

Operator Manual & Parts List

MAJOR SLURRY INJECTORS



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We suggest that you record your machine details along with your dealers address & telephone number for your convenience

MODEL: _____ SERIAL NO: _____

DEALER: _____

ADDRESS: _____

TEL NO: _____

Disclaimer

While every effort has been made in the production of this manual to ensure that the information contained herein is full and correct, Major assumes no responsibility for errors or omissions.

Major reserves the right to modify the machinery and the technical data contained within the manual without prior notice.

Further to this, Major assumes no liability for any damages which may result from the use of the information contained within this manual.

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Introduction

Thank you

We appreciate having you as a customer and wish you many years of safe and satisfied use of your machine.

Using Your Operator's Manual

This manual is an important part of your machine and should remain with the machine when you buy it. Reading your operator's manual will help you and others avoid personal injury or damage to the machine. Information given in this manual will provide the operator with the safest and most effective use of the machine.

Sections in your operator's manual are placed in a specific order to help you understand all the safety messages so you can operate this machine safely. You can also use this manual to answer any specific operating or servicing questions.

Safety Issues

Your manual contains special messages to bring attention to potential safety concerns, machine damage as well as helpful operating and servicing information. Please read all the information carefully to avoid injury and machine damage.

Product Identification

Machine Serial Numbers

If you need to contact MAJOR or your MAJOR dealer for information on servicing or spare parts, always provide the product model and serial numbers.

We suggest that you record your machine details below:

Model No: _____

Serial No: _____


Date of Purchase: _____

Dealer Name: _____

Dealer Telephone: _____

The serial plate is located on the front side of the frame.

To show that the Major Disc Injector / Trailing Shoe conforms to all the European rules, the CE-brand is printed on the Major identify plate.

MAJOR EQUIPMENT INTL. LTD. BALLYHAUNIS, CO. MAYO, IRELAND TEL: 00353 (0) 94 9630572 FAX: 00353 (0) 94 9630788 E-Mail: info@major-equipment.com Website: www.major-equipment.com	CE	
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	MODEL NUMBER 	
	YEAR OF MANUFACTURE 200	



Purpose of Use

The slurry applicator is an agricultural machine which is exclusively developed for the injection of fluids in or onto the soil with a limited amount of solid matter, like water or slurry. The slurry applicator should not be used for other purposes other than applying slurry. Other applications outside the correct use can be dangerous.

Product Specifications

MAJOR TRAILING SHOE		MAJOR DISC INJECTOR	
Hydraulic Requirements: Hydraulic Flow Rate 50-70 L/Min Max Pressure 200 Bar		Hydraulic Requirements: Hydraulic Flow Rate 50-70 L/Min Max Pressure 200 Bar	
Tractor Spools: 1. Double Acting – Macerator Motor 2. Double Acting - 6 Port Diverter 6 Port Diverter controls Spool Position “A” - Lifts the frame and closes the gate valve feeding the macerator Spool Position “B” - Lowers Frame and opens gate valves. Gate valves stay open until operator lifts frame. • Drain Port – Motor drain line (Must be pressure free flow return)		Tractor Spools: 1. Double Acting – Wing Ram 2. Double Acting – KV-10 Sequence Valve KV-10 Sequence: 1. Arms lower 2. Gate valves open 3. Motor rotates KV-10 Reverse Sequence 1. Motor Stops 2. Gate Valve Closes 3. Arms Lift • Drain Port – Motor drain line (Must be pressure free flow return)	
Horse Power Requirements – 100 Hp +			
PTO Requirements – 1000 PTO Rpm Max (Optimum efficiency 750E) (Turbo Pump Model)			

MAJOR DISC INJECTOR

Working width (m)	5.2
Weight (kg)	1260
Working depth	20 – 60 mm (3/4" - 2 1/2")
Transport Width	2.4m (8ft)
Spreader outlet	40 mm
Spread Capacity	10 – 30 m3/ha (142 – 429 cuft/acre)

TRAILING SHOE APPLICATOR

Working width (m)	6.4	6.8	7.7
Weight (kg)	1130	1130	1170
Transport Width	2.7m (8ft 8)		
Spreader outlet	40 mm		
Spread Capacity	10 – 30 m3/ha (142 – 429 cuft/acre)		

Register Your Product and Warranty Online











To register your product through the Internet, simply go to the Support section on www.major-equipment.com. Completing the information, either online or with the product warranty card, will ensure the customer that their product receives all post sales service and important product information.

The MAJOR Shallow Disc Injector and Trailing Shoe are supplied with a twelve month warranty. No warranty is given where the machine is being used as a hire machine. Warranty is against faulty workmanship or parts. All parts must be returned to the manufacturer. No warranty can be considered unless parts are returned. All replacement parts will be supplied on a chargeable basis until warranty has been accepted.

Safety

Machine Safety Labels

The machine safety labels shown in this section are placed in important areas on your machine to draw attention to potential safety hazards. Replace missing or damaged labels.

<p>To prevent Serious Injury or Death</p> <ul style="list-style-type: none"> • Avoid unsafe operation or maintenance. • Do not operate or work on this machine without reading and understanding the operator's manual. • If manual is lost, contact your nearest dealer for a new manual. 	Read the user manual thoroughly before use.	In front of the tank, on front of frame
	Danger of entrapment	On the frame, both foldable sides
	Grease Point	On the frame, near Hinge points
	Don't not run macerator dry	On the rear of macerator
	Beware of High Pressure Oil Leaks.	On front of frame
	Lift machine before reversing.	On front of frame
	Do not insert hands during operation	Rear of the macerator.
	Switch off machine before opening for inspection	Rear of the macerator
	Warning Danger of crushing between two moving parts,	Right and left wing hinges.
	Remove transport pin in linkage frame before use	Diverter Hydraulic hoses near fittings.

Operating Safely

Users should become thoroughly familiar with the contents of this manual before using, servicing and mounting the implement to the tractor and all other pertinent operations. Never wear jewellery, loose clothing such as ties, scarves, belts, unbuttoned jackets or dungarees with open zips which could become caught up in moving parts.

Always wear approved garments complying with accident prevention provisions such as non-slip shoes, ear muffs, goggles and gauntlets. Wear a jacket with reflecting stickers if the implement is used near public highways.

Consult your retailer, the Labour Health Service or your nearest equivalent authority for the information about the current safety provisions and specific regulations with in order to ensure personal safety.

ALWAYS DISENGAGE PTO, SWITCH OFF THE TRACTOR ENGINE AND ENGAGE THE PARKING BRAKE BEFORE MAKING ADJUSTMENT TO THE MACHINE.

Sound Levels: The average measured sound-pressure level of a slurry injector is less than 70 dB (A). Take care, the average sound-level of a slurry tanker can be more than 80 dB(A), it is therefore recommended that you wear ear protection.

Driving safely on public roads

When the machine is used for transport on the public road, it must conform to all road safety regulations. For these laws the Major Disc Injector / Trailing Shoe have a topped of triangle on the back of the frame, and road lighting in accordance with the Roads Authority Transport.

Transport on the public road is only allowed when both wings are folded up and locked in position. Ensure the machine is coupled together correctly and pins are retained.

Hydraulic connections: Check connections are clean before attaching, ensuring correct fitment and prevention of internal damage.

Foldable parts: Do not allow people in the working area when folding or unfolding wings as there could be serious injury and or loss of limb. Lock wings in position after folding.

Take account of the stability of the tanker while driving with a coupled Major Disc Injector / Trailing Shoe. Ensure tractor is weighted correctly to balance steering.

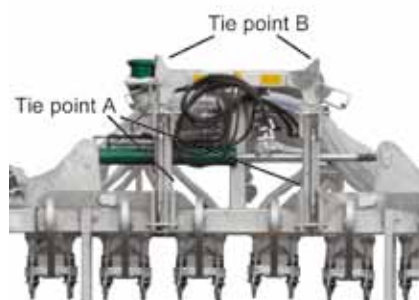


Transport on a Trailer

Both wings of the slurry injector should be folded out when transported on a trailer. Be aware of the total height and width of a trailer with load.

The Major Disc Injector / Trailing Shoe can be tied up at the following points:

- At the lower linkage point (A);
- At the upper lifting eyes (B)



Operating the Machine

Inspections before Use

Before transporting the combination of slurry tanker and slurry injector, the following points should be checked and followed:

- Check the entire technical conditions of the machine.
- Check the locking pins of the linkages and wings are secure.
- Check the hydraulic system for leakages.
- Check the gate valves and couplings for leakages
- Check the lights are operating correctly.
- Check if the topped off reflective triangle is on the right place and visible

Key to Main Parts

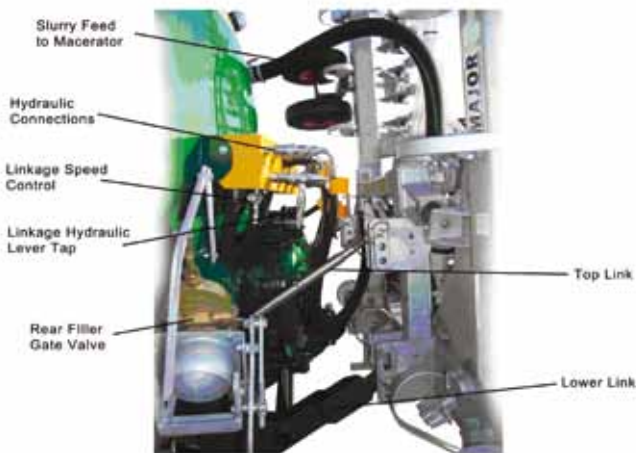


Image 1: Coupled onto the slurry tanker

The MAJOR Disc Injector and the Trailing Shoe slurry applicators are mounted on the 4 point linkage of the slurry tanker. Depending on the width and version of the machine, the slurry is pushed under pressure from the vacuum tanker via the stone trap and through the Turbo chopper unit into the macerator/distributor feed hose macerator/distributor. The Macerator chops the slurry into a fine pulp and distributes it between the hoses.

The Major Disc Injector uses the weight of the tanker to push the cutting discs into the ground, creating a groove. The groove can be set in depth from 10 to 60 mm. The slurry is injected in this groove below the level of the ground. The discs are held in pairs and follow the ground contours together. The Discs are of a three part construction and roll on bearings

The Major Trailing Shoe model rests on the ground on its own weight with the slurry placed in the track left by the shoe. For optimum application, the slurry must be well agitated before filling the tanker. The macerator is more prone to blockages if the slurry is thick and heavy with grass.

Image 2: Overview Slurry Applicator



The two side parts (wings) of the slurry injector are foldable, so the machine is capable for transport on the public roads. The distributor, frame lift and fold up cylinders are hydraulically operated.

Starting Regulations

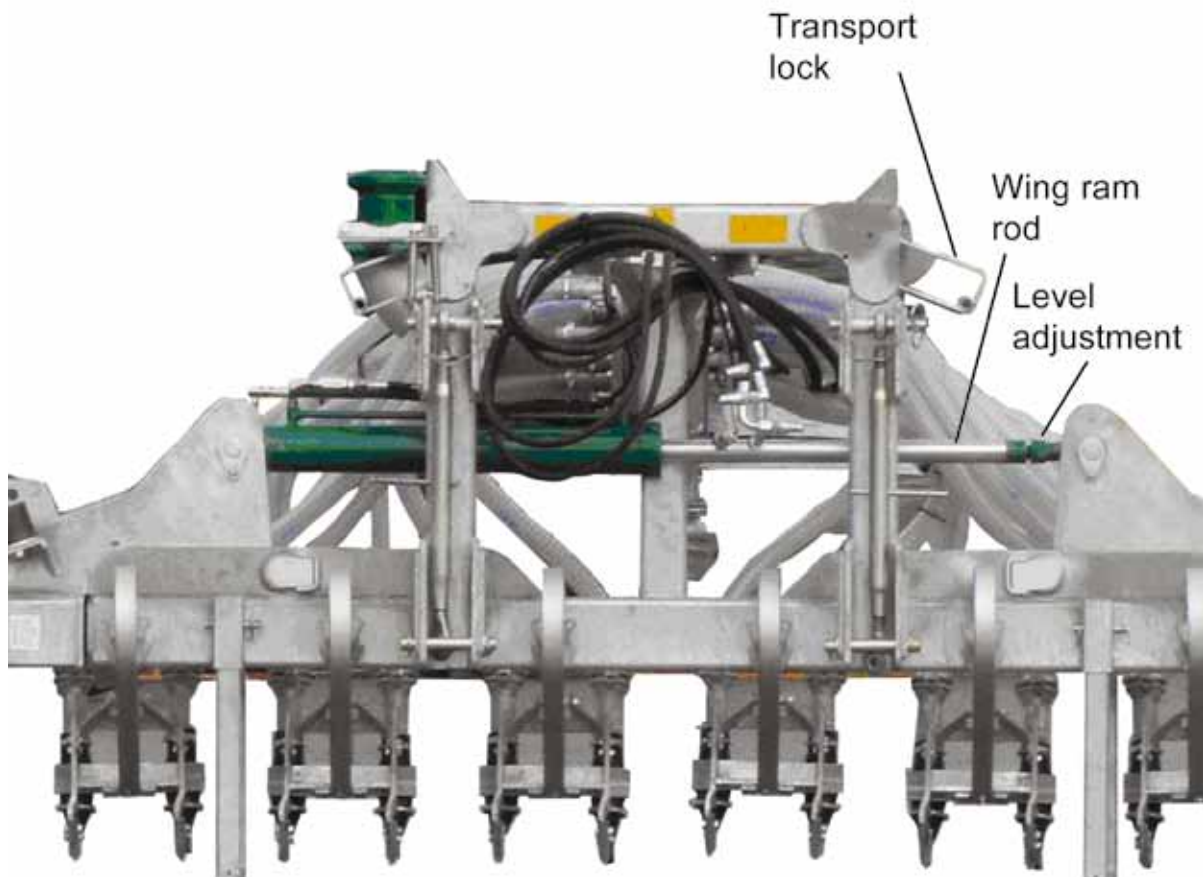
Always check that any imminently dangerous conditions have been eliminated before using the machine. Ensure all guarding is present and the operator is fully aware of the operations of the machine

Machine Set Up

Setting the wing level (all models)

If the wings of the slurry injector are not completely flat after unfolding (the outer discs or shoes are higher or lower), then adjust in the following way:

- Unfold the wings of the machine;
- Loosen the lock nut;
- Lift the machine on one side with a jack;
- Using a wrench to rotate the piston rod until desired level is reached.
- Relock lock nut.



Adjustment of working depth (This is for Major Disc Injector only)



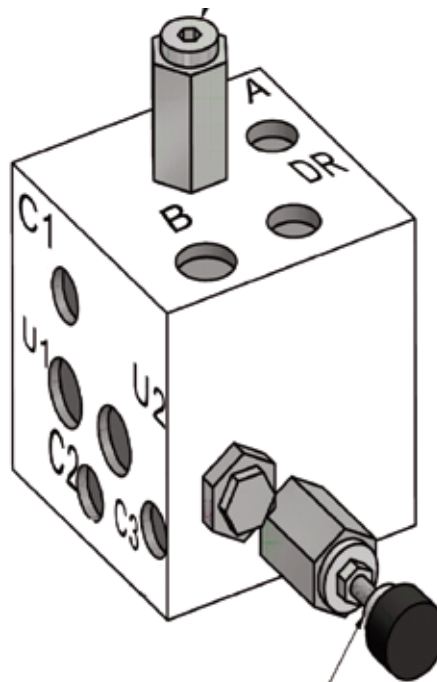
Check that the wings are opened out completely to ensure the outside discs will have the same working depth as the inner discs.

There are three steps in setting the working depth.

1. Set the depth to desired dosage per hectare: The depth can be adjusted independent to the desired dosage per ha. A small dosage can be operated at a low depth, approx 2 to 3 cm depth. For a higher volume of slurry, increase the depth to suit.
2. Adjust by hand: Adjust the top linkages to ensure the rubber boot slurry outlets are not rubbing on the ground.



