

MIST CANNON

M45AU USER MANUAL



OZmist®
TOTAL CLIMATE SOLUTIONS
AUSTRALIA'S LEADING MIST
SYSTEM MANUFACTURER

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OVERVIEW

Welcome to the M45AU Mist Cannon User Manual. The M45AU 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 wetting surfaces.

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.

Customer Success

Our M45AU 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 M45AU 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.

Rio Tinto: Leveraged our technology for dust suppression in mining operations, enhancing worker safety and environmental compliance.



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 M45AU 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.

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 and lay it down on the rubber stop fixed to the Filter Housing Plate, this will allow the Cannon to pass overhead without collision. 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. OZmist recommends that only potable water be used in our mist cannons. Additional filtration may be required if water is supplied from alternative sources.

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

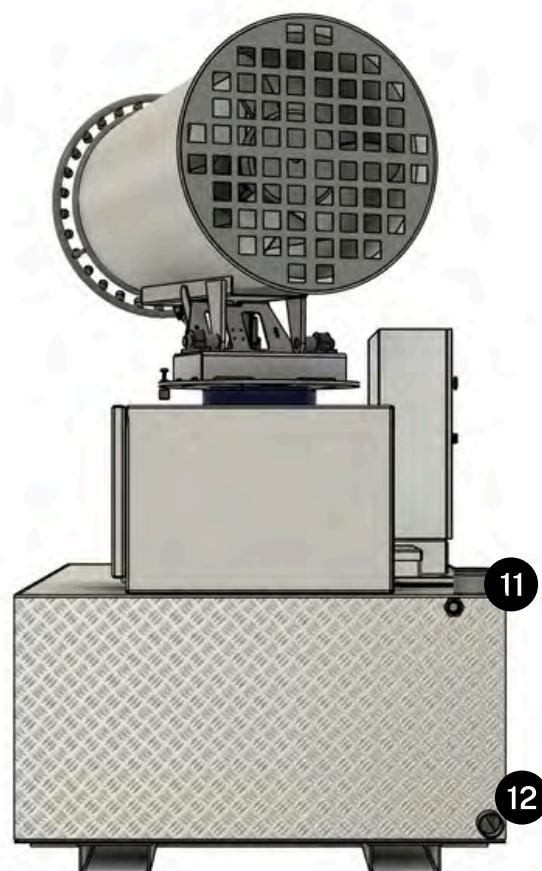
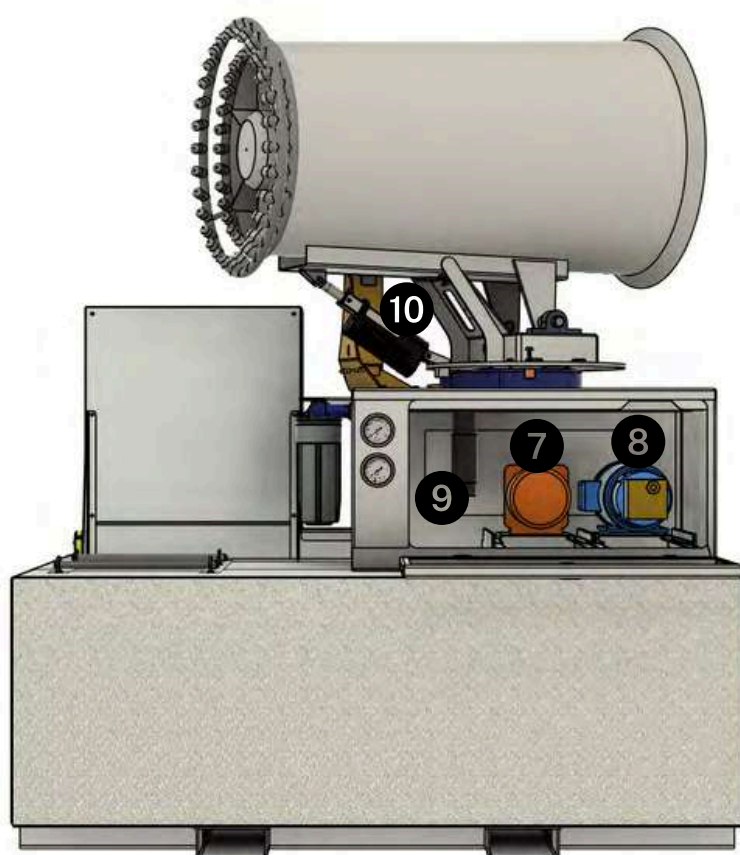
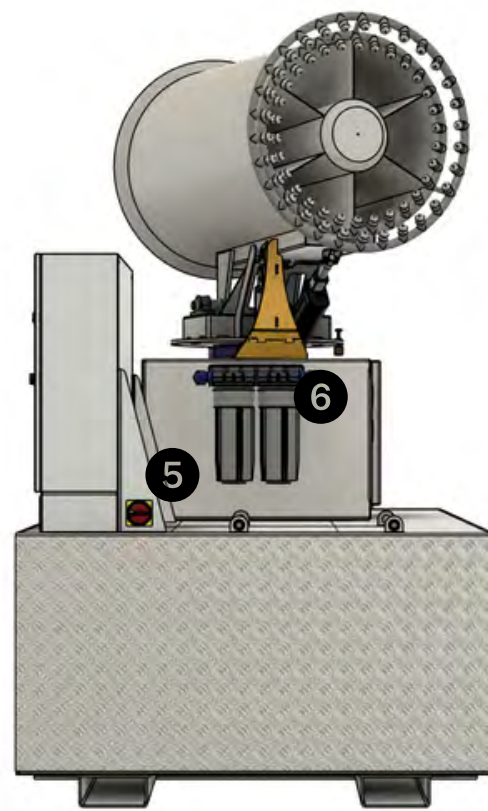


