defect which is a result of your or another party's fault, including but not limited to:
- Failure to properly install the Product in accordance with our instruction manuals;
- Failure to use the Products in accordance with our instruction manuals;
- Exposure to conditions due to the manner in which the Product is installed, used or stored;
- Power supply issues that affect the installation or use of the Product;
- Failure to store the Product in a secure facility;
- Modification or misuse of the Product;
- Regular wear and tear.

4. How to Make a Claim Under This Warranty
Making a Claim
If within the Warranty Period, you believe that a Product you purchased is faulty, you must immediately stop using the Product and please contact us by using the email address provided in the header of this warranty document with full details of the fault (including images).
Further Inspection
If we determine that your product may be defective, we will either:
- Request that you send your Product (or a part of a Product, such as the motor) back to us, at your cost, for further inspection using our own testing methods, including any requested accessories, documentation or registration shipped with the Product. or;
- If your Product is located within a reasonable distance of our business address provided in the header of this warranty document (Product Location), we may, at our absolute discretion, visit the Product Location for further inspection or to pick up the Product for repairs, within a reasonable time notified by us to you. If we choose to do this, we will communicate to you the date/s and time/s we will travel to the Product Location and you must ensure that you or a representative is available at those dates and times.

After Inspection
If we determine, in our absolute discretion:
- If the relevant Product is faulty and covered by this warranty, we will provide you with a repair, replacement or refund of the Product at our cost. or;
- If the relevant Product is not faulty or is faulty due to your fault or any exclusions set out in clause 3, we will refuse your warranty claim.

5. No Other Warranties
To the maximum extent permitted by applicable law, all express or implied representations and warranties not expressly stated in this warranty document, or in any written terms and conditions issued by us, are excluded.

6. Liability
To the maximum extent permitted by law, we exclude any liability that may arise as a result of you pursuing a warranty claim in accordance with this warranty document.

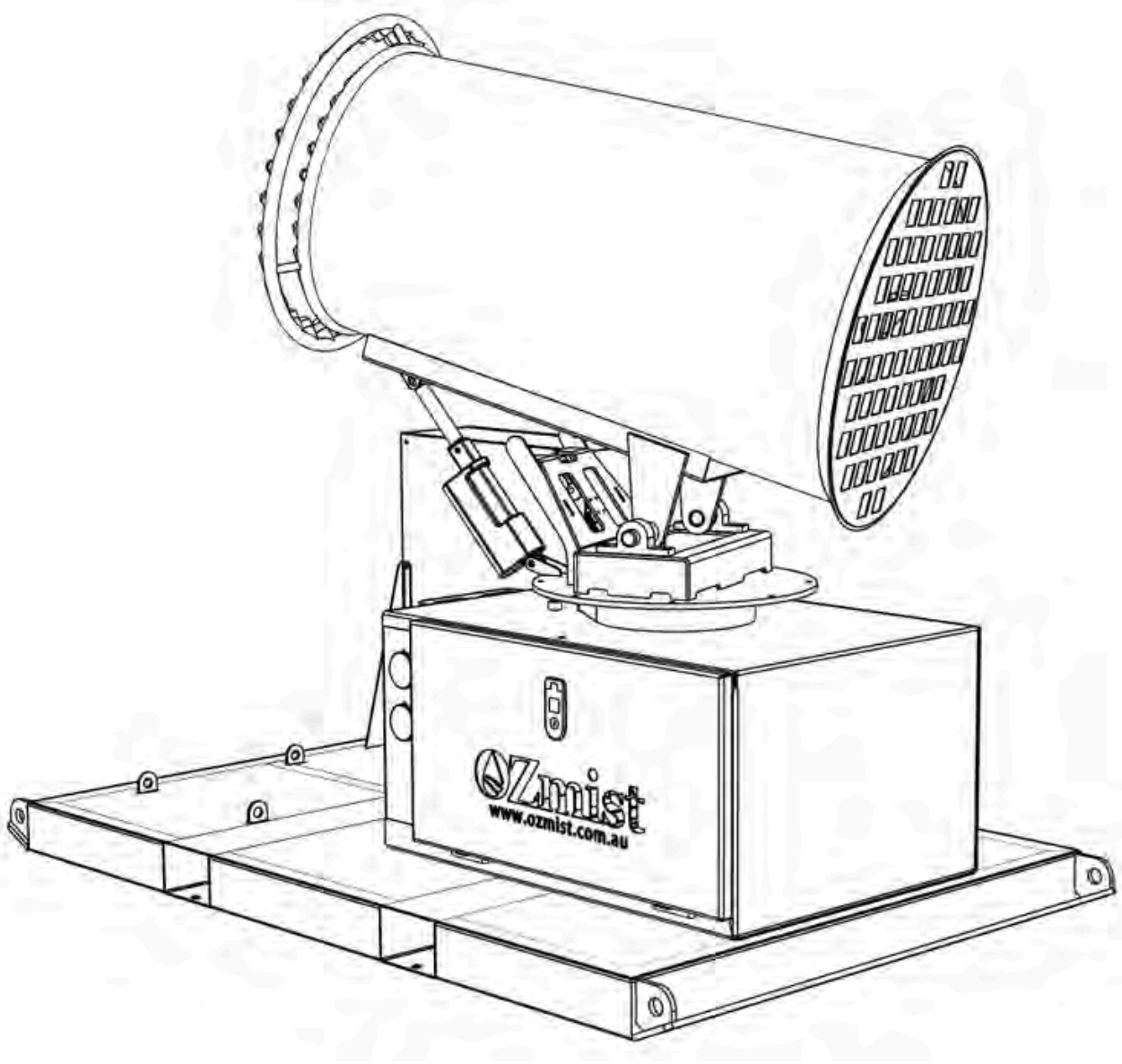
7. Jurisdiction
This warranty document is governed by the laws of Victoria, Australia.

SPARE PARTS

The following section covers the spare parts diagrams and lists that were current at the time this manual was originally printed. Due to continuous improvements of the machine, changes may be made at any time without notification.

HOW TO ORDER SPARE PARTS

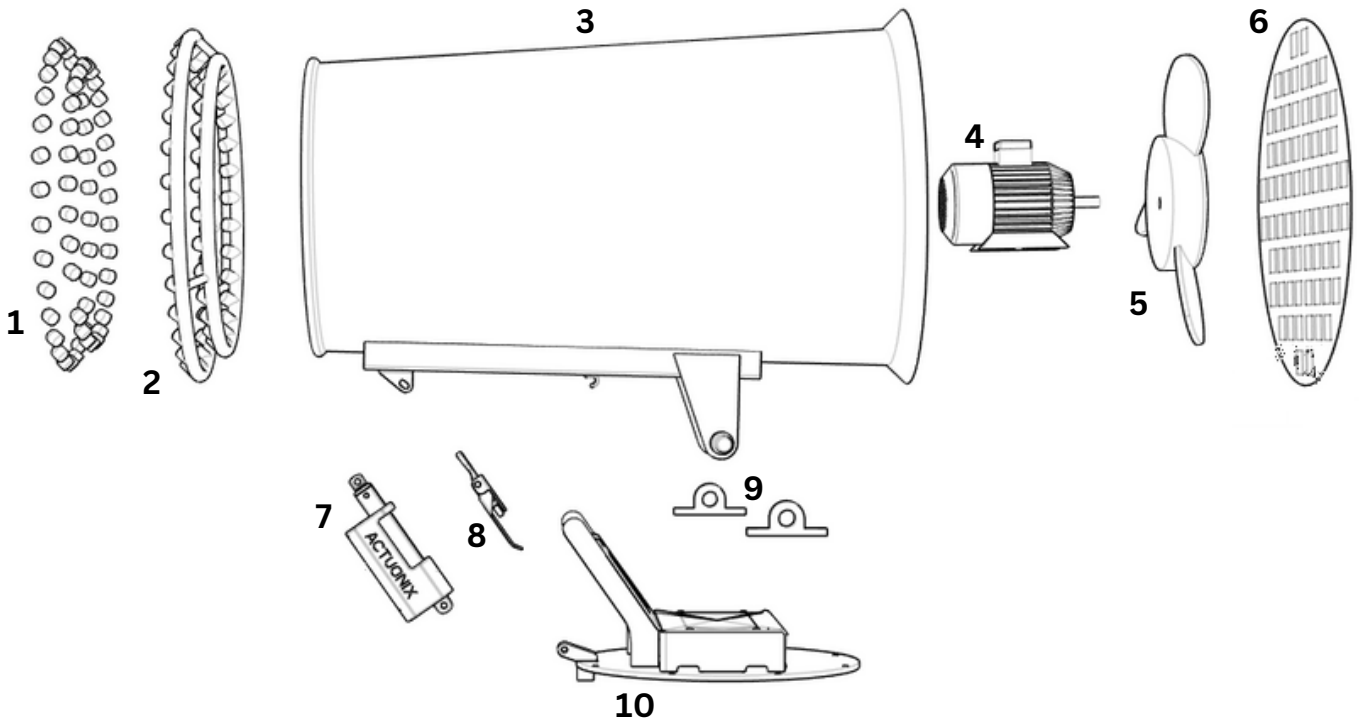
1. Have your machine's model number, serial number & date of manufacture on hand, these can be found on the specification plate mounted on the machine.
2. Contact OZmist with the Part Numbers for the components required and a quote will be generated by one of our team for the supply.
3. Please email enquiries@ozmist.com.au or phone 1300 306 478.