3. Fixing the depth with pressure: The depth-adjustment is set using the KV10 Valve to a maximum of 80bar. See the section "Operating Disc Injector" for more details on the working of the KV10 valve



LIFT RAM VALVE
1. TRAILING SHOE
OPEN OUT & LOCK WITH EXTRA NUT.

2. SHALLOW DISK INJECTOR
SET AT 80 BAR MAX



Do not exceed 80 bar as damage may occur to the machine.

Coupling the tanker to the tractor

1. Connect Hitch.
2. Connect Hydraulic hoses as per slurry applicator listed below:

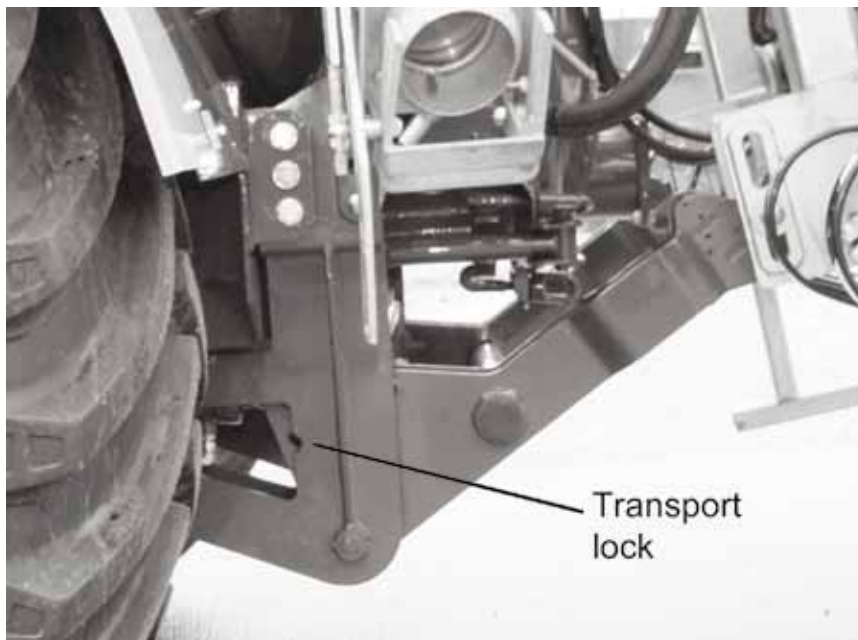
Disc Injector Model.

Double Spool	1/2" Male Connection KV10 Valve.
Drain line	3/4" Female Connection KV10 Valve and Macerator Motor Drain (free flow to tank)
Double spool	1/2" Male Connections Fold out Wings Cylinder

Trailing Shoe model

Double spool	1/2" Male Connections Macerator Motor.
Drain line	3/4" Female Connection Macerator Motor Drain (free flow to tank)
Double spool	1/2" Male Connections 6 port diverter

N.B: Remove linkage transport safety lock before use! (See Image below).



The MAJOR Tanker is designed to be balanced correctly when coupled to the Slurry Applicator. Operation of the tanker without the slurry applicator attached will cause more wear on the tractor hitch and the machine will be more difficult to tow. It is advisable to fit a counterweight onto the 4 point linkage to balance the machine.

A splash plate can attach onto the rear of the slurry applicator, therefore the slurry applicator need not be removed.

3. Connect the Control box



Disc Injector Model

Position the Reverse Macerator Switch in the tractor cab & connect 12v plug

Control Box (Image 8) reverses the rotation of the macerator motor. Set Spool Valve to neutral & then operate Control Box to change direction.

IMPORTANT: DO NOT OPERATE SWITCH CONTINUALLY AS THIS MAY DAMAGE THE MACERATOR MOTOR.



Trailing Shoe Model

Position the 6 Port Diverter Control Box (Image 9) in the tractor cab & connect 12v plug

Set Spool Valve to neutral & then operate Control Box to change operation.

Control box in top position (de-energized)

- Spool position 'A' :
- Lifts the frame & closes the gate valve feeding the macerator.
- Spool position 'B'
- Lowers Frame & opens gate valve. Gate valve remains open until operator lifts frame.

CONTROL SWITCH MUST BE IN TOP POSITION WHEN OPERATING & ENSURE TRACTOR SPOOL IS IN 'FLOAT' POSITION TO ALLOW OIL TO FLOW FROM LIFT RAMS TO TRACTOR ALLOWING FRAME TO LIFT & LOWER WITH GROUND CONTOURS WHEN APPLYING SLURRY

Control box in side position (energized)

Lifts & lowers Trailing Shoe Wings from transport position when alternating from spool position 'A' & 'B'

4. Attach the cable of the lights to the socket (standard 7-contact plug).
5. Connect Brake hoses.
6. Connect PTO Shaft as described in Tanker manual after checking for length.

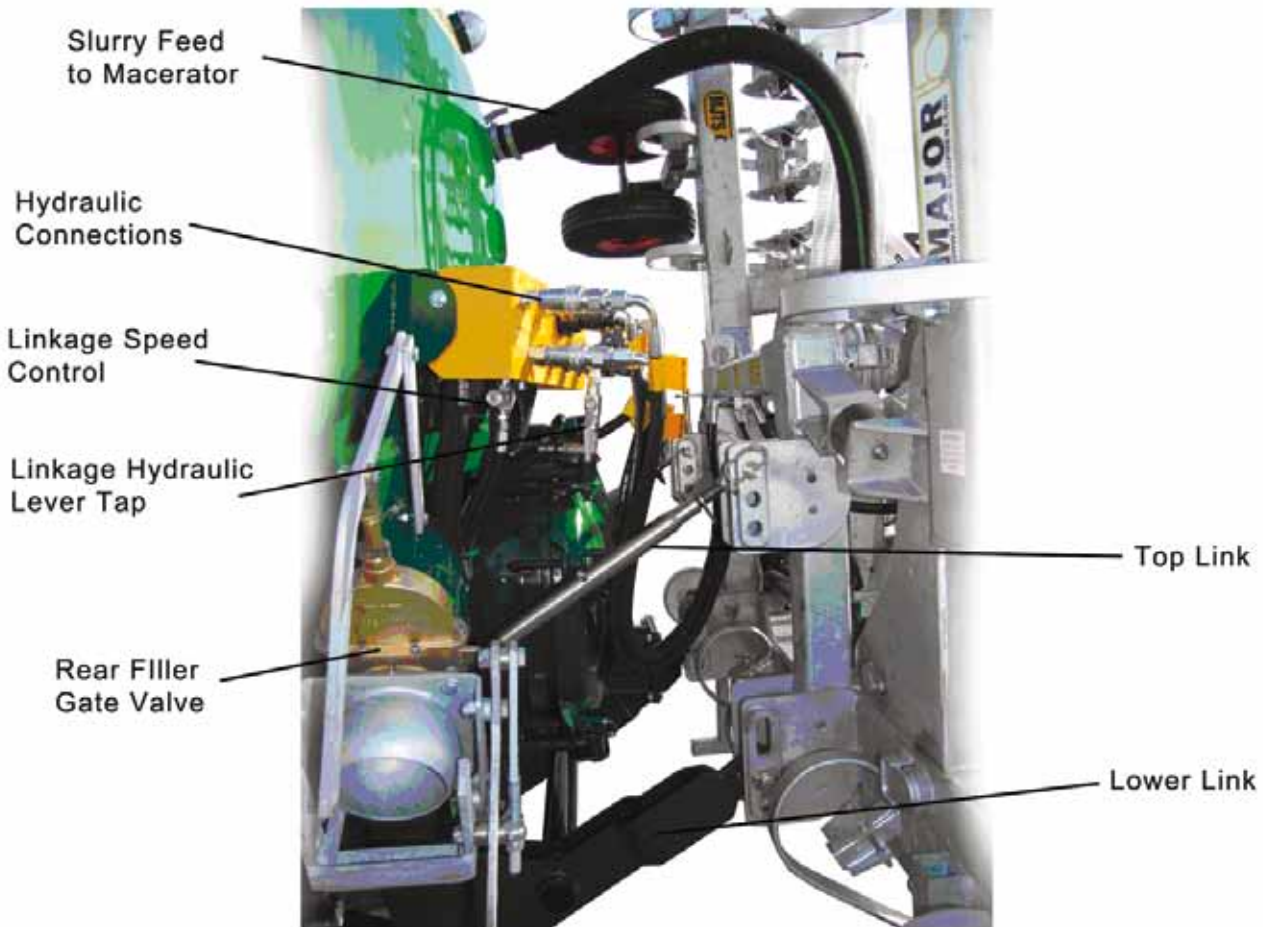
NOTE: Some tractor manufacturers fit pressure relief on one side of the tractor spools (e.g. John Deere). If the hydraulic connection for lifting the frame is connected to this side of the spool then the frame will lower automatically with the spool in neutral position. To remedy this action swap the hydraulic hose connections. Consult tractor manual or your Tractor dealer for more information.

Coupling the Slurry Applicator to the Tanker



Never couple or manoeuvre if somebody is between the slurry injector and the slurry tanker. Only attach or detach hydraulic connections when the tractor is switched off. Make sure the hydraulic valves and electric cables are coupled in a way that there is not a chance of damage.

Connect the following while referring to the image below.



- Connect Lower Linkage
- Connect Top Links
- Connect Trap with 4" Feed Hose
- Connect Hydraulic hoses:
 - $\frac{3}{4}$ " Male Connections Macerator Hydraulic Motor.
 - $\frac{1}{2}$ " Female Connection Macerator Hydraulic Motor Drain
 - $\frac{1}{2}$ " Male Connection Fold out Wings Cylinder
- Couple the 4" hose feed from the slurry tanker to the distributor.
- Take both support legs away if the slurry injector is coupled and locked for transport.
- Attach the lights cable to the socket (standard 7-contact plug).

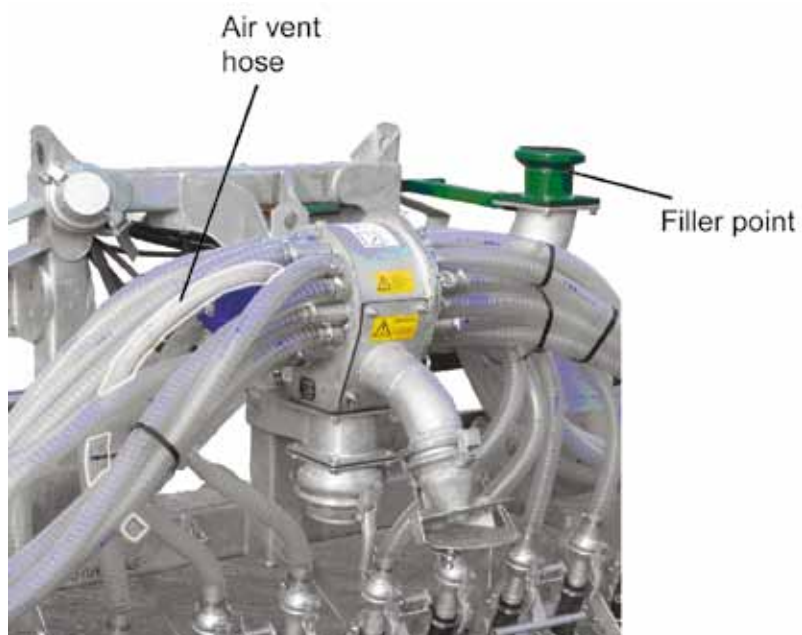


NOTE: Lock Frame Lift Hydraulic Rams in Transport position with the lever tap located on the rear of the chassis. This allows the operator to disconnect and reconnect the quick release fittings from tractor with ease.



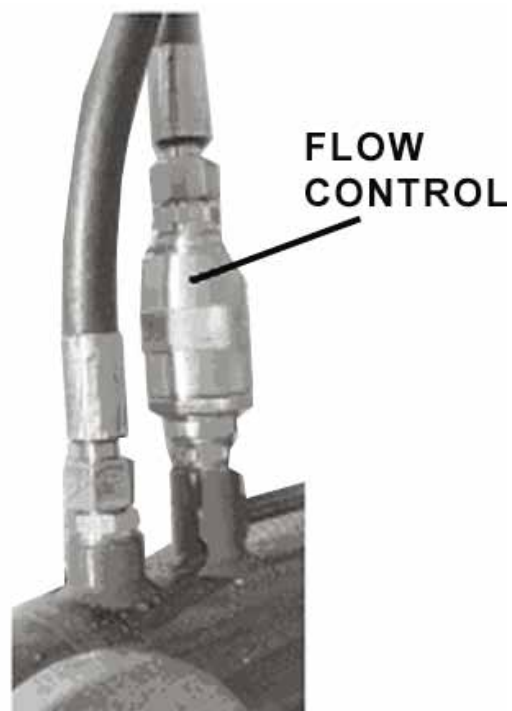
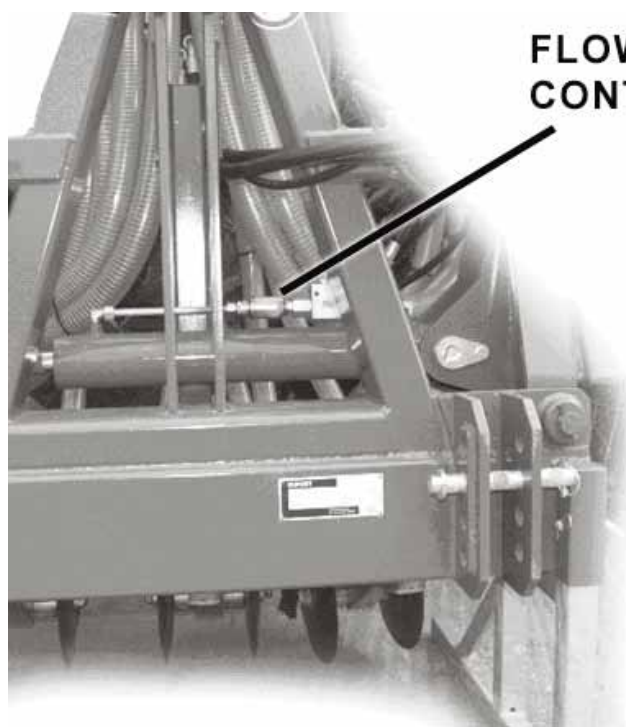
NOTE: Operate Frame Hydraulic Rams smoothly using tractor spool as linkage will drop quickly. This quick action allows the Injector Frame to follow the ground contours with ease.

Feed Hose Connection



Do not fit an automatic reversing valve to the circuit as this will damage the hydraulic motor and the macerator

The speed of folding and unfolding can be adjusted by turning flow controller in or out (see image below).



Depending upon model – the hydraulic flow controller is located as shown above.

Operating the Machine

Disc Injector



Do not operate the macerator motor without slurry in the distributor or damage can occur.

System with KV10 Valve Sequential Valve

Unfold the Wings and check if the slurry injector is flat in the width
Operate Sequential Valve on separate spool, this will automatically:

- Lower frame
- Open rear gate valve and stone trap gate valve.
- Start Hydraulic Motor.

N.B. The clinchers open mechanically, when the machine is put on the soil;
Start driving forward at a suitable speed. When turning at the headlands or when finished working the machine, Lift main frame to clear the ground by operating the KV10 Valve in reverse. This will:

- Stop Hydraulic Motor
- Close Gate Valves
- Lift Frame

Fold in both foldable parts of the slurry injector when finished and lock in position.

For models without KV 10 Valve

Unfold the Wings and Check if the slurry injector is level.

Put the slurry injector with the cutting discs into the soil by putting down the lifting device of the slurry tanker;

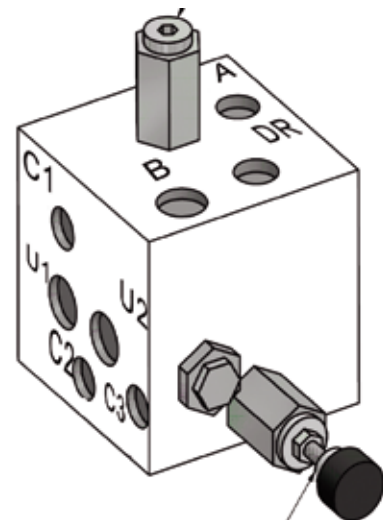
N.B. Both injectors open the clinchers (rubber boot seal) mechanically, when the machine is put on the soil;

Adjust the right working depth according to one of the methods previously described

Open the gate valve from the slurry tanker and start with driving. The manure will stream directly out of the outlets;

N.B. When the gate valve is opened before the clinchers are opened, the pressure can be too high and a seal can burst open.

