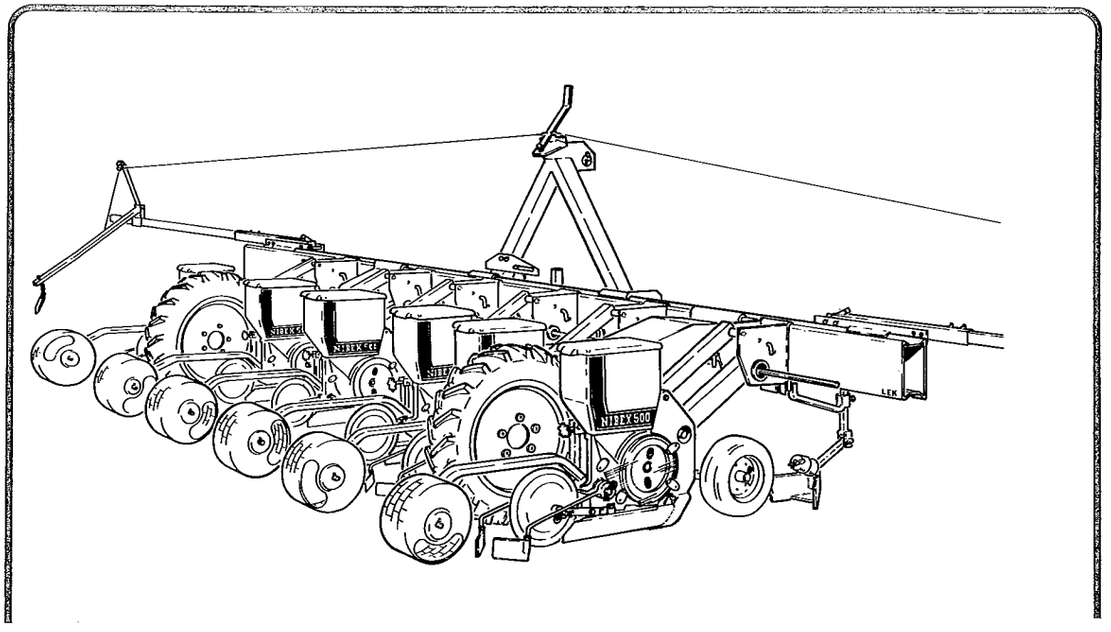
Ref. no 1656 800 043

05. 1990

PRECISION SEEDER NIBEX 500

INSTRUCTION MANUAL



ÖVERUM

This instruction manual deals with Överum precision seeder type NIBEX 500

Contents

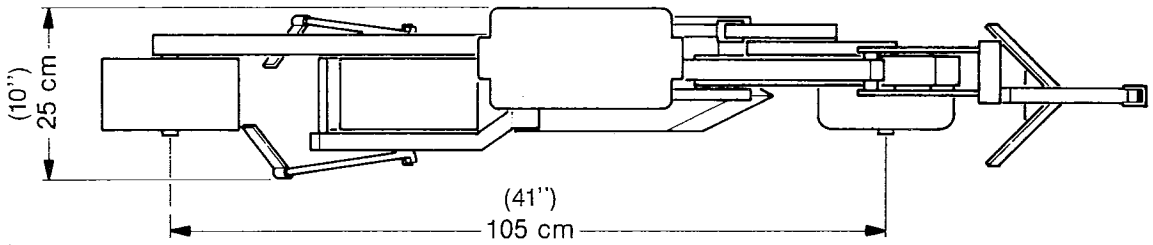
Överum Nibex 500 precision seeder is designed for work on flat land as well as bed cultures. I'ts sophisticated design incorporates the benefits gleaned from many years of experience.

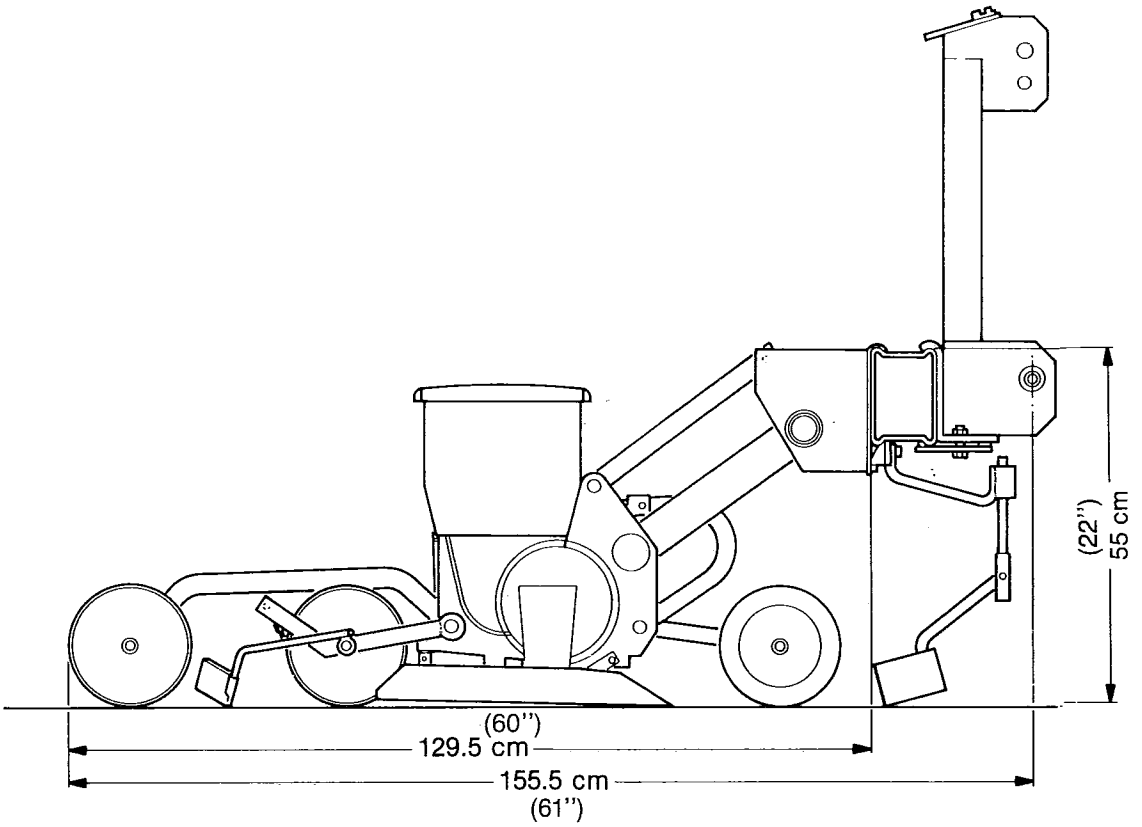
Thanks to the fact that it combines two time - tested seed distribution systems (cup disc and cellwhel) Nibex 500 can handle virtually most types of seed regardless of shape and size.

To make certain that you fully utilize the many outstanding features of your Nibex 500, be sure to read these directions thoroughly, and your Nibex 500 will serve you efficiently for many years.

AB Överums Bruk, 590 96 Överum
Telephone: +46 493 30 400
Telex: 3957 OVERUM S

Content of seed hopper	3 liter or 6 liter (o,75 gallon or 1,5 gallon)
Closest row spacing	20 cm (8")





Three point linkage and main beam

The three - point linkage is to be mounted on the main beam usually at the centre as illustrated in Fig 1. Tighten to a torque of 222Nm (164 lb Ft).

Recheck the torque after a couple of days of operation.

