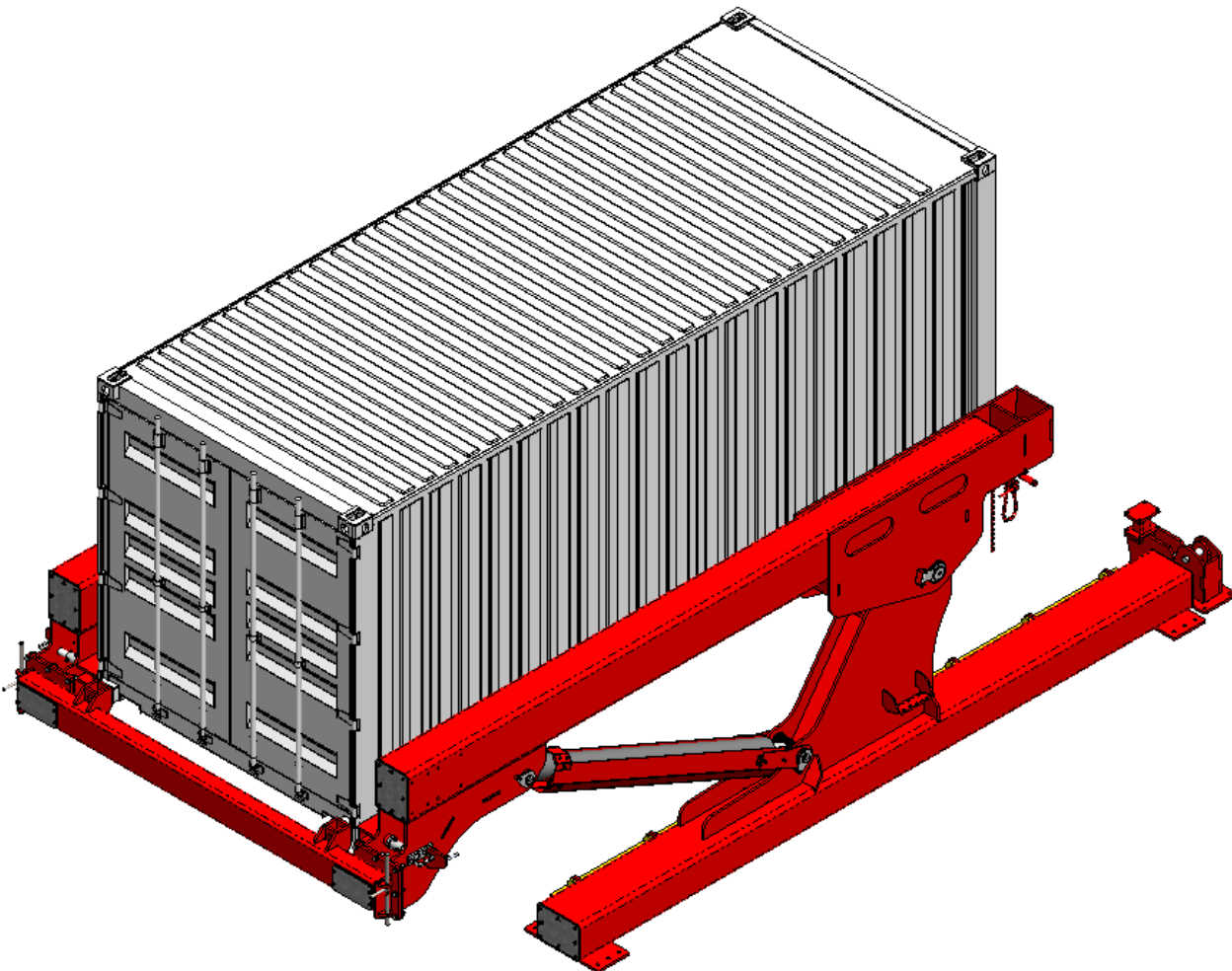


ECOLOADER

Safety, Operation and Maintenance Manual (English)
Original instructions



Revision	Modified by	Released Date
A	D L MALVAR	19-12-23

Container Tilter - ECOLoader
Safety Operation and Maintenance Manual

WARRANTY INFORMATION

WARRANTY is provided as part of the A-WARD attachments support program for customers who operate and maintain their equipment as described in this manual. The warranty is explained on the warranty certificate received with the attachment or from your authorized A-WARD Sales Manager. Should the equipment be abused or modified to alter its performance beyond original specifications, the warranty will become void. Setting the hydraulic pressure above specification or changing motor or hydraulic circuits, including cylinders will also void the warranty.

A-WARD's products are covered by one or more of the following patents:

Patent Numbers:

Worldwide PCT Approval:

PCT/NZ2007/000126	Container Tilter
NZ 547544	Container Tilter
Australia 2007268365	Container Tilter
Europe 7793951.0	Container Tilter
Mexico MX/a/2008/015068	Container Tilter
South Africa 2002/2110	Container Tilter
USA 12302575	Container Tilter
Canada (awaiting filing)	Container Tilter
Russia (awaiting filing)	Container Tilter

NZ 519487	Quickhitch
Australia 49586/00	Quickhitch
USA 09/987,772	Quickhitch
Canada 2,382,124	Quickhitch Attachment
USA 6,655,054	Quickhitch Attachment
NZ 517734	Quickhitch Attachment
Australia 67429/00	Quickhitch Attachment
Europe 955197.9	Quickhitch Attachment

Trademarks

NZ 753090	AWARD
NZ753091	A-WARD
USA 78952706	A-WARD
USA 78952708	AWARD

SAFETY FIRST

Read the Safety, Operation and Maintenance Manual before operating or servicing the equipment.

Keep the manual with the Container Tilter so it is always available for reference.

Preface

This manual contains information for the safe and proper operation and maintenance of the A-WARD Container Tilter. Read the entire manual and the manual provided with the loading carrier machine before the initial start-up of the attachment. It is important to know the correct operating procedures of the attachment and all safety precautions to prevent the possibility of property damage and personal injury.

A-WARD products have been designed and manufactured with high quality materials and care in workmanship. The instructions in this manual have been prepared to assist with the operation and care of your purchase. When these instructions are followed properly, the Container Tilter will provide efficient and reliable service.

Continuing product development and improvement may have caused changes in the Container Tilter which are not reflected in this manual. If a question arises regarding the operation or maintenance of your Container Tilter, contact an A-WARD Sales Manager for the most current information available. Contact details are shown below. Please ensure you provide the model and serial number of your A-WARD Container Tilter for correct service and spare parts ordering. The model and serial number can be found on your unit, and should be recorded below for easy reference at a later date.

Model Number _____
Serial Number _____

Reference Information

All requests for information, service or spare parts should include attachment model and serial number. For the nearest A-WARD dealer contact:

A-WARD Ltd
345 Church Street
Penrose
Auckland, New Zealand

Phone: (64-9) 622-3111
Fax: (64-9) 634-5128

www.a-ward.com

Contents Overview

ECOLOADER Container Tilter Operations Manual

Part I - Introduction

Part II - Safety Summary

Part III - Commissioning the Container Tilter

Part IV – Operation

Part V - Maintenance

Power Pack Information

Table of Contents

WARRANTY INFORMATION.....	3
Preface	4
Contents Overview.....	5
Part I - Introduction.....	7
SPECIFICATIONS	7
BASIC COMPONENTS OF THE TILTER	9
GLOSSARY OF TERMS	10
NAMING PROTOCOLS OF THE TILTER	11
PART II – SAFETY SUMMARY	12
SAFETY SIGNALS AND SIGNS	13
SAFETY DECALS AND LABELS.....	14
PLACEMENT OF DECALS ON THE TILTER.....	15
GENERAL SAFETY PRECAUTIONS.....	16
TILTER SAFE WORKING PRACTICES	19
SAFETY WITH LOADER OPERATIONS.....	21
Part III – COMMISSIONING OF THE TILTER.....	23
TAKING DELIVERY OF THE TILTER.....	23
SETTING UP THE TILTER	24
PART III – INSTALLATION AND ASSEMBLY OF THE ECOLOADER.....	25
SETTING UP THE ECOLOADER	26
INITIAL OPERATIONS OF THE TILTER.....	30
PART IV - OPERATIONS.....	31
DAILY START-UP CHECKS.....	32
STORAGE OF THE TILTER.....	36
PART V - MAINTENANCE	37
GENERAL RULES FOR MAINTENANCE	38
PERIODIC SERVICE SCHEDULE	39
DAILY SERVICE REQUIREMENTS.....	40
DAILY INSPECTION CHECKLIST	41
DAILY INSPECTION POINTS.....	42
LUBRICATION POINTS FOR THE TILTER.....	43
GENERAL BOLT TORQUE GUIDELINES.....	44
TRAINING SIGN-OFF CONFIRMATION.....	46
DAILY OPERATOR RECORD.....	47
TROUBLESHOOTING GUIDE	48

Part I - Introduction

SPECIFICATIONS

General	
Machine weight	7500 kg
Safe working load	30,000 kg
Load type	Standard 20ft ISO Freight Container
Tilt angle	0° to 90°
Design Specification:	AS 3990:1993 Mechanical Equipment Steel Work
A-weighted sound pressure level measured at 1m and a height of 1.6m from powerpack when Tilter is operating with a full container.	<80dB(A) (see General Safety Precautions)

Power pack	
Specifications vary. See manual supplied with powerpack	

Hydraulic system	
Operating pressure	250 Bar
Reservoir capacity	See manual supplied with powerpack
Number of outputs used	See manual supplied with powerpack
Oil grade	Shell Tellus 46 or equivalent suitable for the ambient operating temperature
Grease grade	Premium graphite based grease SC1 or equivalent

MODEL DESCRIPTION AND INTENDED USAGE

The ECOLOADER (A-WARD Container Tilter) facilitates the fast loading of 20ft shipping containers (ISO Series 1 freight containers). A diverse range of bulk products (such as scrap metal, grains, minerals and even frozen fish) can be loaded quickly and efficiently with the ECOLOADER. Shipping costs are reduced because greater load weights can be achieved through material being compacted inside the container.

