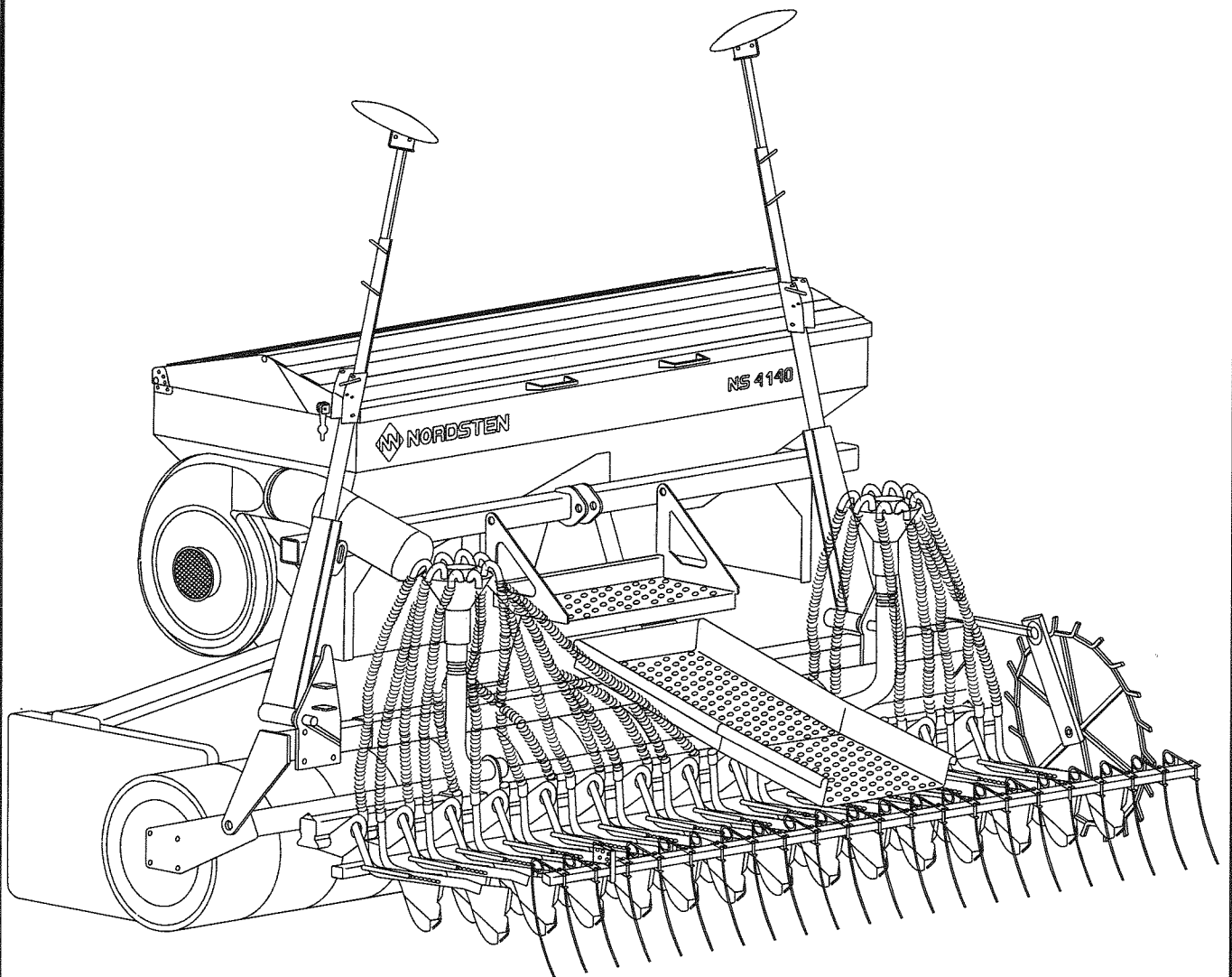


NORDSTEN NS 4100



Contents

1. Generally

Foreword	3
Technical specifications	4
Acessories	5
Safety precautions	6

2. Mounting and adjustment

Commissioning I	7
Coupling	8
Mounting of tank unit	8
Mounting of coulter kit	10
Row spacing	11
Marker shifter	12
Markers	12
Marker arms in transport position	12
Hydraulic hose, marker	13
Removal	13
Removal of coulter kit	13
Removal of tank unit	13
Tramlining	14

3. Adjustment

Generally	15
Test sowing	15
Agitator shaft	15
Bottom flaps	15
Seed housing shutters	15
Emptying of machine	15
Test sowing	16
Scale setting	16
Blower	16
Bottom flaps under seed housings	16
Filling of seed	16
Starting the seed flow	16
Turning the test sowing handle	16
Weighing	17
Calculation of the sowing rate	17
Adjusting the sowing rate	17
Discrepancies in the sowing rate	17
After test sowing	17
Blower	17

Special crops	18
Sowing of grass seed	18
Warning	18
Sowing of small round seeds	18
Mounting of fine seed fingers	18
Disengagement of sowing wheels	18
Mounting of peg wheels	19
Coulter pressure/ sowing depth	20
Coulter tightening	20
Markers	21
Adjustment of markers	21
Centre marking	21
Marking track	21
Following harrow	22
Adjustment of following harrow	22

4. Operation

Generally	23
Driving speed	23
Emptying of seed hopper	23
Land wheel	24
Lid	24

5. Maintenance and lubricating

Fine adjustment of bottom flaps	25
Cleaning of seed outlets and sowing rollers	25
Lubrication	25
Winter storage	26

6. Sowing table

Sowing table - Barley	27
Sowing table - Wheat	27
Sowing table - Peas	28
Sowing table - Rape	28

7. Notes 29

Foreword

KONGSKILDE would like to congratulate you on your new NS 4100 seed drill which we are convinced will serve you well in your work.

In order to use the machine correctly and safely, we recommend that you familiarise yourself with it by studying this instruction manual.

The correct use of the machine, along with careful maintenance, lubrication and storage, will help to keep it in good working order.

Technical specifications

Machine type	NS4130/ 24EU	NS4130/ 24ER	NS4130/ 24DR	NS4140/ 32EU	NS4140/ 32ER	NS4140 32DR
Working width,cm	300	300	300	400	400	400
Overall height,cm	180	180	180	180	180	180
Overall width,cm	300	300	300	400	400	400
Filling height,cm	170	170	170	170	170	170
Row spacing, Euro coulters	24			32		
Row spacing, disc coulters, ER		24			32	
Row spacing, disc coulters, DR			24			32
Row distance, cm	12,5	12,5	12,5	12,5	12,5	12,5
Dist. between coulter rows, cm	36	36	36	36	36	36
Hopper capacity, liter	800	800	800	800	800	800
Hopper capacity, wheat, kg	615	615	615	615	615	615
Weight of hopper	325	325	325	325	325	325
Weight of coulter section	400	425	475	450	480	525
Weight of coulter section w/rear harrow	490	515	565	540	570	600
Total weight (hopper, coulter section and rear harrow)	815	840	890	865	895	930

Accessories

The seed drill can be fitted with the following accessories:

Following harrow type Max-Flow.

The following harrow has rearward-facing tines which ensure that plant residue, such as straw and similar materials, is less likely to drag.

Following harrow type Wing-Flow. The following harrow has rearward-curving tines. Recommended in connection with disc coulters since dragging and visible stress is avoided.

Following harrow type Twin-Flow. A double following harrow can be mounted instead of the traditional following harrow by fitting a double following harrow tine on the hindmost set of Euro coulters.

Electronic tramlining device AGRO TRAM 2100. This can be mounted on the seed drill in order to make cultivating tracks of up to nine times the seed drill's width.

AGRO TRAM 2100 is equipped with seed shaft control and acremeter for measuring both part and total area.

Electronic level control indicator for hopper capacity, can be used in connection with AGRO TRAM 2100.

Extension cable for AGRO TRAM 2100.

Pre emergence markers for making tracks for fertilisation and spraying before germination. Only available with AGRO TRAM 2100 and Max-Flow/Wing-Flow following harrows.

Mechanical regulation of sowing rate whilst driving, allowing the rate to be controlled from the tractor cab. Direct mechanically driven areameter.

Depth limiters for Euro coulters.

Depth limiters for disc coulters.

Grass seed foot for mounting on the Euro coulters. Enables sowing of grass seed in 80 mm row widths when the soil is suitably dry and free of foreign bodies.

Seed hopper extension 400 l.

Hydraulic top link for lifting of coulters set.

Safety Precautions

This instructions and safety notes in this instruction manual must be followed.

Safety distances

The safety distance to the seed drill while in operation is 4 metres. Persons must under no circumstances be on the seed drill while it is running.

Safety when lifting the seed drill

The marked cutting eyes should be used when lifting the seed drill and when carrying out repair of the seed drill's main frame.

Safety precautions concerning guards

Guards for chains, gear wheels and rotating shaft ends etc. must be fitted to comply with the required safety regulations.

Loose guards, which include calibration trays and seed hopper lid, should be fitted and closed when the machine is running.

The agitator shaft in the hopper is not shielded. Therefore, to avoid injury, manual stirring of the sowing material whilst the machine is running must be avoided.

Fixed guards should be removed and fitted using tools.

Safety precautions whilst driving

When driving on public roads, road traffic laws concerning lights, safety, etc. should be followed. Lift arm pins and top link pins should be properly secured in order to avoid accidents.

On safety grounds, marker arms should always be locked in position when driving on public roads. Locking is carried out using lock fittings which are mounted on the locking pin and secured with the ring pin. See figure 2G.

Safety precautions when parking

Always place the seed drill on firm, horizontal ground when it is removed from the tractor. Ensure that the support legs are mounted and secured by the locking pin.

Safety when cleaning

Cleaning and maintenance of the seed drill should only be carried out when the machine is not running.

Safety precautions concerning hydraulics

Hydraulic systems with a working pressure of up to 200 bar must be treated with care. When carrying out repairs, the hydraulic system must be without pressure. Air in the hydraulic system can lead to incorrect functioning of the machine, and thus should be expelled before the machine is used.

Safety when mounting tyres

Tyre mounting without sufficient expertise or the necessary special tools may lead to serious accidents.

