

# M45 DUST MITIGATION UNIT



## OPERATION MANUAL

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

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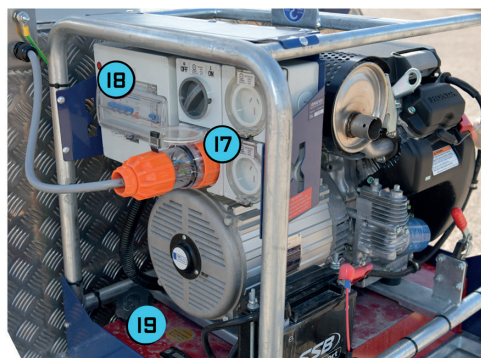
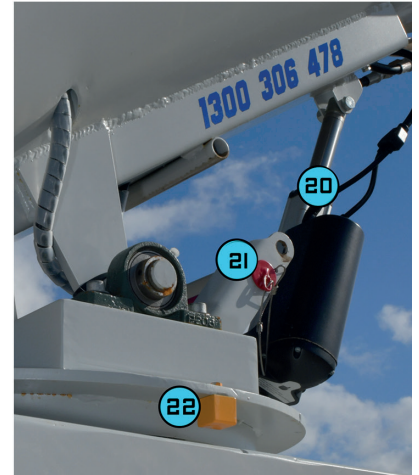
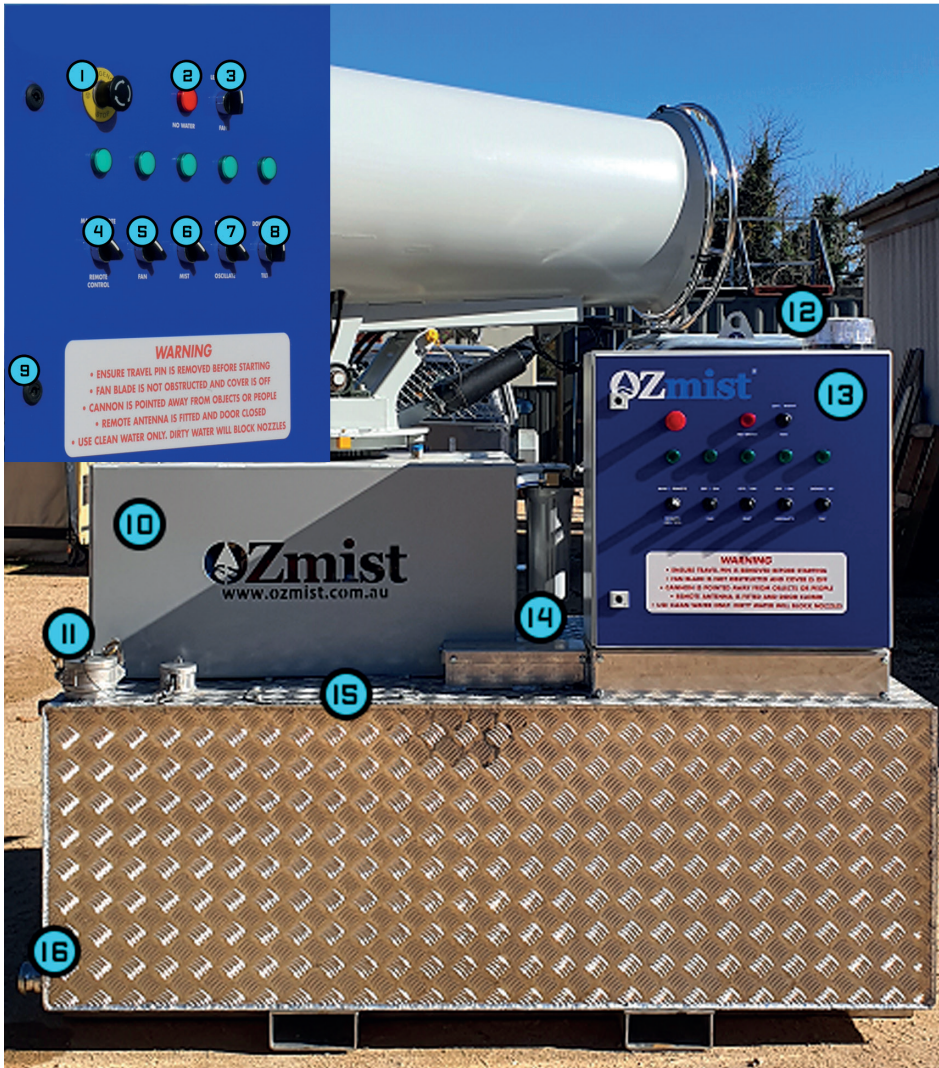


## M45AU OVERVIEW

- THE M45AU MIST CANNON HAS BEEN ASSEMBLED AND ALL FUNCTIONS TESTED IN OUR WORKSHOP. PLEASE ENSURE THAT THE UNIT IS CAREFULLY INSPECTED AFTER DELIVERY AS THINGS MAY HAVE CHANGED DURING TRANSPORT.
- EACH UNIT IS FITTED WITH A TRAVEL LATCH THAT NEEDS TO BE RELEASED BEFORE USE AND RE-ATTACHED BEFORE THE UNIT IS TRANSPORTED. IF YOUR UNIT HAS A TRAVEL PIN, SAME AS ABOVE MAKE SURE THE PIN IS REMOVED AND FITTED IN THE STORAGE HOLE DIRECTLY BELOW. THEN RE-INSTALLED BEFORE THE UNIT IS TRANSPORTED.
- THE FOG CANNON HAS A 1200L ALUMINIUM WATER TANK. THE TANK HAS A 3" CAMLOCK FILL POINT ON THE TOP OF THE TANK. A WATER-LEVEL GAUGE IS LOCATED BESIDE THE FILL POINT WHICH WILL SHOW THE TANK WATER LEVEL. THERE IS A 2" CAMLOCK FITTING ON THE LOWER CORNER OF THE UNIT FOR DRAINING THE SYSTEM.
- A FLOAT SWITCH MONITORS THE WATER LEVELS, A RED LIGHT WILL ILLUMINATE ON THE OPERATIONS PANEL AND THE PUMP WILL TURN OFF WHEN WATER LEVELS GET TOO LOW.
- THE LARGE FAN ON TOP WILL THROW MIST OVER 45 METERS IN STILL CONDITIONS AND HAS THE ABILITY TO OSCILLATE LEFT TO RIGHT. THE CANNON CAN BE RAISED ALLOWING FOR ACCURATE TARGETING FOR THE MIST APPLICATION.
- A HIGH-PRESSURE PUMP OPERATES AT 1000PSI OR 70BAR AND MOVES 18 LITRES OF HIGH-PRESSURE MIST PER MINUTE. THE HIGH-PRESSURE PUMP IS INSTALLED IN THE TURRET BOX AND IS EASILY ACCESSIBLE FOR SERVICING.
- THIS PUMP IS SUPPLIED TANK WATER BY THE TRANSFER PUMP FITTED IN THE LOWER BOX IN THE REAR OF THE UNIT.
- DUAL FILTERS ARE FITTED TO THE SIDE OF THE TURRET BOX, EACH HOUSING CONTAINS ONE 10-MICRON AND ONE 5-MICRON FILTER. MAKING SURE TO CHECK THESE REGULARLY, ESPECIALLY IF WORKING WITH POOR WATER QUALITIES.
- POWER FOR THE ENTIRE UNIT COMES FROM THE FITTED 16KVA 3 PHASE MAKINEX GENERATOR WITH HONDA ELECTRIC START ENGINE. THE GENERATOR IS SECURED TO THE TOP OF THE TANK BY TWO RODS THAT LOCK IT DOWN INTO PLACE. THE GENERATOR IS EQUIPPED WITH 1 X 3PHASE PLUG AND 2 X 250V 15A PLUGS.
- THE MAIN CONTROL PANEL HAS SWITCHES TO CONTROL ALL OF THE ELECTRICAL FUNCTIONS OF THE SYSTEM. THE M45AU UNIT ALSO INCLUDES A FULLY FUNCTIONAL REMOTE CONTROL UNIT, THIS REMOTE CAN BE USED UP TO 100 METERS AWAY FROM THE CANNON.
- FLASHING LIGHTS ARE FITTED TO THE FRONT AND THE REAR OF THE TANK UNIT. THESE WILL ACTIVATE WHEN THE GENERATOR IS SWITCHED ON.

# M45AU LAYOUT

THE M45AU IS CAPABLE OF THROWING MIST OVER 45 METERS



## **ALWAYS ENSURE THE TRAVEL LATCH IS DISENGAGED BEFORE USE**

1. STOP BUTTON
2. NO WATER SIGNAL LIGHT
3. MANUAL FAN ADJUST LEFT/RIGHT
4. REMOTE CONTROL & MANUAL CONTROL SWITCH
5. FAN ON/OFF SWITCH (GIVE 15SEC BEFORE TURN ON MIST)
6. MIST ON/OFF SWITCH
7. OSCILLATION ON/OFF SWITCH
8. MANUAL FAN ADJUST UP/DOWN
9. LOCK FOR OPERATIONS PANEL
10. TURRET BOX CONTAINING TRANSFER & HP PUMP
11. FILL POINTS VIA THE SIDE OF THE TANK
12. FLASHING SAFETY BEACONS
13. OPERATIONS PANEL
14. DUAL INLINE 10" CARTRIDGE FILTERS
15. ACCESS HATCH FOR TANK
16. CAMLOCK DRAIN POINT
17. 32A 3-PHASE PLUG
18. GENERATOR SWITCH PANEL
19. FUEL TANK (PETROL ONLY)
20. CANNON LIFT ACTUATOR
21. TRAVEL PIN IN ITS UNLOCKED POSITION
22. OSCILLATION LIMIT BLOCKS
23. REMOTE CONTROL ANTENNA
24. TRAVEL LATCH
25. PROXIMITY SENSORS FOR OSCILLATION

## **BEFORE STARTING**

### **ONLY EVER USE UNLEADED FUEL IN THE GENERATOR**

#### **STARTUP PROCEDURE**

BEFORE STARTING IT IS RECOMMENDED THAT YOU PERFORM A SAFETY CHECK NOT LIMITED TO THE FOLLOWING ITEMS:

- PLACE THE CANNON ON A FLAT SURFACE.
- DISENGAGE THE TRAVEL LATCH FROM THE UNDERSIDE OF THE CANNON.
- CHECK THAT THE FAN SPINS WITHOUT ANY OBSTRUCTION.
- CHECK THAT ALL 60 NOZZLES ARE IN PLACE AND FIRM.
- SLIDE THE HIGH-PRESSURE PUMP OUT OF THE TURRET BOX AND CHECK THE OIL LEVEL AS SHOW BELOW.