The machine consists of an open ended frame that is tilted by hydraulic rams. Containers are loaded directly into the Container Tilter from the truck or trailer vehicle. The machine tilts the container on end from horizontal to any angle between horizontal and 90° (vertical), with the doors opened and facing skywards. Material is loaded into the container by using a loading crane or grab bucket fitted to a front loader or similar machine.

The ECOLOADER is a self-contained unit, fitted with a power generator, hydraulic pump, and oil reservoir. The controls are located away from the Tilter and connected to the machine by hydraulic hoses. The maximum tilt speed is fixed by the size of the pump fitted and is designed to reduce material inside the container becoming displaced and unstable.

The Tilter shall be used only in accordance with the operating instructions stated within this Operations Manual.

DO NOT operate the Tilter whilst under the influence of alcohol and/or drugs.

DO NOT load containers onto the Tilter with equipment other than trailers of the correct height and width.

DO NOT allow personnel other than the operator within 10m of the Tilter while it is operating.

DO NOT use the Tilter to tilt anything other than 20' ISO containers.

DO NOT tilt the Tilter if the container locks have not been fully engaged.

DO NOT leave the Tilter unattended while it is under power.

DO NOT obscure or remove any of the Safety decals on the Tilter.

DO NOT crush or interfere with any of the hydraulic hosing.

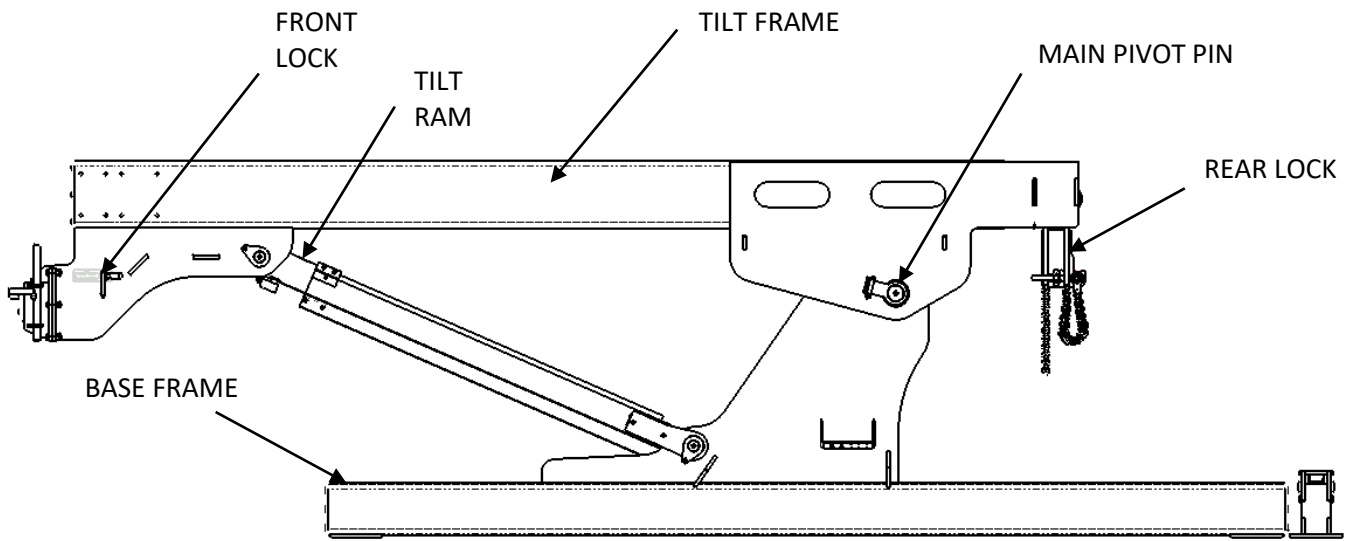
DO NOT load any container onto the Tilter that weighs more than the max. safe working load.

DO NOT tilt the Tilter more than 20 degrees without a container on the Tilter.

For further information, see the General Safety section of this User Manual.

BASIC COMPONENTS OF THE TILTER

The ECOSCRAPPA is designed for the container's opening doors to be facing the rear of the trailer (away from the cab). This model includes swing locks at one end and hydraulic locks at container door end.



GLOSSARY OF TERMS

Component	Description
Base Frame	The super structure frame has been designed to handle the working conditions and twisting wear and tear of handling containers.
Main Pivot	The main pivot hub on which the tilt frame pivots on the main frame.
Tilt Frame	Based around the I-Beam structure to handle continuous bending loads while containers are being loaded and unloaded.
Tilt Rams	These two rams are the main power rams for lifting and holding loaded containers while being tilted.
Front Locks	Container is reversed on to fixed pins. Manual Side Plungers lock the container.
Rear Lock	Manual Swinglock with 'J' Hook secondary lock included

NAMING PROTOCOLS OF THE TILTER

It is important that the Container Tilter and the container are named correctly. the following protocol is used throughout this manual.

FRONT: The end of the Tilter where the container doors open

REAR: The end of the Tilter that remains closed (and is tilted downwards)

LEFT: The left hand side of the Tilter when looking directly at the door end of the container

RIGHT: The right hand side of the Tilter when looking directly at the door end of the container

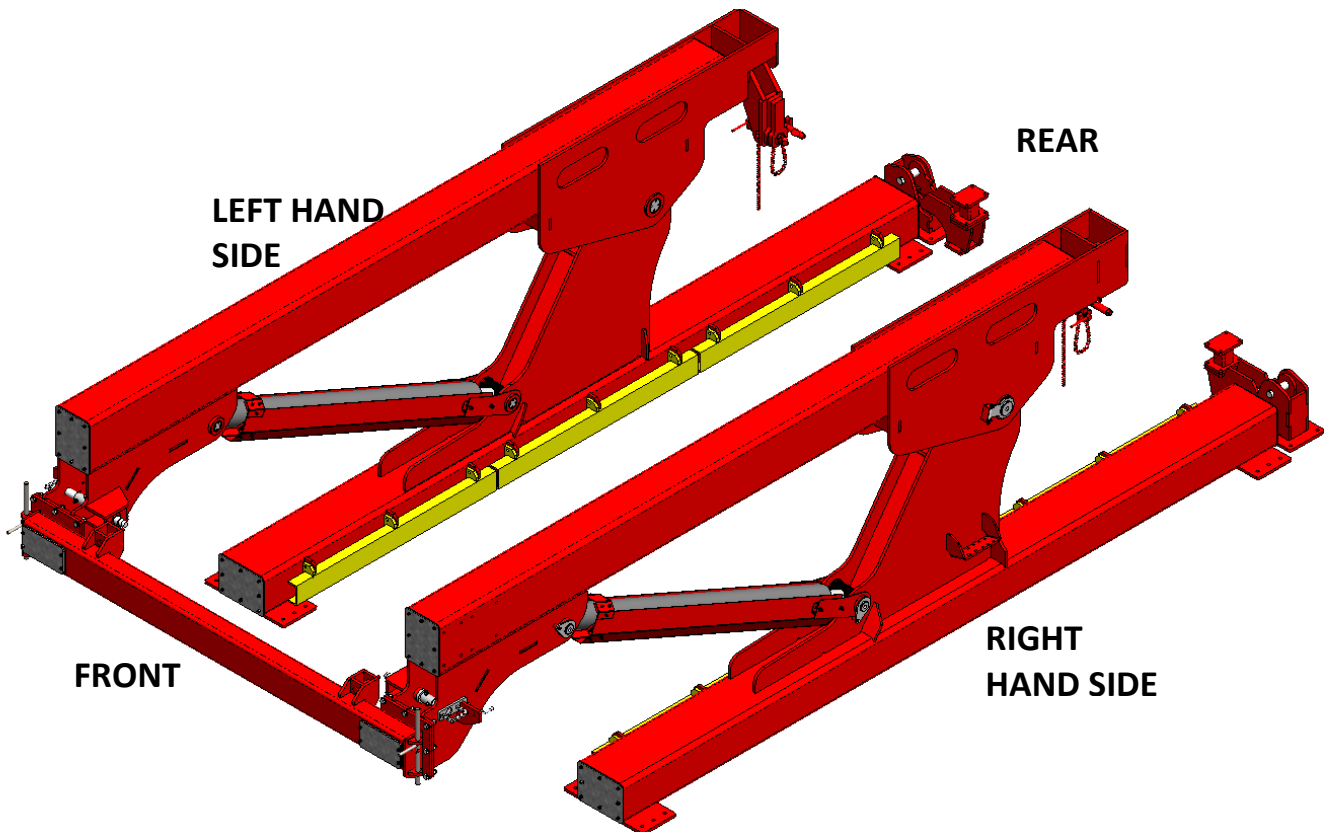


Fig 1. Container Tilter naming protocol

PART II – SAFETY SUMMARY

Your safety and the safety of others is dependent on how you operate and maintain your equipment. Read and understand this manual and other safety information provided with the Container Tilter. Be sure that you understand all controls and operating instructions before attempting to operate this equipment.

Observe the same precautions as with other machinery where carelessness in operation or maintenance is hazardous to personnel. Carefully read and understand all safety messages in this manual and safety signs on your equipment. Keep safety signs in good condition and replace missing or damaged safety signs.

The precautions listed in this manual and on the equipment are not all-inclusive. If a procedure, method, tool or part is not specifically recommended by A-WARD, you must satisfy yourself that it is safe to be used by you and others, and that the equipment will not be damaged or made unsafe as a result of your decision.

The basic rules are summarized in this section of the manual. They also appear throughout the manual along with additional specific rules for safety and operation.



WARNING

- Always be aware of the wind speed - **DO NOT** operate Tilter in wind speeds above 108km/h (67 mph)
- Learn how to operate the equipment and how to use the controls properly. Do not let anyone operate the equipment without instructions.
- It is the responsibility of the operator to read and understand all operating manuals supplied with the equipment before operation.
- Improper operation could result in severe personal injury or death.
- Make sure that equipment operators have the necessary safety training for each piece of equipment they are asked to operate.
- Ensure that all operators of this machine understand the safety procedures.



