

HYDRAULIC FLAIL MULCHER OPERATIONS & MAINTENANCE



Dear valued customer, we kindly ask that you carefully and thoroughly review the operating manual for your product before beginning operations to ensure that you are eligible for warranty coverage. Thank you for taking the time to follow these important steps to protect your investment.

Contents

1. Introduction	7
2. Information 2.1 Invalidation of warranty rights 2.2 Read with Care 2.3 Combined Instructions 2.4 Denial of Liability 2.5 Safekeeping 2.6 Risk Analysis 2.7 Complaints	8-9
3. Warranty	10-16
4. Safety – Introduction 4.1 Operator’s Commitment 4.2 Glossary of Symbols used within this Manual 4.3 Glossary of Symbols used on the Machine 4.4 Important Notice 4.5 Additional Symbols	17-22
5. General Safety Instructions 5.1 Read the Operations and Maintenance Manual 5.2 Denial of Liability 5.3 Rejection of Liability 5.4 Safekeeping 5.5 Risk Analysis 5.6 Illegibility or loss of the applied symbols	23-24
6. Usage 6.1 Work on Public Roads 6.2 Pre-requisite of self-propelled unit 6.3 Observance of the Symbols Placed on the Machine:	25

7. Transportation 7.1 Transport of the Machine: 7.2 Fastening of the Load 7.3 Stability 7.4 Transport Damages Caused by Third Parties	25-26
8. Coupling 8.1 Preparation 8.2 Qualified Personnel 8.3 Personnel Training 8.4 Improper coupling 8.5 Coupling of the machine 8.6 Modifications Prohibited 8.7 Unauthorised Persons 8.8 Coupling Phase	27-28
9. Initial Operation 9.1 Working position of the operator 9.2 Operating Phase 9.3 Prohibitions 9.4 Slow Start 9.5 Enclosed Spaces 9.6 Assessment of Defects 9.7 Personnel Training 9.8 Hydraulic Connections 9.9 Connecting Pins to the Self-Propelled Unit	29-31
10. Use of the Machine 10.1 Prohibition 10.2 Moving: 10.3 Driven Distance Control 10.4 Slope of the Ground 10.5 Driving Speed: 10.6 Visibility 10.7 Oil Flow Rate 10.8 Prohibition of Use 10.9 Stability and Performance	31-35

10.10 Bumps 10.11 Permissible Usage 10.12 Inertia of the Rotor 10.13 Adjusting Operations 10.14 Safety Devices of the Machine: 10.15 Personal Protective Equipment (PPE) 10.16 Vibrations	31-35
11. Cleaning 11.1 Cleaning Instructions 11.2 Cleaning Operation	35-36
12. Regular Maintenance 12.1 Maintenance work 12.2 Qualified Personnel 12.3 Prohibition of Interventions 12.4 Check Fasteners 12.5 Protection Devices	36-37
13. Extraordinary Maintenance 13.1 Maintenance Work 13.2 Original Spare Parts 13.3 Qualified Personnel 13.4 Prohibition of Interventions 13.5 Exchange of Damaged Tools 13.6 Intervention of the Rotor	37-38
14. Technical Data 14.1 Identification/technical data	39
15. Use According to Provisions 15.1 Description of the Machine 15.2 Use of the Machine 15.3 Views	40-42
16. Mode of Operation 16.1 Qualified Personnel 16.2 Transportation of Loads/Persons Prohibited	43-44

16.3 Keep Clear of the Machine 16.4 Range of Action 16.5 Protective Equipment 16.6 Observe Safety Conditions 16.7 Typical Modes of Operation	43-44
17. Specific Limitations of Use 17.1 Rocky Ground 17.2 Uses Not Recommended 17.3 Work Speed 17.4 Material Diameter	44-45
18. Transport 18.1 Transport by Other Means 18.2 Means of Transport 18.3 Weight 18.4 Load Firmly Fixed 18.5 Lifting Points 18.6 Observe Safety Regulations 18.8 Prohibition of Transport	46-47
19. Assembly and Coupling 19.1 Preparation 19.2 Coupling operation 19.3 Qualified Personnel 19.4 Personnel Training 19.5 Coupling to the self-propelled unit 19.6 Compatibility with the Self Propelled Unit 19.7 Additional Equipment of the Driver's Cabin 19.8 Assessment of the Self-Propelled unit 19.9 Verification of Coupler Compatibility 19.10 Checks Prior to Coupling 19.11 Lifting Power 19.12 Technical Specifications 19.13 Instructions in Operators Manual 19.14 Verification of Stability 19.15 Limit the Incline of the Machine	48-51

19.16 Details of Coupling Procedure 19.17 Depressurised Hydraulic System 19.18 Removal of the Fall Protection devices	48-51
20. Initial Operation 20.1 Unauthorised Persons 20.2 Manoeuvring 20.3 Prohibitions 20.4 Hydraulic Connections 20.5 Connecting Pins to the Self-Propelled Unit 20.6 Exclusive Use of the Control Levers 20.7 Check of Motion 20.8 Slow Start 20.9 Prohibition 20.10 Actuation of the Rotor	52-54
21. Transport with the Self-Propelled Unit 21.1 Stopping the rotation of the Rotor 21.2 Waiting for the Machine to Stop 21.3 Lifting the machine 21.4 Signal Signs 21.5 Speed Limitation 21.6 Laws in Force 21.7 Assembly	54-55
22. Using the Machine 22.1 Start of Work 22.2 Quality Control of the Work 22.3 Applicable Parameters for Speed 22.4 Working speed 22.5 Rotor	56-57
23. General Regulations 23.1 Slope of the Ground 23.2 Avoiding Obstacles and Hazards 23.3 Driving Speed 23.4 Maintaining Good Condition of Tools	57-59

23.5 Tool Damage During Work 23.6 Vibrations 23.7 Hydraulic Connections 23.8 Connecting Pins to the Self-Propelled Unit 23.9 Bumps with the Rotor	57-59
24. Restrictions of Use 24.1 Rotor Speed 24.2 Prescence of Cables, Contaminated Grounds and Debris 24.3 Technical Data 24.4 Environmental Conditions 24.5 Morphology of the Ground 24.6 Permissible Usage 24.7 Prohibition 24.8 Meteorological Conditions	59-61
25. End of Work Instructions 25.1 Stopping the Rotor 25.2 Unauthorised Persons 25.3 Shutdown 25.4 Cleaning	62-63
26. Lubrication	63
27. Maintenance and Tooling	64

1. Introduction:

This manual contains valuable information about the AR Equipment series Mulcher. It has been carefully prepared to give you helpful suggestions for operating, adjusting, servicing repair parts. Keep this manual in a convenient place for quick and easy reference. Study it carefully. You have purchased a dependable and sturdy Mulcher, but only by proper care and operation can you expect to get the service and long life designed and built into it. RIGHT-HAND AND LEFT-HAND sides are determined by watching from the excavator cab. Sometime in the future your Mulcher may need new parts to replace those that are worn or broken. If so, go to the nearest AR Equipment dealer and provide them with the model and part number.

Customer Information:

NAME _____

PURCHASE DATE _____

MODEL NUMBER _____

SERIAL NUMBER _____

2. Information:

The information provided in this operations and maintenance manual is detailed such that the user may correctly and safely operate and maintain the AR Equipment Flail Mulcher.

Adequate functionality, service lifespan and leasability of the equipment is dependent on the observance and compliance with these instructions and specifications.

2.1 Invalidation of warranty rights:

Any non-observance of the instructions contained within this Operations and Maintenance Manual, negligence or a use not complying with the specifications or designated purpose of the AR Equipment Flail Mulcher can invalidate any warranty rights.

2.2 Read with Care:

Carefully read this manual to assure operational safety and prevent accidents or damage.

Before beginning any work on or with the AR Equipment Flail Mulcher it is necessary to have read and understood the contents of the Operations and Maintenance Manual.

Should any doubts or issues arise which are not explicitly detailed within this manual, please contact AR Equipment for further assistance.

2.3 Combined Instructions:

Any user of the AR Equipment Flail Mulcher must also read, comprehend and adhere to the Operators Manual of the Machine(s) to be coupled to the AR Equipment Flail Mulcher. Before coupling, please ensure that the load-bearing machine is suitable for coupling with the AR Equipment Flail Mulcher.

2.4 Denial of Liability:

AR Equipment does not accept any liability in the case of coupling the AR Equipment Flail Mulcher with a non-suitable machine.

AR Equipment does not accept any liability for unauthorised changes or modifications done to the machine. Changes to the AR Equipment Flail Mulcher may only be performed by AR Equipment or in accordance to previous written approval.

2.5 Safekeeping:

This operations and Maintenance Manual is an essential part of the AR Equipment Flail Mulcher and must be kept in a safe place known to the operator so that it is easily and rapidly accessible.

2.6 Risk Analysis:

All possible risks associated with improper use of the AR Equipment Flail Mulcher cannot be taken into account by AR Equipment.