#### **BEFORE STARTING**

- CHECK FUEL LEVEL IN THE GENERATOR.
- ENSURE THAT THERE IS SUFFICIENT WATER IN THE TANK.
- IF YOU WISH TO USE THE REMOTE MAKE SURE THAT THE ANTENNA AND REMOTE HAVE BEEN REMOVED FROM THE CONTROL PANEL AND ARE IN GOOD CONDITION.
- ENSURE THAT THE 32A PLUG IS CONNECTED TO THE GENERATOR AND TURNED ON.



## STARTUP

- OPEN THE CHOKE ON THE GENERATOR AND TURN THE KEY. WHEN THE ENGINE STARTS CLOSE THE CHOKE.
- USE THE UP & DOWN SWITCH TO RAISE THE POSITION OF THE CANNON.
- USE THE LEFT & RIGHT SWITCH TO MANUALLY POSITION THE CANNON.
- SWITCH THE FAN ON AND WAIT APPROX 15 SECONDS FOR THE FAN TO WIND UP TO FULL SPEED.
- TURN THE MIST SWITCH TO ITS ON POSITION.
- ONCE YOU HAVE MIST OBSERVE THE MISTING RING TO CHECK THAT EACH NOZZLE IS MISTING.
- NOW THAT THE M45AU IS OPERATING YOU CAN CHOOSE TO EITHER TARGET THE CANNON MANUALLY USING THE FAN UP/DOWN/LEFT/RIGHT OR SET THE CANNON TO OSCILLATE AUTOMATICALLY.
- TO USE THE REMOTE CONTROL FIND THE REMOTE SWITCH ON THE CONTROL PANEL AND TOGGLE THIS FROM MANUAL TO REMOTE. YOU WILL SEE THE GREEN LIGHT ILLUMINATE. YOU CAN NOT CONTROL THE CANNON FROM THE REMOTE CONTROL AT UP TO 100 METERS AWAY.

## AFTER USE & TRANSPORT

OUR CANNONS ARE INCREDIBLY EASY TO MOVE TO AND FROM OR AROUND THE WORKSITE. IT IS IMPORTANT TO FOLLOW THESE STEPS WHEN YOU ARE PACKING DOWN YOUR MACHINE AFTER OPERATING. THIS WILL ENSURE THAT YOUR MACHINE IS READY TO BE USED DAY IN DAY OUT.

### AFTER USE PROCEDURE

- CENTRE THE CANNON OVER THE GENERATOR AND MAKE SURE THAT THE CANNON IS LOWERED ALL THE WAY DOWN INTO ITS CRADLE.
- ENGAGE THE TRAVEL LATCH SO THAT THERE CAN BE NO MOVEMENT THROUGH THE CANNON.
- ACTIVATE THE STOP BUTTON ON THE CONTROL PANEL.
- ON THE GENERATOR YOU WILL SWITCH OFF THE MAIN POWER SUPPLY AND REMOVE THE PLUG. IF STORING THE MACHINE FOR LONG PERIODS PLEASE SWITCH THE CIRCUIT BREAKERS TO OFF.
- ONCE THE GENERATOR IS OFF AND DISCONNECTED YOU CAN OPEN THE CONTROL PANEL AND STORE THE REMOTE CONTROL AND ANTENNA IF THEY HAVE BEEN USED.
- IF THE MACHINE IS NOT GETTING USED FOR A LONG DURATION IT IS BEST TO DRAIN THE TANK.

### TRANSPORTING

- THE M45AU IS VERY EASY TO MOVE AS IT HAS FORKLIFT POINTS FROM ALL DIRECTIONS. KEEPING IN MIND THAT YOU DO NOT DAMAGE THE DRAIN VALVE OR SWITCHES ON THE CONTROL PANEL.
- THE M45AU UNIT MEASURES 1900MM X 1200MM IN LENGTH AND WIDTH MAKING IT PRACTICAL TO CARRY ON MOST TRUCKS AND UTES.
- IF TRANSPORTING THE M45AU ON THE BACK OF A UTE OR TRUCK, MAKE SURE THAT THE LOAD IS SECURED WITH LOAD RATED STRAPS. RATCHET STRAPS CAN BE RUN ACROSS THE TOP OF THE TURRET BOX, DO THIS WITH CAUTION AND KEEP AWAY FROM THE PROXIMITY SENSORS. DO NOT RUN STRAPS OVER THE CONTROL PANEL.
- DOUBLE-CHECK THAT THE CANNON HAS BEEN LOWERED INTO ITS CRADLE AND THAT THE TRAVEL LATCH IS ENGAGED.

- IF THE MACHINE IS BEING TRANSPORTED ON UTE OR OPEN-AIR TRUCK IT IS A GOOD IDEA TO COVER THE CANNON TO PROTECT FROM BUGS AND OTHER ELEMENTS WHILE TRANSPORTING.



## MAINTENANCE - OIL

### **OIL CHANGES AFTER THE FIRST 50 HOURS OF USE, THEN EVERY 500 HOURS OF USE TO PROPERLY MAINTAIN YOUR HIGH-PRESSURE PUMP & MOTOR**

THE OZMIST M45AU MIST CANNON FEATURES ONE OF OZMIST'S RENOWNED INDUSTRIAL PUMP UNITS, CAPABLE OF PRESSURISING 18 LITRES OF WATER PER MINUTE AT 1000PSI OR 70 BAR. OUR PUMPS ARE KNOWN FOR THEIR RELIABILITY AND PERFORMANCE AND WILL KEEP YOU RUNNING FOR YEARS TO COME. BUT LIKE EVERY PUMP IT NEEDS TO TO BE PROPERLY MAINTAINED.

THESE PUMPS NEED AN OIL CHANGE EVERY 500 HOURS OF OPERATION. YOU SHOULD ALSO CHECK THE OIL REGULARLY TO ENSURE THAT THE OIL IS AT THE CORRECT LEVEL.

#### CHECKING THE OIL

- UNDO THE CATCH ON THE TURRET DOOR AND LOWER THE LID.
- ONCE OPEN, REMOVE THE PIN THAT STOPS THE HIGH-PRESSURE PUMP FROM SLIDING OUT ON ITS RAILS.
- WHEN REMOVED, SLIDE THE PUMP OUT ON ITS RAILS SO YOU CAN REACH THE SILVER CANISTER ON THE TOP OF THE PUMP.
- UNSCREW THE CAP ON THE SILVER CANISTER AND CHECK THE OIL LEVEL. THE OIL LEVEL SHOULD BE HALFWAY UP THE SILVER CANISTER. IF BELOW PLEASE TOP UP WITH 10W - 50 FULLY SYNTHETIC OIL.

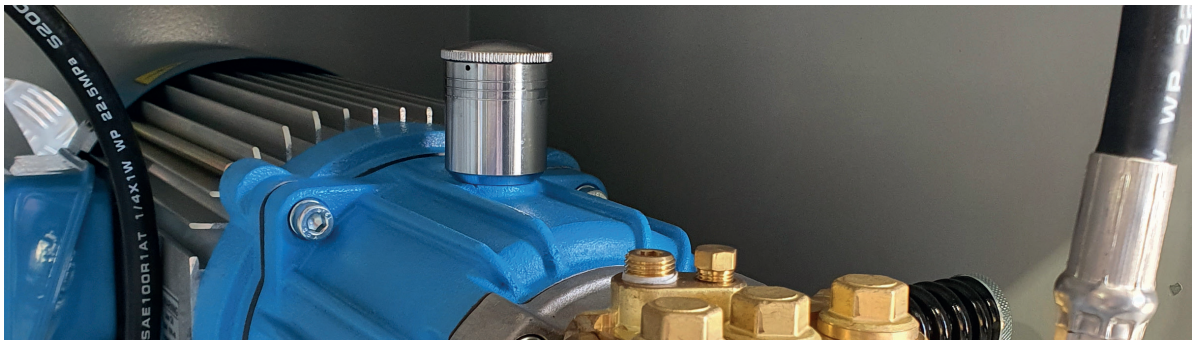
## CHANGING THE OIL

- AS ABOVE, REMOVE THE PIN AND SLIDE THE PUMP OUT ON ITS RAILS UNTIL YOU CAN LOCATE THE BRASS OIL DRAIN PLUG ON THE UNDERSIDE OF THE PUMP UNIT.
- PLACE A SUITABLE CONTAINER UNDER THE PUMP TO CATCH THE OIL.
- REMOVE THE DRAIN PLUG AND OIL SHOULD FLOW FROM THE PUMP INTO YOUR CONTAINER, WHILE DRAINING REMOVE THE CAP FROM THE TOP OF THE SILVER CANISTER AND STORE SOMEPLACE SAFE.
- ONCE THE PUMP HAS DRAINED ALL ITS OIL YOU CAN REPLACE THE DRAIN PLUG AND TIGHTEN IT FIRMLY.
- PROCEED TO FILL THE PUMP FROM THE SILVER CANISTER POURING OIL VERY SLOWLY, ALLOWING AIR TO DISSIPATE. POUR UNTIL THERE IS OIL HALFWAY UP THE SILVER CANISTER.