AW004

SAFETY SIGNALS AND SIGNS

All operators and maintenance personnel must understand all safety signs provided on the Tilter and explained in this manual. Warning Decals are shown in this section.

Throughout this manual the following words have been used. When you see these symbols and signal words in this manual or on the Container Tilter, be alert to the potential for personal injury or damage to equipment or property. Follow recommended precautions and safe operating practices. All warnings with this symbol requires the operator of the Tilter or other machinery engaged in work with the Tilter to be aware of the hazards and the possible consequences.



DANGER

Indicates immediate hazards which **WILL** result in severe personal injury or death.



WARNING

Warning: Indicates hazards or unsafe practices which could result in severe personal injury or death.



CAUTION

Caution: Indicates hazards or unsafe practices which could result in damage to the machine or minor personal injury.

SAFETY DECALS AND LABELS

Safety decals and labels are attached to the Tilter in the appropriate positions. These must not be removed and must be adhered to at all times. Sever injury or death may result if these warnings are ignored. If these labels are missing, please contact your nearest A-WARD Ltd dealer or A-WARD Customer Services Department for replacements.

DECALS



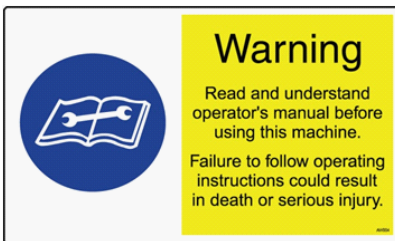
AW001 – Patent, Serial No and A-Ward detail plate



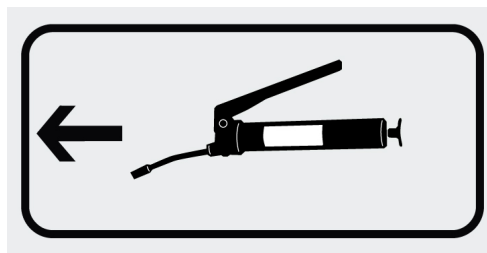
AW001 – Safety Screws Decal



AW002 – Danger Decal



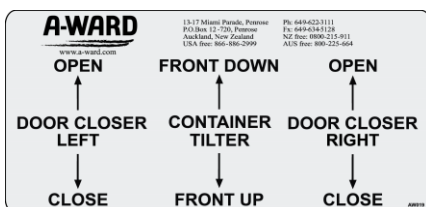
AW004 – Safety first decal (fitted to powerpack)



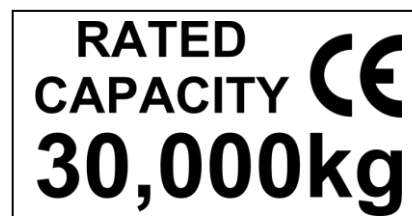
AW016 – Grease Decal



AW050 – Pinch Point Decal



AW019 – Power Pack Control Sticker (fitted to power pack)



AW022 – Rating Capacity Decal



AW025 – High Wind Decal

PLACEMENT OF DECALS ON THE TILTER

Decals and information labels are located for maximum visibility on the TILTER. The placement and part numbers are shown below.

<i>Part Number</i>	<i>Description</i>
AW001	'Safety Screws Engaged' safety sticker
AW002	'Danger' decal - safety distance warning sticker
AW003	'Falling Object Protection' decal, fitted to power pack
AW004	'Safety First' decal (read manual before operation) fitted to power pack
AW016	'Grease' decal - one at each grease fitting
AW020	Power pack control sticker, fitted to power pack
AW022	Rating capacity sticker, on main Tilter frame
AW025	Wind Speed sticker
AW026	High Voltage Decal (small size)
A001	Patent, Serial Number and A-WARD detail plate

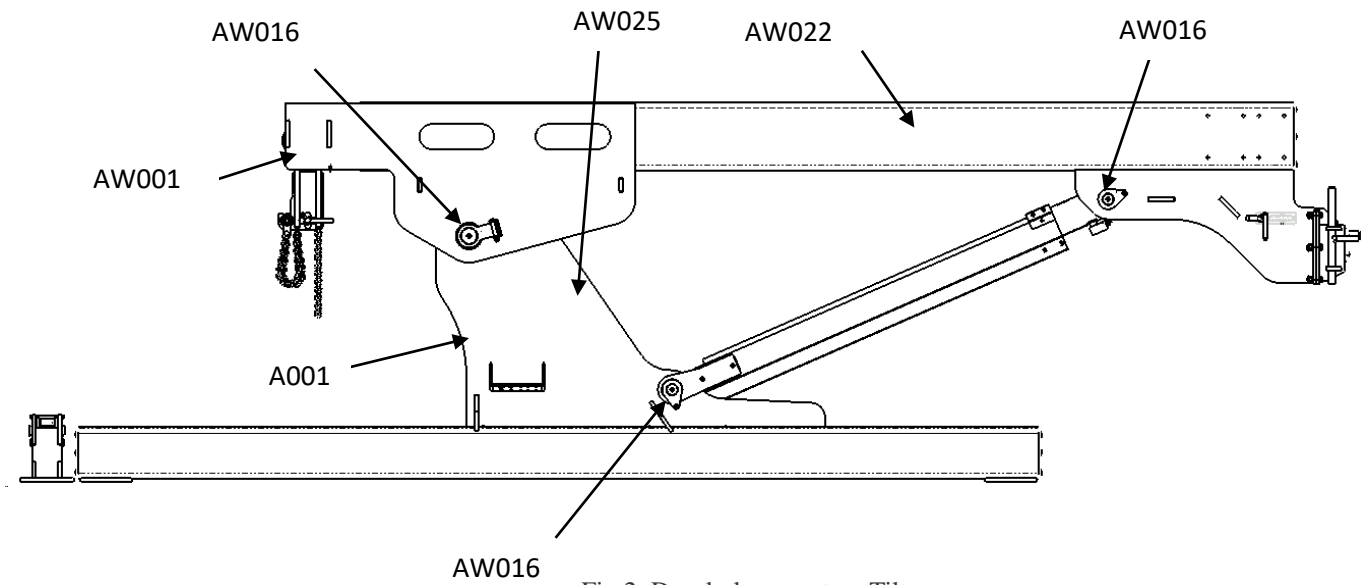


Fig 2: Decal placement on Tilter

GENERAL SAFETY PRECAUTIONS



WARNING

Before operating the TILTER, read the entire manual and observe all safety instructions in the Safety section of this manual and read and understand the Operation and Maintenance sections. If you are unfamiliar with any operation or maintenance procedure, seek instruction from an authorised person.



WARNING

Wear close-fitting clothing and safety equipment appropriate to the job. Loose, flopping clothing can get caught in machinery and cause injury. Wrist watches, rings and other accessories can also be dangerous. Safety equipment should be worn at all times when viewing, operating, or maintaining the Tilter to prevent injury. Safety equipment includes eye protection, hard hat, steel toe shoes, gloves, hearing protection, etc.



These safety stickers can be obtained from your A-WARD dealer.

The part numbers are shown below. The full sticker is included with the Tilter (AW031).

Individual stickers can be obtained if desired.

<i>Part Number</i>	<i>Description</i>
AW031	Full safety sticker (all included as one sticker)
AW008	Glove protection must be worn
AW009	Visitors must report to site office
AW010	High visibility clothing must be worn
AW011	Approved safety shoe/boots must be worn
AW012	Safety helmet must be worn
AW013	Ear protection must be worn
AW014	Eye protection must be worn



WARNING

Take care around all moving parts. Keep clear of all potential pinch points, including the power pack and electrical connections.



DANGER

Never operate the equipment while under the influence of alcohol or other drugs. Doing so may cause serious injury or death.

BE PREPARED BEFORE STARTING

GETTING STARTED SAFELY

Adequate external lighting is required for operation at night or during reduced visibility periods.

Before operating, walk completely around the machine to be sure there are no workmen next to, under or on it. Warn nearby members of the work crew that you are starting up. In any work area, people constitute a serious safety hazard.



KNOW YOUR EQUIPMENT

READ THE MANUAL provided with the base machine and the loading machine (material handler)

Learn their operating and maintenance characteristics, capabilities and limitations. Know what operating clearances your loading machine requires.

Learn the location and function of ALL controls. Ensure proper operation of all controls before commencing work. If any malfunctions are found, shut the machine down and report the malfunction for repair.

Check all container connection points and lift cylinders are not damaged prior to commencing work.

Be familiar with the safety devices on the machine and learn to recognise them, including indicators, warning devices and caution instructions. They will alert you to conditions that may make it hazardous to continue operating.

Learn and know the correct method to fit and remove containers from the unit.

Know the CLEARANCES in the work area. A little time spent checking side and overhead clearances, including power lines, can save a lot of trouble later.

Safety Devices and Protective Clothing

Safety Devices / Protective Clothing

- Siren and warning lights
- Shields and guards
- Proper decals
- Proper visual or audible warning devices
- Hydraulic safety locks
- Barricades
- Falling Objects Protective Structures (FOPS) fitted to loader
- Signs and other markings
- Hard hat
- Safety shoes
- Ear protectors
- Reflective clothing
- Safety goggles
- Heavy gloves

KNOW YOUR SAFETY PROGRAMME



WARNING

Learn the traffic rules at the work site.

Know the hand signals used on the job and who is responsible for signalling. Take signals from only **ONE** person.



CAUTION

Know the employer's safety rules for your job.

Consult your foreman for specific instructions and safety equipment required. Know and recognise the many safety and warning devices which tell you what hazards to expect.

BE ON ALERT FOR YOUR FELLOW OPERATORS AND BYSTANDERS. OPERATORS ARE NO MATCH FOR HEAVY EQUIPMENT.

