

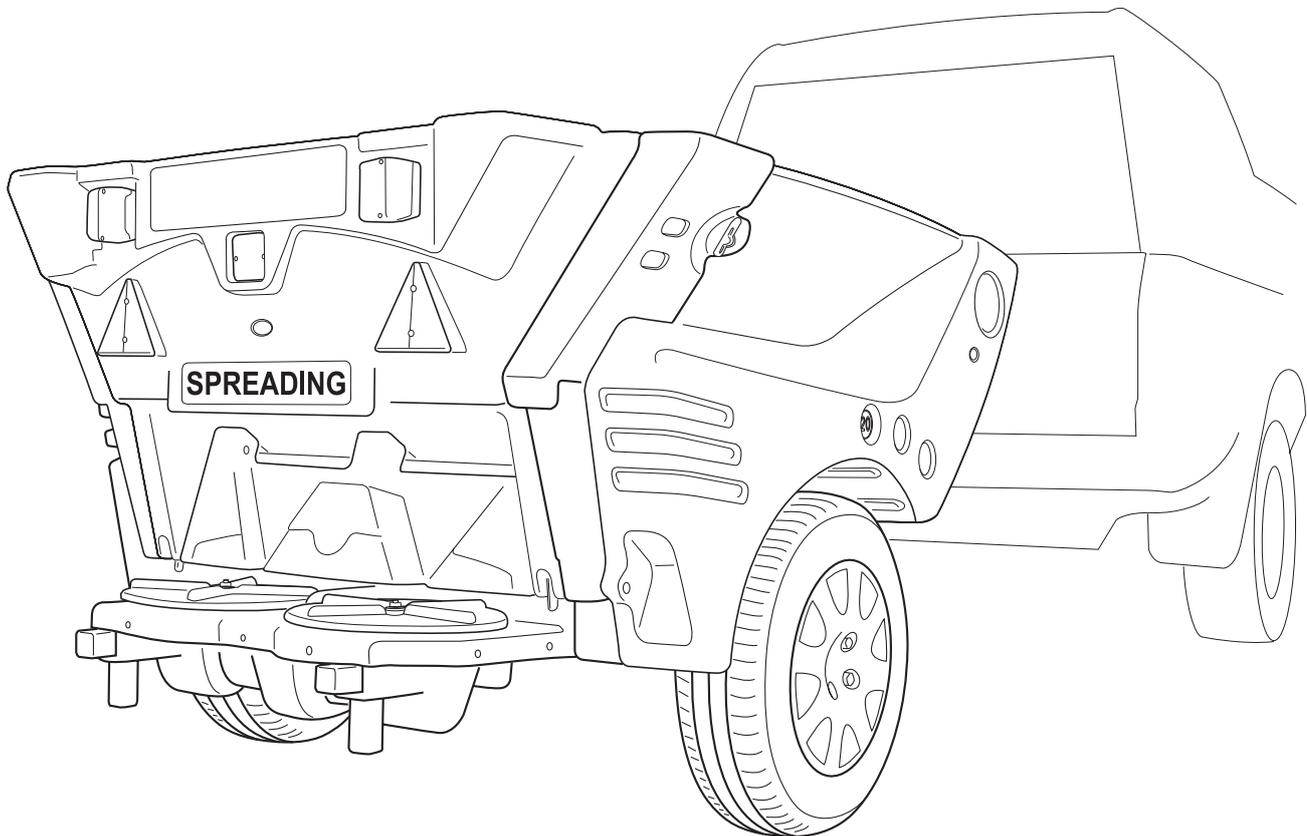


Operating & Maintenance Manual

TURBOCAST 1000™

Towable Grit/Salt Spreader

This manual must be read before operating the machine



Glasdon U.K. Limited
Preston New Road
BLACKPOOL
Lancashire
FY4 4UL
Tel: (01253) 600410
Fax: (01253) 792558
e-mail: sales@glasdon-uk.co.uk
web: www.glasdon.com

Operating & Maintenance Manual

Thank you for purchasing a Glasdon Turbocast 1000 Towable Grit/Salt Spreader. This manual contains important information for the operation and future care of your product.

CONTENTS	PAGE
SECTION 1 INTRODUCTION	
Important Information	3
General Description	4
Speed Restrictions	4
Towing: The Legal requirements	4
SECTION 2 BEFORE USE	
Attaching the Jockey Wheel	5
Attaching the 'A' frame	6
SECTION 3 OPERATING INSTRUCTIONS	
Summary of Maintenance	7
Loading & Maintenance Instruction Label	7
Before-Use Check List	8
Wheels and Tyres	8
Jockey Wheel	8
Lights	8
Providing Power to the Gritter (7 Pin Socket)	9
Filling and Spreading Adjustment	9-10
Spread Rate Settings	11
Drop Spread/Limited Spread	12
SECTION 4 MAINTENANCE	
Emptying the Hopper	13
Maintenance Access	14
Maintenance	15
Lubrication Points	15
Greasing the Drive Mechanism	16
Adjusting & Greasing Chain Tensioners	17
Wheel Replacement	17
SECTION 5 MECHANICS	
The Drive Mechanism	18
The Spreading Mechanism	18
The Drive Mechanism - How It Works	19
The Spreading Mechanism - How It Works	20
Spread Rate Adjustment Mechanism	21
SECTION 6 OPTIONAL EXTRAS	
Operator's Box & Auxiliary Socket	22
Flashing Amber Beacon	23
Filling Grille	23
Pin Hitch Extension Bar	23
Number Plate Holder	23
Fine Salt Grit Kit	24
SECTION 7 EXPLODED VIEWS	25-37
SECTION 8 COMPONENT LIST	38-39
SECTION 9 SPARES LIST & TROUBLESHOOTING	40

Should you require any further assistance please contact us on tel: 01253 600410, fax: 01253 792558 or email: sales@glasdon-uk.co.uk.

1 Introduction

IMPORTANT INFORMATION

ROUTINE MAINTENANCE

Routine cleaning and maintenance of the Turbocast 1000 Grit/Salt Spreader is essential to ensure its optimum performance and to prevent unnecessary damage.

Do NOT leave any grit/salt in the hopper, even when the Turbocast 1000 is covered or being stored indoors. Being hygroscopic, salt will absorb moisture and then set hard like 'concrete'.

Salt in solution with water is incredibly corrosive and will attack metalwork and seize bearings. It is therefore very important to empty the hopper after each use and closely follow the maintenance instructions contained in this manual.

ANNUAL SERVICING

An annual or end of season service is essential to ensure the optimum performance of the Turbocast 1000. We appreciate that some of our customers may not have a facility to undertake such work and we therefore offer an Annual Service Scheme for all existing and new customers across the UK. Please contact us by email on sales@glasdon-uk.co.uk or by telephone on 01253 600410 for more information.

GENERAL USAGE

The Turbocast 1000 is not designed for gritting public roads and highways.

TOWING SPEEDS

The maximum towing speeds (page 4) for the Turbocast 1000, when spreading and not spreading, must be strictly adhered to at all times.

LOADING OF GRIT/SALT

Care must be taken when loading the hopper (page 10). It is recommended that bagged or loose grit/salt is shovelled into the hopper. Drop loading must be avoided as this may cause serious damage to the hopper and spreading mechanism.

POTHOLES AND SPEED HUMPS

If the area being gritted has potholes or speed humps, caution must be exercised and driving speeds kept to a maximum of 5mph.

TOWING VEHICLE

A competent person must approve the suitability of the towing vehicle being used, which must take account of the recommended towing height (page 4) for the Turbocast 1000.

FINE GRIT

The Turbocast 1000 is designed to spread most types of grit/salt. However, if a Fine Salt Variant (FSV) is being used the optional Fine Salt Grit Kit (page 24) must be fitted.

1 Introduction

General Description

The Turbocast 1000 Towable Grit/Salt Spreader has a large capacity of 430 litres (500 kg) and can either broadcast or drop spread grit/salt. The rate of spread can be adjusted between 0 and 55g/m² at a constant speed of 15-20mph. A large variance in particle size and moisture will be tolerated because the spreader can spread white and brown rock salt either wet or dry. However, certain materials such as pure salt and kiln-dried sand are too fine to spread.

The Turbocast 1000 is supplied with either a ball hitch or a pin hitch as standard.

Ball Hitch Height 462mm

Pin Hitch Height 372mm, 642mm

Speed Restrictions

The tyres and machine have been designed to operate at between 10mph - 20mph.

NOTE: 1. Spread rates are calculated at 20mph (32kph) for optimum performance.

2. The maximum towing speed (including when not spreading) = 20mph (32kph).

Towing:

IMPORTANT

Turbocast 1000 is NOT suitable for use on the Public Highway

European Directive 2007/46/EC requires that O1 Special Purpose Trailers are type approved using one of the approval pathways available to vehicle manufacturers. Turbocast 1000 has not been type approved for use on the public highway.

The machine has however been designed to conform to the Road Vehicles (Construction and Use) Regulations 1986 relating to trailers and gritting trailers. As the machine is to be towed by a vehicle there are some regulations that the machine must conform to by law. The maximum towing speed for the machine is 20mph and all spread rates have been calculated at this speed.

In the case of light trailers, weighing less than 3500kg maximum laden weight, there is no specified relationship in UK law between the weight of the towing vehicle and the weight of the trailer. The machine incorporates lights which conform to the Road Vehicles Lighting Regulations 1989 as amended.

M1 Category Vehicles

For M1 category vehicles (i.e. motor vehicles used for the carriage of passengers and comprising not more than eight seats in addition to the driver's seat) the maximum permissible trailer weight is quoted by the vehicle manufacturer. Alternatively, the vehicle manufacturer may provide a maximum gross train weight (train weight = the laden weight of the trailer plus the laden weight of the towing vehicle). If this is exceeded it is possible that the Courts or Insurance Companies may take the view that it constitutes a danger.

Light Goods Vehicles

The maximum laden weight of a trailer that may be towed by a light goods vehicle depends on both the stated gross train weight of the towing vehicle and the vehicle manufacturer's recommended maximum permissible trailer weight. Neither the maximum permissible trailer weight or the maximum gross train weight (i.e. the laden weight of the trailer plus the laden weight of the towing vehicle) should be exceeded. It is possible that the stated gross train weight is less than the sum of the stated maximum permissible laden weight of the towing vehicle and the stated maximum permissible laden trailer weight. In this case the towing vehicle and the trailer must be loaded so that each does not exceed this case the towing vehicle and the trailer must be loaded so that each does not exceed its individual maximum limit and the sum of both does not exceed the maximum gross train weight.

Breakaway or Safety Cable

As there are no service brakes a safety cable has been fitted, so that in the unlikely event of an accidental de-coupling the tow bar is restrained from hitting the floor.

2 Before Use

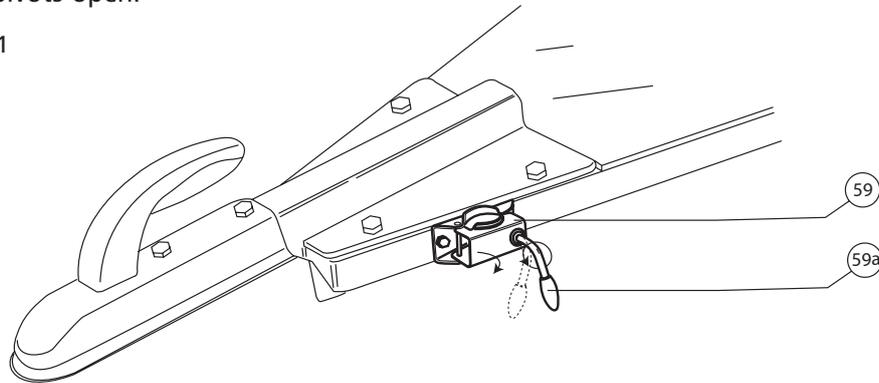
Attaching the Jockey Wheel

It is advised that 2 persons lift the 'A' frame out of the hopper.

For ease of transportation the jockey wheel is delivered unattached to the 'A' frame. It is recommended that the jockey wheel is fastened to the frame before the 'A' frame is attached to the spreader.

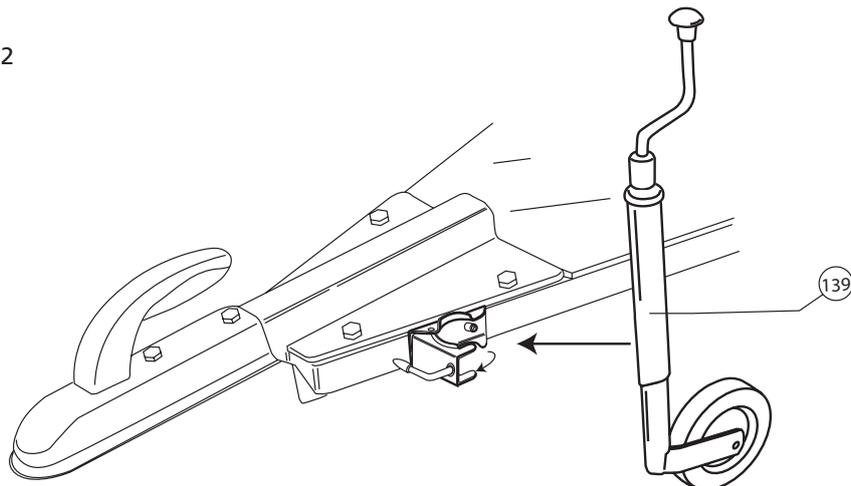
1. Firstly, fully unscrew the lever arm (59a) on the jockey wheel clamp (59) anti-clockwise until the bracket pivots open.

Fig. 1



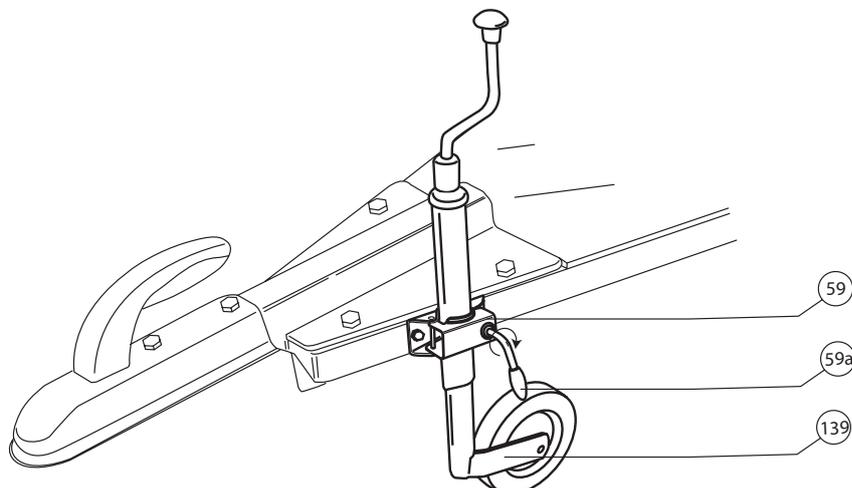
2. Once open, position the main shaft of the jockey wheel (139) into the bracket (59) and close the bracket.

Fig. 2



3. Locate the lever arm (59a) back into the thread inside the bracket and turn it clockwise to tighten and secure the jockey wheel (139) to the 'A' frame.

Fig. 3

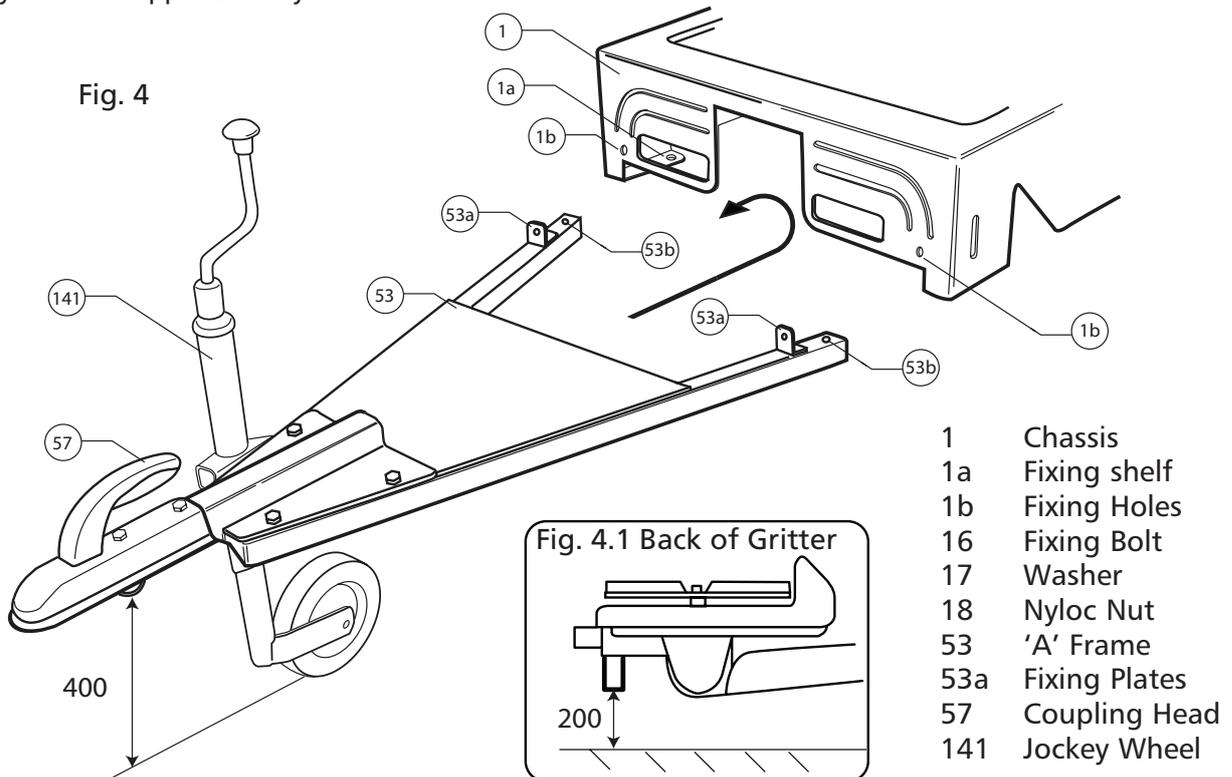


2 Before Use

Attaching the 'A' Frame

To increase the life of both the 'A' frame and chassis they have been subjected to a highly protective Galvanizing process. Sometimes this process will not guarantee a flawless finish, but surface imperfections such as lumps and runs should be of no concern because they do not affect the quality of the product.

For ease of transportation the 'A' frame is delivered unattached to the spreader - this must be fastened to the chassis before the machine is operational. Firstly, stabilise the spreader by placing a block of approximately 200mm high underneath the jack point (Fig 4.1). Next, adjust the drop length of the jockey wheel to approximately 400mm.



Two persons are required to complete the assembly.

1. Position the 'A' frame (53) by first sliding it underneath the chassis, then up and back on itself to a resting position on the fixing shelf (1a) as shown in Fig. 5.
2. Align fixing holes as shown.
3. Insert bolt (16) through the holes in the 'A' frame and through the fixing shelf (1a) assemble washer (17) and nyloc nut (18) and tighten using a 19mm socket.
4. Insert bolt (16) through the front face of the chassis and through the fixing plate (53a). Again, assemble washer (17) and nyloc nut (18) and tighten with a 19mm socket.

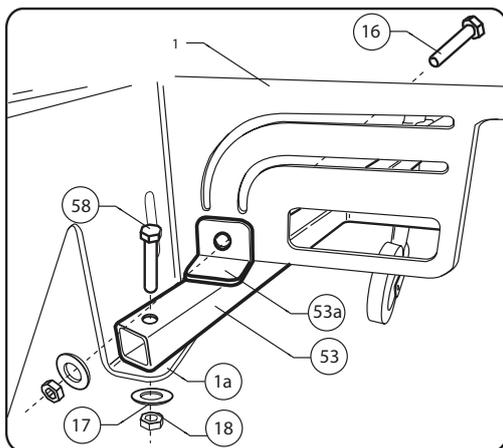


Fig. 5

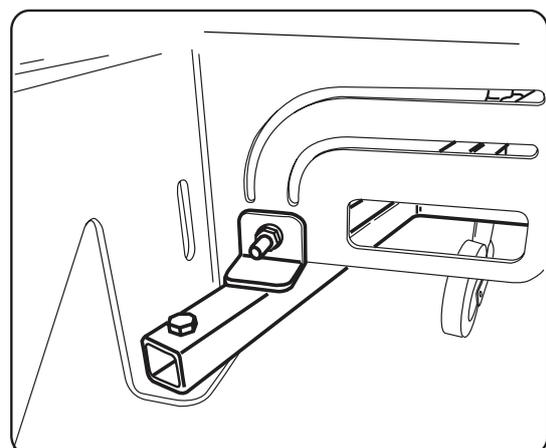


Fig. 6

3 Operating Instructions

Summary of Maintenance

After Each Use

1. Empty the hopper.
2. Open the funnel moulding.
3. Remove residual material from the hopper, funnel and spinner plates by brushing or washing.
4. Check the spinner plate fixings and tighten if needed.
(Refer to page 13-17 for full cleaning & maintenance instructions).

End of Season

1. Check all of the above.
2. Check all fixings and tighten if necessary (especially Item 121)
3. Pivot the hopper and grease all points.
4. Lubricate the jockey wheel with 'WD40' or similar.
5. Treat any exposed metal work with a suitable paint such as 'Hammerite'.
6. Store the machine under cover.
(Refer to page 13-17 for full cleaning & maintenance instructions).