Special Order may be required for components if out of stock.

S45AU Mist Cannon - Spare Parts Section

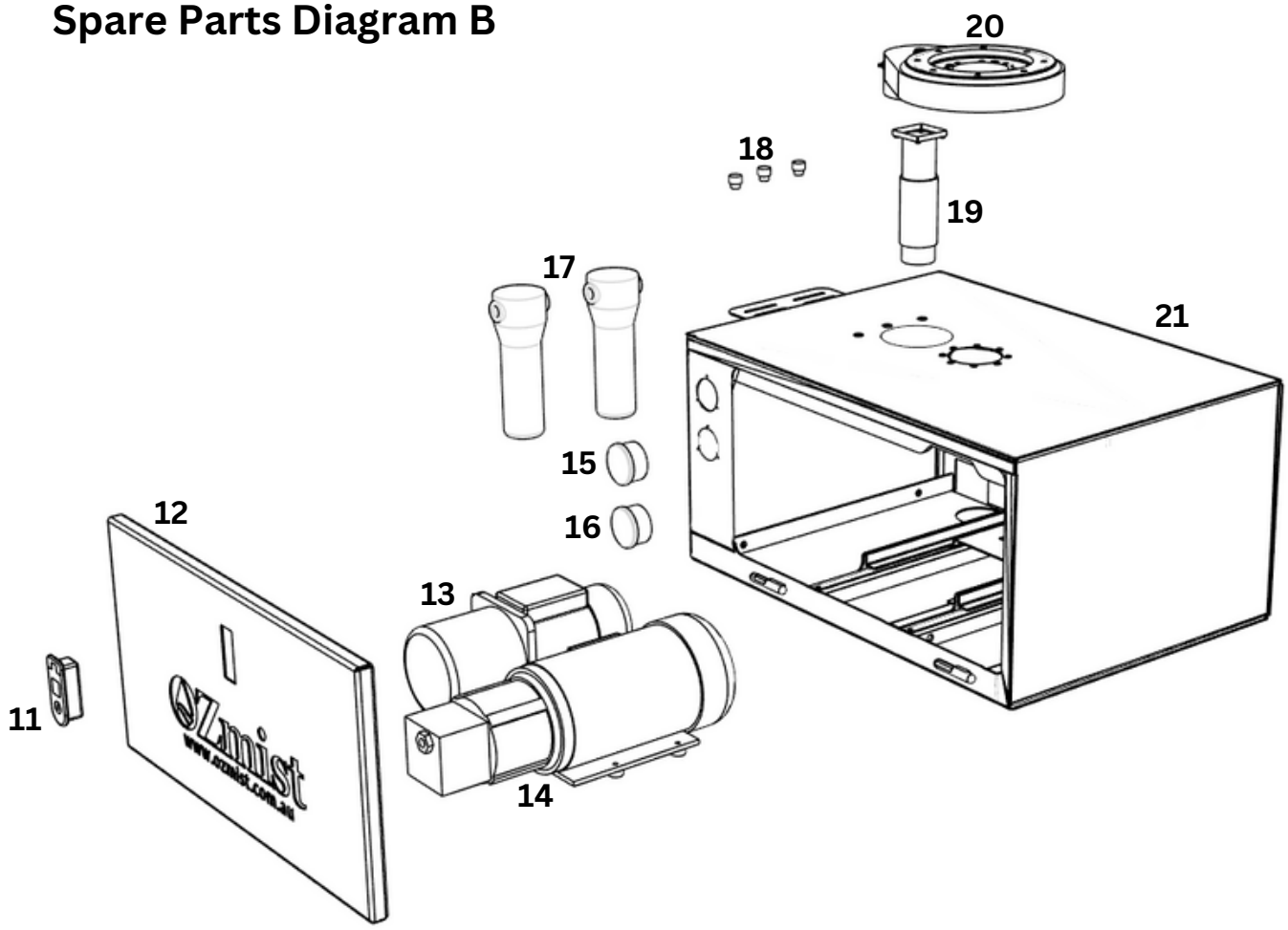
Spare Parts Diagram A



#	Part Description	Part Number
1	Nozzles 1/8" BSP 0.5mm	9.3.013
2	60 Nozzle Mist Ring	9.3.009
3	Cannon Casing	9.3.038
4	5.5kw Motor	9.3.007
5	Impellar	9.3.042
6	Cannon Casing Grill	9.3.041
7	Actuator	9.3.001
8	Travel Latch	9.3.043
9	Casing Mount Bearings	9.3.044
10	Cradle Assembly	9.3.012

SPARE PARTS

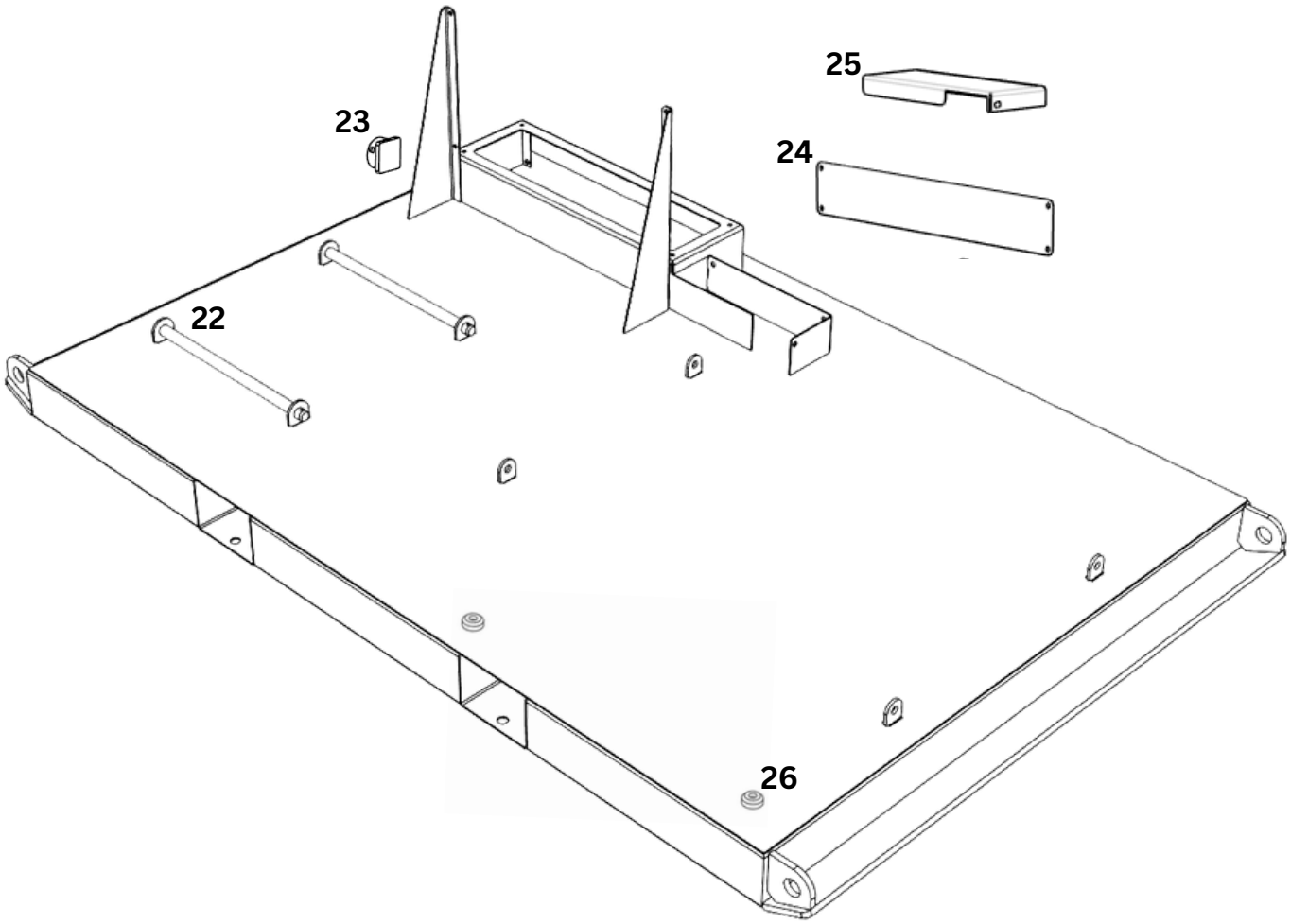
Spare Parts Diagram B



#	Part Description	Part Number
11	Door Latch w/ Key	9.3.049
12	Turret Box Door	9.3.050
13	Transfer Pump	9.3.005
14	High-Pressure Pump	1.5.004
15	High-Pressure Gauge	1.6.051
16	Low-Pressure Gauge	1.6.050
17	Filter Housing	11.2.003
18	Proximity Oscillation Sensors	9.3.033
19	Oscillation Motor	9.3.047
20	Oscillation Gear	9.3.048
21	45AU Series Turret Box	9.3.011

