Climate RENTAL SOLUTIONS

MC45 DUST MITIGATION UNIT

OPERATION MANUAL

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

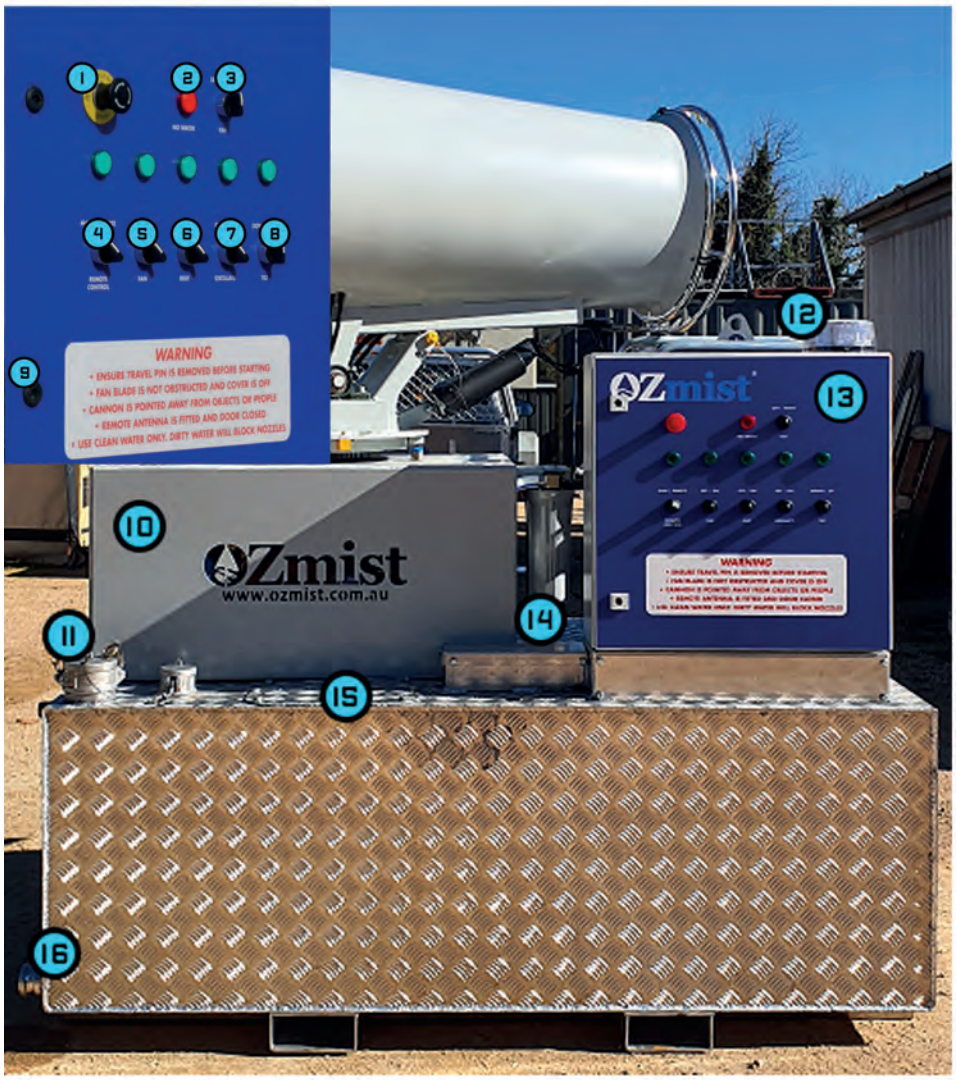
TABLE OF CONTENTS

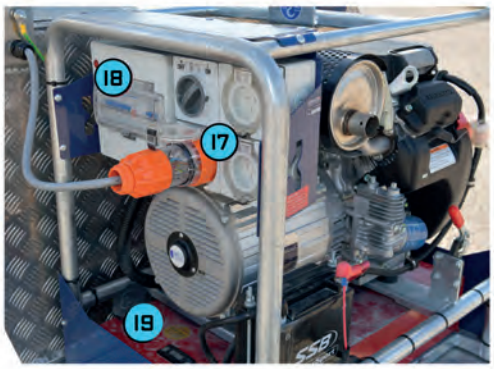
M45AU OVERVIEW

- THE MC45 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 ANO THE REAR OF THE TANK UNIT. THESE WILL ACTIVATE WHEN THE GENERATOR IS SWITCHED ON.

MC45 LAYOUT

THE MC45 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 RE-MOVED 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.