Pre-Season

1. Check all of the above.
2. Check the tail lights, tyre pressure and wheelnut torque.

Loading & Maintenance Instruction Label

Positioned on the Turbocast 1000 spreader above the Settings lever.

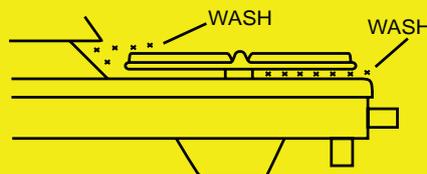
LOADING

- Ensure the gritting machine is securely hitched to vehicle.
- Ensure spread adjustment is set to 'off'.
- Gradually work the lever towards optimal setting from the 'off' position. Spread adjustment settings cannot be returned to 'min' or 'off' when fully loaded.
- Maximum load 500kg - dry (20 bags)
- wet (16 bags)

No shock loading!
(Load gradually)

CLEANING

- Grit salt sets hard like concrete when left. After use, empty hopper and wash all traces of grit salt from working parts, paying special attention to the spinner plate area.



Warning! Do not pull spinner plate upwards.

MAINTENANCE

- Regularly ensure nuts and bolts are securely fastened, paying particular attention to the spinner plate nuts.
Left hand plate - CLOCKWISE
Right hand plate - ANTICLOCKWISE
- For access to the underside of the machine, remove the adjustment setting handle, pivot the hopper and ensure the hopper stay is securely in place.
- At the end of a season, before storing, grease the machine and check all fixings (refer to manual).

**CLEAN RESIDUAL GRIT FROM THE MACHINE
AFTER USE!**

3 Operating Instructions

Before-Use Check List

Attachment & Checks

1. Attach a secondary safety cable over the ball hitch.
2. Attach spreader to the towing vehicle using either a ball hitch or pin hitch.
3. Set the towing eye at the correct height if using a pin hitch, ensuring that the machine is positioned horizontally.
4. Check that the hitch and safety cable are securely engaged.
5. Check that the jockey wheel is raised and re-secured.
6. Connect the 7 pin plug to the towing vehicle (see page 9).
7. Check that the tyres and lights are working (trailer and towing vehicle).
8. Check that the release plate is fully closed
9. Check that the spinner plate nuts are tight. Turn right spinner plate nut anti-clockwise & left spinner plate nut clockwise.
10. Check that the spreader is free running and the mechanism operates correctly prior to filling the hopper.

Spreading

1. Check that the funnel moulding is fully closed.
2. Check that the agitation handle is in the 'OFF' position (see page 11).
3. Ensure that the hopper has a load of salt/grit (minimum of 2 x 25kg bags).
4. Check that the agitation handle is on the correct setting (see page 11).
5. Ensure that the side limiters are engaged (if required).

Wheels & Tyres

The Turbocast 1000 is restricted to a maximum of 20mph.

Check that the tyres are the correct pressure before every use.

Tyre Specification

Size	Type	Max load	Max speed	Pressure
14"	195/70R14 96S	710kg	180kph (113mph)	37psi

Jockey Wheel

The Turbocast 1000 is equipped with an adjustable jockey wheel enabling the machine to free stand with the hopper and hitch horizontal; this facilitates hitching to a vehicle by a single person. To adjust the height, rotate the handle on the top of the stand accordingly. To lift the jockey wheel once the spreader is hitched, release the lever (59a), slide the jockey wheel (139) upwards and tighten the lever to secure (see Fig. 1, 2 & 3 on page 4).

Lights

Lights are attached to the back of the machine as standard. Please ensure the spreader is connected to the towing vehicle using the cable and plugs supplied.

3 Operating Instructions

Providing Power to the Gritter, 7 pin socket

1. Power is supplied to the spreader via a standard 7 pin socket (79) that is located at the front of the machine and to the right of the operator's box cavity. A power cable is attached to the 'A' frame, which needs to be connected to the hopper and towing vehicle prior to use. To connect the power cable first pivot the socket cover cap upwards (Fig. 7 & 8).

Fig. 7

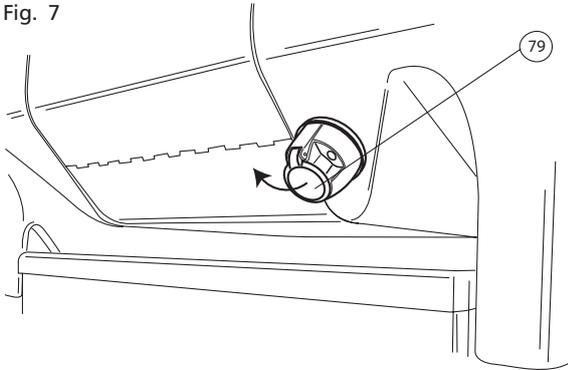
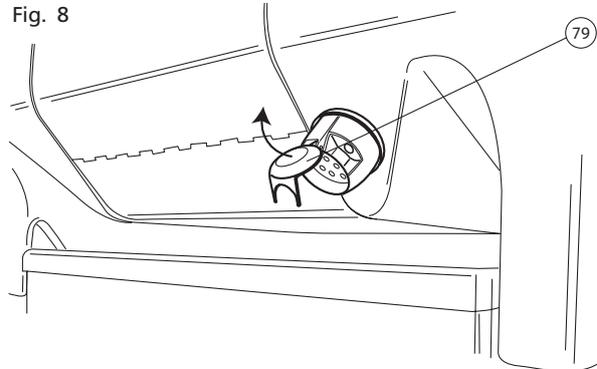


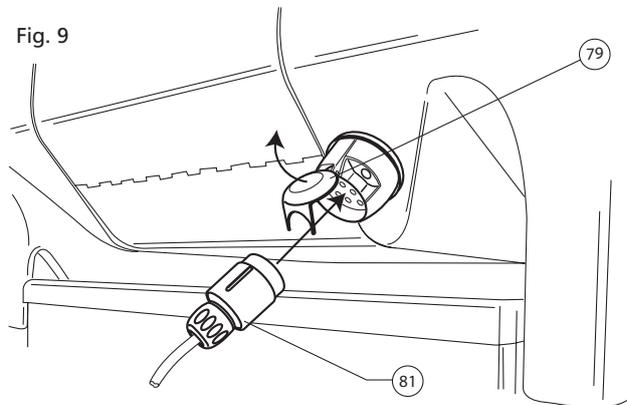
Fig. 8



2. Insert the power cable plug (81) into the socket (79) pushing firmly and release the cover cap; this will ensure the plug will not accidentally release from the socket (Fig. 9).
3. Attach the other end of the cable to the towing vehicle in the same manner; this will provide power to the tail lights and the auxiliary socket.

NOTE: once connected, ensure the tail lights are all working correctly before use.

Fig. 9



Filling and Spreading Adjustment

1. Attach the spreader to the vehicle before filling the hopper.
2. Ensure the agitation handle is in the OFF position.
3. Fill the hopper with grit/salt to the required level - 500kg maximum.
4. Stand by the machine on the back left corner (when viewed from the back).
5. Place one hand on the agitation handle and pull the adjustment pin out from hole on the agitation setting plate. Keep a firm hold.
6. Gently allow the handle to pivot anti-clockwise.

WARNING

When the hopper is loaded, caution should be given when engaging the agitation handle as it will independently want to turn anti-clockwise when the adjustment pin (6) is removed. Please note that greater force is exerted on the handle the more grit/salt is in the hopper.

7. Adjust the handle to the required setting and locate the adjustment pin into hole.
 - i) There are 5 settings in total. The correct setting should be selected dependent upon whether you are to broadcast spread or drop spread, the spread rate required and the condition of the grit/salt.
 - ii) For maximum spread locate the pin into setting 3 (Broadcast spread).

3 Operating Instructions

Filling and Spreading Adjustment

Wet Material

Solid de-icers are normally hygroscopic in order to enter solution quickly and therefore need to be stored away from moisture. We advise that the grit/salt is kept dry at all times, preferably indoors. If this is not possible ensure the grit/salt is covered with an impermeable membrane situated on an impervious base.

If you encounter problems while spreading wet/damp grit/salt, remove the baffle blade (Fig. 10). This enables more grit/salt to pass through the hopper. Once removed, the baffle blade should be stored on the chassis (Fig. 11) and the fixings (28+29) put back in the hopper (69) to block the holes.

Loading should be limited to 2/3 the capacity of the hopper (approx. 13 x 25kg bags). Care must be taken when loading the hopper. It is recommended that bagged or loose grit/salt is shovelled into the hopper. Drop loading must be avoided as this may cause serious damage to the hopper and spreading mechanism.

Important: when spreading dry grit/salt the baffle blade will need to be replaced with the optional Fine Grit/Salt Kit (page 24).

Fig. 10

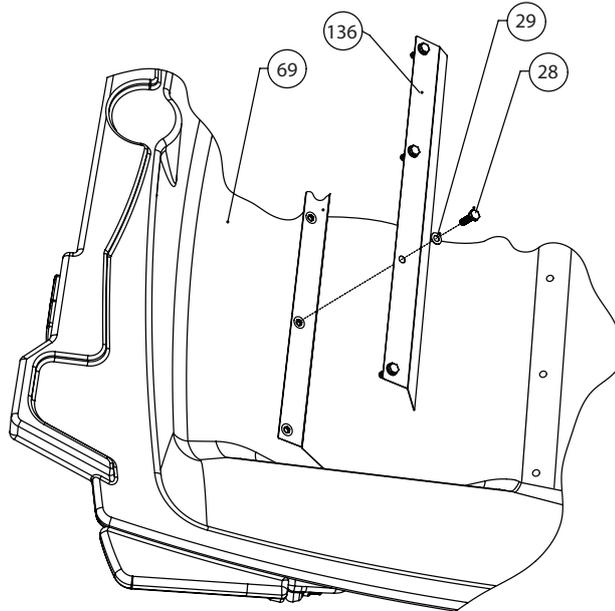
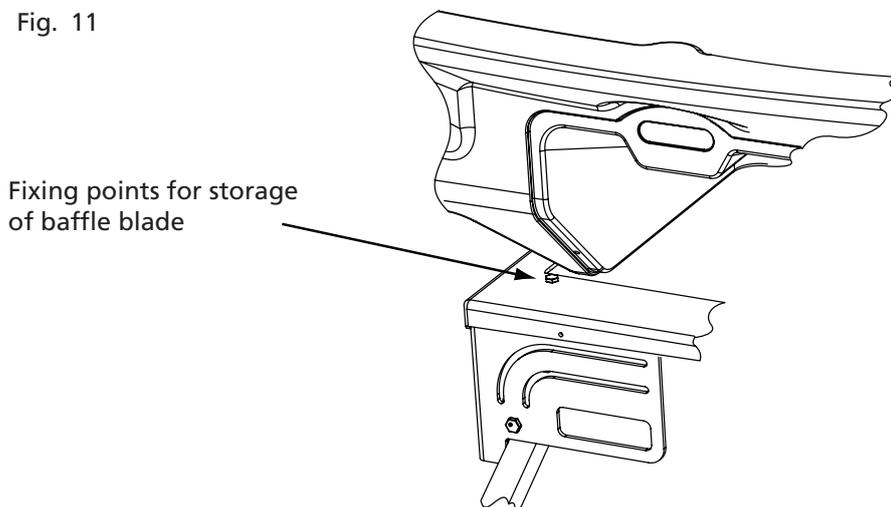


Fig. 11



3 Operating Instructions

Spread Rate Settings

The spreader has three settings for each option of Broadcast and Drop spreading. Each setting distributes a different amount of grit/salt depending on the rate required - as shown below.

Broadcast Spreading

SETTING	SPREAD RATE	AREA OF COVERAGE	DISTANCE OF COVERAGE
Setting 3 MAX	55 gms per m ²	9,090m ²	1km (0.6 mile)
Setting 2	35 gms per m ²	14,285m ²	1.5km (1 mile)
Setting 1 MIN	15 gms per m ²	33,333m ²	3.3km (2.05 miles)

NOTE:

1. Spread rates have been calculated using dry white grit/salt at a towing speed of 20mph. These may vary depending on the type and condition of the grit/salt used.
2. The use of the spread limiters will alter the spread width and therefore have an effect on the area and distance of coverage.

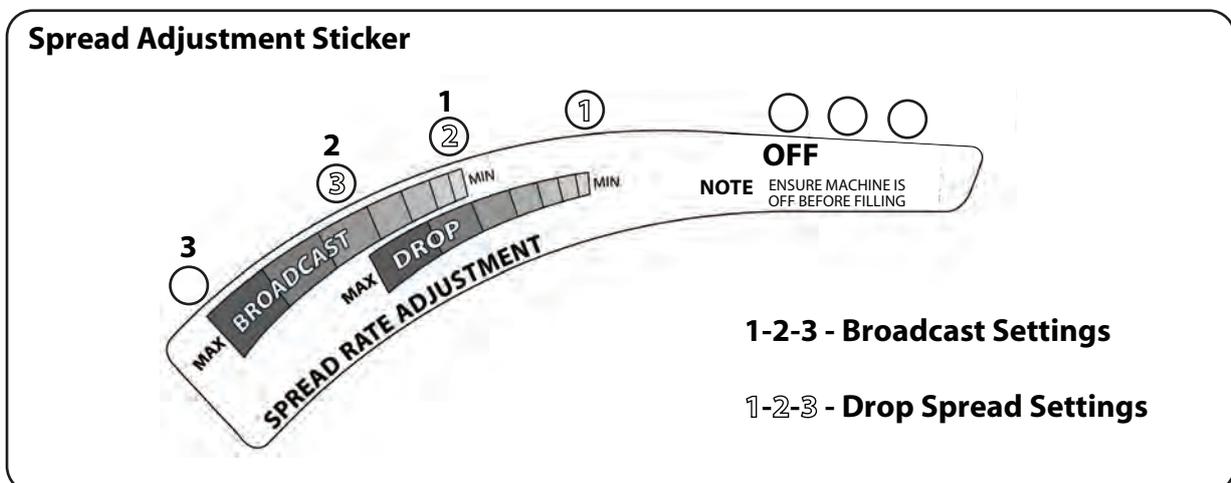
Wet Material

When grit/salt is wet the spread rates above are not applicable. Ensure the baffle blade is removed (see Fig. 10 & 11) and that setting 3 (MAXIMUM BROADCAST) is selected.

Shut Off Setting

When moving the machine between gritting locations, the spreading mechanism can be turned off whilst the hopper is loaded with grit. This allows gritting to be temporarily stopped, which improves cost effectiveness and efficiency as no grit is spread unnecessarily.

Select the OFF spread position by pulling the adjustment pin out and firmly pushing the agitation handle towards the back of the machine - this lifts the agitation fingers and requires a strong push.



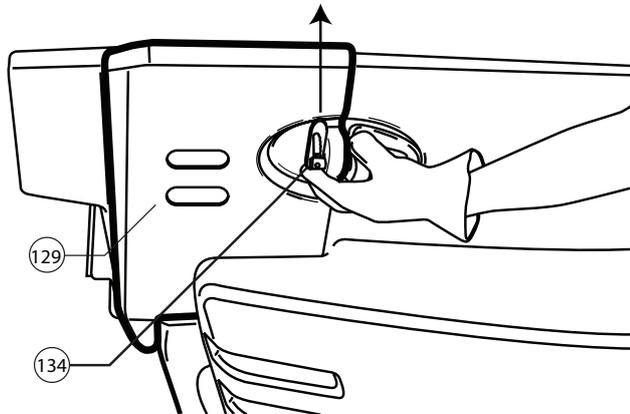
3 Operating Instructions

Drop Spread/Limited Spread

To turn the spreader into a drop spreader or limit the spread to one side only, the spread limiters must be activated as seen below.

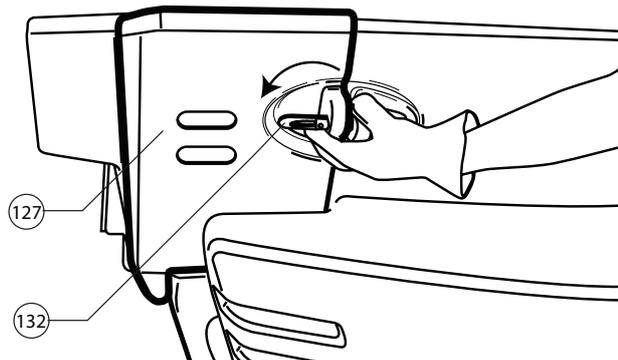
1. Push the Antiluce catch (132) upwards.

Fig. 12



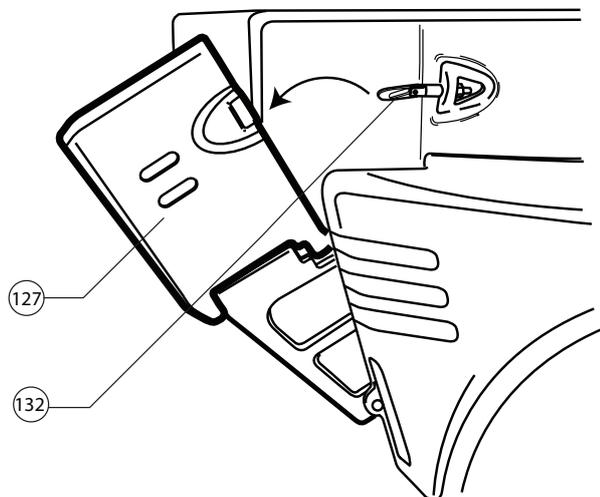
2. Pivot the Antiluce catch (132) towards the back of the machine until it is horizontal.

Fig. 13



3. Pull the spread limiter (127) away from the Antiluce catch (132) and pivot down. The spread limiter arm will automatically pivot inwards to reduce the spread width on that side. Activate both spread limiters if drop spreading is desired.

Fig. 14

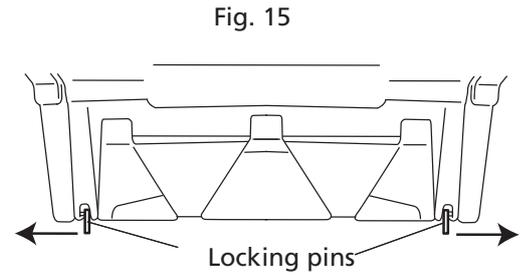


4. To de-activate the limiters make sure the Antiluce catch (132) is horizontal, pivot the arm back to its original position and slot over the catch. Pivot the catch towards the front of the machine and push down to secure the spread limiter (125,127).

4 Maintenance

Emptying the Hopper

Standing at the back of the machine, push the two locking pins outward (Fig. 15) located at the bottom of the hopper to the left and right of the funnel moulding (109). Pull the funnel moulding towards you to activate the release plate (114).



This creates a void between the rubber mat and the hopper. Consequently, the excess grit falls through the void and onto the release plate (114) and passes through the protective mechanism cover (66) and onto the ground below the machine.

NOTE: Wet grit/salt will not flow out of the hopper easily. Use a jet-wash to assist in emptying.

WARNING

1. The release plate should only be used for emptying small amounts. Do not empty a full load as there is limited amount of space underneath the spreader.
2. Always close the funnel moulding prior to towing by pushing the two locking pins outward. Push the funnel firmly until the locking pins are engaged.

When the spreader is empty the agitation handle (86) should always be set in the OFF position; this will avoid excessive wear of the agitation fingers and cams. Do not forget to empty the hopper each time after use by brushing/jetwashing away excess material from inside the hopper, front and back of the funnel and underneath the spinner plates (see Fig. 17). Any material left in the hopper may set, as grit/salt is hygroscopic and will harden like concrete. If left, it will damage the mechanics of the machine when next used.