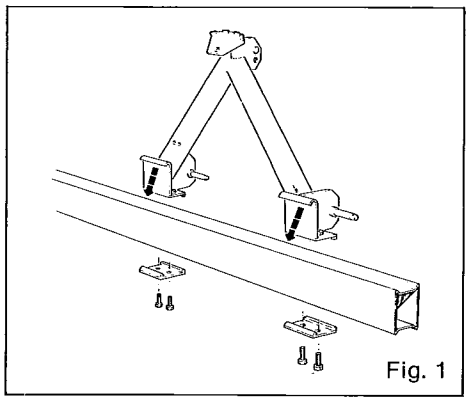


Fig. 1

Drive wheel unit, idler wheel unit and parking support

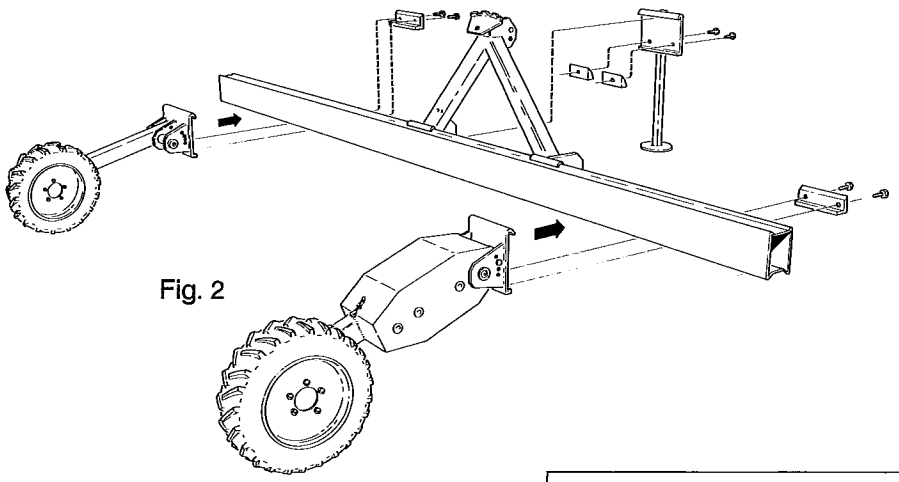


Fig. 2

Fit the drive - and idler wheel units and parking support as shown in fig 2. The drive - and idler wheel units can be adjusted to seven different heights. On delivery, they are set to a beam height of 550 mm (22") as shown in Fig 3. Tighten to a torque of 222 Nm (164 lb Ft).

Recheck the torque after a couple of days of operation.

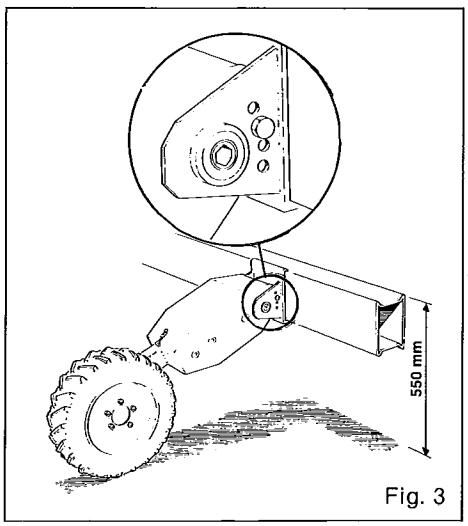


Fig. 3

Seeder units and clod clearers

Starting the centre, measure and mark out on the beam the desired inter-row spacing for the seeder units and clod clearers as shown in Fig 5. Tighten to a torque of 91 Nm (67 lb Ft). If necessary, readjust the three-point linkage and check to see that all screws are firmly tightened.

Recheck the torque after a couple of days of operation

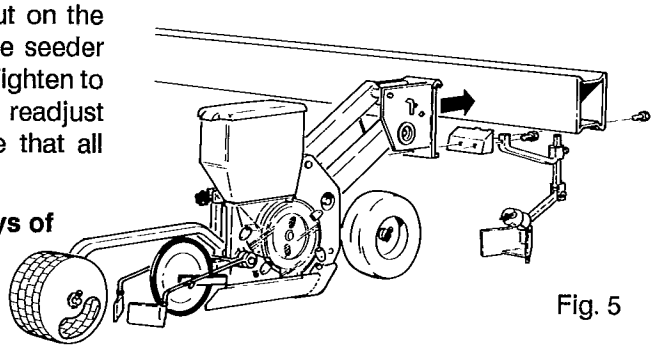


Fig. 5

Drive shaft

Pass the drive shaft trough the seeder and main wheel units. Start from the side on where the drive wheel unit is mounted. Check to see that the drive shaft runs freely and easily through all bearings. Secure the driveshaft with the stop rings that are provided, one on each side of a seeder unit or main wheel unit as shown in Fig 6. For two-piece drive shaft, join the ends with the jointing sleeve before fitting the stop rings. If there are two drive wheel units do **not** join the drive shafts.

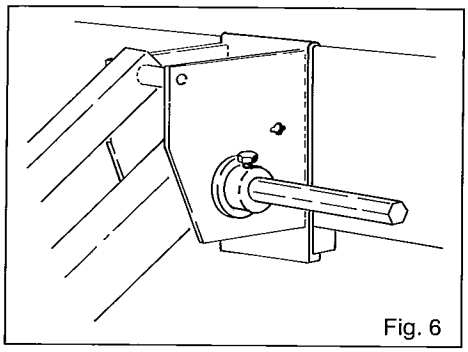


Fig. 6

Markers

The markers can be manually (Fig 7) or hydraulically operated (Fig 8).

A. Marker, attachment
B. Outer tube
C. Outer attachment
D. Manual marker shifter with wire
E. Hydraulic marker shifter wire

Mounting:

1. Mount the marker attachments (A) on the front of the main beam.
2. Mount the outer tube(B) and the outer attachment (C).
3. Mount the manual marker shifter arm (D) or hydraulic marker shifter (E) as shown in Fig 8.
4. Mount the wire as shown in Fig 7.

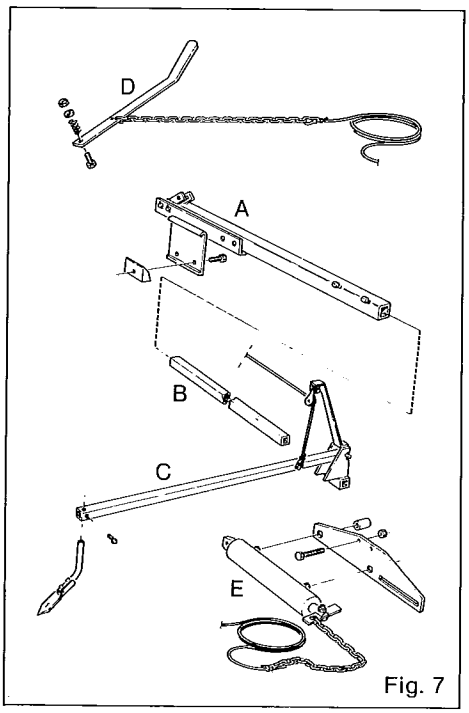


Fig. 7

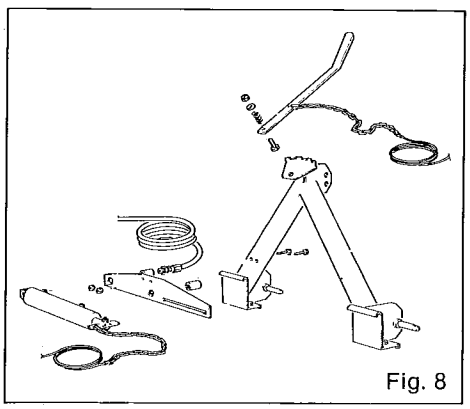


Fig. 8

Coulters and press wheels

Fit the coulters to the seeder housings as shown in Fig 9. The press wheel width matches the width of the coulter i. e. a 25 mm press wheel matches a 25 mm coulter,etc. For fitting the presswheels, see Fig 10 and Fig 11.

Fig 10: 25 mm pivoting presswheel with rubber tread.

Fig 11: 25 mm, 65 mm and 105 mm press wheels with stainless steel treads.

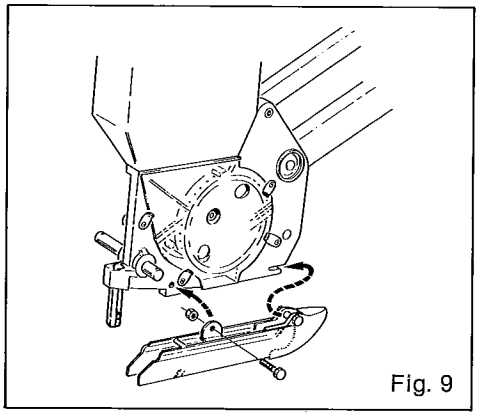


Fig. 9

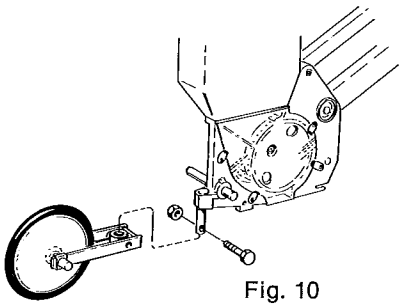


Fig. 10

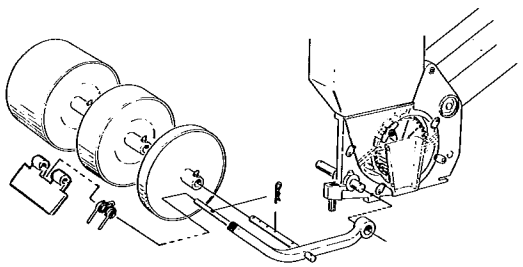


Fig. 11

Coverers

Mount the adjustable coverers as shown in Figs 12 and 13.