Safety precautions concerning tightening

Tighten all bolts after the first 25 hours of operation. All bolts should be subsequently tightened before the start of each season.

Product liability

Kongskilde's product liability covers machines which are defective on delivery. Product liability no longer applies if modifications are made to the seed drill or its accessories without Kongskilde's explicit written permission.

It is also a condition of the product liability that the seed drill is only used for purposes described in this instruction manual or for purposes which have Kongskilde's permission.

Finally, it is also a condition that the seed drill is used with all fixed guards fitted.

Commissioning

Commissioning the seed drill

Immediately after receiving the drill, it and any extra equipment should be checked to ensure that the items received are in accordance with the order and that there are no defects or missing parts. Any claims should be immediately forwarded to the dealer.

In the case of damage occurring during transport, claims should be forwarded to the transport firm used.

Otherwise reference is made to Kongsilde's usual terms of sale and delivery.

The coulter settings - and thus their mutual spacing - may have changed during transport. The coulter settings should therefore be checked (see this section under coulter spacing) and any necessary adjustments carried out as described.

Check that the chains between the driving wheel, gearbox, agitator shaft and sowing shaft are correctly adjusted. This is particularly important if extra equipment with chain drive has been fitted. Any necessary adjustments should be carried out as described in section 5.

Chains and linkages should be lubricated with oil.

Coupling

Mounting of tank unit on cultivation equipment

We further refer to the spare parts list for coupling kit.

The two hooks are mounted on the rear sides of the headstock of the cultivation equipment.

See fig. 2A.

On the Howard power harrow HK 32 the hooks are integrated in the machine and have, therefore, not to be mounted. The bracket to connect the tank unit to the top of the headstock is now mounted.

See fig. 2B.

The tank unit should be situated on a flat surface. The supporting legs are placed so that the cultivation equipment passes between the two legs.

The cultivation equipment can be placed under the tank unit and lifted up so that the suspension points of the tank unit are caught by the hooks.

See fig. 2A and 2C.

A pin is placed in the top bracket and locked by a ring pin.

See fig. 2B.

Locking bolts are mounted to lock the tank unit.

See fig. 2C.

The machine is lifted and the supporting legs can now be removed.

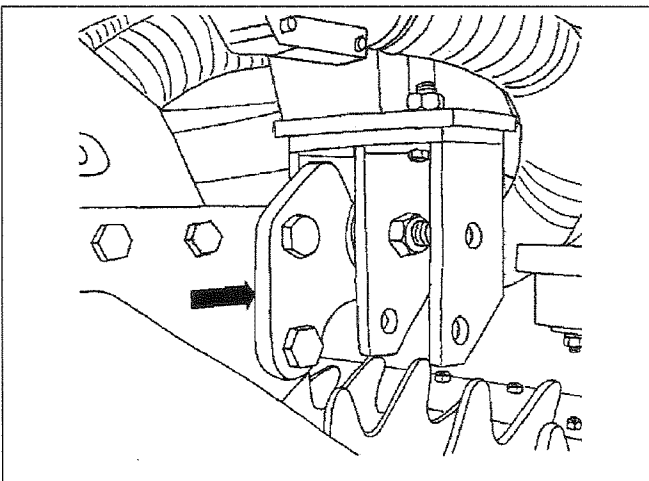


Figure 2A .Mounting of hooks.

Machine with hydraulic driven blower

In the case of an hydraulic driven blower the following demand is made on the hydraulic system of the tractor.

The blower requires up to 30 l/min at a pressure of about 125 bar. The hydraulic system of the tractor must be able to produce 8 kW continuously for running the blower.

On newer tractors it is possible to adjust the oil quantity on the individual oil outlets. The oil flow is adjusted at the tractor valve first, so that the values stated for blower pressure are observed.

Max. 60 mbar.

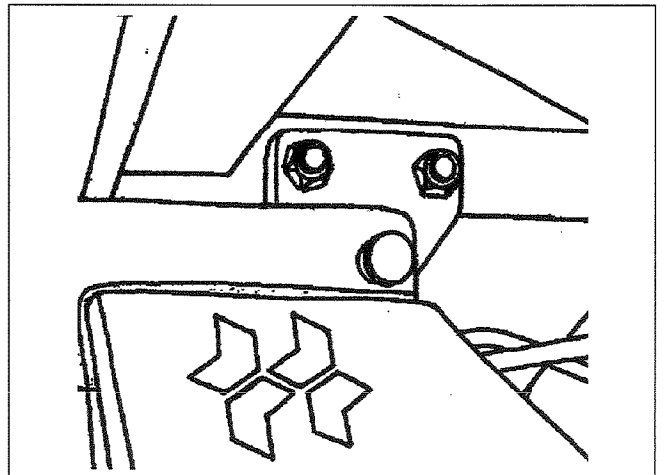


Figure 2B .Foremost top bracket.

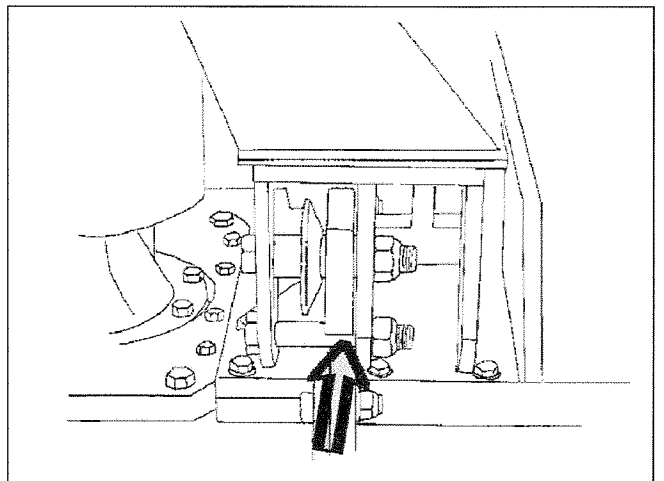


Figure 2C .Lock bolts.

On tractors without the possibility for controlling the flow of oil from the external hydraulic spool valves, the air pressure can be set on the regulator valve. See fig. 2D.

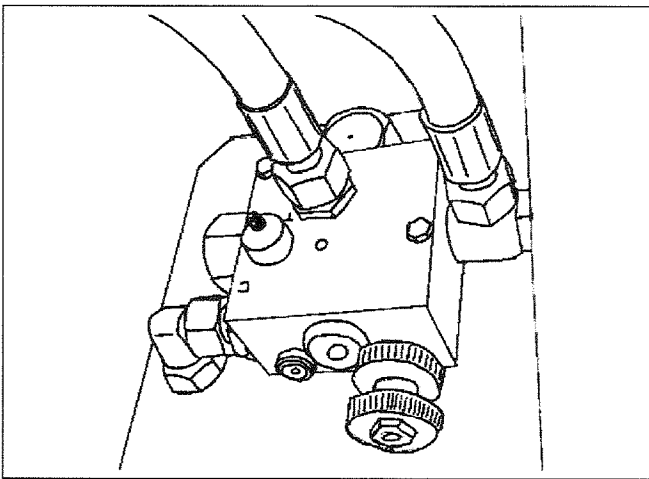


Figure 2D. Hydraulic driven blower.

On connecting hydraulic hoses the probes should be cleaned before installing. Connect the red hose P (pressure) to the tractor's external service. The green hose R (return) must be fitted to a free flow return (pressureless).

On tractors without a freeflow return the dealer must establish one.

Set air pressure as follows:

1. Make sure valve is fully open (screwed out).
2. Run tractor with spool valve in flow at an engine speed equal to pto output. E.g. 1000 rpm PTO speed.
3. Screw in adjuster to get recommended air pressure.

On drills fitted with a PTO driven fan, a gearbox is mounted on the output shaft of the power harrow and is driven at 1000 rpm.

The PTO shaft is connected to the gearbox splined shaft and locked with a bolt. The cardan joint on this end of the PTO shaft is lubricated for life. The other end of the shaft mounted to the drill should be lubricated after every 16 hours work. See fig. 2F.

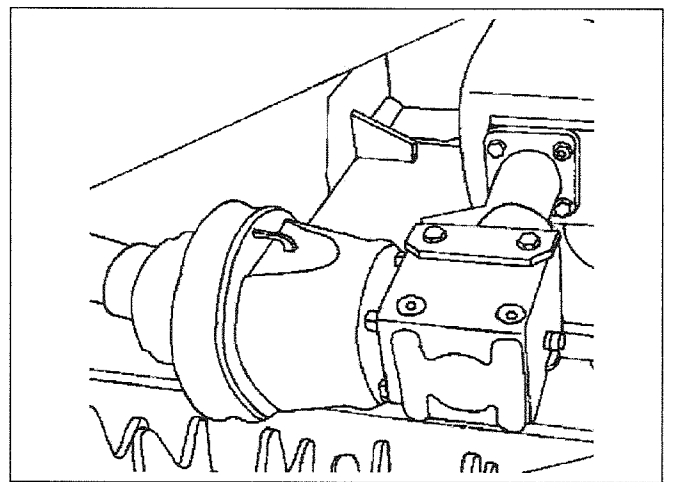


Figure 2E. Mounting of gearbox.