Fig. 16
Funnel Closed

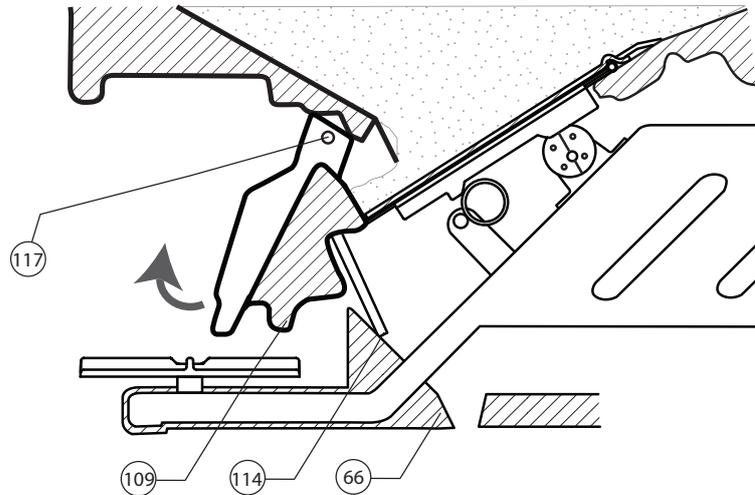
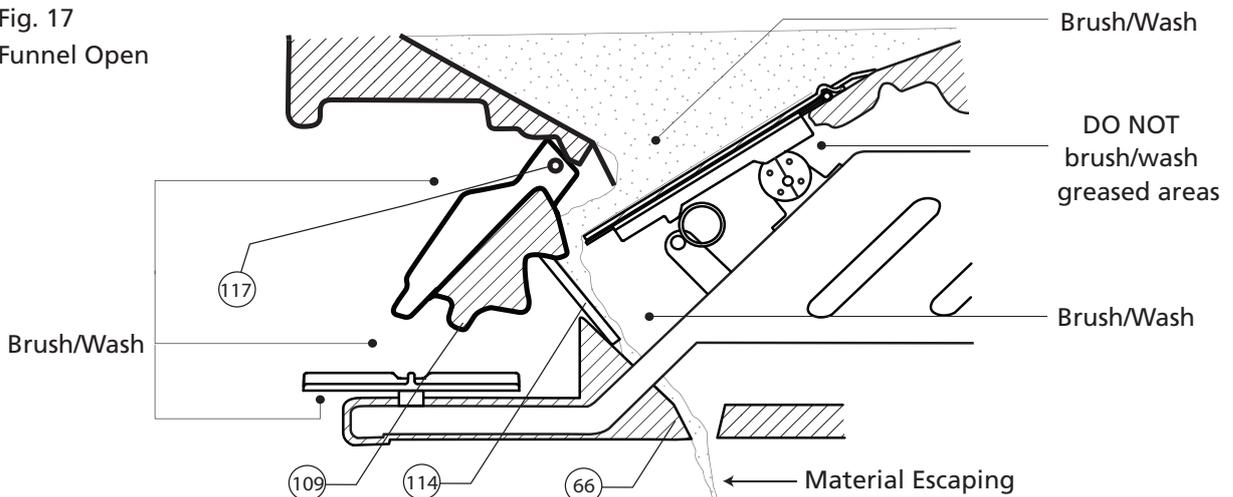


Fig. 17
Funnel Open

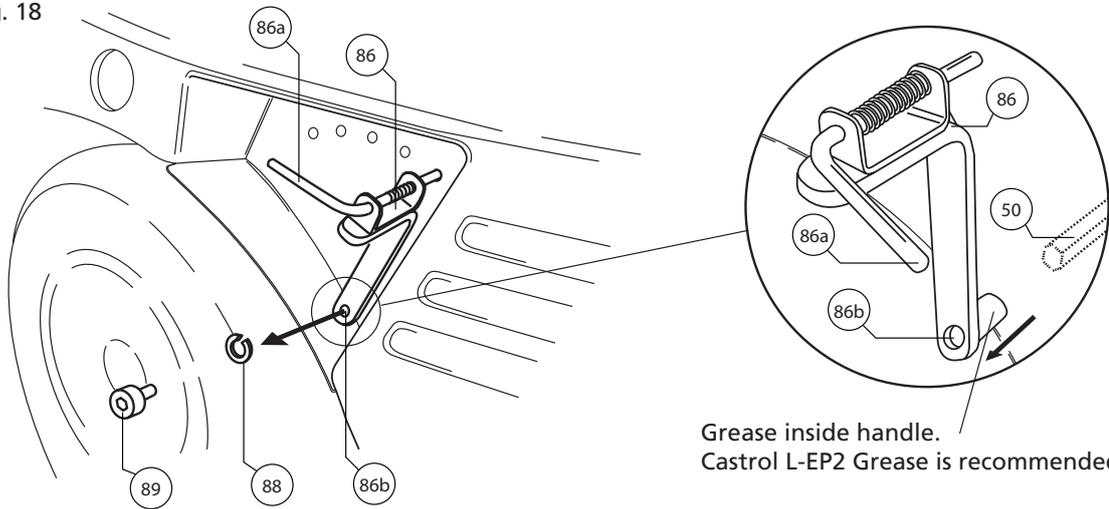


4 Maintenance

Maintenance Access

The hopper can be pivoted for maintenance access. The agitation handle (86) must be removed from the output adjuster shaft (50) (Fig. 18). With the wheels securely chocked, fully unscrew the bolt (89) and spring washer (88) from the handle using a 5mm Allen key. Remove the handle by pulling it firmly away from the spreader where it is inserted (86b). Slightly lifting the hopper at the back end will reduce the weight on the handle, making it easier to remove.

Fig. 18



NOTE: two persons are required for this operation.

Once removed the hopper can be pivoted open (Fig. 19). The hopper is kept in place using the stay bar (123) which must be inserted into the hole on the underside of the hopper (Fig. 20). A plaque is positioned near the stay bar hole on the hopper to show where it is inserted. Once the maintenance is complete the staybar should be removed and the hopper pivoted back down. To secure, the agitation handle (86) is to be inserted back onto the output adjuster shaft (50). Ensure the slot in the agitation handle (86) locates over the roll pin (51). Place the retaining pin (86a) into the off position on the agitation setting plate (85). Insert the bolt (89) through the spring washer (88) and refasten the handle onto the shaft using the 5mm Allen key.

NOTE: grease inside the handle (86) before reattaching it to the adjustment shaft.

Fig. 19

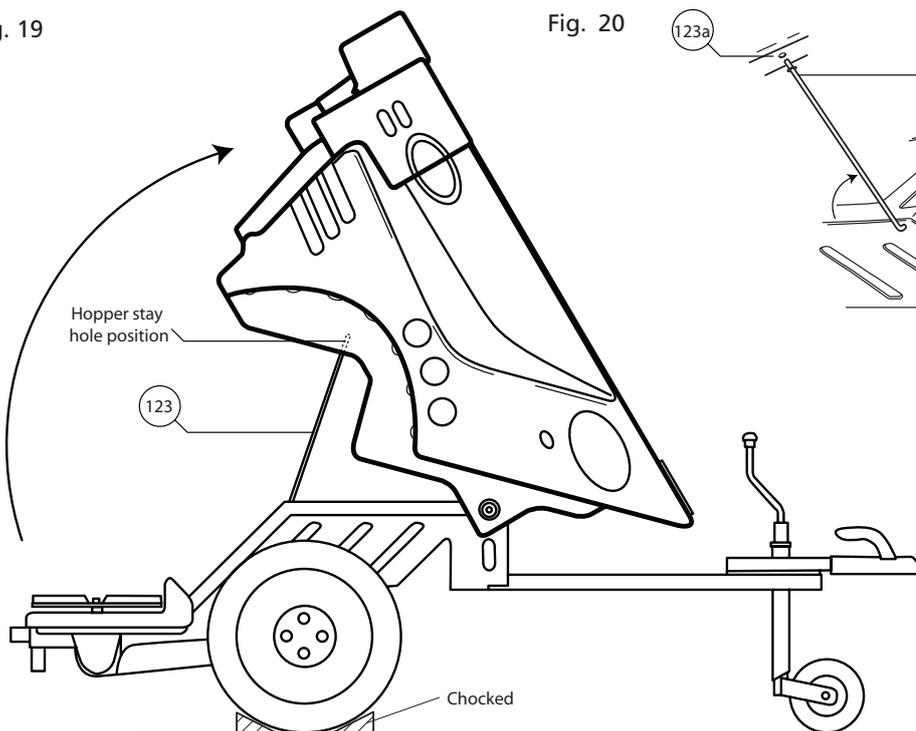
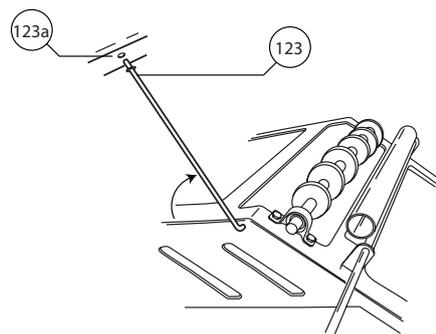


Fig. 20



4 Maintenance

Maintenance

The hopper **MUST** be emptied after use as the compacted salt/grit can set like concrete and damage the machine's mechanism. Please follow the simple steps detailed below to ensure your spreader remains in full working order.

After Each Use

1. Fully empty the hopper (use release plate to assist with emptying - see page 13, Fig. 16 & 17, Item 109 & 114).
2. The spreader should be thoroughly cleaned to remove any residual grit/salt. Follow the cleaning guidelines on page 13.

End of Season

1. Scratches on the chassis should be treated with an appropriate paint.
2. The spreader should be covered if it is to be kept outdoors.
3. When not in use for some time, protect metal components by applying a rust inhibitor/oil spray. Never use oil and grease on rubber parts, e.g. tyres, rubber mat etc.
5. General lubrication of all lubrication points (Fig. 21 & 22).
6. Check all fixings and tighten if necessary.

Lubrication Points

Fig. 21

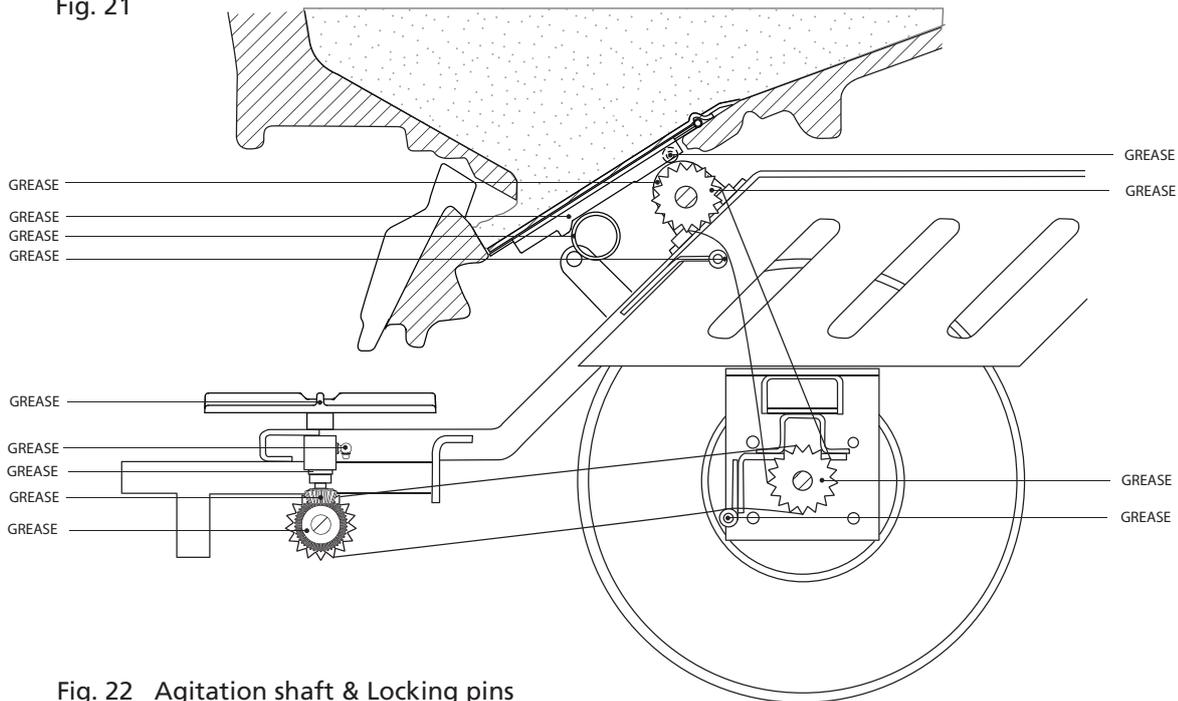
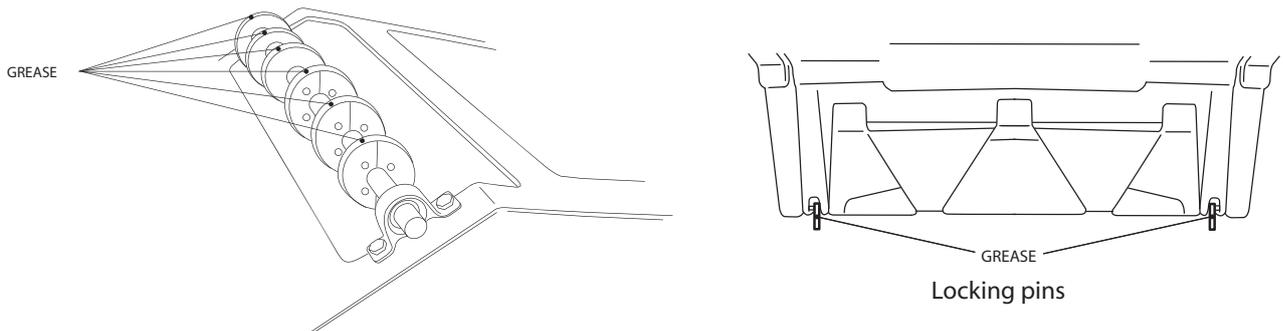


Fig. 22 Agitation shaft & Locking pins



4 Maintenance

Greasing the Drive Mechanism

To grease the drive mechanism and main drive shafts the lower half of the 2-part cover must be removed from underneath the chassis.

1. Remove the 14 socket button head screws (68) from around the side of the protective casing using a 4mm Allen key (Fig. 23).
2. Drop the lower half of the casing so the spinner shaft is exposed (Fig. 25).
3. Grease the sprocket (19), shaft (39) and the bevel gears (33,41) by applying liberally.
4. It is important to fill the spinner boss (2) with grease via the grease nipple (3) using a grease gun (Fig. 24).
5. Reposition the lower casing inside the upper casing and re-fasten.

Fig. 23

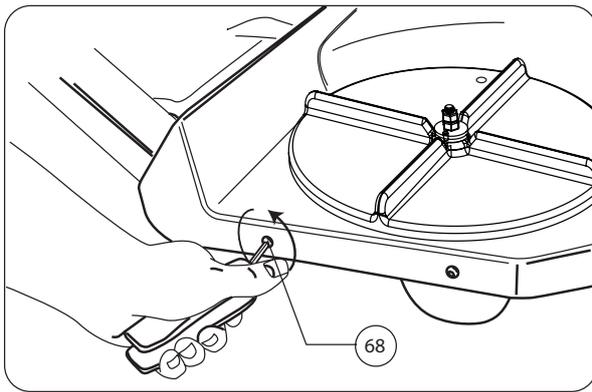


Fig. 24

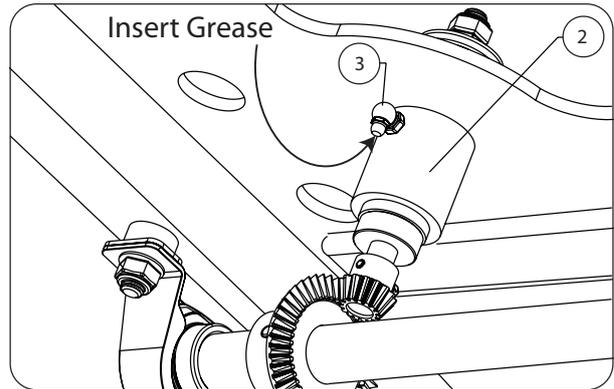
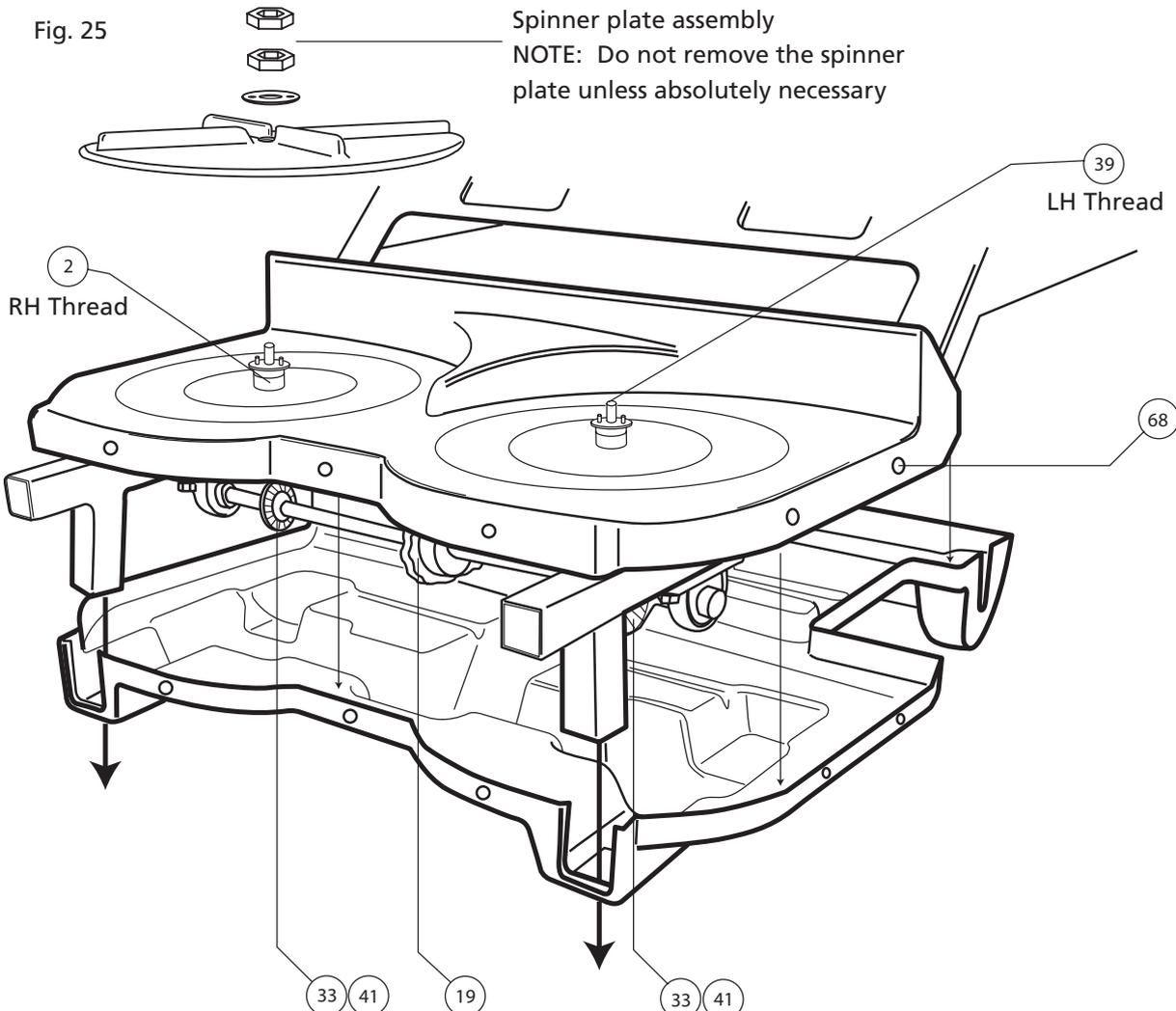


Fig. 25

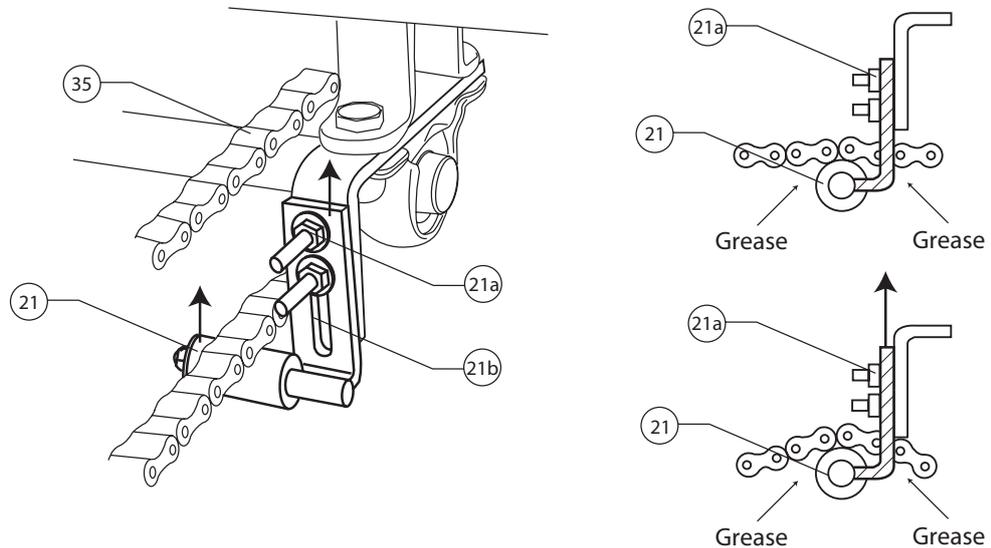


4 Maintenance

Adjusting and Greasing Chain Tensioners

There are two chain tensioners present on the machine, one for each drive chain (see Fig. 29, page 19, No.48 & 21). These can be adjusted if the chain (35 & 47) begins to stretch. Firstly, slacken both locking nuts (21a), slide the tensioning arm (21) upwards along the slot (21b) until the chain (35 & 47) is correctly tensioned, then tighten the locking nuts (21a) until fully secure.

Fig. 26



Wheel Replacement

Tyres 195/70 R14 96S

Tyre pressure 37psi

1. Remove the hub cap and chock the opposite wheel that is to be replaced.
2. Using the correct size of wheel brace (19mm socket) loosen off the five wheel nuts on the damaged tyre.
3. Place a 2 tonne minimum trolley jack in position to lift at either of the contact points depending on which tyre needs replacing.
4. Once lifted, unscrew the wheel nuts fully and remove wheel.
5. On replacing the wheel, hand tighten the wheel nuts. Lower the jack so the wheel is in full contact with the ground.
6. Fully tighten the wheel nuts (Torque setting 88Nm) until the wheel is fully secured.
7. Replace the hub cap.