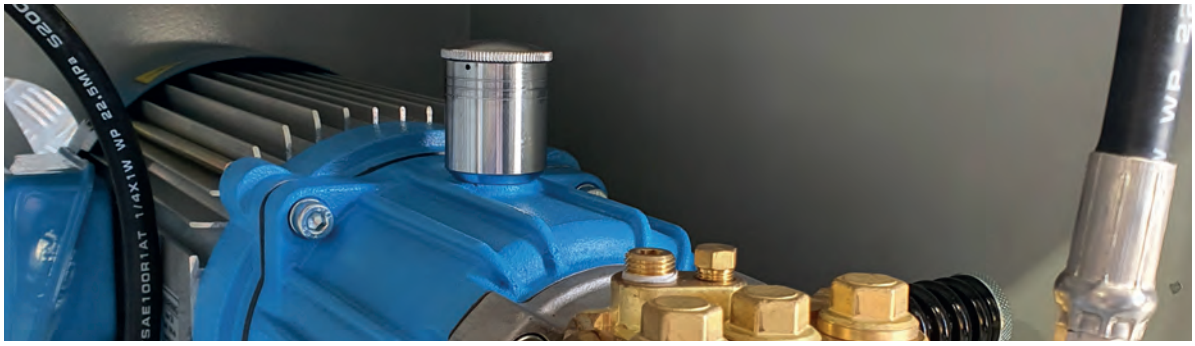
CHANGING THE OIL

- 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

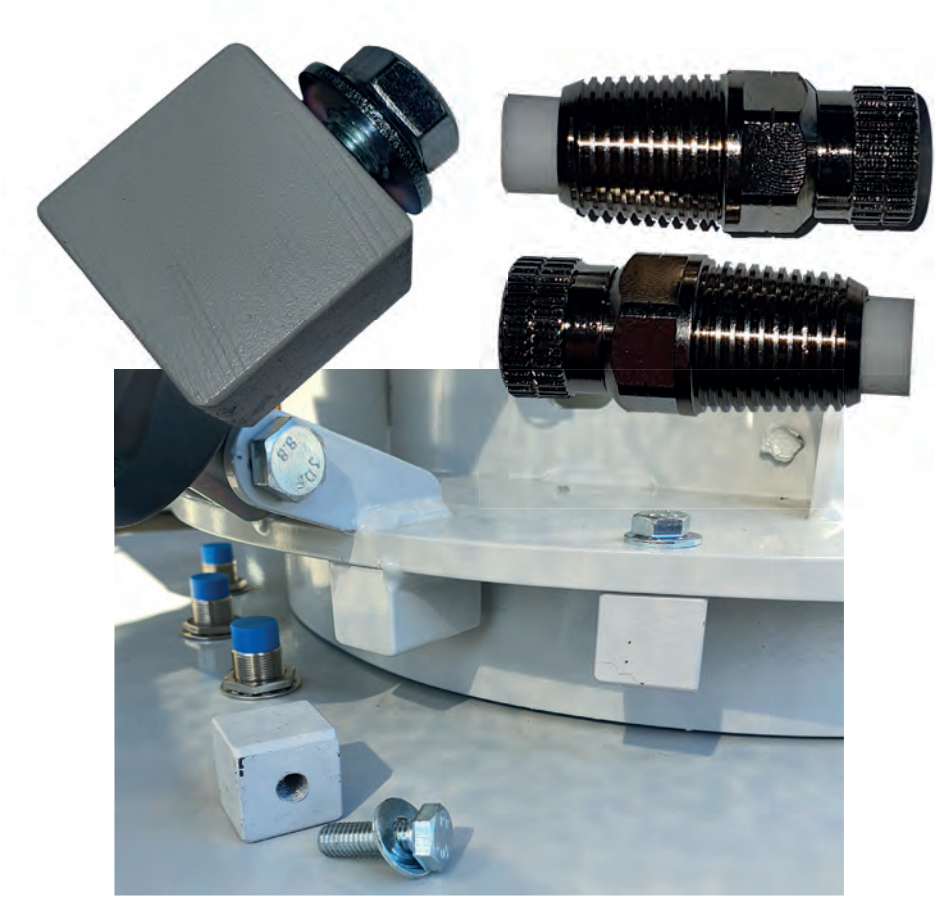
KEEP YOUR SPARE PARTS IN A SAFE AND DRY LOCATION

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.