For any remaining risks which may arise during proper usage of the AR Equipment Flail Mulcher in accordance with the defined specifications of the machine, please refer to the safety instructions laid out within this manual. It is critical that all preventative measures and safe working procedures detailed within this manual are strictly adhered to.

2.7 Complaints:

During the initial setup and operation of the AR Equipment Flail Mulcher, please check that the supplied machine is undamaged and complete. Any complaints or requests must be submitted in writing within the first seven (7) days after receiving the machine.

3. Warranty:

AR EQUIPMENT – TERMS AND CONDITIONS, WARRANTY TERMS AND CONDITIONS

This is a contract between Ausmetal Recycling Equipment Pty Ltd (**AR Equipment/us**) and the customer (**you**) for the supply of attachments, industrial bins and other goods (**Equipment**). By placing an order with AR Equipment, you are deemed to have accepted and agreed to these terms.

These terms apply to all future transactions between you and us, unless otherwise expressly agreed.

1. **Pricing:** Unless otherwise stated, all invoiced prices are in Australian Dollars (AUD) and are inclusive of GST and exclude shipping or freight costs. If we provide you with a quote or an estimated price, we may withdraw or vary the price at any time before acceptance by you. We may vary our estimated shipping or freight costs, if the shipping or freight costs incurred by us change.

2. **Specifications:** You are responsible for providing the correct specifications and measurements for the Equipment when you place your order. We will rely on the information you supply to us as being correct.

We are not responsible for any cost or loss if the information you supply is incorrect, and you will remain liable to pay for the Equipment in full.

3. **Warranty:** In addition to any statutory rights you may have under the Australian Consumer Law, and subject to these terms and conditions, AR Equipment warrants that the following Equipment it supplies will be free from defects for the following periods, calculated from the date of invoice (Warranty Period):

The first 12 months of the warranty period includes both parts & labour to fix; after 12 months if applicable the warranty only includes parts (labour to be charged at current hourly rates).

- (a) Hydraulic and mechanical grabs: 2 years;
- (b) Auger drive gearboxes: 2 years;
- (c) Rock breaker cartridges: 2 years;
- (d) Compaction wheels: 2 years;

(e) Skip bins, Hooklift and industrial bins, transport safety mesh and gloves: no warranty period except statutory warranty;

(f) Any other items sold by AR Equipment (unless expressly stated otherwise): 1 year.

In addition to the terms of our warranty, you may have further statutory rights under legislation, including under the Australian Consumer Law. Our additional warranty does not exclude, restrict, limit or modify any rights or remedies you may have under any legislation, except to the extent that their application may be lawfully excluded, restricted, limited or modified.

4. Warranty Service:

(a) If the terms of this warranty respond to defective Equipment, we will repair, service or replace the Equipment free of charge, or refund the price you paid to us, on the terms set out below.

(b) During the relevant Warranty Period, you must notify AR Equipment about any apparent defect or malfunction, as soon as practicably possible after it first becomes apparent (and in no more than 7 days).

(c) You must deliver the Equipment to AR Equipment's nominated repair facility, at your expense, during regular business hours, and provide proof of purchase.

(d) We will inspect the Equipment, and if we determine the terms of this warranty apply (we must act reasonably in making this assessment), we will provide you with an appropriate remedy, being repair, servicing, replacement or refund. The decision of whether to repair or replace a part or to use a new or remanufactured part will be made by AR Equipment in its sole discretion.

(e) You must allow AR Equipment a reasonable time to inspect the Equipment and, where appropriate, complete repairs and/or service. When we tell you the work is complete you must

collect the Equipment from us as soon as practicably possible, at your own expense.

(f) This warranty does not cover, and we are not liable for any damage or malfunction directly or indirectly caused by, due to or resulting from:

i. Normal wear or deterioration;

ii. Abuse or misuse by the Equipment operator;

iii. Negligence or accident;

iv. Improper maintenance, operation, storage or transport;

v. Failure to return the goods to us within 7 days of discovery of a defect;

- vi. Any repair, alteration or modification (except by AR Equipment);
- vii. Accessories made by a person or facility not authorized or certified to do so;
- viii. Improper repair or maintenance, including use of fluids, parts or accessories other than those specified in your owner documentation;
- ix. Improper maintenance schedule of the machine its operating on and failure to provide an oil sample for any hydraulic failure;
- x. Overloading or excessive force;
- xi. Incorrect machine pressure settings
- xii. In case of grabs, the Equipment being used to rip tree stumps out of the ground;
- xiii. Attachments being used under water;
- xiv. Use in demolition, other than to pick up or hold material already demolished;
- xv. The environment or an act of God, including, but not limited to airborne, chemicals, rail dust, salt, hail, floods, wind storms, acid rain, fire, water, contamination, lightning and other environmental conditions.

(g) This warranty does not cover, and we are not liable for any damage or malfunction to wear parts

such as: rock breaker chisels, inner and outer bushes, side bolts, tool holder parts, hydraulic hoses, grease nipples, retaining bolts and nuts, teeth and ground engaging parts, any other part considered a 'wear' item.

(h) This warranty is not transferrable and warranty service can only be claimed by the party that purchases the Equipment from us.

5. **Limitation of Liability**

(a) In this clause:

i. Claim means any action (or cause of action), claim (including cross-claims, counter-claims, set-offs), allegation, demand, suit, proceeding, liability, sum of money, damages, expenses, costs (whether or not the subject of a court order), debts due, entitlements (whether actual or contingent), determination, judgment, all other liabilities of any nature (whether arising under statute or under general law), including but not limited to property damage and personal injury.

ii. Consequential Loss means any: loss of profits or earnings; loss of production; loss of revenue; loss of use; loss of contract; loss of goodwill; loss of opportunity; loss of value; delay costs; loss of personal or commercial

property; inconvenience or aggravation; emotional distress or harm; wasted overheads; towing, transport, travel or hire charges; service call charges; lodging expenses – howsoever caused and whether direct or indirect and includes any special, indirect, consequential or pure economic loss.

(b) To the maximum extent permitted by law:

- i. All warranties and conditions implied by law are negated and excluded.
- ii. You agree that if you are aware that any of the Equipment is for any particular purpose, it is your responsibility for ensuring the Equipment is suitable for that intended purpose. We do not warrant the Equipment will be suitable for use for your intended purpose.
- iii. Unless otherwise agreed, you warrant that the goods are supplied for commercial use and not ordinary domestic or household use.
- iv. You will provide us with a reasonable opportunity to inspect any goods or parts and take steps to rectify their performance if required.

(c) Notwithstanding any other provision in these terms, and to the maximum extent permitted by law, we are not liable for any Claim or Consequential Loss arising out of, caused or contributed to by:

- i. Misuse of the Equipment, including but not limited to when the Equipment is used for a purpose beyond its design;
- ii. Negligent operation of the Equipment or any machine it is attached to, whether by you, your employee, contractor or third party;
- iii. Negligent manufacture or construction of the Equipment by us or by anyone else;
- iv. Damage to the Equipment caused during transport or delivery by us or anyone else;
- v. The Equipment causing damage to any other thing, machine, item, equipment, person or property;
- vi. The provision of incorrect or incomplete specifications to us when ordering the Equipment;
- vii. The Equipment not being suitable for use for your intended purpose (unless you expressly advise the purpose to us when ordering the Equipment and we agree);
- viii. The Equipment malfunctioning in any way for any reason;
- ix. Delays or additional costs caused by the Equipment malfunctioning or failing;

x. Cyber crime, including email intercepts or hacking, which causes you to make payment to a bank account not operated by us.

(d) To the maximum extent permitted by law, you indemnify us and agree to make good and hold us harmless from any Claim made by any party arising out of, caused or contributed to by the Equipment.

(e) Notwithstanding any provision to the contrary in these terms, to the maximum extent permitted by law, where liability is not or cannot be entirely excluded, our liability for any Claim (howsoever arising) is limited to resupplying the Equipment or, in our sole discretion, paying to you the amount you paid to us to purchase the Equipment.

(f) If the Australian Consumer Law or Competition and Consumer Act 2010 (Cth) or any similar law implies a consumer guarantee, condition or warranty ("a guarantee"), our liability for failure to comply is limited to the repair of the Equipment or the replacement or resupply of the equipment or an equivalent item or to the payment to you of the cost of the replacement or resupply of the same or equivalent goods or services (as the case may be).

(g) The above limitation does not affect any other rights and remedies you may have us under any applicable Federal, State or Territory law in relation to the Equipment. To the extent any of the above conditions are inconsistent with or void under any law, the offending provision only is struck out.