Fig. 27

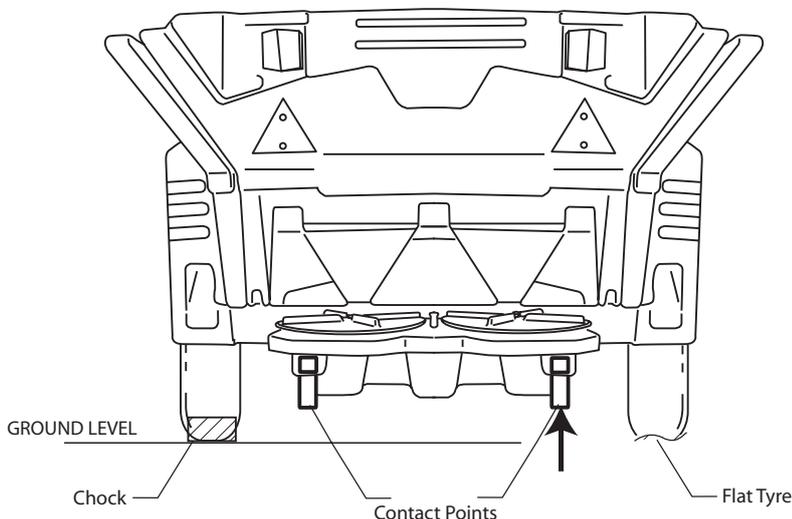
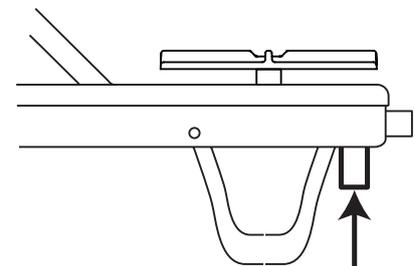
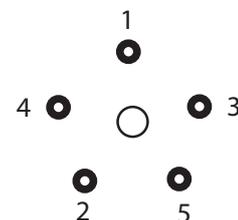


Fig. 28 Contact position of trolley jack



Wheel nut: order of replacement



5 Mechanics

The Drive Mechanism (Fig. 29)

The machine is powered via the drive wheel (60) positioned on passenger side. This wheel is connected to drive shaft 2 (15), which has two sprockets attached to it. The first sprocket on drive shaft 2 is connected to a sprocket on the agitation shaft (46) by a stainless steel chain (47). The second sprocket is connected to the gear shaft (31), again by a stainless steel chain (35) and sprocket (19). The spinner plates are then powered by two sets of bevel gears (33, 41). When the drive wheel is turned all shafts are rotated, agitating the grit/salt, driving the spinner plates and broadcasting the grit.

The Spreading Mechanism (Fig. 30 & 31)

When towed, the drive wheel (60) powers the agitation shaft (46), which has helically-mounted cams attached to it. These act on the agitation fingers (91) creating a rippling effect on the agitation mat (90). This breaks up the grit/salt and causes it to fall to the bottom of the hopper (69). This action also pushes the grit/salt out of the funnel moulding (109), feeding the spinner plates (65), which broadcast the grit/salt onto the surface below.

The spinner plates (65) are positioned horizontally directly underneath the hopper opening. They have four raised ridges on their upper faces that catch the grit and broadcast it outward.

The spread rate can be adjusted (see Fig. 9 & 10) by moving the agitation handle and output adjustor shaft (50) through one of 5 settings. This rotates to raise or lower the agitation fingers (91) underneath the rubber mat (90). This increases or decreases the amount of movement in the agitation fingers (91) and consequently the quantity of material lifted out of the hopper (69) and onto the spinner plates (65).

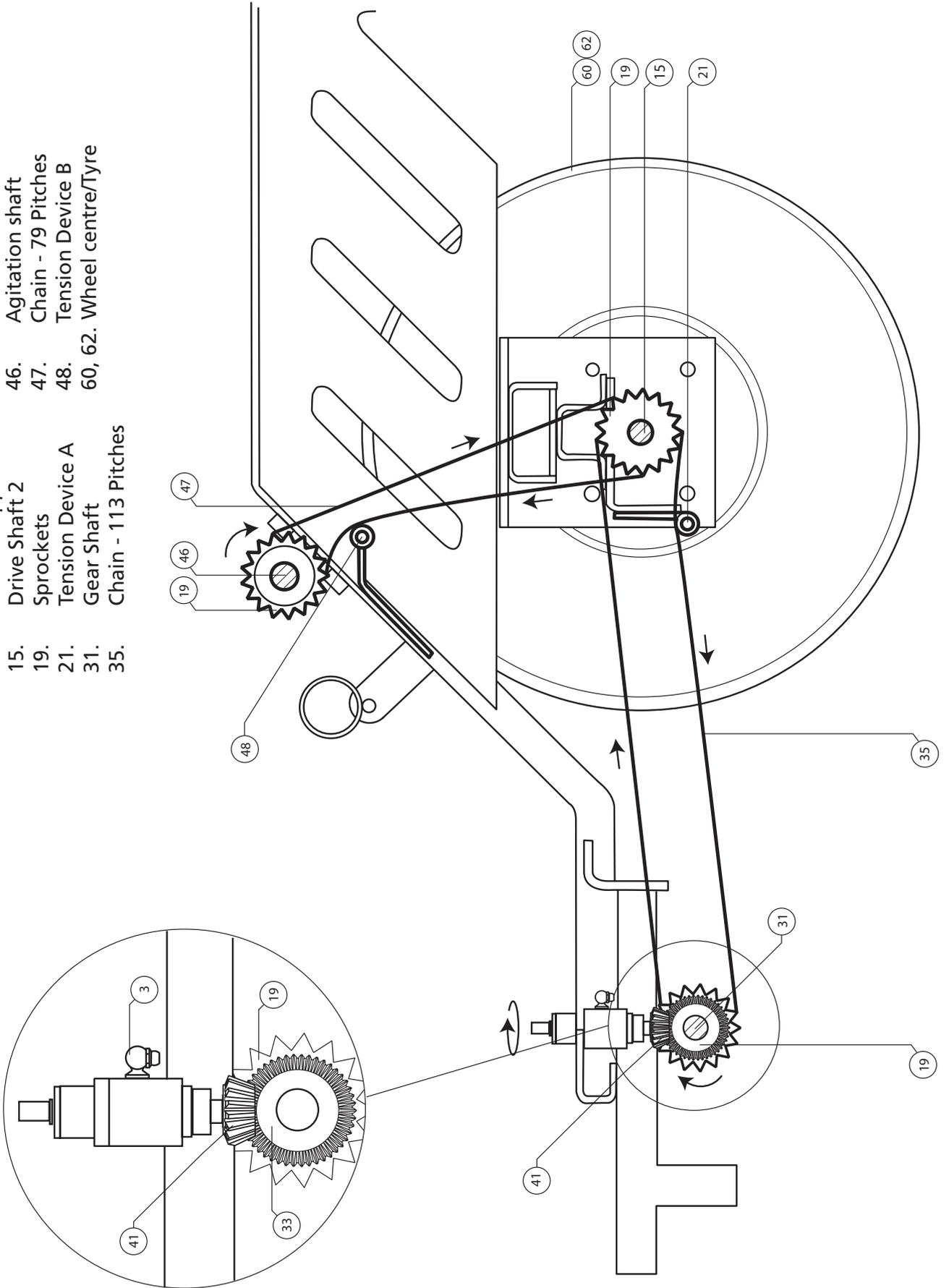
5 Mechanics

The Drive Mechanism - How It Works

(Fig. 29)

- 3. Grease Nipple
- 15. Drive Shaft 2
- 19. Sprockets
- 21. Tension Device A
- 31. Gear Shaft
- 35. Chain - 113 Pitches
- 41. Bevel Gear
- 46. Agitation shaft
- 47. Chain - 79 Pitches
- 48. Tension Device B
- 60, 62. Wheel centre/Tyre

Spinner Plate Bevel Gear Connection



5 Mechanics

The Spreading Mechanism - How It Works

Fig. 30 Movement of Agitation Fingers (Lowest Position)

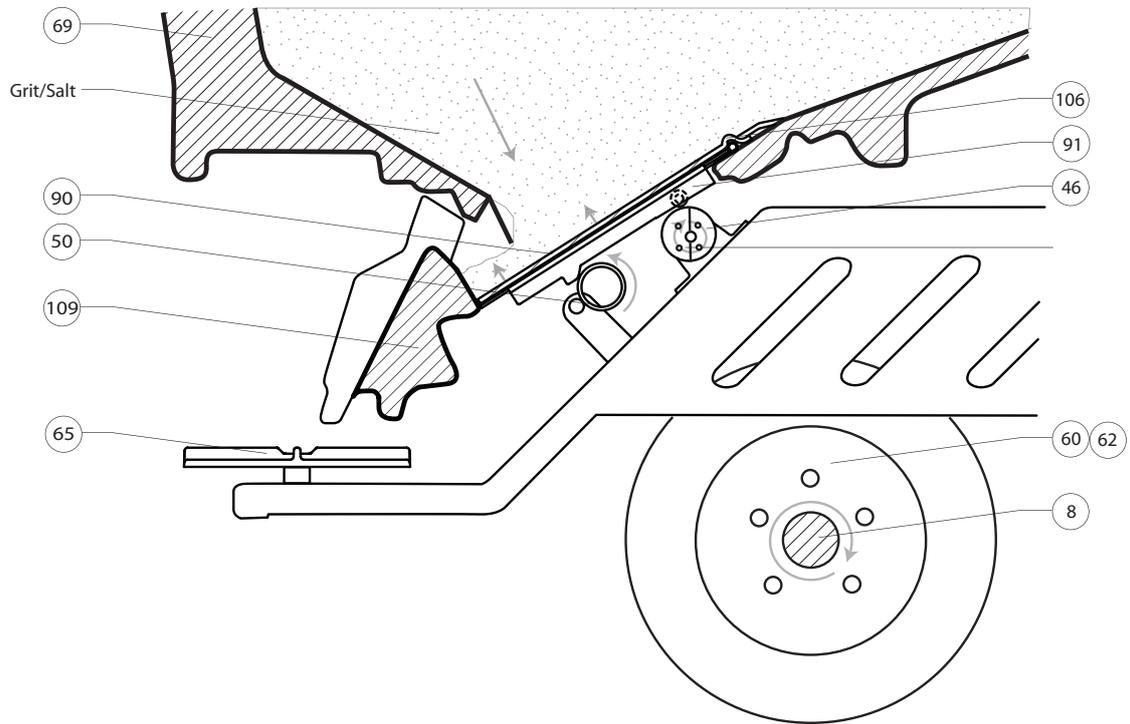
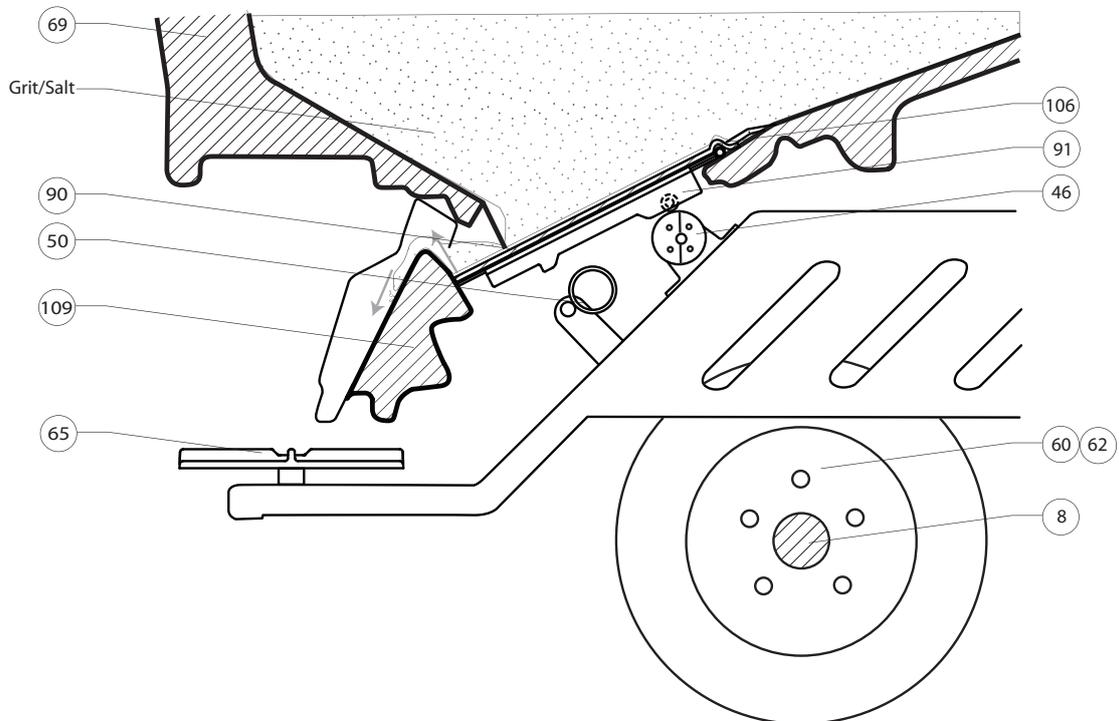


Fig. 31 Movement of Agitation Fingers (Highest Position)

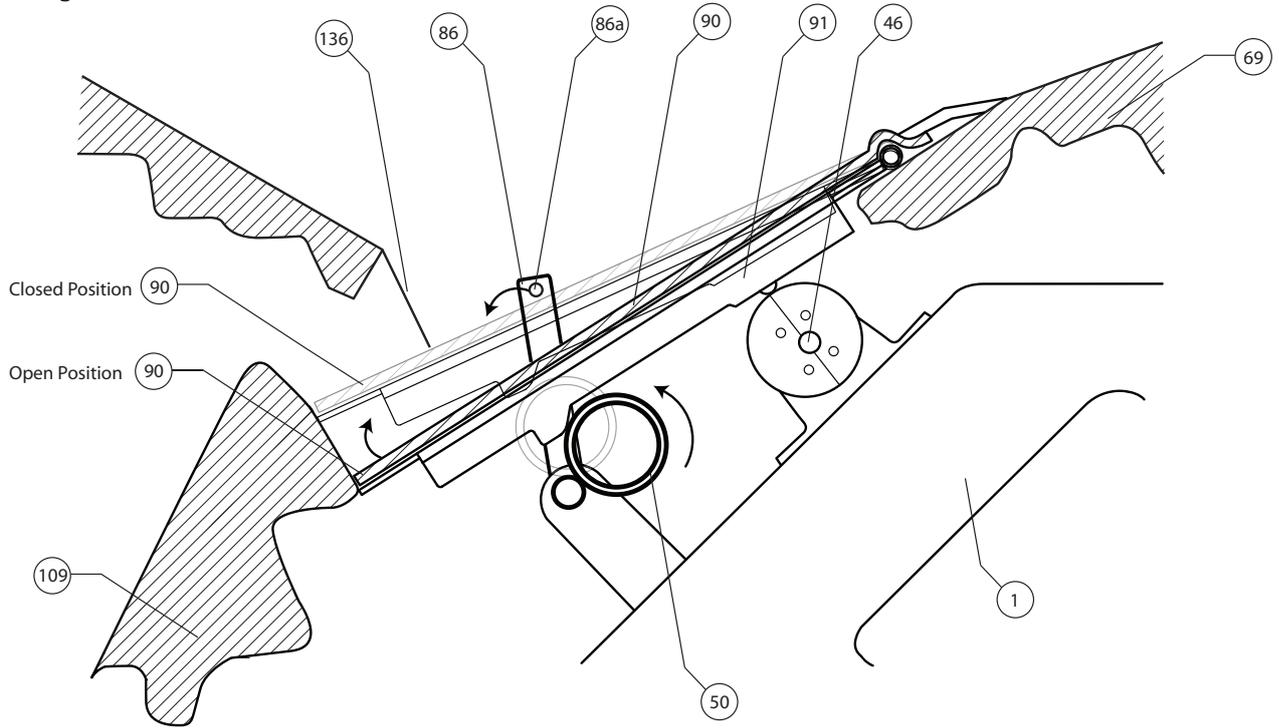


- | | | | |
|--------|-----------------------|------|-------------------|
| 8. | Drive Shaft 1 | 69. | Hopper moulding |
| 46. | Agitation shaft | 91. | Agitation Mat |
| 50. | Output Adjuster Shaft | 90. | Agitation Fingers |
| 60,62. | Wheel | 109. | Funnel Moulding |
| 65. | Spinner Plate | | |

5 Mechanics

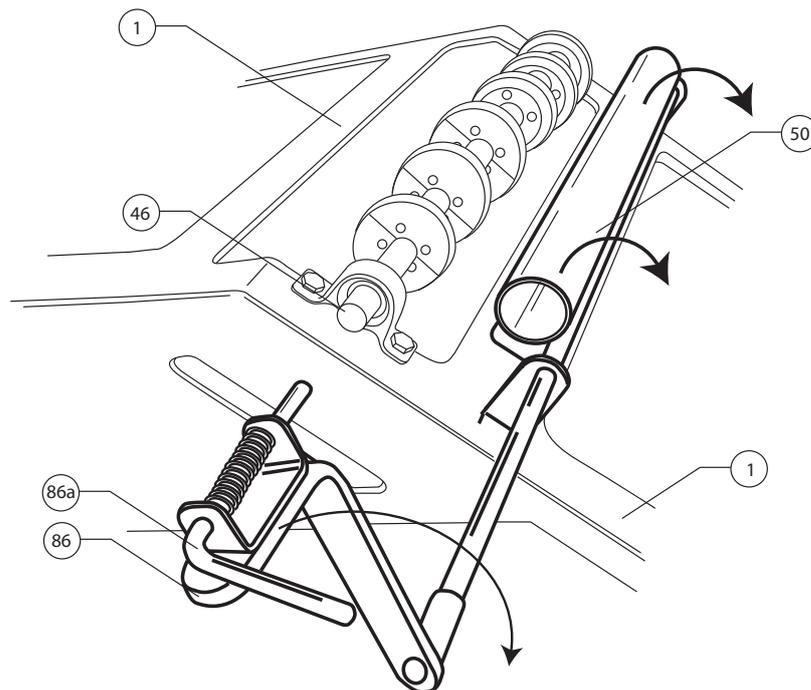
Spread Rate Adjustment Mechanism

Fig. 32



- | | | | |
|-----|-----------------------|------|------------------|
| 1. | Chassis | 86a. | Adjustment Pin |
| 46. | Agitation Shaft | 90. | Agitation Mat |
| 50. | Output Adjustor Shaft | 91. | Agitation Finger |
| 69. | Hopper Moulding | 109. | Funnel Moulding |
| 86. | Agitation Handle | 136. | Baffle Blade |

Fig. 33

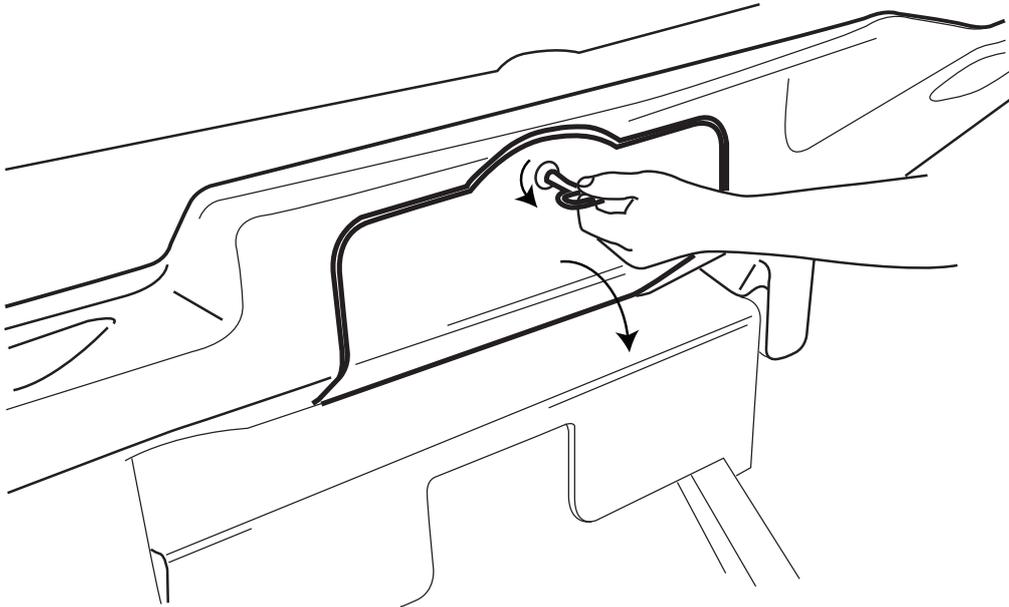


6 Optional Extras

Operator's Box and Auxiliary Socket

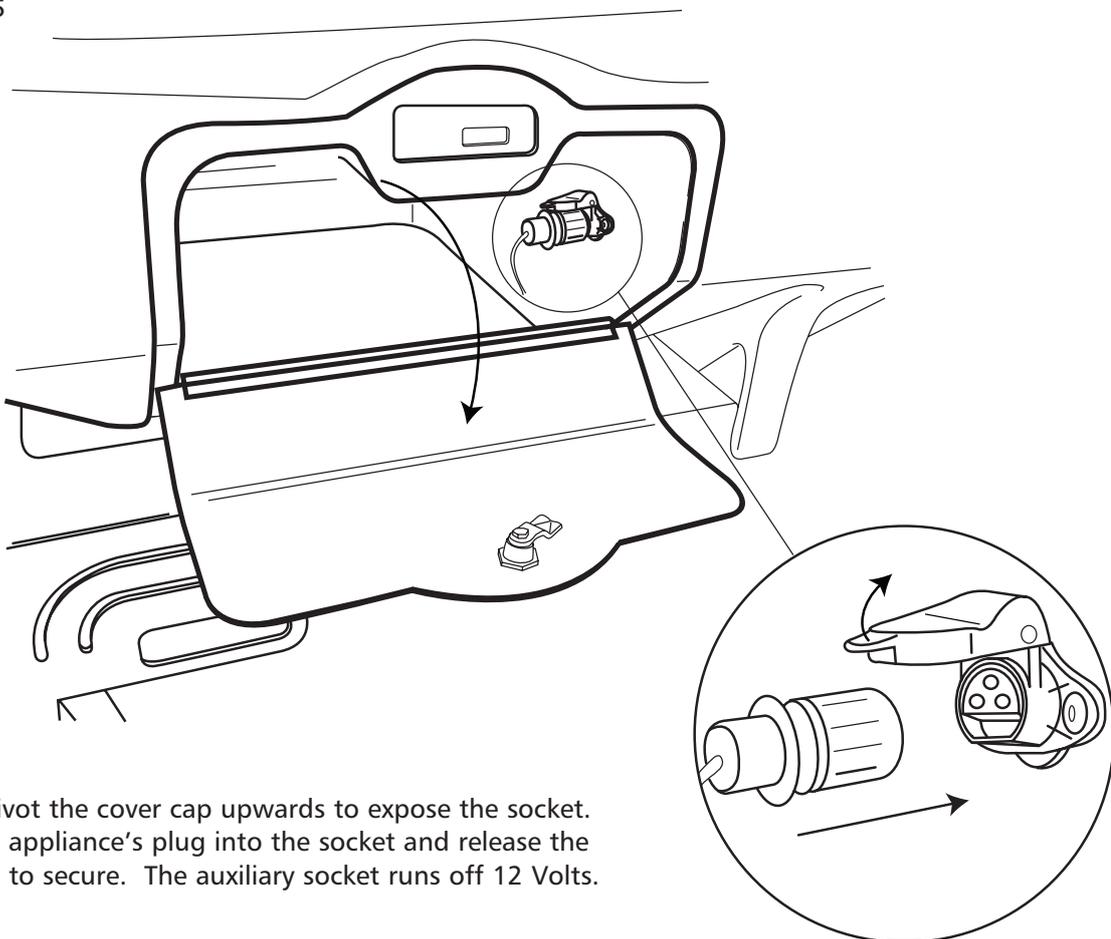
The operator's box is opened using the key supplied. Insert key into the lock and turn anti-clockwise to open.