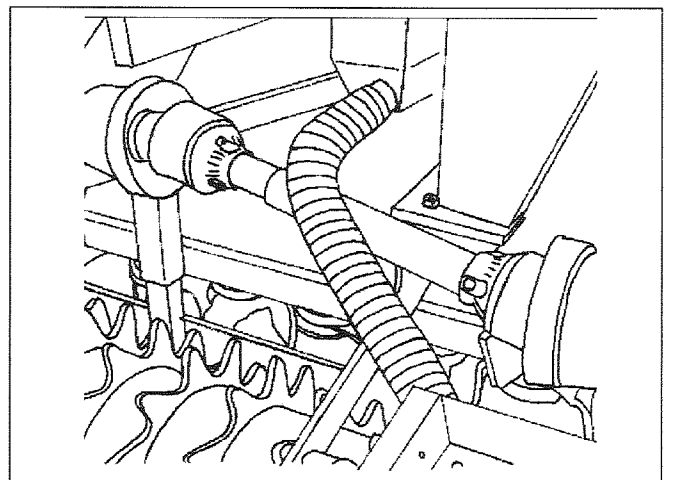


Figure 2F. PTO shaft

Coupling

The V belt tension for the fan drive is via an idle tension roller.
See fig. 2G.(A)

On Howard HK power harrows the levelling board handles are replaced with hexagon nuts.
See fig. 2G.(B)

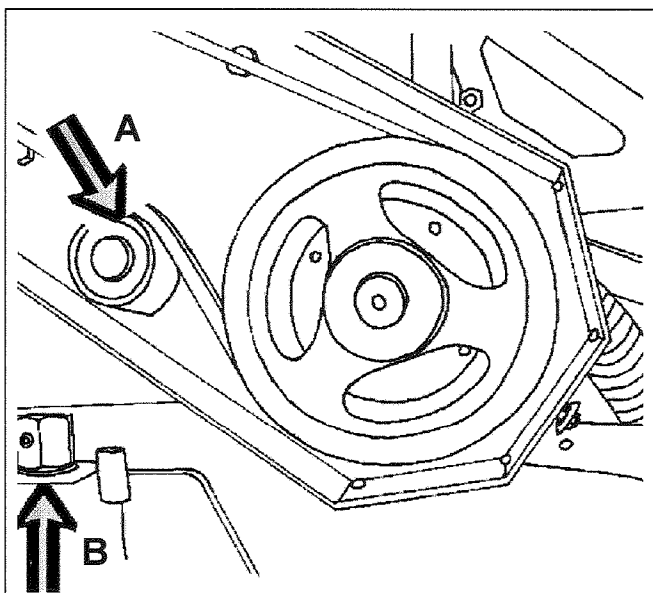


Figure 2G. Tension roller.

Mounting of coulter kit on cultivation equipment

We further refer to the spare parts list for coupling kit.

A bracket is mounted on each end of the packer roller arm of the cultivation equipment.

See fig. 2H.

The coulter kit can now be mounted with link arms, top link and support spindles.

A cross bar between the link arms is mounted. The top link is now adjusted to place the coulter frame horizontal.

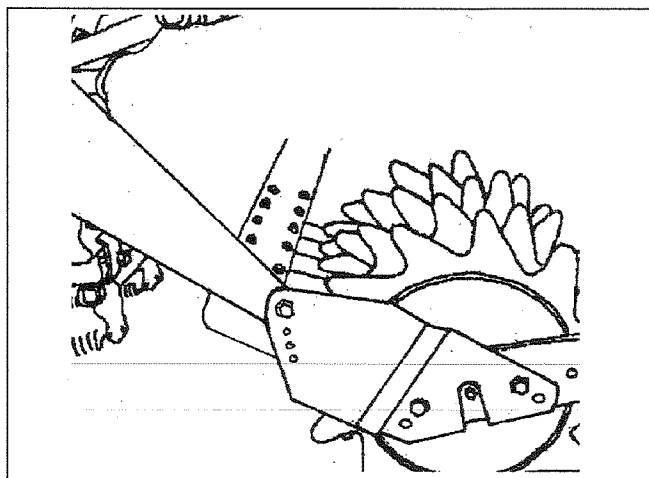


Figure 2H. Mounting of coulter kit.

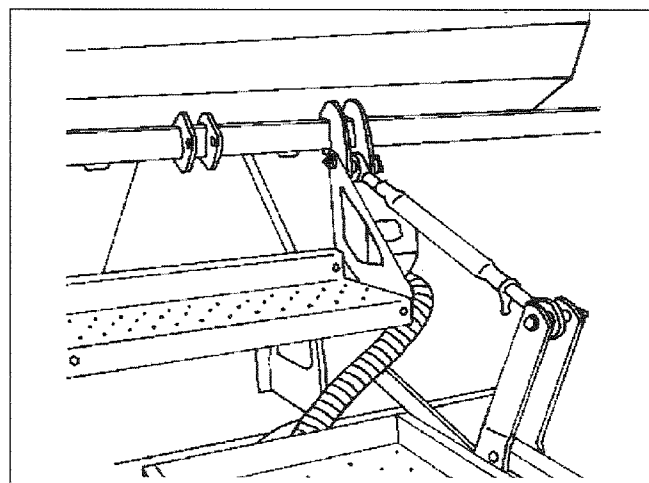


Figure 2I. Foot board.

Row distance

Row distance

Changing and adjusting the row spacing can be carried out by moving the suspension arms and clamp for each coulter sideways on the coulter bar. This can be done after the bolts under the clamps have been loosened.

See figure 2J.

The distance between the coulters is measured directly on the coulters themselves and thus not on the suspension arms. The use of a measuring implement with the actual row spacing marked is recommended.

See figure 2K.

Remember to tighten all bolts after adjustment.

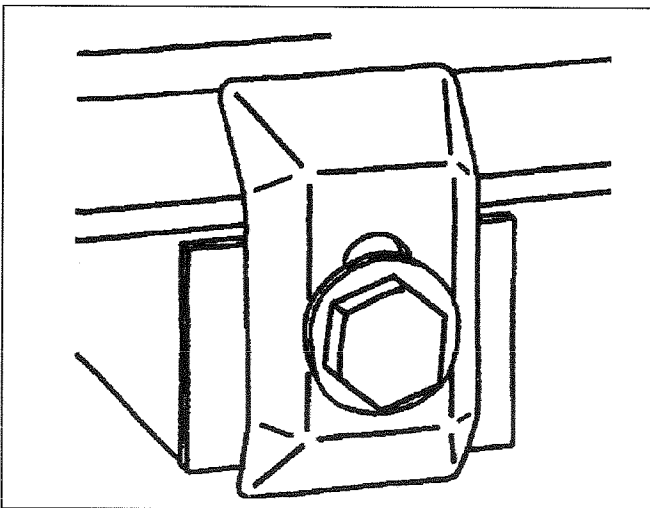


Figure 2J. Clamp with bolt.

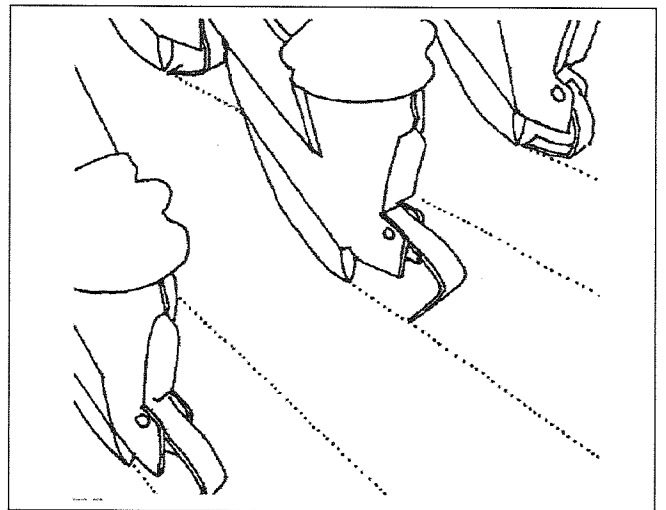


Figure 2K. Row distance.

Marker shifter

Markers

The seed drill is fitted with hydraulic markers.

A single-acting hydraulic take-off from the tractor is used which activates a shuttle valve (see fig. 2L) in the following way:

On supplying hydraulic pressure to the marker system, both markers go to vertical.

By removing hydraulic pressure from the marker system, one marker will move into its working position.

Shifting between the markers (i.e. between left and right) is done by supplying, and then removing, hydraulic pressure from the system.

If both markers are required in their working position, the marker system is activated in the following way:

The marker which is in its working position is raised about 1 metre. The hydraulic pressure is then removed from the system, after which both markers will move into their respective working positions.

Marker arms, shear bolt

The marker arms are equipped with a shear bolt which is released when overloaded. Carrying an extra shear bolt (M6 x 80 grade 8.8) is recommended. See fig. 2M.

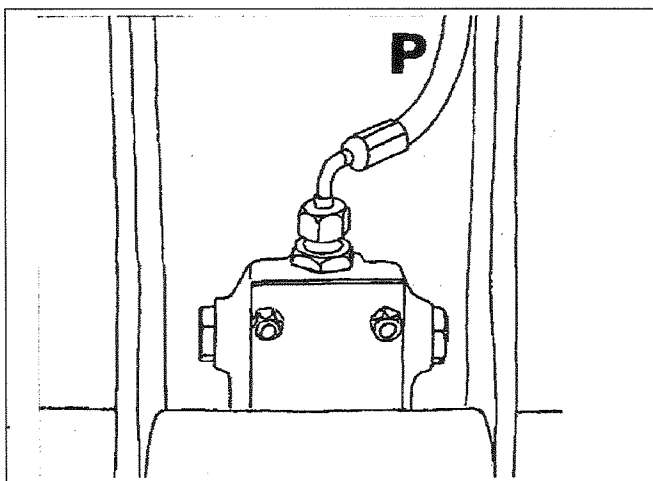


Figure 2L. Shuttle valve for marker

Marker arms in transport position

When transporting the seed drill on public roads, the marker arms must be locked up. The locking can be made by lock pins which are put under the support of the marker arms.

The lock pins are secured with a ring pin. See fig. 2N.

In order to reduce the transport height on 4,0 m machines the marker arms are articulated. Both in the "folded" position (during transport) and in the working position the link must be locked with a locking pin, secured with a ring pin bolt. See fig. 2O.

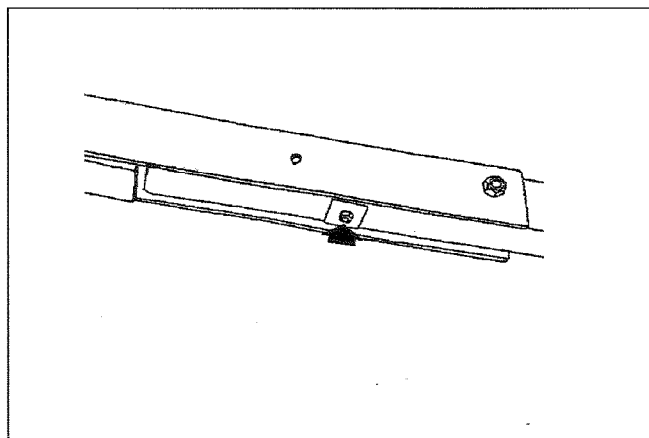


Figure 2M. Shear bolt.