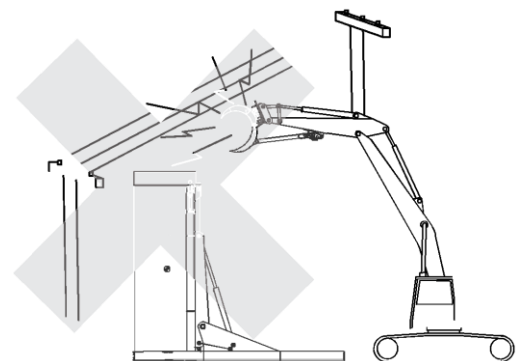
Always be alert for by-standers in or near the operating area. Warn them and don't start until they are out of danger, especially before moving the Tilter frame, loading the container, or manoeuvring the loading device, or truck into position.

Check the location of cables (both overhead and underground), gas lines, and water mains.

Make sure the work site footing has sufficient strength to firmly support the machine.

Position the powerpack a safe distance from the Tilter unit.

Inspect the entire Tilter carefully, especially the safety locks, each day before starting.



Check the location of cables overhead.

TILTER SAFE WORKING PRACTICES



CAUTION

DO NOT operate a poorly maintained or damaged Container Tilter



WARNING

If the Tilter does not function properly, shut down the powerpack and refer to the troubleshooting procedures. If in doubt, contact the nearest A-WARD Attachments dealer.



WARNING

Hydraulic oil becomes hot during operation. **DO NOT** let hot hydraulic oil get in contact with the skin as it could cause severe burns. Wear adequate protective clothing and safety equipment.



WARNING

Do not tamper with any hydraulic lines or components while they are pressurized. Escaping fluid under pressure can penetrate the skin, causing serious injury. Release pressure before unhooking hydraulic or the other lines.



If ANY fluid is injected into the skin or seek medical assistance immediately by a doctor familiar with this type of injury, or gangrene may result.

Take care with hydraulic hoses

Always lower the Tilter to horizontal before leaving the worksite each night. **DO NOT** rely on the pressure safety valves to hold the unit in position for a long period of time.

Hydraulic cylinders are fitted with pressure failure lock valves (counter balance valves). If the pressure fails, these valves will lock the hydraulics in the exact position that the pressure failure occurred.

TILTER SAFE WORKING PRACTICES Continued



WARNING

Do not weld on any structural member unless prior authorisation is gained from A-WARD Ltd.

Any unauthorized welding or welding procedures will void the warranty and may cause structural failure or result in personal injury.

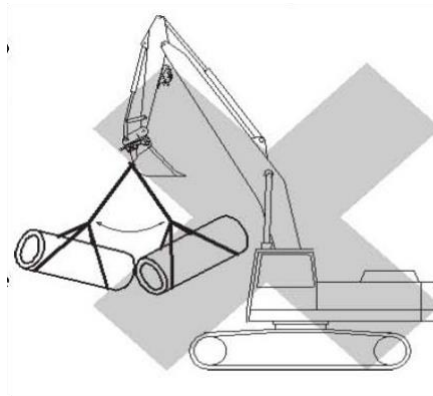


DANGER

Clear all persons and equipment from area of operation and machine movement.

When viewing the operation of the Tilter, maintain a safe distance of at least 30 feet (10 metres). Personnel within this perimeter must be inside a cab with adequate guarding or behind a protective structure or barrier which would prevent danger from flying or falling objects.

Maintain safe operating distance between any material suspended and held by an attachment and cab of the machine.



Do not carry suspended material too close to cab.



WARNING

Keep a watchful eye on exposed parts such as cylinder rods, hoses, etc. so as to not damage them when working in confined spaces



WARNING

All loading operations must cease and the working area should be checked before any adjustments are made to the Tilter.

Under no circumstances should any modifications be made to A-WARD equipment without factory authorization. This equipment was designed to do a specific job and alterations to it could result in injury to the operator or damage to the machine and void the warranty.

Noise and vibration reduction

The Tilter, when operating has a maximum sound pressure level of less than 80dB(A). Most of the noise and vibration originates from the powerpack motor and pump. The noise level can be minimised by ensuring that all powerpack panels are closed and locked while operating.

Noise and vibration originating from the Tilter can be minimised by ensuring that all pins and joints have been lubricated in accordance with the instructions in the maintenance section of this manual.

SAFETY WITH LOADER OPERATIONS



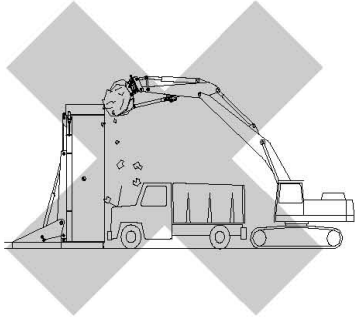
Never operate any equipment without the original manufacturer's safety guards in place.

Ensure that all safety devices are on the machine and ensure that they are working properly.



Do not use an excavator to attempt to pack down material into the Tilter.

This is an unsafe way of handling material and could result in structural damages to the Tilter.



Do not load tilter over cab of vehicle



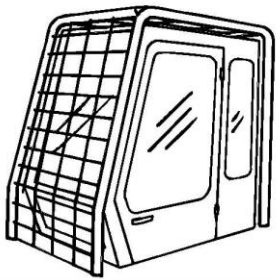
Do not load material into the Tilter over the operator's cab.

Operating over a cab result in having severe injury or death from falling debris.



Never move a load, process, or cut material above personnel, over machines, or cabs.

In addition to standard cab safety guards, it is recommended that the cab be equipped with an approved Falling Object Protection Structure (FOPS) to protect against falling debris or when working in and around excavation holes. The FOPS must meet the requirements of the relevant National Health and Safety Authority standards. It is also recommended that a transparent shatter-resistant shield cover on the cab. Contact the original equipment manufacturer or dealer for more information on the availability of FOPS and proper cab protection for your loading machine or excavator.



Falling Object Protection Structure



Never suspend load in the air nor pass load over personnel, vehicles, or buildings. Suspending loads may slip and cause serious injury or death.



Maintain at least 15 feet (5 meters) between the loading attachment and any nearby power lines or serious injury could occur.

When leaving the loading machine for any reason, lower the excavator attachment to the ground.

BE SAFE WHEN YOU WORK

REMEMBER... It only takes one unsafe act to cause an accident. Use these safety rules, the operator's manual and follow your employer's instructions to develop safe working habits.

WARNING  **DANGER**

**Read rules and instructions
carefully for safe and proper
operation and maintenance of
your Container Tilter**

**A CAUTIOUS OPERATOR
USING COMMON SENSE IS THE
GREATEST SAFETY DEVICE**

WARNING  **DANGER**

Before commissioning your Container Tilter,
carefully read the safety instructions in this
manual for safe and proper operation and
maintenance

**A cautious operator using
common sense is the greatest
safety device**

Part III – COMMISSIONING OF THE TILTER

WARNING  **DANGER**

Before commissioning your Container Tilter, carefully read the safety instructions in this manual for safe and proper operation and maintenance

A cautious operator using common sense is the greatest safety device

TAKING DELIVERY OF THE TILTER

A forklift can be used to unload the Tilter from the delivery container.

- Please check all items for damage in transit and report immediately to your local A-WARD agent.
- Consult your local A-WARD agent for help with Tilter assembly.
- All new Tilter installations must be checked by an A-WARD Certified agent.

SETTING UP THE TILTER

An A-WARD Ltd sales representative will ensure the Container Tilter is commissioned correctly. This checklist will help you follow the commissioning process with the A-WARD representative.

<i>Commissioning Checklist</i>	
Remove from delivery container using forklift	
Check that all safety decals and serial number plates attached	
Check all manuals, service books, keys and fuse are included	
Check correct spanners are included	
All QRCs (quick release connectors) should be tagged (numbers or colour ties)	
Check guards and bolts in place and tightly secured	
Check container swinglocks (rear)	
Check container lock pins (front)	
Check all swinglock chains fitted and shackles tight	
Check rams fit the correct way for greasing	
Ram rod coating is intact, check for rust and remove	
Untie all cable ties used for transport from hydraulic hoses (not the identifying cable ties at the ends).	
Check hose wrap fitted	
Check all hose clamps fitted and bolted tight	
Fill oil (hydraulic & motor) using excavator engine and hydraulic oil	
Check all hose fittings (check for leaks) and tighten any leaking fittings	
Grease all pins, cylinder pivot and main pivot	
Test motor - start, stop, leaks, loose items	
Full stroke test all rams	

PART III – INSTALLATION AND ASSEMBLY OF THE ECOLOADER

In order to install your equipment there are some simple checks YOU need to do to ensure a smooth installation.

Use this checklist as a guide while preparing your site.

Make sure that your site meets all of the requirements detailed in these instructions.

General Requirements (pre delivery)

- A-Ward recommend that the customer consult with their own/local civil engineering consultants to design the concrete pad required to suit our loadings as indicated on the drawing (see fig.9). Many factors need to be considered, such as soil/ground condition, sub-base & sub-grade requirements, reinforcing steels and concrete strength requirement, curing procedure etc. In general, concrete strength should be no less than 4000psi (30MPa) min.
- The installation site is confirmed and complies with the required footprint
- The installation site is in compliance with all relevant local Health and Safety regulations
- The installation site is level and has space for trucks to manoeuvre in & out
- Sufficient space around the site is available for all equipment.
- The specified 3 phase electrical supply and power outlets are available where applicable.

General Requirements (installation)

- The principle operator & engineer will be available during the installation
- Tools will be available for the installation
- Equipment handling machinery will be available
- Container truck & trailer will be available
- A Container will be available

You will need basic hand tools including:

30mm RING & OPEN ENDED RING SPANNER
30mm SOCKET & RATCHET
15" ADJUSTABLE SPANNER
PINCHBAR / PRYBAR / PODGER BAR
LEVEL
15" SHIFTER WRENCH
MEASURING TAPE
CONCRETE DRILL c/w 20mm DRILL

You will need equipment handling machines, the preferred is:

1x 5 Ton FORK HOIST
2x LIFTING CHAINS OR STROPS (ideally use spreader bar if available)

The ECOLOADER will be delivered in a 40ft (12m) container.

Before removing the Tilter from the container, mark out the positions required for fixing the bases to the ground. See Fig.8 for details.

SETTING UP THE ECOLOADER

An A-WARD Ltd sales representative will ensure the Container Tilter is commissioned correctly. This checklist will help you follow the commissioning process with the A-WARD representative.