Fig. 34



Allow the door to slowly pivot down until fully open. To lock, pull the door upward against the hopper and insert the key into the lock, then turn clockwise to secure. Inside the operator's box cavity is the auxiliary socket, which comes as standard. This can be used with a variety of appliances with the corresponding plug, including the maintenance lamp, which is supplied as an optional extra.

Fig. 35



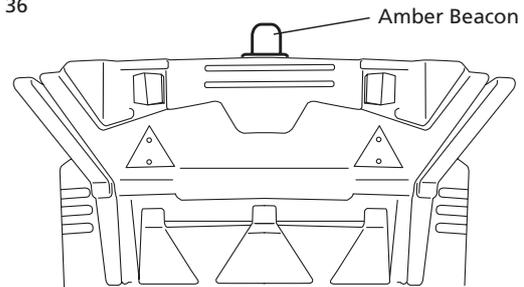
To use, pivot the cover cap upwards to expose the socket. Insert the appliance's plug into the socket and release the cover cap to secure. The auxiliary socket runs off 12 Volts.

6 Optional Extras

Flashing Amber Beacon

A flashing amber beacon is offered as an optional extra. The beacon is automatically activated when the towing vehicle's lights are switched on. The beacon makes the spreader highly visible, creating a safer operation when gritting.

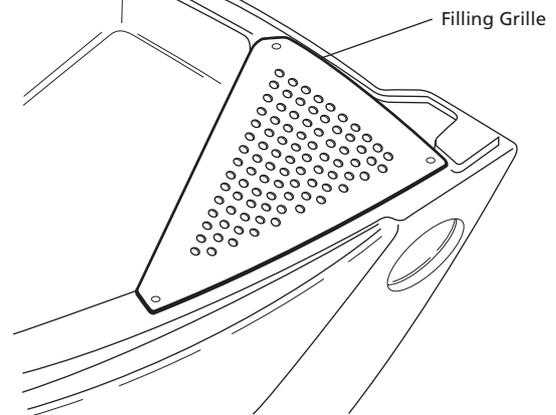
Fig. 36



Filling Grille

If requested at the time of purchase, the spreader can have a filling grille attached to the front of the hopper. This is used to rest bags of grit/salt upon when filling. The filling grille can also be retro-fitted.

Fig. 37

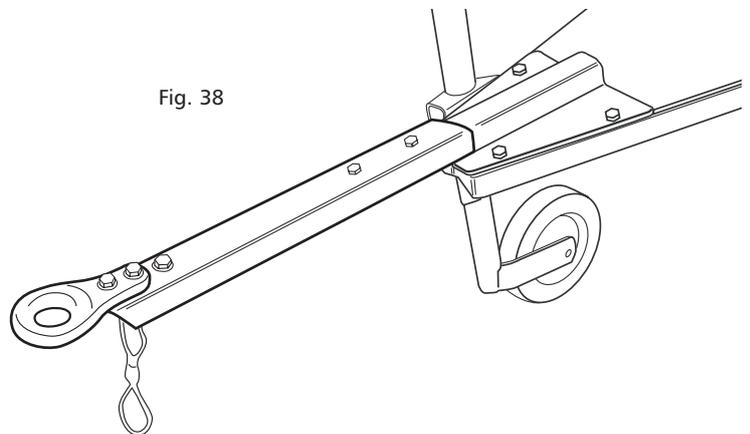


Pin Hitch Extension Kit

The pin hitch extension bar bolts on to the 'A' frame and gives added clearance for vehicles with larger rear wheels (e.g. tractors) and set back hitching (e.g. fork lift trucks). It also improves the Turbocast 1000's turning circle to make towing much easier for larger vehicles.

The extension bar can be used with either the pin hitch or standard coupling point and is easily retro-fitted using the fixing kit supplied.

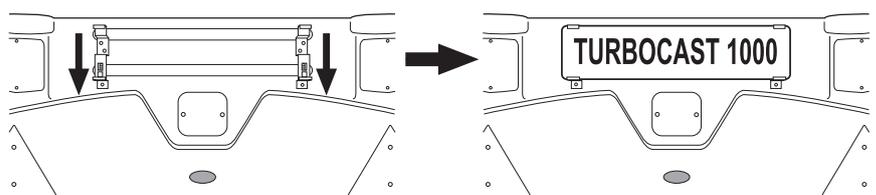
Fig. 38



Number Plate Holder

A number plate for the towing vehicle can be mounted on the rear of the Turbocast 1000 spreader. The holder accommodates standard-sized oblong plates. To fit, pull down each spring-loaded clip and insert the number plate before releasing each clip to clamp it into position.

Fig. 39



6 Optional Extras

Fine Salt Grit Kit

The fine salt grit kit allows the Turbocast 1000 to be used to spread a fine salt variant (FSV), which is commonly used in Europe.

Assembly Instructions

<p>1. Unbolt the two end bolts that hold the baffle blade. 2. Place Items 2 & 3 on top of the baffle blade. 3. Bolt on Items 2 & 3 using the same end bolts.</p>			
<p>4. Open the funnel and prop open with a piece of wood. 5. Unscrew the M6 screws that hold the mat to the fingers. 6. Insert Item 1 between the mat and the fingers. 7. Insert the M6 screws and tighten.</p>			
<p>8. Close the funnel. 9. When closing the funnel make sure to poke Item 1 through the funnel apertures.</p> <p>See notes below.</p>			
<p>10. Once Items 1, 2 & 3 are in place close the hopper. 11. Check the gap between the mat and the baffle blade. 12. If there is a gap, remove one of the hole plugs and place it in the 'OFF' position: this will enable the mat to raise closer to the baffle blade.</p>			
<p>13. Again, check the gap between the mat and the baffle blade. 14. If both are touching this is correct and the assembly is complete. If still not touching, take out the next hole plug and place in the previous 'OFF' position, raising the fingers even more.</p>			

Key

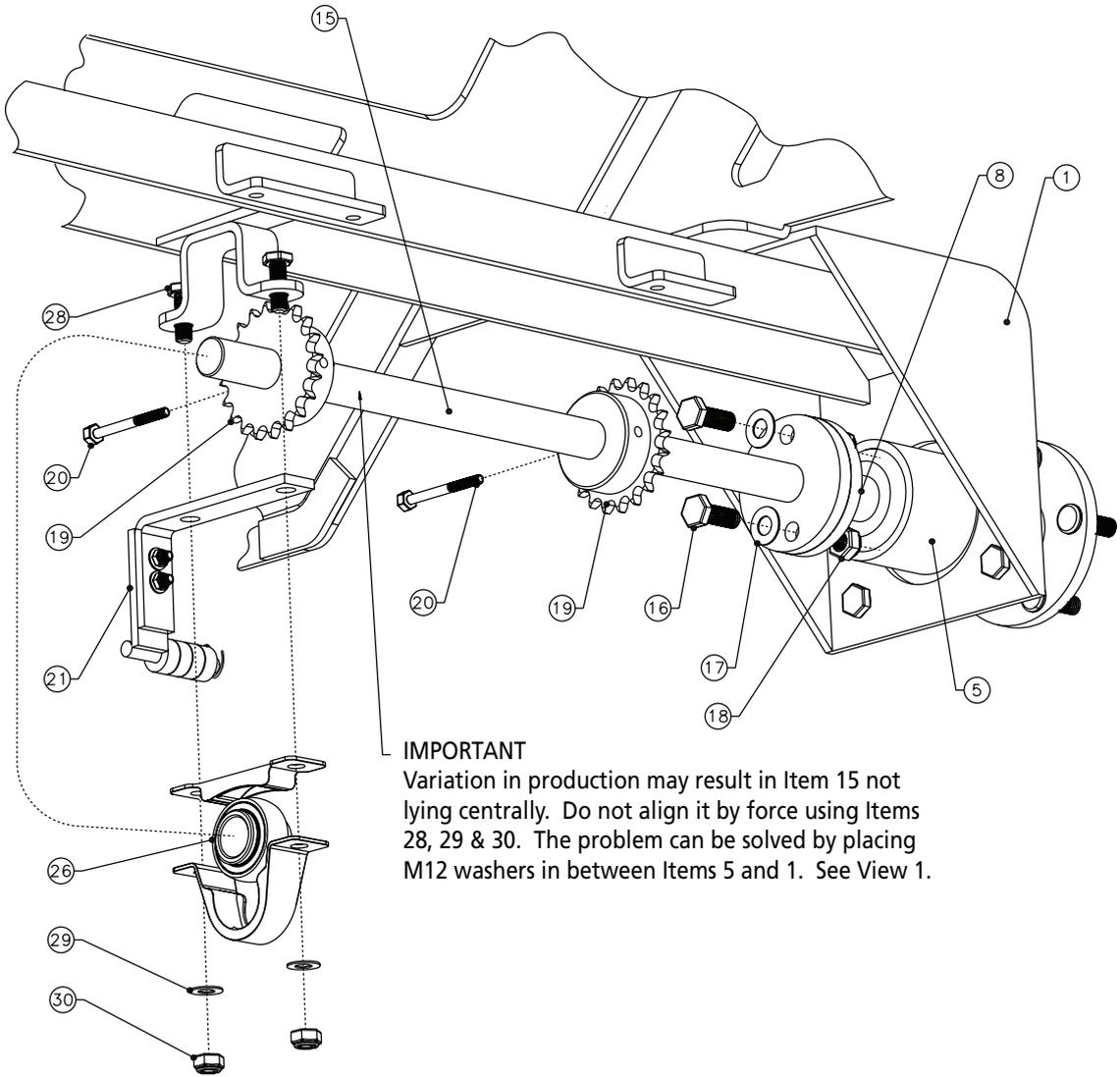
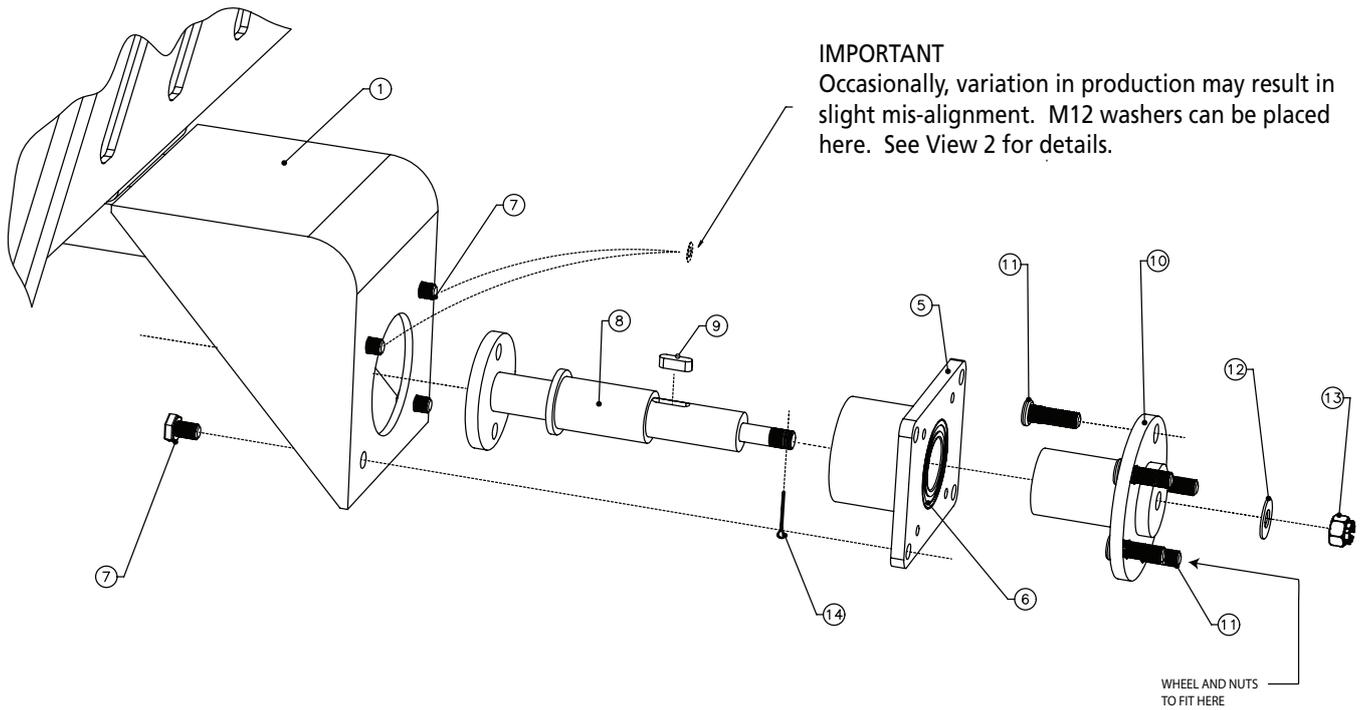
- Item 1 Agitation Mat Extension, Insertion Rubber
- Item 2 Baffle Blade Extension, left, stainless steel
- Item 3 Baffle Blade Extension, right, stainless steel

IMPORTANT NOTE

1. It is essential that the Agitation Mat Extension (Item 1) sits on top of the funnel moulding apertures to ensure that the machine will operate correctly with the fine grit/salt.
2. Should the funnel moulding ever be opened, care should be taken to ensure that the Agitation Mat Extension (Item 1) is once again seated correctly when the funnel is returned to the closed position.

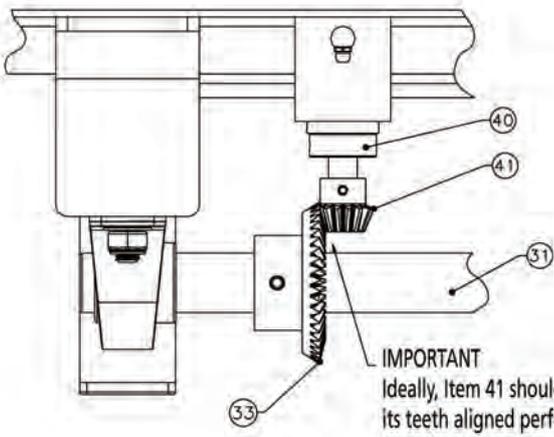
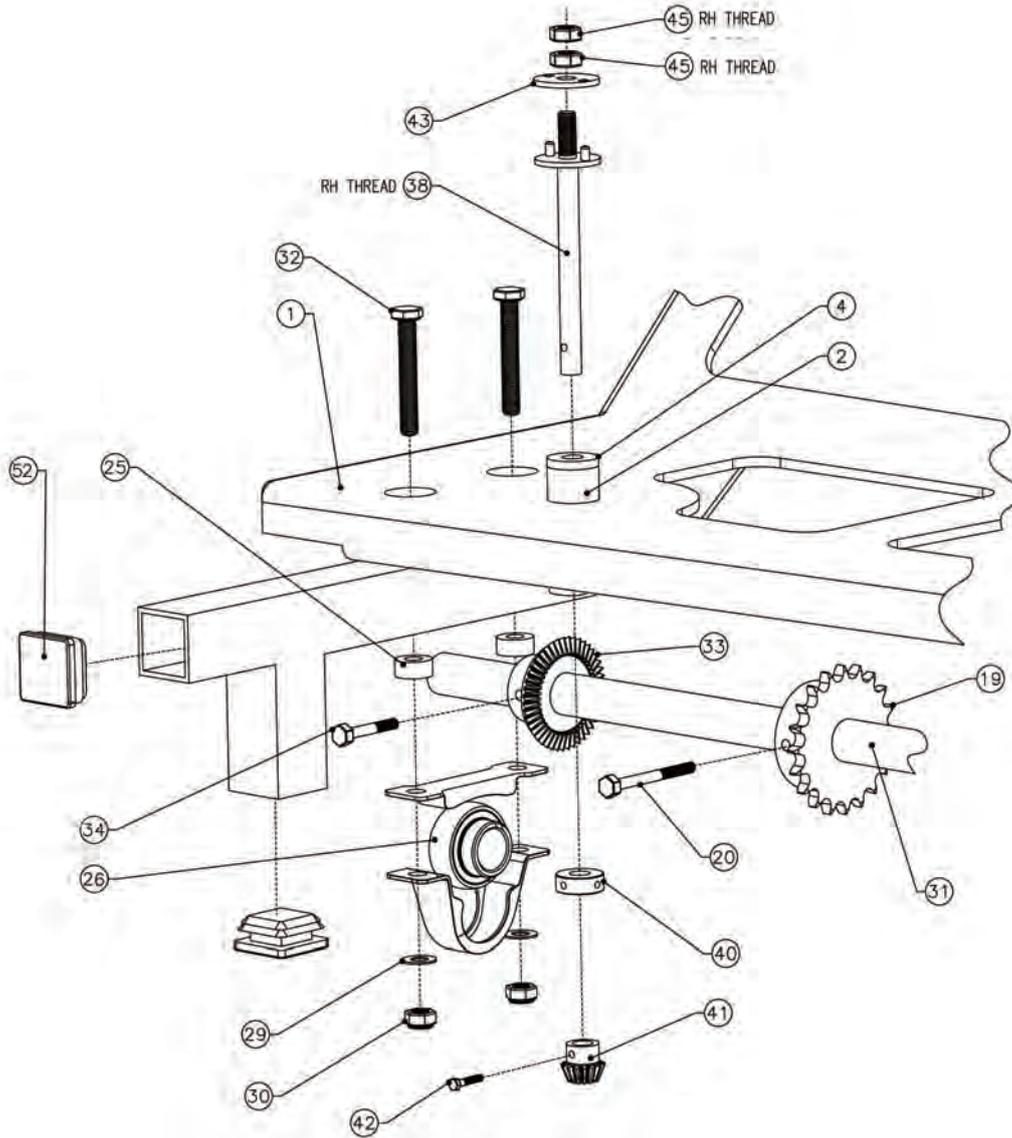
7 Exploded Views