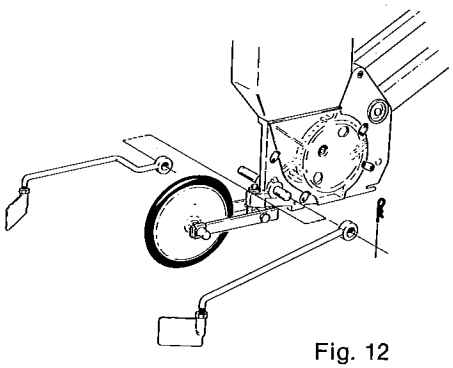


Fig. 12

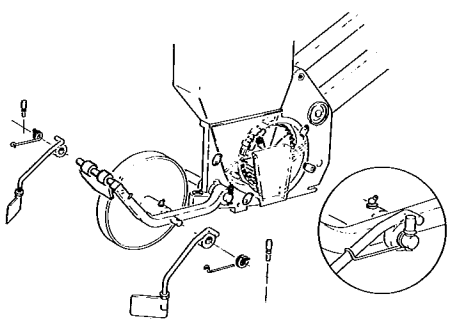


Fig. 13

Cup disc and face plate

– Place a rubber band around the cups at the front of the disc as shown in Fig 14.

– Turn the guide arms on all cups towards the centre as shown in Fig 15.

– All new cup discs is delivered with a adapter, (for old models and Mini-Nibex).
When mounting the cup disc on a Nibex 500 the adapter first have to be dismantled. Press firmly the cup disc on the shaft, as shown in Fig 16 and turn while at clock wise.

– Check that the guide arm on all the cups run properly in the cam track as shown in Fig 17.

– Tighten the centre nut while holding the cup disc stationary as shown in Fig 18.
Do not tighten this nut too tight ! ! !

– Remove the rubber band, and fit the face plate as shown in Fig 19.

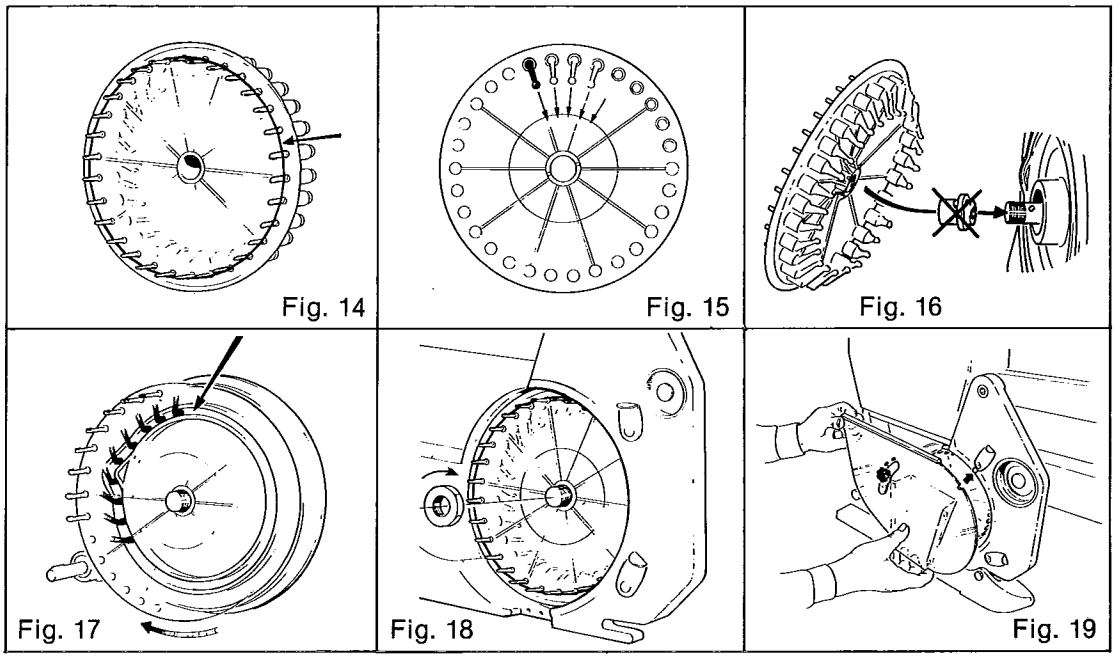


Fig. 14 Fig. 15 Fig. 16

Fig. 17 Fig. 18 Fig. 19

To remove a cup disc, proceed as follows; see Fig 20.
– Remove the face plate, clean the seed housing
– Remove the centre nut
– Grasp one cup on each side of the disc.
– Pull slowly - keeping the disc straight on the shaft.

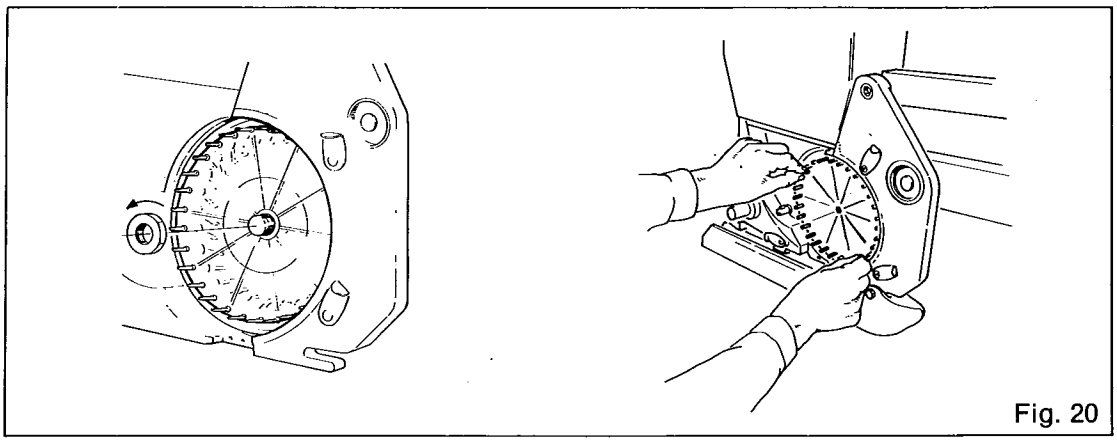


Fig. 20

Cell wheel and face plate

– Fit the stud bolts into the seeder housing as shown in Fig 21.

– Mount the cell wheel holding the ejector blade (B) in the groove. Mount the ejector blade with the arrow (►) pointing forwards.

Cell wheels having two rows of holes require two ejector blades. Adjust the distance (C) between the repeller and the cell wheel to 0.2 mm (0.008") as shown in Fig 21.

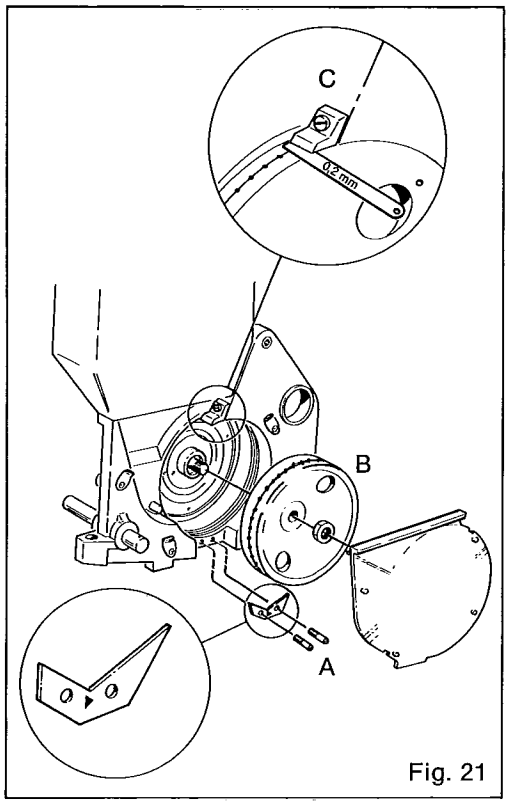


Fig. 21

Fit the face plate as shown in Fig 22.

To remove a cell wheel, proceed as follows:

– Remove the center nut.

– Grasp the cell wheel as shown in Fig 23, and pull the disc straight out together with the ejector blade.

