

DALBO®

SUPERMAX



EN
250/300
Serial no.: 100-XXX

MADE IN DENMARK

SUPERMAX

Type 250/300

Congratulations on the purchase of your new SUPERMAX. For **safety reasons** and to achieve optimum service from the product, please read the User Guide **before use**.

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This product has:

Type no.: _____ Serial no.: _____
Month of manufacture: _____ Net weight kg: _____

If contacting the manufacturer regarding spare parts or service, please state type and serial number. A spare parts list is included at the back of this manual.

EU DECLARATION OF COMPLIANCE

DALBO A/S
DK-7183 Randbøl
+4575883500

declares herewith that the above machine is manufactured in accordance with the provisions of directive 2006/42/EC, which replaced directive 98/37/EC and change directives 91/368/ECC, 93/44/ECC and 93/68/ECC on harmonisation of member state legislation concerning health and safety requirements related to the construction and manufacture of machines.



This machine corresponds to the safety requirements in the European Safety Guidelines.

DALBO A/S

Date: _____

Alessio Riulini, CEO

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Safety



This symbol appears in the instruction manual each time there is a safety warning concerning your safety, the safety of others or functionality of the machine. All safety instructions must be observed and made available to all users of the machine.

General

- Ensure you are familiar with all aspects of the machine before use
- There are safety stickers on the machine containing important instructions for the safety of yourself and others, and correct use of the machine.
- Do not carry passengers during operation or transport.
- Ensure there are no personnel within the machine's working radius before operating. Operate machine only from inside the tractor.
- Before leaving the tractor or making adjustments, performing maintenance or repairs on the machine, extend fully and lower to ground, or maintain in transport position, apply tractor handbrake, switch engine off and remove ignition key to secure the machine against accidental operation.
- Remember to secure support leg and pins with split rings.
- Never leave driver's seat whilst machine is moving.
- Always adapt speed to conditions.
- Do not use machine unless all safety devices are in place. Defective safety devices must be replaced immediately.

Hydraulics

- Lower machine fully for any repair work on the hydraulic system. Relieve hydraulic pressure, switch engine off and remove ignition key.
- Clean hydraulic connections thoroughly before reconnecting. When connecting hydraulic hoses to tractor hydraulics, ensure they are not under pressure.
- Bleed the hydraulic system thoroughly after any repairs.
- Check hydraulic hoses regularly for defects such as cracks, splits, crimps, wear or breaks. Defective hoses must be replaced immediately.
- Avoid spilling oil on the ground. If oil is spilt, collect and deliver to a destruction point.
- Clean hands thoroughly after contact with oil and grease. Change oil-stained clothing immediately. Hydraulic oil can be harmful to the skin.
- Hydraulic oil released under high pressure can penetrate the skin and cause severe injury. In the event of injury, seek medical help immediately.

Assembly

- Danger of crushing! Ensure no personnel are between implement and tractor, or between the parts to be connected.

Maintenance and repair

- Ensure machine is adequately supported or fully extended for all repair and maintenance work. Ensure tractor and machine are properly braked, engine stopped and ignition key removed.
- Tighten all screw connections after a few hours use. Check all screw connections regularly and tighten as required. Check all split pins and bolts to avoid mechanical failure.
- Dispose of oil, grease and filters in accordance with local environmental protection rules.

Road transport

- All safety and warning precautions mandatory by law must be fitted and tested before transporting the machine on public roads. The driver is responsible for fitting the correct lighting and number plate required in accordance with applicable legislation.

- Check with local traffic authorities whether transport on public roads is allowed given the machine's dimensions.
- When transporting, ensure permitted total weight for tractor is not exceeded and that loading on tractor front axle is not less than 20% of tractor net weight. If this is the case, use weights on tractor front

Correct use

- Correct use of the machine includes observing the manufacturer's operating, maintenance and repair instructions, and that original spare parts are always used.
- The machine may only be used, maintained or repaired by personnel familiar with it and who are aware of the risks that can be involved.
- The manufacturer cannot be held liable for injury or damage arising from modifications made to the machine performed without prior permission from the manufacturer. Neither can the manufacturer be held liable for injury or damage arising from incorrect use. Such liability rests solely with the user.
- Do not add extra weight to the machine.