Chassis

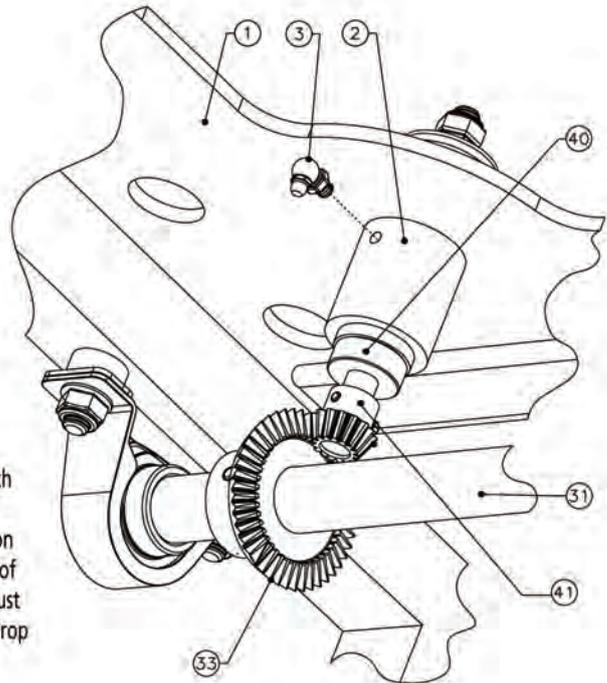


7 Exploded Views

Chassis

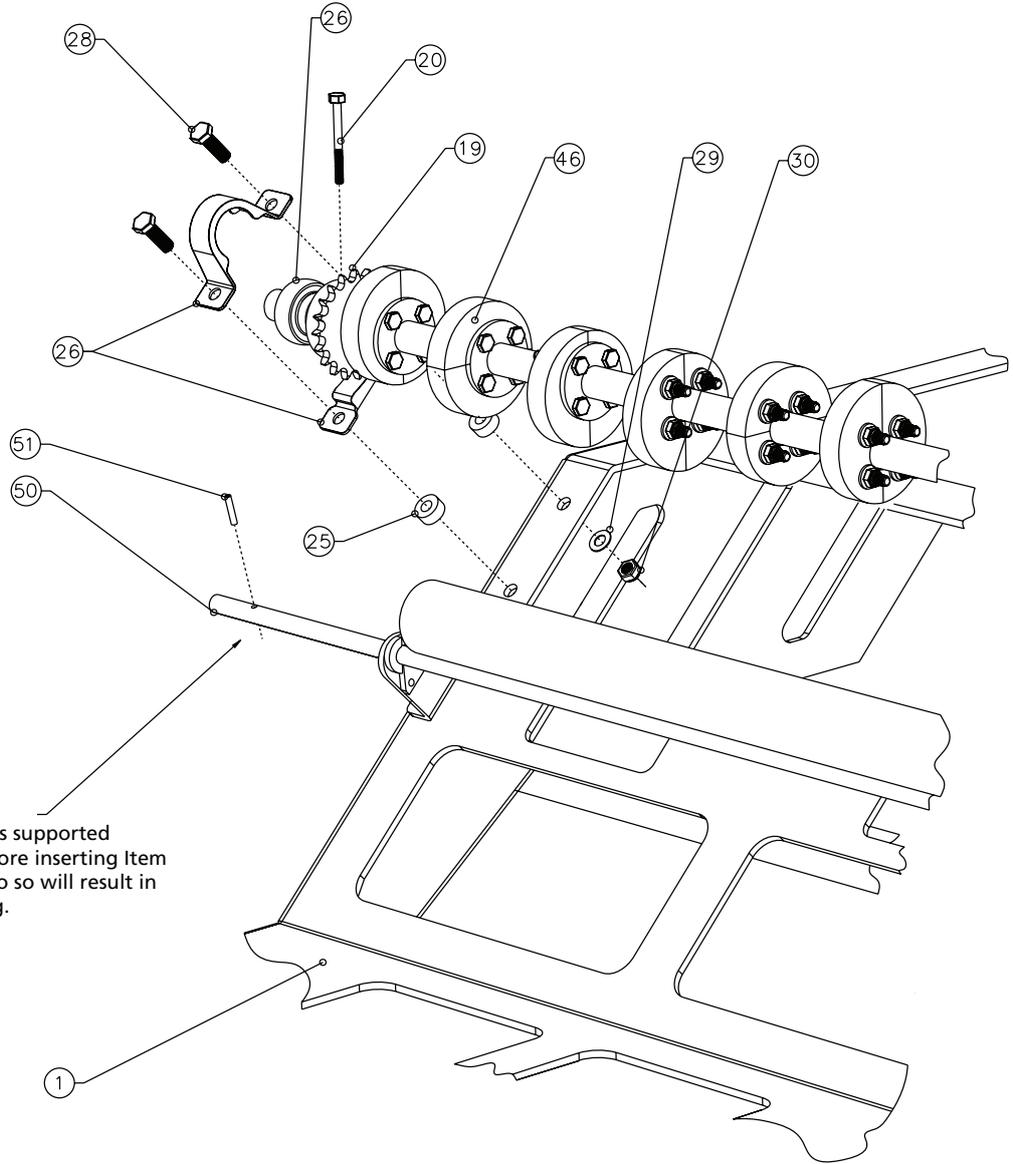


IMPORTANT
 Ideally, Item 41 should rest as shown, with its teeth aligned perfectly with those of Item 42. However, variation in production may not allow a perfect fit for both sets of gears every time. In those instances, adjust Item 31 horizontally, ensuring Items 41 drop and engage an equal amount.

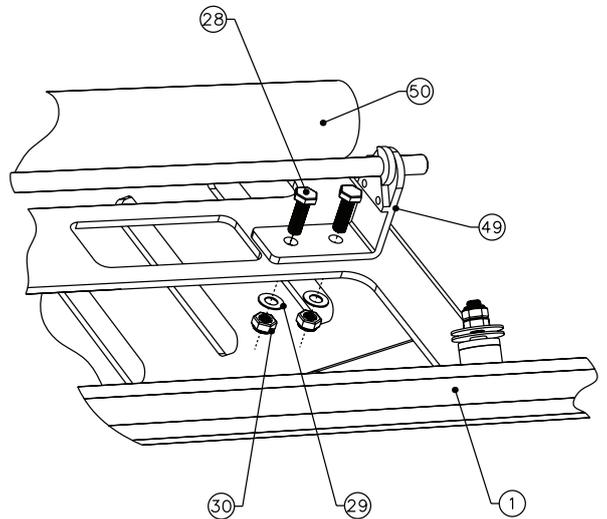
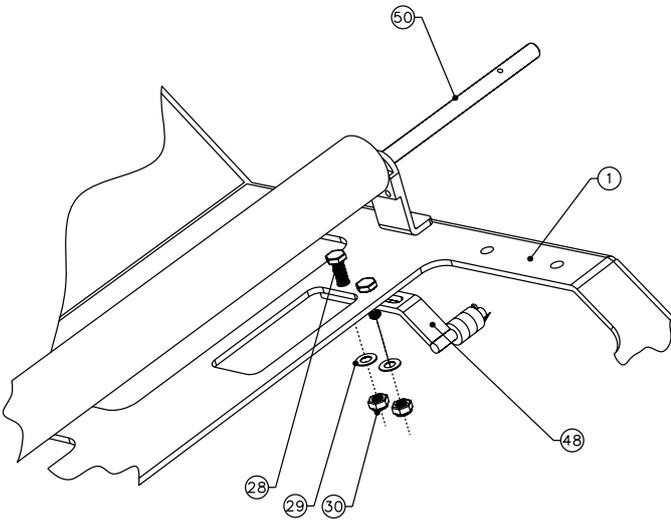


7 Exploded Views

Chassis

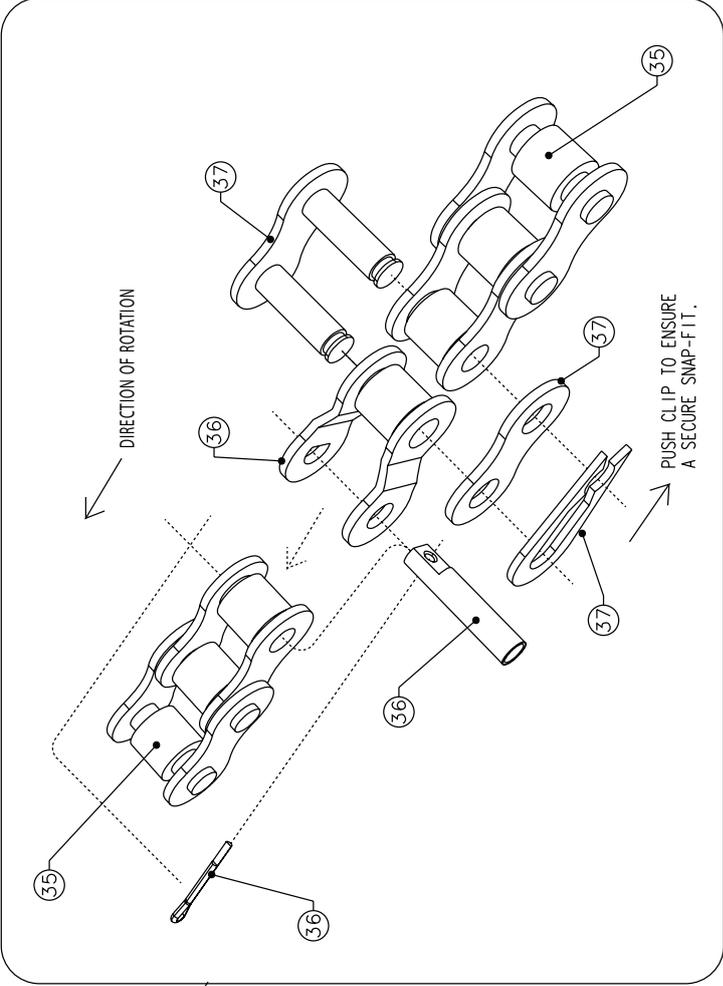
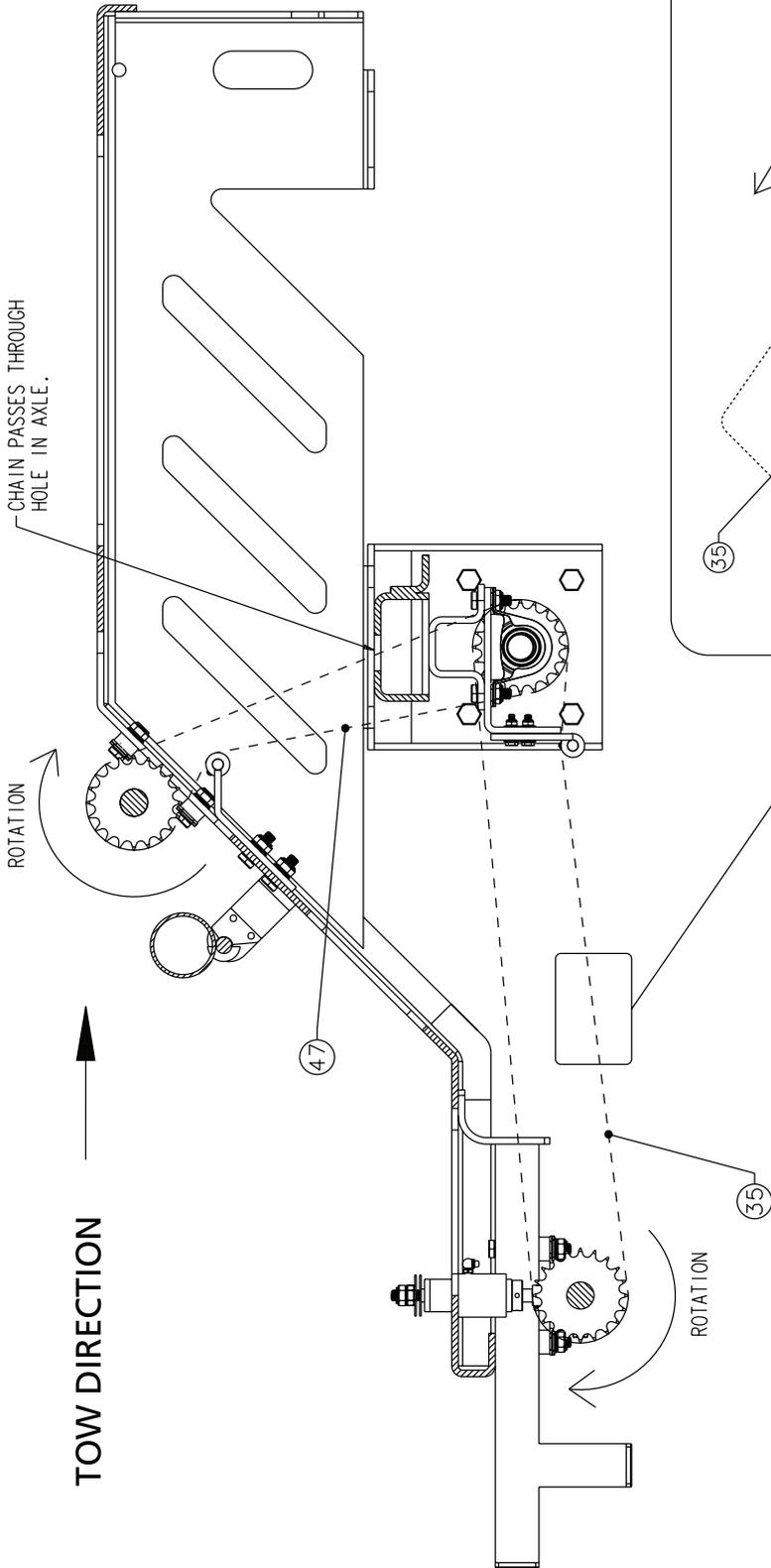


IMPORTANT
Ensure Item 50 is supported underneath before inserting Item 51. Failure to do so will result in Item 51 bending.