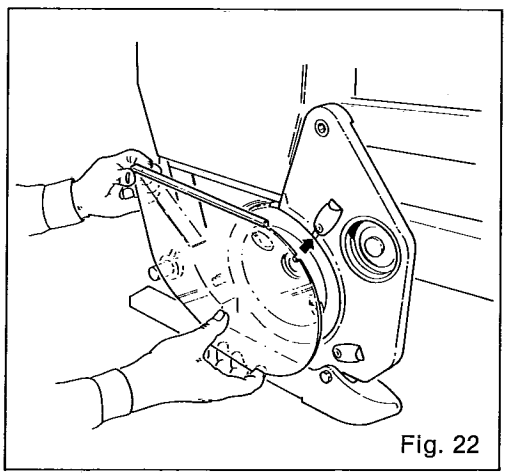


Fig. 22

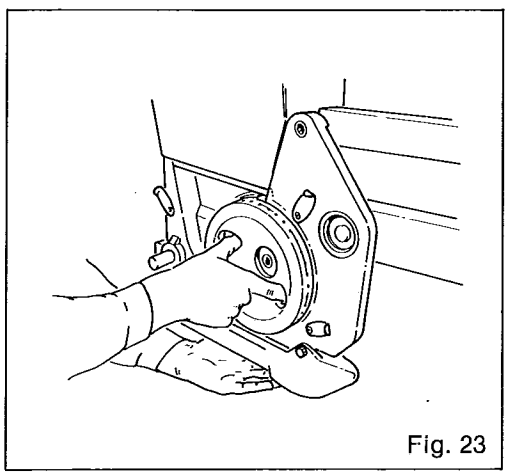


Fig. 23

Cup disc and seeding rate table

Cup disc are available with 30, 15 or 6 cups. The seeding rate table as shown in Fig 24 is based on a cup disc with 30 cups, and shows the number of cup feeds/meter for the different gear settings.

Consequently with a 15-cup disc, the number of cup feeds/meter will be cut in half, and with 6 cups only in the disc, the rate will be 1/5 of the table figures.

It is also possible to place cups on the disc to accomplish group seeding.

Cupdisc with 30 cups

Cupfeeds per running meter (39").

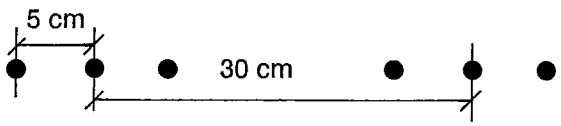
		1	2	3	4	5	6
L	A	3.0	3.5	4.0	4.5	5.0	6.0
	B	4.0	4.5	5.5	6.0	7.0	8.0
	C	5.0	6.0	7.0	7.5	8.5	10
H	A	12	13	15	17	19	21
	B	15	17	20	23	25	28
	C	19	21	25	28	31	35

Cellwheel with 41 cells

Seeds per running meter (39)

		1	2	3	4	5	6
L	A	4.3	4.8	5.7	6.4	7.0	8.0
	B	5.7	6.4	7.6	8.5	9.5	10.5
	C	7.0	8.0	9.5	10.5	11.7	13.2
H	A	16	18	21	23	26	30
	B	21	24	28	31	34	39
	C	26	29	35	39	43	48

Example: Cabbage seed is to be seeded in groups of three. Within each group, the seeds are to be spaced 5 cm (2") apart which is 20 cup feeds/meter. The center-to-center distance between the groups is to be 30 cm (12")



The seeding rate table shown in Fig 24 indicates that the following should be selected: gear box setting H B3, 20 cup feeds per meter.

Normally, a cup disc has 30 cups. However, if you remove 3 cups, leave 3 in place, remove 3, leave 3 etc. you will obtain five groups of 3 pcs and five gaps where three cups have been replaced by blind plugs (as shown in Figs 25 and 26).

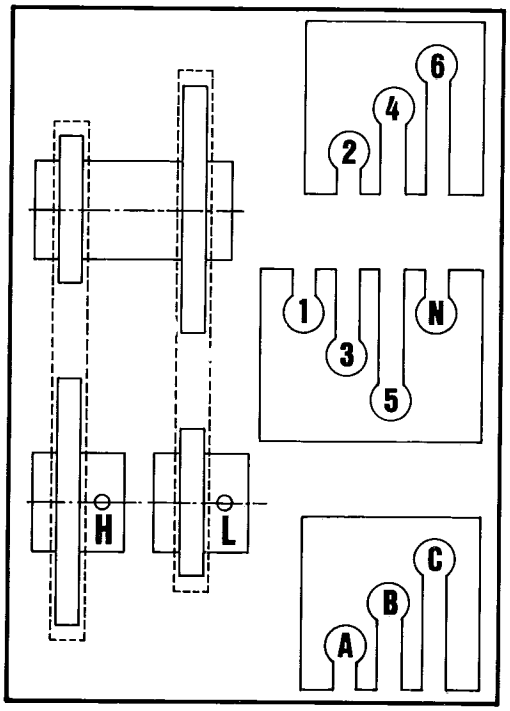


Fig. 24

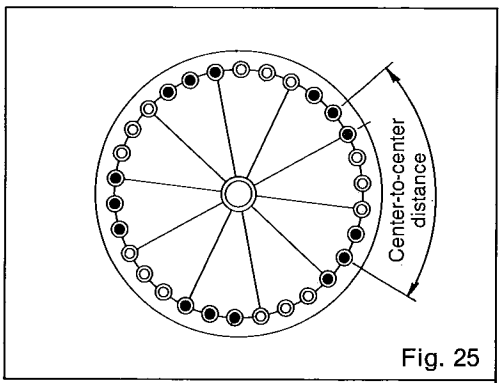


Fig. 25

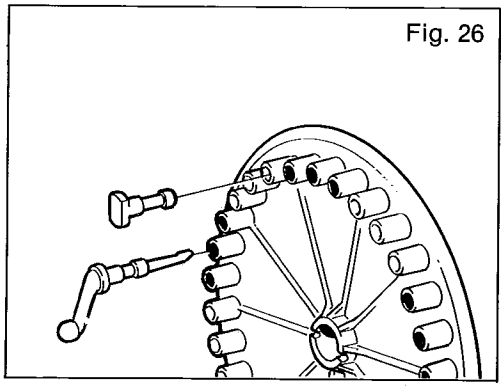


Fig. 26

Seed level

The level regulator shown in Fig 27 determines the extent to which the cups will be filled and this in turn, determines the seeding rate. A minimum seed weight of 20–25 grams is required to ensure satisfactory distribution. Recomendations for suitable level settings are presented in "Nibex Sowing Instructions".

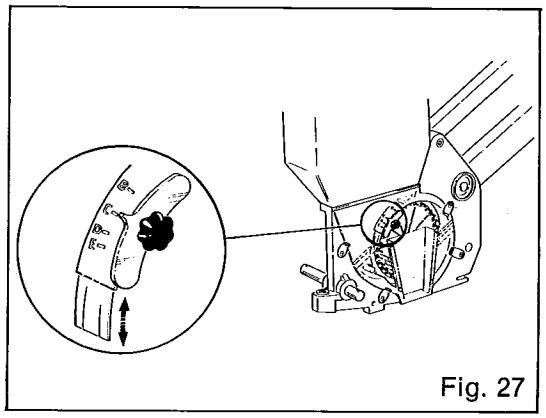


Fig. 27

Static electricity

Certains types of seed (particularly small seeds) tend to build up static charges which ause them to stick to the cup disc. This natural phenomenon can have a negative effect on the seeding results. To eliminate this risk, you must **always** mix the seed with talc powder. Seed dressing may have the same effect as talc powder.

Dosage: 1 teaspoon of talc powder per 300 gram (10 oz) of seed.

Selecting agitator

The standard agitator A (shown in Fig 28) is mounted on delivery. The wide agitator, B, is recomended for dill, cucumber, parsnip and other seeds that flows sluggishly. The wide agitator should also be used when a very high seeding rate is needed, i.e. for baby carrots. Using the proper agitator ensures consistently correct seed levels and seeding rates.

Order number: 83 79 044 Agitator B.

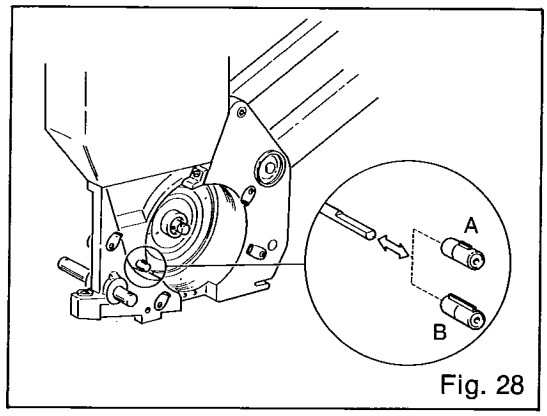


Fig. 28

Working speed with cup disc

The working speed must be adapted to the conditions in the field and the seeding rate (number of cup feeds per meter). **Remember that the working speed does not affect the number of cup feeeds per meter.**

As a general rule the speed must not be so high that, the coulters and coverers are not functioneing properly.