First close the gate valve and then close the clinchers at the end of the parcel. The clinchers will prevent leaking of manure;



LIFT RAM VALVE
1. TRAILING SHOE
OPEN OUT & LOCK WITH EXTRA NUT.

2. SHALLOW DISK INJECTOR
SET AT 80 BAR MAX

When Finished

Lift the slurry injector with the linkage off the ground;

Fold in both wings on the slurry injector and lock in position.

Trailing Shoe

6 port diverter:

The trailing shoe hydraulics operates through a 6 port diverter. The six port diverter has two spool settings. These settings are operated by the in cab control box (Ref P.11)

- Spool position 'A': Lifts the frame and closes the gate valve feeding the macerator.
- Spool position 'B': Lowers Frame and opens gate valve. Gate valve remains open until operator lifts frame.

Unfold the wings and check that the trailing shoe applicator is flat. Select position 'A' on the control box and lower frame, the gate valve will automatically open. Start hydraulic macerator motor.

When finished

Switch off macerator motor. Select position 'B' on the control box and raise frame. This will shut off the gate valve feeding the macerator.

Turbo Pump



Do not engage Turbo Pump gears while PTO is turning or damage can occur to the machine. Ensure the levers are detented in position.



Handles in neutral position

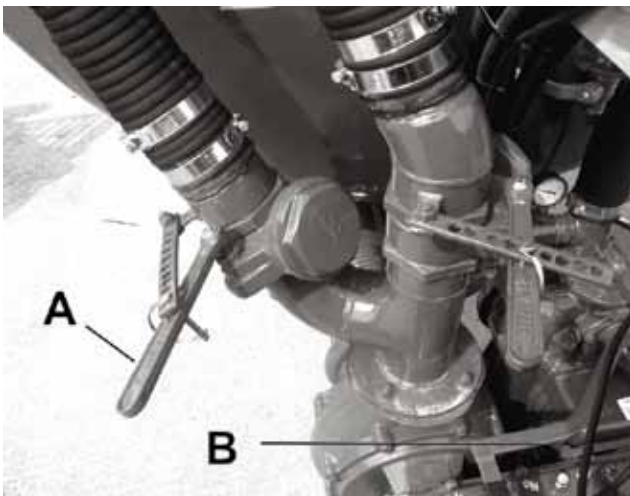
Centrifugal pump handle on the left
vacuum pump handle on the right



Handles in operating position

Centrifugal pump handle on the left
vacuum pump handle on the right.

Slurry Flow Controllers



- Adjust the flow controllers to optimise the output of the pump against the forward speed of the machine.
- Handle 'A' controls the macerator feed valve and can be left in position as the hydraulic gate valve feeding the macerator is closed when filling tanker.
- Handle 'B' controls the macerator overflow and can be varied to remove the excess of slurry when spreading.
- Handle 'B' is opened fully when filling tanker through the centrifugal pump

Filling tanker with Turbo Pump

- Connect vacuum hose to either turbo filler inlets located on side of tanker.
- Close stone trap gate valve
- Open fully, handle 'B' on the slurry flow controller
- Place vacuum pump into vacuum position and engage both vacuum pump and centrifugal pump into gear
- Start PTO & prime centrifugal pump with slurry
- Once Centrifugal pump engages, continue to fill tanker when tanker is full, Slurry will exit through the yellow overflow hose & into the centrifugal pump. This will prevent more slurry from entering the tanker.
- Close gate valve and disengage PTO.

ExaCut Macerator

The ExaCut can be used on pump tankers and vacuum tankers. The pump tanker must be supplied with a pressure limit of 3 bar. This is possible using a pressure relief valve (optional). For control purposes, we recommend a pressure gauge on the liquid manure pipe.

Achievable flow rate:

The maximum flow rate depends on the proportion of dry matter, the type of liquid manure, the pressure of the spreading vehicle, the cutting ring hole size and the rotor geometry.

Required pressure:

To achieve a good average distribution, the pressure in the spreader needs to be from 0.2 bar. That means that, with low viscosity media, you achieve a better average distribution with a higher flow rate.

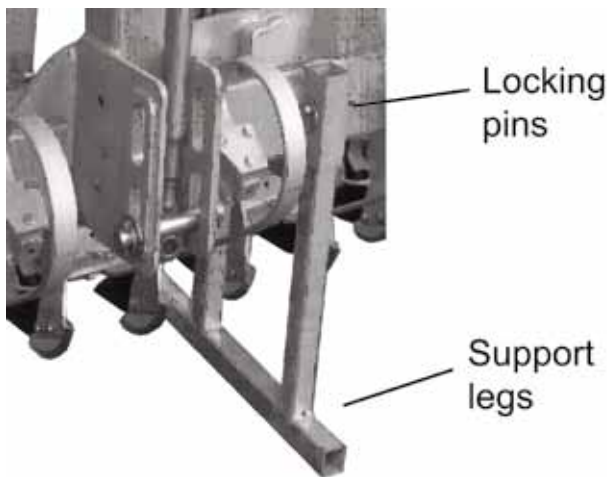
Please observe the following operating instructions:

- The ExaCut must be switched on shortly before the media flows through it.
- To prevent increased wear, a dry run of the ExaCut of more than 30 seconds should be avoided.
- The direction of rotation should be changed at regular intervals. Depending on the connector, this can be achieved by redirecting the control unit or by a timed electromagnetic valve. This guarantees the best self-sharpening of the blades.
- As a small amount of liquid manure can leak from the suction pipes, short hoses should be connected which can be guided with the drain hoses. You also simplify cleaning the ventilation if you use a water hose.

Uncoupling the Injector from the Tanker

The Shallow Disc Injector / Trailing Shoe should be uncoupled on stable, flat and horizontal ground. If the slurry injector is stored with both wings folded up, then those parts should be locked. If the machine is not to be used for a long time, then it is recommended to open the wings out. Keep the following points in mind when uncoupling.

- Put the support legs in the right place and lock (see picture below).



- Let the slurry injector down using the tanker linkage.
- Switch off the tractor's engine.
- Ensure the hydraulic valves are not pressurised, uncouple them from the slurry tanker. Put the valves in position to guarantee they remain clean.
- Uncouple the light socket from the slurry tanker and store the cable;
- Uncouple the slurry injector from the linkage arms.



Be aware of downward forces when uncoupling the slurry injector.

Technical data for the hydraulic motors

Motor type		OMS 125	OMS 160	OMS 200	OMS 250
VOGELSANG item no.		AOM.016	AOM.015	AOM.017	AOM.018
Ø Shaft		32	32	32	32
max. speed of rotation [min-1]	cont.	600	470	375	300
	int. 1)	720	560	450	360
max. drop in pressure [bar]	cont.	210	210	210	200
	int. 1)	275	260	250	250
	peak 2)	295	280	270	270
max. torque [Nm]	cont.	375	490	610	720
	int. 1)	490	600	720	870
max. oil flow [l/min]	cont.	75	75	75	75
	int. 1)	90	90	90	90
max. inlet pressure [bar]	cont.	230	230	230	230
	int. 1)	295	295	295	295
	peak 2)	300	300	300	300
max. return pressure with oil leakage pipe [bar]	cont.	140	140	140	140
	int. 1)	175	175	175	175
	peak 2)	210	210	210	210
max. return pressure without oil leakage pipe [bar]	cont.	30	35	45	50
	int. 1)	75	75	75	75

1) Intermittent operation: the permissible values may be reached max. 10% of every minute.

2) Peak performance: the permissible values may be reached max. 1% of every minute.

Maintenance

Injectors

Maintenance must be carried out by qualified personnel. To make sure that all parts of the Disc Injector / Trailing Shoe function properly, the machine has to be cleaned regularly. Clean the machine after use (daily). Do not use a high pressure cleaner.

Greasing schedule:

Follow the schedule below using EP2 or an equal type of grease. Standard hydraulic tractor oil can be used for hydraulic oil.

When	Where	How
Daily (after use)	Bearings of the rolling coulters	Grease nipple
Weekly	Bearings at both turn points of the foldable parts	Grease nipple
	Stub axles	Grease nipple
	Supports of valves	Grease nipple
1000 work hours or every two years	Hydraulic system	Refresh hydraulic oil

Check the following points regularly:

- Check the gate valves for jams damages / leakages;
- Check the hydraulic valves for damages / leakages;
- Check the hydraulic connections for damages / leakages;
- Check the hydraulic cylinders and packing for leakages;
- Check if the fastening bolts of the linkage device are tightened.
- Check the linkage device for metal fatigue and cracks;
- Check the pivot points folding parts for damage.

Check the fasteners for tightness:

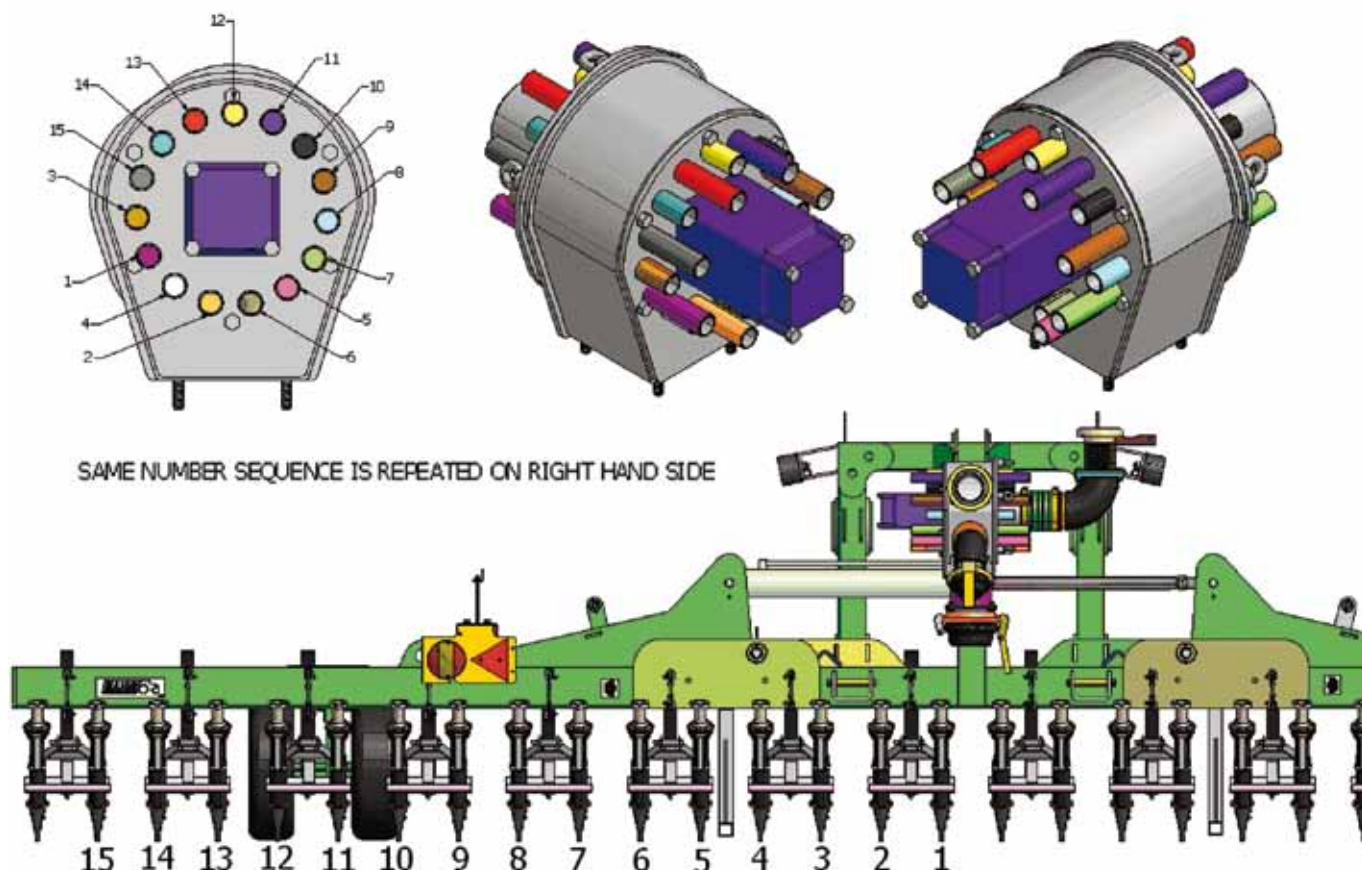
Disc Injector

- Linkage mounting
- Linkage pivot pins
- Wing Pivots
- Steering arm Horizontal Pivots
- Steering Arm Vertical Pivots
- Cutting Disc Axle Nuts

Trailing Shoe Applicator

- Linkage mounting
- Linkage pivot pins
- Wing Pivots
- Spring Mounting bolts (both ends)
- Coulters

Vogelsang Hose layout



Hydraulics



NOTE: Hydraulics will 'Lock out' if Drain line is not connected to free flow return in Tractor

KV 10 Sequence Valve (Injector models only)

Sequence

- Arms lower
- Gate valve opens
- Motor rotates

Return Sequence

- Stop Hydraulic Motor
- Close Gate Valve
- Lift Frame



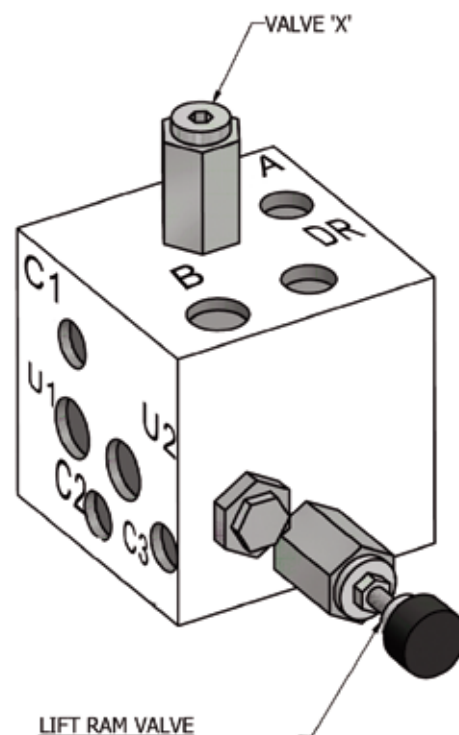
The lift ram valve should remain opened out if this valve is used on the trailing shoe model or the frame will be forced downwards which could damage the springs.

KV 10 Set up

Adjust valve 'X' to offer a maximum flow 60 litres / min to the macerator motor

Set lift ram valve to 40 bar. Adjust valve X to compensate flow loss to motor.

Adjust Lift Ram Valve to desired pressure. Adjust Valve X to compensate, fine tune valve X to remove noise from valve.



LIFT RAM VALVE

1. TRAILING SHOE
OPEN OUT & LOCK WITH EXTRA NUT.

2. SHALLOW DISK INJECTOR
SET AT 80 BAR MAX

ExaCut Macerator

Cleaning

Remove foreign bodies, such as stones, regularly through the cleaning port (pos. 40 in fig. "Exploded drawing ExaCut wear parts") - (intervals depend on the proportion of foreign objects).



To keep the air duct in the interior of the distributor free, water should be sprayed regularly into the air lines when the distributor is running slowly. This work step is made easier by attaching short hoses to the ventilation pipes. Excentrics must be checked for mobility at regular intervals and, if necessary, dismantled and made operational. After dismantling the excentric, tension again.

- Before long breaks in operation, the ExaCut must be cleaned by spreading water.
- The ExaCut is cleaned with open maintenance ports and checked for wear.
- Lubricate the hydraulic motor adapter with ample grease after cleaning to protect the contact surfaces of the sealing rings.
 - All cutting surfaces should be sprayed with biodegradable oil before longer breaks in operation.