filter Housing with Cartridge

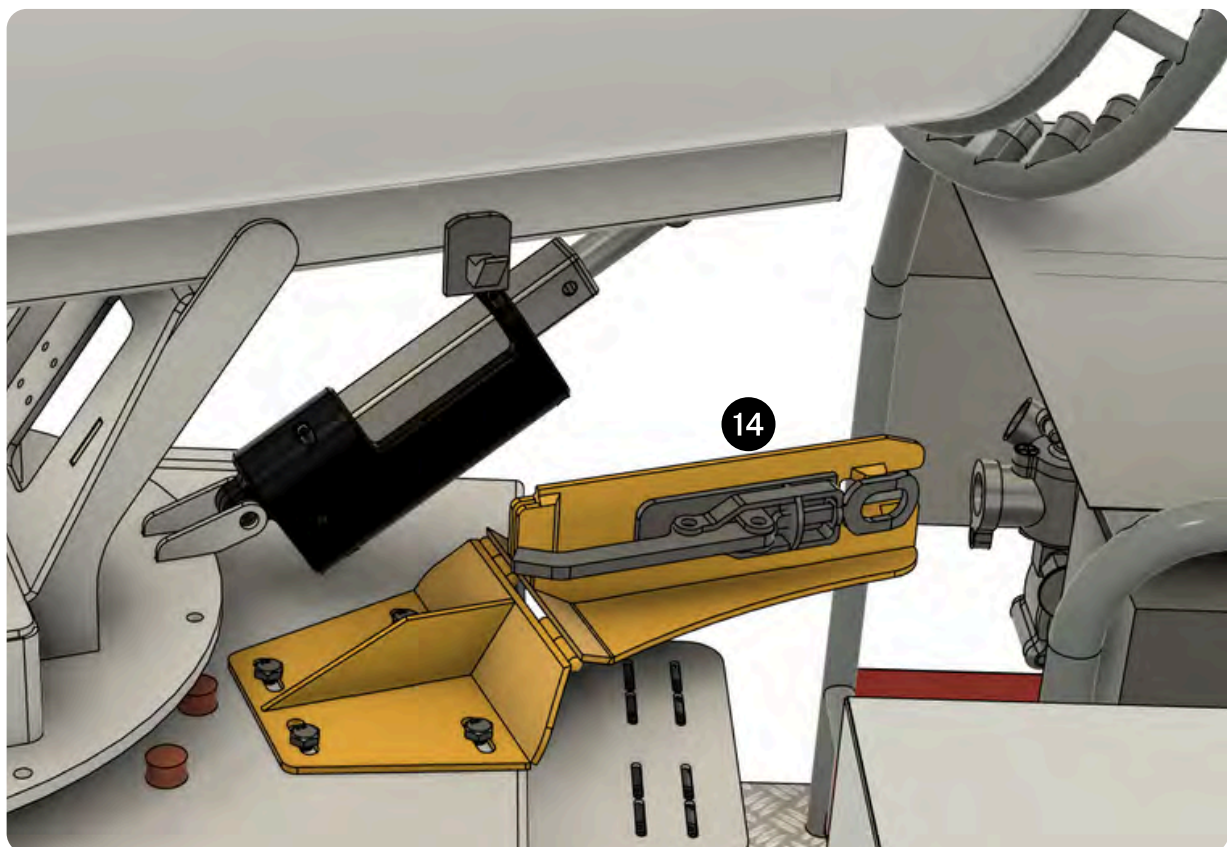
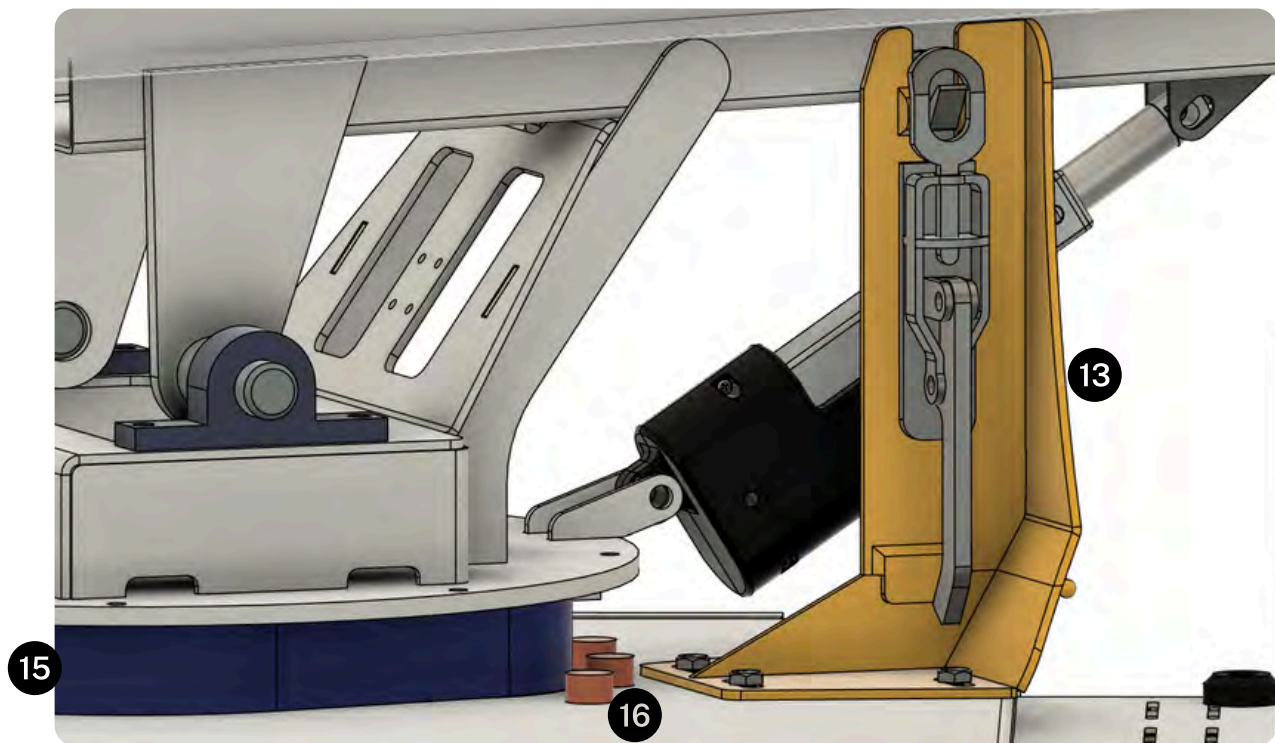


Transit Latch - Locked Position

COMPONENTS & CONTROLS



COMPONENTS & CONTROLS



COMPONENTS & CONTROLS

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COMPONENTS & CONTROLS

The M45AU 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 diagram, allowing for quick identification and reference.