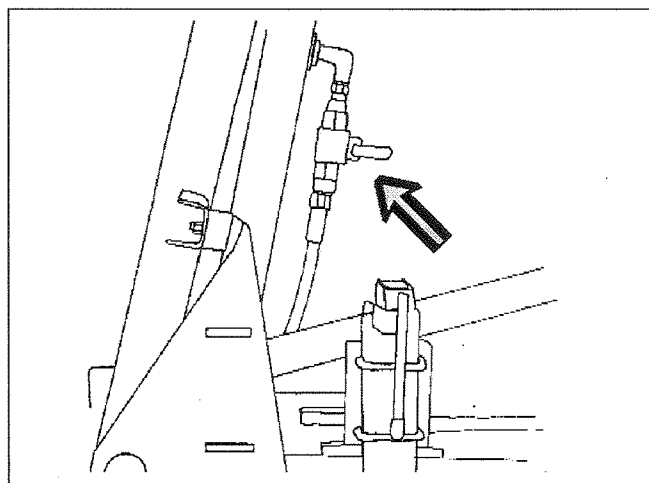


Figure 2N. Locking valve for transport.

Removal

Hydraulic hose, marker

The hydraulic hose for the marker arms is connected to the tractor. If the tractor is provided with an outlet for an assistor cylinder, this outlet is used.

If the tractor is not provided with such an outlet, the hydraulic hose is connected to the outlet of a single-acting remote cylinder.

Removal of coulter kit

Always park coulter kit and tank unit on a horizontal and firm ground, when disengaging.

Supporting legs are put onto the coulter bar.

Hoses for the distributors are removed.

Remove the guard on the side of the tank unit to remove the long cassette for the land wheel.

Link arms, top link pin and spindles are removed.

Removal of tank unit

Supporting legs are put onto the tank unit.

The hydraulic hoses and any wires for light and tramlining are disconnected.

If necessary the air hoses from the cultivation appliance are loosened.

In the case of PTO driven blower the pulley (behind blower) and the tension arm are loosened. Then the belts can be removed.

See fig. 2F.

Lock bolts and pin fig. 2B and 2C are removed.

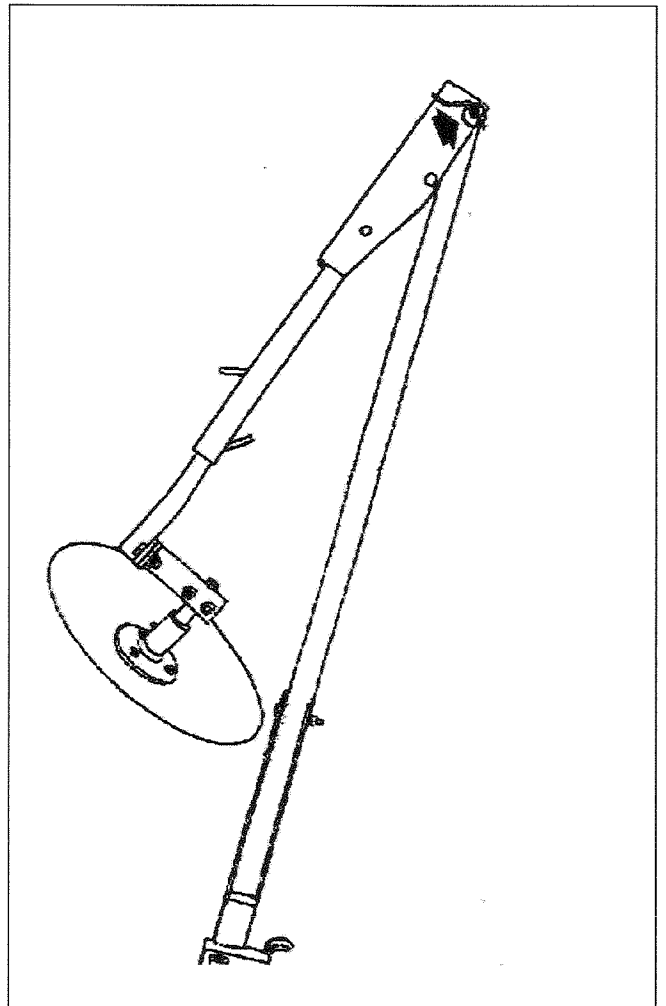


Figure 2O. "Folded" marker arm.

Tramlining

Agro Tram 2100 can now be mounted for controlling tramlining.

We further refer to instruction for Agro Tram 2100.

On two distributor heads hydraulic cylinder for opening and closing of the outlets for the distributor is mounted. See fig. 2T.

A stainless disc closes two outlets in the distributor head.

A solenoid valve for control of tramlining is mounted on the marker shuttle valve. See fig. 2P.

A wheel sensor is mounted on the input shaft on right side of the seed drill. See fig. 2R.

The sowing rate is reduced automatically by a solenoid clutch on the side of the seeding housings. See fig. 2S.

The clutch stops the outer roller on left side, when tramlining.

On the marker arm a sensor is mounted for control of "track numbers" for the tramlining. See fig. 2S

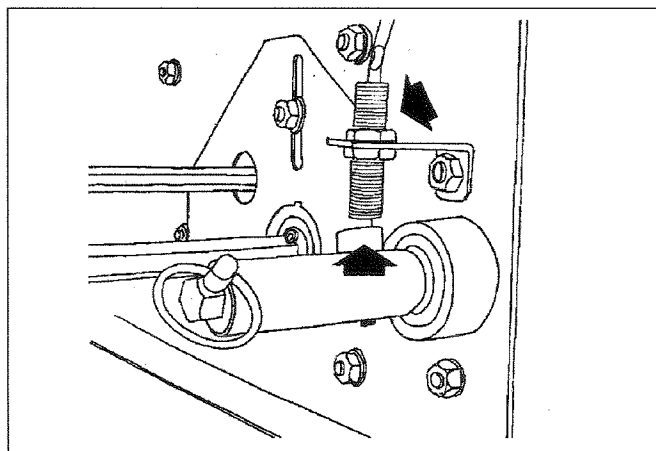


Figure 2P. Wheel sensor.

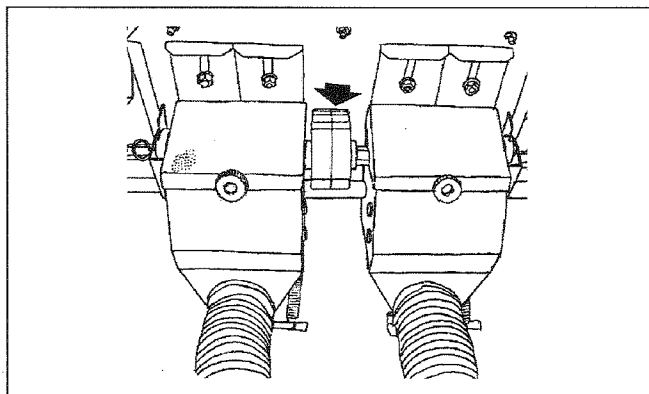


Figure 2R. Solenoid clutch.

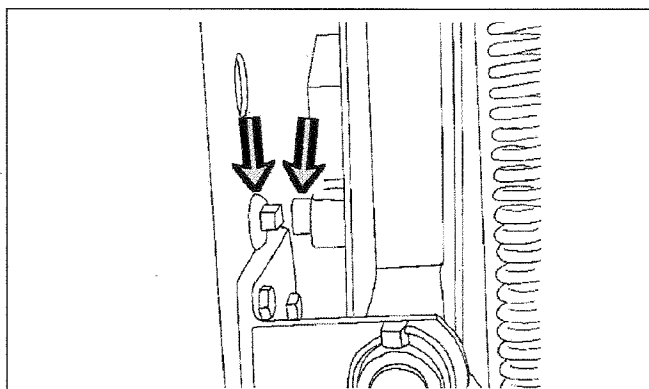


Figure 2S. Sensor for control of "track-numbers"

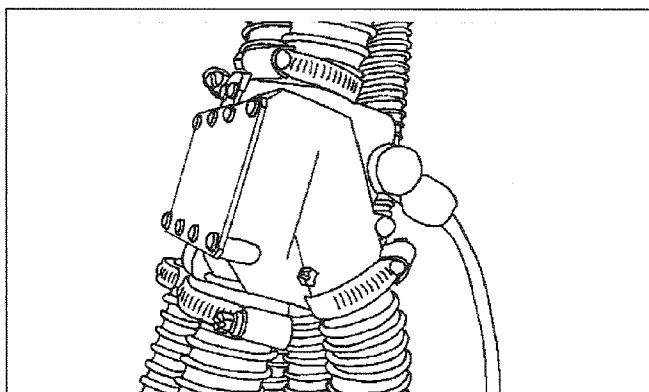


Figure 2T. Flap valve.

Test sowing

General

Before sowing begins, the following should be carried out:

- Test sowing of the drill
- Setting coulter pressure/sowing depth
- Setting the drive wheel
- Setting the markers.

Test sowing of the drill

Test sowing includes both a calibration depending on the weight/size of the seed (1000 grain weight), and the adjustment of the sowing rate per unit area.

Agitator shaft

The agitator shaft always runs. It is not necessary to disengage the agitator shaft when sowing large seed, e.g. peas and beans.

Bottom flaps

The bottom flaps should be as close as possible to the seed wheels without damaging or squeezing the seed. The bottom flaps can be adjusted using the handle at the end of the hopper.

See figure 3B.

The scale setting for different seed sizes should be as follows:

Fine seed	:	1
Corn	:	2-3
Peas, etc.	:	3-6

Table 3A. Adjustment of bottom flap position.

Seed housing shutters

The shutters must not be used for adjusting the rate of sowing.

The shutters should always be completely open or closed.

If you wish to start sowing with half the sowing width, the shutters at one side can be closed.

Emptying of machine

The calibration bags are mounted under the seed housings and the bottom flap handle is turned backwards.

Exchange of seed wheel

See special crops page 18.