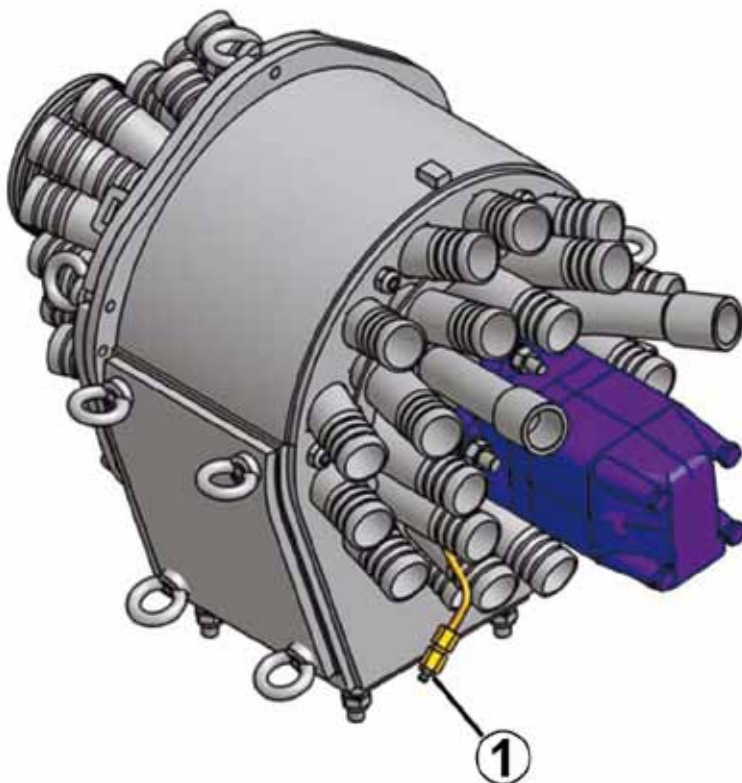


Warning: First of all switch off the PTO and put the hydraulic valve in floating position.

Open the cleaning port and let the distributor run empty. Then unscrew the lateral maintenance port and grease the cutting parts.



Warning! If the housing cover is dismantled for cleaning, the excentric adjusters slacken. Before reassembling the housing cover, the excentric adjuster must be tightened and secured.



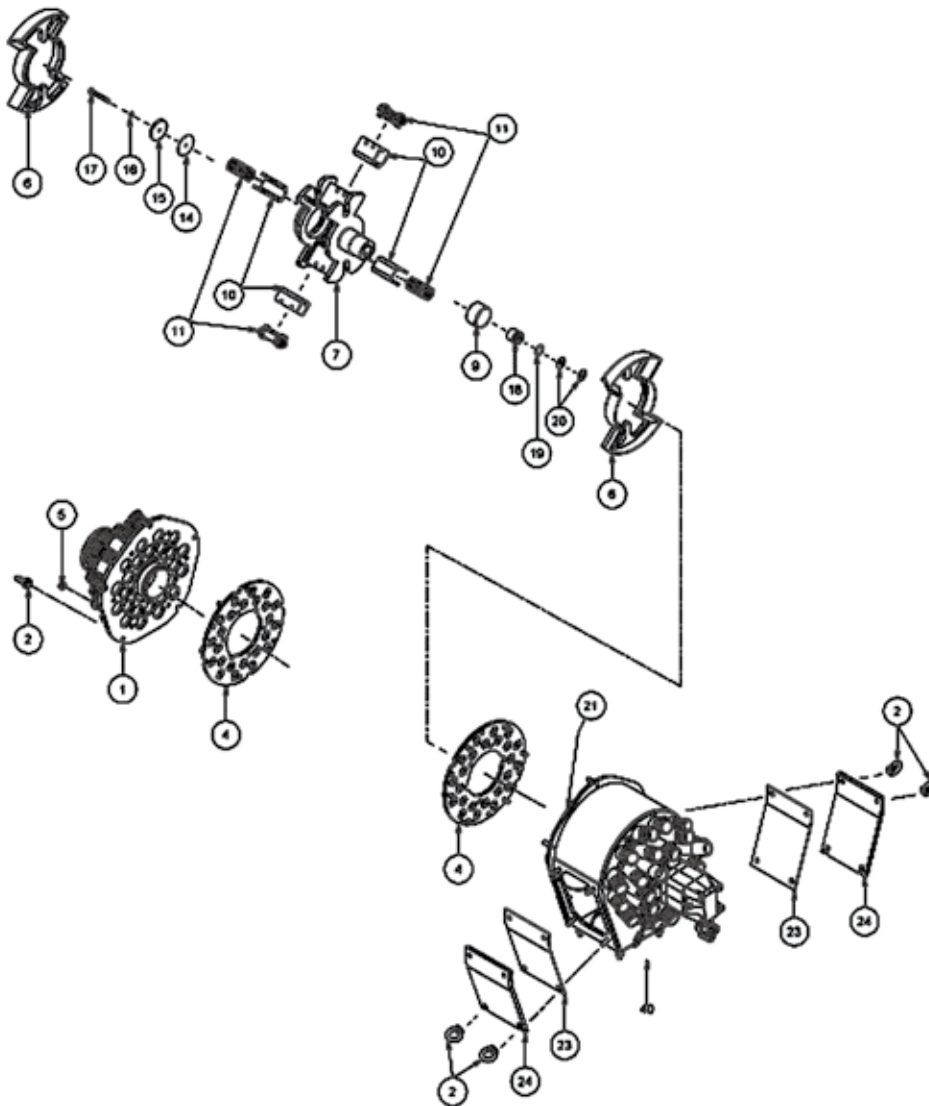
Lubricating the grease nipples

Lubricating the grease nipples:

- every 50 operating hours

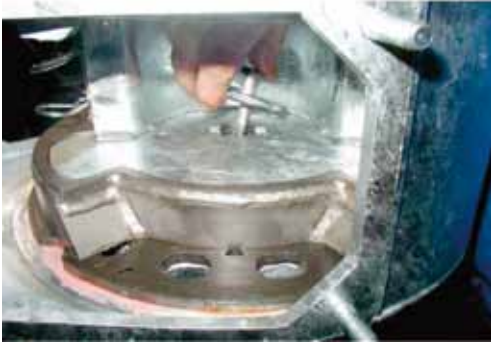
- before long breaks in operation

Replacing wear parts



The cutting knives must be replaced if the driver plate of the rotor is sticking out of the cutting knife 8-10mm.

1. Switch off the PTO motor / spreading vehicle, put the hydraulic valve into floating position.
2. Open the cleaning port [pos. 40] and let the distributor run empty.
3. Open the maintenance port [Items 24+23].
4. Unscrew the housing cover [Item 1] of the ExaCut.
5. Unscrew the screw [Item 17] in the rotor [Item 7].
6. Pull out the distributor rotor [Item 7]. Pay attention to the shims [Item 20]. If the distributor rotor is stuck, with ExaCuts from construction year 12/2002, you have the possibility of pulling off the rotor using an M30 hex head screw (see the chapter on "Disassembling the rotor from the hydraulic motor using an M30 hex head screw").
7. Remove the cutting ring nuts [Item 5] from the rear side and remove the cutting rings [Item 4]. Before installing the new cutting rings, clean the contact surfaces and coat the area around the threaded bolts with seal agent, for example, silicone. When tightening the nuts, observe the max. tightening torque of 28Nm.
8. Check lip seals and bushing [Item 9] for wear and replace if necessary.
9. Lubricate the ring gasket, foam PU [Item 8] and replace if worn.
10. Clean the cover seal [Item 21] and examine for damage.
11. Tension the excentric [Item.11] with the help of a small pair of water pump pliers and secure it using a spring cotter.
12. Place the cutting knives [pos. 6] on the rotor.
13. Lubricate the bushing [Item 9] on the rotor, assemble the rotor [Item 7] with a light rotational movement to protect the lip seal. Pay attention to the shims [pos. 20] and distance bushing [Item 18] with O-ring [Item 19] between the rotor and the hydraulic motor.
14. Assemble the cover [Item 1].
15. Check whether the rotor is positioned in the middle and, if necessary, balance the shims.
16. Remove the spring cotter (you should hear a clicking sound - the excentric is turning), close the cleaning port [Item 40] and the maintenance port [Items 24+23].



Disassembling the rotor from the hydraulic motor

Remove the screw, washer and gasket.



To centre the shims, a M10x * hex head screw is inserted into the boring in the bushing.
* max. 30mm long



To remove the rotor, screw a lubricated M30 hex head screw into the rotor. After the hex head screw is screwed in deep enough, the rotor releases itself from the motor.

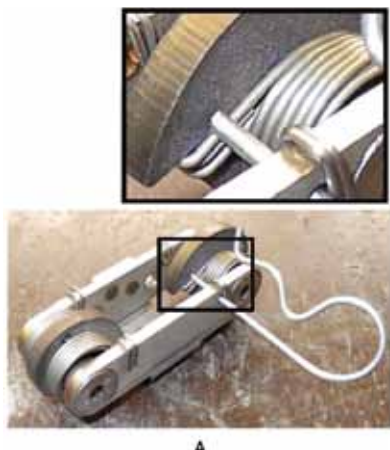


Warning: With very tight rotors, it may be necessary to first of all pull it out approx. 12mm without a centering bolt and to then use the centering bolt.

Tensioning the excentric

First of all tighten by hand and secure behind the leg spring with the spring cotter (see fig. "A"). Gloves protect from injury.

Tighten the rest using a pair of water pump pliers until the borings are aligned. Then secure using the spring cotter [fig. "B"]. Do not remove the spring cotter through the opening of the maintenance port until after assembling the housing cover.



A



B

Trouble Shooting

Injector

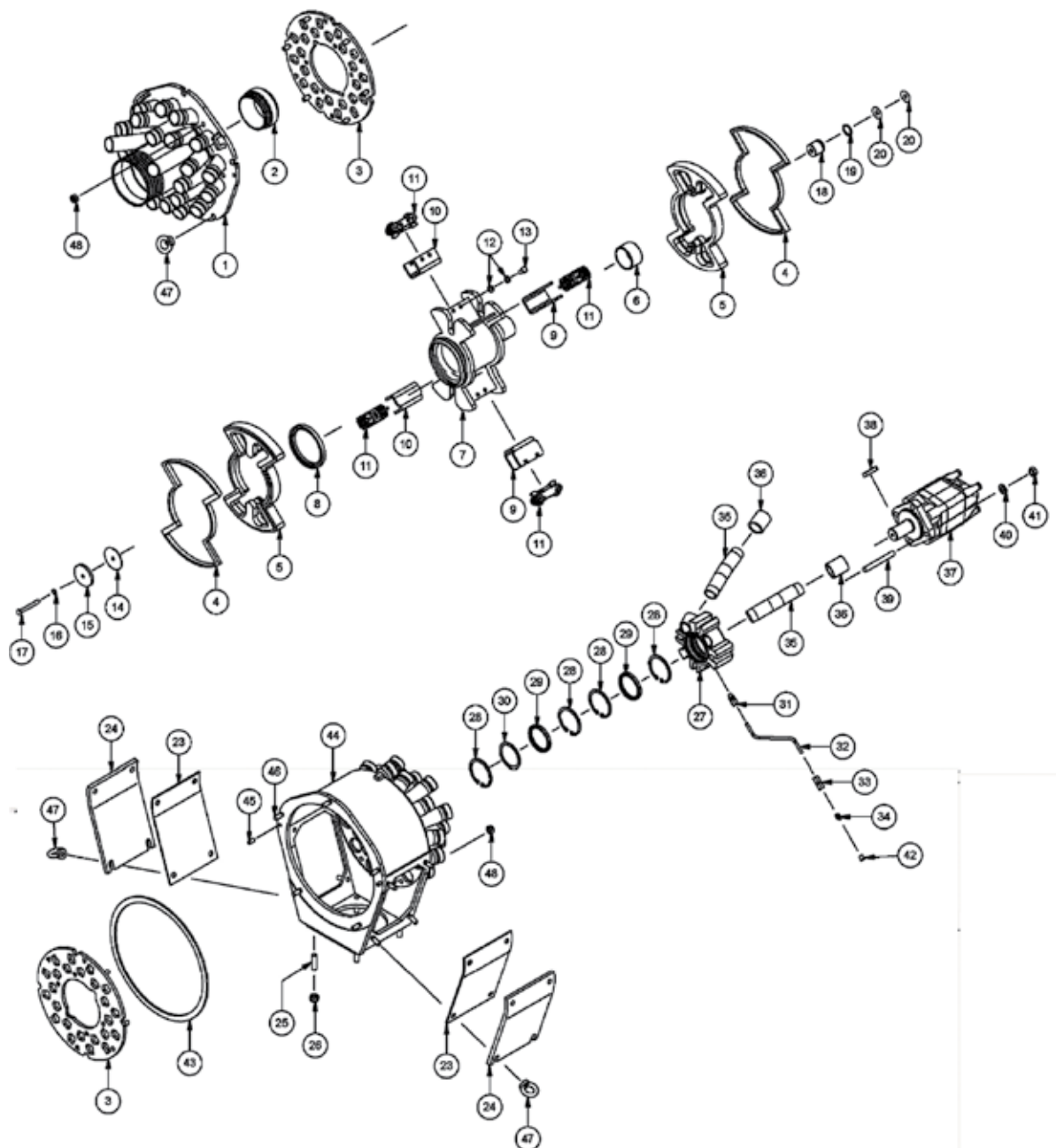
Fault	Cause	Remedy
Injector wont drop	Hydraulic tap is closed	Open hydraulic tap
	Transport lock is still in place	Remove locking pin
Frame does not follow ground contours	Hydraulic linkage is pressurised	Put hydraulics in float position
Macerator will not spin	Low flow rate/ Oil pressure	Check hydraulic flow rate set to running specifications
	Macerator shear plate blocked	Empty macerator by opening bottom stone trap. Open inspection port and clear any blockages.
	KV-10 valve incorrectly set	Refer to previous page

ExaCut Macerator

Fault	Cause	Remedy
ExaCut vibrates	Rotor runs too slowly	Check the hydraulics
	Rotor is clogged	Clean the ExaCut
	Ventilation is blocked	Clean the ventilation ducts from outside using a water hose
Cutting force insufficient	Liquid manure flow rate excessive	Reduce the pump speed
	Cutting knives worn	Replace the cutting knives
	Pre-tensioning part(s) defective	Replace pre-tensioning part(s)
	Cutting knives do not move	Make cutting knives operational
	Rotor runs too slowly	Check the hydraulics
Bad distribution	Rotor speed too low/too high	Check the oil flow rate of the PTO
	Pressure in pot too low	Increase the delivery rate quantity
	Hoses laid wrongly	Refer to hose laying diagram
	Fibrous matter under the cutting knife	Remove fibrous matter
Only a few hoses are fed with medium	Rotor blocked	If possible, reverse the rotor several times
		Remove blockage
		Check the hydraulics
Cover cannot be assembled	Excentrics are not preloaded	Preload excentrics

Turbo Injector

Macerator / Distributor



Item	Part No	Description
1	TDE.701.N1	Cover
2	GRS.083	Sleeve packing
3	TFL.715	Cutting ring (Large holes (Standard))
3	TFL.716	Cutting ring (Small holes)
3	TFL.717	Cutting ring (Extra large holes)
4	TMS0002	Blade ring
5	TMH0003	Blade holder
6-13	TRO.709	Rotor complete
6	NIR.023	Inner ring
7	TRO.708	Rotor
8	DFD.116	Ring gasket, foam PU
9	TFL.677	Channel
10	TFL.676	Channel
11	TEV.005.N1	Eccentric adjuster
12	NUS.003.E	Washer
13	NSK.208	Hex head screw
14	DFD.115	Gasket ABIL