6. **Payment Terms and Methods:** All accounts are payable prior to dispatch of goods, unless credit has been approved. Accounts may be paid by cash, cheque, EFTPOS, direct deposit or credit card (Visa/MasterCard). When a credit card is used to pay an account a 1.5% surcharge will be charged. Unless a credit account has been granted, goods must be paid in full prior to dispatch or collection. We may refuse to deliver or supply any Equipment that has not been paid for in full.
7. **International Shipping:** AR Equipment can provide estimated shipping times and costs for custom orders not in stock; however, we are not bound by those estimates and they are subject to change. AR Equipment is not liable for any Claim or Consequential Loss (as those terms are defined in clause 5) for any increased cost or delay including but not limited to costs or delays caused by shipping companies, land transport companies and also customs and quarantine authorities.
8. **International Orders from AR Equipment:** If any Product is shipped to you outside of Australia, you are responsible for all freight, duties, taxes, customs charges, brokerage fees or other costs. You must comply with all laws that apply to the import or export of the Products and AR Equipment makes no warranty or representation about compliance with foreign laws.

9. **Interest on Overdue Accounts:** All accounts must be paid without any set off or deduction on the terms specified in the invoice. If a payment is overdue, without prejudice to its other rights or remedies, AR Equipment may charge interest on the amount outstanding on and from the due date at the rate of 4% per month including GST (if any) compounding daily or such lower rate as may be prescribed or determined as reasonable by law. You agree that this is a genuine pre-estimate of the loss or damage we may incur as a result of your breach.
10. **Default costs:** If you breach these terms in any way (including as to payment) you must pay or reimburse AR Equipment for all costs and/or expenses incurred by AR Equipment including legal or debt collection costs the full indemnity basis. A demand made by or on behalf of AR Equipment shall be sufficient proof of such costs. Such costs and expenses shall incur interest as provided in clause 9 above from the date upon which they are paid or incurred by AR Equipment, up to and including the date upon which you pay or reimburse AR Equipment.
11. **Cancellation of orders:** Once you have confirmed an order (by paying the invoice, or if Equipment is supplied on credit, by confirming the order with us), the order for the Equipment cannot be changed, cancelled or modified by you. We may refuse to supply an Order for any reason.
12. **Retention of Title:**
- (a) Subject to the *Personal Property Securities Act 2009 (Cth) (PPSA)* and these terms and conditions, legal and equitable title in the Equipment (including parts) supplied by us remain vested in us and shall not pass to you until you have paid all moneys owing to us on any account whatsoever.
 - (b) In the event you fail to pay our invoice on time, you acknowledge and agree that we may recover or retake possession of all or any of the Equipment we supply to you, including parts we have installed in equipment owned by you, (whether in your possession or in the possession of a third party) and you authorise and allow us (or our representative, employee or agent) to enter any premises without notice, at any time, to retake possession of any or all of the goods we identify as having been provided by us.
 - (c) In the event that we retake possession of Equipment, we will not be liable for any costs, losses, damages, expenses or other monies or losses suffered by you (or a third party) as a result of us retaking possession of the goods.
 - (d) In the event that a third party suffers loss or damage as a result of us retaking possession of the Equipment, you agree to indemnify us on account of that loss or damage.
 - (e) In the event that we incur costs in retaking the Equipment or reselling the goods, you agree to indemnify us for those costs on a full indemnity basis.

13. **Risk:** Notwithstanding that the property in the goods does not pass until payment is made in full, risk in the goods shall pass to the Customer on delivery.
14. **No reliance:** You acknowledge and agree that you have not relied on any prior representation or promises made by us, except as documented in writing by us.
15. **Force Majeure:** We will not be liable or responsible for any delay or failure of performance occasioned by strikes, riots, fire, insurrection, embargoes, pandemics, failure of carriers, inability to obtain materials or transportation facilities, acts of God or of the public enemy, government tariffs and quotas, compliance with any law, regulation or other governmental or court order whether or not valid, or other causes beyond the control of us, irrespective of whether the cause could be alleviated by the payment of money, or the performance is prevented or delayed because of a failure of our machinery or our supplier.
16. **Privacy Act:** You acknowledge that you have read and accept the terms of our privacy policy, a copy of which is available from our website:
www.arequipment.com.au
17. **Integrity of Products:** Unless we give you our prior written consent, you must not redistribute, advertise or sell any of the goods (and to the extent permitted by law, any other product bearing the AR Equipment or ARE name or brand in all or part) other than on classified sites as second-hand goods.
18. **Intellectual Property:** AR Equipment®, AR, ARE are trademarks. We hold copyright in the design of the Equipment. You acknowledge and agree that we, or our applicable licensors or suppliers, own and retain all intellectual property rights comprised in goods AR Equipment and/or supplied under all or any of the above brands, and that we own and retain all intellectual property rights in the content of our websites (www.arequipment.com.au). Nothing in this agreement transfers or assigns to you any of those intellectual property rights. You must use every effort to safeguard all of our intellectual property and must promptly inform us of any actual or suspected improper use thereof. Without limitation, you must not by any means, copy, reproduce, scan, reverse engineer, data mine or reproduce the goods.
19. **Severance:** In the event of any part of these terms and conditions becoming void or unenforceable, then that part shall be severed from the agreement and the remaining terms and provisions of the agreement will remain in full force and effect.
20. **Applicable law:** The agreement shall be governed by and construed in accordance with the laws of the state of Queensland, Australia. You agree to submit to the non-exclusive jurisdiction of the courts of Queensland and any court which may hear appeals from a court of Queensland.

1. Safety - Introduction:

4.1 Operator's Commitment:

The operator of the AR Equipment Flail Mulcher is committed to read, comprehend and adhere to the instructions laid out within this manual.

4.2 Glossary of Symbols (Pictograms) used within this Manual:

	This symbol represents a special or hazardous situation. It is Imperative to observe and adhere to the safety prescriptions indicated.
	This symbol warn that parts of the machine are in motion.
	This symbol warns that it is forbidden to carry out repairs and/or maintenance work on moving machine parts.
	This symbol warns that it is forbidden to remove protection and safety devices from the machine.
	This symbol warns that the access to unauthorised persons is forbidden.
	This symbol warns that the use of personal hearing protective equipment is compulsory.

	This symbol warns that the use of personal eye protective equipment is compulsory.
	This symbol warn that the use of protective gloves is compulsory.
	This symbol warns that processing or consumable materials can cause damage to the environment.

4.3 Glossary of Symbols (Pictograms) used on the machine:

The symbols described below are placed on the equipment to warn against unsafe and/or hazardous situations. Keep the symbols clean and replace them immediately should they come off or otherwise become damaged and/or illegible.

	Carefully read and comprehend this Operations and Maintenance Manual before operating the machine.
	Before servicing the machine, stop the engine of the coupled hydraulic machine, put measures in place to prevent it from restarting and consult the Operations and Maintenance Manual.
	When the hydraulic flow to the machine is disengaged, the rotor will not stop immediately due to

	inertia. Stay clear of the machine until the rotor comes to a complete stop.
	Hazardous noise levels present during operation. Use personal hearing protection.
	Danger of possible ejection and scattering of debris. Ensure all bystanders are at a safe minimum distance of 100 meters from the machine while in operation.
	Danger of being crushed; Do not stay in the area between the AR Equipment Flail Mulcher and the hydraulic machine to which it is attached.
	Danger of falling; Do not climb on the AR Equipment Flail Mulcher.
	Danger of being grabbed by drive belt/s. Stay clear of moving machine parts.
	Danger of being cut or crushed. Keep clear of the areas indicated.

	Danger of amputation; Always maintain a safe distance from the machine while in operation.
	Hydraulic circuit under pressure. Before servicing the machine, stop the engine of the coupled hydraulic machine, put measures in place to prevent it from restarting and consult the Operations and Maintenance Manual. Danger of
	being crushed; Do not move or stand under suspended loads. Danger of being crushed; Do
	not move or stand under suspended loads. Carefully insert suitable retainers before beginning maintenance work.
	Danger of amputation; Do not remove any safety devices and always stay clear of moving machine parts.
	Coupling and lifting points. Couple and/or lift the machine exclusively by the points indicated.

	Lubrication points with detail of the lubrication intervals.
---	--

4.4 Important notice:

The indications (Pictograms) placed on the machine must be clearly visible.

Should the indications (Pictograms) become damaged, lost or otherwise illegible then they must be immediately replaced by the operator.

4.5 Additional Symbols (Pictograms):

	<u>Document</u> This symbol shows that it is necessary to document work processes. I.e. Recording evidence of the training of personnel in charge of the machine.
	<u>Other applicable documents</u> This symbol shows important documents, such as inter-company operating instructions.
	<u>Operations and Maintenance</u> <u>Manual</u> This symbol refers to important operations and maintenance instructions

	regarding the machine or components.
§	<u>Legal Provision</u> This symbol refers to legal provisions or requirements which the operator is committed to observe.
	<u>Notice of Caution</u> This symbol refers to risks and technical safety instructions. Failure to adhere to these instructions may result in danger or harm to operating personnel and/or other personnel in the vicinity of the machine.
	<u>Notice of Importance</u> This Symbol refers to text passages of particular importance within the Operations and Maintenance Manual.
	<u>General Notice</u> This symbol refers to recommendations of the manufacturer.