PENRITE
HPR 10
FULL SYNTHETIC
10W-50
EXTRA TEN
FULL ZINC

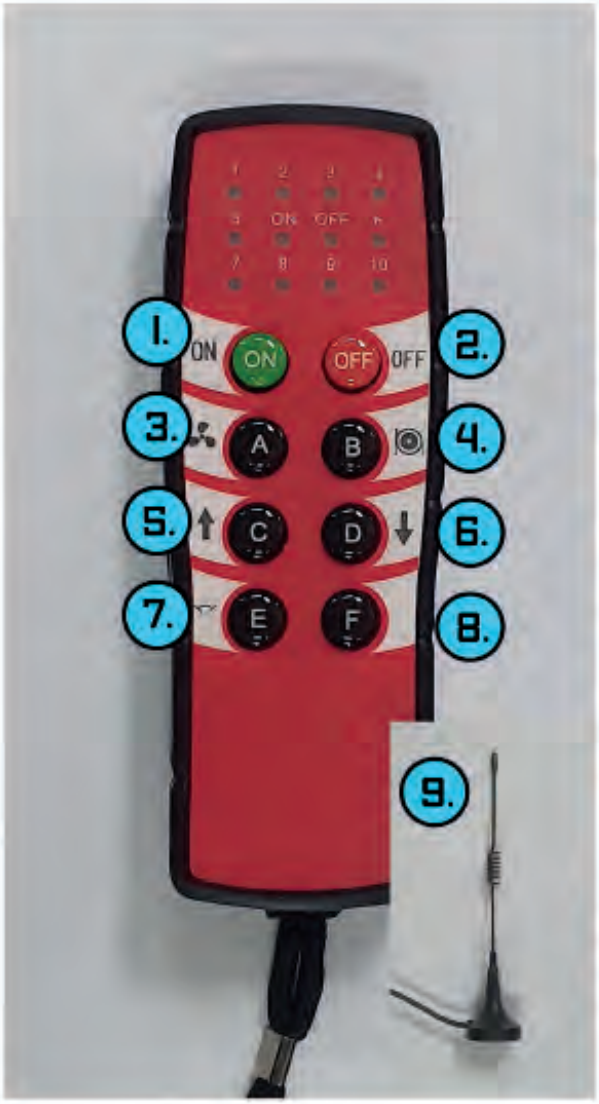
TROUBLESHOOTING

POSSIBLE CAUSE	SOLUTION
GENERATOR IS RUNNING BUT FAN WILL NOT START?	• CHECK THE POWER CABLE IS CONNECTED TO THE GENERATOR. • CHECK THE MAIN POWER SWITCH IS IN ITS 'ON' POSITION ON THE GENERATOR. • POWER SUPPLY CIRCUIT COULD BE OVERLOADED AND TRIPPED ON THE GENERATOR. • CHECK THE WATER LEVEL IN THE TANK, THE WATER LIGHT ON THE CONTROL PANEL SHOULD BE ILLUMINATED. • TURN OFF THE GENERATOR AND HAVE QUALIFIED PERSONS CHECK THE SAFETY SWITCH INSIDE THE CONTROL PANEL.
CANNON WILL NOT TILT UP FROM ITS HOMED POSITION?	• CHECK THAT THERE IS POWER, THE GREEN LIGHT ON THE CONTROL BOARD SHOULD BE ILLUMINATED. • CHECK THAT THE STOP BUTTON IS DISENGAGED. • CHECK THAT THE CIRCUIT BREAKER HAS NOT BEEN TRIPPED ON THE GENERATOR. • TURN THE GENERATOR OFF AND HAVE QUALIFIED PERSONS CHECK THE CIRCUIT BREAKER INSIDE THE CONTROL PANEL. • 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.
MIST CANNON NOT GIVING A CONSISTANT MIST OUTPUT	• THIS USUALLY OCCURS WHEN THE FILTERS ARE DIRTY OR BLOCKED SEE THE "MAINTENANCE PAGE" THAT REFERS TO FILTRATION CARE AND REPLACEMENT.