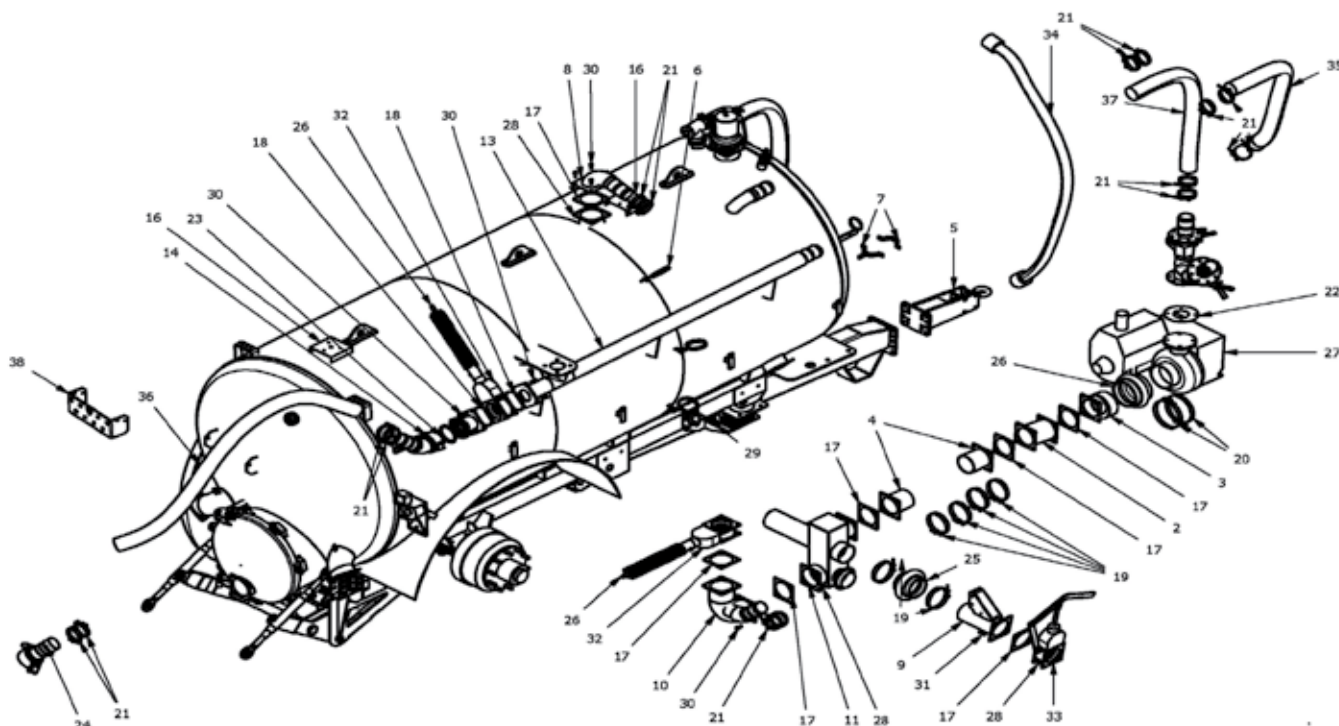
Item	Part No	Description
15	NUS.001	Washer
16	DKR.009	Copper ring
17	NSK.060.EE	Hex head screw
18	TRS.011	Bushing
19	DOR.021	O-Ring
20	NUS.067	Shim
23	DFD.356	Gasket maintenance port
24	TFL.504.N1	Maintenance port
25	NGS.031	Stud
26	NMK.002	Hex nut
27-31	TAS.015	Adaptor for hydraulic motor complete
27	TRS.082	Adaptor for hydraulic motor
28	NSR.025	Retaining ring
29	DWD.050	Lip seal
30	NUS.060	Washer
31	NGE.094	Screw connection
32	NKS.012	Grease pipe

Macerator / Distributor

Item	Part No	Description
33	NGE.093	Screw connection
34	NKS.001	Grease pipe
35	TEE.110	Pipe nipple
36	HRS.163	Tube coupling
37	AOM.018	Hydraulic motor
38	NPF.053	Key
39	NGS.049	Stud
40	NUS.005	Washer

Item	Part No	Description
41	NMS.004	Hex nut
42	BAK.001	Grease nipple cap
43	TFD.021	Foam rubber
44	TEG.701.N1	Housing
45	NSZ.005	Cylinder pin
46	NGS.032	Stud
47	NMK.020	Eye nut
48	NMK.001	Hex nut

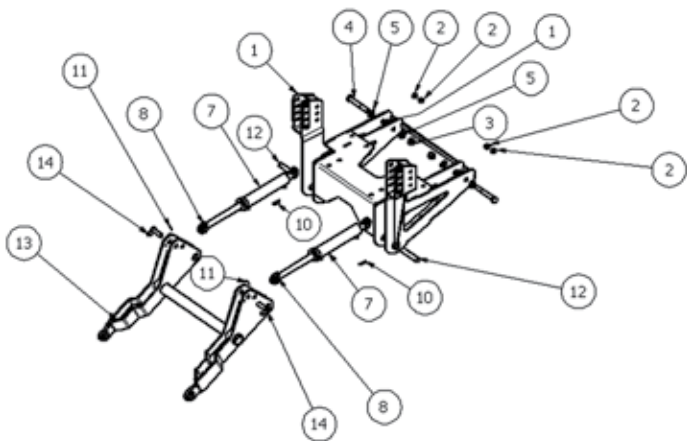
Parts & Macerator Feed Pipework from Turbo Pump



Item	Part No	Description
1	TA-LF04	LINKAGE ASSEMBLY
2	JET26	TRAP-JOINT OUTLET
3	JET28	8" TO 6" REDUCER
4	JET9	TRAP-HOSE OUTLET
5	LGP-DH050	SWIVEL HITCH (EXTENDED)
6	TA-5HB-001	5" HOSE BRACKET ASSY
7	TA-5HB-010	5" HOSE BRACKET ASSY
8	TA-GF-24	TOP OVERFLOW
9	TA-GF-P	GARDA FILLER MOUNT
10	TA-GF023	STONE TRAP BEND
11	TA-GF027	GARDA FILLER STONE TRAP
12	TA-GF030	BLASTER MANIFOLD
13	TA-INJ-GJMP	FEED PIPE
14	TA-INJ-PB-J	4" 45 BAUER COUPLING
15	TA-INJ-PB-K	BAUER-4 BOLT FLANGE COUPLING
16	TA-LBB01	FLASHING BEACON BRCKT
17	3722161	6" PIPE FLANGE SEAL
18	4716601	O RING
19	5101150	HOSE CLIP 162-174
20	5101170	HOSE CLIP (227-239)

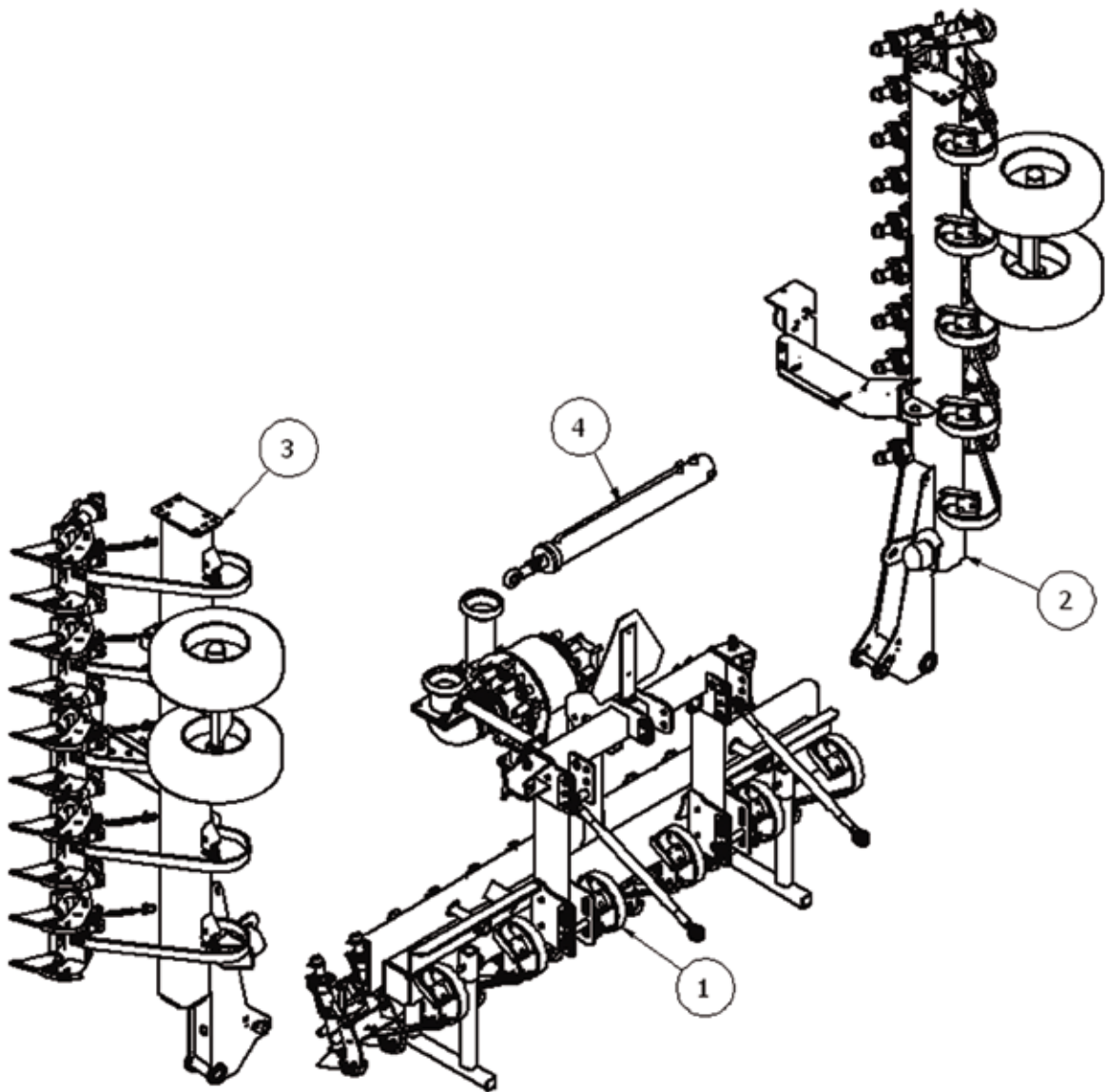
Item	Part No	Description
21	AG113-121	HOSE CLIP 113-121
22	AG21B	IMPELLER HOUSING GASKET
23	BA305/4	BAUER SEALING RING
24	BA309/4	4" BAUER MALE COUPLING/PIPE END
25	BP1101/G	6" FLEXIBLE CONNECTOR
26	BP1101/H	8" CONNECTOR
27	G75-8	GARDA +MEC 8000
28	M12	M12 NYLOC NUT
29	M12x120BZP	M12x120 BOLT
30	M12x35BZP	M12x35 BOLT
31	M12x40BZP	M12x40 BOLT
32	R1716/6	6" GATE VALVE
33	R1716-6H_ Working	6" GATE VALVE c/w ROD
34	TA-GF036	4" LAYFLAT HOSE
35	TGRE100-2b	100mm Front Macerator Feed Hose
36	TGRE100-3	100mm Macerator Rear Feed hose
37	TGRE100-2	100mm Turbo Filler hose
38	TA-INJ-HH01	COUPLING PLATE

Linkage Frame



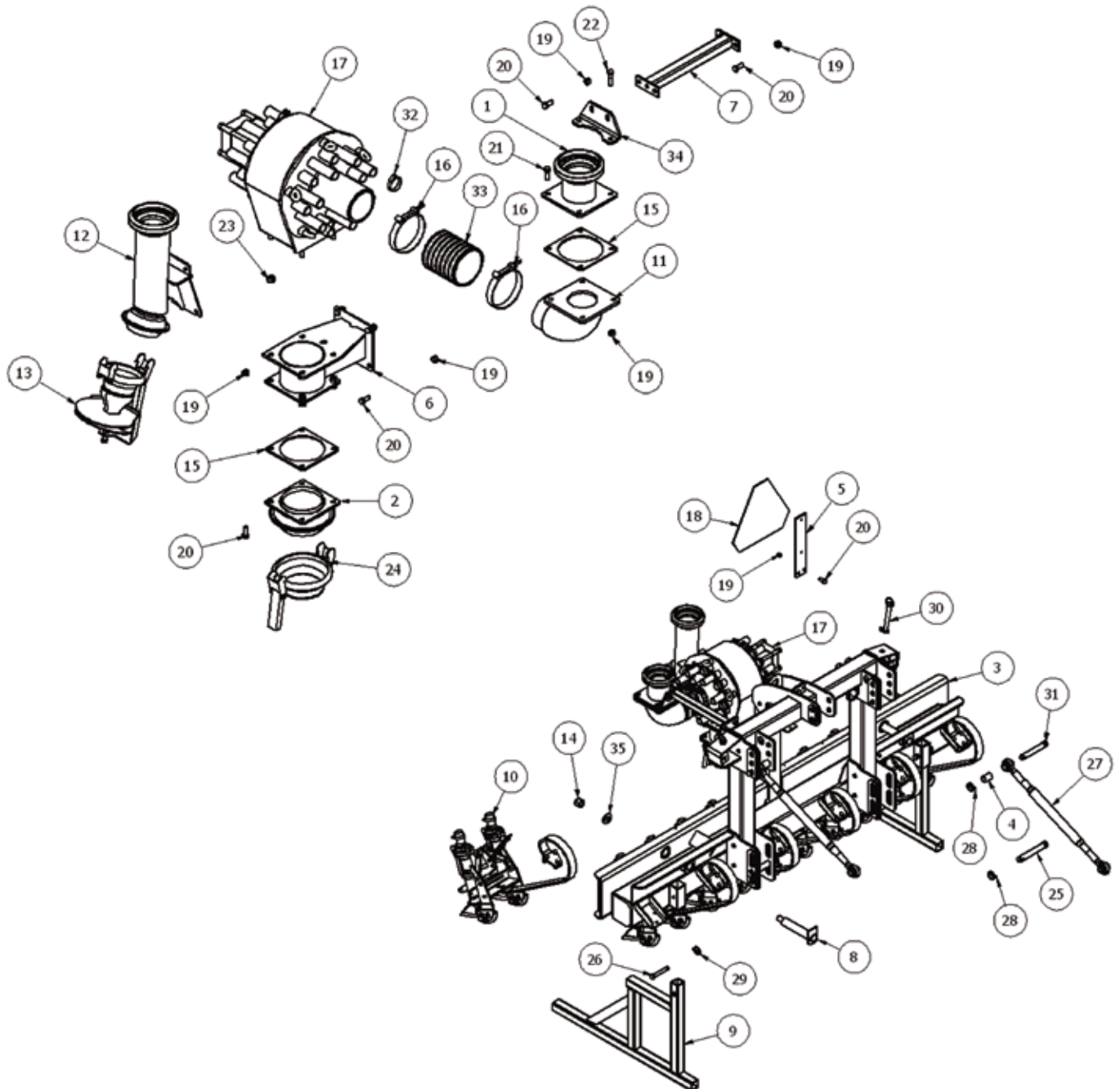
Item	Part No	Description
1	TA-LF01	INJECTOR LINKAGE
2	TA-LF21	RAM SPACER
3	1/F	1" FINE NYLOC NUT
4	1x7FBZP	1"x7" FINE BOLT
5	FW1	DIA 1" FLAT WASHER
6	Gras-150	LABEL
7	INJ-RAM	RAM
8	INJ_RAM_R	CAT 2 TOP LINK ROD
9	849	GREASE NIPPLE M6 STR
10	1233	ROLL PIN DIA10x50
11	1500	SPLIT PIN 1/8"x1 1/2"
12	TDA-1T	PIVOT PIN (155)
13	TA-LF03	LINKAGE ASM
14	TA-LF26	HYDRAULIC RAM FRONT PIN

Trailing Shoe Slurry Injector
Parts



Item	Part No	Description
1	SA-TSCF-GA	CENTER FRAME ASSY
2	SA-TSWFL-GA	WING ASSY (LEFT)
3	SA-TSWFR-GA	WING ASSY (RIGHT)
4	SA-RAM	TRAILING SHOE RAM