SPARE PARTS

Spare Parts Diagram C

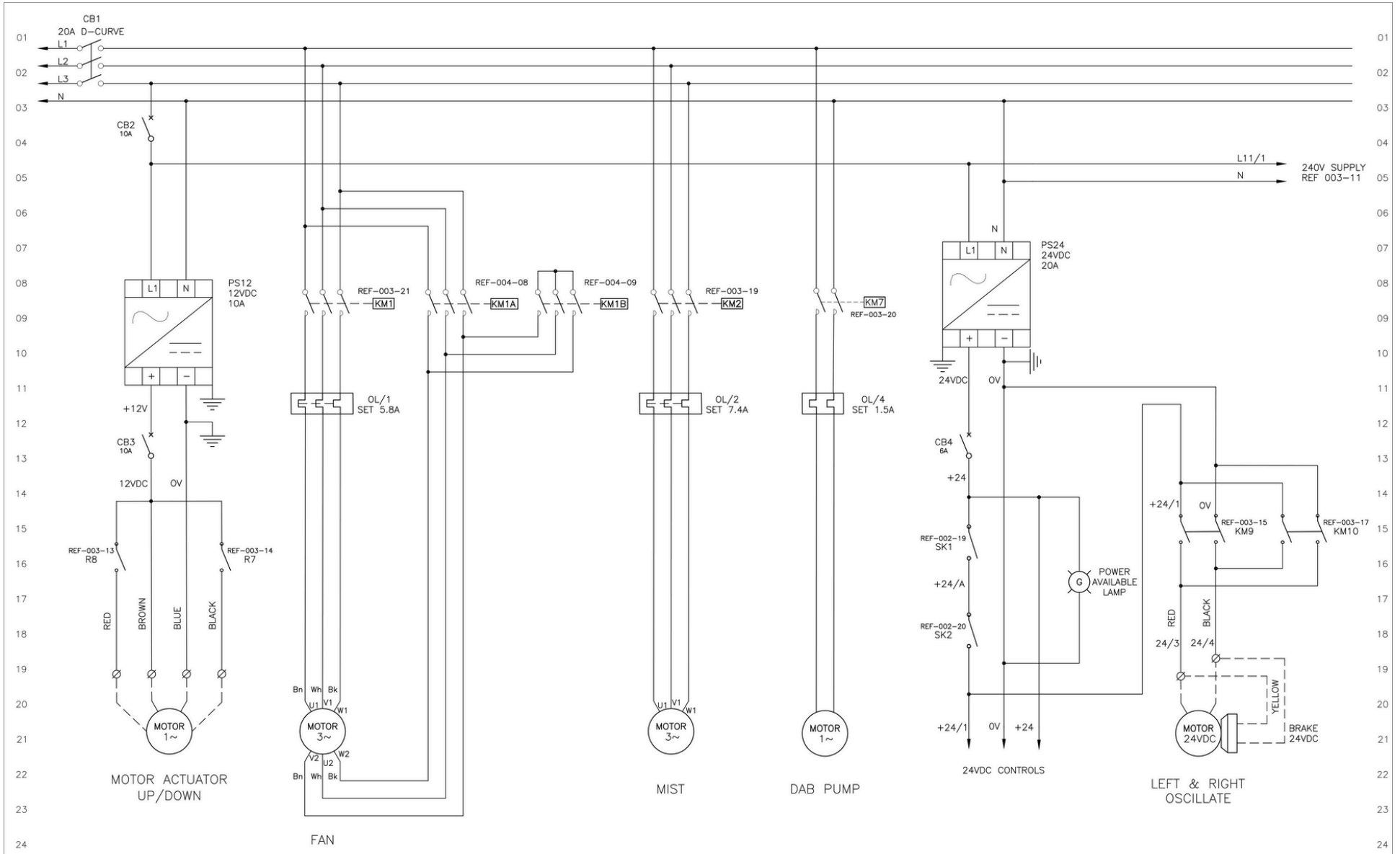


#	Part Description	Part Number
22	Generator Mount Pins	9.3.050
23	Generator Isolation Switch	9.3.052
24	Control Board Lower Panel	9.3.053
25	Cable Channel Cover	9.3.054
26	Rubber Door Stop	1.8.001

SPARE PARTS

Spare Parts Diagram D

#	Part Description	Part Number
30	Emergency Stop Button	Contact OZmist
31	Reset Button	Contact OZmist
32	Red LED Lens	Contact OZmist
33	Spring Loaded Centre Panel Switch	Contact OZmist
34	Green LED Lens	Contact OZmist
35	Left / Right Toggle Panel Switch	Contact OZmist
36	Panel Lock	Contact OZmist



REV	DATE	DESCRIPTION	DWN	CHK	APP
6	29.11.2023	CHANGED NAME TO MIST CANNON S45	R.B	T.J	
5	10.09.2023	REVOVED MECHANICAL INTERLOCKS	R.B	T.J	
2	29.10.2022	ADDED 12VDC COLOURS	R.B	J.B	
7	14.03.2024	REMOVED 415 VOLT OSCILATE AND ADDED 24 VOLT OSCILATE MOTOR	R.B	J.B	

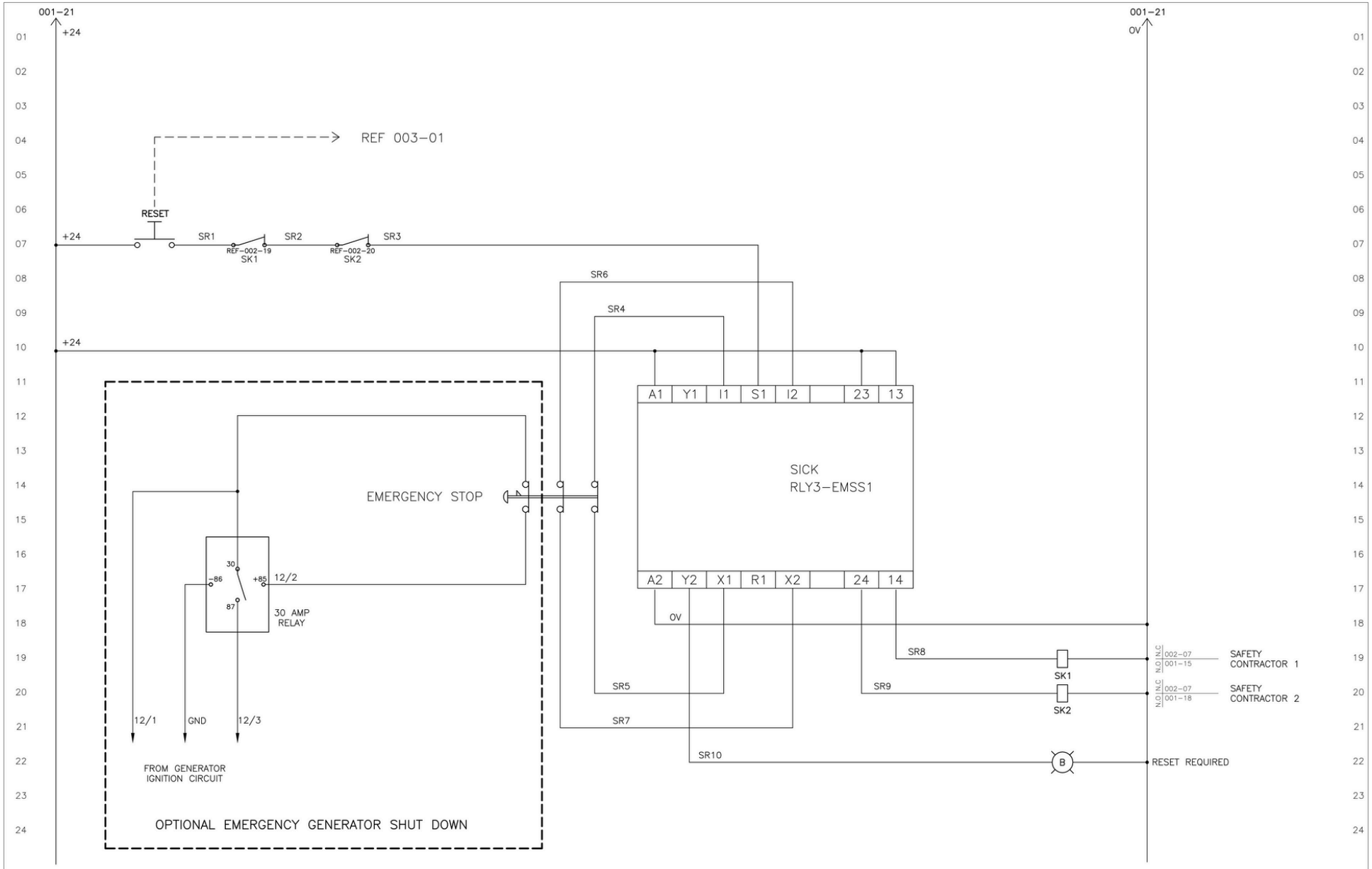
JB INDUSTRIAL ELECTRICS
2-14A PROVIS STREET
WANGARATTA, VIC. 3678
ABN 35 645 744 985