- 1 1,200L Aluminium Water Tank
- 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
- 6 Dual Filter Cartridges, contain 1 x 10u & 1 x 5u Filter Cartridge
- 7 Transfer Pump, delivers water from the Tank to High-Pressure Pump
- 8 High-Pressure Pump, supplies pressurized water to the 60 x Mist Nozzles
- 9 Oscillation Motor, this controls all left & right Cannon movements
- 10 Actuator, this controls the Up & Down Cannon angle
- 11 A 1" BSP Fill point on the side of the Tank is fitted with a Float Valve
- 12 A 2.5" Cam Lock is used to drain the Water Tank
- 13 *NEW* Cannon Anchor Bracket in its Locked Position
- 14 *NEW* Cannon Anchor Bracket in its Unlocked Position laying down for clearance
- 15 Slew Bearing, this is the gear used when Left & Right Oscillation is used
- 16 3 x Proximity Sensors are used, two outside are limit sensors the centre is a kill switch
- 17 Control Board, this is where the M45AU 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 and lay it flat on top of the rubber stop fixed to the Filter Plate, allowing the required clearance for 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.

Pre-Startup Checklist

1. Fuel Check: Verify the fuel level in the generator.
2. Water Level: Ensure there is sufficient water in the tank.
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 generator and turned on.

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.

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 M45AU 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.



Makinex/Honda 16kVA Generator before being modified to fit our M45AU



The Reset Button must be pressed Twice for the M45AU to operate

POST OPERATION & TRANSPORT

After Use Procedure

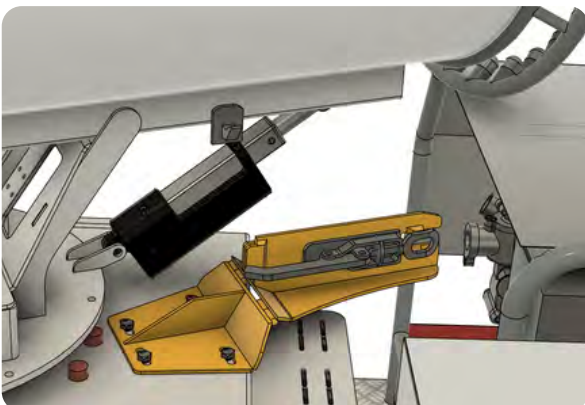
1. Positioning: Center the cannon over the generator and lower it all the way down into its cradle.
2. Travel Latch: Move the Cannon to its home position, fold the Travel Latch up and make sure the locking mechanism pulls down snugly over the hook.
3. Stop Button: Activate the stop button on the control 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. Tank Maintenance: If the machine will not be used for an extended period, drain the tank.
7. Generator Isolation Switch: Ensure the isolation switch is in the open position, this will prevent any residual electricity bleed that can flatten the battery.

Transport Procedure

1. Travel Latch: Move the Cannon to its home position, fold the Travel Latch up and make sure the locking mechanism pulls down snugly over the hook.
2. Drain the Tank before the Cannon is moved or loaded onto a vehicle.
3. Forklift Points: Use the forklift points on all sides of the M45AU, ensuring no to damage the drain valve or switches on the control panel.
4. Dimensions: The M45AU unit measures 1900mm x 1200mm x 2160mm at 660kg making it practical for transport on most trucks and utes.
5. Securing the Load:
 - When transporting the M45AU 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.
6. Protection: If transporting on an open-air vehicle, cover the cannon to protect it from bugs and other elements.



Engage Battery Isolator to avoid unwanted battery discharge



Transit Latch - Unlocked Position



Transit Latch - Locked Position

MAINTENANCE

Servicing Procedure

The OZmist M45AU 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 ball valve on the bottom right side of the Pump Unit.
 - Place a suitable container under the pump to catch the oil.
2. Drain the Oil:
 - Open the Ball Valve 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, the Valve can be closed.
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 300 hours of operation.
- Daily 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 M45AU 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 M45AU 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

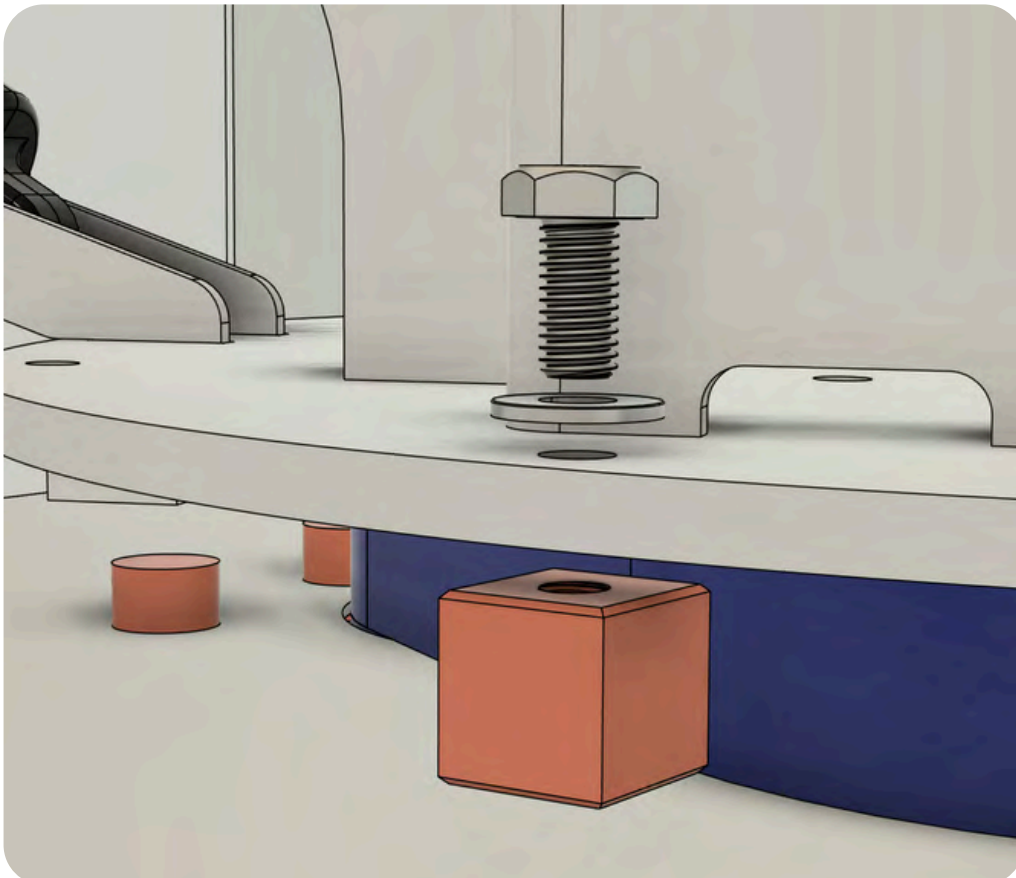
The toolbox also contains essential components and tools for maintaining and operating your mist cannon:

- 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 M45AU 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 M45AU 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 M45AU 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 Water Level:** Ensure the water level in the tank is sufficient and the water light on the control panel is not illuminated.
- **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.