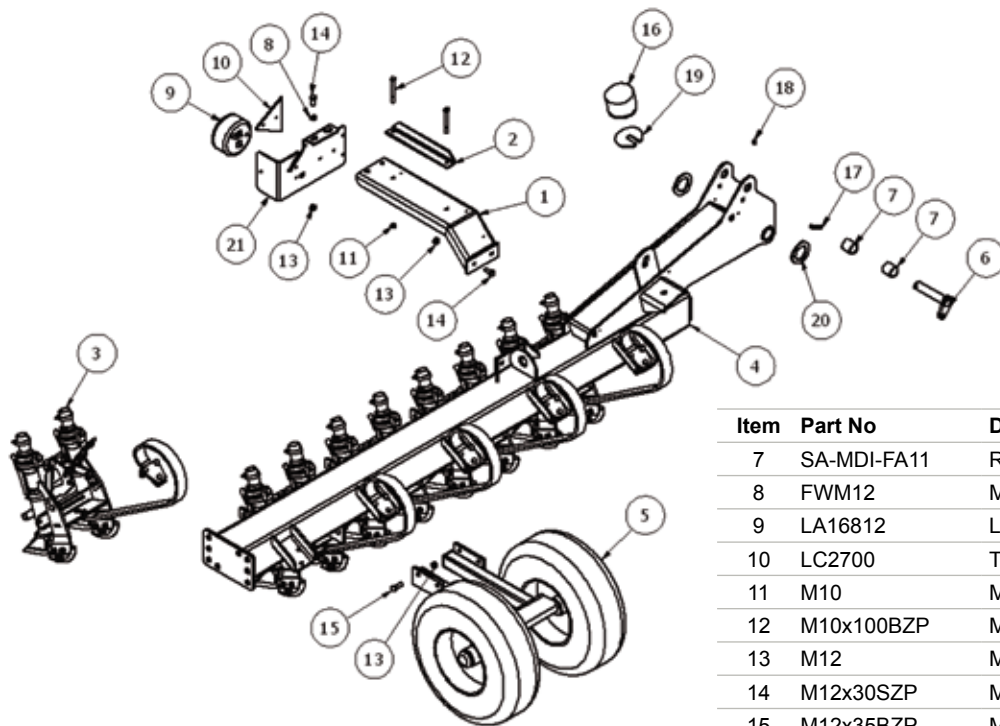
Trailing Shoe Centre Frame Parts



Item	Part No	Description
1	BA349D4Z	BAUER 4" COUPLING
2	OM028-6S	SHORT 6" MALE CONNECTION
3	SA-TSCF001	CENTER FRAME
4	SA-TSCF035	TOP LINK SPACER
5	SA-TSLB31	SAFETY MOUNT
6	SA-TSMM01	MACERATOR MOUNT
7	SA-TSMM20	MACERATOR INLET MOUNT
8	SA-TSPP01	WING PIVOT PIN
9	SA-TSSTD01	TRAILING SHOE STAND
10	SA-TSTS-GA	TRAILING SHOE ASSY
11	SA-MDI-FA13	MACERATOR FILL PIPE
12	SA-MTS-M03	SPLASH PLATE MOUNT
13	TA-SPP025	4" SPOON SPLASH PLATE
14	1/F	1" FINE NYLOC NUT
15	3722161	6" PIPE FLANGE SEAL
16	AG131-139	HOSE CLIP 131-139
17	EXA30-40	Vogelsang EXACUT Macerator
18	Gras-128	SLOW MOVING VEHICLE

Item	Part No	Description
19	M12	M12 NYLOC NUT
20	M12x30SZP	M12x30 SET BOLT
21	M12x40BZP	M12x40 BOLT
22	M12x50BZP	M12x50 BOLT
23	M14	M14 NYLOC NUT
24	OM11D6Z	6" FEMALE CAP
25	S112	CAT 2 PIN DIA 28.5x159mm
26	15501	CAT 0 PIN DIA 16x97mm
27	S318-A	CAT 2-2 TOP LINK
28	3546	LINCH PIN DIA 9.5
29	37	LINCH PIN DIA 6
30	49404	SPAREX 3/4" PIN
31	80	CAT 2 PIN DIA 25.4x142mm
32	TF088	JUBILEE CLIP 38-50
33	TVTE127	5" SLURRY HOSE - GREEN
34	SA-TSMM15	INLET MOUNT
35	A-TSPP15	Washer

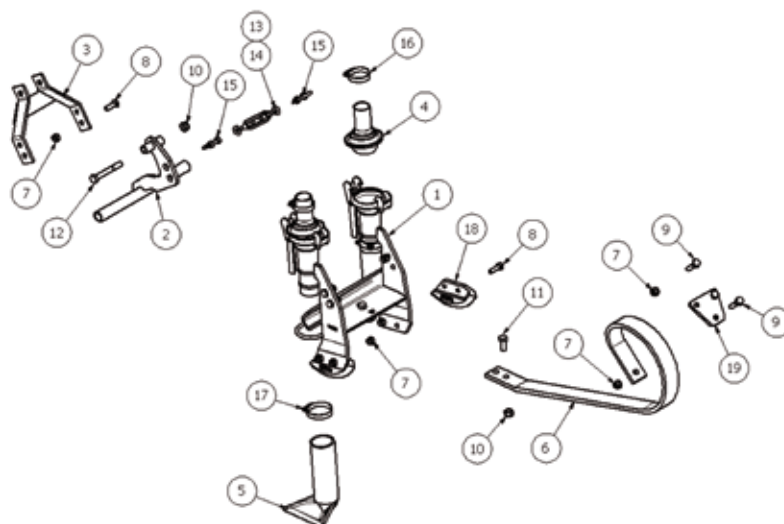
Trailing Shoe Parts



Item	Part No	Description
1	SA-TSLB01	LIGHT BRKT
2	SA-TSLB21	PIPE CLAMP
3	SA-TSTS-GA	TRAILING SHOE ASSY
4	SA-TSWF001	WING FRAME (RH)
5	SA-TSWH-GA	WHEEL ASSEMBLY
6	SA-MDI-FA05	WING RAM PIN

Item	Part No	Description
7	SA-MDI-FA11	RAM SPACERS
8	FWM12	M12 FLAT WASHER
9	LA16812	LED CONTINENTAL LIGHT
10	LC2700	TRIANGLE REFLECTOR
11	M10	M10 NYLOC NUT
12	M10x100BZP	M10x100 BOLT
13	M12	M12 NYLOC NUT
14	M12x30SZP	M12x30 SET BOLT
15	M12x35BZP	M12x35 BOLT
16	MOT75	DIA 105x75 BUFFER
17	1234	ROLL PIN DIA 10x60
18	820	GREASE NIPPLE 1/8" STR
19	8T19	BUFFER SPACER
20	SA-TSWF025	PIVOT SPACER
21	TA-LGPLITR	LGP LIGHT BRACKET (RH)
22	TA-LGPLITL	LGP LIGHT BRACKET (LH)

Trailing Shoe Parts - Detail

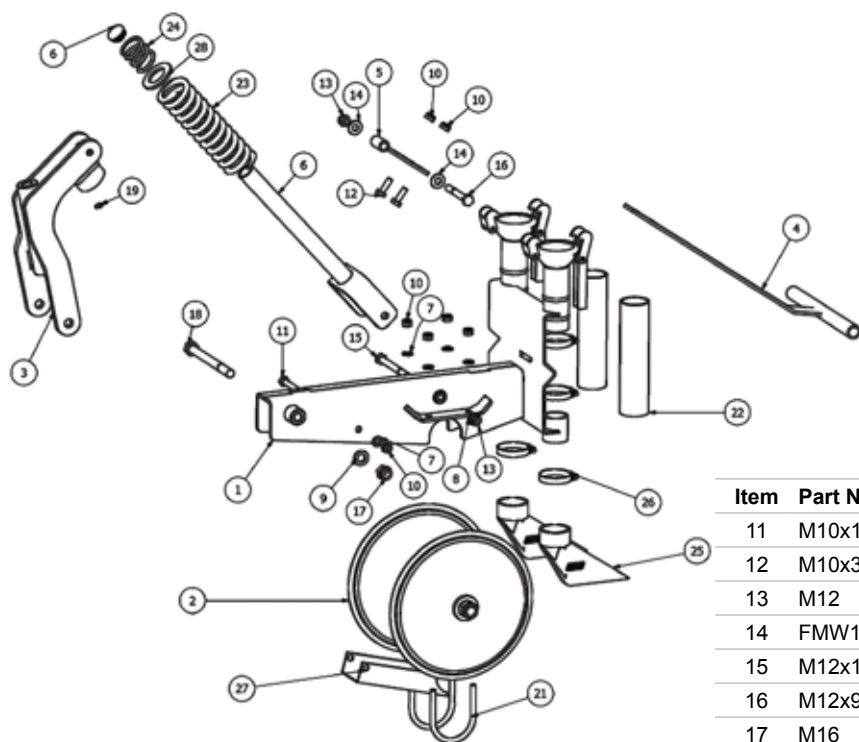


Item	Part No	Description
1	SA-TSTS010	SHOE ARM
2	SA-TSTS020	STOP OFF ASSY
3	SA-TSTS030	STOP OFF LINKAGE BRKT
4	SA-TSTS040	2" MALE COUPLING
5	1076Z250	RUBBER BOOT
6	DU4806-M	SPRING TINE
7	M10	M10NYLOC NUT
8	M10x30SZP	M10x30 SET BOLT
9	M10x40BZP	M10x40 BOLT
10	M12	M12 NYLOC NUT

Item	Part No	Description
11	M12x30SZP	M12x30 SET BOLT
12	M12x90BZP	M12x90 BOLT
13	M8	M8 NYLOC NUT
14	S11074	TURNBUCKLE DIA 11xM8
15	2765	5/16" 'D' Shackle
16	TF088	JUBILEE CLIP 38-50
17	TF090	JUBILEE CLIP 50-65
18	SA-TSTS060	COULTER
19	SA-TSTS050	TINE CLAMP

Disc Injector

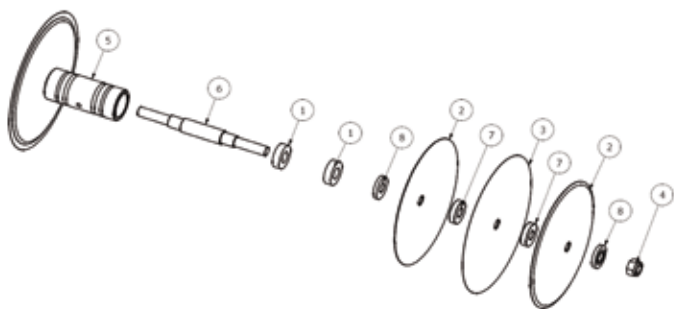
Disc Injector Steerage & Clamp Assembly



Item	Part No	Description
1	SA-MDI-SA26	Steering Arm Main Frame
2	SA-MDI-DASM	Disc Assembly
3	SA-MDI-SA01	Steering Arm
4	SA-MDI-SA04	Stop Arm Asm
5	SA-MDI-SA30	Stop Arm Top Asm
6	SA-MDI-SA42	Suspension Arm
7	FWM10	M10 Flat Washer
8	FWM12	M12 Flat Washer
9	FWM16	M16 Flat Washer
10	M10	M10 Nyloc Nut

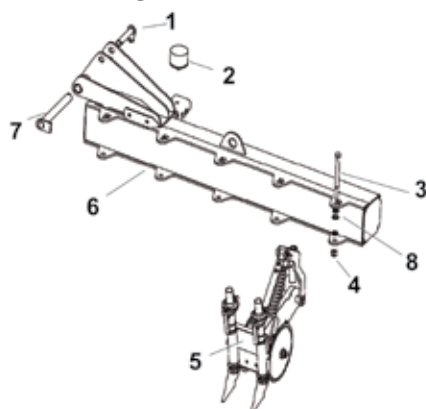
Item	Part No	Description
11	M10x100BZP	M10x100 BOLT
12	M10x30SZP	M10x30 Set Bolt
13	M12	M12 Nyloc Nut
14	FMW12	WASHER
15	M12x120BZP	M12 x120 Bolt
16	M12x90BZP	M12x90 Bolt
17	M16	M16 Nyloc Nut
18	M16 x 180BZP	M16x180 BOLT
19	849	Grease Nipple M6 STR
20	850	Grease Nipple M8 STR
21	S11537	M10 x DIA 60 U-Bolt
22	SA-MDI-SA17	Lay-Flat Hosing
23	SA-MDI-SA33	Long Spring (Heavy)
24	SA-MDI-SA34	Short Spring (Light)
25	SA-MDI-SA35	Rubber Boot
26	TF090	Jubilee Clip 50-65
27	SA-MDI-SA08	Stainless Cover Plate
28	SA-MDI-SA12	Spring Bushing Plate

Disc Injector Cutter Assembly



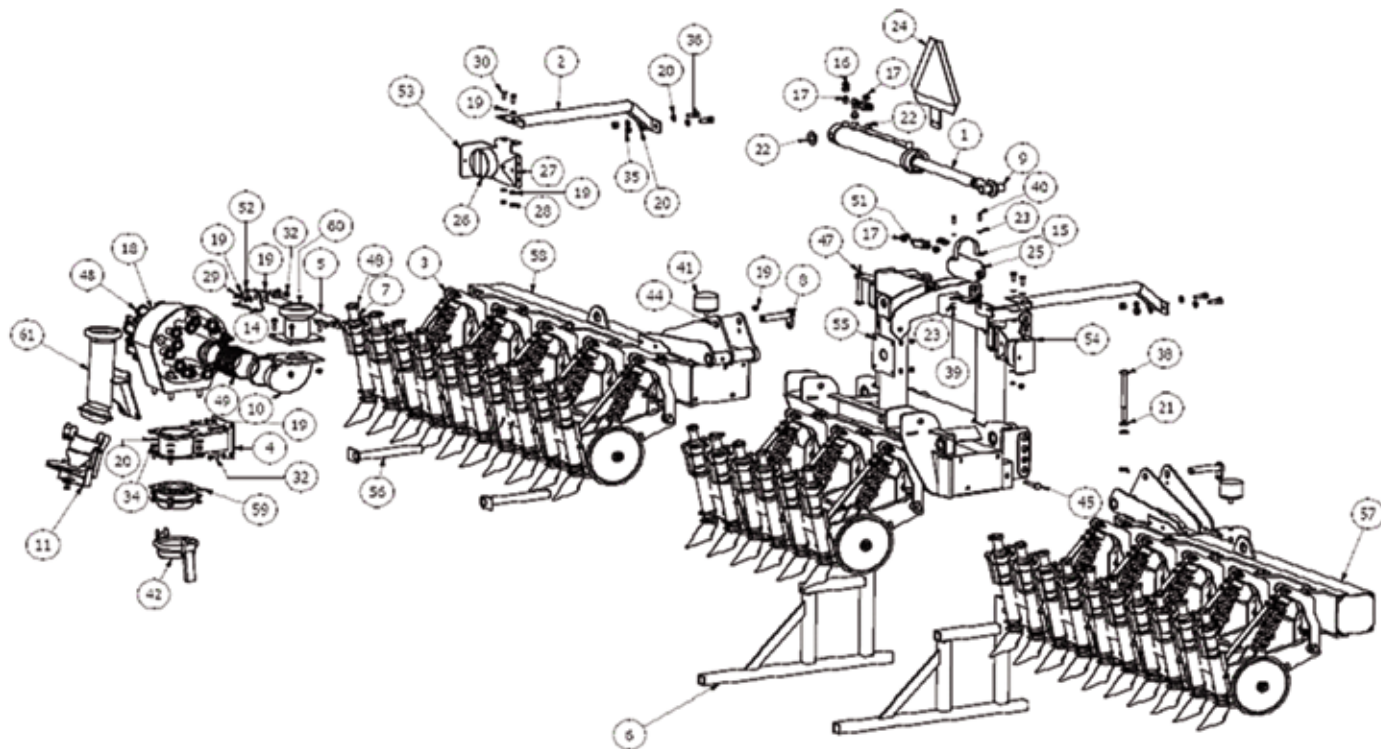
Item	Part No	Description
1	6205	52x25x15 DEEPGROOVE
2	1089C	DISC (OUTER DU1052-)
3	1058	DISC (CENTER DU1059)
4	M20	M20 NYLOC NUT
5	SA-MDI-DA01	DISC BRG HOUSING
6	SA-MDI-DA02	DISC SHAFT
7	SA-MDI-DA03	DISC SPACER
8	SA-MDI-DA04	BEARING WASHER
9	851	GREASE NIPPLE