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

REMOTE OPERATION

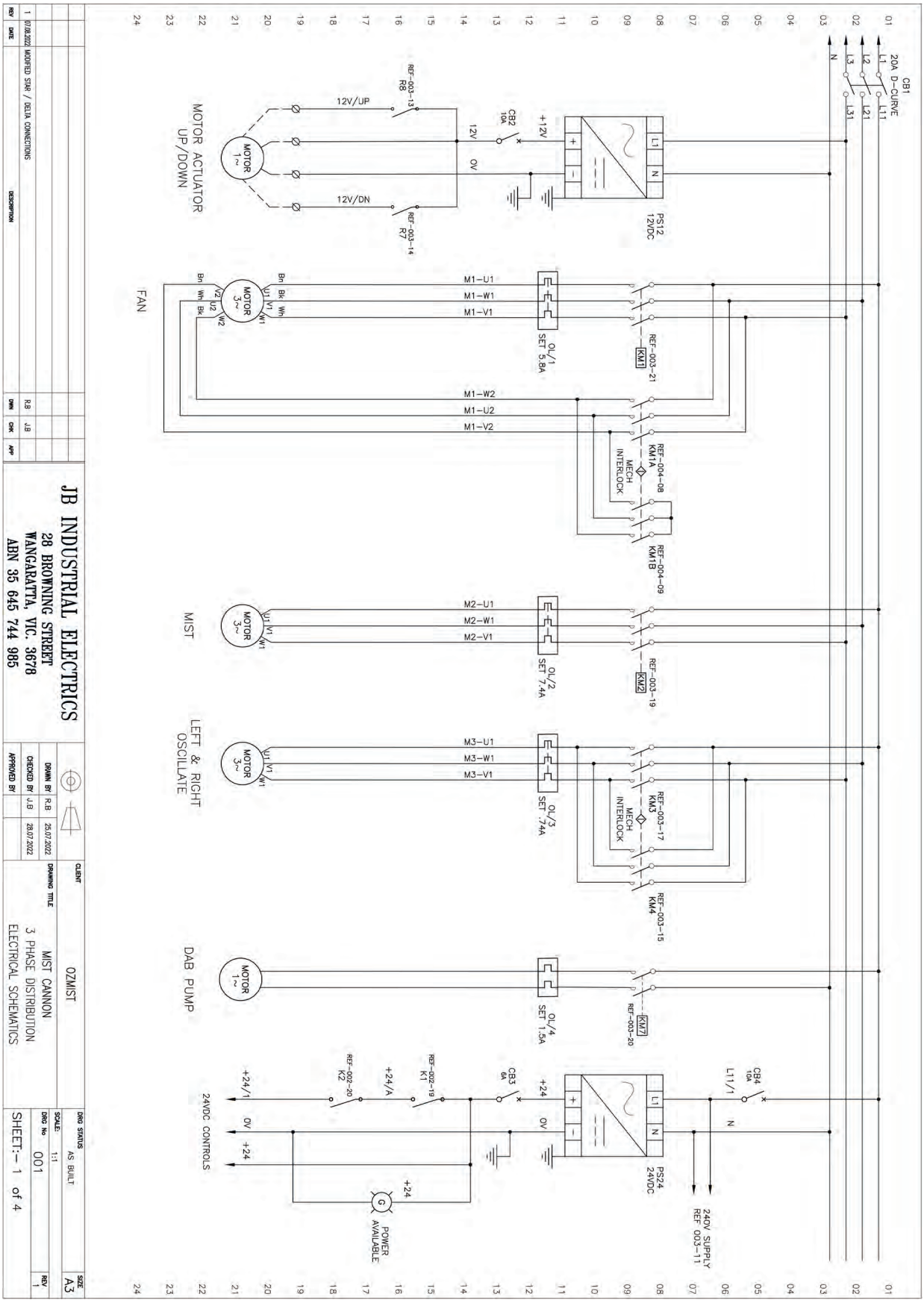
REMOTE OPERATION



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.