Additional FAQs

Q: What are the startup procedures for the M45AU 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 M45AU Mist Cannon?

- **After Use:** Center and lower the cannon, engage the travel latch, activate the stop button, engage the generator isolator switch, store the remote and antenna, and drain the tank if not being used for a long duration.
- **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 M45AU 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 M45AU 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 M45AU 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.

OZmist Contact Details

Email: enquiries@ozmist.com.au

Office Phone: 1300 306 478

Address: 31 Baker Street, Wangaratta VIC 3677

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.

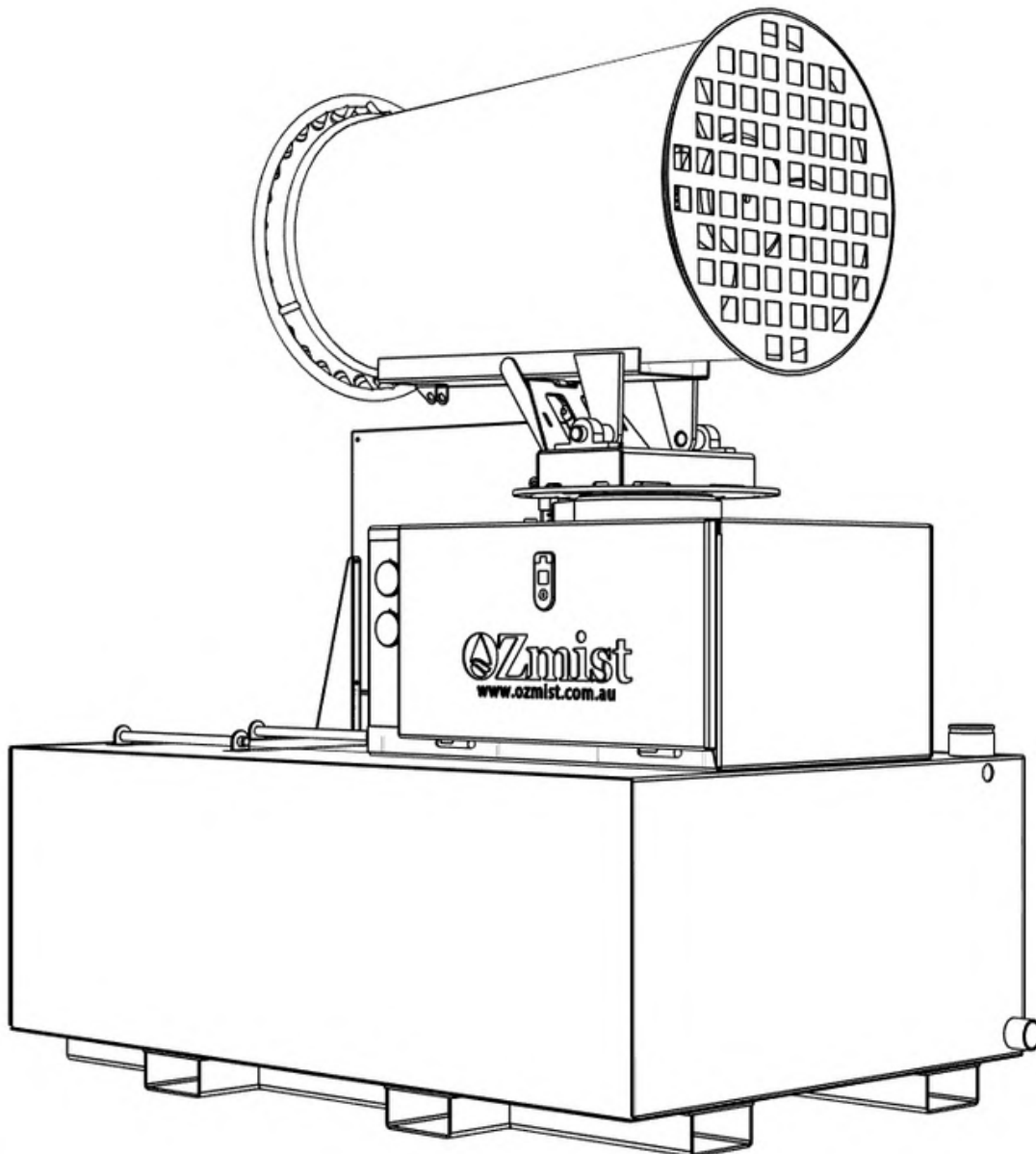
OZMIST supplied Makinex/Honda Generators have their own separate

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

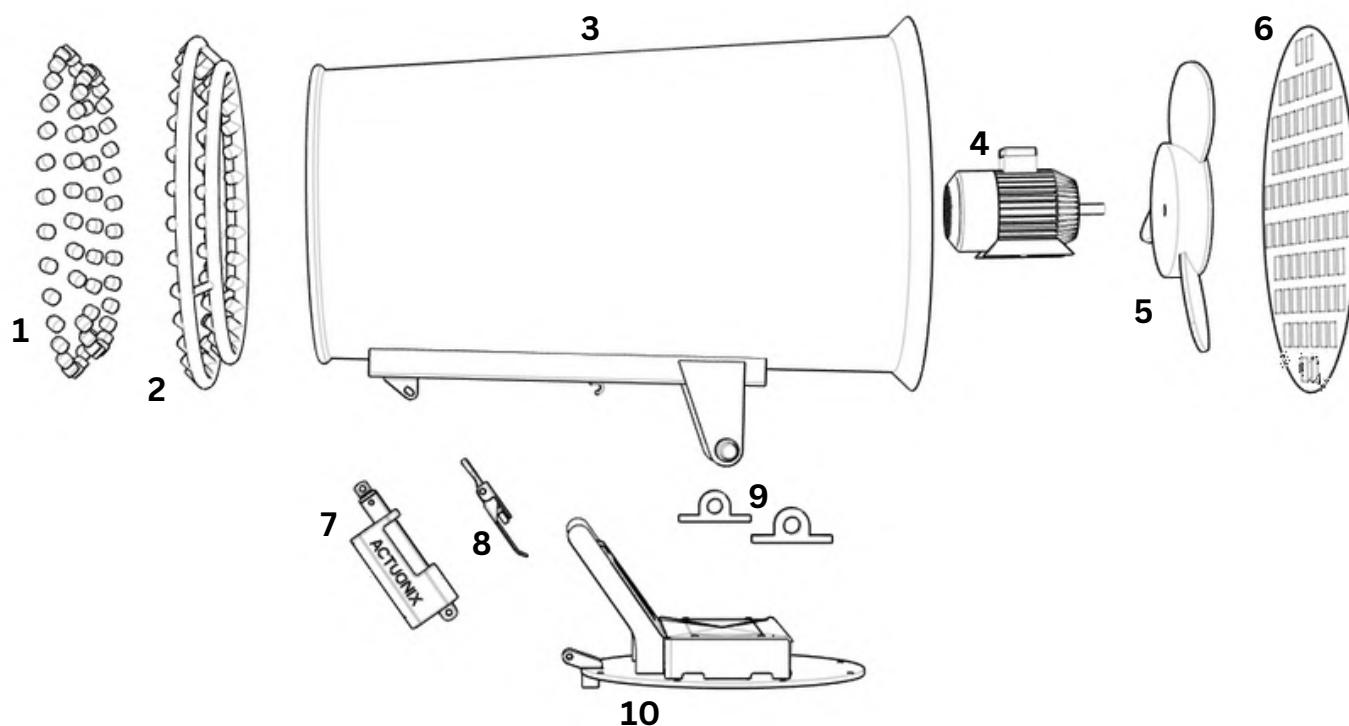
1. Have your machine's model number, serial number & date of manufacture on hand, these can be found on the specification plate mounted on the machine.
2. Contact OZmist with the Part Numbers for the components required and a quote will be generated by one of our team for the supply.
3. Please email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