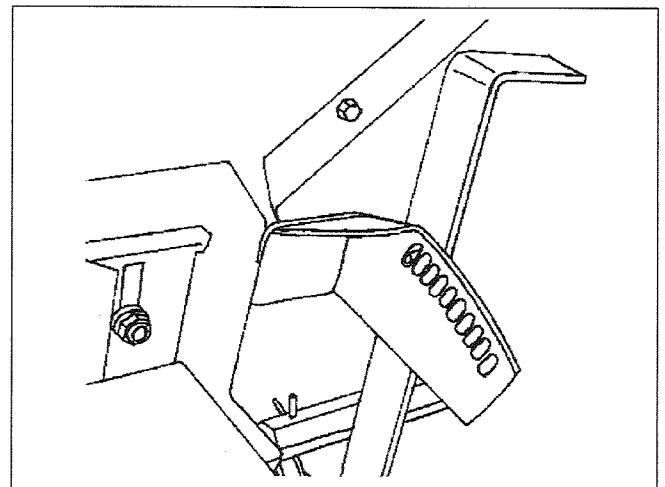


Figure 3B. Handle for bottom flaps.

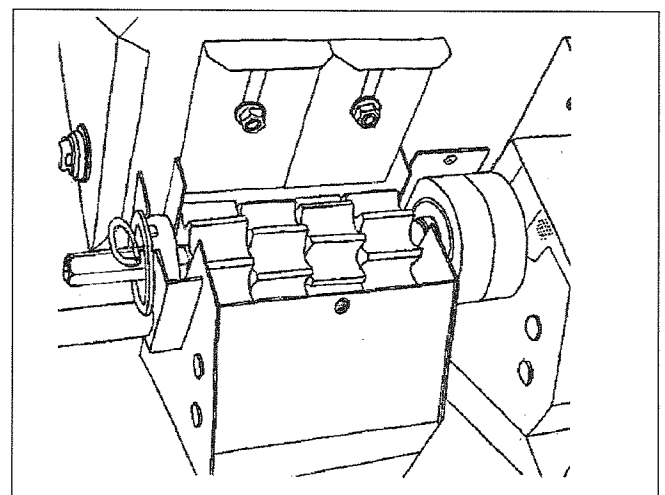


Figure 3C. Seed housing shutters.

Test sowing

Test sowing

The test sowing is carried out to ensure the correct sowing rate, and is carried out as follows:

The correct sowing rate can be adjusted using the formula:

$$\frac{\text{NO. OF PLANTS PER M}^2 \times \text{TCW}}{\text{SPROUTING PERCENT IN THE FIELD}} = \text{KG / HECTARE}$$

TCW = 1000 corn weight

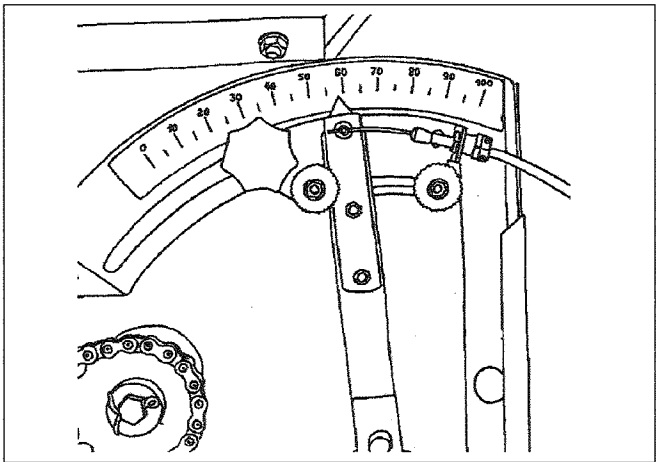


Figure 3D. Scale setting.

Blower

The blower must not be run during the calibration.

Bottom flaps under seed housings.

The spring loaded bottom flaps under each seed housing are opened.
See fig. 3F.

The calibration bags are hooked below.
See fig. 3G.

Filling of seed

Fill sufficient seed in the hopper such that the agitator shaft is still covered after a test sowing has been carried out.

Starting the seed flow

Attach the test sowing handle and turn it clockwise until the seed flows from all of the outlets.

Empty the contents of the calibration bags into the seed hopper

Turning the test sowing handle

Turn the test sowing handle according to the table 3E below:

	1/40 ha
NS 4130	103
NS 4140	77

Table 3E. Turn the handle x number of revolutions per 1/40 ha.

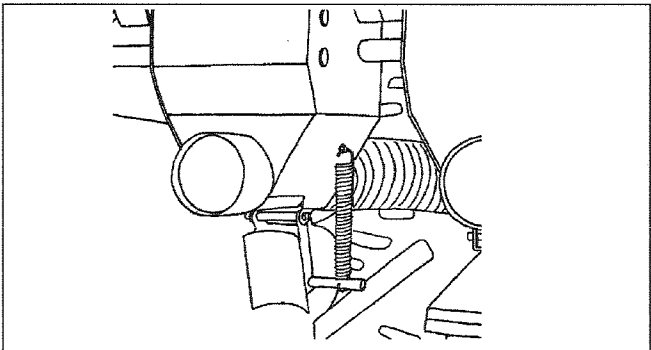


Figure 3F. Bottom flaps below seed housings.

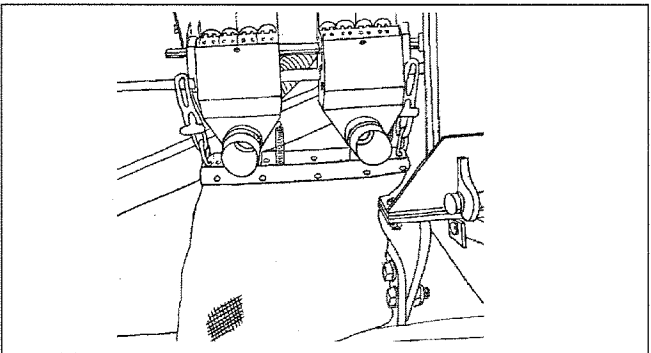


Figure 3G. Calibration bag.

Weighing

Weigh the seed from the sowing tray(s) on an accurate pair of scales.

Calculation of the sowing rate

To obtain the sowing rate for 1 ha., the measured weight must be multiplied by 40.

Adjusting the sowing rate

If the calculated sowing rate corresponds to the required rate, then the machine is correctly adjusted.

If the sowing rate is not correct, the following adjustment can be made by changing the scale setting.

If a larger sowing rate is required, the regulating handle's indicator should be adjusted to correspond to a higher value on the scale.

After adjustment of the scale setting, a new test sowing should be carried out.

Discrepancies in the sowing rate

If the test sowing has been carried out carefully, the actual and calculated sowing rates should correspond exactly.

If this is not the case in practice, then the cause could be that the test has not been carried out correctly or that an inaccurate pair of scales has been used.

However, another potential cause of discrepancies is unusual soil conditions. Very wet or very loose soil can cause inaccurate rolling of the drive wheel.

If problems are caused by the soil conditions, then a supplementary calibration test in the field is recommended.

Test sowing in the field follows essentially the same procedure as the standard test sowing.

However, instead of turning the test sowing handle through a specified number of revolutions, the seed drill is driven in normal working position a specified distance in the field with the calibration bags mounted. See table 3H.

	1/20 ha
NS 4130	167 m
NS 4140	125 m

Tabel 3H. Drive x number of meters for 1/20 ha.

After test sowing

The calibration bags are removed.

The bottom flaps under the seed housings are closed.

Blower

The blower is engaged and the working pressure - read on the pressure gauge (fig. 3I) - is adjusted according to table 27-28.

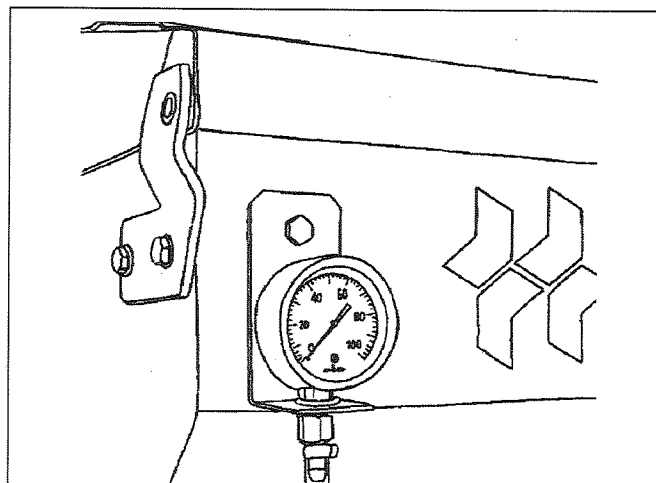


Figure 3I. Pressure gauge, air pressure

Special crops

When sowing special crops, certain precautions may have to be taken.

Sowing of grass seed

Sowing of grass seed requires special attention since the seeds can „bridge“ in the hopper, thus affecting the actual sowing rate. This problem will be particularly acute if the hopper is exposed to vibration.

It is therefore advisable to carry out test sowing with a limited amount of seeds in the hopper, and to avoid filling the hopper completely until in the field where sowing is due to take place.

In addition, regular stops to manually stir the hopper contents is recommended in order to achieve uniform sowing.

Warning

Owing to the agitator shaft, stirring of the hopper contents should only be carried out when the machine is switched off.

Sowing of small round seeds

When sowing small, round seeds, such as turnip, white mustard and rape the fluted sowing wheels are exchanged for peg wheels with fine seed fingers. The sowing rate is reduced to 1/9 and at the same time waste is avoided since the seeds are only fed out by the pegs.

Mounting of fine seed fingers

The fine seed fingers are fitted by pressing them over the rollers. As the roller is turned, the fine seed fingers are pulled round to cover the roller. The fine seed fingers are shaped so that they are held in place.

See figure 3J.

Disengagement of sowing wheels

The covers above the seed wheels are disengaged by loosening the black thumbscrew at the front of the seed housing.

The shaft connections on both sides of the seed housings are removed. The R-clips are removed.

The R-clip at left side of the seed housing (at bearing) is removed and the bearing is pushed out of the bearing retainer. The sowing shaft can now be pushed fully to the right, and the bearing at right side comes out of the bearing retainer. The sowing shaft can now be lifted out of the seed housing.

See fig. 3K and 3L.