All fasteners required for installation are supplied with the Tilter.

Refer to Powerpack and Remote control manual during the Setting up procedure.



1. Use fork hoist to remove Tilter from container. (the base frame and top frame are already assembled together).
2. Mark out area where Tilter is to be mounted in accordance with footprint shown in Fig.3.
3. Move Tilter frame to its final position.

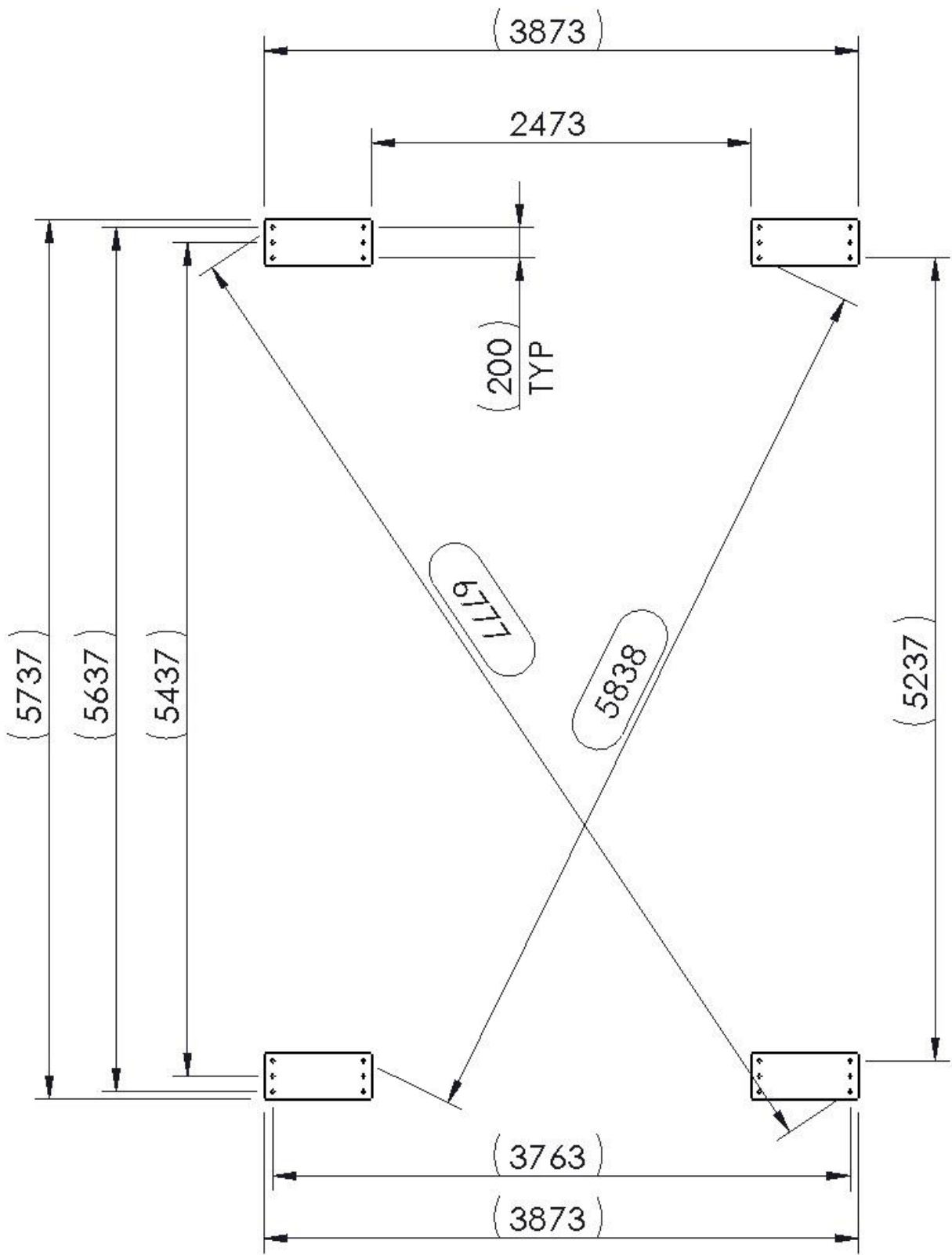
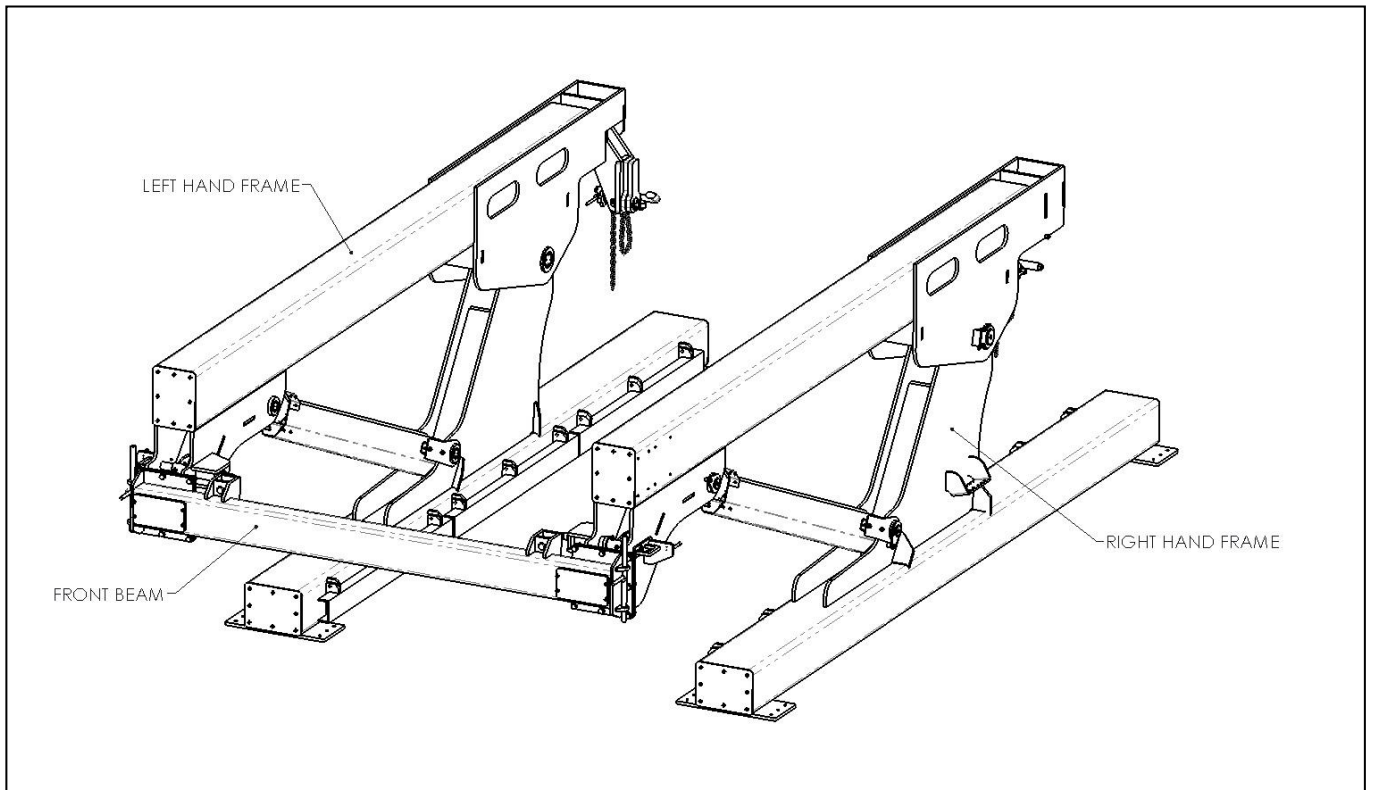


Fig.3 Tilter footprint



4. Place left and right hand frames in positions marked out previously in step 2.
5. Assemble the front beam assembly to the side frames using the fasteners supplied.
6. Re-check the dimensions of the tilter frame are in accordance with Fig.2
7. Adjust frame if required until dimensions are correct.
8. Install M20 anchors and tighten to 180Nm.



Fig.4: Colour coded hydraulic hoses

Check the hydraulic feed hoses regularly for wear and tear (see the maintenance section in this manual)

9. Connect all hydraulic hoses in the umbilical (hose bundle attached to Tilter) to the Powerpack. all connectors are colour coded.
10. Following the instructions in the powerpack manual, fill oil (hydraulic and motor).
11. Check all hose fittings, check for leaks and tighten any loose fittings.
12. Grease all pins, cylinder pivot and main pivot pins.
13. Turn the power pack on by turning the power switch to the "ON" position.
14. Turn the switch on the powerpack to 'Manual'. All control functions will now be controlled switches on the powerpack control panel.
15. Press the Main Motor START button.
16. Powerpack motor should start.
17. With a container in the Tilter, extend and retract all hydraulic cylinders.
18. Check hoses and connections for leaks.
19. The machine is now ready for operation.

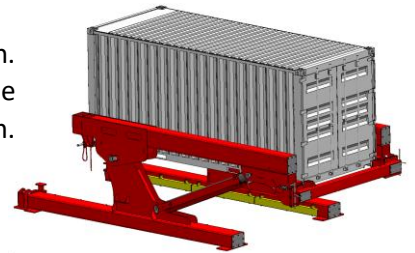
INITIAL OPERATIONS OF THE TILTER



WARNING

The machine is exceedingly powerful. Do not operate carelessly; there is potential for personal injury and equipment damage. be concerned about safety when preparing to operate the new machine.

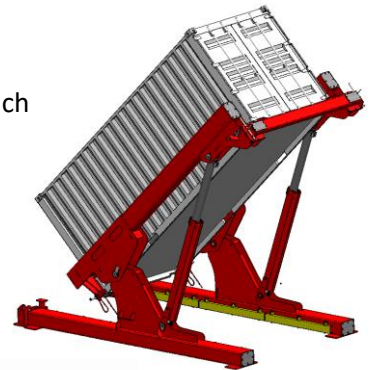
Ensure safe operation by inspecting the machine as stated in the Safety section. This inspection amounts to a common-sense visual check of the machine at the beginning of every operation. Follow a preventative maintenance program. Such a procedure will reduce the possibility of costly downtime.