Disc Injector Wing



Item	Part No	Description
1	SA-MDI-FA05	WING RAM PIN
2	MOT75	DIA 105x75 BUFFER
3	M20x240BZP	M20 BOLT
4	M20	M20 NYLOC NUT
5	SA-MDI-SAM-II	DISC INJECTOR STEERING ARM
6	SA-MDI-WF01	WELDED WING ASSEMBLY
7	SA-MDI-FA10	DI WING HINGE PIN
8	FWM20	M20 WASHER

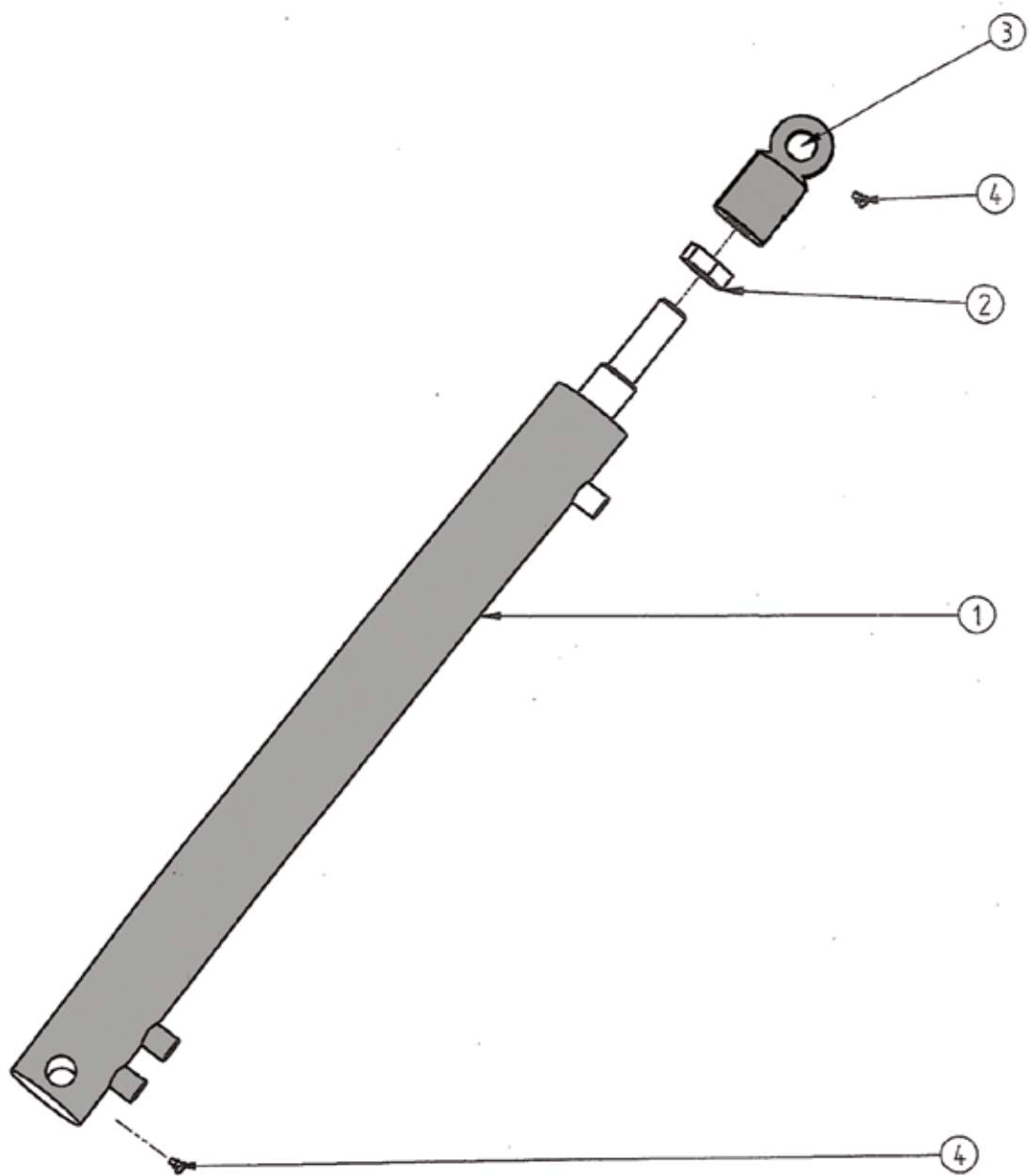
Disc Injector Body



Item	Part No	Description
1	DI-RAM	WING RAM
2	SA-MDI-WF20	LIGHT BRACKET
3	SA-MDI-SASM_II	DISC INJECTOR STEERING ARM
4	SA-TSMM01	MACERATOR MOUNT
5	SA-TSMM24	MACERATOR INLET MOUNT
6	SA-TSSTD01	TRAILING SHOE STAND
7	SA-TSTS040	2" MALE COUPLING
8	SA-MDI-FA05	WING RAM PIN
9	SA-MDI-FA11	RAM SPACERS
10	SA-MDI-FA13	MACERATOR FILL PIPE
11	TA-SPP025	4" SPOON SPLASH PLATE
12	SA-MDI-CF47	TRIANGLE MOUNT
13	1MB-18-06	18MM METRIC X 3/8 BSP M/M
14	AG131-139	HOSE CLIP 131-139
15	CRE100	ACCUMULATOR STRAP
16	EFM90-38	3/8" F/M ELBOW
17	EMM38	3/8" M/M CONNECTOR
18	EXA30-40	Vogelsang EXACUT Macerator
19	FWM12	M12 FLAT WASHER
20	FWM16	M16 FLAT WASHER
21	FWM20	M20 FLAT WASHER
22	FWM36	M20 Washer
23	FWM8	M8 FLAT WASHER
24	Gras-128	SLOW MOVING VEHICLE
25	H14OOR	80BAR Accumulator
26	LA16812	LED CONTINENTAL LIGHT
27	LC2700	TRIANGLE REFLECTOR
28	M10	M10 NYLOC NUT
29	M12	M12 NYLOC NUT
30	M12x30SZP	M12x30 SET BOLT
31	M12x35BZP	M12x35 BOLT

Item	Part No	Description
32	M12x40BZP	M12x40 BOLT
33	M12x50BZP	M12x50 BOLT
34	M14	M14 NYLOC NUT
35	M16	M16 NYLOC NUT
36	M16x50BZP	M16x50 BOLT
37	M20	M20 NYLOC NUT
38	M20x240BZP	M20x210 BOLT
39	M8	M8 NYLOC NUT
40	M8x25BZP	M8x25 BOLT
41	MOT75	DIA 105x75 BUFFER
42	OM11D6Z	6" FEMALE CAP
43	PP-18M	METRIC DOWTY WASHER
44	1234	ROLL PIN DIA 10x60
45	15501	CAT 0 PIN DIA 16x97mm
46	37	LINCH PIN DIA 6
47	49404	SPAREX 3/4" PIN
48	TF088	JUBILEE CLIP 38-50
49	TVTE127	5" SLURRY HOSE - GREEN
50	VRB-02C	FLOW RESTRICTOR
51	VRDE-15-FF-38	DOUBLE PILOT CHECK VALVE
52	SA-TSMM15	INLET MOUNT
53	TA-LGPLITL	LGP LIGHT BRACKET (LH)
54	TA-LGPLITR	LGP LIGHT BRACKET (RH)
55	SA-MDI-CFWA	CENTRE FRAME WELDED ASM
56	SA-MDI-FA10	DI WING HINGE PIN
57	SA-MDI-WF01	WELDED WING ASSEMBLY
58	SA-MDI-WF01-H	DISC INJ WING LH
59	SA-MTS-CF42	6" STONE TRAP
60	SA-MTS-CF47	WELDED 4" BAUER FEM COUPLING
61	SA-MTS-M03	SPLASH PLATE MOUNT

Wing Lift Hydraulic Ram



Item	Part No	Description
1		Ram (State Model)
2		Locking Nut
3		Adjustable end
4		Bolt

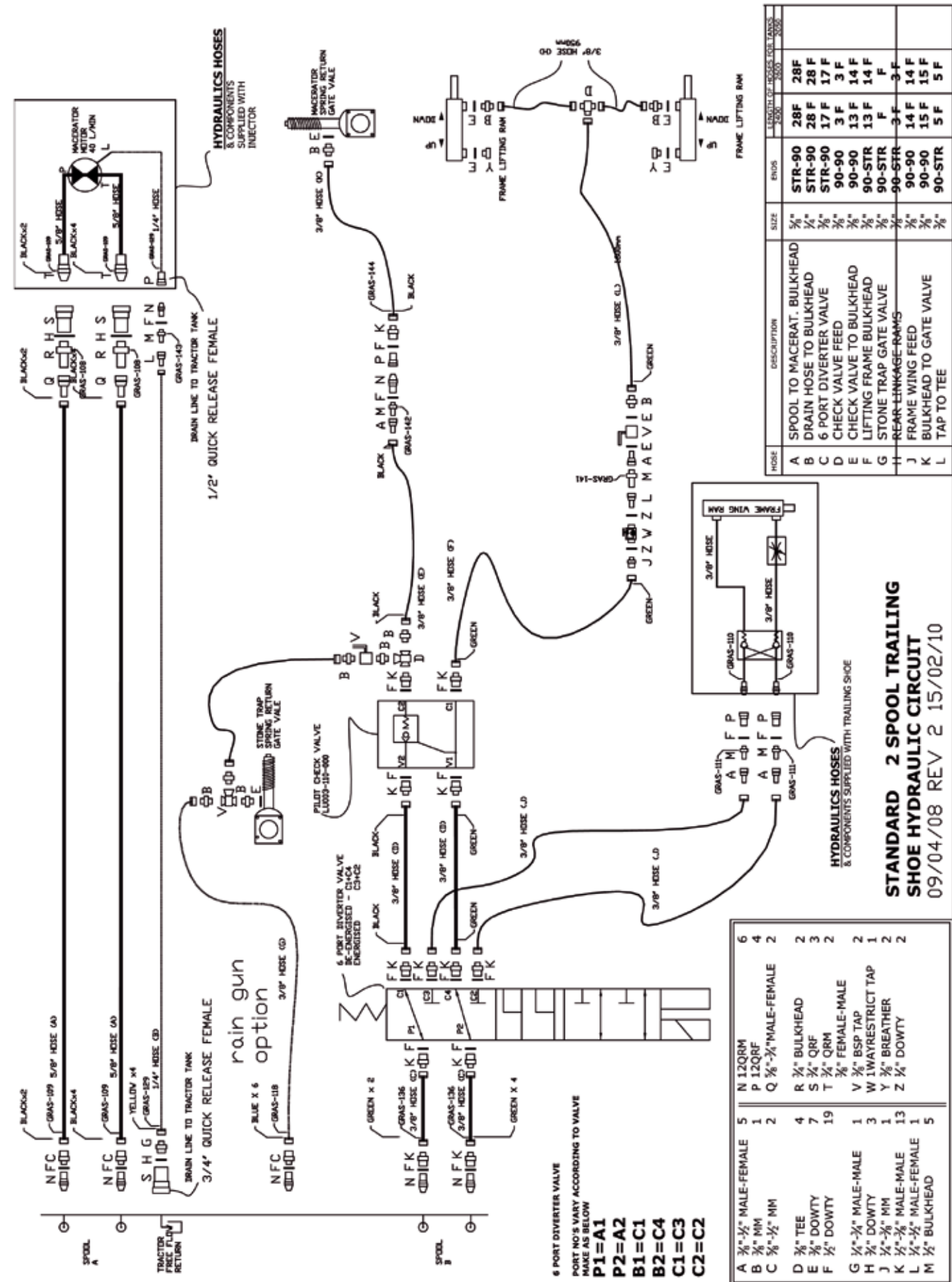
Disc Injector Type Hydraulic Circuit



DANGER: WINGS WILL DROP QUICKLY IF NOT SET CORRECTLY

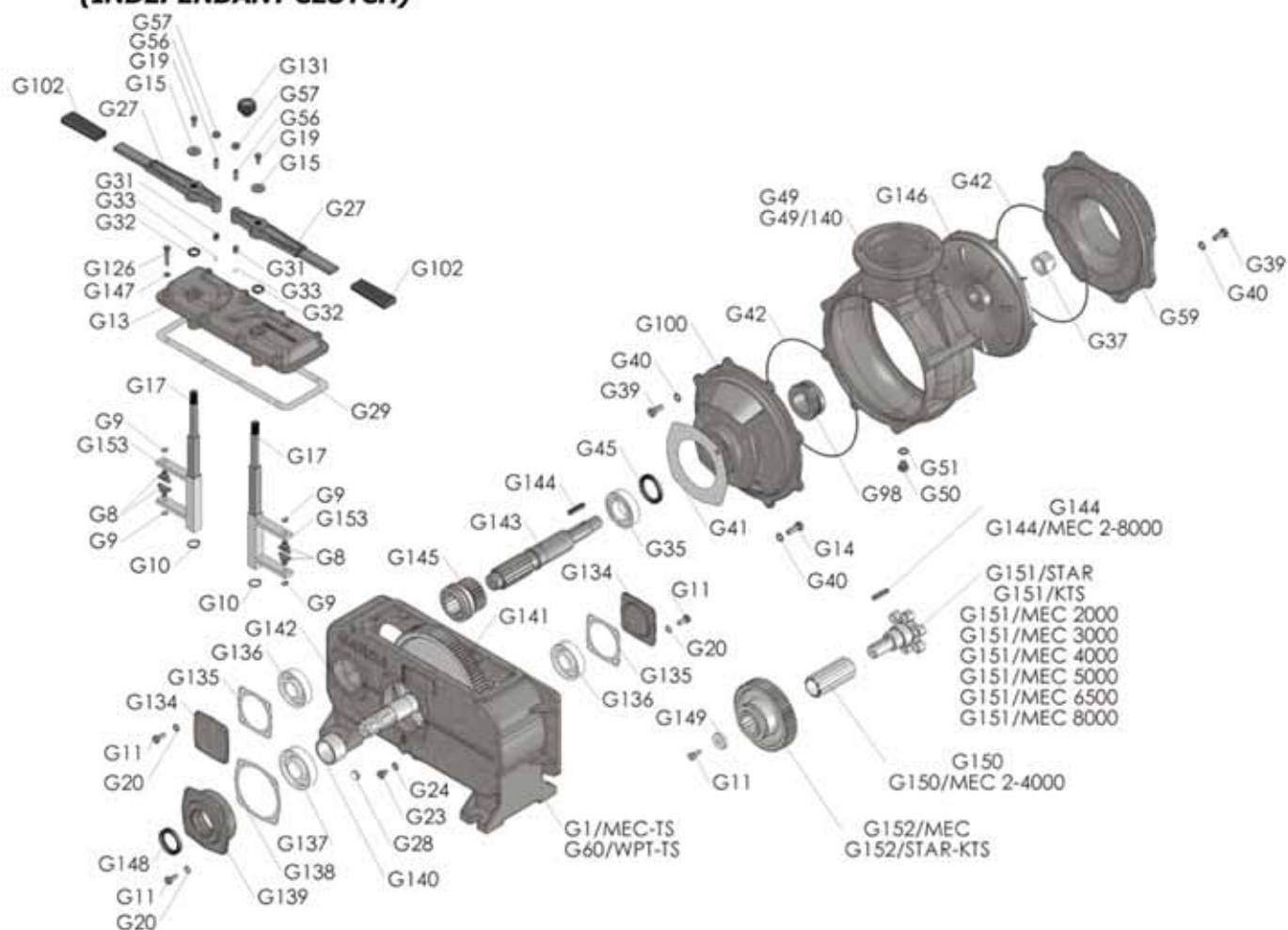
NAME		SEX	DESCRIPTION	YEAR	AGE	WEIGHT		F
NO.	NAME				MONTHS	DAYS	POUNDS	
3	N ♀ QW	♀	WING BARK HORSES	7	STR-90	29F	37F	
23	N ♀ QBF	♀	A KYING RAM HORSES	4	STR-90	18F	16F	
23	Q ♀ MALE- X- FEMALE	♀	B DRAIN HORSE	2	STR-90	17F	16F	
6	R ♀ BULHEAD	♀	KV BLOCK TO ARRON BLOCK	2	90-90	3F	3F	
15	S ♀ QBF	♀	REAR GATE VALVE	2	90-90	14F	14F	
20	T ♀ QW	♀	REAR GATE VALVE	2	90-90	14F	14F	
6	U ♀ MALE-FEMALE	♀	REAR LINKAGE (LONG)	2	90-90	3F	3F	
10	V ♀ MALE-FEMALE	♀	REAR LINKAGE (SHORT)	2	90-90	3F	3F	
1	W ♀ MALE	♀	ARRON BLOCK TO BULHEAD	2	90-90	12F	13F	
1	X ♀ MALE-MALE	♀	DRAIN BULHEAD TO KV10	2	STR-90	13F	13F	
2	Y ♀ RING O-RING	♀	ACCUMULATOR HOSES	2	STR-90	F	F	
1	Z ♀ B&P TAP (MOTHS)	♀	ACCUMULATOR HOSE 1	2	90-90	F	F	
1	X ♀ DOWTY	♀	ACCUMULATOR HOSE 2	2	90-90	F	F	
1	X ♀ MALE-FEMALE	♀	ARM TO CONTROL VALVE	2	STR-90	F	F	
1	Z ♀ 1WAY REST TAP	♀	ARM TO CONTROL VALVE	2	STR-90	36F	34F	
1	X ♀ BULHEAD	♀	FRAME LIFTING ARM TO TEE	2	STR-90	32F	45F	