Technical data

**SUPERMAX 250/300 incl.
800 mm bogie packer**

Width (cm)	300	250
HP (recommended)	200	170
Weight in kg:		
Incl. 800 mm bogie T-ring	3200	2625
Sections (pcs.)	1	1
Hydraulic requirements:		
Double-acting	1	1
Single-acting	-	-
Transport:		
Width (metres)	3,00	2,70
Height (metres)	2,00	2,00
Length (metres)	3,90	3,90

The table below indicates how much oil runs through the tractor when SUPERMAX is working at max. depth.

Model	Oil (litres)
300/250	1,2

How to use this manual

The sequence of subject matter in this manual can seem illogical. Please refer to the table of contents for page numbers for individual items.

The manual is divided into 5 main sections:

- Safety
- Starting routine and running
- Accessories
- Maintenance
- Repairs

The following symbols represent:



Points which are important to functionality and service life.



Points relevant to safety.

Delivery

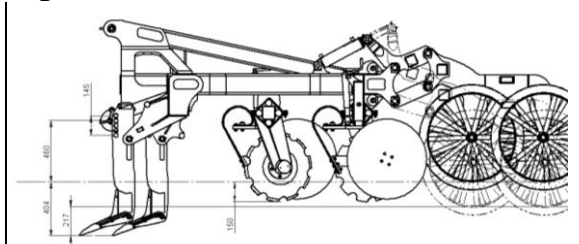
The machine is delivered complete on a trailer.

If lifting the machine, we recommend the use of straps on the mid-section and drawbar to maintain balance.

Description

SUPERMAX is a heavy-duty combination cultivator, ideal for loosening and cultivating unploughed soil. The machine consists of a tine section, a plate section and a packer section. The tines loosen the earth to a max. depth of 400 mm, whilst the plates break soil down and smooth the surface to a max. depth of 150 mm. Finally, the soil is packed by a bogie T-ring packer to maintain soil humidity. The machine is supplied ready for use.

Fig. 1



SUPERMAX 300 (diagram)

SUPERMAX is intended for use after harvesting of crops such as wheat, maize, sunflower or rapeseed. Thanks to the machine's weight, soil can be loosened even under very hard soil conditions.



SUPERMAX should only be used on soil which has previously been cultivated - i.e. the machine should not be used on former woodland, gravel roads etc.

Working speed should be within the range of 6-8 kph. At slower speeds, the crumbling effect of the plate section will be degraded, whilst at higher speeds, the spring bolts and tips of tines can be overloaded.



The machine is highly robust, to tolerate heavy loads. However, it will always be necessary to match speed to conditions - e.g. reduce speed on hard ground.

Limitations to use

Descriptions of what the machine can and cannot be used for:

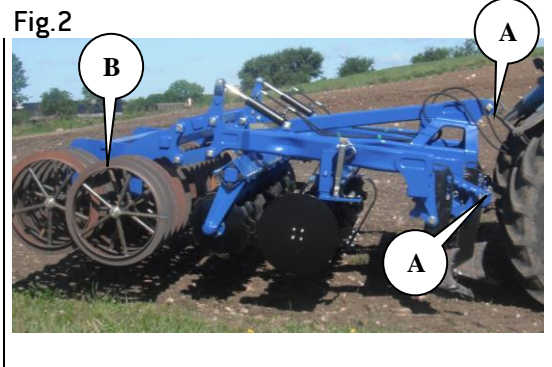
- Can only be used for breaking down organic plant material on agricultural land under cultivation. Areas worked must be in normal agricultural maintenance, i.e. with no significant unevenness or holes. Any stones must be removed from the area to the normal extent. The area must be reasonably well-drained.
- Plant material must not be stiffer than maize stalks.
- The machine can only be used towed behind an agricultural tractor, and must be connected to the rear 3-point hitch.
- Maximum working speed is 10 kph. But always adapt speed to the nature of the soil to be worked.

Use of the machine which does not fulfil the conditions above will be regarded as non-authorized, and will invalidate the factory guarantee.

Connecting and disconnecting

Connecting

Attach to the tractor's lifting arms and secure using balls and split pins (A). The support leg (B) is raised and secured by a pin.



Remember to secure drawbar with balls and split pins.

Hydraulics

SUPERMAX 300 requires a double-acting hydraulic outlet as standard, which is linked to the hydraulic depth adjustment.

Hose markings

Cylinder name	Colour	Outlet	Function
Depth cylinder	black	Double acting	Set working depth on machine.

The hydraulic system is not fitted with pilot-controlled relief valves. If the tractor hydraulic system leaks, please contact DALBO A/S.

Disconnection



Check hydraulic hoses for crimping



Always disconnect the machine on a flat surface to ensure maximum stability.