Read the Safety section of this manual and understand it.

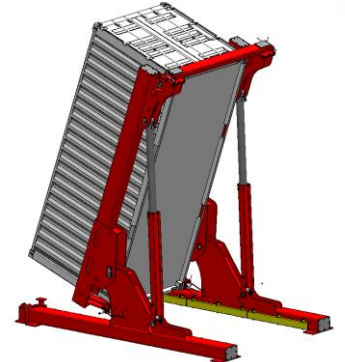
Before starting the first job with a new machine, it is suggested that the operator finds a good open spot on firm, level ground that's free of obstructions such as trees, buildings, and other equipment. The area must also be free of people.

Move the loading machine and the tilter to this area and spend some time just getting to know the operating feel of the machine and the Tilter. Load and unload empty containers on and off the trailer to practice with the controls. This "get acquainted time" will allow the operator to become familiar with the control levers before beginning work.



Refer to the Operations section of this manual regarding the procedure for loading and unloading containers or ask your A-WARD Attachments sales representative for a copy of the sales video.

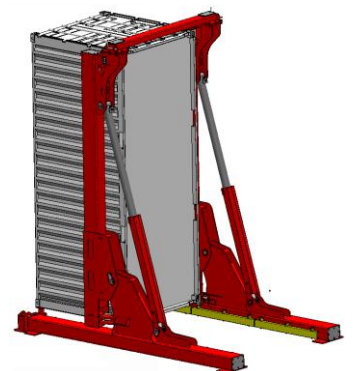
When starting any motion of the machine, move the control slightly from neutral until it starts to move, then smoothly move the control to increase motion to the desired speed. When stopping, move the control smoothly to decrease the speed gradually. Release all controls to completely stop any movement.



DANGER

The excavator loading attachment fixing pins must be held securely.

Maintenance is essential since fatigue, wear and damage may cause the attachments to disconnect from the Quick Hitch, causing serious injury or death.



PART IV - OPERATIONS



The tilter must be operated by trained personnel who have read and understood the instructions in this manual. There are daily checks that should be completed before work is started. Attention to these daily routines and careful operation according to the instructions in this manual, will ensure your tilter gives superior performance for many years.



AW004

DAILY START-UP CHECKS

Before starting, complete your daily inspections, safety and service checks.

- Grease all the pivot points
- Check motor engine oil levels (refer to Powerpack manual)
- Check hydraulic tank oil level on the oil level gauge.
- Check fuel tank level (petrol or diesel)

For motor operation refer to Powerpack Manual. If in doubt, contact your nearest A-WARD dealer.



Fig. 5: Powerpack
(powerpack model may vary)

Do a safety walk around the Container Tilter, check for any oil leaks, weld cracks or steel damage. If there is any damage or if you see any oil leaks, do not operate the Container Tilter and contact your A-WARD service agent before use.

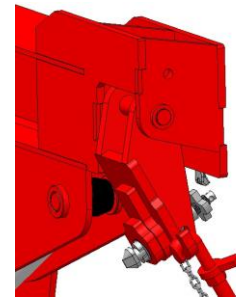
Refer to Appendix: Powerpack manual.

The tilt functions of the tilter are controlled from the powerpack.

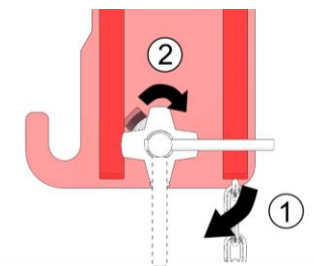
1. Ensure the truck and container trailer are lined up correctly to reverse straight into the Tilter unit.
2. Ensure front and rear container locks are fully retracted.
3. Instruct trailer driver to reverse the trailer into the Tilter carefully.
4. When the trailer gets close to the front locks, instruct the driver to stop.
5. On powerpack, adjust the tilt angle of the tilter to align the front fixed pins with the container casting holes.
6. Once aligned, instruct the driver to reverse gently onto the pins.
7. Unlatch the front side lock pin. Rotate the pin and push the pin inward fully. Once fully extended, rotate the pin and secure using the latch bolt.
8. Repeat step 7 on other side of Tilter unit.
9. Tilt the rear section of the upper frame up or down until the rear swing lock pins are aligned with the container lifting holes.
10. Engage swing lock, check mating surface sits flush with container casting. Use "TILT UP" and "TILT DOWN" buttons (2, 3) to align swing lock mating surfaces if not aligned.
11. Rotate twistlock 90° and secure screw.
12. Insert J hook as shown, secure sleeve to swing lock using spanner provided.
13. Repeat steps 10 to 12 on other side of tilter.
14. The container is now securely locked to the tilter.
15. Instruct the trailer driver to carefully drive forward out of the tilter.
16. Deploy the container rests at the rear of the tilter.



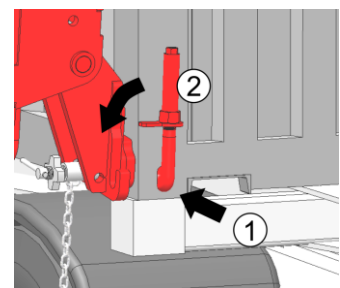
front lock pin fully locked



Rear lock fully retracted



To engage twistlock, turn twistlock so handle is vertical, then tighten screw.



Insert J-hook as shown, then tighten sleeve with spanner



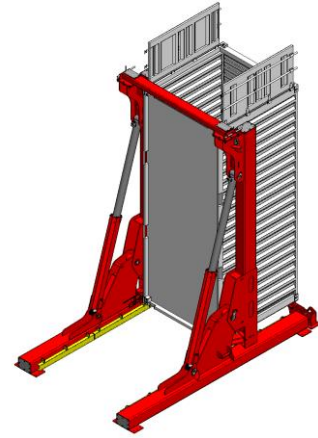
Container rest deployed



WARNING

Keep away from the Container Tilter while loading, tilting up or down and closing Doors

17. Unlatch container door.
18. Ensure no personnel are within 10m of the tilter.
19. Open the right container door first followed by the left door.
Lock container doors in place using manual door lock pin.
20. Tilt the tilter up to approx. 45 degrees.
21. Load approx. 25% of the product into the container (this is done to protect the rear wall of the container from excessive loading).
22. Tilt the tilter to 90 degrees and continue loading until desired weight is achieved.

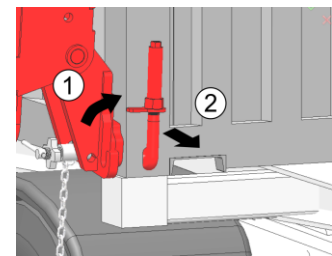


23. Once fully loaded, tilt the tilter down to horizontal.
24. Manually lock the container doors.
25. Raise container rests so that they are out of the way of the trailer.
26. Instruct the trailer driver to reverse the trailer into the tilter until the trailer twistlocks align with the container corner castings.

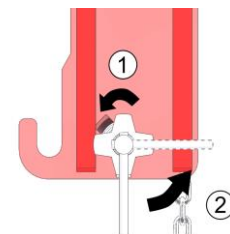


Container rests raised

27. Whilst tilter is horizontal, Unlatch the front side lock pin and rotate it. Pull out the pin fully.
28. Repeat step 27 on other side of tilter.
29. Lower the rear end of the container by tilting the frame down and align the container locking holes with the matching trailer twistlocks.
30. Tilt container down until the trailer has taken the weight of the rear end of the container.
31. Release sleeve on J-hook with spanner, then remove J hook on left hand side as shown.
32. Release twistlock on swing arm as shown. Retract swing arm.
33. Repeat steps 31 & 32 on other side of Tilter unit.



Removing J hook



To release twistlock, back off screw, then turn handle to horizontal

34. At the front of the tilter, lower the container down onto the twistlocks on the trailer by tilting the rear end of the tilter upward. Tilt until the trailer has taken the weight of the front end of the container.

35. Instruct driver to carefully drive forward out of tilter.

36. Lock twistlocks on trailer.

STORAGE OF THE TILTER

Lower the tilt frame down fully to protect the hydraulic cylinder from weather. The front (pull) ram should be fully retracted, and the rear (push) ram should be fully extended.

Grease the cylinder, frame pivot and any moving parts. If the unit is being put in storage, also apply a light coating of oil to the cylinder's exposed bar to prevent rust forming.

Apply a light coating of oil to all exposed and unpainted surfaces of the Container Tilter.

PART V - MAINTENANCE

- Inspect the Container Tilter and the loading equipment DAILY.
- Inspect and lubricate the Container Tilter daily.
- Tighten any loose bolts or fittings.

MAINTENANCE SAFETY PROCEDURES

If at any time, the Tilter fails to operate correctly or a potential problem is noticed, stop the Tilter immediately and report the problem.

Before attempting any maintenance procedure, read the entire manual carefully. If any question arises regarding a safety or maintenance procedure, contact your A-WARD dealer. For the nearest A-WARD dealer, see the reference information at the front of this manual.



CAUTION

DO NOT operate a poorly maintained or damaged machine or major structural damage could result.

If it is necessary to work on the unit, always lower the tilt frame to the ground and shut off pump motor before starting checks.



WARNING

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load.

Securely support the frame before working on the hydraulics.

Do not rely on hydraulic cylinder to hold the Tilter frame in the air whilst performing maintenance. When motor is stopped, and controls are moved or hydraulic pressure is removed in any way, the tilt frame will lock in place.

Always support the frame during hydraulics maintenance.



CAUTION

DO NOT attempt to alter or change the mechanical operation of the Container Tilter during the warranty period without first consulting A-WARD.

Note: This could invalidate the manufacturer's warranty.

GENERAL RULES FOR MAINTENANCE

Read the maintenance procedures in this manual. Be sure all maintenance personnel read and understand all maintenance procedures.

Use factory approved parts

- Use of parts that are not factory approved may cause damage or unnecessary downtime and may void the manufacturer's warranty.