Number of cup feeds per meter	Max. working Speed km/h
5 – 19	3,0 – 3,5
16 – 25	2,5 – 3,0
23 – 35	2,0 – 2,5

For some seeds, like carrot or tomatoe do not work with more than 25 cupfeeds/m. in order not to loose controle of the distribution

Cell wheel and seeding rate table

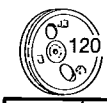
As standard a cell wheel has 30, 41, 120 or 240 cells. Other cell pitches are available on special order. The following seeding rate tables can be used for the standard cell wheels.

		1	2	3	4	5	6
L	A	3.1	3.5	4.2	4.7	5.1	5.9
	B	4.2	4.7	5.6	6.2	7.0	7.7
	C	5.1	5.9	7.0	7.7	8.6	9.7
H	A	12	13	15	17	19	22
	B	15	18	20	23	25	29
	C	19	21	26	29	32	35

Fig. 29 Seeding rate table for cell wheel with 30 cells.

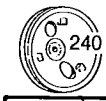
		1	2	3	4	5	6
L	A	4.3	4.8	5.7	6.4	7.0	8.0
	B	5.7	6.4	7.6	8.5	9.5	10.5
	C	7.0	8.0	9.5	10.5	11.7	13.2
H	A	16	18	21	23	26	30
	B	21	23	28	31	34	39
	C	26	29	35	39	43	48

Fig. 29a Seeding rate table for cell wheel with 41 cells.



		1	2	3	4	5	6
L	A	12.6	14.0	16.7	18.7	20.5	23.4
	B	16.7	18.7	22.2	24.9	27.8	30.7
	C	20.5	23.4	27.8	30.7	34.2	38.6
H	A	47	53	61	68	76	88
	B	61	67	82	91	99	114
	C	76	85	102	114	126	140

Fig. 30 Seeding rate table for cell wheel with 120 cells.



		1	2	3	4	5	6
L	A	25	28	33	37	41	46
	B	33	37	44	50	56	61
	C	41	47	56	61	68	77
H	A	94	106	122	136	152	176
	B	122	134	164	182	198	228
	C	152	170	204	228	252	280

Fig. 31 Seeding rate table for cell wheel with 240 cells.

Working speed with cell wheel

The working speed must be adapted to the conditions in the field and the seeding rate (number of seeds per meter). **Remember that the working speed does not effect the number of seeds per meter.**

As a general rule, the working speed must not be so high that the coulters and coverers are not functioning properly.

Number of seeds per meter			Max working speed km/h	m.p.h.
41 cells	120 cells	240 cells		
4,3–10,5	12,6–30,7	25–61	4.0–4.5	3.0–3.5
–16	–47	–94	3.0–4.0	2.5–3.0
–21*	–61*	–122*	2.0–3.0	1.0–2.0

* Higher seeding rate possible wiyh very low workspeed.

Adjusting the seeding depth

The seeding depth can be adjusted stepless. Use the raference scale (see fig 32) to obtain the same seeding depyh on all seeder units. Before starting to use your seeder roughly set the seeding depth as follows:
Posotion the seeder on a hard surface. Adjust the two depth control wheels so that a seeder unit rests on its coulter. Put spacers that correspond to the desired seeding depth beneath the depth wheels and screw them down until they contact the spacers. Read the reference scale and then set the other seeder units the same, as shown in Fig 33. Final adjustment of the depth has to be done in the field.

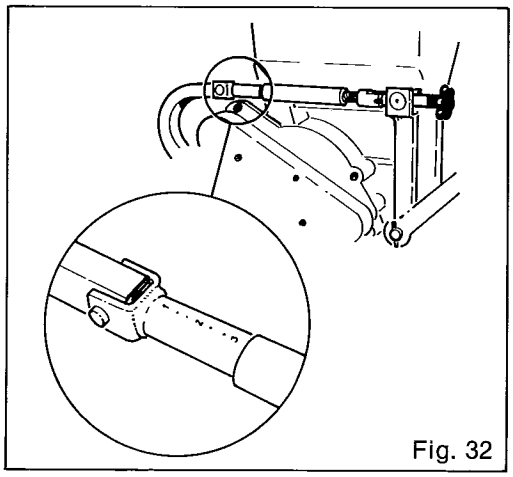


Fig. 32

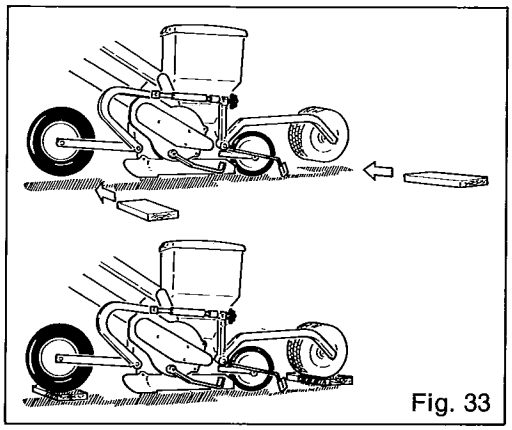


Fig. 33

Changing the row spacing

Measure and mark the desired row spacing on the beam.
Note: Always start at the center of the seeder, regardless of any previous settings. Secure the seeder units in their transport position. Loosen the screw on the front of the beam and also the screws on the stop rings as shown in Fig 34. Move the seeder units sideways to new position. Check the row spacing by measuring the distance between their seed housing as shown in Fig 35.

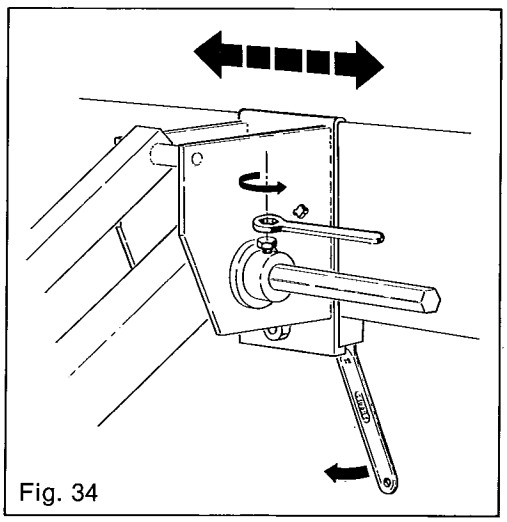


Fig. 34

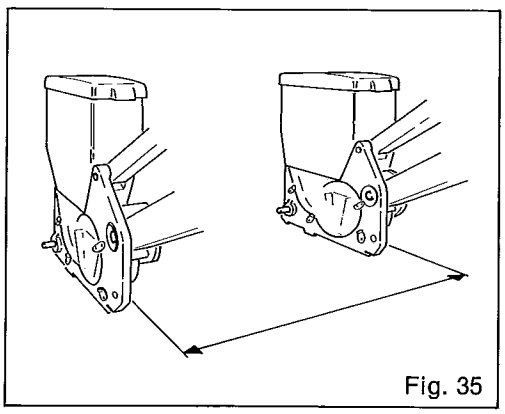


Fig. 35

Row spacing relative to tractor - wheel tracksettings

Row spacing in cm	Track settings in cm	Tractor spans
42	125	3
42	167	4
45	135	3
45	180	4
48	144	3
48	192	4
50	150	3
50	200	4
60	120	2
60	180	3
75	150	2
90	180	2

Gear box setting

The 36 gear ratios available in the gearbox are selected by means of three controls. The low (L) or high (H) primary gear is obtained as shown in Fig 36. In addition, there are two gear levers, as shown in Fig 37.

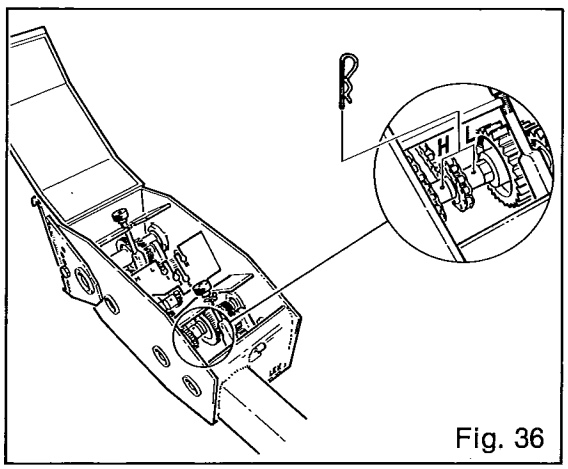


Fig. 36

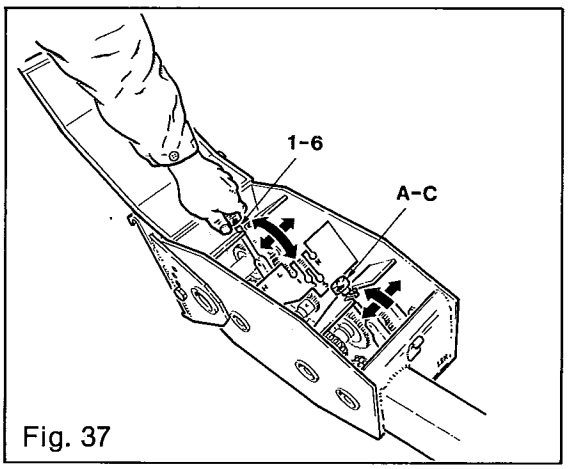


Fig. 37

Economy gear box

The 9 drive ratios are selected by means of loosening the tightener A. The chain is then to be moved between the sprockets, see fig 37b.