IT IS GOOD PRACTICE TO RUN THE PUMP FOR A SHORT AMOUNT OF TIME AFTER AN OIL CHANGE. ONCE RUN FOR A SHORT TIME CHECK THE OIL LEVEL AGAIN.

ONLY USE 10W - 40 OR 10W - 50 FULLY SYNTHETIC OIL IN OUR PUMPS.

PLEASE REFERENCE THE MAKINEX GENERATOR USER MANUAL THAT IS SUPPLIED WITH EVERY MIST CANNON TO FIND THEIR RECOMMENDED SERVICE INTERVALS.



## MAINTENANCE - NOZZLES

### DO NOT ADJUST NOZZLES WHILE THE MACHINE IS OPERATIONAL

#### NOZZLES

EACH CANNON IS FITTED WITH 60 HIGH PRESSURE MISTING NOZZLES. IT IS IMPORTANT TO VISUALLY INSPECT THESE NOZZLES PERIODICALLY TO CHECK FOR BLOCKAGES. IF YOU HAVE A BLOCKED NOZZLE, SHUT DOWN THE UNIT AND ONCE STOPPED REMOVE THE FACE OF THE BLOCKED NOZZLES (SHOWN IN IMAGE) BEING CAREFUL NOT TO LOSE ANY OF THE SMALL COMPONENTS THAT ARE SEATED INSIDE. WASH THE BLOCKED NOZZLE FACE IN CLEAN WATER. IT IS ALSO POSSIBLE TO SOAK THE NOZZLE FACE IN PRODUCTS SUCH AS CLR CLEAR TO REMOVE ANY CALCIUM BUILD-UP.



## WATER FILTRATION

THERE ARE TWO INLINE 10" CARTRIDGE FILTERS INSTALLED ON THE INSIDE EDGE OF THE TURRET BOX. THE FILTER CLOSEST TO THE WATER INLET IS A 10-MICRON FILTER WITH THE NEXT BEING A 5-MICRON FILTER. THESE SHOULD BE CHECKED REGULARLY AS A BLOCKED FILTER CAN CAUSE ISSUES WITH THE HIGH-PRESSURE PUMP CAUSING DOWNTIME WITH THE MACHINE. OUR FILTERS CAN BE PURCHASED FROM MOST PLUMBING SUPPLY STORES.

EVERY MIST CANNON PURCHASED IS SUPPLIED WITH THE APPROPRIATE TOOLING TO REMOVE AND REPLACE THE FILTERS ON THE SPECIFIC MACHINE. KEEP IN MIND THAT RUNNING A MACHINE WITH DIRTY FILTERS CAN ALLOW DIRT TO TRAVEL THROUGH THE SYSTEM AND END UP IN THE NOZZLES, ESPECIALLY IF YOU ARE DRAWING FROM A POOR QUALITY WATER SOURCE.



## SPARE PARTS

### KEEP YOUR SPARE PARTS IN A SAFE AND DRY LOCATION

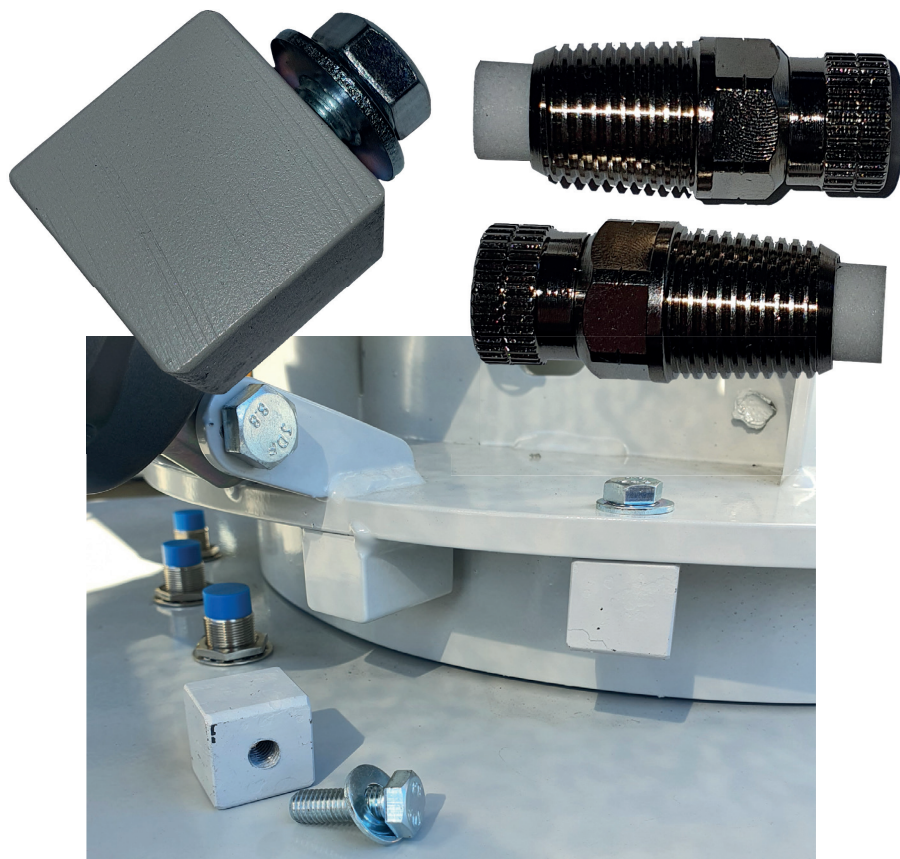
THERE IS A NUMBER OF SPARE PARTS THAT ARE PROVIDED IN A TOOLBOX WHEN YOU PURCHASE ONE OF OUR MOBILE MIST CANNONS. THIS TOOLBOX WILL ALSO HOUSE ALL THE DOCUMENTATION NEEDED FOR MACHINE OPERATION. THESE SPARES INCLUDE CONSUMABLE PRODUCTS SUCH AS:

- REPLACEMENT 5 & 10-MICRON CARTRIDGE FILTERS
- REPLACEMENT 0.5MM HIGH-PRESSURE MISTING NOZZLES
- A 1-LITRE BOTTLE OF 10W-50 FULLY SYNTHETIC OIL

YOU WILL ALSO RECEIVE COMPONENTS AND TOOLS IN THE SPARE PARTS BOX:

- OSCILLATION BLOCKS FOR LIMITING THE MACHINES LEFT & RIGHT ROTATION.
- PLASTIC SPANNER FOR REMOVING FILTER HOUSING FOR INSPECTION AND REPLACEMENT.





# TROUBLESHOOTING

POSSIBLE CAUSE	SOLUTION
GENERATOR IS RUNNING BUT FAN WILL NOT START?	<ul style="list-style-type: none"><li>• CHECK THE POWER CABLE IS CONNECTED TO THE GENERATOR.</li><li>• CHECK THE MAIN POWER SWITCH IS IN ITS 'ON' POSITION ON THE GENERATOR.</li><li>• POWER SUPPLY CIRCUIT COULD BE OVERLOADED AND TRIPPED ON THE GENERATOR.</li><li>• CHECK THE WATER LEVEL IN THE TANK, THE WATER LIGHT ON THE CONTROL PANEL SHOULD BE ILLUMINATED.</li><li>• TURN OFF THE GENERATOR AND HAVE QUALIFIED PERSONS CHECK THE SAFETY SWITCH INSIDE THE CONTROL PANEL.</li></ul>
CANNON WILL NOT TILT UP FROM ITS HOMED POSITION?	<ul style="list-style-type: none"><li>• CHECK THAT THERE IS POWER, THE GREEN LIGHT ON THE CONTROL BOARD SHOULD BE ILLUMINATED.</li><li>• CHECK THAT THE STOP BUTTON IS DISENGAGED.</li><li>• CHECK THAT THE CIRCUIT BREAKER HAS NOT BEEN TRIPPED ON THE GENERATOR.</li><li>• TURN THE GENERATOR OFF AND HAVE QUALIFIED PERSONS CHECK THE CIRCUIT BREAKER INSIDE THE CONTROL PANEL.</li><li>• IF THE CANNON HAS BEEN RAISED SLIGHTLY WITH THE TRAVEL LATCH IN ITS LOCKED POSITION THERE WILL BE PRESSURE ON THE LATCH AND IT WILL NOT UNDO, WITH THE MACHINE RUNNING HOLD THE DOWN SWITCH UNTIL THE LATCH CAN BE SAFELY UNDONE.</li></ul>
MIST CANNON NOT GIVING A CONSISTANT MIST OUTPUT	<ul style="list-style-type: none"><li>• THIS USUALLY OCCURS WHEN THE FILTERS ARE DIRTY OR BLOCKED SEE THE "MAINTENANCE PAGE" THAT REFERS TO FILTRATION CARE AND REPLACEMENT.</li></ul>