JB INDUSTRIAL ELECTRICS
28 BROWNING STREET
WANGARATTA, VIC. 3678
ABN 35 645 744 985
CLIENT
OZMIST
DRAWING TITLE
MIST CANNON
3 PHASE DISTRIBUTION
ELECTRICAL SCHEMATICS
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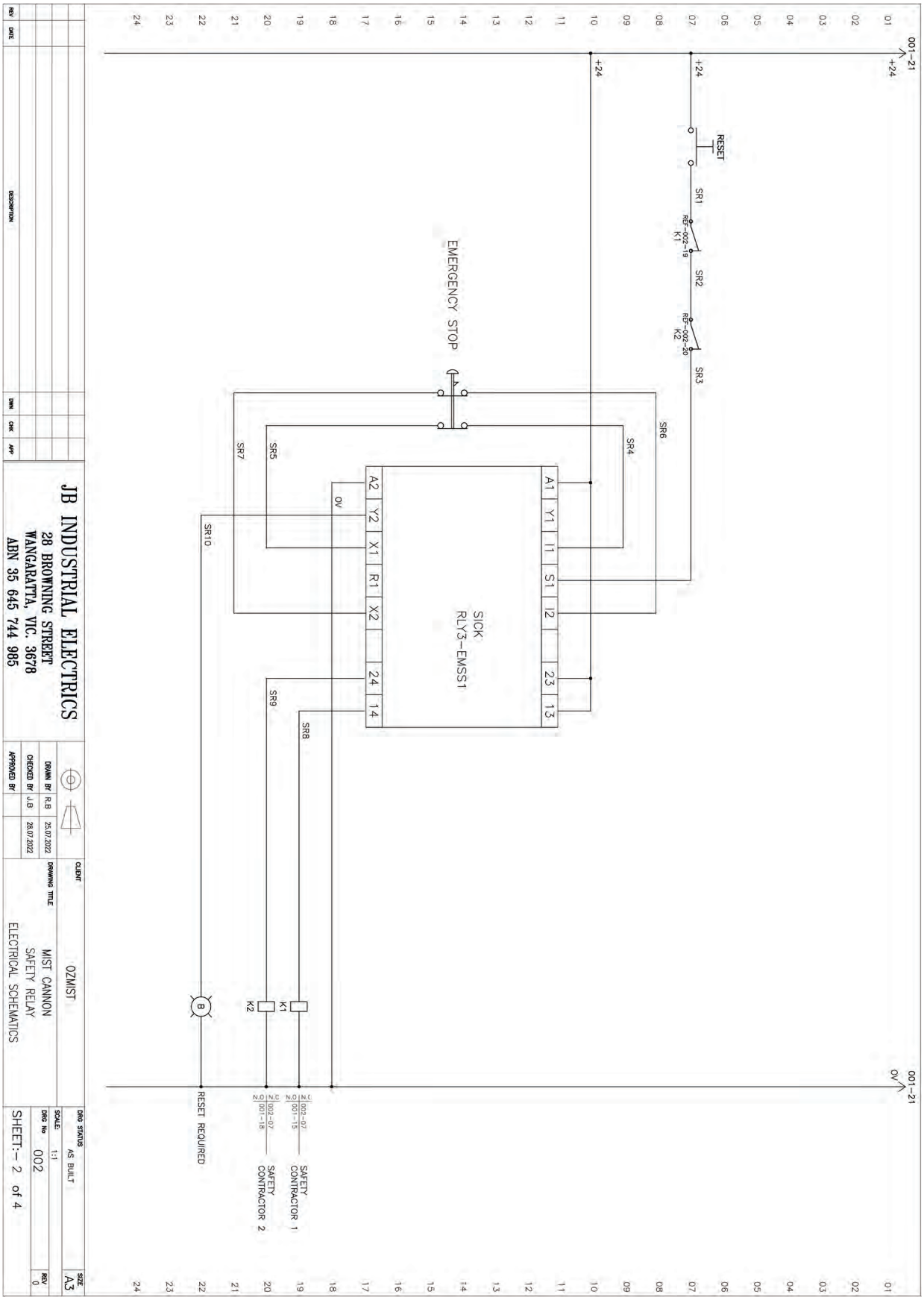
CHECKED BY J.B 28.07.2022
APPROVED BY
DRG STATUS AS BUILT
SCALE: 1:1
DRG No 001
REV 1
SIZE A3
SHEET:- 1 of 4
REV 1 07/08/2027 MODIFIED STAR / DELTA CONNECTIONS R.B J.B
CB1 20A D-CURVE
L1 L2 L3 N
L11 L21 L31
PS12 12VDC
PS24 24VDC
MOTOR ACTUATOR UP/DOWN
12V/UP
12V/DN
REF-003-13 R8
REF-003-14 R7
CB2 10A
+12V
12V
0V
FAN
MIST
LEFT & RIGHT OSCILLATE
DAB PUMP
M1-U1
M1-W1
M1-V1
M1-W2
M1-U2
M1-V2
M2-U1
M2-W1
M2-V1
M3-U1
M3-W1
M3-V1
OL/1 SET 5.8A
OL/2 SET 7.4A
OL/3 SET 7.4A
OL/4 SET 1.5A
REF-003-21 KM1
REF-004-08 KM1A
MECH INTERLOCK
REF-004-09 KM1B
REF-003-19 KM2
REF-003-17 KM3
REF-003-15 KM4
REF-003-20 KM7
CB4 10A
L11/1
240V SUPPLY REF 003-11
CB3 6A
+24
0V
REF-002-19 K1
REF-002-20 K2
+24/A
+24/1
24VDC CONTROLS
POWER AVAILABLE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+24