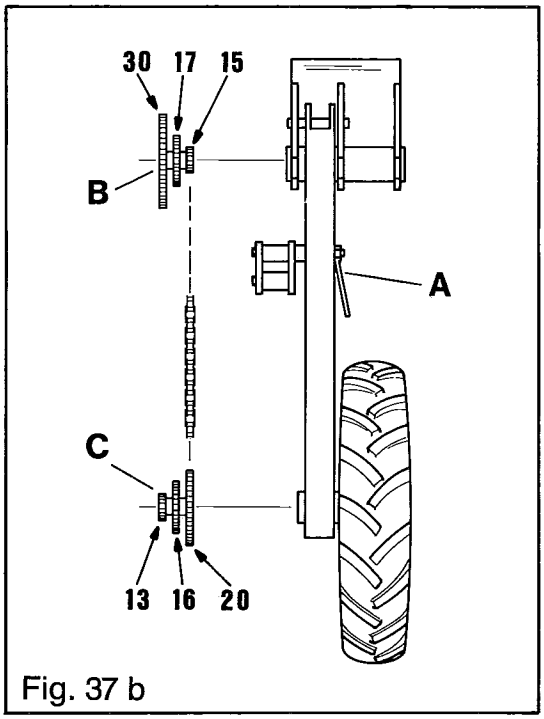


Fig. 37 b

Lubricate the chain with oil.

Sprocket set		Cup disc with 30 Cups Cups/metre	Seeds per metre		
B	C	Cellwheel with 30 cells Seeds/metre	Cellwheel 41 cell	120 cell	240 cell
30	13	8	11	33	66
30	16	10	14	4,5	81
30	20	12,5	17,5	51	102
17	13	14,5	20	57,5	115
15	13	16,5	22,5	65	130
17	16	18	24	71	142
15	16	20	27,5	80	160
17	20	22,5	30	88,5	177,5
15	20	25	34	100	200

Adjusting the height of the main beam and seeder units

The height of the main beam above the seed bed can be adjusted to one of seven different positions as shown in Fig 38. As standard the wheel units are set to provide a beam height of 550 mm (22").

The maximal vertical mevement of the seeder units can be limited downwards in three positions, as shown in Fig 39.

Position 1 is for transport or idling. Position2 is for standard beam height of 550 mm (22"). Position 3 is used when extreme beam height is required.

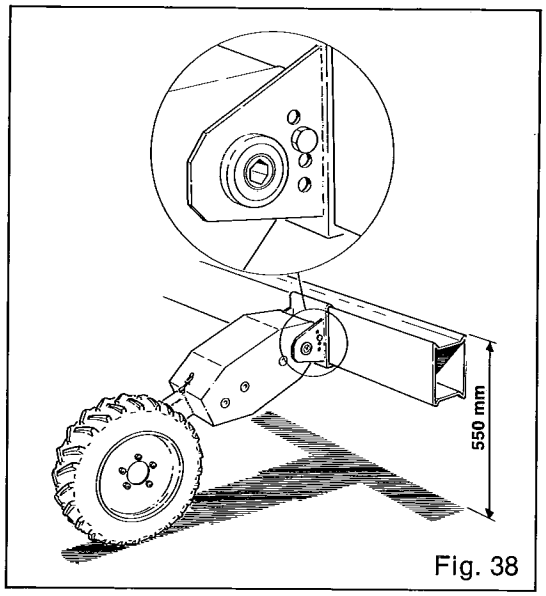


Fig. 38

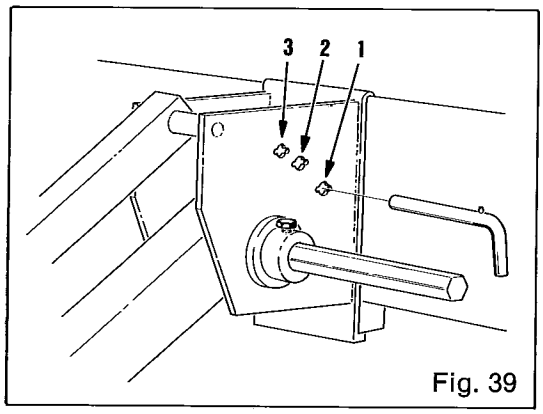


Fig. 39

Calculating the marker setting

Set the markers to their working positions and proceed as follows. For wheel-based marking as shown in Fig 40. Measure half of the machine's working width (A). Subtract half the front wheel track of the tractor (B). Then add on row spacing (C). The results equals the desired distance (D) from the outermost coulter to the marker.

Example: A 7-row planter that is to be used with a row spacing of 50 cm.

A: Half the working width of the planter 150 cm.
B. Half the distance between the tractor front wheels = 70 cm.
C. One row spacing = 50 cm.
D. A – B + C = 150 – 70 + 50 = 130 cm.

The marker shall make its mark at a distance of 130 cm from the outermost coulter, see Fig 40.

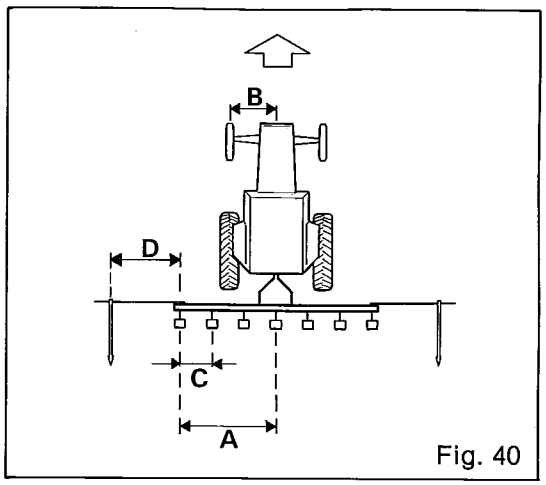


Fig. 40

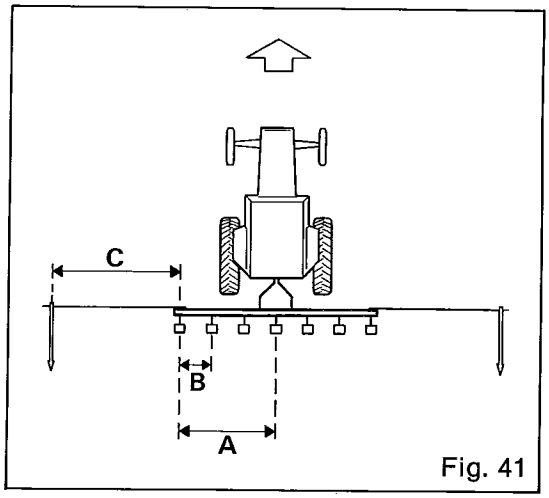


Fig. 41

For center marking as shown in Fig 41.
Measure half the working width of the machine (A). Add one row spacing (B). The result (C) indicates how far from the outermost coulter the marker is to be positioned.

Example: A 7-row planter that is to be used with a row spacing of 50 cm.

A. Half the working width of the planter = 150 cm.
B. One row spacing = 50 cm.
C. A + B = 150 + 50 = 200 cm

The marker shall make its mark at a distance of 200 cm from the outermost coulter, see Fig 41.

If the seeder units are offset, i.e. their spacing is not based on the centre of the main beam or if the seeder units are unevenly spaced, each side section must be measured and adjusted individually.

Adjusting the clod clearers

Fig 42 shows how to adjust the working position of the clod clearers. They should be set about 1/2" above the seed bed surface. The clod clearers must only clear away loose rocks and clods of earth in front of the seeder unit. If so desired, the weights on the clod clearers can be removed.