Lubricate daily

- Follow the lubrications schedule outlined in this manual
- Use the included Inspection Checklist to make sure all maintenance is completed.

Warm up the pump in cold weather

- In extremely cold temperatures run the pump motor for several minutes before tilting commences. This allows the motor and pump oils to warm up and makes the machinery less susceptible to damage.

Do not weld onto the Tilter's structure

- Do not weld on to the Tilter's structure without first consulting your A-WARD dealer.

Do not exceed bolt torque specifications

- Refer to the Dry Bolt Torque Chart.

Hydraulic hoses

- Do not disconnect any hydraulic hoses or fittings without first relieving pump hydraulic pressure by activating the levers with motor off
- Do not let hot hydraulic fluid get in contact with the skin as it could cause severe burns



WARNING

Inferior parts can fail and cause equipment damage or personal injury

- Do not use substitute parts unless you know that they are the same as original factory parts in all characteristics.

Always check with your A-WARD Sales Representative before using substitute parts

- Refer to the Parts Catalogue provided with your Container Tilter for genuine A-WARD replacement part numbers.

Be sure to reference the attachment model and serial number when ordering.

Do not hesitate to call your authorized A-WARD dealer if any problem occurs that is not outlined in this manual.

PERIODIC SERVICE SCHEDULE

Service the TILTER at specified intervals. Inspect, lubricate, make service checks and adjustments according to the 'Daily Inspection Checklist' included in this manual.

A program of regular service should be established, using the 'Material Handler's Machine Hour Meter' to determine when the Container Tilter should be serviced. Use the intervals on the service schedule when operating in normal conditions. Service the Container Tilter at shorter intervals when operating in extreme environments or abrasive conditions (snow, dust or extreme heat).

Use the correct lubricants and bolt torques. Refer to the Lubrication Instructions and Dry Bolt Torque Chart in this manual when performing maintenance.

RECOMMENDED HYDRAULIC OIL FILTER CHANGES

The hydraulic oil should be changed according to the following schedule:

First hydraulic oil filter change after the first 50 Material Handling Machine Hours
Second hydraulic oil filter change after the next 500 Material Handling Machine Hours
Subsequent hydraulic oil filter changes every 5,000 Material Handling Machine Hours

Keep note of the machine hours. Include a note of the cumulative hours for the Tilter on the Daily Inspection Checklist.

Contact your A-WARD service centre for replacement parts.

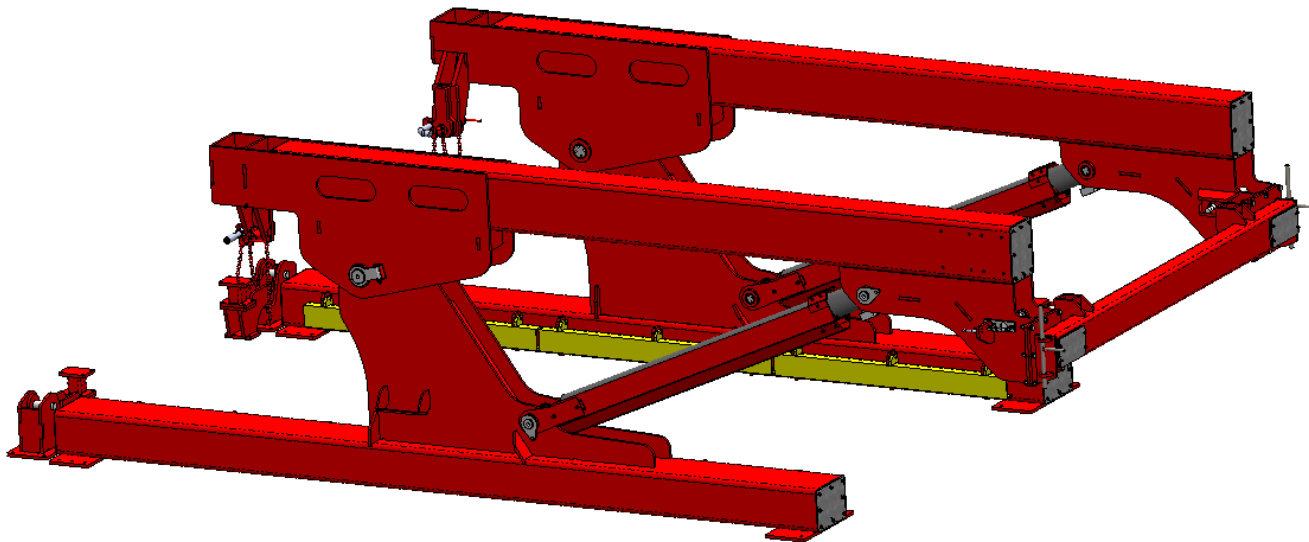


Fig 6: ECOLOADER

DAILY SERVICE REQUIREMENTS

The table below gives the daily service requirements for the A-WARD Container Tilter.

<i>Item</i>	<i>Details</i>
Bolts	Check for looseness or damage
Re-torque if necessary	Refer to Bolt Torque tables in this manual. Bolts may be re-torqued once, then must be replaced
Connecting Pins and Pin Retaining Bolts	Inspect for looseness or damage or wear on cylinder connection pins on Tilter. Check container locking pins for damage or wear
Grease Fittings	Lubricate according to the instructions in this section. Replace broken fittings
Motor and Pump	Check the oil level in the hydraulic oil holding tank daily.
Hydraulic Fittings	Check all hydraulic hose connections for any leaks. Tighten or replace before operation
Container Locking Devices	Check all mechanical points holding the container. Check for wear and/or damage and replace

The daily inspection checklist on the following page is an important tool to ensure your Tilter is maintained properly. A daily inspection and service will ensure your Container Tilter will continue to work at peak performance for longer.

DAILY INSPECTION CHECKLIST

Model: _____ Powerpack Hour Meter: _____

Tilter Serial Number _____ Date: _____

1: Visually inspect the Tilter for any damage

- _____ Check for cracks or excessive wear to container locking system that may cause structural failure

2: Inspect the Motor and hydraulic pump

- _____ Check for any loose bolts or cracks on frame, locks and base.
- _____ Check hydraulic holding tank oil level.
- _____ Check hydraulic hoses for wear and/or chafing.
- _____ Check control levers return to the neutral position.

3: Inspect all bolts and cables (hydraulic, ram, mount)

- _____ Visually check all bolts for looseness or damage
- _____ Visually check that all tension cables are tight

4: Inspect pins and pin retaining hardware

- _____ (a) Cylinder pivot pins
- _____ (b) Door closer cylinder pins
- _____ (c) The main Tilter pivot pins
- _____ (d) Container rear safety locking screws
- _____ (e) Check front and rear locking bars (hockey sticks) for wear

**DO NOT operate the Tilter if there are any signs of excessive wear.
Contact your A-WARD service department for advice.**

5: Grease all points shown until excess appears

(Use premium grease number 2EP or equivalent)

- _____ Cylinder pivot pins
- _____ Door closer cylinder pins
- _____ The main Tilter pivot pins
- _____ Container rear safety locking screws

Inspected by: _____

DAILY INSPECTION POINTS

The diagram below refers to the daily inspection checklist included

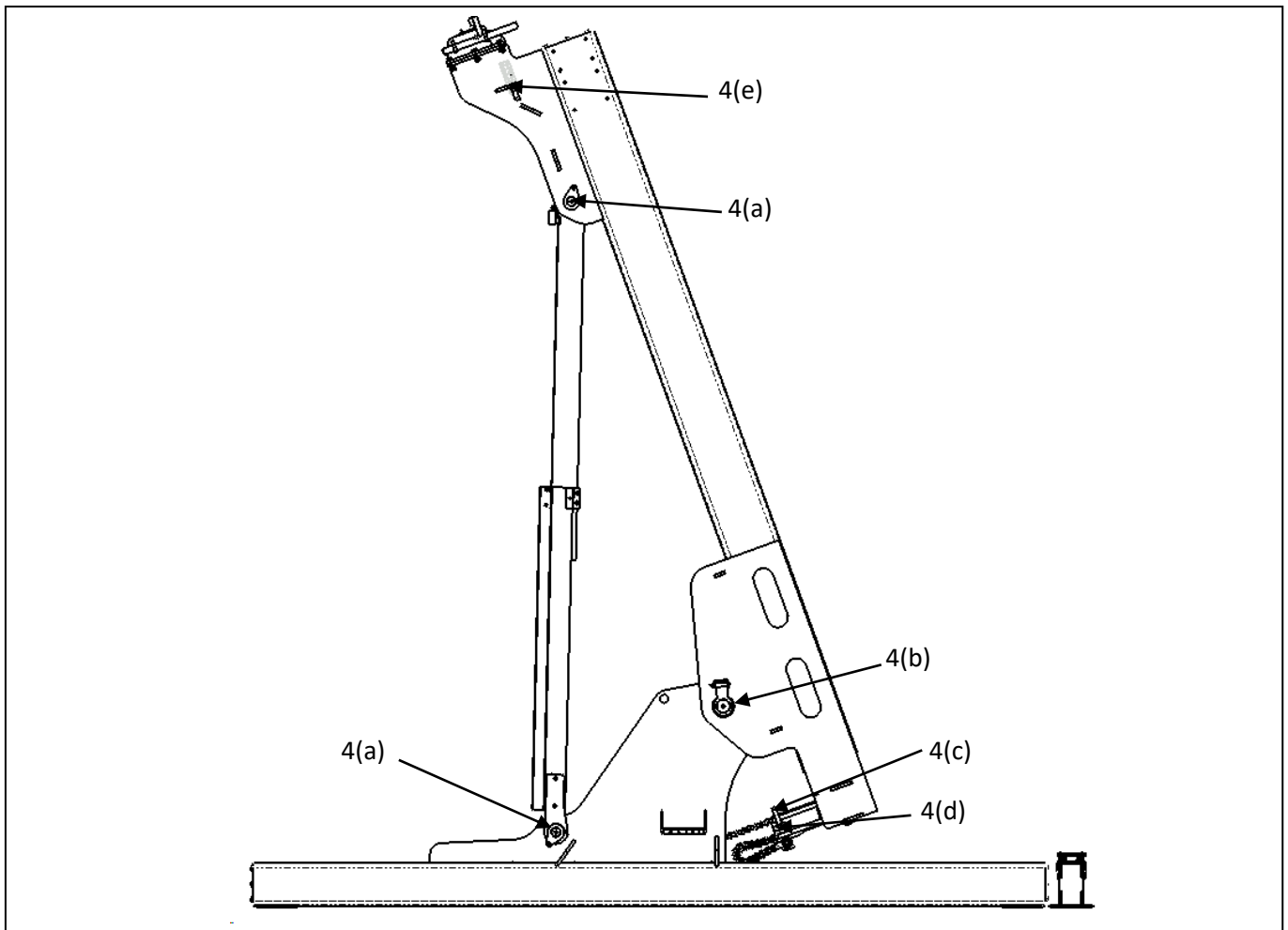


Fig 7: Daily inspection points

KEY POINTS:

- 4(a) Cylinder pivot pins
- 4(b) The main Tilter pivot pins
- 4(c) Container rear Twistlocks
- 4(d) Rear locking bars (J Hooks)
- 4(e) Front Side Locking Pins

LUBRICATION POINTS FOR THE TILTER

Grease all points every 40 hours of operation. Use Premium Graphite based Grease SC1 or equivalent.