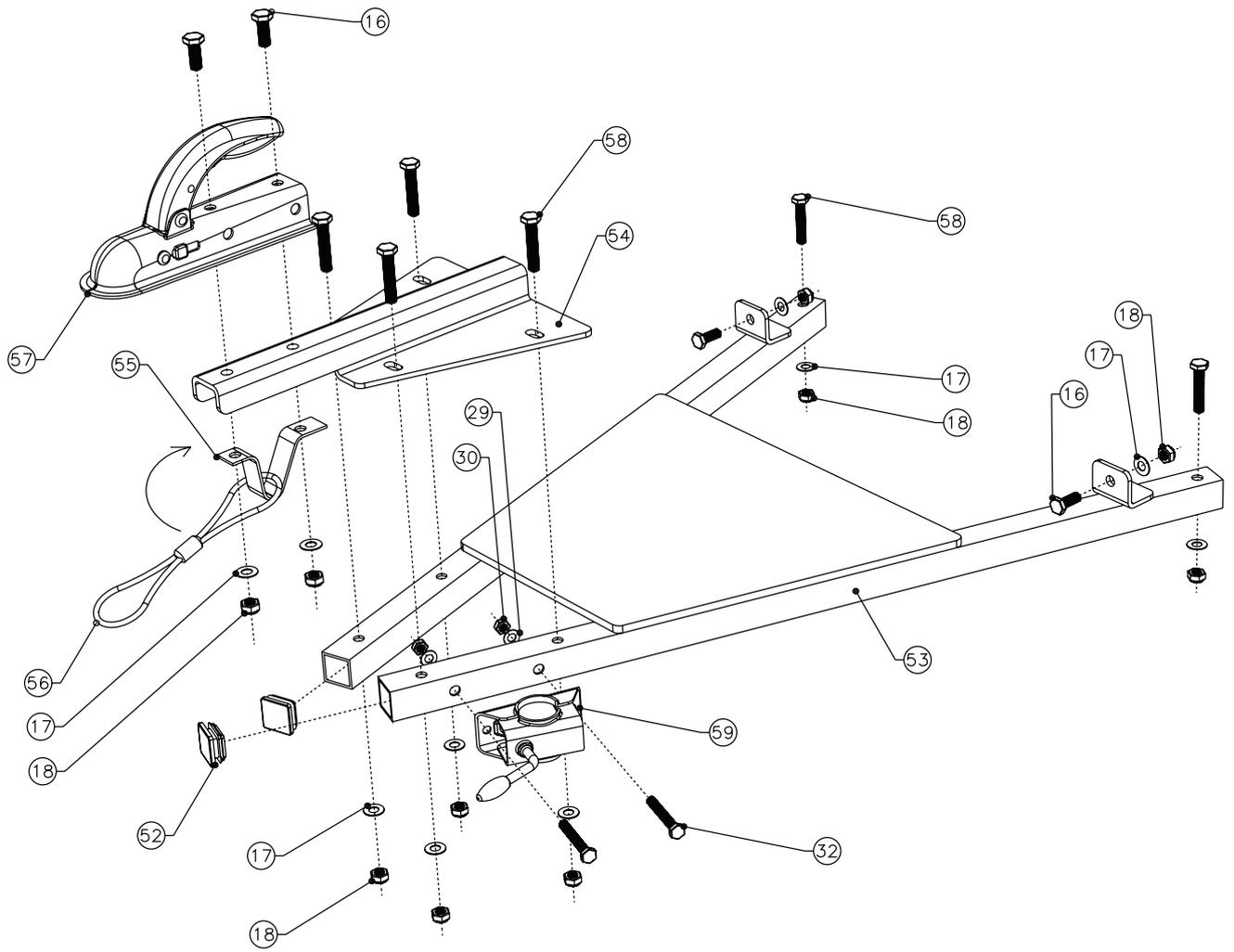
7 Exploded Views

Chassis

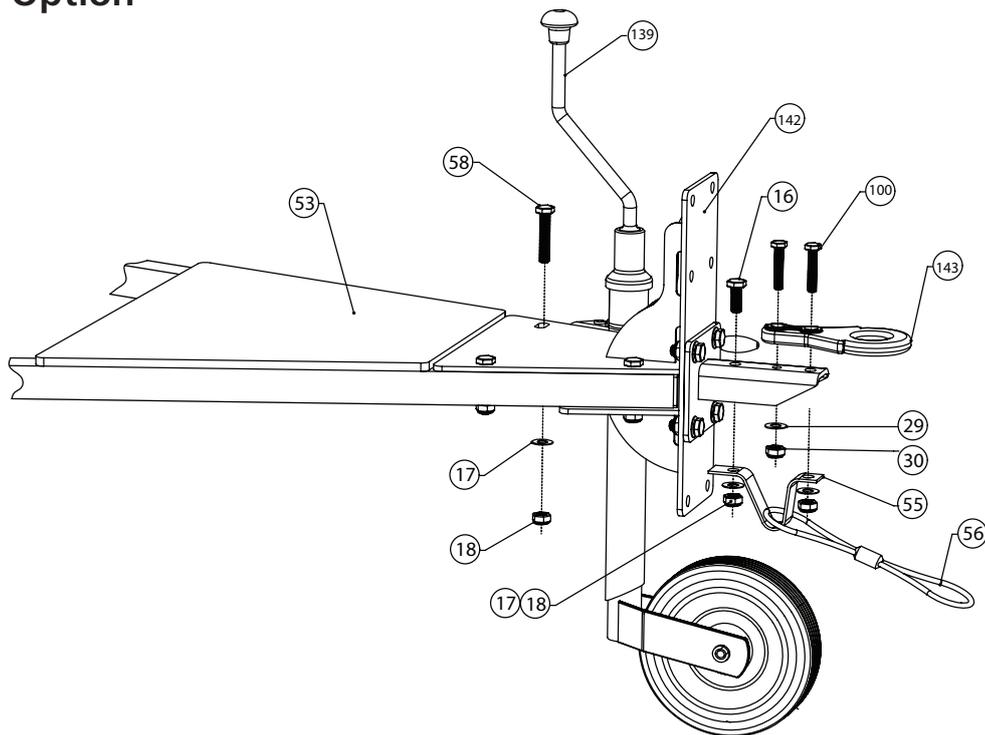


7 Exploded Views

Chassis

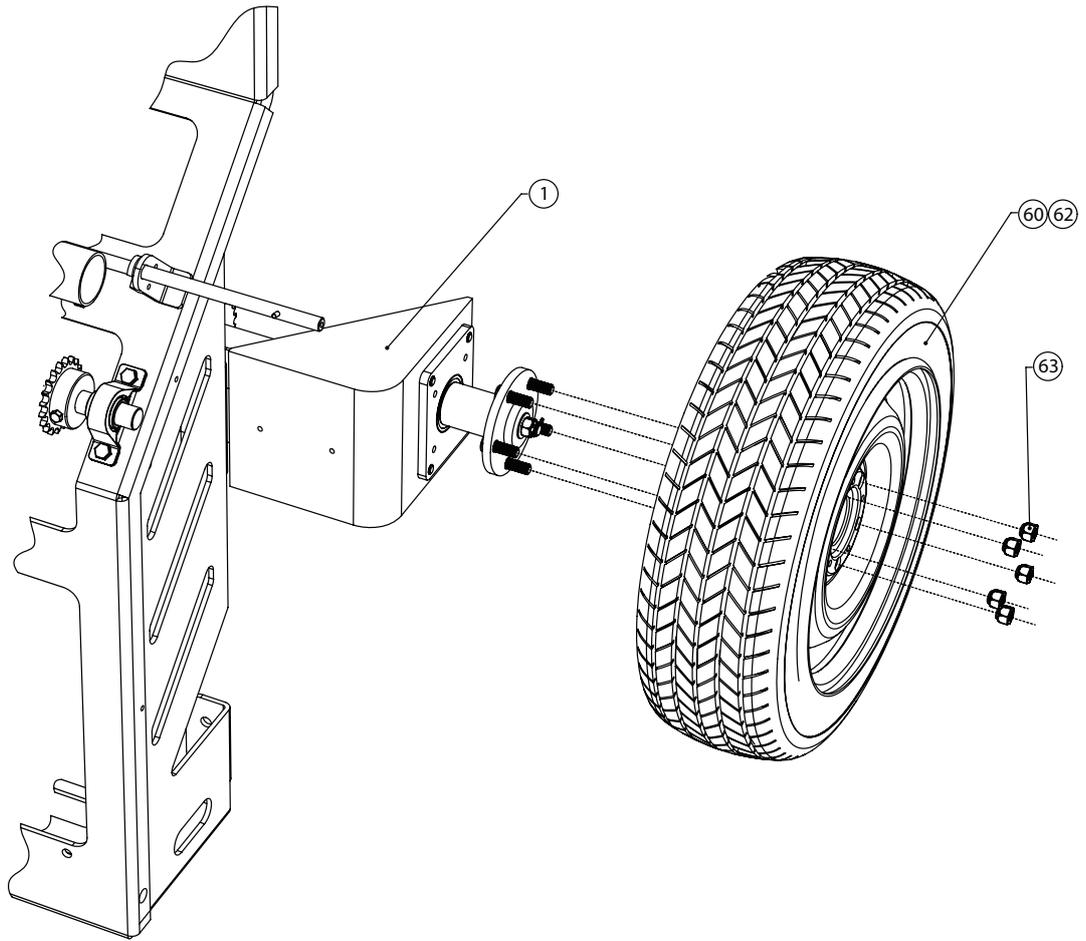


Pin Hitch Option

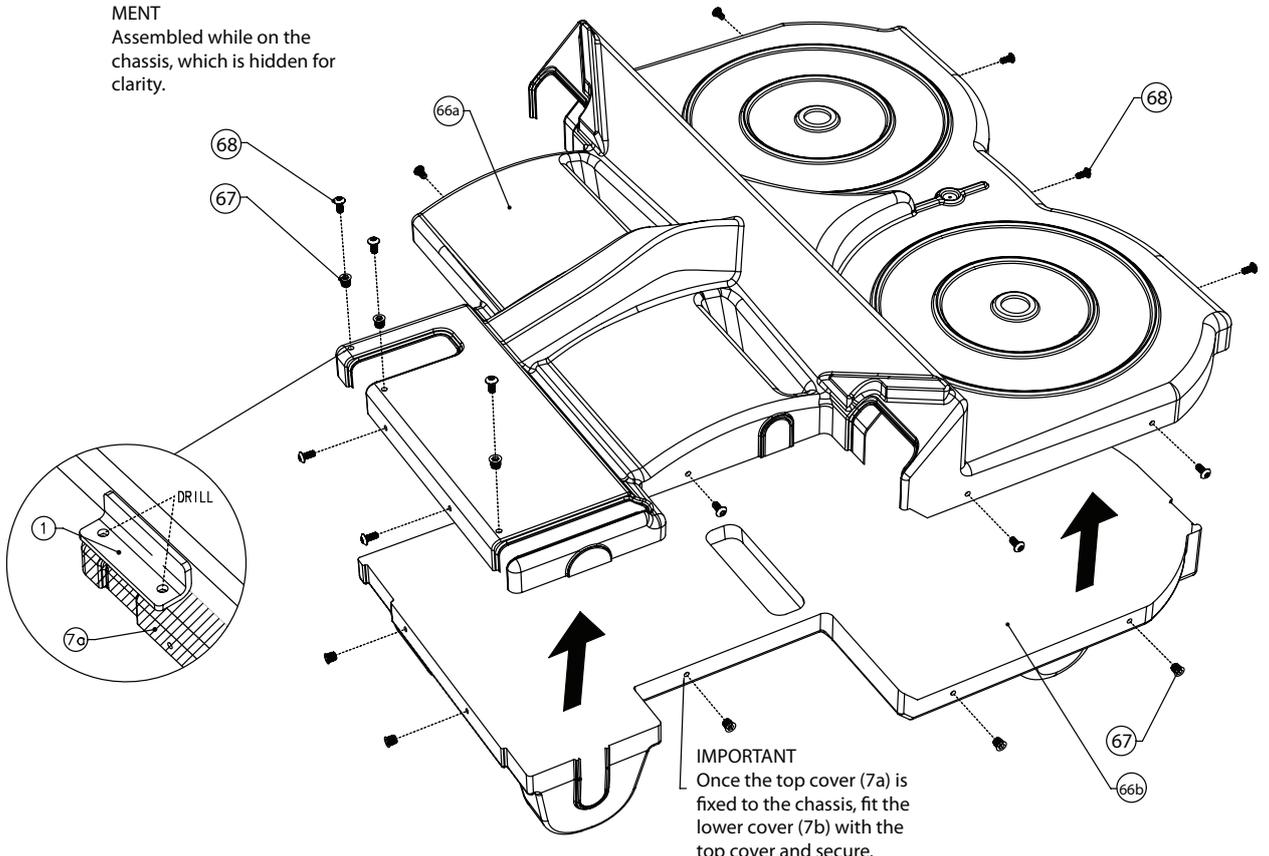


7 Exploded Views

Chassis



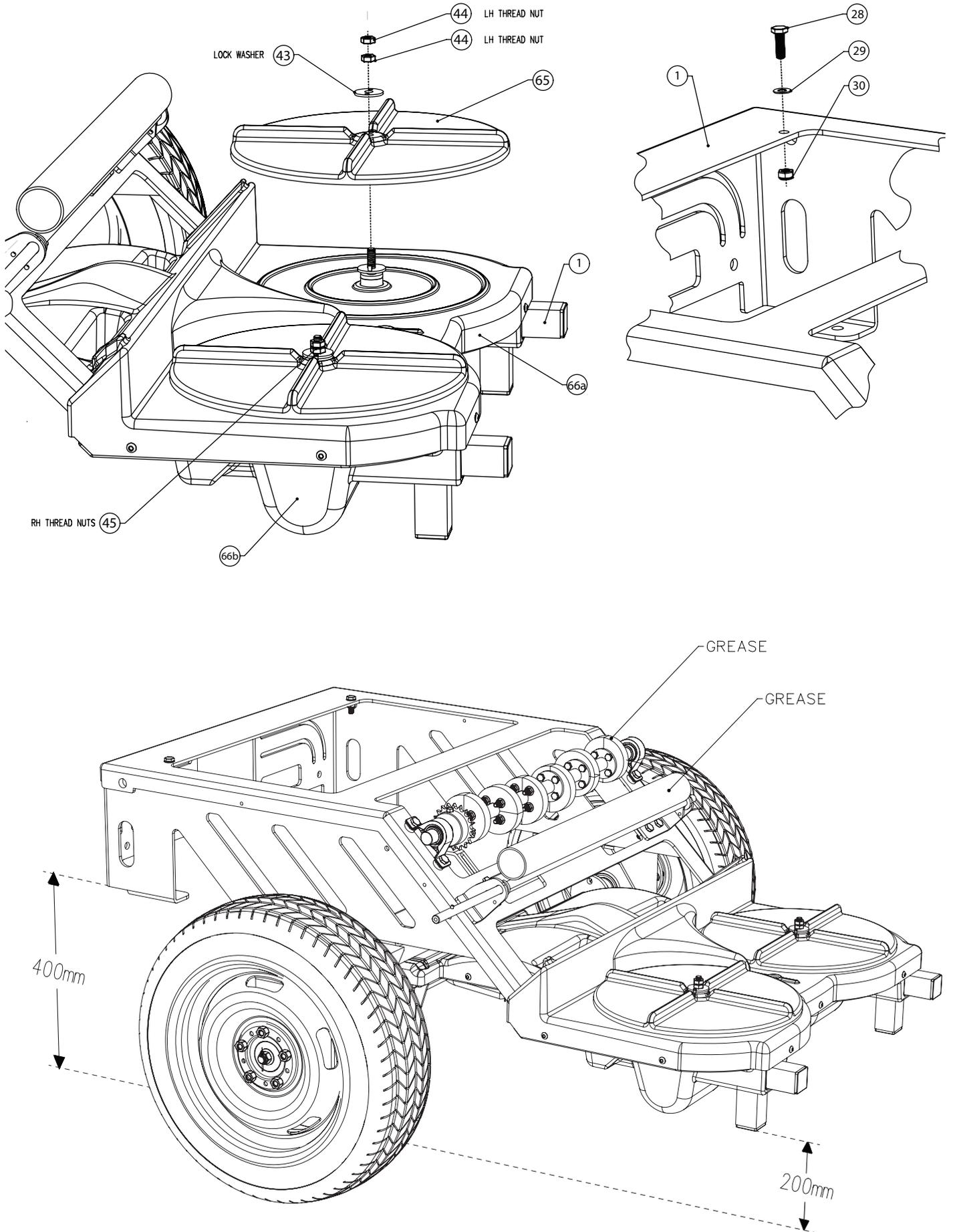
DRIVE COVER ARRANGEMENT
 Assembled while on the chassis, which is hidden for clarity.



IMPORTANT
 Once the top cover (7a) is fixed to the chassis, fit the lower cover (7b) with the top cover and secure.

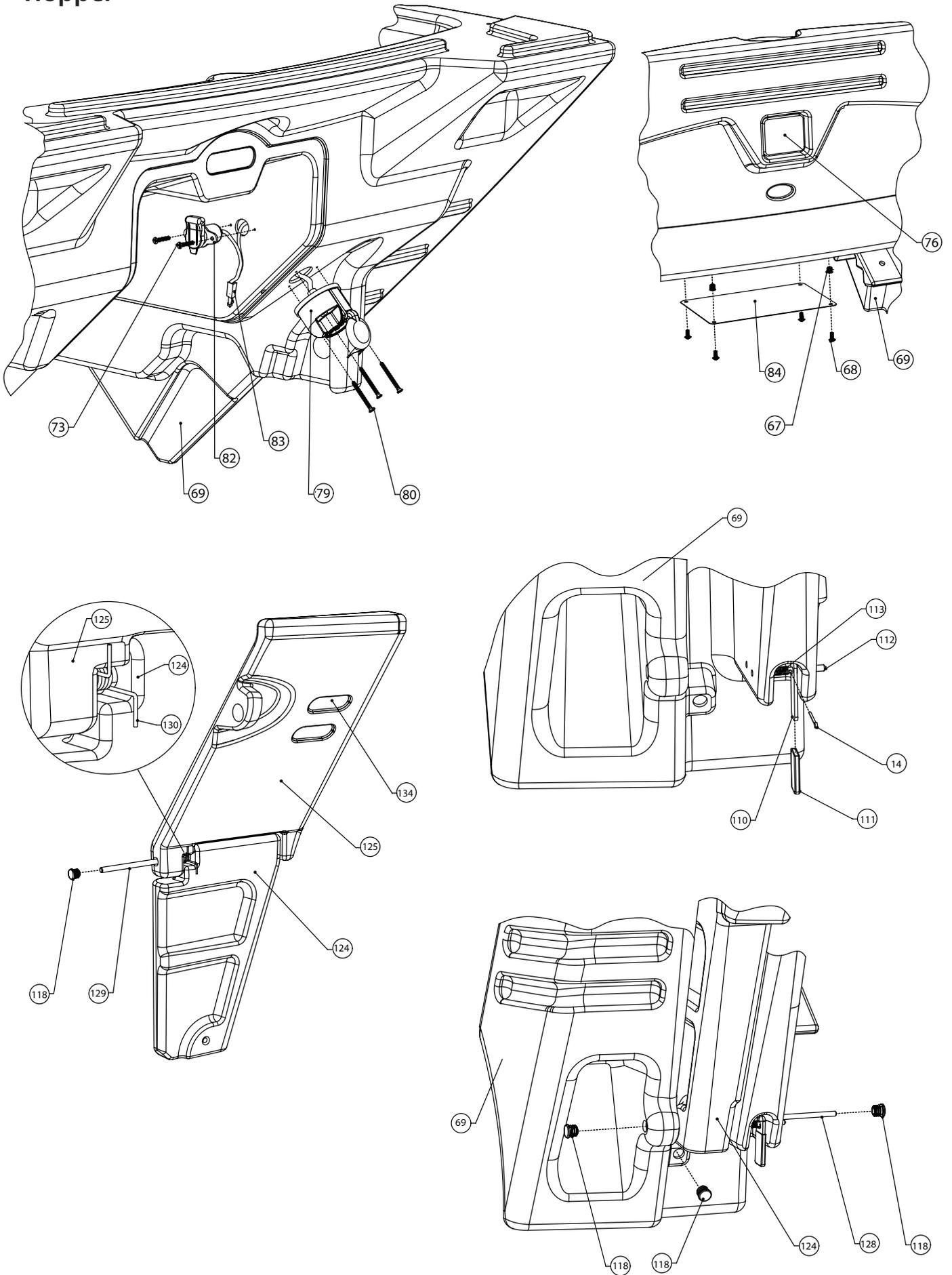
7 Exploded Views

Chassis



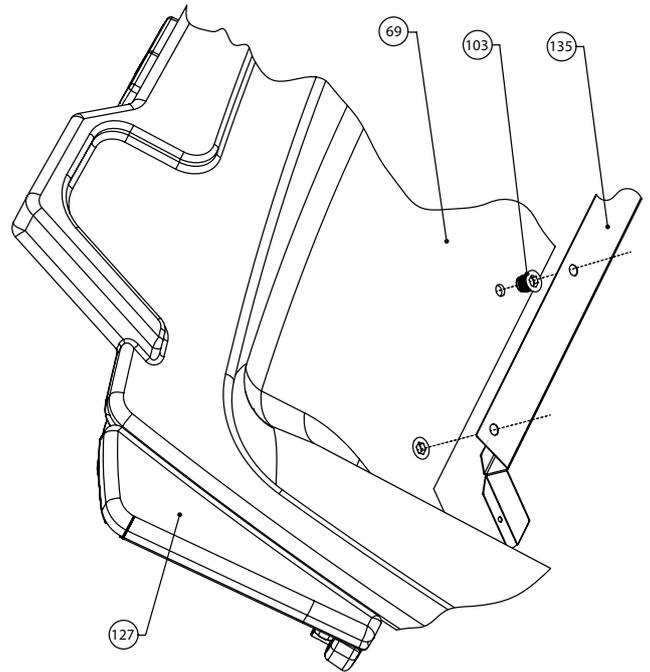
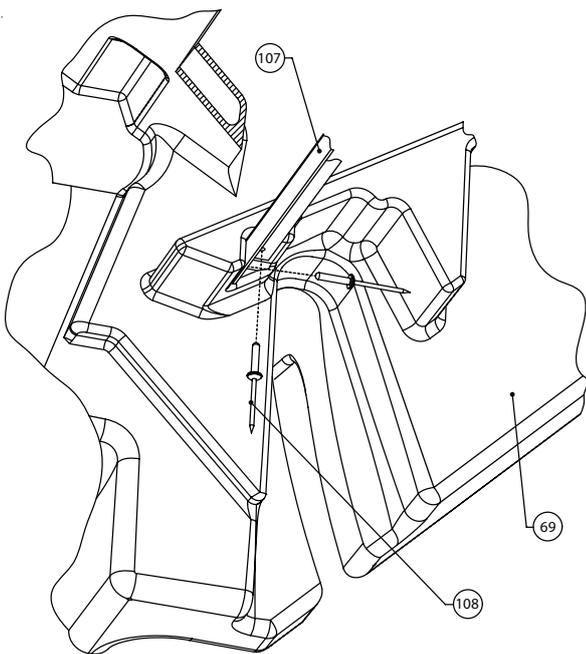
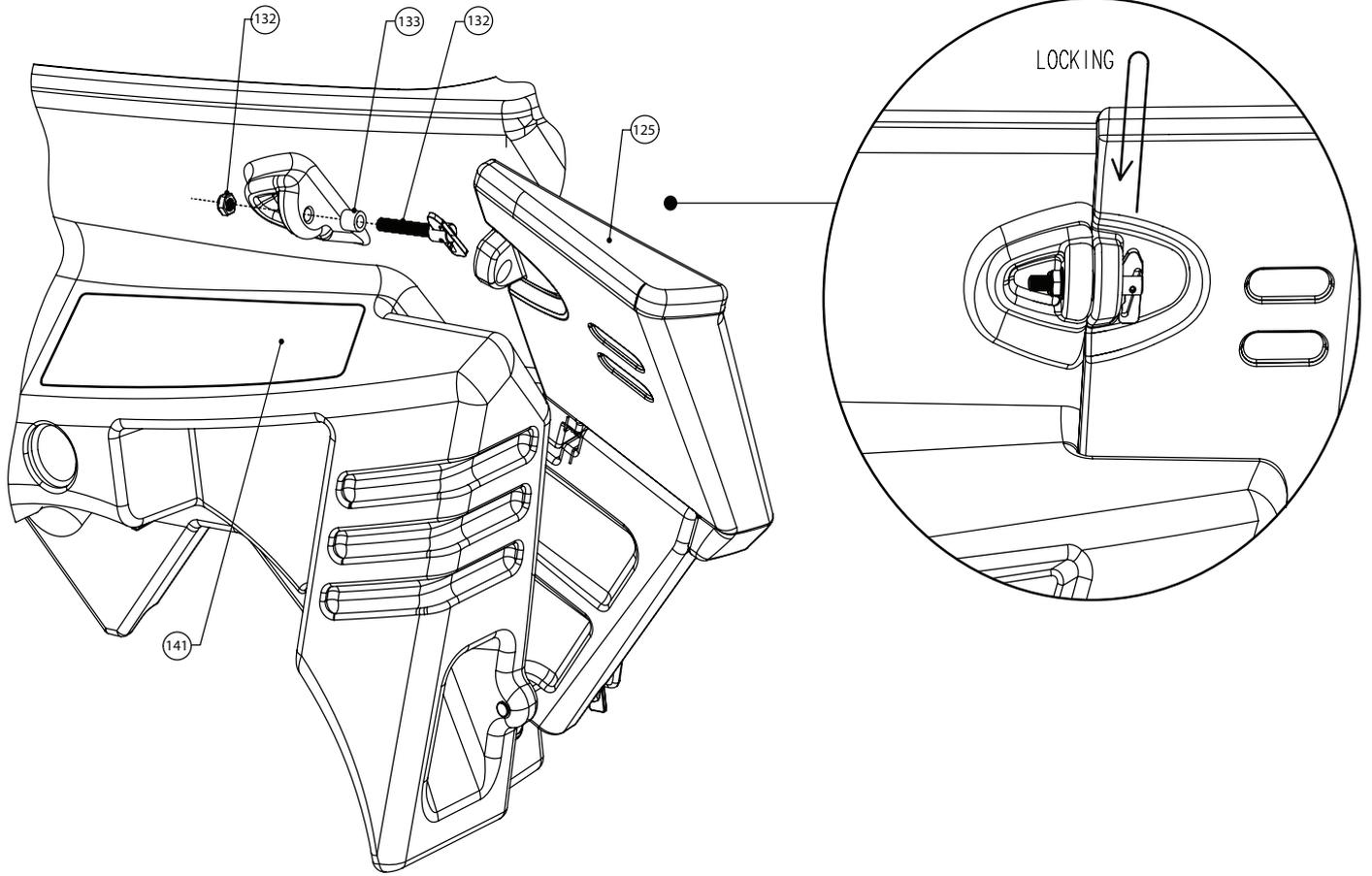
7 Exploded Views