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

M45AU Mist Cannon - Spare Parts Section

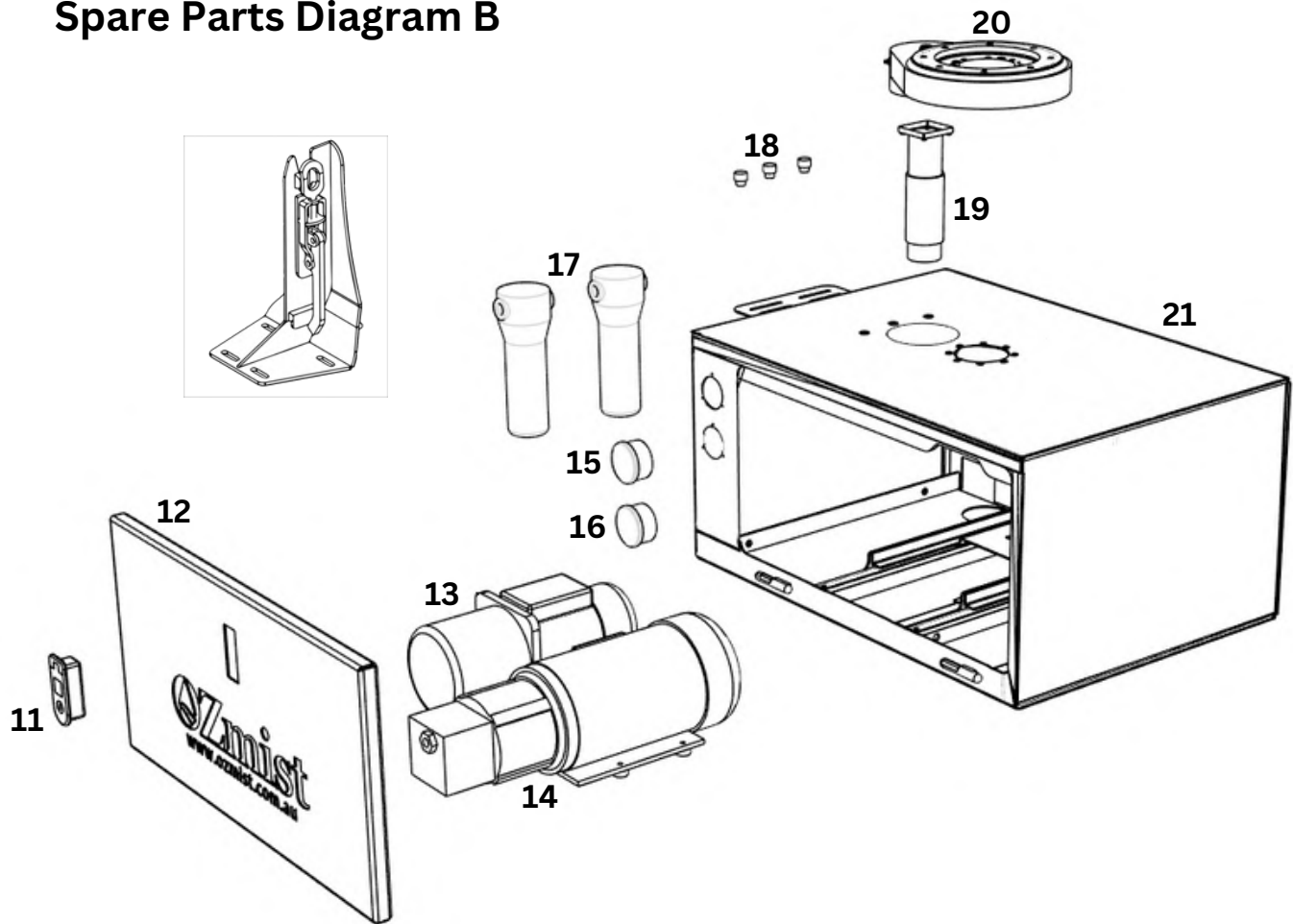
Spare Parts Diagram A



#	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

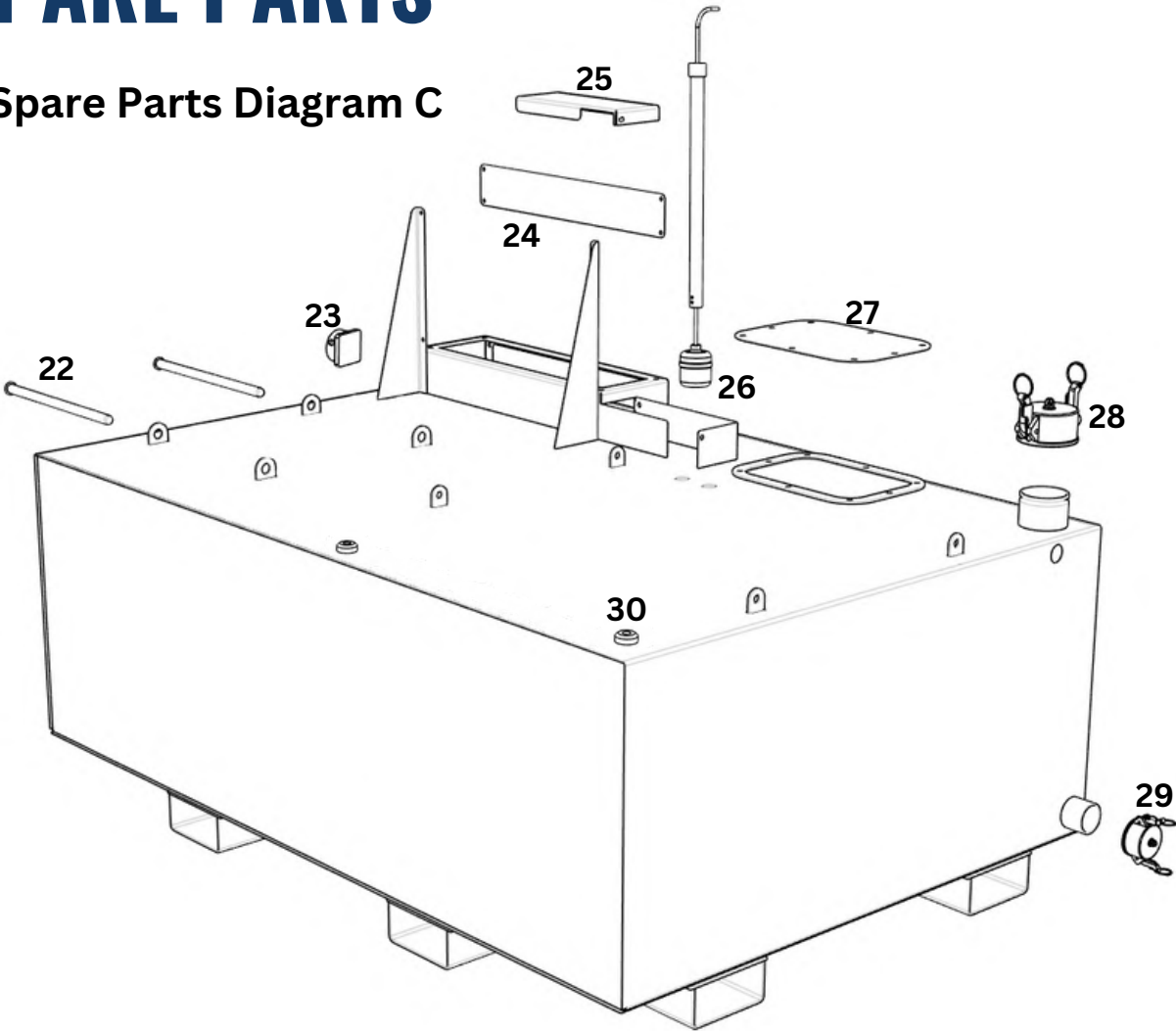
Spare Parts Diagram B



#	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
22	Transit Latch Unit	Call OZmist

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	Water Float	9.3.032
27	Tank Port Cover	9.3.055
28	3.5" Camlock Cap	9.3.035
29	2.5" Camlock Cap	9.3.034
30	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

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.

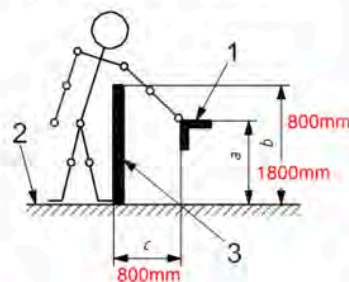
Results of the risk assessment have determined that no Electrical E-Stop circuit is required if the following mechanical guarding is installed;

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

Table 1 — Reaching over protective structures — Low risk

Dimensions in millimetres

Height of hazard zone ^a	Height of protective structure ^b							
	1 000	1 200	1 400	1 600	1 800	2 000	2 200	2 400
Horizontal safety distance to hazard zone, c								
2 500	0	0	0	0	0	0	0	0
2 400	100	100	100	100	100	100	100	0
2 200	600	600	500	500	400	350	250	0
2 000	1 100	900	700	600	500	350	0	0
1 800	1 100	1 000	900	900	800	0	0	0
1 600	1 300	1 000	900	900	500	0	0	0
1 400	1 300	1 000	900	800	100	0	0	0
1 200	1 400	1 000	900	500	0	0	0	0
1 000	1 400	1 000	900	300	0	0	0	0
800	1 300	900	600	0	0	0	0	0
600	1 200	500	0	0	0	0	0	0
400	1 200	300	0	0	0	0	0	0