IF YOU HAVE AN ISSUE WITH YOUR M45AU MIST CANNON PLEASE CONTACT US

## REMOTE OPERATION

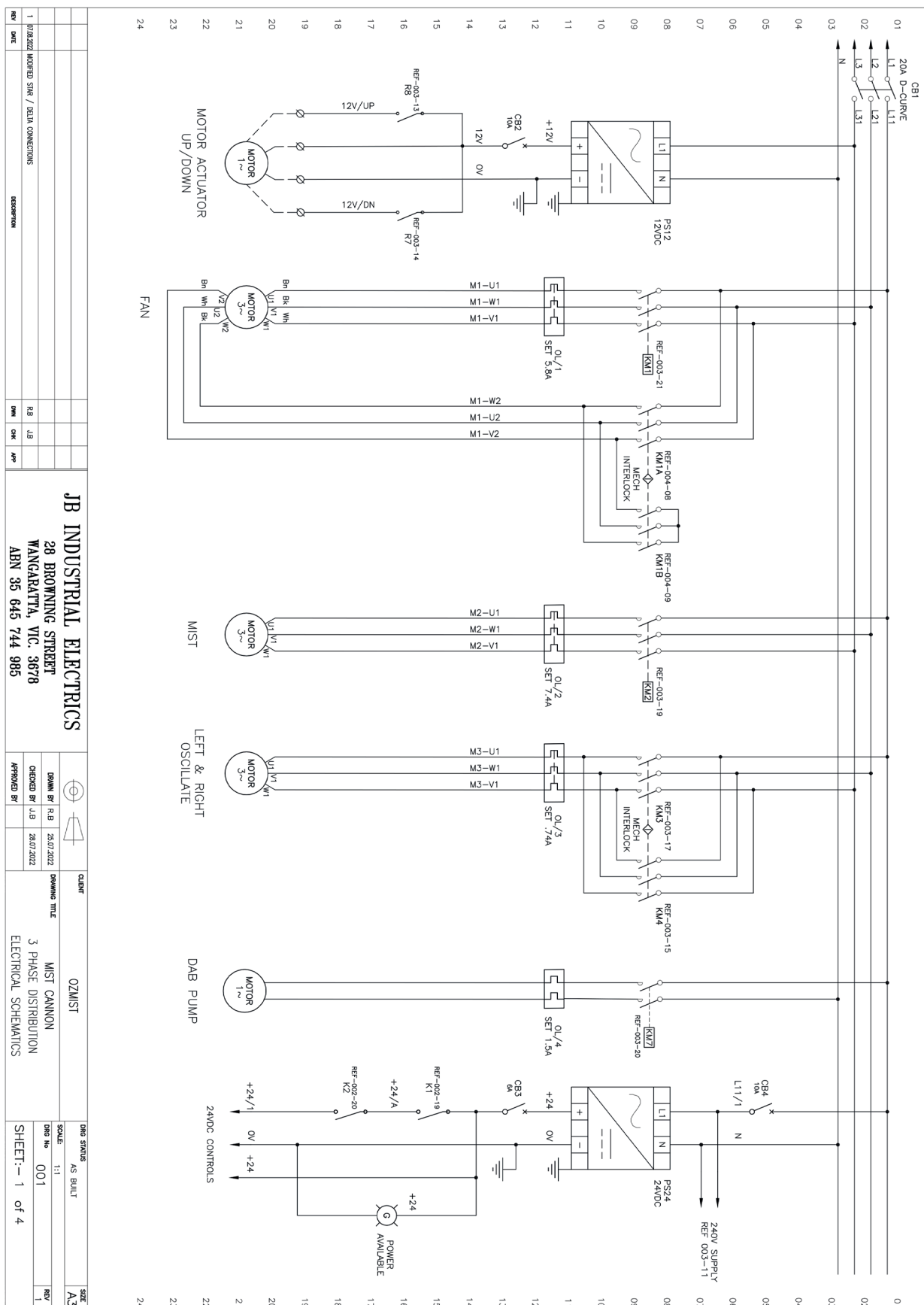
# REMOTE OPERATION

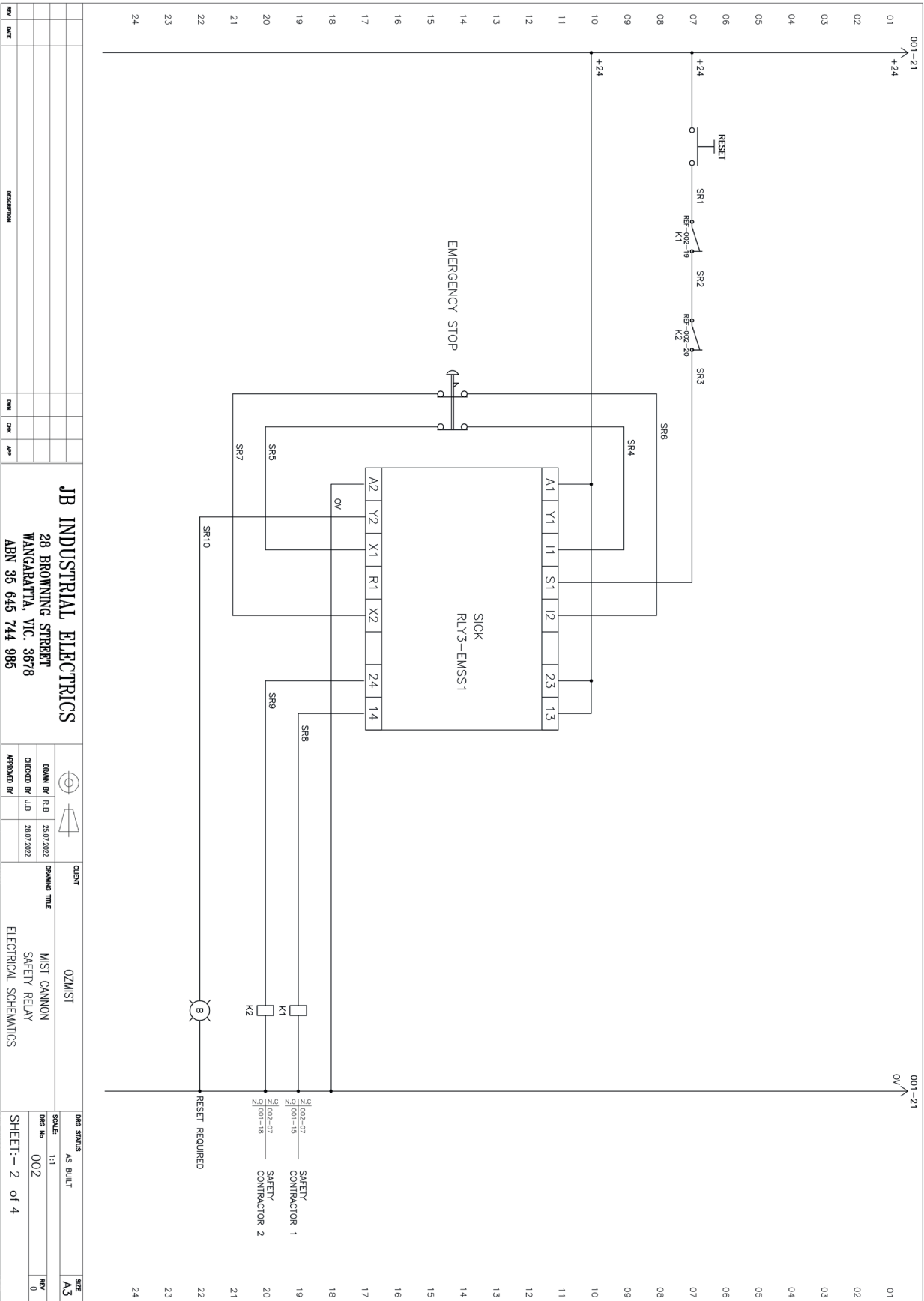


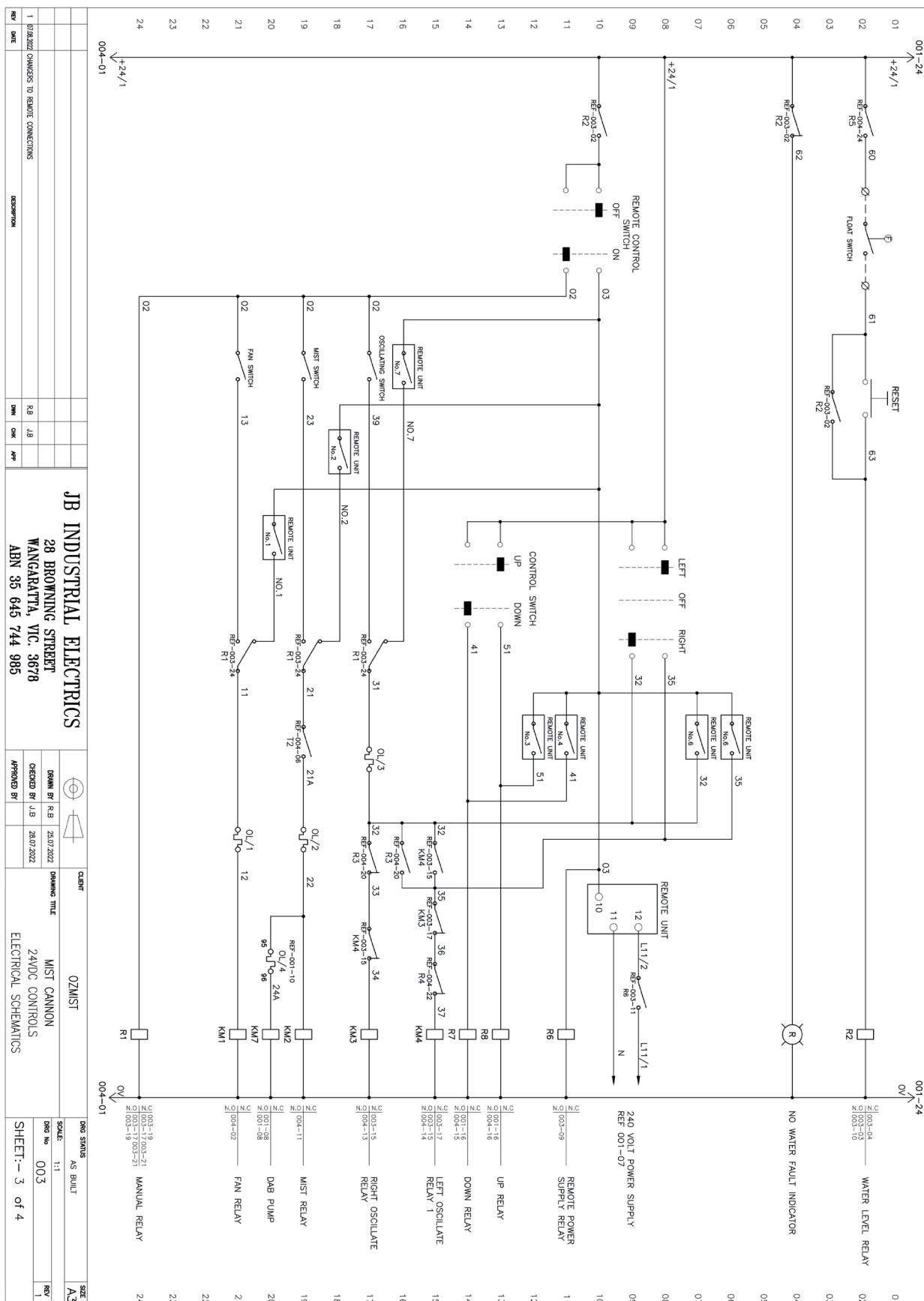
## REMOTE FUNCTIONS

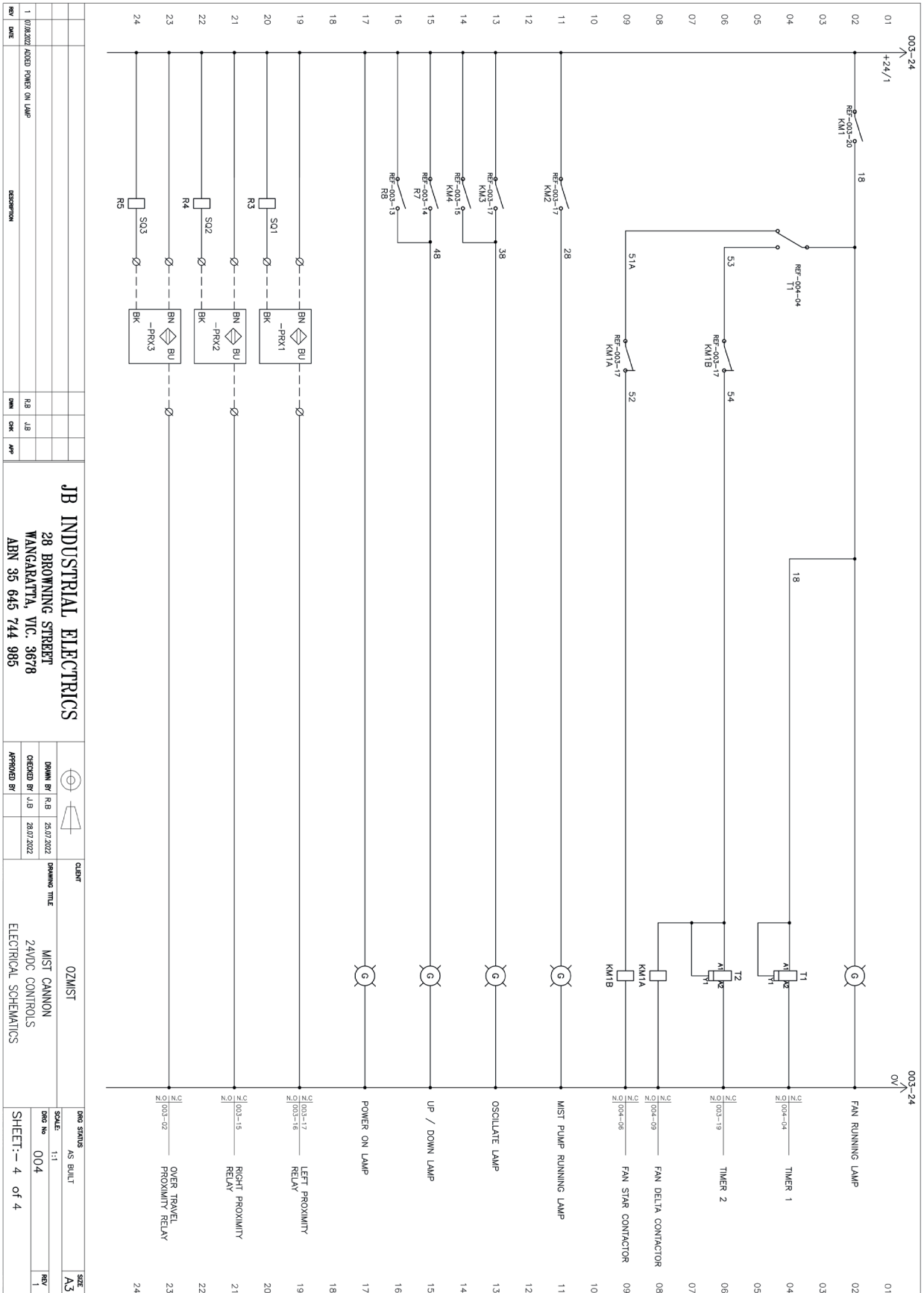
1. REMOTE ON BUTTON
2. REMOTE OFF BUTTON
3. FAN ON / OFF BUTTON
4. MIST ON / OFF BUTTON
5. CANNON UP BUTTON
6. CANNON DOWN BUTTON
7. OSCILLATE ON / OFF BUTTON
8. N/A
9. ANTENNA

**\*MAKE SURE THAT THE ANTENNA IS STUCK TO THE SIDE NOT THE TOP OF THE OPERATIONS BOX. THIS WILL ALLOW WATER TO DRIP OFF THE ANTENNA AND NOT INTO THE BOX.**













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ABN 31 085 651 314  
REC VIC 13763 / NSW 110946C

Date: 25<sup>th</sup> 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.

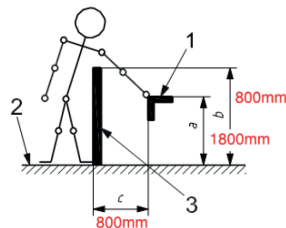
Results of the risk assessment have determined that no Electrical E-Stop circuit is required if the following mechanical guarding is installed;

#### 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 <sup>a</sup>	Height of protective structure <sup>b</sup>							
	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	600	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

<sup>a</sup> Protective structures less than 1 000 mm in height are not included because they do not sufficiently restrict movement of the body.

<sup>b</sup> 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.



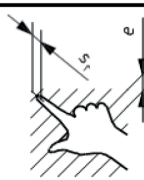
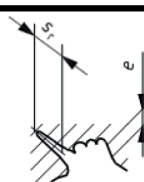
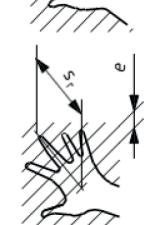
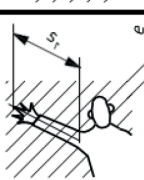
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ABN 31 085 651 314 REC VIC 13763 / NSW 110946C