DRAWN BY	R.B	25.07.2022
CHECKED BY	J.B	28.07.2022
APPROVED BY		

CLIENT: OZMIST

DRAWING TITLE: MIST CANNON S45
3 PHASE DISTRIBUTION
ELECTRICAL SCHEMATICS

DRG STATUS: AS BUILT
SIZE: A3
SCALE: 1:1
DRG No: 001
REV: 7
SHEET:- 1 of 4



REV	DATE	DESCRIPTION	DWN	CHK	APP
7	14.03.2024	REMOVED 415 VOLT OSCILATE AND ADDED 24 VOLT OSCILATE MOTOR	R.B	J.B	
6	29.11.2023	CHANGED NAME TO MIST CANNON S45	R.B	T.J	
5	10.09.2023	ADDED OPTIONAL EMERGENCY GENERATOR SHUT DOWN	R.B		
1	29.10.2022	RE NAMED SAFETY REALYS	R.B	J.B	

JB INDUSTRIAL ELECTRICS
2-14A PROVIS STREET
WANGARATTA, VIC. 3678
ABN 35 645 744 985

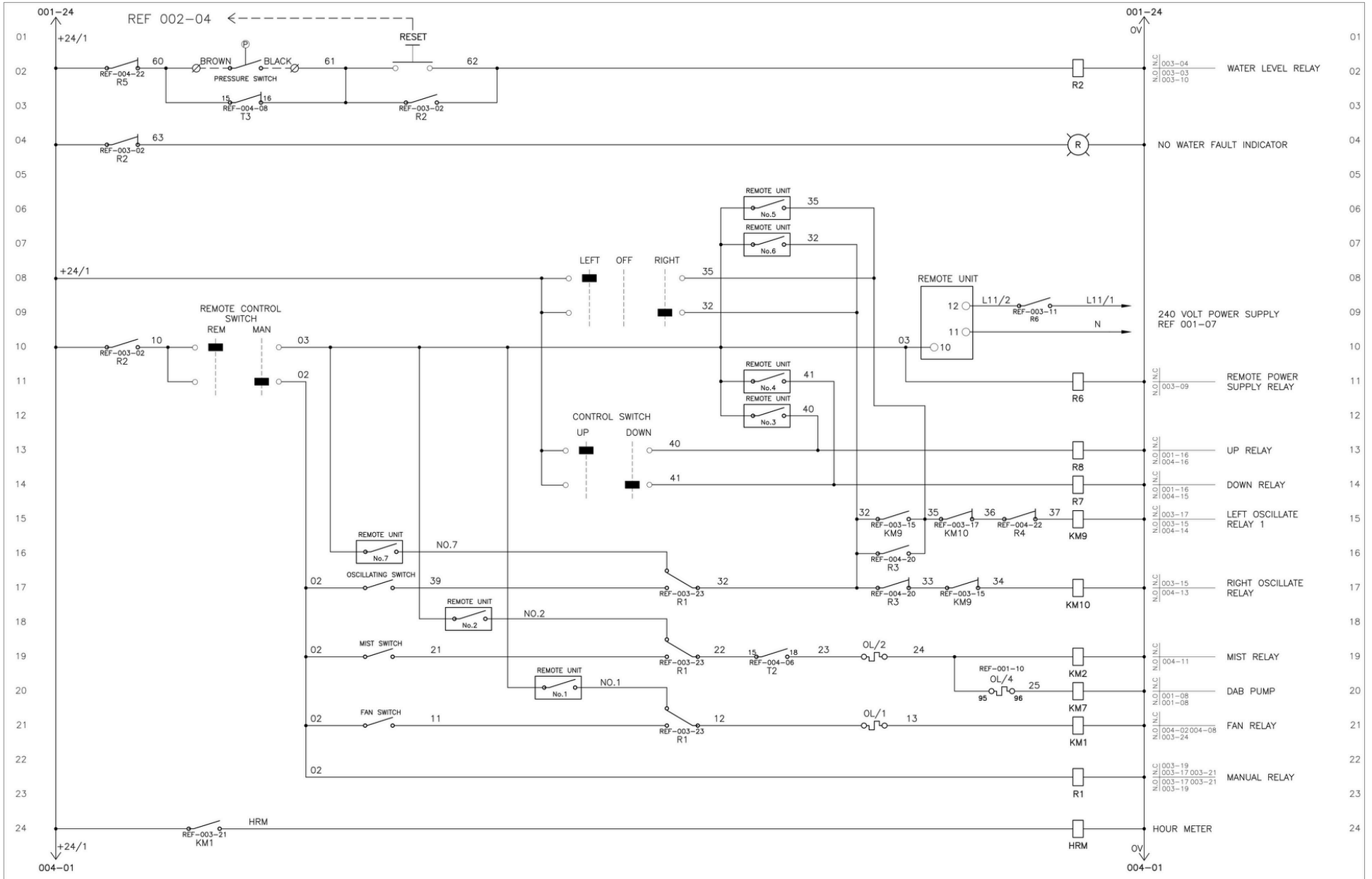
DRAWN BY	R.B	25.07.2022
CHECKED BY	J.B	28.07.2022
APPROVED BY		

CLIENT: OZMIST

DRAWING TITLE: MIST CANNON S45
SAFETY RELAY
ELECTRICAL SCHEMATICS

DRG STATUS: AS BUILT
SIZE: A3
SCALE: 1:1
DRG No: 002
REV: 7

SHEET:- 2 of 4



REV	DATE	DESCRIPTION	DWN	CHK	APP
7	14.03.2024	REMOVED 415 VOLT OSCILATE AND ADDED 24 VOLT OSCILATE MOTOR	R.B		
6	29.11.2023	CHANGED NAME AND REMOVED FLOAT DESCRIPTION	R.B	T.J	
2	29.10.2022	ADDED HOUR METER	R.B	J.B	
1	07.06.2022	CHANGERS TO REMOTE CONNECTIONS	R.B	J.B	