Trailing Shoe Type Hydraulic Circuit

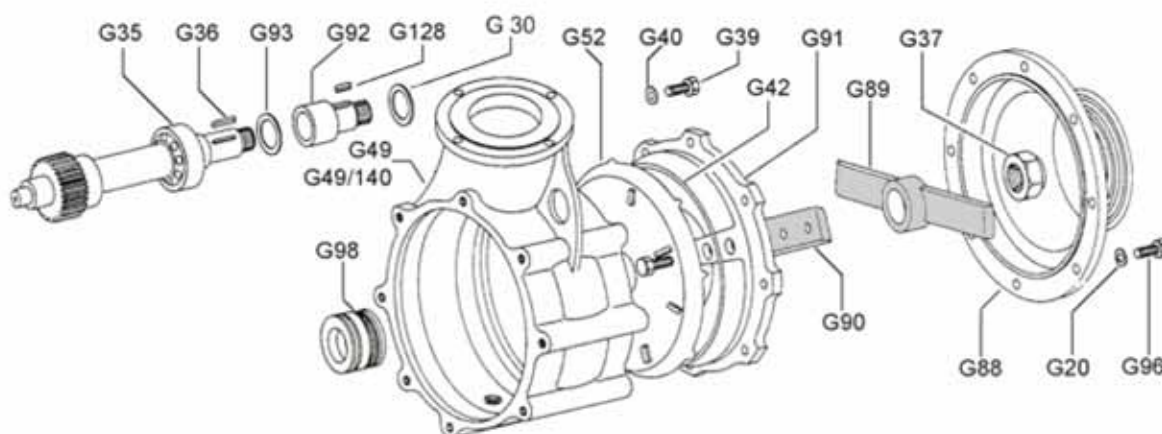


Chopper Pump Parts

TURBO SYSTEM - 1000 RPM (INDEPENDANT CLUTCH)



CHOPPER DETAIL



Item	Part No	Description	Qty
G1/MEC	4010301004	Gearbox GARDA / MEC	1
G 1/MEC-TS	4010301024	Gearbox GARDA / MEC TURBO SYSTEM	1
G 1/MEC-TS	4010301024	Gearbox WPT - GARDA / MEC TURBO SYSTEM	1
G 5/540	4020807001	Central gear wheel 540 RPM Z 97 - M 3	1
G 6	4010601020	Front cover (75)	1

Item	Part No	Description	Qty
G 7	4030108008	Front and back cover gasket	2
G 8	4010007001	Shoe for gear	2
G 9	5050507002	Circlip Ø 12 E	1
G10	5050507003	Circlip Ø 25 E	1
G11	5050107020	Screw M 10x25 TE	12
G12	5012107010	Ball bearing 6307	3
G13	4010601021	Gearbox cover	1

Item	Part No	Description	Qty	Item	Part No	Description	Qty
G 14	5050107028	Screw M 12x35 TE	4	G 62 / 1000	4020907003	Centrifugal shaft for preshaped ring GARDA 1000 RPM	1
G 15	5050207009	Blank washer Ø 8x32	1	G 66	4020807003	Central gear wheel with idle gear	1
G 16	4010006001	Gearshift fork GARDA	1	G 67	4020907008	Centrifuge shaft for preshaped ring + idle gear GARDA 6500	1
G 17	4011907001	Gear pin	1	G 68	4011703001	Bushing Ø 30x40x60	1
G 19	5050107009	Screw M 8x20 TE	7	G 71	4011101002	Scroll GARDA 3500	1
G 20	5050207004	Smooth washer Ø 10	20	G 72	5030210006	Ring seal OR 4950	1
G 21	5060605001	Oil plug Ø 3/8" Gas	1	G 73	4011219002	Impeller GARDA 3500	1
G 22	4030108009	Front cover gasket	1	G 74	4011001007	Scroll and impeller support for preshaped ring GARDA 3500	1
G 23	5050107018	Screw M 10x16 TE	1	G 75	5030210017	Rubber ring HL 150	1
G 24	5050202002	Aluminium washer Ø 10x16	1	G 77	5050107045	Screw M 12x30 TSEI	4
G 25	5030300005	Oil seal 35x62x10	1	G 78	4030111002	Preshaped ring Ø 40x56x8	4
G 26	4020907001	Splined central shaft	2	G 79	4011301002	Cordholder	1
G 27	4010801003	Gear lever	1	G 80	5050303001	Brass nut M 10	2
G 28	5060105004	Oil level plug Ø 3/8" Gas 1		G 81	4050412002	Stud bolt M 10x64	2
G 29	4030109007	Gearbox cover gasket	1	G 82	4030108025	Scroll support gasket	1
G 30	5050207010	Blank washer Ø 30x56 1		G 84	4010401028	Connection flange GARDA 3500	1
G 31	4012007003	Spring	1	G 85	4020907004	Centrifugal shaft for preshaped ring GARDA 3500	1
G 32	5030300008	Oil seal 19x27x6 1		G 86	5050707006	Key 8x7x35	1
G 33	5010007002	Steel ball Ø 8.73 1		G 87	4020907005	Centrifuge shaft for preshaped ring + idle gear GARDA 3500	1
G 34	4020907002	Centrifugal shaft for preshaped ring GARDA 6500	1	G 88	4010401029	Closing flange	1
G 35	5012107014	Ball bearing		G 89	4010006005	Blade	1
G 36	5050707007	Key 8x7x50 1		G 90	4010006006	Counter-blade	1
G 37	5050300003	Self-locking nut M 30x2 1		G 91	4010401027	Blade-holder flange	1
G 38	4011001001	Scroll and impeller support for preshaped ring GARDA 6500	1	G 92	4010007002	Extension	1
G 39	5050107027	Screw M 12x30 TE	16	G 93	4011707011	Spacer	1
G 40	5050207005	Smooth washer Ø 12	24	G 96	5050107021	Screw M 10x30 TE	6
G 41	4030108010	Scroll support gasket	1	G 98	5030000003	Centrifugal frontal mechanical seal GARDA 6500	1
G 42	5030210001	Seal ring Ø 298x3.53	2	G 99 / 540	4020907010	Centrifugal shaft for mechanical seal GARDA 6500	1
G 43	5050303002	Brass nut M 12	2	G 100	4011001033	Scroll support with mechanical seal GARDA 6500	1
G 44	4050412001	Stud bolt M 12x107	2	G 101 / 1000	4020907013	Centrifugal shaft for mechanical seal GARDA 6500 1000 RPM	1
G 45	5030300009	Oil seal 50x70x10	1	G 102	5060010003	Handle knob	1
G 46	5030210015	Rubber ring HL 187	1	G 103	4010601122	Gearbox front cover CE	1
G 47	4030111001	Preshaped ring Ø 50x70x10	6	G 104	5050107005	Screw M 6x16 TE	4
G 48	4011301001	Cordholder	1	G 105	5050207002	Smooth washer Ø 6	4
G 49	4011101001	Scroll GARDA 6500	1	G 107	4020907055	Centrifugal shaft for mechanical seal GARDA 3500 1	1
G 49 / 140	4011101004	Scroll GARDA 6500 - Ø 140	1	G 108	5030000006	Centrifugal frontal mechanical seal GARDA 3500	1
G 50	5050906001	Iron plug Ø 1/4" Gas	1	G 109	4011001037	Impeller and scroll support with mechanical seal GARDA 3500	1
G 51	5050202003	Aluminium washer Ø 1/4" Gas	1	G 110	4020907056	Transmission shaft for high pressure pump GARDA/JET	1
G 52	4011219001	Impeller GARDA 6500	1	G 111	5012107029	Ball bearing 16013	2
G 53	4010401009	Scroll external flange GARDA z GARDA 6500	1	G 112	5050107054	Screw M 10x35 TE	1
G 54	5050107026	Screw M 10x25 TCEI	6	G 113	4020807013	Central gear wheel for high pressure pump GARDA/JET Z 84 M 3	1
G 56	5051007005	Stop dowel M 10x25 P.P	1	G 114	4020807008	Back central gear wheel GARDA/JET-GK Z 97 - M 3	1
G 57	5050307003	Nut M 10	1	G 115	4010407005	High pressure pump coupling flange GARDA/JET	1
G 58	4010601066	Back cover	1				
G 59	4010401010	External scroll flange with rubber hose GARDA 6500	1				
G 60 / WPT 1000	4010301006	Gearbox WPT - STAR 1000 RPM	1				
G 60 / WPT 1000 - TS	4010301026	Gearbox WPT-STAR 1000RPM TURBO SYSTEM	1				
G 61 / 1000	Central gear wheel	GARDA 1000 RPM Z 86 - M 3	1				

Item	Part No	Description	Qty
G 118/ 540-1000	4020807011	Gear wheel for 1000 RPM shaft GARDA/GK 540-1000Z 41 - M 3	1
G 119	4011707032	Spacer GARDA/GK 52x42x55	1
G 120	4010601111	Back cover GARDA/GK	1
G 121	4010606005	Gearbox side cover GARDA/GK	1
G 122	4030110022	Gearbox side cover gasket GARDA/GK	1
G 123	5050107015	Screw M 8x16 TCEI	6
G 124 / 540-540	4020807009	Gear wheel GARDA/GK 540-540 Z 61 - M3	1
G 125	4020807010	Central gear wheel GARDA/GK 540-1000Z 81 - M 3	1
G 126	5050107093	Screw M 8x45 TE	8
G 128	5050707004	Key 8x7x25	1
G 129	4011001014	High pressure pump support GARDA/JET	1
G 130	4060505018	Guard shaft GARDA - CE	2
G 131	5060605011	Charge oil plug Ø 3/8" Gas	1
G 132	5050107084	Screw M 6x16 TEF	4
G 133	4010601148	Front cover (75) GARDA 3500	1
G 134	4010601081	Front and rear covers TURBO SYSTEM	2
G 135	4030108031	Front and rear covers' gaskets TURBO SYSTEM	2
G 136	5012107011	Ball bearing TURBO SYSTEM 6308	1
G 137	5012107012	Ball bearing TURBO SYSTEM 6309	1
G 138	4030108032	Front and rear cover gasket TURBO SYSTEM	1
G 139	4010601123	Gearbox front cover TURBO SYSTEM CE	1
G 140	4011707051	Spacer TURBO SYSTEM	1
G 141	4020807015	Central gear wheel TURBO SYSTEM	1
G 142	4020907066	Central shaft	1
G 143	4020907067	Centrifugal shaft for mechanical seal TURBO SYSTEM GARDA/6500	1

Item	Part No	Description	Qty
G 144	5050707009	Key 10x8x50	1
G 144 / MEC 2-8000	4011806020	Reduction key TURBO SYSTEM Ø8-Ø10 - 40 mm	1
G 145	4020607047	Centrifugal shaft pinion TURBO SYSTEM	1
G 146	4011219006	Centrifugal pump impeller TURBO SYSTEM GARDA/6500	1
G 147	5050207003	Smooth washer Ø 8	8
G 148	5030300022	Oil seal TURBO SYSTEM 45x65x8	1
G 149	4011707055	Splined smooth washer TURBO SYSTEM	1
G 150	4020907069	Splined sleeve TURBO SYSTEM MEC 5-8000/STAR/KTS	1
G 150 / MEC 2-4000	4020907071	Splined sleeve TURBO SYSTEM MEC 2-3-4000	1
G 151 / STAR	4011907076	Front pin TURBO SYSTEM STAR	1
G 151 / KTS	4011907077	Front pin TURBO SYSTEM KTS	1
G 151 / 2000 TS	4010220068	Rotor TURBO SYSTEM MEC 2000/D	1
G 151 / 3000 TS	4010220069	Rotor TURBO SYSTEM MEC 3000/D	1
G 151 / 4000 TS	4010220070	Rotor TURBO SYSTEM MEC 4000/D	1
G 151 / 5000 TS	4010220071	Rotor TURBO SYSTEM MEC 5000/D	1
G 151 / 6500 TS	4010220072	Rotor TURBO SYSTEM MEC 6500/D	1
G 151 / 8000 TS	4010220073	Rotor TURBO SYSTEM MEC 8000/D	1
G 152 / MEC TS	4020607051	Compressor pinion TURBO SYSTEM MEC 1000 RPM	1
G 152 / STAR-KTS	4020607049	Compressor pinion TURBO SYSTEM STAR-KTS 1000 RPM	1
G 153	4010006007	Gearshift fork TURBO SYSTEM	1

CERTIFICATE OF CONFORMITY

This is to certify that the machine, when properly installed, maintained and used only for its intended purpose, complies with all the essential Health and Safety requirements of:

- The EC Directive on the supply of Machinery (Safety) Regulations (1992)
- The Health and Safety at Work Act (UK) 1974
- The Health and Safety at Work Order (Northern Ireland) 1978
- The Consumer Protection Act (UK) 1987
- The Health, Safety and Welfare at Work Act (1989)

I certify on behalf of Major Equipment Intl Ltd, that this machine, when properly installed and operated correctly, complies with all the essential Health and Safety requirements of all legislation referred to above.

Signature:

Date: January 1st 2009

Warranty: This machine is guaranteed for 1 season. No warranty is given where the machine is being used as a hire machine. Warranty is against faulty workmanship or parts, with the exception of components not of MAJOR'S manufacture or design, i.e. hydraulic components, universally jointed shafts, chains and tyres, etc., which are subject to the original manufacturers conditions
To register your machine for warranty, please go to the support section of our website www.major-equipment.com and enter your details.

The screenshot shows the MAJOR website interface. At the top is a banner with the MAJOR logo and a tractor. Below the banner is a navigation bar with links: Home, Support (circled), News/Events, Dealers, About Us, and Download a Brochure. The main content area is titled 'Product Registration & Support'. On the left, there are contact details for the Head Office (Ballyhaunis, Co. Mayo, Ireland), UK Office (Major Ind. Estate, Heysham, Lancs), and Nederland (& Deutschland) (Postbus 29, NL-7700 AA Dedemsvaart). On the right, there are links for Product Registration (circled), Operator Manuals & Spare Parts Books, Product Maintenance, and Support. Below these links is a section titled 'Warranty (to be completed by MAJOR Dealers only)' with links for Warranty Claim Registration (online), Warranty Claim Form (download pdf), How to Complete a Warranty Claim Form (download pdf), and Warranty Terms & Conditions (download pdf).

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Warranty (to be completed by MAJOR Dealers only)

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[How to Complete a Warranty Claim Form \(download pdf\)](#)
[Warranty Terms & Conditions \(download pdf\)](#)



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