5. General Safety Instructions:

In order to assure safe operation and avoid damage or harm to persons or property, it is required that all personnel involved with the operation of the AR Equipment Flail Mulcher strictly comply with the general safety instructions and other information contained within the Operations and Maintenance Manual. Non-compliance of these instructions and warnings may cause damage to the equipment and other property as well as potentially endangering personnel and bystanders.



5.1 Read the Operations and Maintenance Manual:

Prior to beginning any operation with the AR Equipment Flail Mulcher, the operator must carefully read and comprehend the Operations and Maintenance Manual.

If anything should remain unclear after reading the Operations and Maintenance Manual or if issues arise that are not detailed within the Operations and Maintenance Manual, please consult AR Equipment as soon as possible for further assistance.

5.2 Denial of Liability:

As supplier, AR Equipment does not accept liability for unauthorised changes made to the supplied machine. Changes and modifications to the machine may be performed exclusively by AR Equipment or in accordance to previous written approval.

5.3 Rejection of Liability:

AR Equipment accepts no liability for damages or possible accidents due to negligence, improper use, inadequate maintenance or use of spare parts not supplied by AR Equipment.

5.4 Safekeeping:

This operations and Maintenance Manual is an essential part of the AR Equipment Flail Mulcher and must be kept in a safe place known to the operator so that it is easily and rapidly accessible.

5.5 Risk Analysis:

Possible risks associated with improper use of the AR Equipment Flail Mulcher cannot be taken into account by AR Equipment.

For any remaining risks which may arise during proper usage of the AR Equipment Flail Mulcher in accordance with the defined specifications of the machine, please refer to the safety instructions laid out within this manual. It is critical that all preventative measures and safe working procedures detailed within this manual are strictly adhered to.

5.6 Illegibility or loss of the applied symbols:

Should the symbols/pictograms (Danger and conduct indications) applied to the AR Equipment Flail Mulcher become illegible or lost, it is the duty of the operator to replace them immediately before commencing or continuing operations.

6. Usage:

Any type or mode of use regarding the AR Equipment Flail Mulcher other than what is described in this manual is expressly forbidden.



6.1 Work on Public Roads:

When working on public roads, place protective shielding correctly and at sufficient distance from the machine as defined by the prevailing road and traffic regulations.

6.2 Pre-requisite of self-propelled unit:

The AR Equipment Flail Mulcher is to be used exclusively with self-propelled hydraulic machines equipped with a shielded drivers cabin suitable for forestry operations.

6.3 Observance of the Symbols Placed on the Machine:

In addition to all other safety practices, observe and follow carefully any and all indications attached directly to the machine.

7. Transportation:

Any type or mode of transportation of your AR Equipment Flail Mulcher other than described in the Operations and Maintenance Manual is strictly prohibited. Manoeuvring of the equipment in the presence of bystanders within a 15m radius is strictly prohibited.



7.1 Transport of the Machine:

When driving on public roads, attach signposts behind and on the sides of the machine with indications of protruding loads. In

any case always observe the obligations and regulations enforced by local, state and federal law.

If any signal or safety lights become obstructed by the AR Equipment Flail Mulcher, it is required that these lights be relocated to the machine or otherwise in a correct and visible location.

7.2 Fastening of the Load:

When transporting the AR Equipment Flail Mulcher, ensure that it is adequately secured to a suitable means of transport with sufficient loading capacity.

The mass of the AR Equipment Flail Mulcher is indicated on the ID plate attached to the machine.

7.3 Stability:

Check the stability of the hydraulic machine coupled with the AR Equipment Flail Mulcher by carefully performing lift and balance tests.

7.4 Transport Damages Caused by Third Parties:

AR Equipment denies liability for possible damages which may occur in transit for the delivery of the AR Equipment Flail Mulcher executed by third parties.

8. Coupling to the self-propelled unit:

8.1 Preparation:

When coupling the AR Equipment Flail Mulcher to a self-propelled unit it is vital that the AR Equipment Flail Mulcher is resting firmly on the ground upon commencement and that the brake of the self-propelled unit is applied.



8.2 Qualified Personnel:

Each operation (Coupling, startup, manoeuvring etc) may only be executed by qualified personnel.

If the coupling procedure is not performed by qualified personnel, AR Equipment denies any liability.

8.3 Personnel Training:

It is the responsibility of the operator enterprise using the AR Equipment Flail Mulcher to train its own personnel adequately and to provide each machinery operator with this Operations and Maintenance Manual as well as any further information regarding the assembly and operation of the machine.

AR Equipment denies any liability in the case of accidents resulting from the improper or inadequate training of personnel.

8.4 Improper coupling:

Improper coupling of the AR Equipment Flail Mulcher may result in damage to machine or self-propelled unit and endanger nearby persons.

To avoid this, the operator must strictly adhere to the instructions laid out in the “Coupling” section of this manual.

8.5 Coupling of the machine:

The coupling of the AR Equipment Flail Mulcher to the self-propelled unit is a potentially dangerous operation which requires the utmost attention and adherence to the instructions laid out in the “Coupling” section of this manual by the operator.

8.6 Modifications Prohibited:

AR Equipment strongly advises that no modifications, changes or adaptations be made to coupling components of either the AR Equipment Flail Mulcher or self-propelled unit and denies any liability in the case of any accidents which may occur as a result.

8.7 Unauthorised Persons:

Ensure that no unauthorised persons remain in the vicinity of the coupling or uncoupling operations of the AR Equipment Flail Mulcher. These operations must only be carried out by authorised personnel and any bystanders must maintain a safe distance.

8.8 Coupling Phase:

Prior to commencing coupling of the AR Equipment Flail Mulcher, always confirm that the machine is in the correct stop position and rests firmly on the ground.

9. Initial Operation:

Prior to initial operation of the AR Equipment Flail Mulcher, it is imperative that the general safety information and Operations and Maintenance manual is read carefully and thoroughly comprehended by the operator. The instructions contained therein are to be observed strictly.



9.1 Working Position of the Operator:

For all manoeuvring operations, the operator must always remain in the driver's seat of the self-propelled unit with all operating controls within arm's reach.



9.2 Operating Phase:

Ensure that during the operation phase (with the rotor of the AR Equipment Flail Mulcher in motion) no bystanders are to be within a distance less than 100m of the machine.

9.3 Prohibitions:

Do not stay in the area between the AR Equipment Flail Mulcher and self-propelled unit and do not enter the area for any reason under any circumstance.

Never under any circumstances or for any reason approach the AR Equipment Flail Mulcher or coupled self-propelled unit unless it is ensured that all machine parts have come to a complete stop and that any unintentional re-start can be excluded.

9.4 Slow Start: Any starting of the AR Equipment Flail Mulcher must be carried out gradually and slowly to ensure safety and prevent damage.

9.5 Enclosed Spaces:

Do not test the hydraulic motor of the AR Equipment Flail Mulcher in enclosed spaces, as the rotor or tools could cause harm or damages to bystanders or property.

9.6 Assessment of Defects:

If any defects are discovered during the initial start-up of the AR Equipment Flail Mulcher it is imperative that these issues are resolved before proceeding to use the machine for its intended purposes.

9.7 Personnel Training:

The owner of the AR Equipment Flail Mulcher is personally responsible for the adequate training and education of the operator(s) of the machine. AR Equipment recommends documenting any training of personnel that is conducted.

9.8 Hydraulic Connections:

Prior to using the AR Equipment Flail Mulcher, ensure that all hydraulic connections between the machine and the self-propelled unit are secured correctly and the event of accidental uncoupling can be ruled out.

9.9 Connecting Pins to the Self-Propelled Unit:

Prior to using the AR Equipment Flail Mulcher ensure that all

pins and mechanical couplings are securely connected between the machine and self-propelled unit.

10. Use of the Machine:

10.1 Prohibition:

Whilst the AR Equipment Flail Mulcher is coupled to the self-propelled unit, it is strictly prohibited to leave the self-propelled unit in motion unattended. Always ensure that the power supplied to the AR Equipment Flail Mulcher is shut off after completing operations.



10.2 Moving:

During displacements of the AR Equipment Flail Mulcher, even for short periods, it is imperative that the power supplied to the machine is shut off and that the machine is lifted from the ground such that shocks against the ground can be excluded. A sudden shock or impact can damage the AR Equipment Flail Mulcher and self-propelled unit.

10.3 Driven Distance Control:

Ensure that any distance to be travelled is thoroughly checked for debris or obstacles which may endanger the stability of the self-propelled unit.

If the route or road is damaged or otherwise unstable, driving speed is to be limited accordingly.

AR Equipment is not legally responsible for damages to persons or property caused by excessive speed or speed conditions inappropriate for the chosen path.

10.4 Slope of the Ground:

The slope of the ground to be driven and worked on must be within the specified capabilities of the self-propelled unit.

Always take the utmost care when changing orientation while under slope conditions and/or on slippery/unstable grounds.

10.5 Driving Speed:

Driving speed must always be adapted dynamically to the environmental conditions and condition of the ground so that neither persons nor the AR Equipment Flail Mulcher are endangered.