200	1 100	200	0	0	0	0	0	0
0	1 100	200	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		$e \leq 4$	W 2	W 2	W 2
		$4 < e \leq 6$	W 10	W 5	W 5
Finger up to knuckle joint		$6 < e \leq 8$	W 20	W 15	W 5
		$8 < e \leq 10$	W 80	W 25	W 20
		$10 < e \leq 12$	W 100	W 80	W 80
		$12 < e \leq 20$	W 120	W 120	W 120
Hand		$20 < e \leq 30$	W 850 ^a	W 120	W 120
Arm up to junction with shoulder		$30 < e \leq 40$	W 850	W 200	W 120
		$40 < e \leq 120$	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 ≤ 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

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Fax: +61 2 6024 6055

Email: markpfeiffer@edcelectrical.com.au

Website: www.edcelectrical.com.au

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

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 4024.1:201;2014	Mark Pfeiffer Electrical Design Darren Stephens Functional Safety Qualified (TTÜV Rheinland)	 	25.02.2020	
2	Performance Level Evaluation	EDC	Identify the safety related parts which carry out the safety function	AS/NZS 4024.1:503:2014	Mark Pfeiffer Electrical Design Darren Stephens Functional Safety Qualified (TTÜV Rheinland)	 	25.02.2020	
3	Machine Safety Design Electrical	EDC	Completed design of the safety related parts of a control system	AS/NZS 4024.1:501:2014	Mark Pfeiffer Electrical Design Darren Stephens Functional Safety Qualified (TTÜV 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 4024.1:501	AS/NZS 4024.1:502:2014	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	