Set support leg vertically, disconnect hydraulic hoses and three point lift arms.



Remember to depressurise hoses before disconnecting them.

Setting up

SUPERMAX is very simple to work with. The machine's design makes it very easy to set up.

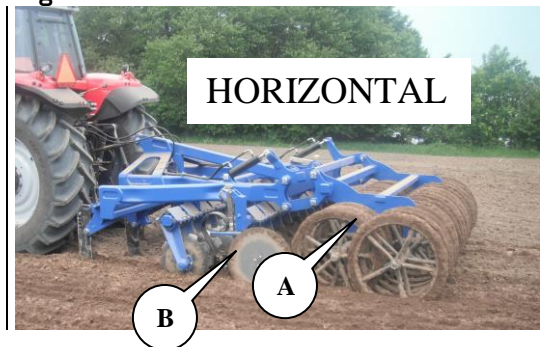
Always check frame angle before use to ensure optimum use of the machine.

Adjusting main frame

To achieve uniform soil cultivation, the main frame must be horizontal longitudinally and latitudinally.

SUPERMAX 300 at work. The main frame is horizontal.

Fig. 3



Adjusting depth

The working depth of the machine is hydraulically set using the packer (A fig. 3). The depth of the tines in relation to the plates can also be set mechanically in a row of holes on the tine (A fig. 4). To avoid throwing up a bank of earth at the side of the machine, adjust the side plates (B fig. 3) until they do not throw soil beyond the width of the machine.

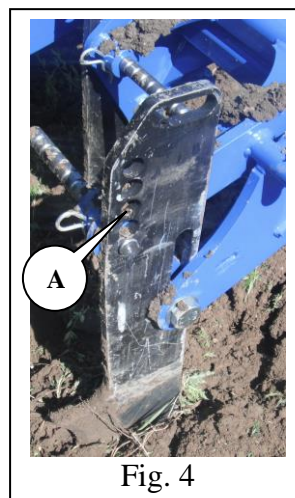


Fig. 4

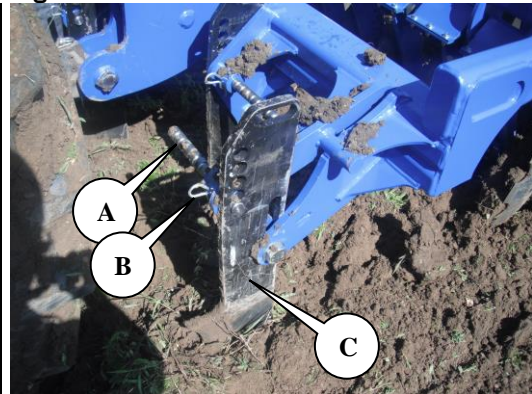
Operation

When working with SUPERMAX, the tines will hit stones which can cause the spring bolt to break.

Replacing spring bolt

If the spring bolt (A) breaks, extract the split pin (B), lift the tine (C) up to the required height and replace the bolt in the tine. Remember to secure the spring bolt with the split pin (B) again. When all spring bolt positions are used, replace it with a new one.

Fig. 5



Troubleshooting

Fault	Cause	Remedy
Uneven working depth	<ul style="list-style-type: none">• Frame is not horizontal	<ul style="list-style-type: none">• Adjust frame
	<ul style="list-style-type: none">• Tines not uniformly adjusted	<ul style="list-style-type: none">• Adjust tines uniformly

Maintenance

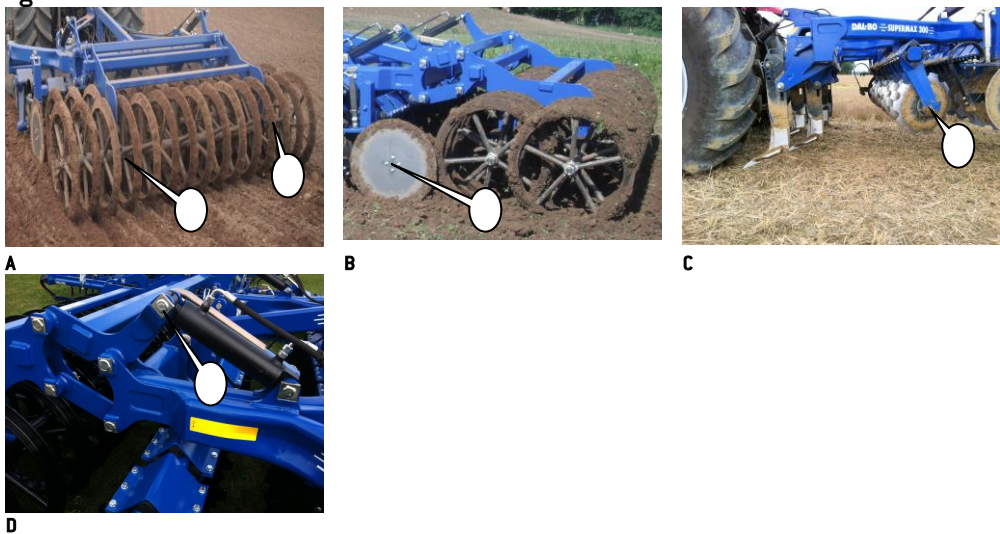
Good maintenance ensures long service life and optimum use. Grease nipples are fitted where wear is heaviest.