Always pay attention to ground and environmental conditions, subsequently reduce the speed of the self-propelled unit should the ground appear unstable or conditions become otherwise unfavourable.

10.6 Visibility:

Do not use the AR Equipment Flail Mulcher in poor visibility conditions, minimum recommended visibility is 100m.

10.7 Oil Flow Rate:

The hydraulic fluid flow rate of the self-propelled unit must guarantee that the speed of the rotor corresponds to the speed indicated in the chapter “Technical Data”, with a tolerance of $\pm 5\%$.

The maximum values of the fluid flow rate and pressure are shown on the ID plate attached to the AR Equipment Flail Mulcher.

An insufficient or excessive rotational speed could affect the quality of work performed and the working life of the machine. Additionally, this could also endanger the safety of the operator.

10.8 Prohibition of Use:

The AR Equipment Flail Mulcher must not be used in the presence of any kind of cables, conduits and pipes either above the working area, on the ground surface or buried underground. Do not use the machine in the event of contaminated grounds and/or in the presence of inorganic material both on or below the ground.

10.9 Stability and Performance:

The AR Equipment Flail Mulcher is to be used only with a self-propelled unit which has a lifting and hauling capacity suitable for the dimensions and mass of the machine as indicated in the table labelled “Technical Data”. Exclusively use self-propelled units which are capable of supplying adequate hydraulic flow and pressure to the AR Equipment Flail Mulcher as indicated by the ID plate attached to the machine

10.10 Bumps:

Whilst using the AR Equipment Flail Mulcher, take care to avoid contact between the rotor and any obstacles or objects that could damage the rotor or be damaged by it.

10.11 Permissible Usage:

The permissible usage of the AR Equipment Flail Mulcher is exclusively that listed in this manual and in the described

modes and forms. Any usage other than that detailed within this manual is strictly prohibited.

Any use which differs from the permissible usages outlined in this manual will be deemed as not agreed to and outside the limits provided by the manufacturer. AR Equipment is not liable for any possible damages caused by improper use of the machine and furthermore any warranty attached to the machine will be null and void.

AR Equipment would like to emphasise that the lifting and/or transport of objects, persons or animals in any form is strictly prohibited.

Ensure that under no circumstance should any unauthorised persons approach the AR Equipment Flail Mulcher during operation. No other persons other than the operator (Who is within a shielded driver's cabin) should be within 100m of the machine when it is running.

10.12 Inertia of the Rotor:

Directly after power has ceased being supplied to the AR Equipment Flail Mulcher, the rotor will still turn for some time due to inertia. Ensure that all persons maintain a safe minimum distance to the machine and that the operator remains within the confines of the driver's cabin until the rotor has come to a complete stop.

10.13 Adjusting Operations:

Prior to carrying out any adjustment operations on the AR Equipment Flail Mulcher, shut off power to the machine, stop the motor of the self-propelled unit and remove the keys to ensure it cannot be started accidentally. Ensure that both the

self-propelled unit and the AR Equipment Flail Mulcher are resting firmly on stable ground.

10.14 Safety Devices of the Machine:

Never perform work with the AR Equipment Flail Mulcher if it has damaged or removed safety devices.

10.15 Personal Protective Equipment (PPE):

Never work with the AR Equipment Flail Mulcher without wearing protective gloves, safety glasses or other eye/face protection, hearing protection and appropriate close-fitting workwear.



10.16 Vibrations:

Use of the AR Equipment Flail Mulcher is prohibited should the rotor become unbalanced, unstable or otherwise exhibits abnormal or excessive vibrations.

11. Cleaning:

11.1 Cleaning Instructions:

Non-compliance with the cleaning instructions or inadequate cleaning may lead to damage of individual machine parts.



11.2 Cleaning Operation:

Ensure that the AR Equipment Flail Mulcher is shut off and uncoupled from the self-propelled unit before commencing any cleaning work.

12. Regular Maintenance:

12.1 Maintenance work:

Prior to performing any maintenance work, ensure that:

- The power supply to the AR Equipment Flail Mulcher is shut off.
- The possibility of a re-start (even unintentional) is excluded.
- The AR Equipment Flail Mulcher is resting firmly on stable ground.
- The self-propelled unit is turned off and the ignition keys are removed from the vehicle.



12.2 Qualified Personnel:

Only those individuals that have been trained and qualified to do so are authorised to complete any maintenance or repair work on the AR Equipment Flail Mulcher.

12.3 Prohibition of Interventions:

It is strictly prohibited to proceed with any kind maintenance or repair work while the machine is still running.

12.4 Check Fasteners:

Frequently check all bolts and fasteners on the AR Equipment Flail Mulcher to ensure that it remains in work-ready condition. Failure to do so could lead to catastrophic failure of the machine.

12.5 Protection Devices:

Only after the AR Equipment Flail Mulcher has been shut down, prevented from re-starting and has come to a complete stop may the safety devices be removed. Removal of the safety devices may only occur to enable regular or extraordinary maintenance of the AR Equipment Flail Mulcher and must always be reattached when maintenance work is complete. Do not perform any operations other than maintenance or cleaning with the safety devices removed.

The installed safety devices may never be put out of operation. If this is required in exceptional circumstances in order to determine the cause or extent of damage occurred, the safety devices must be restored to their original placement once maintenance work is complete. Always check the functionality of the safety devices before restarting the machine.

13. Extraordinary maintenance:

13.1 Maintenance Work:

Prior to performing any maintenance work, ensure that:

- The power supply to the AR Equipment Flail Mulcher is shut off.
- The possibility of a re-start (even unintentional) is excluded.
- The AR Equipment Flail Mulcher is resting firmly on stable ground.
- The self-propelled unit is turned off and the ignition keys are removed from the vehicle.



13.2 Original Spare Parts:

Use only original spare parts supplied or authorised by AR Equipment. The use of non-compliant spare parts may impair the operation of the machine and will result in the nullification of warranty rights.

13.3 Qualified Personnel:

Only those individuals that have been trained and qualified to do so are authorised to complete any maintenance or repair work on the AR Equipment Flail Mulcher.

13.4 Prohibition of Interventions:

It is strictly prohibited to proceed with any kind of maintenance or repair work while the machine is still running.

13.5 Exchange of Damaged Tools:

Immediately replace any damaged tools to avoid harmful vibrations of the machine.

13.6 Intervention of the Rotor:

Prior to starting maintenance work on the rotor assembly, ensure that the machine is completely stable in its current condition.

14. Technical Data:

ARE 12-16 TON	
WEIGHT OIL FLOW	966KG
REQUIRED PRESSURE	140-220LPM
TORQUE@ 350BAR	350BAR
THEORETICAL HP @ 350BAR	253NM
SHRED DIAMETER	165HP
CUTTING WIDTH	120MM +
AMOUNT OF TEETH	1000MM
	18

ARE 20-35 TON	
WEIGHT OIL FLOW	1800KG
REQUIRED PRESSURE	270-360LPM
TORQUE@ 350BAR	350BAR
THEORETICAL HP @ 350BAR	448NM
SHRED DIAMETER	211HP
CUTTING WIDTH	120MM +
AMOUNT OF TEETH	1500MM
	30

15. Use According to Provisions:

15.1 Description of the Machine:

The AR Equipment Flail Mulcher is a work machine, exclusively designed and built for the shredding of wood and other flora on bushland and agricultural land etc.



For example, the machine may be used for:

- 1) Shredding of tree limbs and other plant waste in forestry and agricultural sectors.
- 2) Shredding of organic waste to be used as biomass