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SR1
RET-002-19
K1
SR2
RET-002-20
K2
SR3
EMERGENCY STOP
SR4
SR5
SR6
SR7
SR8
SR9
SR10
SICK
RLY3-EMSS1
A1
Y1
I1
S1
I2
23
13
A2
Y2
X1
R1
X2
24
14
0V
K1
K2
B
RESET REQUIRED
SAFETY CONTRACTOR 1
SAFETY CONTRACTOR 2
JB INDUSTRIAL ELECTRICS
28 BROWNING STREET
WANGARATTA, VIC. 3678
ABN 35 645 744 985
DRAWN BY R.B 25.07.2022
CHECKED BY J.B 28.07.2022
APPROVED BY
CLIENT OZMIST
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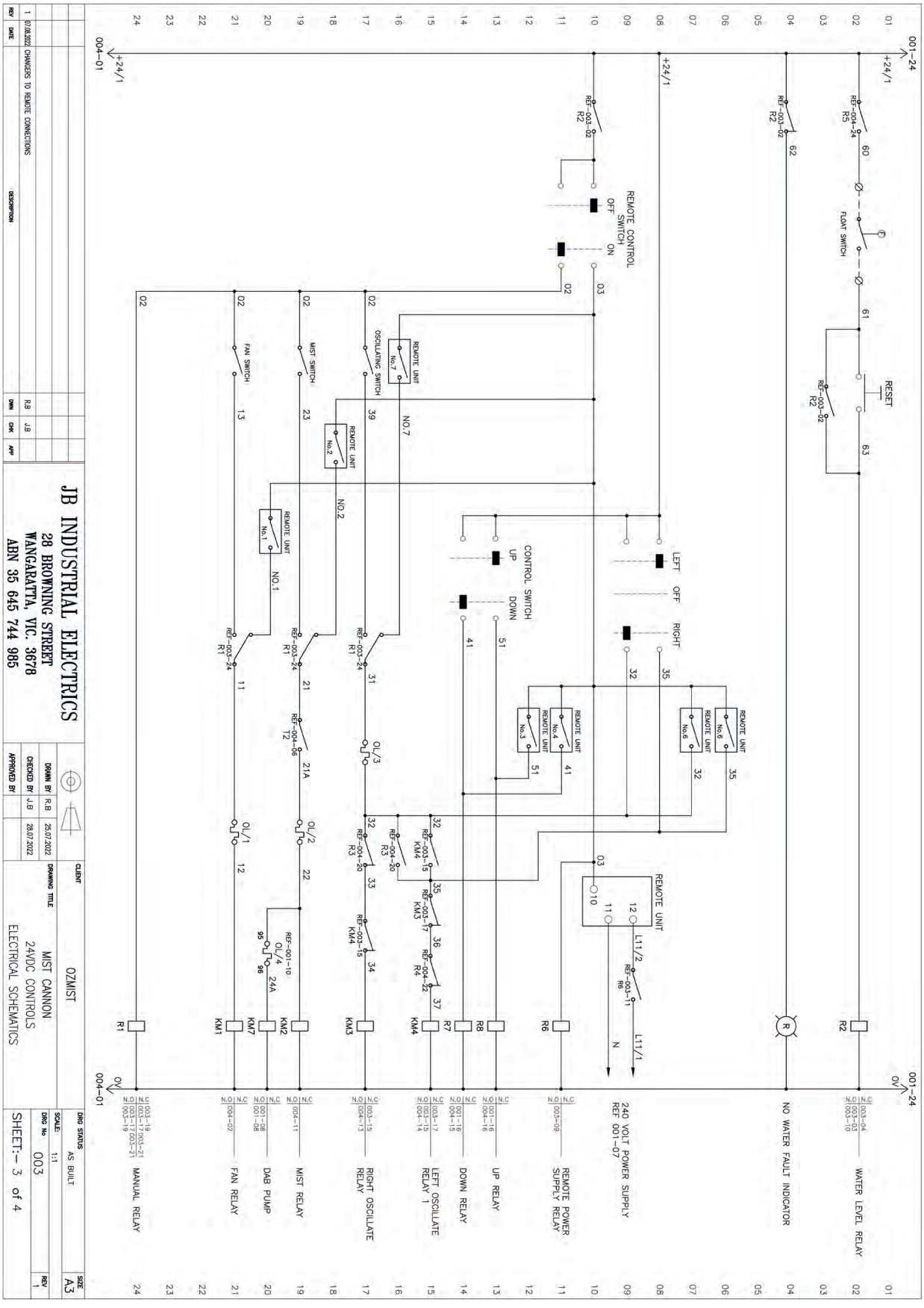
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OZMIST
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24VDC CONTROLS
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APPROVED BY
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SIZE A3
SCALE: 1:1
DRG No 003
REV 1
SHEET:- 3 of 4
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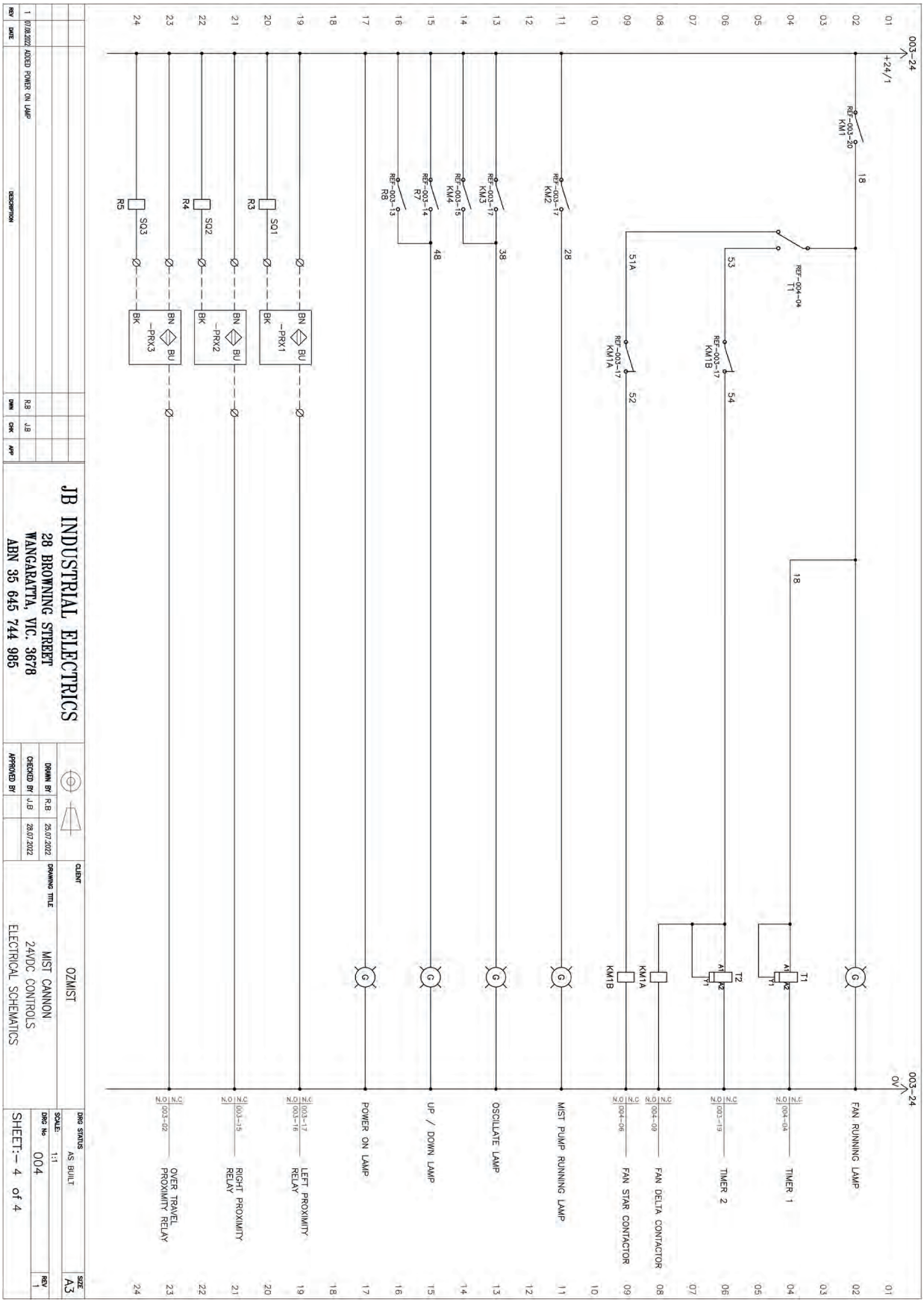
1 07.08.2022 CHANGERS TO REMOTE CONNECTIONS R.B J.B
+24/1
0V
FLOAT SWITCH
RESET
REMOTE CONTROL SWITCH OFF ON
CONTROL SWITCH UP DOWN
LEFT OFF RIGHT
OSCILLATING SWITCH