#### 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 <sup>a</sup>	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.

<sup>a</sup> If the length of the slot opening is  $\geq 65$  mm, the thumb will act as a stop and the safety distance can be reduced to 200 mm.

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.

We have amended your electrical schematics removing the emergency stop contacts and recommend replacing with a black mushroom style (Process Stop).



This will still allow the machine to function as designed by OzMist with no changes to the electrical circuit required on previous or future builds

**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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**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		DATE	25/02/2019	APPROVED BY	
CLIENT	Ozmist						




LEGEND	
R	Risk Assessment
PLE	Performance Level Evaluation
MSD-E	Machine Safety Design Electrical
MSD-M	Machine Safety Design Mechanical
SAT-E	Site Acceptance Test Electrical
SAT-M	Site Acceptance Test Mechanical
H	Hold Point
RV	Review

REFERENCE DOCUMENTS			
Development:			
Electrical Safety Risk Assessment			
Implementation:			
N/A			
APPROVAL/REVISION			
Rev	Date	Details	Approved by
1	25.02.2020	Assessment Completed	Mark Pfeiffer & Darren Stephens



**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 (TUV 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 (TUV 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 (TUV Rheinland)		23.02.2020 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.**

OZ MIST – Mist Cannon Electrical Risk Assessment: ITP

Page 2 of 2



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

### 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)

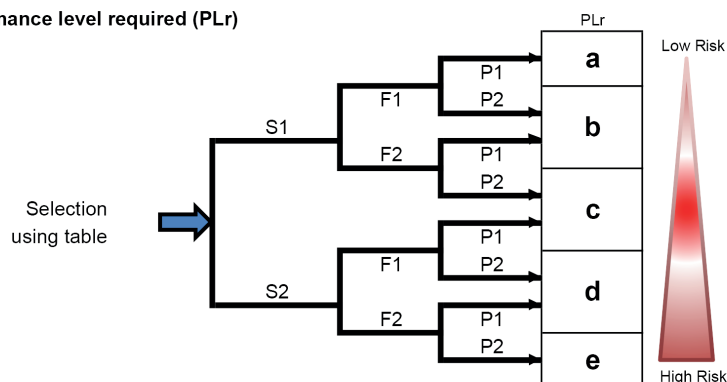
1	1- 2 persons
2	3 - 7 persons
4	8 - 15 persons
8	16 - 50 persons
12	More than 50 persons