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

None Identified
 Mech - Crush hazard from falling material
 Mech - Crush hazard on Loading System
 Mech - Conveyor/Roller; Nip/Pinch Point
 Mech - Automatic Cycle / Unexpected Start
 Mech - Cut hazard on blades/ Machine Parts
 Mech - Plant tipping or rolling over
 Mech - Being trapped between plant or fixed structures
 Mech - Suspended Live Load
 Control Sys - Safety Control Category
 Control Sys - Fail to Stop
 Control Sys - Defeated/Jumpered Safeguard Devices
 Control Sys - Automatic Cycle / Unexpected Start
 Control Sys - Jogging / Unlimited Speed
 Control Sys - Electric Shock
 Multiple hazards in emergency situations
 Electrical - Improper Grounding
 Electrical - Live parts
 Electrical - Flash
 Electrical - Water ingress
 Pneumatic - Safety Control Category
 Pneumatic - Overpressure
 Coming in contact with sharp or flying objects
 The plant (parts of) or work pieces disintegrating
 Ejection of work pieces from plant
 Uncontrolled or unexpected movement of the plant
 The mobility of the plant
 Entrapment in cell during full body access
 Hydraulic - Overpressure
 Pressure Vessel
 Slip / Trip / Fall
 Temperature / Burn
 Temperature from friction of moving parts
 Hot / Boiling liquids
 Chemical / Fumes
 Ergonomics
 Fire / Explosion
 Noise
 Other factors not mentioned

List of Recommended Control Measures

None Present / Client Responsibility
 Administrative Controls / PPE
 Fixed Guard: Replace / Repair existing and/or Fasteners
 Fixed Guarding: Add new and/or Fasteners
 Fixed Guard: High level/platform guarding and gate
 Fixed Guard, Polycarbonate: Replace existing
 Fixed Guard, Polycarbonate: Add New
 Movable Guarding/Gate: Replace / Repair existing and/or Fasteners
 Movable Guarding/Gate: Add new, Interlocked
 Conveyor Underside Guarding: Add new
 Conveyor Underside Guarding: Add new, Interlocked
 Zone Control: Define/create and guard Safety Zones
 Zone Control: Relocate existing controls outside of Safety Zones
 E-Stops Upgrade: Replace with compliant E-Stop PB & Safety Reset
 E-Stops: Install new Emergency Stop
 E-Stops: Install new Pull-cord/Lanyard
 Upgrade Safety Controls: PLR Safety-rated components
 Access Control: Add non-locking Gate Switch
 Access Control: Add Gate Locking Switch
 Access Control: Add Trapped Key Switch
 Access Control: Add Enabling Switch
 Access Control: Two-Hand Controls
 Presence Sensing: Add Light Curtain
 Presence Sensing: Add Safety Mat
 Presence Sensing: Add Edge Detector
 Presence Sensing: Add Laser Scanner
 Pressure Control/Monitoring: Add pressure switch to safety circuit
 Temperature Control/Monitoring: include in safety circuit
 Safe/Zero Speed: Add Speed Sensing relays/controls for safe access
 Safe/Zero Speed: Add control reliable circuits for safe access
 Pneumatic Isolation: safety contactor/relay only
 Pneumatic Isolation: safety contactor/relay pair
 Pneumatic Isolation: safety valve; block/bleed
 Hydraulic Isolation: safety contactor/relay only
 Hydraulic Isolation: safety contactor/relay pair
 Hydraulic Isolation: safety valve; block/bleed
 Hydraulic Isolation: Add Hose Burst protection
 Mechanical: Add mechanical stop to prevent machine movement
 Other factors not mentioned

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

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: $HRN = FE \times DPH \times NP \times LO$

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)

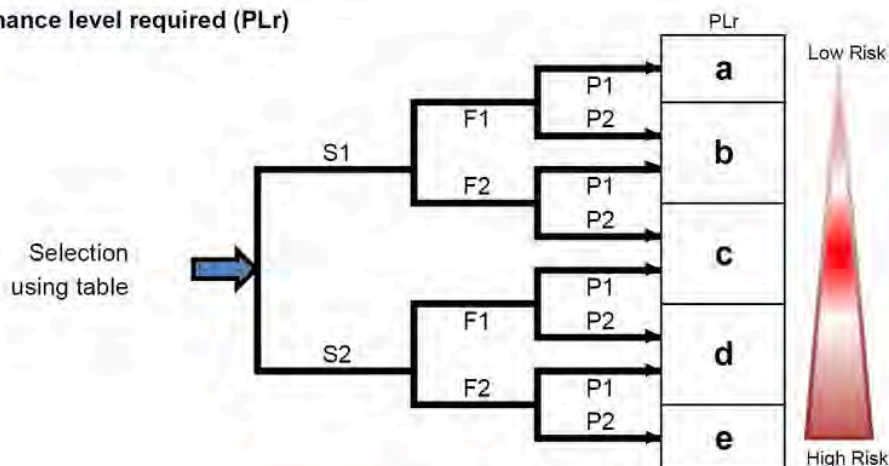
1	1 - 2 persons
2	3 - 7 persons
4	8 - 15 persons
8	16 - 50 persons
12	More than 50 persons

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:	Ornist	HRN	Risk	
Location:	EDC Workshop	0-5	None/low	
Equipment Loc:	Transportable	6-50	Low/ Significant	
Equipment Detail:	Missing Fan (Application Dust Suppression)	51-500	High	
Asset Number:	N/A	> 500	Unacceptable	HRN = LO x FE x DPH x NF

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

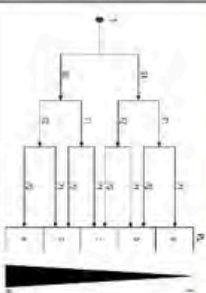
ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Machine Task / Comments	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mech Guards Present Yes / No	Hazard Rating Number	Risk Level	S	F	P	Cat	PLU
A-1	3	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																	
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




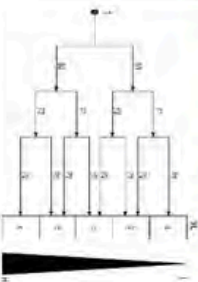


Pic 2



Pic 3



Client: Oznist				<div>EDC electrical design & construction</div>				HZN		Risk		No safeguards (determination of R _r requirements)																	
Location: EDC Workshop								0-5	Negligible																				
Equipment Loc: Transportable								6-50	Low, Significant																				
Equipment Detail: Missing Fan (Application Dust Suppression)								51-500	High																				
Asset Number: N/A								> 500	Unacceptable	HZN = 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																					
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	PL _r												
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																													
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.						Description of recommended Control Measures																							
Pic 1						Pic 2						Pic 4						Pic 5						Pic 6					
																													

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

HRN = L x O x FE x DPH x NP
(determination of P_U requirements)

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

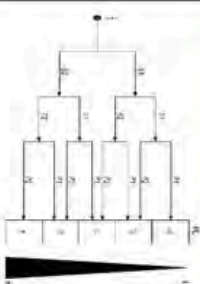
ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Meat Guards Present Yes/No	Hazard Rating Number	Risk Level	S	F	P	Cal	P _U
C-1	2	Fingers 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)	Location / 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 hazard the following corrective measures were discussed to remove the hazard