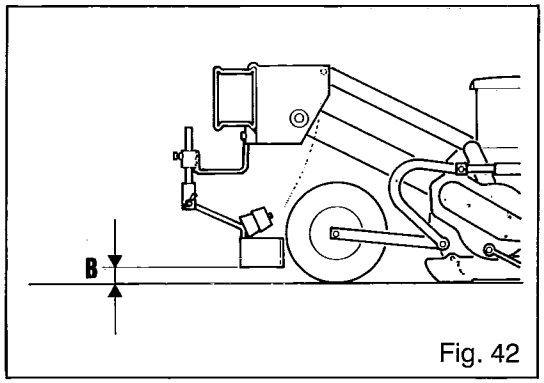
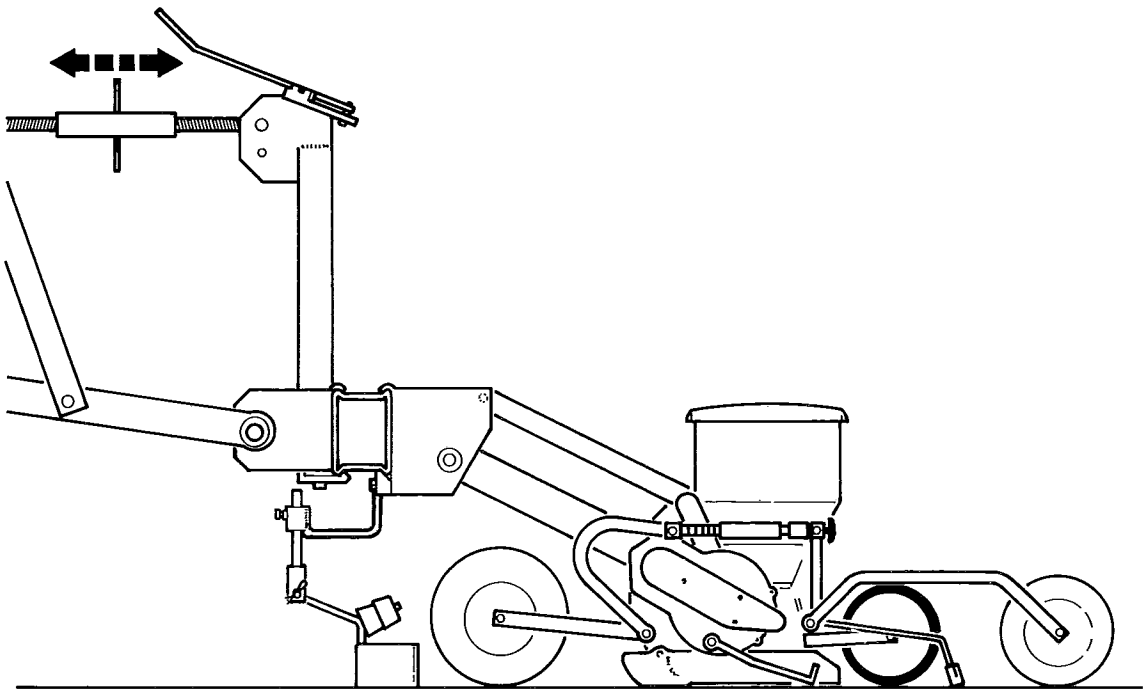


Fig. 42

Attaching the machine to the tractor

The machine shall be attached to the tractor's 3-point hitch. Adjust the top link so that the seeders head stock is in a vertical position as shown in Fig 43.



Adjusting the seed level

If, during operation, the seed level drops or rises, the level regulator must be adjusted. If the level is too high, empty the seed housing and lower the level regulator half a step. If the level is too low, raise the level regulator half a step as shown in Fig 44.

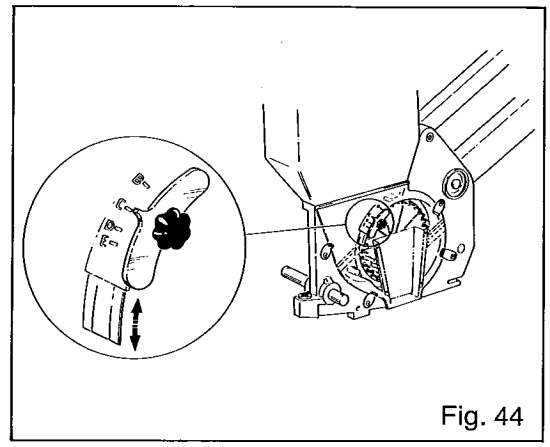


Fig. 44

Changing an agitator

Pull the agitator straight out as shown in Fig 45. Press on the new one.

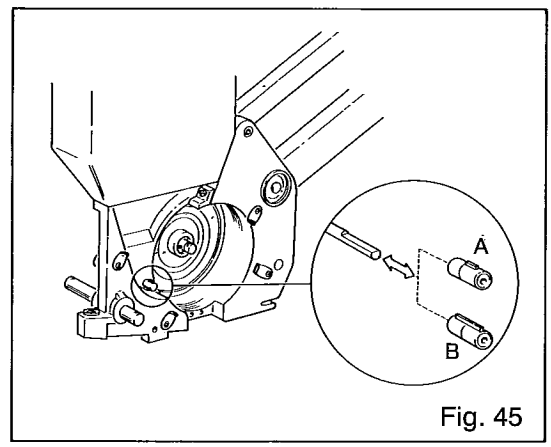


Fig. 45

Maintenance

For daily lubrication of the seeder units, see Fig 46. The gears and chains of the gear box should be lubricated weekly with a few drops of transmission oil. The seeder units should be emptied and cleaned every day after use. When not being used, the seeder units must either rest on their supports or be secured in the transport position, then taking the weight off the NIBFLEX depth control wheels.

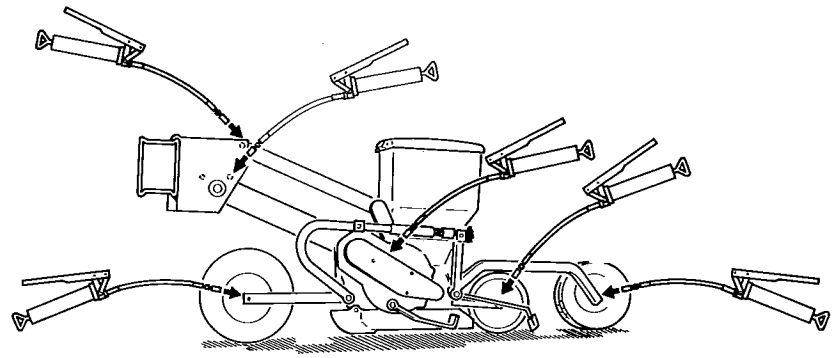


Fig. 46

Optional equipment

Solid depth wheels with scrapers, Fig 47.