Grease fitting locations are indicated on the illustrations and by grease decals on the Tilter.

Fill with grease until excess appears.

Item	Location on Tilter	Number of pumps
1	Cylinder pivot pins	4
2	The main Tilter pivot pins	2
3	Front Safety Locking Pins	2 (if needed)
4	Rear J Hooks	2
5	Rear Twistlocks	2

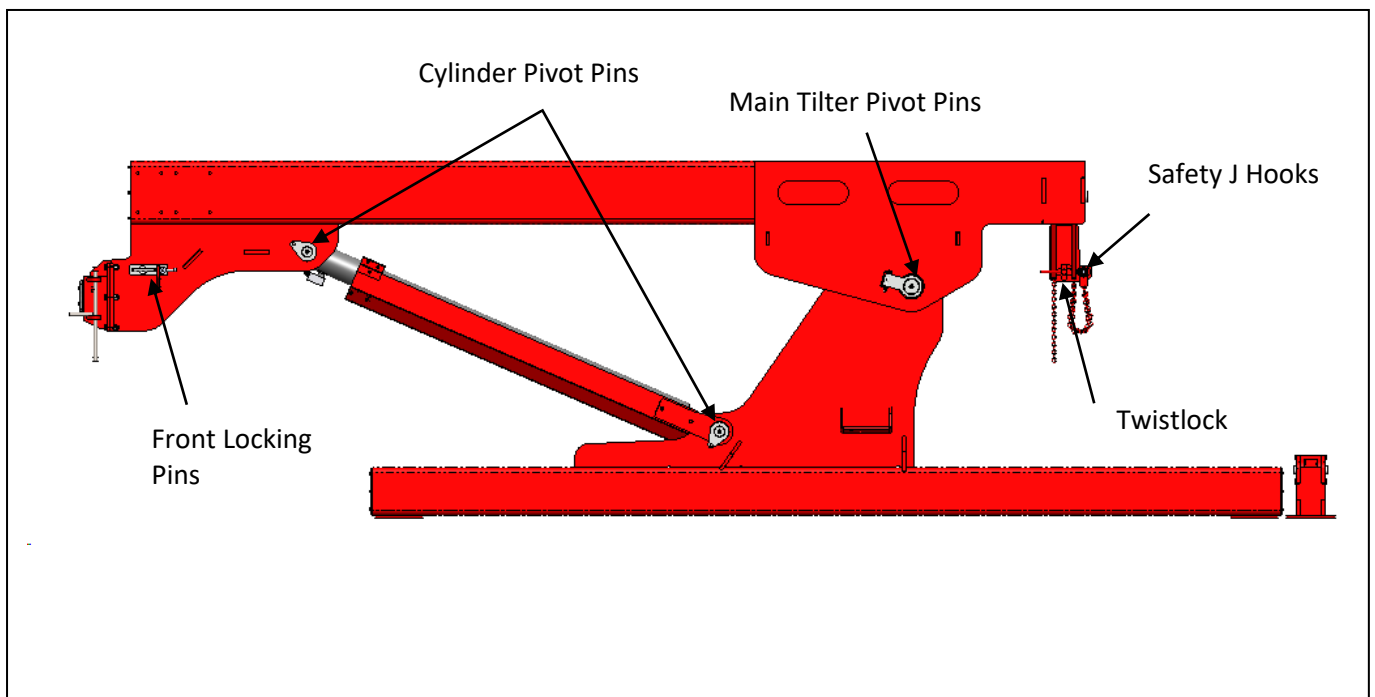


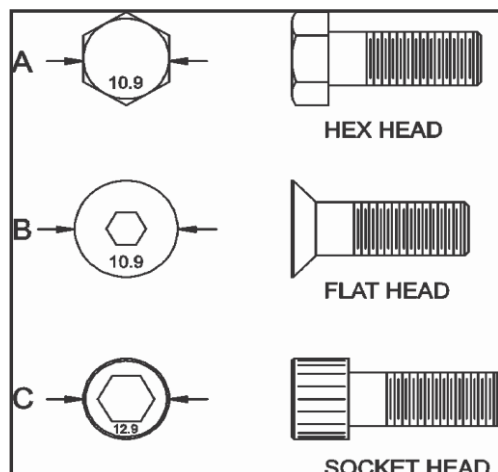
Fig 8: Lubrication points

GENERAL BOLT TORQUE GUIDELINES

The metric capscrew size guide is given in the table on the following page. Proper bolt installation is critical to ensure the safe and efficient operation of the Container Tilter. Carefully follow these steps for correct bolt installation.

1. Always replace bolts and nuts with the same size and class of fastener. Replacement fasteners can be ordered from A Ward Service to ensure the correct part is used.
2. Unless otherwise specified, use class 10.9 metric hex head capscrews, class 10.9 metric flat head capscrews, class 12.9 metric socket head capscrews.
3. Make sure bolts, nuts and bolt holes are free of dirt, oil, grease and other contaminants.
4. If necessary, use the Capscrew Size Guide on this page to determine the size of the bolt being installed.
5. Use the Dry Bolt Torque Chart on this page to find the proper torque. When possible, torque the nut rather than the bolt head.

BOLT TORQUE SEPCIFICATIONS



GENERAL BOLT TORQUE GUIDELINES Continued

METRIC CAPSCREW SIZE GUIDE			
<i>Capscrew Size SOCKET HEAD</i>	<i>HEX HEAD (A)</i>	<i>FLAT HEAD (B)</i>	<i>SOCKET HEAD (C)</i>
M10 x 1.50	0.63" (16mm)	0.79" (20mm)	0.63" (16mm)
M12 x 1.75	0.71" (18mm)	0.94" (24mm)	0.71" (18mm)
M14 x 2.00	0.83" (21mm)	1.06" (27mm)	0.83" (21mm)
M16 x 2.00	0.94" (24mm)	1.18" (30mm)	0.94" (24mm)
M20 x 2.50	1.18" (30mm)	1.42" (36mm)	1.18" (30mm)
M24 x 3.00	1.42" (36mm)	N/A	1.42" (36mm)
M30 x 3.50	1.81" (46mm)	N/A	1.77" (45mm)

METRIC CLASS 10.9		
Size	FT-Lbs	N-m
M10 x 1.5	53	72
M12 x 1.75	92	125
M14 x 2	146	198
M16 x 2	224	305
M20 x 2.5	435	590
M24 x 3	752	1020
M30 x 3.5	1511	2050

METRIC CLASS 12.9		
Size	FT-Lbs	N-m
M10 x 1.5	64	87
M12 x 1.75	110	150
M14 x 2	177	240
M16 x 2	269	365
M20 x 2.5	523	710
M24 x 3	899	1220
M30 x 3.5	1806	2450



WARNING

Always replace bolts and nuts with the same class of fastener. Inferior fasteners can fail and cause injury or death and damage to the equipment.

TRAINING SIGN-OFF CONFIRMATION

On signing this Training Sign-Off Confirmation form the operator confirms that this manual has been read and the operator has a good understanding of the safe operation and of the Container Tilter.

This form can be copied and used as a template for all operators of the Tilter Container Tilter.

I _____ have read and understood the Operations
(PRINT your name here) Manual for the Container Tilter.

Tilter serial number: _____ **Remote control serial number:** _____

Motor serial number: _____

Section	Page	✓
PART I - INTRODUCTION	6-11	
PART II – SAFETY SUMMARY	12-22	
PART III – COMMISSIONING THE TILTER	23-25	
PART IV - OPERATIONS	26-31	
PART V – MAINTENANCE	32-43	

Signed: _____

Reference Information

All requests for information, service or spare parts should include attachment model and serial number. For the nearest A-WARD dealer contact:

A-WARD Ltd
345 Church Street,
Penrose,
Auckland, New Zealand

Phone: (64-9) 622-3111
Fax: (64-9) 634-5128

Email: Ankit@a-ward.com

TROUBLESHOOTING GUIDE

The information below provides a guide to common issues that you may face with the Tilter. These issues are often resolved quite simply by following the suggested solution.

<i>PROBLEM</i>	<i>POINTS TO CHECK</i>	<i>SOLUTION</i>
Motor will not start	Check fuel Check oil Check air filter	Fill up fuel Fill up oil Clean and re-fit oil filter
Will not tilt up	Check weight Check oil pressure and hydraulic oil level Check valves on cylinders Check main control valve	Remove weight Fill up oil Consult agent Clean or replace cylinder valves Clean or replace main control valve
Trailer not central	Check tilter is level Check wheel guides	Reposition tilter on level ground Adjust guides
Remote control not working	Check fuse in box Check battery level Check remote is talking to receiver	Replace fuse Recharge/replace battery Replace remote control