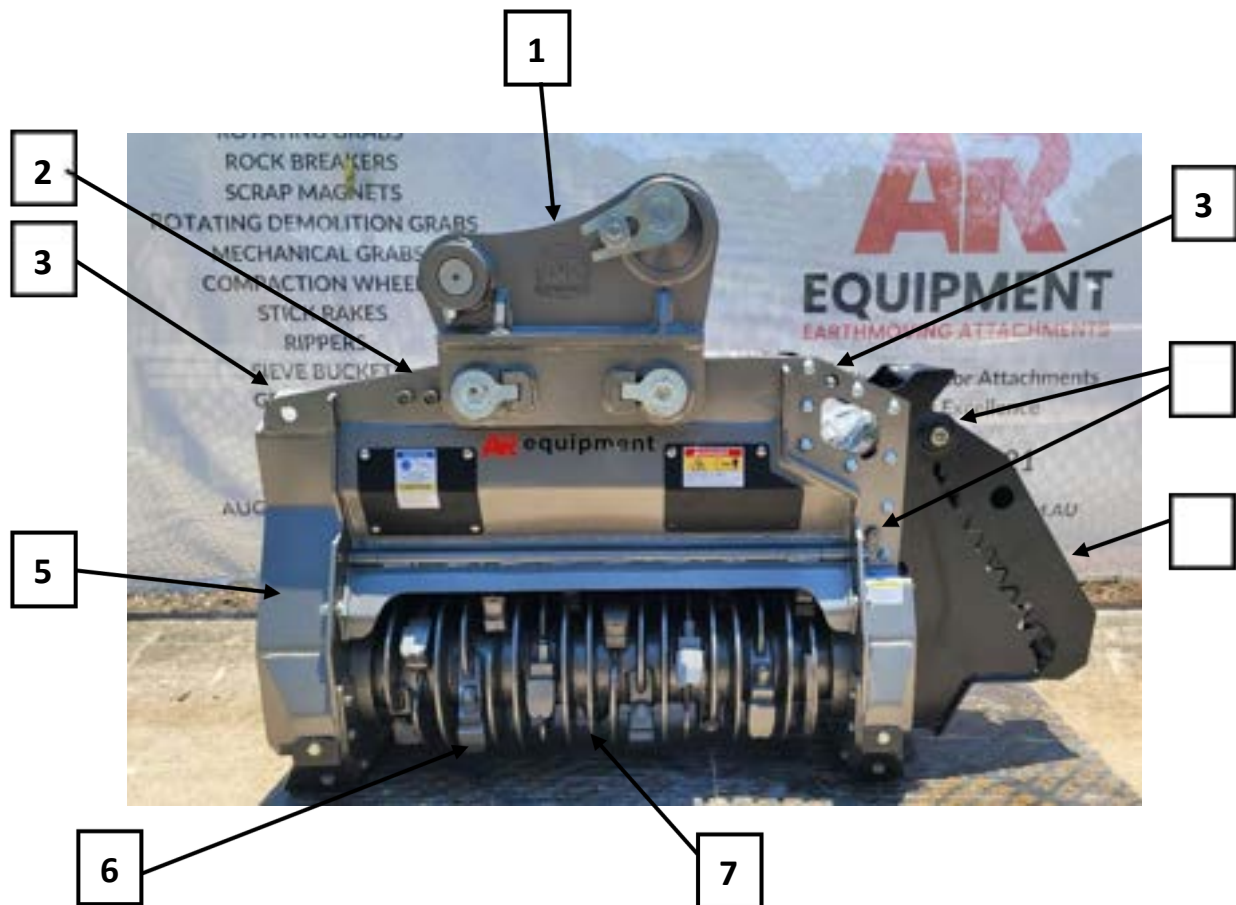
For each use case the size of the material to be shredded must not exceed the maximum sizes provided in the table “Technical Data”

15.2 Use of the Machine:

The AR Equipment Flail Mulcher is only to be used in open air conditions and regardless of location must only be operated at a safe distance from any persons, public roads, occupied buildings etc. Any use of the AR Equipment Flail Mulcher for applications other than those for which it is intended and which do not comply with use cases described in this manual discharges AR Equipment for any direct and/or indirect liability.

15.3 Views:

Front View:



1: Hitch Point

2: Lubrications Points

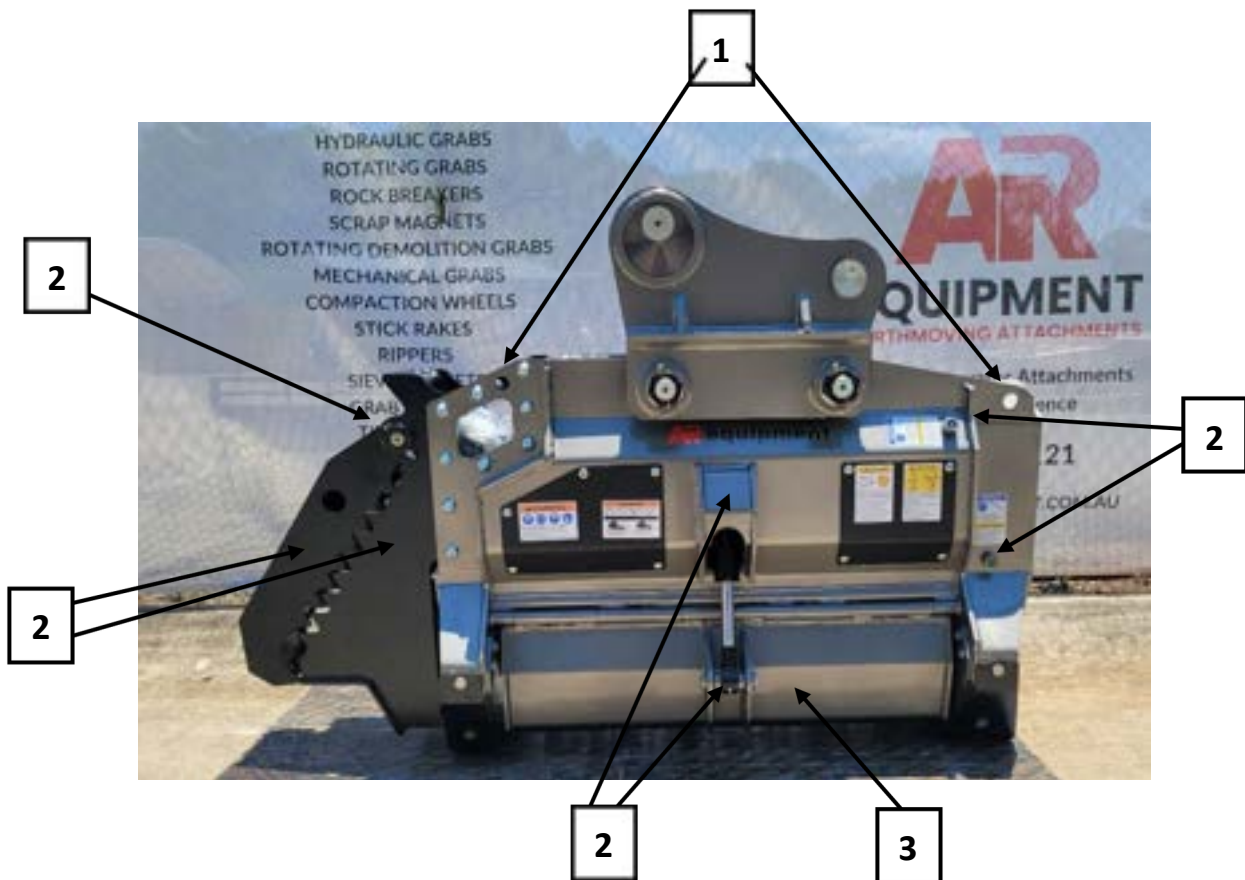
3: Lift Points

5: Frame

6: Tooling

7: Rotor

Rear View:



1: Lift Points

2: Lubrication Points

3: Hydraulic Hood

16. Mode of Operation:

16.1 Qualified Personnel:

Each operation listed below may only be performed by qualified personnel who have thoroughly read and understood the contents of this manual.



16.2 Transportation of Loads/Persons Prohibited:

Do not under any circumstance affix any kind of load to the AR Equipment Flail Mulcher.

Do not under any circumstance transport persons or animals with the AR Equipment Flail Mulcher.

This applies even if the machine is completely stationary.

16.3 Keep Clear of the Machine:

While the AR Equipment Flail Mulcher is coupled to the self-propelled unit and work is being performed, never under any circumstances or for any reason reach towards the machine with any part of the body.

Remain seated within the driver's cabin of the self-propelled unit until the rotor has come to a complete stop, then operate as indicated in "End of Work Instructions".

16.4 Range of Action:

Always be aware and constantly check for persons, animals or vehicles which may enter the working area while the AR Equipment Flail Mulcher is in operation as during the work stones, wood and other debris may be forcefully ejected by the rotating tools.

16.5 Protective Equipment:

Due to the nature of the work for which the AR Equipment Flail Mulcher is designed, the operator must wear suitably protective clothing and equipment. For example: Eye and hearing protection, close fitting durable gloves, close fitting work attire.



16.6 Observe Safety Conditions:

When beginning or performing any task with the AR Equipment Flail Mulcher, the operator must respect all safety conditions described in the chapter “Initial Startup” under the paragraph “Startup and Control of Movements” as well as those described in the chapter “General Safety Instructions”

16.7 Typical Modes of Operation:

The AR Equipment Flail Mulcher is robust and capable machine that enables the operator to shred a variety of plant material both on the ground and above it.

17. Specific Limitations of Use:

17.1 Rocky Ground:

When operating the AR Equipment Flail Mulcher on rocky ground it is advised that the operator take special care to avoid contact with the ground where possible. If the AR Equipment Flail Mulcher is operated in these conditions regularly you must check the condition of the tooling and other



components which may come into contact with the ground more frequently to maintain the functionality of the machine.



17.2 Uses Not Recommended:

The use of the AR Equipment Flail Mulcher in the following conditions is not recommended:

- a) In the case of especially wet grounds or conditions.
- b) In the case of grounds with large amounts of rock or stone.
- c) In the case of grounds with blocks of non-friable rock of particularly large size which may or may not be easily detectable by the operator.
- d) In the presence of steel cable or similar materials which can twist around and seize the rotor causing damage to the drive.