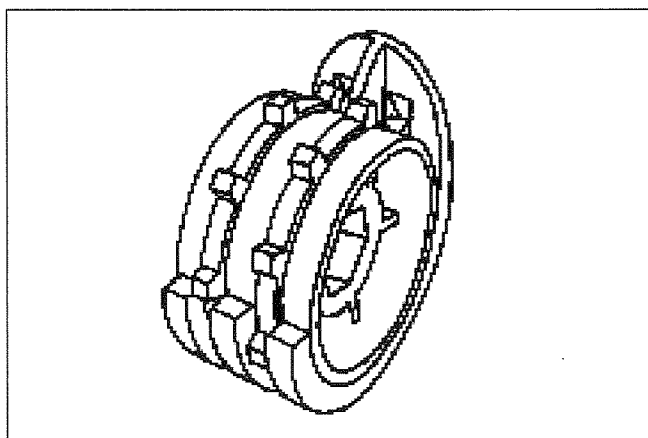


Figure 3J. Mounting of fine seed fingers.

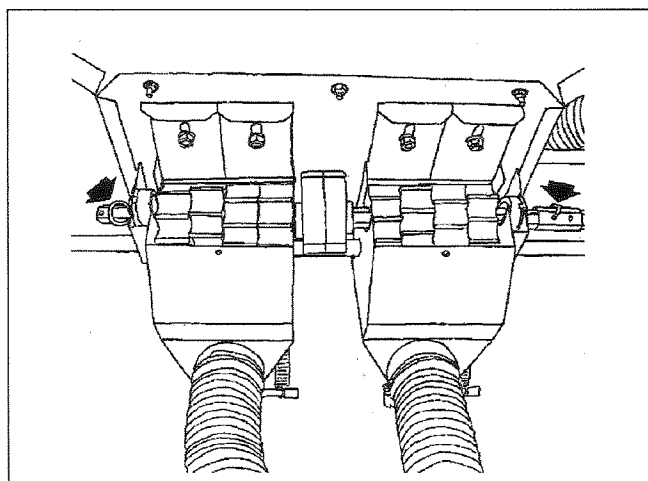


Figure 3K. Removing of seed wheels/shaft.

Mounting of peg wheels

The solenoid clutch (for tramlining) is moved over to the peg wheel shaft. See fig. 3L and 3M.

The sowing shaft is put down onto the seed housing and the seed wheels are slid down into the seed housing.

The bearings are pushed back in position and locked by an R-clip. The shaft connections are now completed.

When peg wheels with fine seed fingers are used the bottom flap handle is placed in position 1.

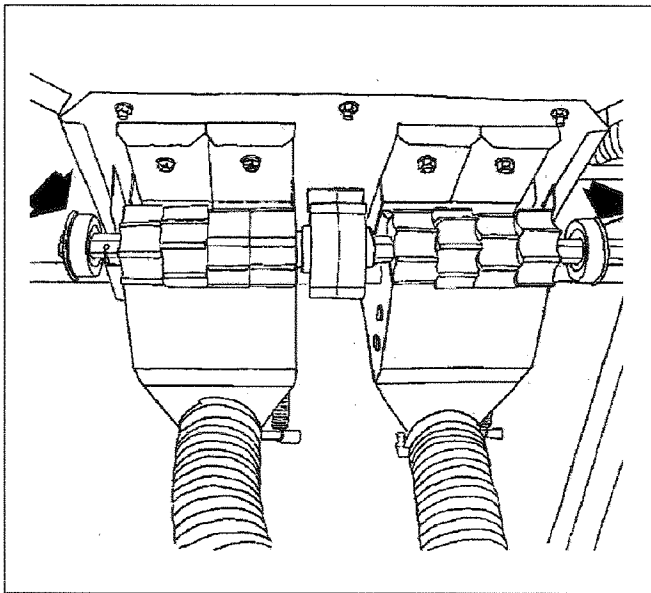


Figure 3L. Removing of seed wheels/shaft

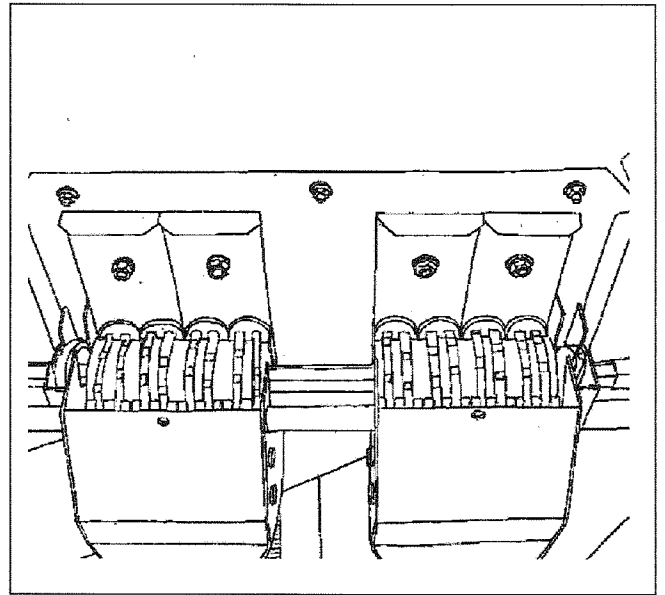


Figure 3M. Sowing shaft with fine seed fingers.

Coulter pressure /sowing depth

Coulter pressure/sowing depth

In order to achieve the desired sowing depth on all coulters, it is necessary to adjust both the coulter pressure and the telescopic arms correctly.

Coulter tightening

The tension of the spring determines the sowing coulter's working depth in the soil. Note also that a too-high forward driving speed can also result in nonuniform sowing depth.

Central coulter adjustment can be carried out on all coulters at the same time. Machines with a working width of 4,0 m are provided with two spindles.

Central coulter adjustment is carried out by turning the spindle with the calibration handle or openend spanner. See fig. 3N.

The coulter adjustment can be adjusted individually for each coulter. This is done by changing the position of each spring by moving the chain one or more links on the coulter arm.

With this individual adjustment it is possible to obtain an increased coulter pressure on the coulters working behind the tractor wheels.

See fig. 3O.

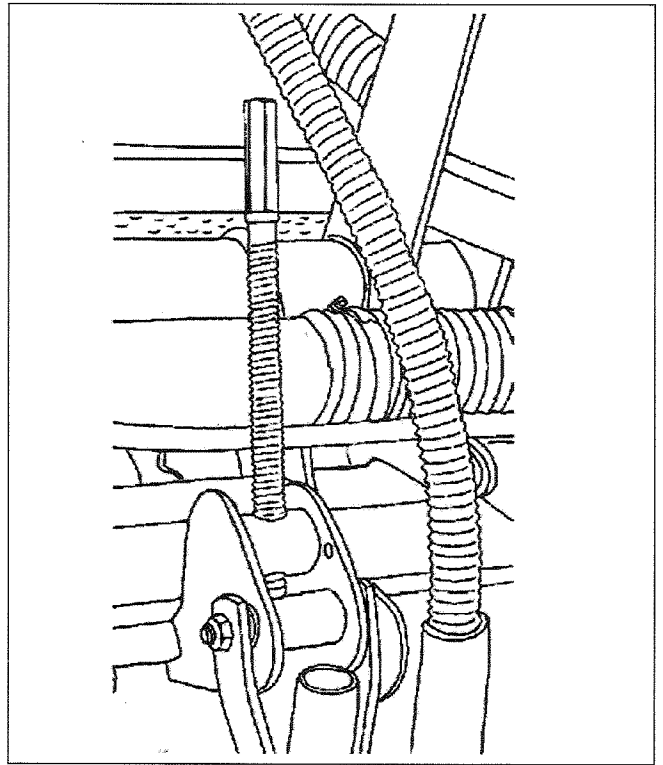


Figure 3N Central coulter adjustment.

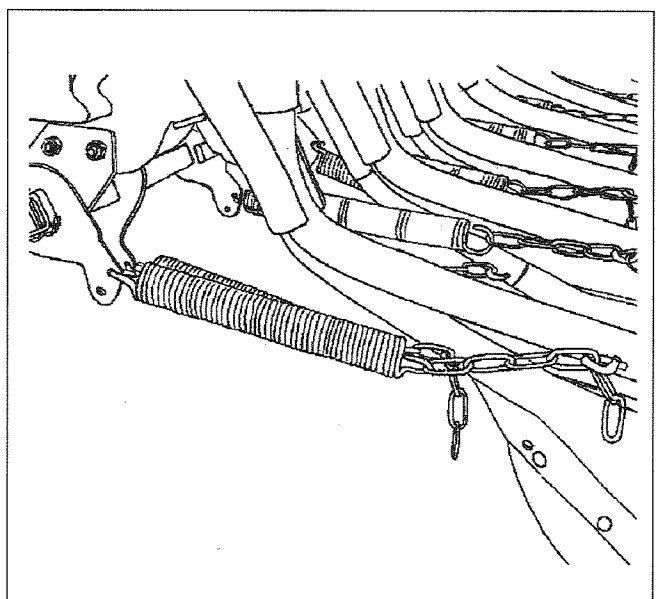


Figure 3O. Individual coulter pressure.

Markers

Adjustment of markers

The markers are used to make a marker track. The track ensures that the outer coulter in one row is both parallel to and correctly spaced with respect to the previous row.

Centre marking

The seed drill has centre marking. Thus the distance from the outer coulter track to the marker track should be half the width of the seed bed plus half a row spacing.

This adjustment can be carried out most easily by driving forward a few metres with the markers and the sowing coulters lowered into their working positions, such that the tracks can be clearly seen in the soil. See figure 3P.

Alternatively, the marker is set 3.0 m out, as measured from the centre of a 3.0 m seed drill, 4.0 m out on a 4.0 m machine etc.

Marking track

The marking track's width can be regulated by turning the „skew“ marker shaft. See figure 3R.

The narrowest track is obtained by turning the shaft downwards such that the marker is parallel to the direction of travel.

The widest track is obtained by turning the shaft such that the marker is angled backwards with respect to the direction of travel.