MIST SWITCH
FAN SWITCH
REMOTE UNIT
WATER LEVEL RELAY
NO WATER FAULT INDICATOR
240 VOLT POWER SUPPLY REF 001-07
REMOTE POWER SUPPLY RELAY
UP RELAY
DOWN RELAY
LEFT OSCILLATE RELAY 1
RIGHT OSCILLATE RELAY
MIST RELAY
DAB PUMP
FAN RELAY
MANUAL RELAY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REF-003-17 KM1B
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SQ2 R4
SQ3 R5
BN BU -PRX1 BK
BN BU -PRX2 BK
BN BU -PRX3 BK
FAN RUNNING LAMP
TIMER 1
TIMER 2
FAN DELTA CONTACTOR
FAN STAR CONTACTOR
MIST PUMP RUNNING LAMP
OSCILLATE LAMP
UP / DOWN LAMP
POWER ON LAMP
LEFT PROXIMITY RELAY
RIGHT PROXIMITY RELAY
OVER TRAVEL PROXIMITY RELAY
JB INDUSTRIAL ELECTRICS
28 BROWNING STREET
WANGARATTA, VIC. 3678
ABN 35 645 744 985
CLIENT
OZMIST
DRAWING TITLE
MIST CANNON
24VDC CONTROLS
ELECTRICAL SCHEMATICS
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CHECKED BY J.B 25.07.2022
APPROVED BY
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SCALE 1:1
DRG No 004
REV 1
SIZE A3
SHEET:- 4 of 4
REV 1 07/08/2022 ADDED POWER ON LAMP
DESCRIPTION
DWN R.B
CHK J.B
APP