17.3 Work Speed:

The maximum work speed is controlled by the flow rate, never exceed the maximum flow rate for your particular model of mulcher.

17.4 Material Diameter:

The diameter of any material to be shredded must not exceed the values in the table "Technical Data"

18. Transport:

18.1 Transport by Other Means:

Prior to transportation of the AR Equipment Flail Mulcher, carry out the operations described in the chapter “End of Work Instructions”



18.2 Means of Transport:

The AR Equipment Flail Mulcher may be transported by any type of vehicle (Vans, trucks, trailers etc) with sufficient capacity as long as all rules and regulations for transportation of goods set out by local, state and federal governments are observed.

18.3 Weight:

The weight and of your AR Equipment Flail Mulcher are indicated on the ID Plate. Ensure that the lifting/transport capacity of the vehicle used is sufficient.

18.4 Load Firmly Fixed:

Ensure that the load is firmly secured to the transport vehicle in order to avoid any movement and subsequent damage during loading and transportation.

18.5 Lifting Points:

Should it become necessary to lift the AR Equipment Flail Mulcher via means other than the self-propelled unit it is coupled to, it is imperative that the lifting points marked on the machine are used for this operation.



18.6 Observe Safety Regulations:

In regards to the above statements, it is highly recommended that the correct safety precautions are maintained and that extra care is taken during lifting and positioning operations.

Always use suitable means and appropriate lift points to carry out manoeuvres.

Do not attempt to manually manoeuvre the machine.

Do not use any other means or methods to manoeuvre the machine which may be considered unsafe.

18.8 Prohibition of Transport:

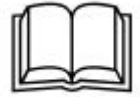
Transporting the AR Equipment Flail Mulcher by any form or mode which differs from the types of transport described in this manual are strictly prohibited.

Any manoeuvres performed in the presence of bystanders within a 15m radius are strictly prohibited.

19. Assembly and Coupling:

19.1 Preparation:

Prior to coupling the AR Equipment Flail Mulcher to the self-propelled unit, ensure that both machines are resting firmly on stable ground and that all attachment points are free from debris.



19.2 Coupling operation:

For the duration of the coupling operations the operator is the only person authorised to be near the machine. All other persons must maintain a minimum 15m distance from the machine and the self-propelled unit.

19.3 Qualified Personnel:

Every operation (coupling, start-up and manoeuvring etc) must only be executed by qualified personnel.

19.4 Personnel Training:

It is the responsibility of the operator enterprise using the AR Equipment Flail Mulcher to train its own personnel adequately and to provide each machinery operator with this Operations and Maintenance Manual as well as any further information regarding the assembly and operation of the machine.

AR Equipment denies any liability in the case of accidents resulting from the improper or inadequate training of personnel.

19.5 Coupling to the self-propelled unit

The coupling of the AR Equipment Flail Mulcher to the self-

propelled unit is a dangerous phase, the entire operation requires the utmost attention and adherence to the instructions laid out in this manual.

19.6 Compatibility with the Self-Propelled Unit:

Ensure that the specifications of the self-propelled unit matches the model parameters of your AR Equipment Flail Mulcher as defined in the chapter “Technical Data”. It must have the ability to carry the mulcher in its SWL parameters while providing adequate oil flow and pressure.

19.7 Additional Equipment of the Driver’s Cabin:

It is highly advised that the driver’s cabin of any self-propelled unit be equipped with additional safety devices in accordance with the specified use (e.g. protective grilles, projectile resistant polycarbonate screens and any other means of protecting both the self-propelled unit and the operator within).

19.8 Assessment of the Self-Propelled unit:

Ensure that the hydraulic power output of the self-propelled unit is within the ranges specified in the “Technical Specifications” section of this manual.

19.9 Verification of Coupler Compatibility:

High oil flow rate is required for the AR Equipment Flail Mulcher. If quick couplers are being used, ensure that they are capable of supplying the required oil volume to the AR

Equipment Flail Mulcher

19.10 Checks Prior to Coupling:

Before beginning the coupling operation, check that the machine is in good condition and operating well, the level of the lubricating oil and grease is adequate, that all safety devices are functional and all wear parts are in acceptable condition.

19.11 Lifting Power:

Ensure that the self-propelled unit used is suitable for environment and work that is to be carried out and that it's lifting capacity is higher than the mass of the machine (indicated by the ID plate attached to the machine).

19.12 Technical Specifications:

Compare the specifications of the self-propelled unit with those of the AR Equipment Flail Mulcher which can be found in the table "Technical Specifications" to ensure compatibility between the two machines.

19.13 Instructions in Operators Manual:

Refer to the operating instructions supplied with the self-propelled unit with regards to its use.

19.14 Verification of Stability:

Prior to beginning each coupling operation, always verify that that the AR Equipment Flail Mulcher is in the correct position

and rests firmly on the ground. For more information refer to the chapter “End of Work Operations”.

19.15 Limit the Incline of the Machine:

Ensure that the AR Equipment Flail Mulcher is in a stable position on acceptably level ground during the coupling phase as to not impair the stability and safety conditions during coupling operations.

19.16 Details of Coupling Procedure:

The AR Equipment Flail Mulcher has 3 hydraulic lines. One for pressure, one for return and one for a case drain. Ensure that these lines are correctly fitted. Incorrect fitting can lead to motor failure and is not covered by warranty.

19.17 Depressurised Hydraulic System:

The hydraulic system of the self-propelled unit must be depressurised in order to carry out the connection process with quick couplers. Refer to operation instructions of your self-propelled unit for more details on this process.

19.18 Removal of the Fall Protection devices:

Any fall protection devices provided on the hydraulically operated kinematics must only be removed after connecting, pressurizing and testing the hydraulic system. Failure to do so may cause serious hazards to safety.

20. Initial Operation:

20.1 Unauthorised Persons:

Always ensure that during the operating phase, when the rotor of the AR Equipment Flail Mulcher is in motion, that no unauthorised person(s) are located within a 100m radius of the machine.



20.2 Manoeuvring:

For all manoeuvring operations, the operator must always remain in the driver's seat of the self-propelled unit with all operating controls within arm's reach.

20.3 Prohibitions:

Do not stay in the area between the AR Equipment Flail Mulcher and self-propelled unit and do not enter the area for any reason under any circumstance.

Never under any circumstances or for any reason approach the AR Equipment Flail Mulcher or coupled self-propelled unit unless it is ensured that all machine parts have come to a complete stop and that any unintentional re-start can be excluded.

20.4 Hydraulic Connections:

Prior to operating the machine, ensure that all hydraulic connections between the AR Equipment Flail Mulcher and self-propelled unit are secured correctly and that accidental uncoupling is excluded.

20.5 Connecting Pins to the Self-Propelled Unit:

Prior to using the AR Equipment Flail Mulcher ensure that all pins and mechanical couplings are securely connected between the machine and self-propelled unit.

20.6 Exclusive Use of the Control Levers:

Exclusive control of the AR Equipment Flail Mulcher and self-propelled unit must remain with the qualified operator of both machines.

20.7 Check of Motion:

Initial movements of the AR Equipment Flail Mulcher must be checked with the rotor stationary. Specifically observe the motion of each hydraulic cylinder and their connections for fluid leaks and other anomalies.

20.8 Slow Start:

Any starting of the AR Equipment Flail Mulcher must be carried out gradually and slowly to ensure safety and prevent damage. Be sure to actuate the control levers with care and purpose.

20.9 Prohibition:

Whilst the AR Equipment Flail Mulcher is coupled to the self-propelled unit, it is strictly prohibited to leave the self-propelled unit in motion unattended. Always ensure that the power supplied to the AR Equipment Flail Mulcher is shut off after completing operations.

20.10 Actuation of the Rotor:

When beginning work with the AR Equipment Flail Mulcher:

- Lift the machine slightly and gently off the ground.
- Slowly start the rotor by gently increasing hydraulic flow rate.
- Maintaining the machine at a close distance to the ground, gradually increase hydraulic flow to the motor.
- Check that there are no abnormal noises or vibrations before beginning work.

21. Transport with the Self-Propelled Unit:

21.1 Stopping the rotation of the Rotor:

In the case of transporting your AR Equipment Flail Mulcher while coupled to the self-propelled unit, it is imperative that the operator shuts down the machine and waits for the rotor to come to a complete stop before they begin transport and/or travel operations. The rotor must remain stationary throughout the entirety of the transport operation.



21.2 Waiting for the Machine to Stop:

Directly after power has ceased being supplied to the AR Equipment Flail Mulcher, the rotor will still turn for some time due to inertia. Ensure that all persons maintain a safe minimum distance to the machine and that the operator remains within the confines of the driver's cabin until the rotor has come to a complete stop before continuing with any further operations.

21.3 Lifting the machine:

Lift the AR Equipment Flail Mulcher off the ground completely to a height capable of avoiding any protrusion or obstacles.

Take care not to lift the machine too high as this may cause the self-propelled unit to become unstable during travel.

21.4 Signal Signs:

When driving on public roads it is mandatory to signage which indicates any protruding loads.