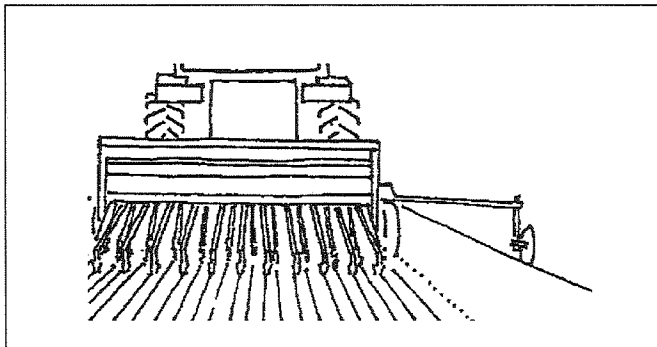


Figure 3P. Centre marking.

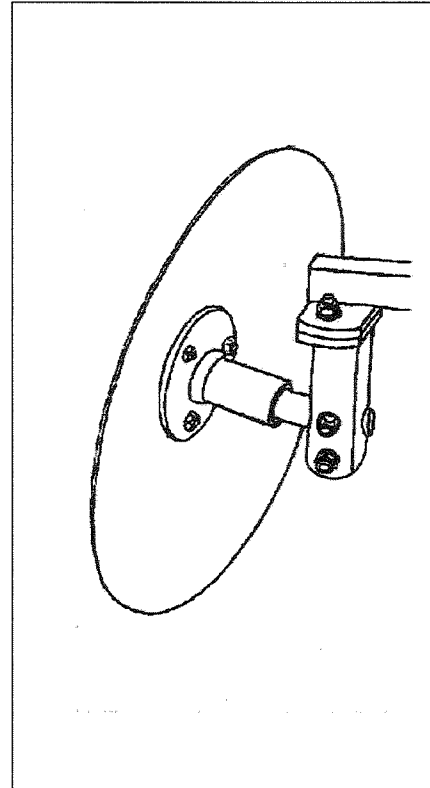


Figure 3R. Cranked marker shaft.

The shaft should not be turned upwards or angled forwards with respect to the direction of travel as this can damage the shaft and give a poor track.

The marker arms can be locked in a vertical position when driving on public roads or when driving close to fences, etc.

Following harrow

Adjustment of following harrow (Optional)

The following harrow is mounted by fixing the arms into the brackets fitted on each side of the combi-seeder. See fig. 3S.

The following harrow can be set to light or heavy harrowing, or placed in transport position.

Adjustment is carried out by turning the entire following harrow on its arms. The desired position can be secured by setting cotter bolts under the arms.

The cotter bolts must always be locked with the "R" pins.

The following harrow is equipped with compression springs, which gives the possibility of a more intensive cultivation. The pressure on the cultivator is adjusted by turning the compression spring. See fig. 3T.

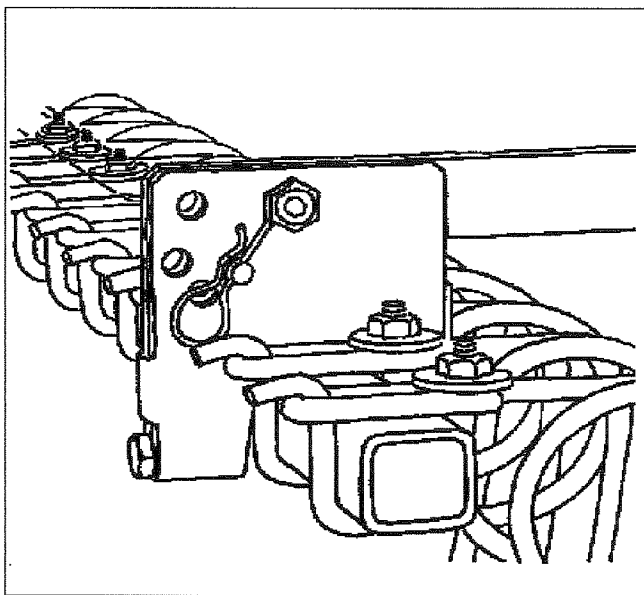


Figure 3S. Adjusted for heavy harrowing.

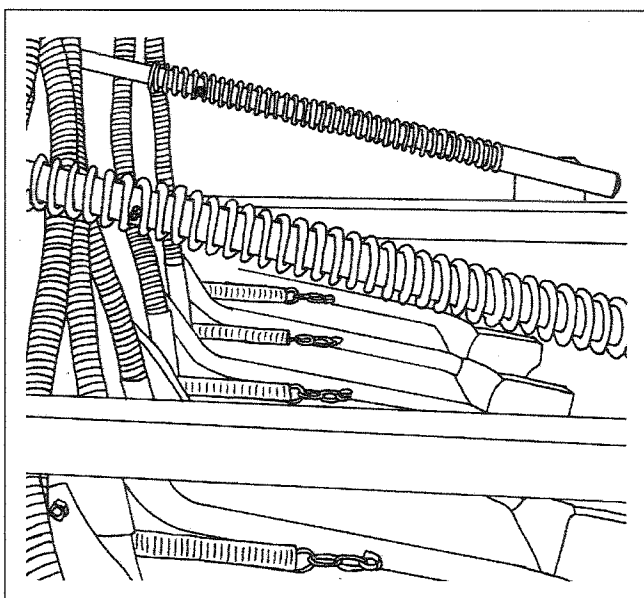


Figure 3T. Compression spring.

Operation

Generally

During operation check continuously that no sowing coulters are blocked.

In order to avoid blockage of the coulters, it is advisable to only raise and lower the seed drill when driving forwards.

Regularly check the level indicator in the hopper to ensure that there is sufficient sowing material present.

Regularly check whether the actual sowing rate corresponds to the calculated rate.

Both before and during sowing work, attention should be paid to the following.:

- that the lift arms of the tractor are correctly working.
- that the coulters are set horizontal when the machine is lowered to its working position.
- that the gearbox is in a good condition gear wheels and gear bearings.
- that the oil level in the gearbox is visible in the oil-level glass (Vario-K).
- that the chain drive is correctly adjusted.
- that seed rollers and bottom flaps are intact.
- that bottom flaps are able to move freely this can be checked using a finger or a thin shaft.
- that coulters are intact (not worn out).
- that the coulter arms are able to move freely and have the correct spring tension.
- that the marker position is correct check frequently.
- that the air pressure is correct during sowing.

Driving speed

During the sowing work the speed should be 5-8 km/h. In general speed should depend on the prevailing conditions and, in particular, oscillation of the machine should be avoided.

Emptying of seed hopper

The seed hopper is emptied by opening the bottom flaps below the seed housings and by hooking on the emptying bags.

The handle for the bottom flaps should then be pulled back completely such that any excess sowing material is emptied into the emptying bag.

See fig. 3G.

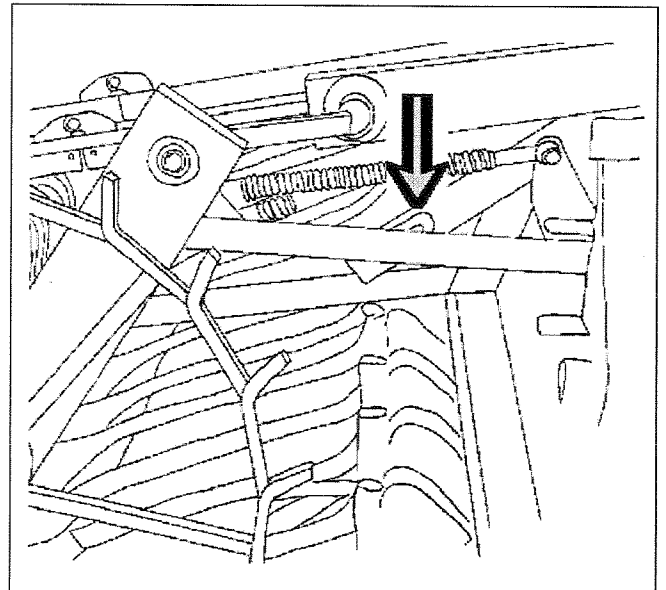


Figure 4A. Land wheel in transport position.

Land wheel

The land wheel must during transport be locked in a transport position.
See fig. 4A.

Lid

The lid can be locked during transport.
See fig. 4B.

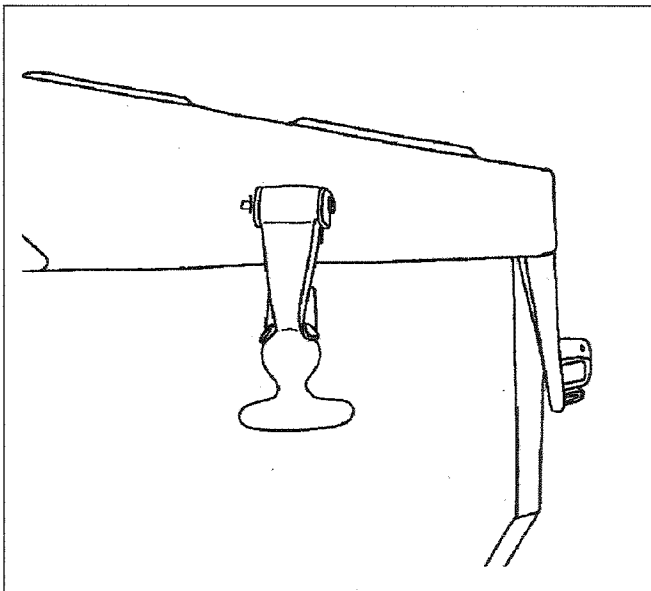


Figure 4B. Lid.

Maintenance and lubricating

Lubricating

The gearbox oil must be visible in the sight glass, otherwise it must be refilled with one of the following types of oil:

HYDROL L-HL 60

All chains should be lubricated regularly. After each season, the chains should be cleaned in petroleum and then lubricated with oil.

Before each new season all linkages and chain tighteners should also be lubricated.

Adjustment of chains

Sprocket wheels for the adjustment of the chain should be loosened. The sprocket wheels should then be pushed upwards until the chains are at the correct tension, at which point the sprocket wheels should be tightened again.

See figure 5A.

Fine adjustment of bottom flaps

The bottom flaps should be set to the highest position (position 1).

Adjustment can then be carried out by turning the screw on the rear face of each bottom flap until the distance between the flap and the seed roller is 0,5 mm.

See figure 5B.

Cleaning of seed outlets and sowing rollers

Cleaning the seed outlets and seed rollers can be facilitated by removing the sowing shaft.

See page 19.