#### 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	
<b>P</b>	<b>Possibility of avoiding hazard or harm</b>	
P1	possible under specific conditions	slow movements, plenty of space, low power

Entanglement


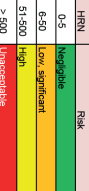
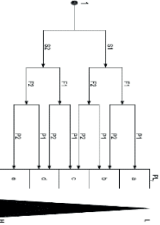
<div>Client: Ozmist</div> <div>Location: EDC Workshop</div> <div>Equipment Loc: Transportable</div> <div>Equipment Detail: Misting Fan (Application Dust Suppression)</div> <div>Asset Number: N/A</div>										<div></div>		<div>HRN</div> <div>0-5 Negligible</div> <div>6-50 Low, significant</div> <div>51-500 High</div> <div>&gt; 500 Unacceptable</div>		<div>Risk</div>			
<div>A. ENTANGLEMENT</div> <div>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?</div>										<div>Assess Risk With No Safeguards To Determine Category Rating Required</div>						<div>No safeguards (determine if requirements)</div>	
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	Cell	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
<div>NOTES</div> <div>Hair &amp; Corred use of PPE to be incorporated into the user manual</div> <div>Hair to be neat and tidy with any considerable length the be contained to ensure hair cannot be sucked into fan causing entanglement.</div> <div>After Hazop the following corrective measures were discussed to remove the Hazard</div> <div>- Install Guarding on the turret. Guarding to be installed on the outer most ring to isolate all internal moving parts.</div>																	
<div>Description of recommended Control Measures</div>																	
<div>Pic 1</div> <div>Pic 2</div> <div>Pic 3</div>																	
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EDC Electrical

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25/02/2020

Crushing

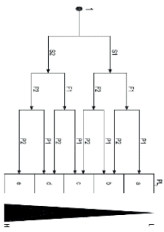




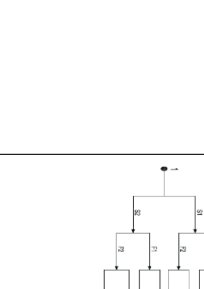

Client: <b>Ormat</b>				HRN			No safeguards (determination of PLU requirement)										
Location: <b>EDC Workshop</b>				0-5													
Equipment Loc: <b>Transportable</b>				6-50													
Equipment Detail: <b>Misting Fan (Application Dust Suppression)</b>				51-500													
Asset Number: <b>N/A</b>				> 500		Unacceptable		HRN = LO x FE x DPH x NF									
<b>B. CRUSHING</b> Can anyone be crushed due to:				<b>Assess Risk With No Safeguards To Determine Category Rating Required</b>													
ITEM #	PICTURE	Possible Hazard	Exists 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	PLU
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																	
<b>NOTES</b>					<b>Description of recommended Control Measures</b>												
					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									

EDC Electrical

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25/02/2020

Cutting

Client: Ozmist		EDC Workshop		HRN		Risk																	
Location:		Transportable		0-5		Negligible																	
Equipment Loc:		Misting Fan (Application Dust Suppression)		6-50		Low, significant																	
Asset Number: N/A				51-500		High																	
				> 500		Unacceptable		HRN = LO x FE x DPH x NF															
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 PLU 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	PLU						
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 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).																							
																							

EDC Electrical

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25/02/2021

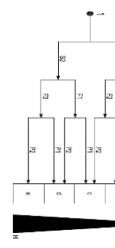




Shearing

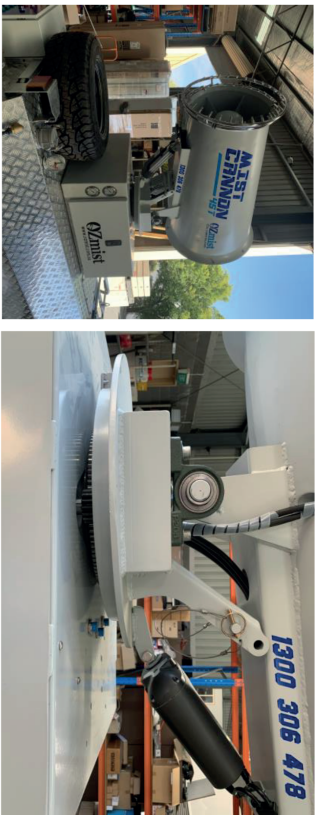
Client:	Ozmist	 <b>EDCelectrical</b> design&construction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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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 PLT requirements)
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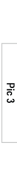
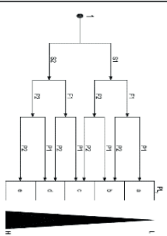
ITEM #	PICTURE REF #	Possible Hazard	Exists Y/N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mechanical Guarding Yes/No	Hazard Rating Number	Risk Level	S	F	P	Cat	PLT
D-1	2	Placing fingers & hand into rotating assembly while operating with fingers getting caught between strike plate and proximity switches	Yes	Normal Operation	E-Stops Upgrade. Replaced 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	SI	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.





Striking

Client: Ozmist Location: EDC Workshop Equipment Loc: Transportable Equipment Detail: Mistling Fan (Application Dust Suppression) Asset Number: N/A								<table border="1"> <tr> <th>JRN</th> <th>Risk</th> </tr> <tr> <td>0-5</td> <td>Negligible</td> </tr> <tr> <td>6-50</td> <td>Low, significant</td> </tr> <tr> <td>51-500</td> <td>High</td> </tr> <tr> <td>&gt; 500</td> <td>Unacceptable</td> </tr> </table>				JRN	Risk	0-5	Negligible	6-50	Low, significant	51-500	High	> 500	Unacceptable	JRN = LO x FE x DPH x NF No safeguards (determination of PLT requirements)			
JRN	Risk																								
0-5	Negligible																								
6-50	Low, significant																								
51-500	High																								
> 500	Unacceptable																								
<b>E. STRIKING</b> Can anyone be struck by moving objects due to:								<b>Assess Risk With No Safeguards To Determine Category Rating Required</b>																	
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	PLT								
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 (0.035)	Daily (2.5)	Laceration / mild ill effect (0.5)	1-2 persons (1)	No	0.04/25	Negligible	S1	F1	P1	B	a								
E-2																	P1								
E-3																	P2								
<b>NOTES</b> Recommend adding to safe operating procedure: All Personnel working in the vicinity are required to maintain appropriate PPE																									
<b>Description of recommended Control Measures</b>																									
Pic 1  Pic 2  Pic 3  Pic 4  Pic 5  Pic 6 																									

300 Electrical

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CONFIDENTIAL

26/02/2021




Client: Oznist

Location: EDC Workshop

Equipment Loc: Transportable

Equipment Detail: Misting Fan (Application Dust Suppression)

Asset Number: N/A



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

HRN = LO x FE x DPH x AHF

No safeguards (determination of PLr requirements)

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	Ch	PLr
F-1		None Identified															P1
F-2																	P1
F-3																	P2