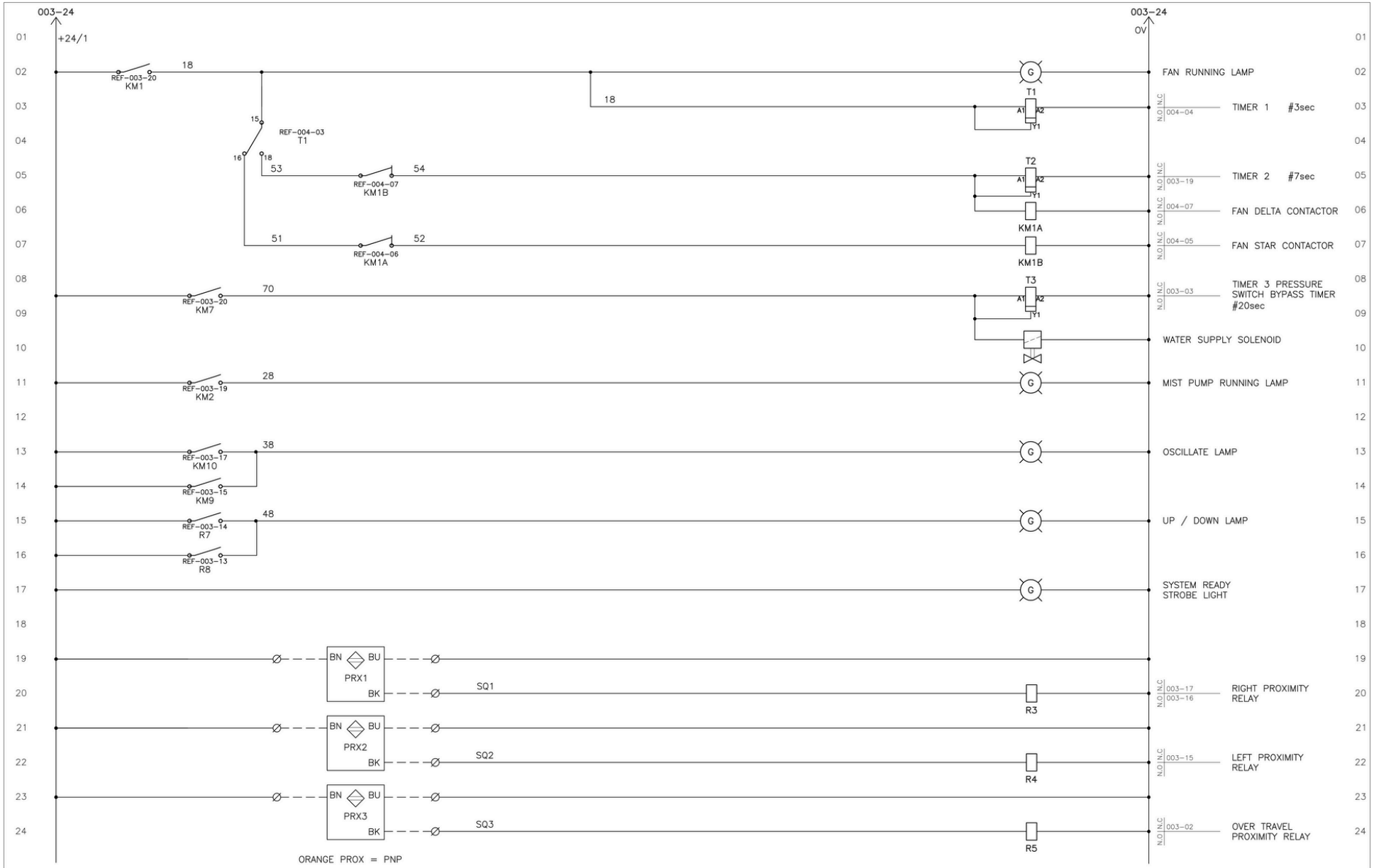
JB INDUSTRIAL ELECTRICS
2-14A PROVIS STREET
WANGARATTA, VIC. 3678
ABN 35 645 744 985

DRAWN BY	R.B	25.07.2022
CHECKED BY	J.B	28.07.2022
APPROVED BY		

CLIENT: OZMIST

DRAWING TITLE: MIST CANNON S45
24VDC CONTROLS
ELECTRICAL SCHEMATICS

DRG STATUS: AS BUILT
SIZE: A3
SCALE: 1:1
DRG No: 003
REV: 7
SHEET:- 3 of 4



REV	DATE	DESCRIPTION	DWN	CHK	APP
6	29.11.2023	CHANGED NAME AND ADDED TIMER 3	R.B	T.J	
3	09.03.2023	CHANGED PROXIMTYS TO PNP	R.B	J.B	
2	29.10.2022	CHANGED STOBE LIGHT DESCRIPTION	R.B	J.B	
7	14.03.2024	REMOVED 415 VOLT OSCILATE AND ADDED 24 VOLT OSCILATE MOTOR	R.B	J.B	

JB INDUSTRIAL ELECTRICS
2-14A PROVIS STREET
WANGARATTA, VIC. 3678
ABN 35 645 744 985

DRAWN BY	R.B	25.07.2022
CHECKED BY	J.B	28.07.2022
APPROVED BY		

CLIENT: OZMIST

DRAWING TITLE: MIST CANNON S45
24VDC CONTROLS
ELECTRICAL SCHEMATICS

DRG STATUS: AS BUILT
SIZE: A3
SCALE: 1:1
DRG No: 004
REV: 7
SHEET:- 4 of 4

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design&construction

20 Trafalgar street, Wodonga. Vic.3690
P.O. Box 5006, Wodonga Plaza. Vic. 3690
Phone: (02) 6024 6044
Fax: (02) 6024 6055
Email: admin@edcelectrical.com.au
Web: www.edcelectrical.com.au
ABN 31 085 651 314
REC VIC 13763 / NSW 110946C

Date: 25th February 2020
Revision: 1
Reference: 250220OzMist

Dean McDonald
Director
OzMist

Dear Dean,

Thank you for participating in the Electrical Safety Risk Assessment on the Ozmist Mist Cannon Trailer.

This assessment was required to accurately determine if and what type of Emergency Stop is required.

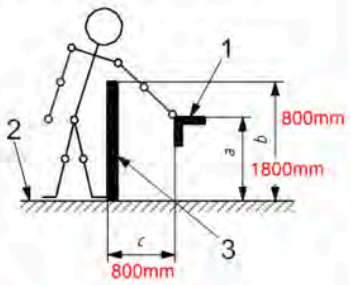
Results of the risk assessment have determined that no Electrical E-Stop circuit is required if the following mechanical guarding is installed;

Rack & Pinion

- New Fixed Guarding to be installed on the most outer ring of the turret to isolate all internal moving parts. Resulting in satisfactory guarding complying with the Australian Standards (AS 4024.1801-2006 – Table 1 safety distances used where a low risk exists)

4.2.2 Reaching over protective structures

Figure 2 shows the safety distance for reaching over a protective structure.



Key

a	height of hazard zone 1800mm	1	hazard zone (nearest point)
b	height of protective structure 800mm	2	reference plane
c	horizontal safety distance to hazard zone 800mm	3	protective structure

Table 1 — Reaching over protective structures — Low risk

Dimensions in millimetres

Height of hazard zone [b] *a*	Height of protective structure [a] *b*								
	1 000	1 200	1 400	1 600	1 800	2 000	2 200	2 400	2 500
	Horizontal safety distance to hazard zone, *c*								
2 500	0	0	0	0	0	0	0	0	0
2 400	100	100	100	100	100	100	100	100	0
2 200	600	600	500	500	400	350	250	0	0
2 000	1 100	900	700	600	500	350	0	0	0
1 800	1 100	1 000	900	900	800	0	0	0	0
1 600	1 300	1 000	900	900	500	0	0	0	0
1 400	1 300	1 000	900	800	100	0	0	0	0
1 200	1 400	1 000	900	500	0	0	0	0	0
1 000	1 400	1 000	900	300	0	0	0	0	0
800	1 300	900	600	0	0	0	0	0	0
600	1 200	500	0	0	0	0	0	0	0
400	1 200	300	0	0	0	0	0	0	0
200	1 100	200	0	0	0	0	0	0	0
0	1 100	200	0	0	0	0	0	0	0

[a] Protective structures less than 1 000 mm in height are not included because they do not sufficiently restrict movement of the body.
[b] For hazard zones above 2 500 mm, refer to 4.2.1.

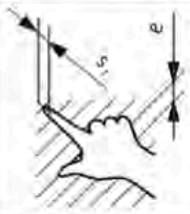
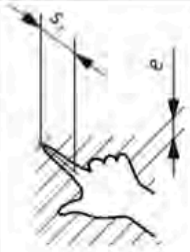
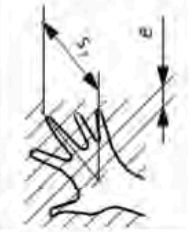
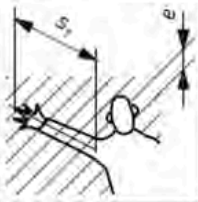
For additional information on the risk assessment, List of possible hazards considered, and performance level required scoring. Please refer to the electrical safety risk assessment attached.

Fan Blades

- 20mm Spacers have been deemed sufficient to increase the safety distance due to the larger sized mesh installed. Noting only an additional 10mm is required to comply with the Australian Standards (AS 4024.1801-2006 – Table 4 Reaching through openings for >14 year old)

Table 4 — Reaching through regular openings — Persons of 14 years of age and above

Dimensions in millimetres

Part of body	Illustration	Opening	Safety distance, s_r		
			Slot	Square	Round
Fingertip		e u 4	W 2	W 2	W 2
		4 < e u 6	W 10	W 5	W 5
Finger up to knuckle joint		6 < e u 8	W 20	W 15	W 5
		8 < e u 10	W 80	W 25	W 20
Hand		10 < e u 12	W 100	W 80	W 80
		12 < e u 20	W 120	W 120	W 120
		20 < e u 30	W 850 [a]	W 120	W 120
Arm up to junction with shoulder		30 < e u 40	W 850	W 200	W 120
		40 < e u 120	W 850	W 850	W 850
The bold lines within the table delineate that part of the body restricted by the opening size.					
[a] If the length of the slot opening is u 65 mm, the thumb will act as a stop and the safety distance can be reduced to 200 mm.					