Hopper



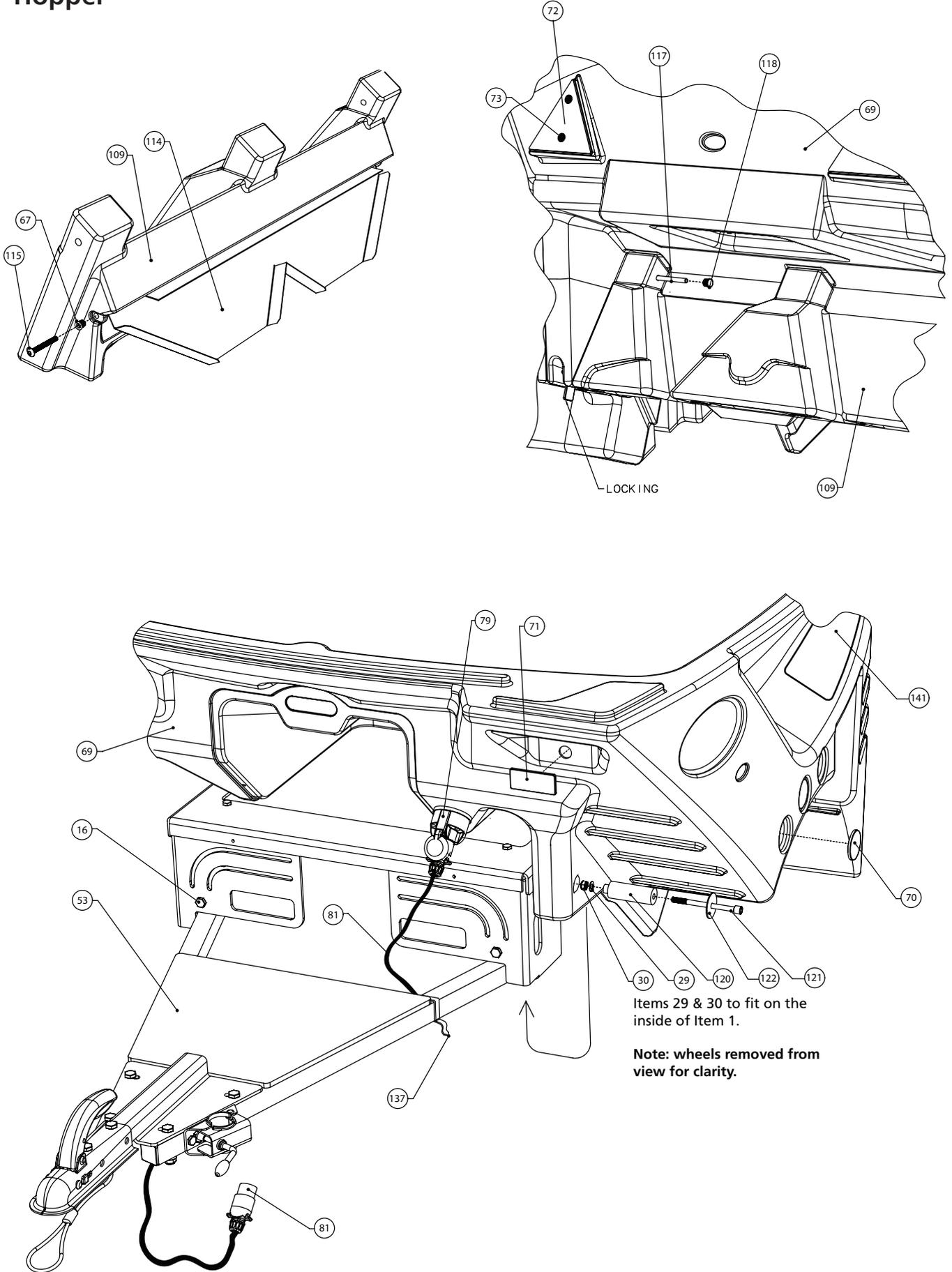
7 Exploded Views

Hopper



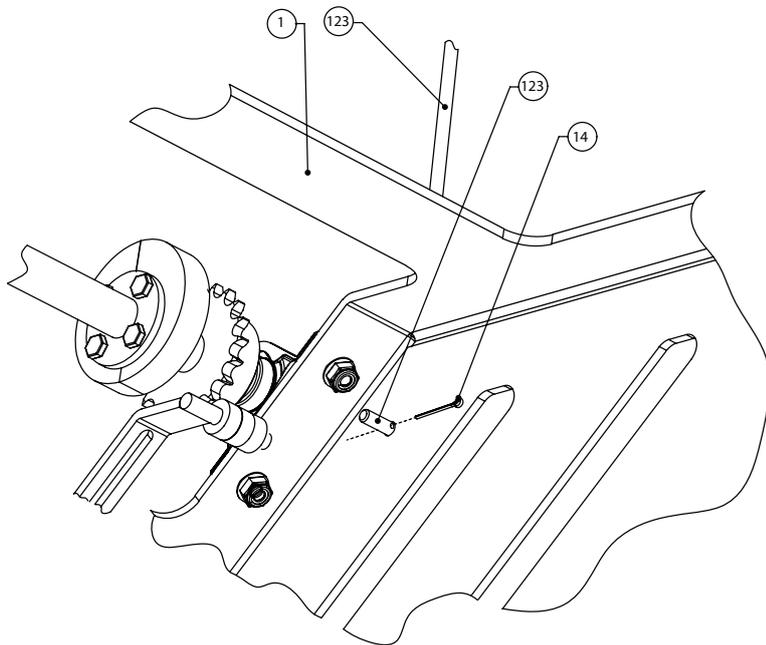
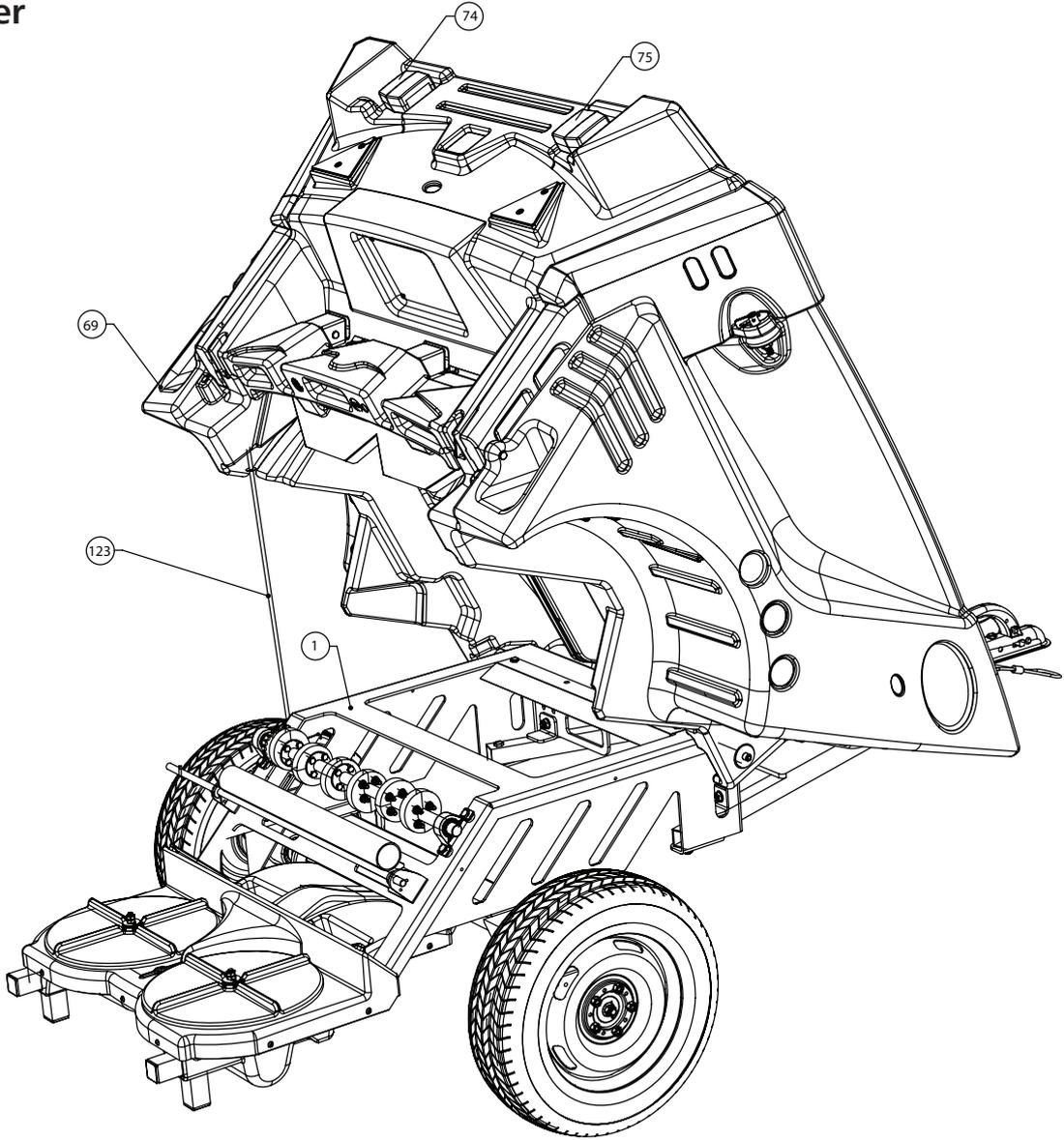
7 Exploded Views

Hopper



7 Exploded Views

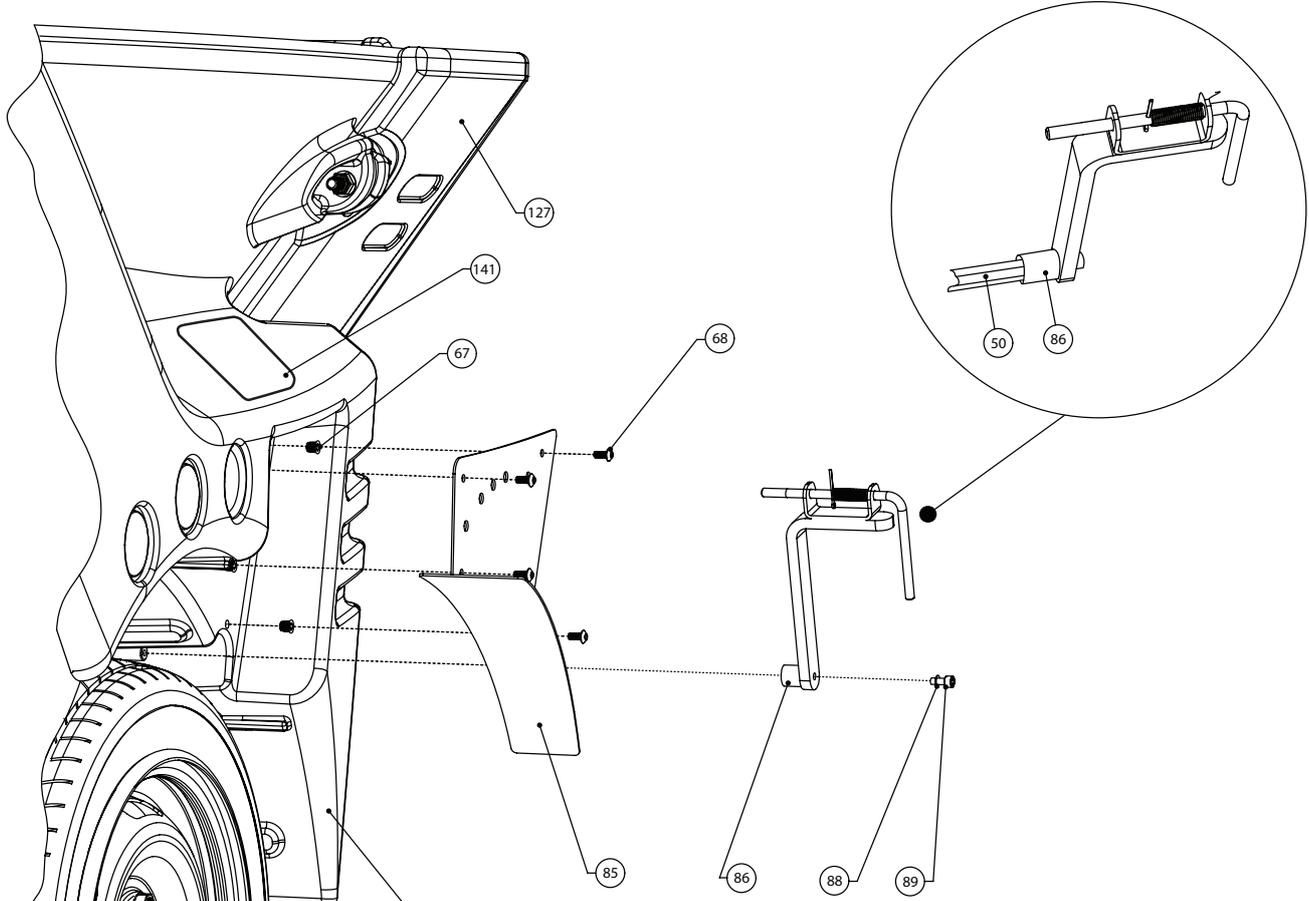
Hopper



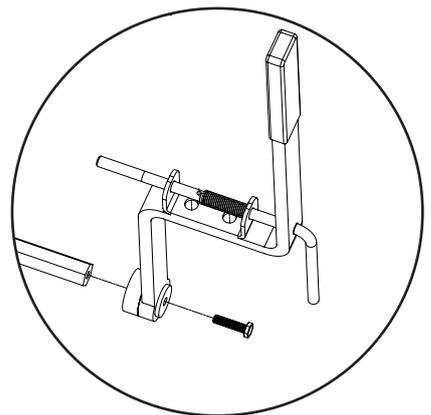
7 Exploded Views

Hopper

Mk I Handle (Models up to Nov 2010)



Mk II Handle (Models after Nov 2010)



IMPORTANT

Some spreading machine models may differ from the illustrations shown in the manual.

8 Component List

No.	Item	No.	Item
1	Chassis	37	Connecting Link for chain, s.s.
2	Spinner boss	38	Spinner Plate Shaft RH
3	Grease nipple M6, 90P feed, s.s.	39	Spinner Plate Shaft LH
4	Bronze bush	40	Shaft Collar, ø12mm Bore
5	Bearing Unit	41	Gear, Bevel, 15 tooth, s.s.
6	Radial Bearing, ø40 Bore x ø68 x15mm, m.s.	42	Bolt, M4 x 20mm c/w Threadlock, Hex Head, s.s.
7	Bolt, M12 x 16mm c/w Threadlock, Hex Head, s.s.	43	Spinner Plate Lock Washer
8	Drive Shaft 1	44	Nut, M10, Standard, s.s. (LH Thread)
9	Keyway, 8mm x 25mm	45	Nut, M10, Standard, s.s. (RH Thread)
10	Wheel Hub	46	Agitation Shaft c/w Nylon Cams
11	Wheel Studs, M12 x 38mm	47	Chain, Roller type, 79 pitches. Ends inner, s.s.
12	Washer, M14 x ø30 x 1.5mm, s.s.	48	Tension Device B
13	Castle Nut ,M14, s.s.	49	Output Adjustor Bracket
14	Split Pin, ø2.5 x 40mm	50	Output Adjustor Shaft
15	Drive Shaft 2	51	Roll Pin, ø5 x 25mm, s.s. (Obsolete)
16	Bolt, M12 x 35mm - Hex Head, s.s.	52	Ribbed Tube End Insert, 40x40mm, Black Polyethylene
17	Washer, M12 x ø25 x 1.5mm, s.s.	53	A-Frame
18	Nut, M12, Nyloc, s.s.	54	Coupling Plate
19	Sprocket, s.s.	55	Drawbar Support Bracket
20	Bolt, M6 x 65mm c/w Threadlock, Hex Head, s.s.	56	Secondary Safety Cable
21	Tension Device A	57	Coupling Head
22	Nut, M6, Nyloc, s.s.	58	Bolt, M12 x 65mm, Hex Head, s.s.
23	Bolt, M6 x 25mm, Hex Head, s.s.	59	Jockey Wheel Clamp
24	Washer, M6 x ø15 x1.5mm, s.s.	60	Wheel Centre, 14''
25	Spacer, M10 x ø22 x 10mm, Nylon	61	Coating of Wheel Centre, Black
26	Bearing ø25mm Bore c/w 2-Part Case m.s.	62	Wheel Tyre, 14''
27	Bearing Coating	63	Wheel Nuts, M12
28	Bolt, M10 x 35mm, Hex Head, s.s.	64	Wheel Trim
29	Washer, M10 x ø25 x 1.5mm, s.s.	65	Spinner Plate, Black PP
30	Nut, M10, Nyloc, s.s.	66	Drive Cover Moulding
31	Gear Shaft	67	Insert, M6, Post Mould, ZN Alloy
32	Bolt, M10 x 70mm - Hex Head, s.s.	68	Screw, M6 x 16mm c/w Threadlock, Socket Button Head, s.s.
33	Gear, Bevel, 45 tooth, s.s.	69	Hopper Moulding
34	Bolt, M6 x 40mm c/w Threadlock, Hex Head, s.s.	70	Reflector, Amber, Round
35	Chain, Roller type, 113 pitches. Ends inner, s.s.	71	Reflector, White, Rectangle
36	1/2 Size Offset Link for Chain, s.s.	72	Reflector, Red, Triangle

8 Component List

No.	Item	No.	Item
73	Screw, 4.8 x 30, Self Tap CSK Cross Head, s.s.	109	Funnel Moulding
74	Light Cluster, Plug-in type	110	Funnel Locking Plate, s.s.
75	Light Cluster, Plug-in type c/w Fog Light connection	111	Funnel Locking Plate Sleeve
76	Fog Light, Plug-in type	112	Funnel Locking Pin, ø6 x 67mm, s.s.
77	Washer, M5 xø10 x1mm, s.s.	113	Spring, Compression type, s.s.
78	Nut, M5, Nyloc, s.s.	114	Release Plate
79	Cable c/w DC Connections & 7 pin socket, 3.5m	115	Screw, M6 x 50mm, Socket Button Head, s.s.
80	Screw, 4.8 x 50, Self Tap CSK Cross Head, s.s.	116	Spacer, M6 x ø10 x 5mm, Black Nylon
81	Cable, Plug to Plug, 1.7m	117	Funnel Pivot Rod, ø8 x 110mm, s.s.
82	Socket, 3 pin, Din 9680	118	Hole Plug, ø19 x 11.5mm, Black PE
83	Cable Connector Kit, 1 x Black Core, 2 x Blue Cover	119	Mat Stop, s.s.
84	Wiring Cover Plate	120	Hopper Pivot Spacer
85	Agitation Setting Plate	121	Screw, M10 x 130mm, Socket Cap Head, s.s.
86	Agitation Handle	122	Washer, M10 x ø50 x 3mm, s.s.
87	Spring, Compression type, s.s.	123	Hopper Stay, s.s.
88	Spring Washer, M6	124	LH Limiter Body Moulding
89	Screw, M6 x 25mm, Socket Cap Head, s.s.	125	LH Limiter Arm Moulding
90	Agitation Mat, Insertion Rubber	126	RH Limiter Body Moulding
91	Agitation Finger c/w Roller	127	RH Limiter Arm Moulding
92	Bolt, M8 x 45mm, HexHead, s.s.	128	Limiter Body Pivot Rod, ø6 x 145mm, s.s.
93	Nut, M8, Nyloc, s.s.	129	Limiter Arm Pivot Rod, ø8 x 260mm, s.s.
94	Screw, M6 x 16mm, Socket Button Head, s.s.	130	LH Torsion Spring, s.s.
95	Washer, M6 xø18 x1.5mms.s.	131	RH Torsion Spring, s.s.
96	Nut, M6, Nyloc, s.s.	132	Antiluce Catch, M12 x 75mm c/w Nyloc Nut, BZP
97	Agitation Pivot Rod, ø8 x 720mm, s.s.	133	Limiter Spacer, ø20 x 20mm, s.s.
98	Agitation Pivot Rod Spacer	134	Reflector, 70 x 25mm, Diamond Grade DG3
99	Agitation Pivot Bracket	135	Baffle Body, s.s.
100	Bolt, M10 x 50mm, HexHead, s.s.	136	Baffle Blade, s.s.
101	Washer, M10 xø20 x1.5mm, s.s.	137	Cable Ties, 275 x 9mm
102	Nut, M10, Nyloc, s.s.	138	Hopper Cover, PVC 610gsm
103	Insert, M10, Post Mould, ZN Alloy	139	Jockey Wheel
104	Bolt, M10 x 25mm, HexHead, s.s.	140	Hopper Stay Instruction Plaque
105	Washer, M10 xø35 x1.5mm, s.s.	141	Use and Maintenance Instruction Plaque
106	Mat Clamp		Pin Hitch Option
107	Mat Support	142	Pin Hitch Plate
108	Rivet, ø4 x 16mm, Peel, Black	143	Towing Eye

9 Spares List & Troubleshooting

Spares List

Description	Includes Items
Top Chain Kit	47, 36, 37
Bottom Chain Kit	35, 36, 37
Agitation Shaft	46, 19, 20, 26, 27
Spinner Plate	65, 44, 45
Wheel Nuts	63
Wheel	60, 62, 61, 63
Electric Extension Cable	81
Light Cluster Set	74, 75, 73, 68
Agitation Finger	91
Agitation Mat	90
1/2 Nylon Cam Kit	Part of Item 46 (2 cams & fixings only)
Mat Support Kit	107, 108
Gear Kit	33, 41
Spinner Shafts & Lock Washer	38, 39, 43

Troubleshooting

PROBLEM	CAUSE	SOLUTION
Material not flowing from the hopper	<ol style="list-style-type: none"> 1. Empty hopper 2. Material is too wet 3. Frozen/course material 4. Agitation mat not lifting in a wave action 	<ol style="list-style-type: none"> 1. Fill hopper 2. Remove baffle blade 3. Break up material 4. Check for worn nylon cams and replace if necessary (see spares list)
Spinner plates not moving	<ol style="list-style-type: none"> 1. Loose spinner plates 2. Worn gears 3. Spinner plates worn 	<ol style="list-style-type: none"> 1. Tighten fixing - clockwise for LH plate and anti-clockwise for RH plate 2. Replace gears (see spares list) 3. Replace spinner plates (see spares list)
Tail lights not working	<ol style="list-style-type: none"> 1. Not connected to vehicle 2. Expired bulbs 3. Loose connection 4. Rusty/dirty connections 	<ol style="list-style-type: none"> 1. Connect to vehicle 2. Replace bulbs 3. Re-attach via the cable access point 4. Clean connections and spray with WD40

- A planned maintenance schedule of regular inspection is recommended, replacing components as necessary.
- Replacement components are available direct from Glasdon.
- Glasdon cannot be held responsible for claims arising from incorrect installation, unauthorised modification or misuse of the product.

Should you require any further assistance please contact us on
tel: 01253 600410, fax: 01253 792558 or email: sales@glasdon-uk.co.uk



In accordance with our policy of continuous development and improvement, we reserve the right to make changes in design and specification without notice. Glasdon UK Limited products are manufactured under license worldwide and various components of the models are patented and design registered.



Glasdon U.K. Limited

Preston New Road
BLACKPOOL
Lancashire
FY4 4UL

Tel: (01253) 600410

Fax: (01253) 792558

e-mail: sales@glasdon-uk.co.uk

web: www.glasdon.com

© Copyright Glasdon JUL 2012