NOTES

Description of recommended Control Measures

Pic 1

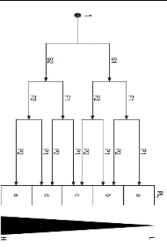
Pic 2

Pic 3

Pic 4

Pic 5

Pic 6




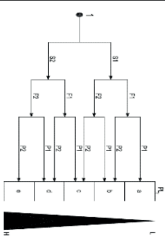
EDC Electrical

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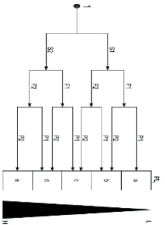
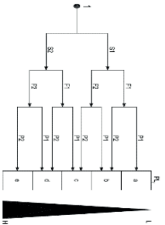
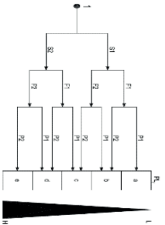
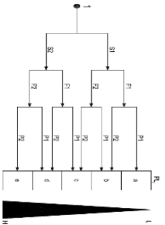
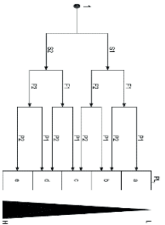
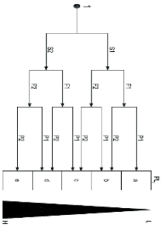
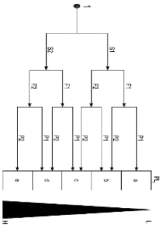
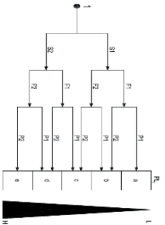
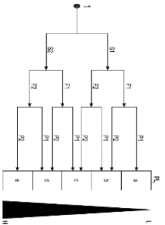
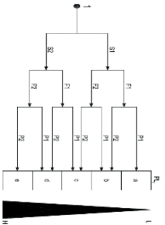
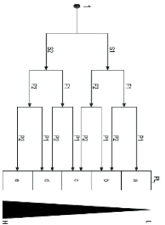
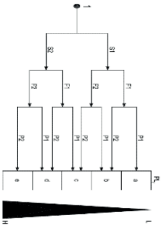
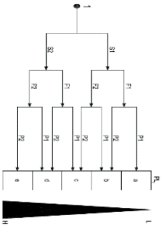
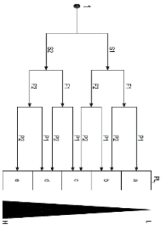
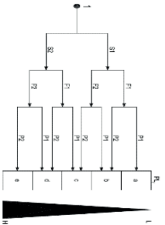
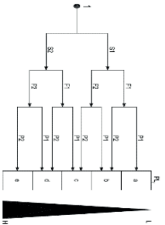
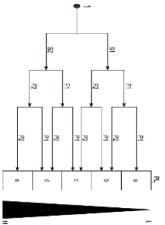
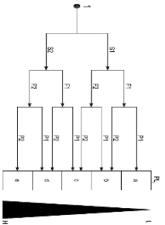
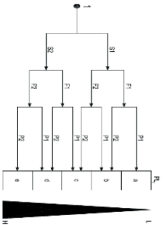
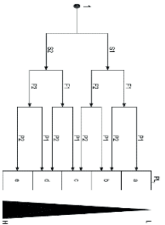
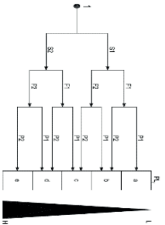
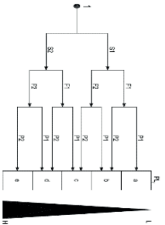
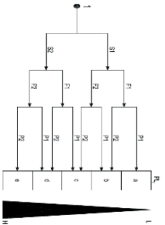
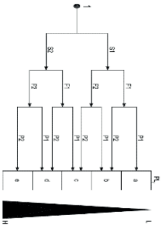
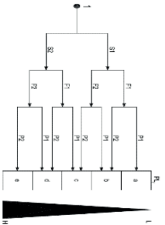
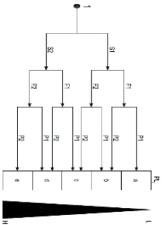
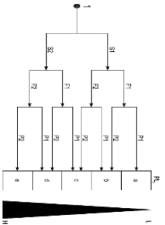
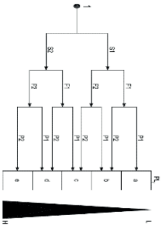
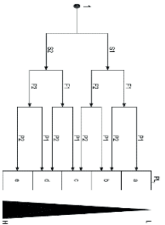
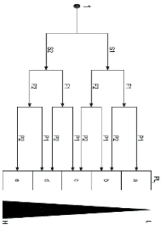
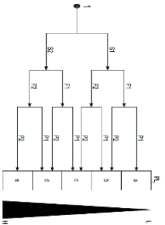
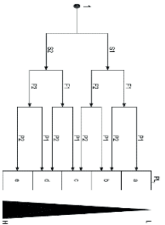
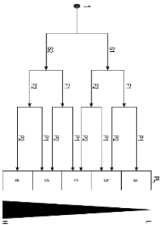
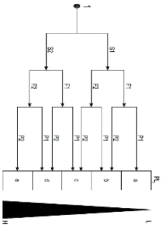
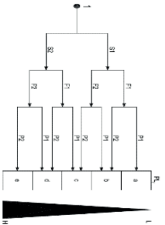
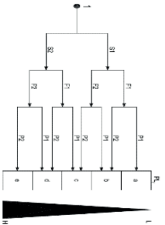
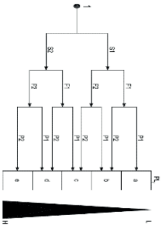
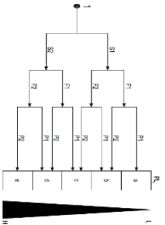
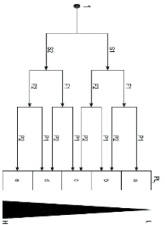
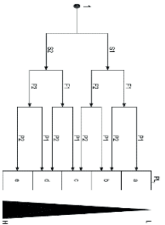
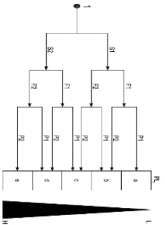
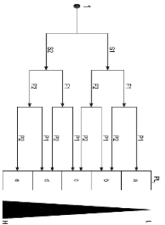
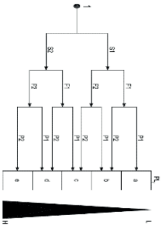
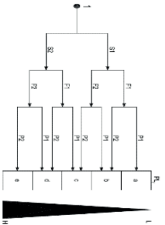
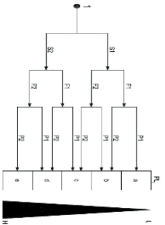
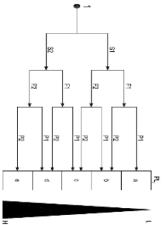
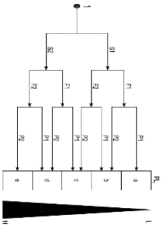
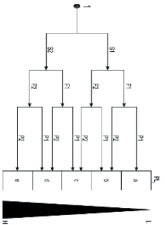
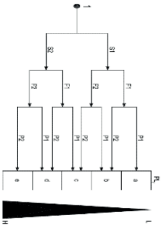
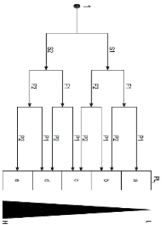
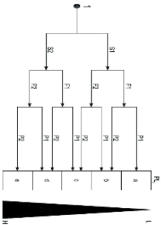
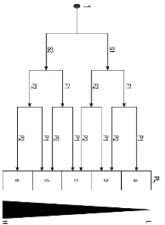
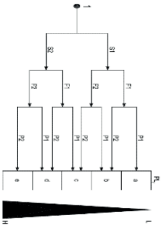
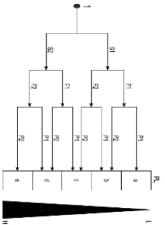
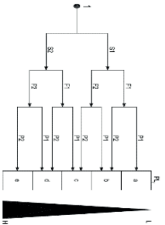
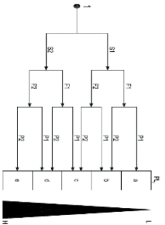
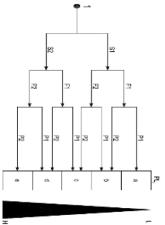
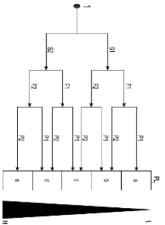
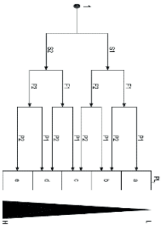
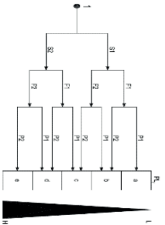
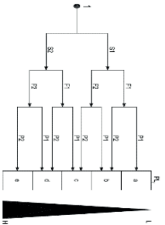
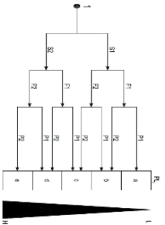
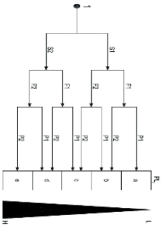
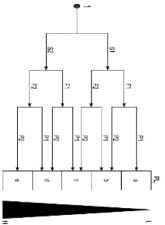
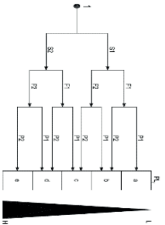
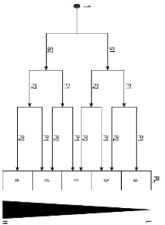
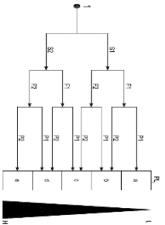
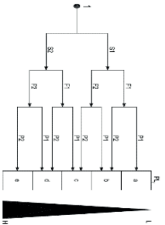
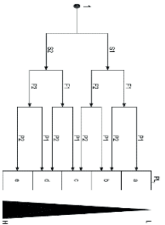
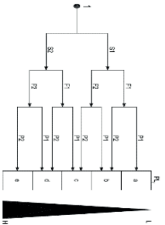
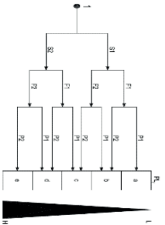
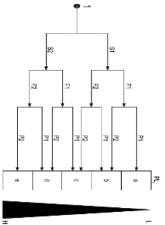
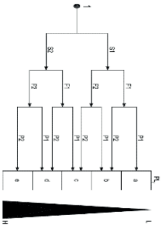
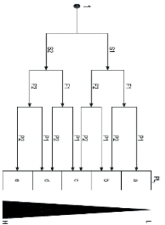
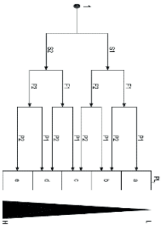
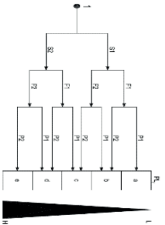
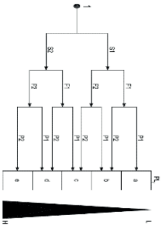
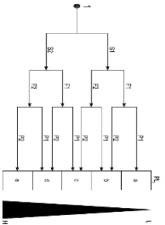
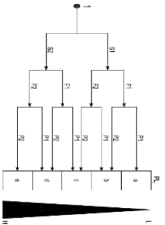
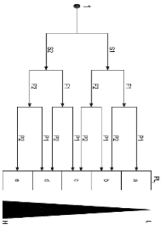
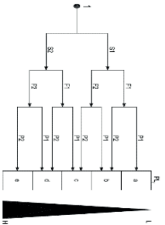
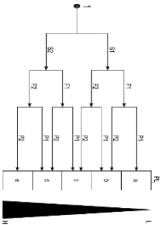
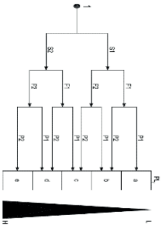
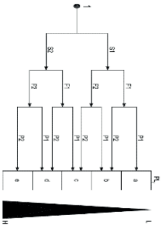
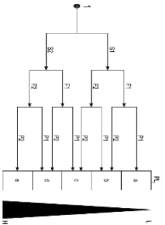
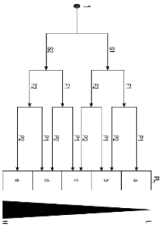
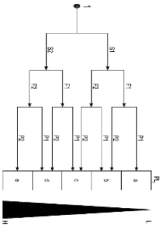
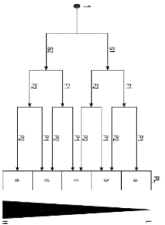
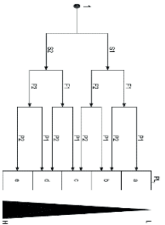
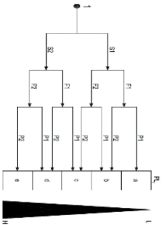
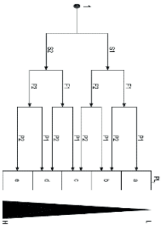
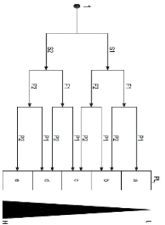
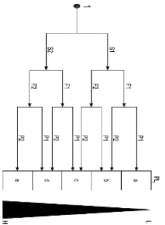
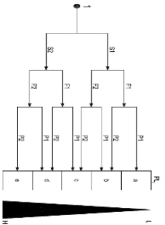
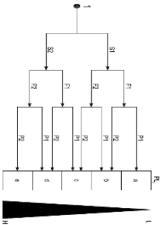
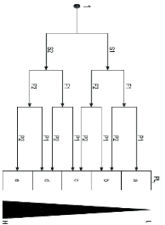
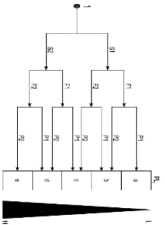
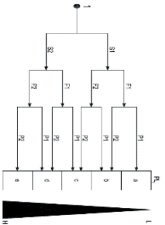
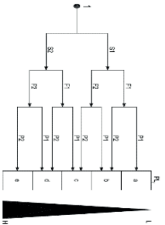
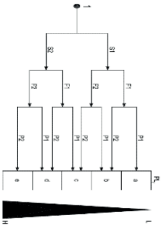
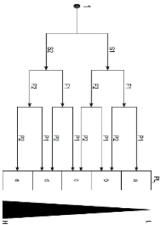
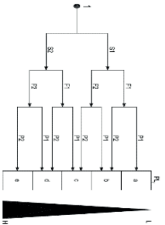
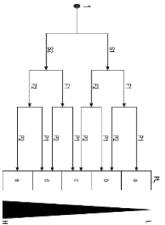
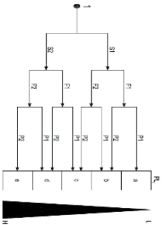
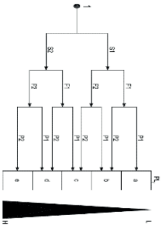
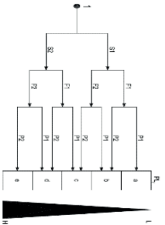
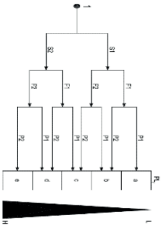
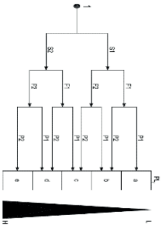
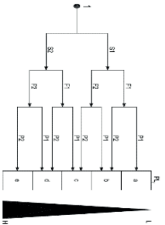
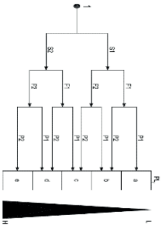
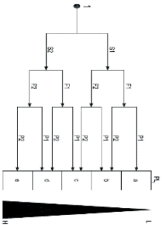
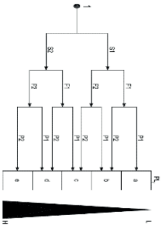
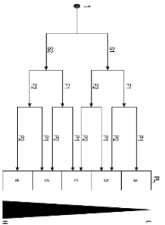
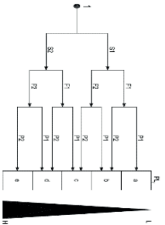
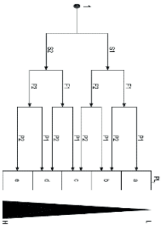
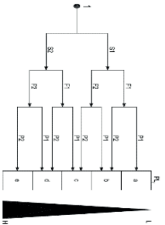
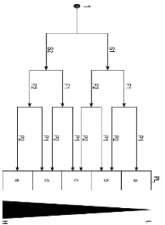
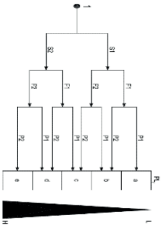
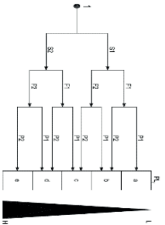
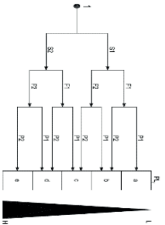
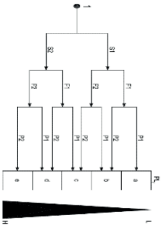
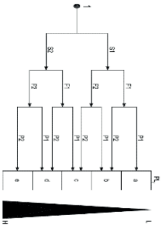
High Pressure