Review Undertaken By:

Name:	Qualifications:	Company:	Date:
Mark Pfeiffer	Director, Functional Safety Trained (TÜV Rheinland)	EDC Electrical	25/02/2020
Darren Stephens	Functional Safety Qualified (TÜV Rheinland)	EDC Electrical	25/02/2020

Reference Codes, Standards and Publications:

- Occupational Health and Safety Act 2004
- Vic OH&S regulation 2017
- Electrical Safety (Installations) Regulations 2009 of Victoria
- WorkSafe Plant hazard check list
- AS/NZS 4024 series. 2014 Safety of machinery standards
- AS 3000 – Electrical installations (known as the Australian/New Zealand Wiring Rules)

Disclaimer

This review has been undertaken to identify foreseeable hazards and determine control measures to ensure that obligations under the Vic OH&S Act 2004 are met.

Whilst every effort has been made to thoroughly identify foreseeable hazards, determine control measures and assess equipment for compliance with the relevant standards, it should be noted that it remains the responsibility of the designer, manufacture, supplier, installer and business owner to thoroughly assess the design, manufacture and installation for compliance to ensure that all hazards have been adequately controlled to prevent injury.

Residual risk needs to be managed as part of equipment ongoing hazard identification and risk assessment and Standard Operating Procedures

We also advise that where hazards are identified and not eliminated a risk assessment must be undertaken as soon as possible in consultation with employees and in accordance with the Vic OH&S Act 2004

Yours Faithfully

Mark Pfeiffer

Mobile: +61 417 366 207
Phone: +61 2 6024 6044
Fax: +61 2 6024 6055
Email: markpfeiffer@edcelectrical.com.au
Website: www.edcelectrical.com.au

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MACHINE SAFETY INSPECTION & TEST PLAN
OZMIST
MIST CANNON ELECTRICAL RISK ASSESSMENT PROCESS

ITP NUMBER	J23055.ITP.011
DATE	25/02/2020
REV	1

PROJECT	Mist Cannon	LOCATION	EDC Workshop	PREPARED BY	Mark Pfeiffer	REVIEWED BY	Darren Stephens
REV NO	1	BUILDING / AREA					
CLIENT	OzMist			DATE	25/02/2019	APPROVED BY	

LEGEND

R	Risk Assessment	Overall process comprising a risk analysis and a risk evaluation
PLE	Performance Level Evaluation	Performance level applied in order to achieve the required risk reduction for each safety function
MSD-E	Machine Safety Design Electrical	Electrical equipment designed and installed, to meet both the functional and performance requirements of the safety functions
MSD-M	Machine Safety Design Mechanical	Mechanical works for safeguarding and complementary protective measures
SAT-E	Site Acceptance Test Electrical	Electrical test activity to be undertaken and recorded
SAT-M	Site Acceptance Test Mechanical	Mechanical test activity to be undertaken and recorded
H	Hold Point	Work shall not proceed pas the hold point until released by the organization imposing the Hold point
RV	Review	Review of reports or other evidence of compliance

REFERENCE DOCUMENTS

Development:

Electrical Safety Risk Assessment

Implementation:

N/A

APPROVAL/REVISION

Rev	Date	Details	Approved by	Date
1	25.02.2020	Assessment Completed	Mark Pfeiffer & Darren Stephens	25.02.2020

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MACHINE SAFETY INSPECTION & TEST PLAN
OZMIST
MIST CANNON ELECTRICAL RISK ASSESSMENT PROCESS

ITP NUMBER	J23055.ITP.011
DATE	25/02/2020
REV	1

Item No.	Activity / Basic Job Step	Responsible	Acceptance Criteria	Applicable Standard	Verification By			Verifying Records / Checklists
					Name / Position	Signature	Date	
1	Risk Assessment	EDC	All Electrical hazards identified & Risk assessment completed	AS/NZS 4024.1201:2014	Mark Pfeiffer Electrical Design Darren Stephens Functional Safety Qualified ((TÜV Rheinland)		25.02.2020	
2	Performance Level Evaluation	EDC	Identify the safety related parts which carry out the safety function	AS/NZS 4024.1503:2014	Mark Pfeiffer Electrical Design Darren Stephens Functional Safety Qualified ((TÜV Rheinland)		25.02.2020	
3	Machine Safety Design Electrical	EDC	Completed design of the safety related parts of a control system	AS/NZS 4024.1501:2014	Mark Pfeiffer Electrical Design Darren Stephens Functional Safety Qualified ((TÜV Rheinland)		25.02.2020 25-02-20	
4	Machine Safety Design Mechanical	OZMIST	Completed design of the safeguarding and complementary protective measures					
5	Site Acceptance Test Electrical	EDC	Demonstrated and documented that each safety related part meets the requirements of AS 4024.1501	AS/NZS 4024.1502:2014	Not Required	Not Required	Not Required	Not Required

Note: Once each stage of the job is completed please sign under the Verification Activity, include name / position and also date when the final task was completed for that line item.

ELECTRICAL SAFETY RISK ASSESSMENT

for

Client:	Ozmist
Site Location:	EDC Workshop
Reference:	
Plant / Equipment Location:	Transportable
Plant / Equipment Details:	Misting Fan (Application Dust Suppression)
Asset Number:	N/A
Assessment Requirement:	

EDC Representatives :	Mark Pfeiffer Darren Stephens
Client Representatives:	Dean McDonald
Date Of Assessment:	25.02.2020

Date :	25.02.2020
Report No :	
Rev :	1.0

Client:	**Ozmist**
Location:	**EDC Workshop**
Equipment Loc:	**Transportable**
Equipment Detail:	**Misting Fan (Application Dust Suppression)**
Asset Number:	**N/A**

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1.0 Reference Standards

Reference	Standards Title
AS/NZS4024.1-2014	Safety of Machinery: Series 1 Australian/ New Zealand Standard
AS4024.2801-2008	AS4024.2801-2008 Safeguarding of Machinery – Installation and commissioning requirements
AS 60204-1:2006	Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2009-02)

2.0 Plant & Machinery Hazard Analysis

The initial stage of Risk Assessment is concerned with the identification of the hazards. In the case of new machinery in the design stage, it may be possible to identify a hazard and conduct a redesign to reduce or eliminate the risks. In the case of existing machinery, this option is rarely possible. The options from this point are to provide protective measures. These usually involve the provision of a combination of fixed and distance guarding.
The lists below provide examples of possible hazards which may exist on plant/machinery and a list of recommended control measures which may be implemented to mitigate or eliminate the hazards.

List of Possible Hazards	List of Recommended Control Measures
None Identified	None Present / Client Responsibility
Mech - Crush hazard from falling material	Administrative Controls / PPE
Mech - Crush hazard on Loading System	Fixed Guard: Replace / Repair existing and/or Fasteners
Mech - Conveyor/Roller; Nip/Pinch Point	Fixed Guarding: Add new and/or Fasteners
Mech - Automatic Cycle / Unexpected Start	Fixed Guard: High level/platform guarding and gate
Mech - Cut hazard on blades/ Machine Parts	Fixed Guard, Polycarbonate: Replace existing
Mech - Plant tipping or rolling over	Fixed Guard, Polycarbonate: Add New
Mech - Being trapped between plant or fixed structures	Movable Guarding/Gate: Replace / Repair existing and/or Fasteners
Mech - Suspended Live Load	Movable Guarding/Gate: Add new, Interlocked
Control Sys - Safety Control Category	Conveyor Underside Guarding: Add new
Control Sys - Fail to Stop	Conveyor Underside Guarding: Add new, Interlocked
Control Sys - Defeated/Jumpered Safeguard Devices	Zone Control: Define/create and guard Safety Zones
Control Sys - Automatic Cycle / Unexpected Start	Zone Control: Relocate existing controls outside of Safety Zones
Control Sys - Jogging / Unlimited Speed	E-Stops Upgrade: Replace with compliant E-Stop PB & Safety Reset
Control Sys - Electric Shock	E-Stops: Install new Emergensy Stop
Multiple hazards in emergency situations	E-Stops: Install new Pull-cord/Lanyard
Electrical - Improper Grounding	Upgrade Safety Controls: PLr Safety-rated components
Electrical - Live parts	Access Control: Add non-locking Gate Switch
Electrical - Flash	Access Control: Add Gate Locking Switch
Electrical - Water ingress	Access Control: Add Trapped Key Switch
Pneumatic - Safety Control Category	Access Control: Add Enabling Switch
Pneumatic - Overpressure	Access Control: Two-Hand Controls
Coming in contact with sharp or flying objects	Presence Sensing: Add Light Curtain
The plant (parts of) or work pieces disintegrating	Presence Sensing: Add Safety Mat
Ejection of work pieces from plant	Presence Sensing: Add Edge Detector
Uncontrolled or unexpected movement of the plant	Presence Sensing: Add Laser Scanner
The mobility of the plant	Pressure Control/Monitoring: Add pressure switch to safety circuit
Entrappment in cell during full body access	Temperature Control/Monitoring: include in safety circuit
Hydraulic - Overpressure	Safe/Zero Speed: Add Speed Sensing relays/controls for safe access
Pressure Vessel	Safe/Zero Speed: Add control reliable circuits for safe access
Slip / Trip / Fall	Pneumatic Isolation: safety contactor/relay only
Temperature / Burn	Pneumatic Isolation: safety contactor/relay pair
Temperature from friction of moving parts	Pneumatic Isolation: safety valve; block/bleed
Hot / Boiling liquids	Hydraulic Isolation: safety contactor/relay only
Chemical / Fumes	Hydraulic Isolation: safety contactor/relay pair
Ergonomics	Hydraulic Isolation: safety valve; block/bleed
Fire / Explosion	Hydraulic Isolation: Add Hose Burst protection
Noise	Mechanical: Add mechanical stop to prevent machine movement
Other factors not mentioned	Other factors not mentioned