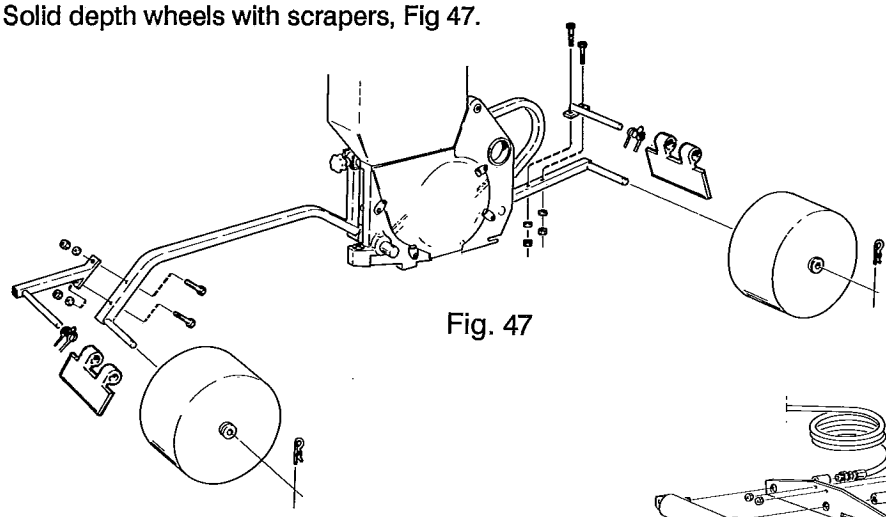


Fig. 47

Hydraulic marker shifter, Fig 48

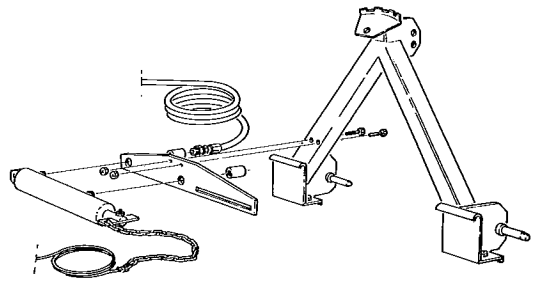


Fig. 48

Wheels and hitch for transport, Fig 49

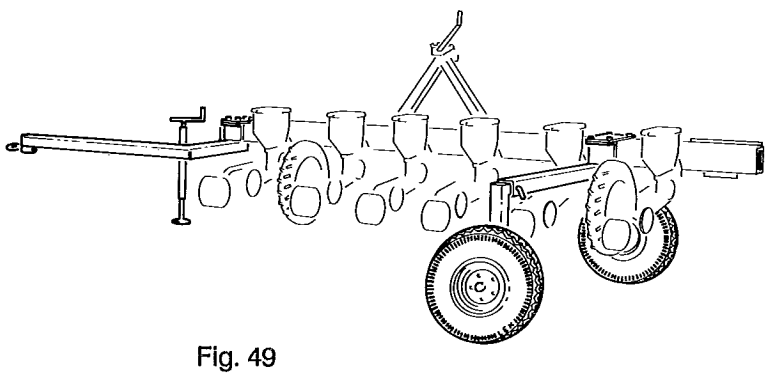
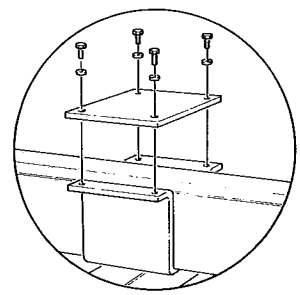


Fig. 49



For best results

- Check that the cell wheels with ejectors and repellers are correctly mounted.
- Check that the coulters are firmly attached.
- Check the coulter profile regularly.
- Never pour seed into the seed hopper before the seeder has been moved out onto the field.

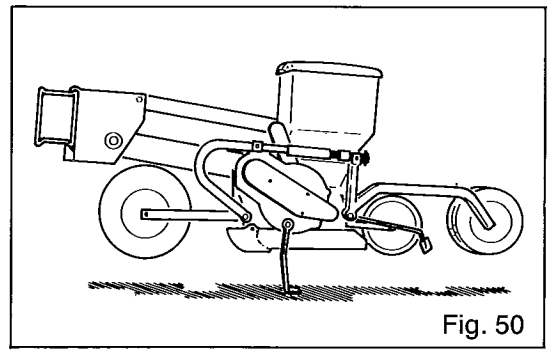


Fig. 50

To start the seeder, lower it gently onto the ground while the tractor is moving forwards. Make certain that the tractor's lower link arms are low enough to permit the machine to rest with it's full weight on the main wheels.

Be careful when turning at the end of a row. Abrupt turning can change the seed level which in turn can increase the seeding rate temporarily. Use the top link t adjust the seeder units to a horizontal working position.

Fault tracing

Problems	Possible cause	Remedy
Clod clearers plows.	Top link to short.	Lengthen top link so that the tree point linkage stands vertically.
	Clod clearer too heavily loaded.	Remove weights.
	Clod clearer set too deep.	Adjust working depth.
Clogged coulter.	Tractor moved backwards when seeder was lowered.	Always lower machine slowly to the grund while the tractor is moving forwards.
	Top link too long.	Shorten top link so that the three point linkage stands vertically.
	Presswheel is jammed.	Clean the presswheel and check that it turns freely, (lubricate if necessary).
Seed spread poorly, (band seeding).	Spreader pin is out of position.	Align spreader pin as shown in Fig 51.
	Wrong cup disc selected.	Select a smaller cup size and shift toa higher gear.
Irregular seeding, (thin line)	Coulter tip worn out.	Replace coulter.
	Working speed too high.	Reduce working speed.
Uneven seeding depth.	Depth settings different.	Check all seeder units against each other.
	Seed bed too loose or too hard.	Rework the seed bed.
	Faulty covering.	Check coverer blade settings.
Uneven seeding rate. Different seeding levels.	Level regulators set differently.	Adjust setting of level regulators.
	Abrupt turning or mevements lifting height too height.	Avoid abrupt movements when turning. Do not lift the planter higher than necessary.
	Static electricity.	See section 4:4
	Wrong cup disc selected.	Select another cup size and conduct an manual rotation test, (see sect. 5).
	Uneven seed size.	Make sure not to mix seed lots of different seed size.

	65 mm bill	105 mm bill
A	17—19 mm	17—19 mm
B	44 mm	63 mm

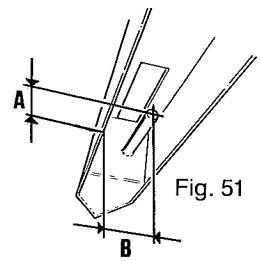


Fig. 51

Problems	Possible cause	Remedy
Jerkey cell wheel movement.	Repeller incorrectly adjusted.	See section 4:4, replace if worn out.
	Wrong cell wheel selected.	Check hole size and seed size.
	Incorrectly mounted ejector, defect ejector.	Replace ejectors regularly.
	Worn sealing surface.	Replace face plate.
	Transmission problem.	Check gear box and seeder units.
Seeder mechanism does not turn.	Gearbox overloaded. Safety gear broken.	Check the seeder units individually for blocage. Replace safety gear.
Seeding rate too low.	Level setting too low.	Raise level regulator half a step.
	Too little seed in the hoppers.	Make sure that there is always enough seed in the hoppers to fill up the level regulator opening.
	Wrong gear ratio selected.	Shift to a higher gear and conduct a manual rotation test, (see section 6).
	Static electricity.	See section 5:4.
	Wrong agitator.	Change agitator.
Seeding rate too high.	Level setting too high.	Empty the seeder housing from seed and lower the regulator half a step.
	Wrong gear ratio selected.	Shift to a lower gear and conduct a manual rotation test, (see sect. 6).
	Pumping effect caused by excessively high working speed.	Reduce working speed or select a larger cup to obtain the desired seeding rate.
	Wrong agitator.	Change agitator.

Manual rotation test

A manual rotation test must be conducted to verify the seeding rate. We thus recommended that you conduct the test in ample time before starting to sow. Conduct the test carefully to ensure satisfactory results.

A. Important: The seeder unit must be horizontal. It is advisable to lift the planter with the tractor. The seed must be treated (talc powder or possibly seed dressing) in accordance with NIBEX Sowing instructions,

1. Select the type of cup and seed level as set forth in your NIBEX Sowing Instructions.
2. Set the gearbox to L C6. This setting provides 10 cup feeds per meter (39") with 30 cups in the cup disc.
3. Pour the seeds into the seed hopper. Stabilize the seed level by rotating the drive wheel a few turns.
4. Make a reference mark on the drive wheel wich you can use for starting and stopping. Rotate the drive wheel at least five fuli revolutions and collect the sedd in a pan. (1 revolution = 1.6 m or 63"). Count the seed and calculate the rate/meter (or feet).

Example:

5. Number of seeds feed out from one seeder unit during five full revolutions of the drive wheel = 320.
6. The wheel circumstance (1.6 m or 63") x number of revolutions (5) = number of meters.
7. Since we know that there were 320 seeds in 8 meters, the seeding rate will be 320:8 = 40 seeds per meter.
8. If the gearbox setting provides 10 cup feeds per meter, the number of seeds per meter 40 divided by the cup feeds per meter 10 equals the number of seeds per cup, i.e. 40:10 = 4.

B. Important: Make sure that the type of coulter the type of cup, the level and the other equipment for precision sowing are selected on the basis of the NIBEX Sowing Instructions. The desired number of plants per meter referes to the plant density **before** thinning.

Example:

1. Recording the Nibex Sowing Instructions is level D and cup number 16 choosen.
2. Desired plant density per meter before thinning is 32.
3. The estimated field germination is 80% (0.8).
4. To obtain 32 plants per meter, giving due regard to the field germination, we will need 32:0.8 = 40 seeds per meter.
5. The manual rotation test (see A above) indicated that there will be 4 seeds per cup feed and this will provide 40 seeds per meter. 40:4 = 10 cup feeds per meter.

The gear box instructions (see A, 2 above) state if we select primary gear L and set the levers at positions C6, we will obtain 10 cup feeds per meter. Level D and cup 16 are associated with the following NIBEX code: **L C6 D16.**

Useful formulae

1 Hectare = 10.000m²

$$\frac{10.000\ m^2}{\text{row spacing in mm}} = \text{meters per hectare}$$

$$\frac{\text{meters per hectare x seeds per meter x thousands of seeds per gram}}{1000} = \text{grams per hectare}$$

$$\frac{\text{grams per hectare x 1000}}{\text{meters per hectare x thousands of seeds per gram}} = \text{seeds per meter}$$

$$\frac{\text{plants per meter x 100}}{\text{field germination as \%}} = \text{seeds per meter}$$