<div>Client: <b>Ozmat</b></div> <div>Location: <b>EDC Workshop</b></div> <div>Equipment Loc: <b>Transportable</b></div> <div>Equipment Detail: <b>Misting Fan (Application Dust Suppression)</b></div> <div>Asset Number: <b>N/A</b></div>												<div>HRN</div> <table border="1"> <tr> <td>0-5</td> <td>Negligible</td> </tr> <tr> <td>6-50</td> <td>Low, significant</td> </tr> <tr> <td>51-500</td> <td>High</td> </tr> <tr> <td>&gt; 500</td> <td>Unacceptable</td> </tr> </table>		0-5	Negligible	6-50	Low, significant	51-500	High	> 500	Unacceptable	<div>HRN = LO x FE x DPH x NF</div>	
0-5	Negligible																						
6-50	Low, significant																						
51-500	High																						
> 500	Unacceptable																						
<b>G. HIGH PRESSURE</b> Can persons come into contact with High Pressure from :										<b>Assess Risk With No Safeguards To Determine Category Rating Required</b>		<b>No safeguards (determination of PL<sub>2</sub> requirements)</b>											
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 Hazardous Yes/No	Hazard Rating Number	Risk Level	S	F	P	Cat	PL <sub>2</sub>						
G-1		None Identified															P2						
G-2																	P1						
G-3																	P2						
<b>NOTES</b>										<b>Description of recommended Control Measures</b>													
<div>Pic 1</div> <div>Pic 2</div> <div>Pic 3</div> <div>Pic 4</div> <div>Pic 5</div> <div>Pic 6</div>																							

Electrical

Client: <u>Ormist</u>				<table><tr><td>HRN</td><td>Risk</td></tr><tr><td>0-5</td><td>Negligible</td></tr><tr><td>6-50</td><td>Low, significant</td></tr><tr><td>51-500</td><td>High</td></tr><tr><td>&gt; 500</td><td>Unacceptable</td></tr></table>		HRN	Risk	0-5	Negligible	6-50	Low, significant	51-500	High	> 500	Unacceptable	$HRN = LO \times FE \times DPH \times NF$ No safeguards (determination of PL <sub>r</sub> requirements)		
HRN	Risk																	
0-5	Negligible																	
6-50	Low, significant																	
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Location: <u>EDC Workshop</u>		Equipment LOC: <u>Transportable</u>		Equipment Detail: <u>Misting Fan (Application Dust Suppression)</u>														
Asset Number: <u>N/A</u>																		
<b>H. ELECTRICAL</b> Can anyone be injured by electrical shock or burnt 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)	Mechanical Guarding Yes / No	Hazard Rating Number	Risk Level	S	F	P	CdL	PL <sub>r</sub>	
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>																		

Explosion

Client: <b>Ornlist</b> Location: <b>EDC Workshop</b> Equipment Loc: <b>Transportable</b> Equipment Detail: <b>Missing Fan (Application Dust Suppression)</b> Asset Number: <b>N/A</b>						<table border="1"> <tr> <th>HRN</th> <th>Risk</th> </tr> <tr> <td>0-5</td> <td>Negligible</td> </tr> <tr> <td>6-50</td> <td>Low / Significant</td> </tr> <tr> <td>51-500</td> <td>High</td> </tr> <tr> <td>&gt; 500</td> <td>Unacceptable</td> </tr> </table>		HRN	Risk	0-5	Negligible	6-50	Low / Significant	51-500	High	> 500	Unacceptable	$HRN = LO \times FE \times DPH \times NF$ No safeguards (determination of PLr requirements)	
HRN	Risk																		
0-5	Negligible																		
6-50	Low / Significant																		
51-500	High																		
> 500	Unacceptable																		
<b>1. EXPLOSION</b> Can anyone be injured by explosion of :				<b>Assess Risk With No Safeguards To Determine Category Rating Required</b>															
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		
I-1		None Identified															P2		
I-2																	P1		
I-3																	P2		
<b>NOTES</b>												<b>Description of recommended Control Measures</b>							
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			





#### 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](http://makinex.com.au/parts-service/warranty-registration/) [makinex.com.au/parts-service/warranty-registration/](http://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 USA**  
4232 ARTESIA BLVD  
TORRANCE, CA 90504  
1-855-625-4639

**MAKINEX AU**  
15 WALTHAM ST  
ARTARMON, NSW 2064  
1300-795-953



**MAKING INEFFICIENCIES EXTINCT**

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](mailto:a.ekmekjian@makinex.com.au) or [service@makinex.com.au](mailto:service@makinex.com.au)

PH: 1300 795 953

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