Client:	**Ozmist**
Location:	**EDC Workshop**
Equipment Loc:	**Transportable**
Equipment Detail:	**Misting Fan (Application Dust Suppression)**
Asset Number:	**N/A**

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3.0 Risk Estimation & Evaluation Criteria

In order to identify, estimate and reduce the hazards present in machinery a Preliminary Hazard Analysis is performed using Hazard Rating Number (HRN). Using this technique, it is possible to assign a number to a specific risk with higher numbers representing greater risks. Risk is generally described in AS/NZS 4024.1201:2014 (EN 12100) as a function of : frequency of exposure, severity of harm, number of persons exposed & the likelihood of occurrence.
The four parameters are evaluated in the HRN process: HRN = FE x DPH x NP x LO

Frequency of Exposure (FE)

0.5	Annually
1	Monthly
1.5	Weekly
2.5	Daily
4	Hourly
5	Constantly

Degree of Possible Harm (DPH)

0.1	Scratch / Bruise
0.5	Burn, cut, short illness
2	Fracture: minor bone or minor illness (temporary)
4	Fracture: major bone or major illness (temporary)
6	Amputation of a limb, one eye or partial hearing loss
10	Amputation of two limbs,eyes or total loss of hearing or sight
15	Fatality

Number of Persons at Risk (NP)

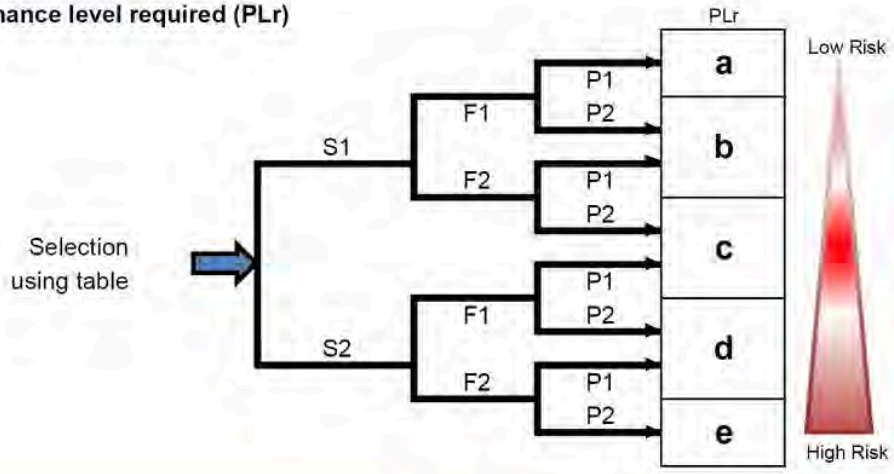
1	1- 2 persons
2	3 - 7 persons
4	8 - 15 persons
8	16 - 50 persons
12	More than 50 persons

Likelihood of Occurrence (LO)

0.033	Little/low possibility, extreme circumstances
1	Highly improbable, but still possible
1.5	Improbable, but still possible
2	Possible, but unusual
5	Although improbable, it may happen
8	Probable – Not surprising
10	Probable – Can be expected
15	Certain – No doubt

HRN	Risk	Comment
0-4.9	Negligible Risk	Presents very little risk to health and safety. The residual risks are to be controlled by awareness training and in some cases by warning signs.
5 – 49.9	Low but significant risk	These are risks that need to be reduced by applying suitable control measures but are not considered urgent
50-499.9	High risk	Having potentially dangerous hazards, which require control measures to be implemented urgently
500 >	Unacceptable Risk	These hazards are extreme and the equipment should not be operated until the level has been reduced.

4.0 Selection of Performance level required (PLr)



S	Severity of injury	Description
S1	slight (normally reversible injury)	bruise, abrasion, puncture wound, minor injury
S2	serious (non-reversible injury or death)	skeletal injuries, amputations and death
F	**Frequency and/or exposure to hazard**	
F1	seldom to less often and/or exposure time is short	less frequently than every two weeks
F2	frequent to continuous or exposure time is long	more often than every two weeks

Client:	**Ozmist**
Location:	**EDC Workshop**
Equipment Loc:	**Transportable**
Equipment Detail:	**Misting Fan (Application Dust Suppression)**
Asset Number:	**N/A**

P	Possibility of avoiding hazard or harm	
P1	possible under specific conditions	slow movements, plenty of space, low power
P2	scarcely possible	quick machine movements, crowded, high power

Client:	Ozmist
Location:	EDC Workshop
Equipment Loc:	Transportable
Equipment Detail:	Misting Fan (Application Dust Suppression)
Asset Number:	N/A

EDCelectrical design&construction

HRN	Risk
0-5	Negligible
6-50	Low, significant
51-500	High
> 500	Unacceptable

HRN = LO x FE x DPH x NP

A. ENTANGLEMENT
Can anyone's hair, clothing, gloves, necktie, jewellery, cleaning brushes, rags or other materials become entangled with moving parts of the Plant, or materials in motion?

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determine PLr requirements)

ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Machine Task / Comments	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mech Guards Present Yes /No	Hazard Rating Number	Risk Level	S	F	P	Cat	PLr
A-1	3	Loose clothing getting caught in the rack & Pinion assembly	Yes	Set-up / Changeover	Administrative Controls / PPE	Improbable but still possible (1.5)	Daily (2.5)	Break Minor bone or minor illness (temporary) (2)	1-2 persons (1)	No	7.5	Low but significant	S1	F1	P1	B	a
A-2	1	Long hair getting sucked into the fan causing entanglement	Yes	Normal Operation	Administrative Controls / PPE	Improbable but still possible (1.5)	Daily (2.5)	Break Major Bone or Major illness (temporary) (4)	1-2 persons (1)	Yes	15	Low but significant					
A-3															P1		
A-4															P1		

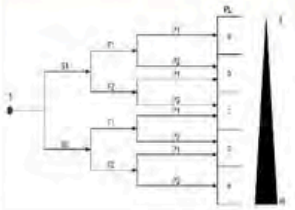
NOTES

Hair & Correct use of PPE to be incorporated into the user manual.
Hair to be neat and tidy with any considerable length the be contained to ensure hair cannot be sucked into fan causing entanglement.

Description of recommended Control Measures

After Hazop the following corrective measures were discussed to remove the Hazard

- Install Guarding on the turret. Guarding to be installed on the outer most ring to isolate all internal moving parts.



Pic 1

Pic 2

Pic 3

Client:	Ozmist
Location:	EDC Workshop
Equipment Loc:	Transportable
Equipment Detail:	Misting Fan (Application Dust Suppression)
Asset Number:	N/A

EDCelectrical design&construction

HRN	Risk
0-5	Negligible
6-50	Low, significant
51-500	High
> 500	Unacceptable

HRN = LO x FE x DPH x NP

B. CRUSHING
Can anyone be crushed due to:

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mechanical Guarding Yes /No	Hazard Rating Number	Risk Level	S	F	P	Cat	PLr
B-1	2	Crushing of fingers when lowering the machinery into home position	Yes	Set-up / Changeover	Administrative Controls / PPE	Highly unlikely - though conceivable (1)	Daily (2.5)	Break Minor bone or minor illness (temporary) (2)	1-2 persons (1)	No	5	Negligible	S1	F1	P1	B	a
B-2																	
B-3																	

NOTES

Description of recommended Control Measures

Recommend adding to safe operating procedure: Operator can only attempt to remove / insert the pin when the machine is turned off. Thus eliminating the crushing hazard.