- Guarding on the back of the fan is unsatisfactory. Additional 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


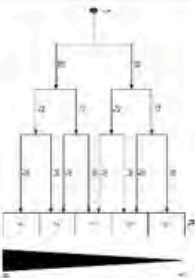





Client:	Ozrlist	 EDC electrical design & construction		HRN	Risk	No safeguards (determination of PLr requirements) $HRN = LO \times FE \times DPH \times NF$
Location:	EDC Workshop			0-5	Negligible	
Equipment Loc:	Transportable			6-50	Low, significant	
Equipment Detail:	Misting Fan (Application Dust Suppression)			51-500	High	
Asset Number:	N/A			> 500	Unacceptable	


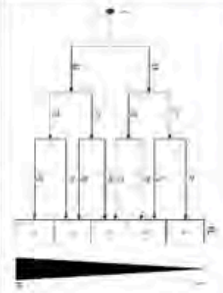
D. SHEARING Can anyone's body parts be sheared due to:		Assess Risk With No Safeguards To Determine Category Rating Required					No safeguards (determination of PLr requirements)	
--	--	---	--	--	--	--	---	--

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	Cal	PLr
D-1	2	Placing fingers & hand into rotating assembly while operating with fingers getting caught between striker plate and proximal 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																	
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.						Description of recommended Control Measures											
																	

Client: Ornist						HRR		Risk		<div>No safeguards (determination of P_r requirements)</div>								
Location: EDC Workshop		0-5				Negligible												
Equipment Loc: Transportable		6-50				Low, Significant												
Equipment Detail: Misting Fan (Application Dust Suppression)		\$1-500				High												
Asset Number: N/A						HRR = LO x FE x DPH x NF												
E. STRIKING Can anyone be struck by moving objects due to:				Assess Risk With No Safeguards To Determine Category Rating Required														
ITEM #	PICTURE REF #	Possible Hazard	Exhib Y/N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Frequency of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mechanical Guarding Yes/No	Hazard Rating Number	Risk Level	S	F	P	Cal	PL _r	
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																		
Recommend adding to safe operating procedure: All Personnel working in the vicinity are required to maintain appropriate PPE																		
<div><div>Pic 1</div><div>Pic 2</div><div>Pic 3</div><div>Pic 4</div><div>Pic 5</div><div>Pic 6</div></div> <div></div>																		

Client: Ozonist														<table><tr><td>MRN</td><td>Risk</td></tr><tr><td>0-5</td><td>Minor</td></tr><tr><td>6-50</td><td>Low, significant</td></tr><tr><td>51-500</td><td>High</td></tr><tr><td>> 500</td><td>Uncertain/Severe</td></tr></table>		MRN	Risk	0-5	Minor	6-50	Low, significant	51-500	High	> 500	Uncertain/Severe	MRN = LO x FE x DPH x NF No safeguards (determination of PLU requirements)
MRN	Risk																									
0-5	Minor																									
6-50	Low, significant																									
51-500	High																									
> 500	Uncertain/Severe																									
Location: EDC Workshop																										
Equipment Loc: Transportable																										
Equipment Detail: Missing Fan (Application Dust Suppression)																										
Asset Number: N/A																										
F. TEMPERATURE Can anyone be burnt due to contact with:																										
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	I	Q ₁	PLU								
F-1		None identified															P1									
F-2																	P1									
F-3																	P2									
NOTES																										
Description of recommended Control Measures																										
<div>Pic 1</div> <div>Pic 2</div> <div>Pic 3</div> <div>Pic 4</div> <div>Pic 5</div> <div>Pic 6</div> <div></div>																										



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

Risk	
0-5	High
6-50	Low, Significant
\$1-\$500	High
> 500	Unacceptable

NRN = LO x FE x DPH x NP
(determination of PIR requirements)

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

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	Cal	PLR
G-1		None Identified													P2		
G-2															P1		
G-3															P2		

NOTES

Description of recommended Control Measures

Pic 1

Pic 2


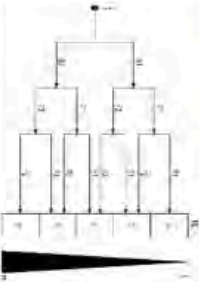
Pic 3


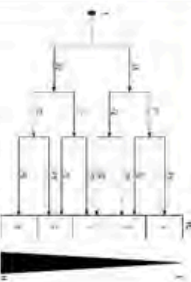
Pic 4

Pic 5

Pic 6



Client: Orniet						<table><tr><td>HRN</td><td>Risk</td></tr><tr><td>0-5</td><td>High</td></tr><tr><td>6-50</td><td>Low / Significant</td></tr><tr><td>\$1,500</td><td>High</td></tr><tr><td>> 200</td><td>Unacceptable</td></tr></table>		HRN	Risk	0-5	High	6-50	Low / Significant	\$1,500	High	> 200	Unacceptable
HRN	Risk																
0-5	High																
6-50	Low / Significant																
\$1,500	High																
> 200	Unacceptable																
Location: EDC Workshop																	
Equipment Loc: Transportable																	
Equipment Detail: Misting Fan (Application Dust Suppression)																	
Asset Number: N/A				HRN = LO x FE x DPH x NP													
H. ELECTRICAL Can anyone be injured by electrical shock or burn due to						Assess Risk With No Safeguards To Determine Category Rating Required						No Safeguards (determination of PLU requirement)					
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	Cal	PLU
H-1		None Identified													P2		
H-2															P1		
H-3															P2		
NOTES																	
Description of recommended Control Measures																	
<div>Pic 1</div> <div>Pic 2</div> <div>Pic 3</div> <div>Pic 4</div> <div>Pic 5</div> <div>Pic 6</div> 																	

Client: Ozonist						HBN		Risk									
Location: EDC Workshop						0-5		Medium									
Equipment Loc: Transportable						6-50		Low, significant									
Equipment Detail: Mistling Fan (Application Dust Suppression)						51-500		High									
Asset Number: N/A						> 500		Unacceptable		HBN = LO x FE x DPH x NF							
I. EXPLOSION Can anyone be injured by explosion of						Assess Risk With No Safeguards To Determine Category Rating Required						No safeguards (determination of PLZ 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 Person Exposed (NP)	Mechanical Guarding Yes / No	Hazard Rating Number	Risk Level	S	F	P	Cal	PLZ
1-1		None Identified													P2		
1-2															P1		
1-3															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 taken 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](https://www.makinex.com.au/parts-service/warranty-registration/) [makinex.com.au/parts-service/warranty-registration/](https://www.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