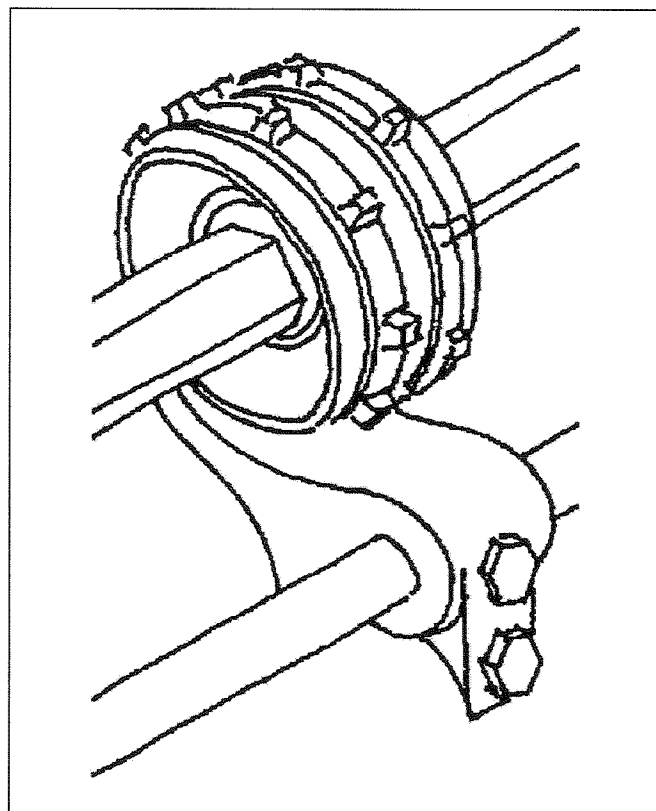


Figure 5B. Adjustment of bottom flaps.

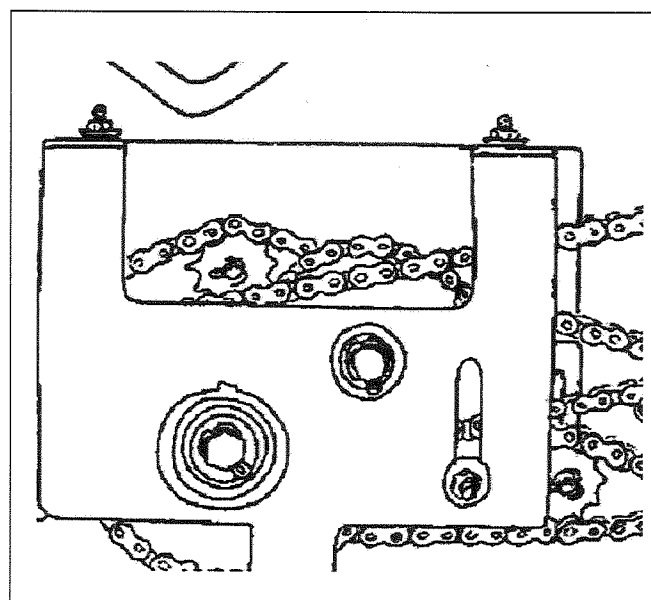


Figure 5A. Sprocket wheels.

Wheel arm, marker arms, marker hub and the cardan joint should be regularly greased.
See fig. 5C, 5D, 5E and 5F.

For PTO driven blower the cardan shaft should also be greased regularly during the season. All bearings are self-sealed and do not require lubrication.

Winter storage

Careful cleaning of the seed drill after each season is recommended.
The machine should also be prepared in plenty of time before the start of the new season.

The seed drill should be protected from the elements during storage.
To prevent vermin damage, during storage, it is important to fully clean the hopper and associated metering unit.

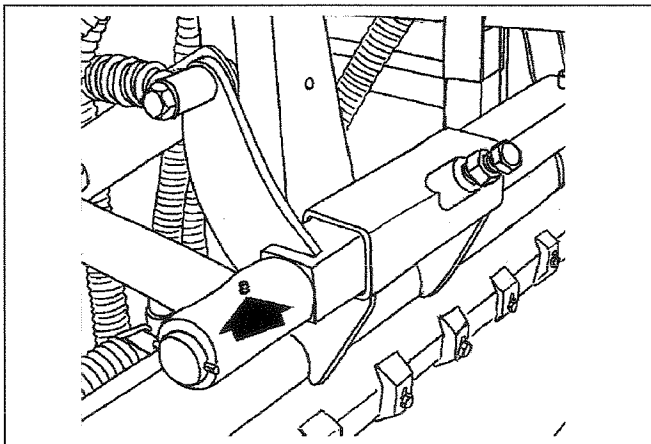


Figure 5C. Lubrication of wheel arm.

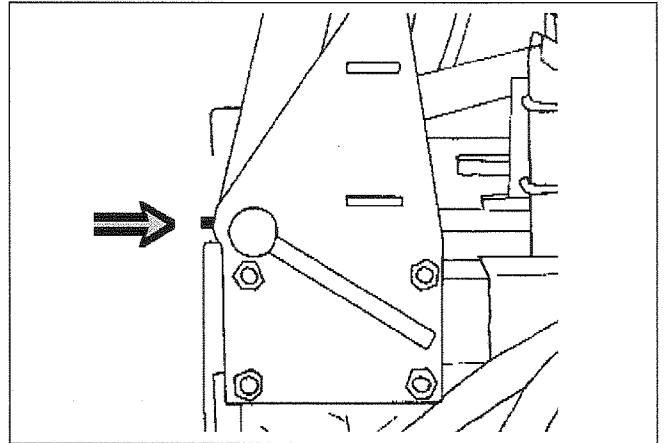


Figure 5D. Lubrication of marker arms.

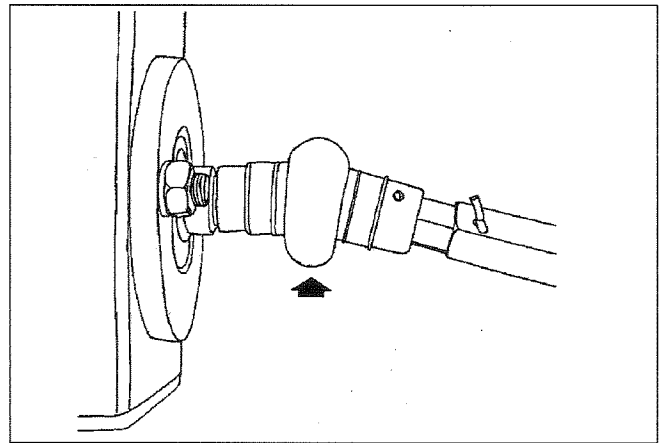


Figure 5E. Lubrication of drive joint.

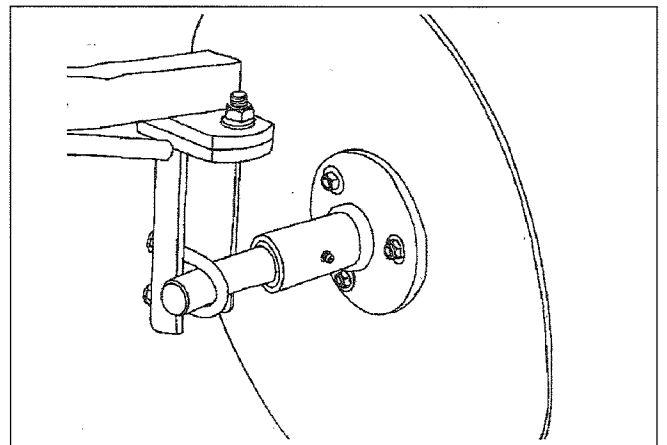


Figure 5F. Lubrication of marker hub.

Sowing table

The sowing table is a guide to the calibration of the drill, and to the scale setting for the desired amount of sowing per hectare. Note that the sowing table is only a guide; a test sowing should always be carried out to check the scale setting.

Sowing table			
Seed		Barley	
Pos. of bottom flaps		2	
Row distance		12,5 cm	
Machine type		NS4130	NS4140
Scale setting	5		
	10		
	15		
	20		
	25		
	30		
	35	106	80
	40	123	92
	45	139	104
	50	157	118
	55	179	132
	60	194	146
	65	219	161
	70	236	177
	75	258	194
	80	282	211
	85	307	230
	90	334	250
	95	365	273
	100	394	296

Sowing table			
Seed		Wheat	
Pos. of bottom flaps		2	
Row distance		12,5 cm	
Machine type		NS4130	NS4140
Scale setting	5		
	10		
	15		
	20		
	25		
	30		
	35	121	90
	40	140	105
	45	158	117
	50	179	134
	55	199	150
	60	221	166
	65	244	183
	70	269	201
	75	293	220
	80	320	240
	85	349	261
	90	379	285
	95	414	311
	100	448	336

Sowing table

Sowing table			
Seed		Peas	
Pos. of bottom flaps		4	
Row distance		12,5 cm	
Machine type		NS4130	Ns4140
Scale setting	5		
	10		
	15		
	20		
	25		
	30		
	35	185	139
	40	217	162
	45	245	184
	50	277	208
	55	310	232
	60	327	245
	65	378	283
	70	417	312
	75	456	342
	80	500	375
	85		
	90		
	95		
	100		

Sowing table			
Seed		Rape	
Pos. of bottom flaps		1	
Seed housing shutters		15 mm	
Row distance		12,5 cm	
Seed rollers		Fine seed fingers	
Machine type		NS4130	NS4140
Scale setting	5	1,0	0,8
	6	1,3	1,1
	7	1,6	1,2
	8	1,8	1,4
	9	2,1	1,6
	10	2,4	1,8
	11	2,6	2,1
	12	2,9	2,2
	13	3,2	2,4
	14	3,4	2,6
	15	3,7	2,8
	16	4,1	3,1
	17	4,3	3,2
	18	4,6	3,4
	19	4,8	3,6
	20	5,1	3,8
	21	5,4	4,1
	22	5,7	4,2
	23	5,9	4,2
	24	6,1	4,5
	25	6,4	4,8
	26	6,8	5,1
	27	7,1	5,3
	28	7,3	5,5
	29	7,6	5,7
	30	7,8	5,9
	31	8,1	6,1
	32	8,4	6,3
	33	8,6	6,5
	34	8,9	6,7

Notes

[illegible]