Pic 1 Pic 2 Pic 4 Pic 5 Pic 6

Client:	Ozmist
Location:	EDC Workshop
Equipment Loc:	Transportable
Equipment Detail:	Misting Fan (Application Dust Suppression)
Asset Number:	N/A

EDCelectrical design&construction

HRN	Risk
0-5	Negligible
6-50	Low, significant
51-500	High
> 500	Unacceptable

HRN = LO x FE x DPH x NP

C. CUTTING, STABBING AND PUNCTURING
Can anyone be cut, stabbed or punctured due to:

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

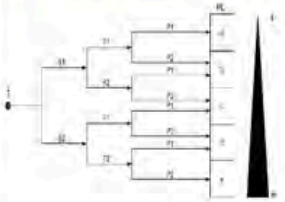
ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mech Guards Present Yes /No	Hazard Rating Number	Risk Level	S	F	P	Cat	PLr
C-1	2	Fingers Coming in contact with sharp or flying objects	Yes	Normal Operation	Fixed Guarding: Add new and/or Fasteners	Highly unlikely - though conceivable (1)	Daily (2.5)	Laceration / mild ill-effect (0.5)	1-2 persons (1)	Yes	1.25	Negligible					
C-2															P1		
C-3															P2		

NOTES

Description of recommended Control Measures

After Hazop the following corrective measures were discussed to remove the Hazard

- Guarding on the back of the fan is unsatafocatory. Addidional 20mm spacers to be installed between fan housing and mesh Guarding to be installed to comply with Table 1 (AS4024.1801-2006_ Safety Distances used where a low risk exists).



Pic 1 Pic 2 Pic 3 Pic 4 Pic 5 Pic 6

Client:	Ozmist
Location:	EDC Workshop
Equipment Loc:	Transportable
Equipment Detail:	Misting Fan (Application Dust Suppression)
Asset Number:	N/A

EDCelectrical design&construction

HRN	Risk
0-5	Negligible
6-50	Low, significant
51-500	High
> 500	Unacceptable

HRN = LO x FE x DPH x NP

D. SHEARING
Can anyone's body parts be sheared due to:

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

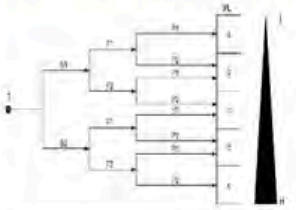
ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mechanical Guarding Yes /No	Hazard Rating Number	Risk Level	S	F	P	Cat	PLr
D-1	2	Placing fingers & hand into rotating assembly while operating with fingers getting caught between striker plate and proximities switches	Yes	Normal Operation	E-Stops Upgrade: Replace with compliant E-Stop PB & Safety Reset	Highly unlikely - though conceivable (1)	Daily (2.5)	Laceration / mild ill-effect (0.5)	1-2 persons (1)	No	1.25	Negligible	S1	F1	P1	B	a
D-2															P1		
D-3															P2		

NOTES

Description of recommended Control Measures

After Hazop the following corrective measures were discussed to remove the Hazard

- Install Guarding on the turret. Guarding to be installed on the outer most ring to isolate all internal moving parts.



Pic 1 Pic 2 Pic 4 Pic 5 Pic 6

Client:	Ozmist
Location:	EDC Workshop
Equipment Loc:	Transportable
Equipment Detail:	Misting Fan (Application Dust Suppression)
Asset Number:	N/A

EDCelectrical design&construction

HRN	Risk
0-5	Negligible
6-50	Low, significant
51-500	High
> 500	Unacceptable

HRN = LO x FE x DPH x NP

E. STRIKING
Can anyone be struck by moving objects due to:

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mechanical Guarding Yes /No	Hazard Rating Number	Risk Level	S	F	P	Cat	PLr
E-1	1	Ejection of work pieces from plant	Yes	Normal Operation	E-Stops Upgrade: Replace with compliant E-Stop PB & Safety Reset	Almost Impossible - possible only under extreme circumstances (0.033)	Daily (2.5)	Laceration / mild ill-effect (0.5)	1-2 persons (1)	No	0.04125	Negligible	S1	F1	P1	B	a
E-2															P1		
E-3															P2		

NOTES

Description of recommended Control Measures

Recommend adding to safe operating procedure; All Personnel working in the vacinity are required to maintain appropiate PPE

Pic 1 Pic 2 Pic 3 Pic 4 Pic 5 Pic 6

Client:	Ozmist
Location:	EDC Workshop
Equipment Loc:	Transportable
Equipment Detail:	Misting Fan (Application Dust Suppression)
Asset Number:	N/A

EDCelectrical design&construction

HRN	Risk
0-5	Negligible
6-50	Low, significant
51-500	High
> 500	Unacceptable

HRN = LO x FE x DPH x NP

F. TEMPERATURE
Can anyone be burnt due to contact with

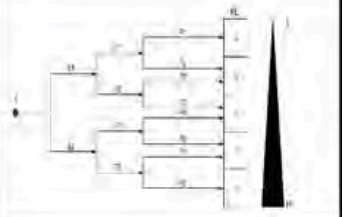
Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mechanical Guarding Yes /No	Hazard Rating Number	Risk Level	S	F	P	Ca i	PLr
F-1		None Identified													P1		
F-2															P1		
F-3															P2		

NOTES

Description of recommended Control Measures



Pic 1 Pic 2 Pic 3 Pic 4 Pic 5 Pic 6

Client:	Ozmist
Location:	EDC Workshop
Equipment Loc:	Transportable
Equipment Detail:	Misting Fan (Application Dust Suppression)
Asset Number:	N/A

EDCelectrical design&construction

HRN	Risk
0-5	Negligible
6-50	Low_significant
51-500	High
> 500	Unacceptable

HRN = LO x FE x DPH x NP

G. HIGH PRESSURE
Can persons come into contact with High Pressure from:

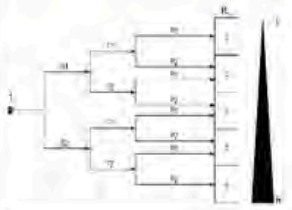
Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mechanical Guarding Yes /No	Hazard Rating Number	Risk Level	S	F	P	Cat.	PLr
G-1		None Identified													P2		
G-2															P1		
G-3															P2		

NOTES

Description of recommended Control Measures



Pic 1 Pic 2 Pic 3 Pic 4 Pic 5 Pic 6

Client:	Ozmist
Location:	EDC Workshop
Equipment Loc:	Transportable
Equipment Detail:	Misting Fan (Application Dust Suppression)
Asset Number:	N/A

EDCelectrical design&construction

HRN	Risk
0-5	Negligible
6-50	Low, significant
51-500	High
> 500	Unacceptable

HRN = LO x FE x DPH x NP

H. ELECTRICAL
Can anyone be injured by electrical shock or burnt due to

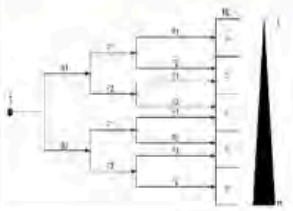
Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mechanical Guarding Yes /No	Hazard Rating Number	Risk Level	S	F	P	Cat	PLr
H-1		None Identified													P2		
H-2															P1		
H-3															P2		

NOTES

Description of recommended Control Measures



Pic 1 Pic 2 Pic 3 Pic 4 Pic 5 Pic 6

Client:	Ozmist
Location:	EDC Workshop
Equipment Loc:	Transportable
Equipment Detail:	Misting Fan (Application Dust Suppression)
Asset Number:	N/A

EDCelectrical design&construction

HRN	Risk
0-5	Negligible
6-50	Low, significant
51-500	High
> 500	Unacceptable

HRN = LO x FE x DPH x NP

I. EXPLOSION
Can anyone be injured by explosion of

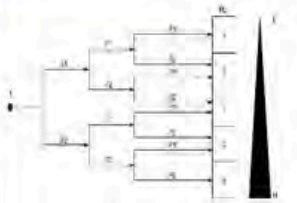
Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mechanical Guarding Yes /No	Hazard Rating Number	Risk Level	S	F	P	Cat	PLr
I-1		None Identified													P2		
I-2															P1		
I-3															P2		

NOTES

Description of recommended Control Measures



Pic 1 Pic 2 Pic 3 Pic 4 Pic 5 Pic 6

WARRANTY REGISTRATION PROCEDURES AT THE TIME OF SALE

- Product serial number needs to be recorded by the sales agent on the sales invoice at the time of sale. This process would ensure quick warranty assessment by identifying the product.
- When the need for warranty arises, a Makinex warranty evaluation form needs to be filled out, photos takes on the problem, and emailed to Makinex aftersales department along with the sales invoice for warranty consideration.
- Customers to go on Makinex Website and register their new products for warranty. Warranty Registration - Makinex makinex.com.au/parts-service/warranty-registration/
- Failing to comply with the above processes may result in delayed or rejection of the warranty claim.

Ara Ekmekjian

Service and Spare Parts Manager

MAKINEX WARRANTY EVALUATION

Date of claim:.....

Owner/Seller:.....

Make of equipment: .....

Model:.....

Hours:.....

Serial No:.....

Date of Purchase:.....

Description of problem:.....
.....

Application/Use:.....

Required repairs:.....

Photos of the equipment, hour meter, serial number plate, copy of the sales invoice and the problem, Emailed to Makinex for assessment.
Note: No repairs carried out before the approval of Makinex warranty department.
Email to a.ekmekjian@makinex.com.au or service@makinex.com.au
PH: 1300 795 953