21.5 Speed Limitation:

Driving speed must always be adapted dynamically to the environmental conditions and condition of the ground so that neither persons nor the AR Equipment Flail Mulcher are endangered.

Always pay attention to ground and environmental conditions, subsequently reduce the speed of the self-propelled unit should the ground appear unstable or conditions become otherwise unfavourable.

21.6 Laws in Force:

For further details and obligations not included in this manual please refer to the specific laws and regulations for your state or territory which may apply to the operation of your AR Equipment Flail Mulcher.

21.7 Assembly:

During transport the AR Equipment Flail Mulcher may only be coupled to the self-propelled unit via the connecting pins located at the top of the machine.

22. Using the Machine:

22.1 Start of work:

Upon arrival at the operational area always assess the location for potential hazards including bystanders within a 100m radius of the machine. With the machine in a stable position and not in contact with anything, gradually increase hydraulic flow to the machine until the rotor reaches optimal operational speed.



Take care to always gradually approach the targeted material with the machine to avoid damage.

22.2 Quality Control of the Work:

Work with the machine for a short period and ensure that the quality of the work and dimensions of the ejected material meet your requirements.

22.3 Applicable Parameters for Speed:

For all operating conditions of your AR Equipment Flail Mulcher the working speed must be adapted to the following parameters:

- a) The working width. The rotor performance should be increased proportionally as the working width of the operation at hand increases, simultaneously the working speed should be decreased accordingly.
- b) The working depth. The rotor performance should be increased proportionally as the working depth of the operation at hand increases, simultaneously the working speed should be decreased accordingly.
- c) The ground conditions and the properties of the material to be worked upon.

- d) The desired result produced. The lower the speed of progressive motion or working speed, the better the result.
- e) The capacity of the coupled self-propelled unit. The higher the capacity of the self-propelled unit, the higher the permitted speed. The output capacity of the self-propelled unit may under no circumstances exceed the maximum permitted capacity of the AR Equipment Flail Mulcher indicated in the chapter “Technical Data”

22.4 Working speed:

AR Equipment recommends taking into account the working speed during operations, as listed in the “Technical Data” table.

22.5 Rotor:

Do not leave the rotor in neutral position unless it is absolutely necessary.

23. General Regulations:

23.1 Slope of the Ground:

The inclination of the ground in the operational area that is to be worked and driven upon may not exceed the maximum inclination specified by the manufacturer of the self-propelled unit.

Always take great care when travelling and changing directions under slope conditions and/or slippery grounds.

23.2 Avoiding Obstacles and Hazards:

Always assess any route to be travelled carefully and avoid



large stones, holes and other obstacles or terrain features. Failure to do so could cause the self-propelled unit to become unstable and tip.

23.3 Driving Speed:

The speed of travel must always be adapted to environmental conditions at hand such that neither persons nor the AR Equipment Flail Mulcher are endangered. Pay particularly close attention to the ground conditions and reduce the speed of the self-propelled unit should the ground seem unstable or otherwise unfavourable to drive upon.

23.4 Maintaining Good Condition of Tools:

Prior to starting work ensure that the integrity of the tooling, their level of wear and tear and that their connection to the machine is secure. This operation must be performed regularly and with the utmost care to ensure a long working life of the machine.

23.5 Tool Damage During Work:

Should one or more tools break during operation it is imperative that the operator stops work and replaces the tool/s immediately in a safe manner as described earlier in this manual. Failure to do so will lead to damage of the tool holder.

23.6 Vibrations:

Working with broken or excessively worn tools could lead to abnormal vibrations which may severely damage the

machine and/or the self-propelled unit to which it is attached. If abnormal vibrations are observed, immediately stop the machine and check for damage in a safe manner as described earlier in this manual.

23.7 Hydraulic Connections:

Prior to operating the machine, ensure that all hydraulic connections between the AR Equipment Flail Mulcher and self-propelled unit are secured correctly and that accidental uncoupling is excluded.

23.8 Connecting Pins to the Self-Propelled Unit:

Prior to using the AR Equipment Flail Mulcher ensure that all pins and mechanical couplings are securely connected between the machine and self-propelled unit.

23.9 Bumps with the Rotor:

Whilst using the AR Equipment Flail Mulcher, take care to avoid contact between the rotor and any obstacles or objects that could damage the rotor or be damaged by it.

24. Restrictions of Use:

24.1 Rotor Speed:

The rotor speed must match perfectly with the speed indicated in the “Technical Data” table of this manual.



Insufficient or excessive motor speed would cause a reduction or increase in the rotor speed, which in turn would affect the quality of work carried out and subsequently the working life of the machine and safety of the operator.

24.2 Presence of Cables, Contaminated Grounds and Debris:

The AR Equipment Flail Mulcher must not be used in the presence of any kind of cables, conduits and pipes either above the working area, on the ground surface or buried underground. Do not use the machine in the event of contaminated grounds and/or in the presence of inorganic material both on or below the ground.

24.3 Technical Data: The AR Equipment Flail Mulcher may only be used with self- propelled units which offer sufficient stability and power. Please compare the technical data of the self-propelled unit and the AR Equipment Flail Mulcher to ensure compatibility and suitability.

24.4 Environmental Conditions:

Use of the AR Equipment Flail Mulcher is not permitted if the environmental conditions, such as the inclination of the ground, black ice or terrain features, could impair the stability of the machine and lead to a hazardous situation.

24.5 Morphology of the Ground:

Ensure that the morphology of the ground is compatible with the characteristics of the self-propelled unit used including the additional mass of the AR Equipment Flail Mulcher.

24.6 Permissible Usage:

The permissible usage of the AR Equipment Flail Mulcher is exclusively that listed in this manual and in the described modes and forms. Any usage other than that detailed within this manual is strictly prohibited.

Any use which differs from the permissible usages outlined in this manual will be deemed as not agreed to and outside the limits provided by the manufacturer. AR Equipment is not liable for any possible damages caused by improper use of the machine and furthermore any warranty attached to the machine will be null and void.

AR Equipment would like to emphasise that the lifting and/or transport of objects, persons or animals in any form is strictly prohibited.

Ensure that under no circumstance should any unauthorised persons approach the AR Equipment Flail Mulcher during operation. No other persons other than the operator (Who is within a shielded driver's cabin) should be within 100m of the machine when it is in operation.

24.7 Prohibition:

AR Equipment would like to stress that lifting and transport using the machine are expressly forbidden for any type of objects, persons or animals.

24.8 Meteorological Conditions:

Weather, temperature and all other working conditions must be within normal operating values and must exclude possible accidents.

25. End of Work Instructions:

25.1 Stopping the Rotor:

Shut down the AR Equipment Flail Mulcher after work is complete. Cease the rotation of the rotor and wait until it has come to a complete stop. Note that when the power supplied to the machine is interrupted, the rotor will still continue to spin for some time due to inertia. Therefore, stay clear of the machine and in the driver's cabin until the rotor has come to a complete stop before continuing with any further operations.



25.2 Unauthorised Persons:

During the final phase of work and after the rotor has come to a complete stop, the operator is the only person authorised to stay near the machine. No other persons except the operator are permitted to approach or stay within a 15m radius of the machine.

25.3 Shutdown:

Check the stability of both the AR Equipment Flail Mulcher and the self-propelled unit before complete shutdown. When leaving the self-propelled unit ensure that you remove the ignition keys from the instrument panel.

25.4 Cleaning:

Thoroughly remove all residual debris, clean and inspect the AR Equipment Flail Mulcher after completing work or at the end of each day where the equipment has been used. Note that all cleaning operations must be carried out only by authorised

personnel with the machine uncoupled from the self-propelled unit.

26. Lubrication

At the end of every use, lubrication must be carried out at every indicated point on your AR Equipment Flail Mulcher using graphitized or water-resistant lubricating grease.



26.1 Cleaning of the Lubricating Nipples:

Prior to the application of lubricating grease, all lubricating nipples should be cleaned carefully and thoroughly to avoid the ingress of mud, dust and other impurities into the machine and reducing the lubricating effect.



26.2 Lubrication Points:

Each lubricating point on the machine is labelled with a sticker as depicted here. Each Sticker shows the recommended minimum lubrication interval



26.3 Greases

AR Equipment advises using only high quality grease with properties that suit both the purpose of this machine and environment that is to be used in.

27. Maintenance and Replacement of Tooling



1: Rotor Bearing - Lubricate Every 8 Hours

2: Pivot Point - Lubricate Every 20 Hours

27. Maintenance and Replacement of Tooling



1: Rotor Bearing - Lubricate Every 8 Hours

2: Pivot Point - Lubricate Every 20 Hours

Tooling bolt tension:



12-16 Ton: 770NM

20-35 Ton: 770NM

Check Fasteners:

Prior to and at the completion of any work performed, ensure that all bolts and fasteners on the AR Equipment Flail Mulcher, including frame bolts, safety and access cover bolts and hitch plate through bolts are tightened securely.