Tighten all screw connections after first working day. Check all split pins and bolts to avoid mechanical failure. Check hydraulic system for leaks.

Lubrication

Fig. 6



Lubrication points	Number of nipples	Lubrication intervals, hours	Illustration
Bearings in packer	4	50	A
Bearings on outer discs	2	50	B
Bearings on plates	22	50	C
Chassis	16	8	D



Lubricate all lubrication points at least once annually.

Replacement and repairs



Safety is vital for **all** repair work on the machine. Always observe the following points, plus those under Safety First in the instruction manual.



All maintenance and repair work on the machine can only be performed when the machine is lowered to the ground or locked in transport position, tractor is braked, engine stopped and ignition key removed to prevent accidental start.



Particular attention must be paid to safety when repairing hydraulics. Before commencing work, depressurise hydraulic system and support part being worked on.



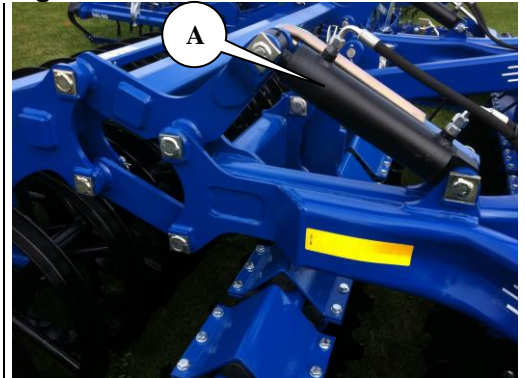
Always ensure hydraulic system is bled after repairs and before use to prevent mechanical breakdown and injury to person.

Hydraulics

Replacing depth adjustment cylinder

Lower machine to the ground, depressurise hydraulics (A), so that the packer rests on the ground.

Fig. 7



1. Disconnect hoses from cylinder
2. Support cylinder
3. Remove split pins in pins, remove pins
4. Remove cylinder
5. Fit new or repaired cylinder



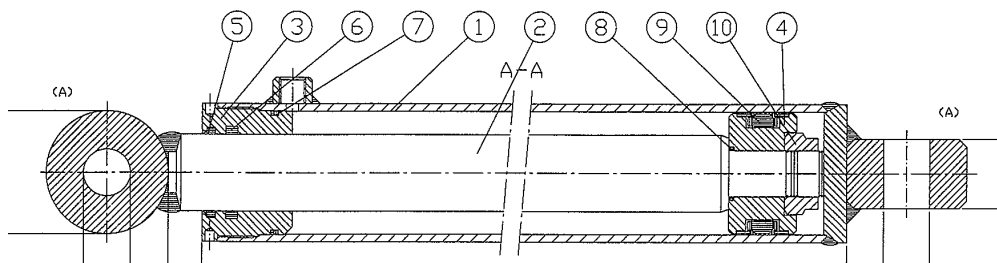
Activate cylinders after assembly. Activate cylinders both ways, retracting/extending fully in both outer positions. This is necessary to bleed the system and cylinder.



Ensure no personnel are within the extension radius of the side sections.

Replacing gaskets on raise/lower cylinder

Fig. 8



1. Drain oil from cylinder by moving ram carefully backwards and forwards.
2. Extend ram to centre position. Unscrew upper part (pos. 3) from cylinder tube (pos. 1). Use special tool to remove upper part. If upper part is stuck, heat front of upper part. When upper part is detached from cylinder tube, pull ram up towards upper part and remove completely from cylinder tube (pos. 1).
3. Remove lock nut (pos. 10) retaining collar shoe (pos. 4).
4. Remove collar shoe (pos. 4) from ram, (pos. 2).
5. Remove upper part (pos. 3) from ram, (pos. 2).
6. Remove gaskets in upper part (pos. 5+6+7+8+9) along with collar shoe.
7. Clean all parts and check for particles etc. Check for rust around scraper ring (pos. 5) in upper part. If detected, remove thoroughly.