EDCelectrical design&construction

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

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

Dean McDonald
Director
OzMist

Dear Dean,

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

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

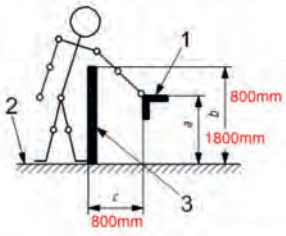
Results of the risk assessment have determined that no Electrical E-Stop circuit is required if the following mechanical guarding is installed;

Rack & Pinion

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

4.2.2 Reaching over protective structures

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



Key

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

Table 1 — Reaching over protective structures — Low risk

Dimensions in millimetres

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

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

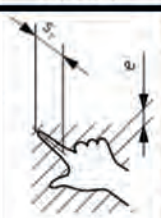
For additional information on the risk assessment, List of possible hazards considered, and performance level required scoring. Please refer to the electrical safety risk assessment attached.

Fan Blades

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

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

Dimensions in millimetres

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

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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Website: www.edcelectrical.com.au

EDCelectrical design&construction

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

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

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

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

REFERENCE DOCUMENTS
Development:
Electrical Safety Risk Assessment
Implementation:
N/A

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

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

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

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

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

EDCelectrical design&construction

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**

EDCelectrical design&construction

1.0 Reference Standards

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

2.0 Plant & Machinery Hazard Analysis

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

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

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

EDCelectrical design&construction

3.0 Risk Estimation & Evaluation Criteria

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

Frequency of Exposure (FE)

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

Degree of Possible Harm (DPH)

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

Number of Persons at Risk (NP)

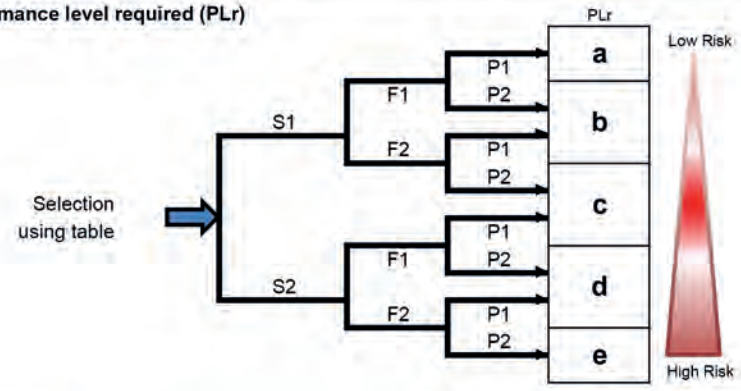
1	1- 2 persons
2	3 - 7 persons
4	8 - 15 persons
8	16 - 50 persons
12	More than 50 persons

Likelihood of Occurrence (LO)

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

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

4.0 Selection of Performance level required (PLr)



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

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

P	Possibility of avoiding hazard or harm	
P1	possible under specific conditions	slow movements, plenty of space, low power

Entanglement

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

EDCelectrical design&construction

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

HRN = LO x FE x DPH x NP

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

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determine PLr requirements)

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

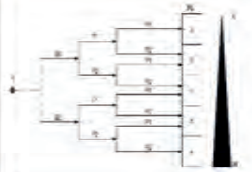
NOTES

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

Description of recommended Control Measures

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

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



Pic 1

Pic 2

Pic 3

Crushing

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

EDCelectrical design&construction

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

HRN = LO x FE x DPH x NP

B. CRUSHING
Can anyone be crushed due to:

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

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

NOTES

Description of recommended Control Measures

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

Pic 1

Pic 2

Pic 4

Pic 5

Pic 6

Cutting

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

EDCelectrical design&construction

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

HRN = LO x FE x DPH x NP

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

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

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

NOTES

Description of recommended Control Measures

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

- Guarding on the back of the fan is 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

Shearing

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

EDCelectrical design&construction

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

HRN = LO x FE x DPH x NP

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

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

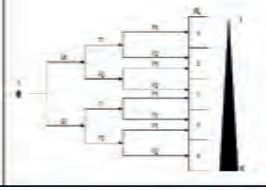
ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mechanical Guarding Yes /No	Hazard Rating Number	Risk Level	S	F	P	Cat	PLr
D-1	2	Placing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

NOTES

Description of recommended Control Measures

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

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



Pic 1 Pic 2 Pic 4 Pic 5 Pic 6

Striking

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

EDCelectrical design&construction

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

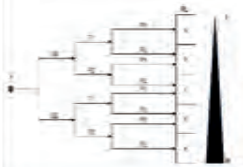
HRN = LO x FE x DPH x NP

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

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

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

NOTES	Description of recommended Control Measures	
	Recommend adding to safe operating procedure: All Personnel working in the vacinity are required to maintain appropiate PPE	

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

Temperature

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

EDCelectrical design&construction

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

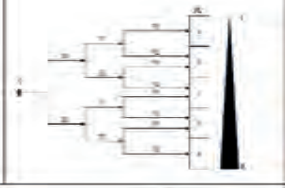
HRN = LO x FE x DPH x NP

F. TEMPERATURE
Can anyone be burnt due to contact with :

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of 'PLr' requirements)

ITEM #	PICTURE REF #	Possible Hazard	Exists Y / N	Comments / Task	Existing / Recommended Control Measures	Likelihood of Occurrence (LO)	Freq of Exposure (FE)	Degree of Possible Harm (DPH)	No. Persons Exposed (NP)	Mechanical Guarding Yes /No	Hazard Rating Number	Risk Level	S	F	P	Cs	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

High Pressure

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

EDCelectrical design&construction

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

HRN = LO x FE x DPH x NP

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

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

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

NOTES

Description of recommended Control Measures

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

Electrical

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

EDCelectrical design&construction

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

HRN = LO x FE x DPH x NP

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

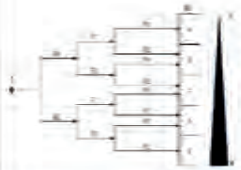
Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

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

NOTES

Description of recommended Control Measures



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

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

EDCelectrical design&construction

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

HRN = LO x FE x DPH x NP

I. EXPLOSION
Can anyone be injured by explosion of

Assess Risk With No Safeguards To Determine Category Rating Required

No safeguards (determination of PLr requirements)

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

NOTES	Description of recommended Control Measures	
		

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