Assembly

1. Fit new gaskets (pos. 5+6+7+8+9) in upper part, plus collar shoe.
2. Lubricate thread in upper part (pos. 3) and cylinder tube (pos. 1) with oil.
3. Fit upper part (pos. 3) on ram shaft.
4. Fit collar shoe (pos. 4) and screw on lock nut, **secure with Loctite**. Ensure that thread is absolutely clean and free of oil or other impurities before applying Loctite. **Do not fill with oil for 12 hours after use of Loctite.**
5. Lubricate outer collar shoe gasket in contact with cylinder tube and inside of cylinder tube with oil, push ram into centre position.
6. Fit upper part onto cylinder tube and tighten.
7. For fitting cylinder see "Replacing depth".

Replacing tips

Replace on a level surface with the machine connected to a tractor and suspended from the lift. Support the machine properly, and do not walk beneath it.

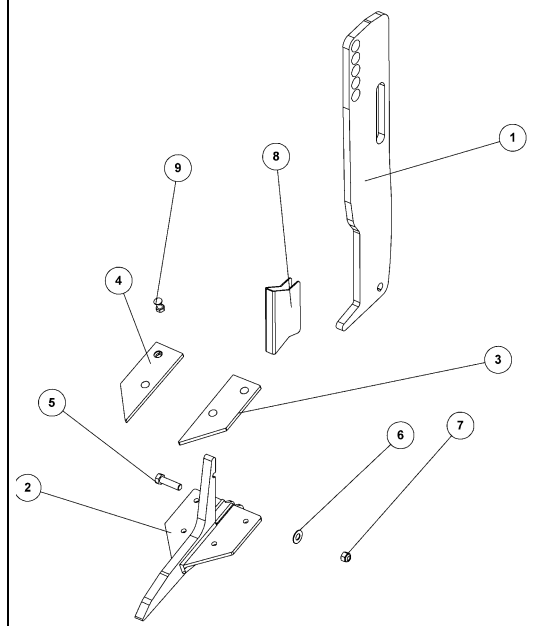


Replacing tips

Do not walk under the machine unless it is properly supported.

1. Loosen bolt (5) and remove
2. The foot (2) with its wing cutters (3 and 4) and glide plate (8) can then be removed and replaced if required.
3. The wing cutters (3 and 4) can be replaced without removing the foot first. Only the bolt (9) will need slackening and withdrawing.
4. Reverse procedure for assembly

Fig. 9



Why replace tips?

Tips should be replaced when needed, and before damage to the stalk occurs (1 fig. 9).

Scrapping



Stand the machine on a firm surface. It is essential that **all** cylinders are removed.



Beware of the weight of any given part when removing or disassembling. All parts **must** be supported or lifted to avoid danger of falling.

Disconnect hydraulic hoses and cylinders and drain oil. Collect oil in container to avoid pollution. Send oil and hoses for destruction.

All iron used in the machine can be recycled.

Spare parts

Guarantee

DALBO A/S provides a 1 year guarantee on all new machines sold by an authorised DALBO dealer. The guarantee is valid for 1 year from date of delivery to the end-user.

The guarantee covers material and manufacturing defects.

The guarantee will become invalid in the following instances:

- **The machine is used for purposes other than those described in the user guide.**
- **The machine is misused or treated negligently**
- **Lack of maintenance**
- **Unrelated incidents such as weather, falling objects etc.**
- **Transportation damage**
- **Unauthorised repairs**
- **Modifications to the machine without the written consent of DALBO A/S**
- **Non-original spare parts used.**

DALBO A/S cannot be held liable for consequential damage, loss of earnings or production as a result of defects. DALBO A/S cannot be held liable for the cost of labour apart from that reasonably incurred for repair or replacement covered by the guarantee.

DALBO A/S cannot be held liable for the following costs:

- **Setting the machine**
- **The cost of normal maintenance, cleaning, lubrication and replacement of wear parts.**
- **Transportation of the machine to and from a repair workshop.**
- **The dealer's expenses, such as transportation of personnel or parts to and from the machine and/or repair workshop.**

The guarantee is conditional on the following:

- **The guarantee will become invalid if the dealer has not prepared the machine and instructed to owner in its use.**