

System
Moore

UNIDRILL

INSTRUCTION

2.4 G

3.0 G

3.0 M

4.0 M

MANUAL



Dear Customer,

Thank you for purchasing a MOORE UNIDRILL and for showing confidence in our product.

For effective use, and to benefit from all the features of our drill, we recommend that you read this document very carefully.

From your experience, please do not hesitate to inform us of your comments and suggestions, which will always be useful to us in improving our products.

We wish you success with your drill.

Assuring you of our best attention at all times.

Sam Moore
Managing Director



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CE DECLARATION OF CONFORMITY

We MOORE UNI-DRILL LIMITED.

of 33 Kirk Road, Ballymoney, Co.Antrim, N.Ireland. BT53 6PP

Declare that MODEL

SERIAL No

DATE

Conforms to the essential safety requirements of EEC Directive 89/392, as amended by 91/368, 93/44 and CE Marking Directive 93/68

SAM MOORE
DIRECTOR

SAFETY INFORMATION



Danger of personal injury



Danger of damage to machine



Helpful Hints

These symbols are used in this document each time there are recommendations concerning your or others safety, or the efficient performance of the machine.

It is imperative that each user of the machine should be familiarised with these recommendations.

The Uni-Drill must not be used for any purposes other than for which it was designed.

No responsibility will be accepted in the case of damage caused to the machine outside the range of applications specified by the manufacturers.

Recommended usage also implies:

- Respecting the instructions for use, service and maintenance recommended by the manufacturer.

- Exclusive use of spare parts and original accessories recommended by the manufacturer.

The drill should be used, serviced and repaired by competent persons who are familiar with the characteristics, and operation of the machine. They must also be aware of the dangers to which they could be exposed.

The user is obliged to pay scrupulous attention to the current regulations relating to :

- Accident prevention

- Work safety (Health & Safety Regulations)

- Road Safety (Highway Code)

You are advised to strictly observe the warnings attached to the machine.

Any modification of the machine carried out by the Owner/User or any other person, without the previous written agreement of the manufacturer will absolve the latter from any responsibility for any damage which could occur.

GENERAL SAFETY RULES

Before using, and putting into service the tractor and drill unit, check that it conforms with work safety regulations and also with the Highway Code.

GENERAL GUIDELINES

1. In addition to the directions outlined in this document, abide by the legislation relating to safety and accident prevention.
2. The warnings affixed to the machine provide an indication of the safety measures to be observed and will help to prevent accidents.
3. When on a public road, observe the Highway Code.
4. Before starting work, the user is obliged to familiarise himself with the controls and the steering of the machine, and with their respective functions. It will be too late to do this when the work is already underway.
5. The user should avoid wearing loose clothing which could become caught on moving parts.
6. It is recommended that the tractor used has a 'safety cab'.
7. Before starting up the machine and commencing work, check the immediate surroundings (for children!). Make sure you have adequate visibility. Remove all persons or animals from the danger zone near the machine (in case of flying debris).
8. While in use or being moved, it is strictly forbidden to transport people or animals on the machine.
9. The machine should only be connected to the tractor using the hitching position provided, which conforms to current safety standards.
10. Care should be taken when hitching the machine to the tractor, and when removing it!
11. Before attaching the machine, ensure that the balancing of the tractor's front axle is adequate. The positioning of the ballasts must be done on the purpose built supports conforming to the tractor manufacturer's instructions.
12. Do not overload the axle
13. Abide by the authorised max. size for travelling on public roads.
14. Before going on a public road, check that the signal devices and guards (luminous, reflective) required by law, are in place and in working order.
15. All remote controls (cords, cable, rod, hose) should be positioned in such a way that they cannot accidentally set off an operation that could cause an accident or some damage.
16. Before taking the machine on the public road place the machine in the transport position as indicated by the manufacturer.
17. Never leave the driver's position while the tractor is in motion.

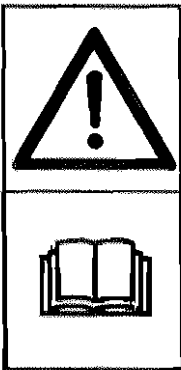
18. The speed and the method of driving must always be adapted to the relevant surface. In all circumstances avoid sudden changes of direction.
19. Direction precision, grip of the tractor, road holding and the efficiency of the braking system are influenced by factors like weight and nature of the attached machine, state of the ground and road conditions, so it is important to pay attention to good driving skills, as dictated by each situation.
20. Be extra careful on slopes, taking into account the length, height and weight of the machine and the towed implement.
21. Before using the machine, ensure that all the safety guards are in place and in good condition. Damaged guards should be replaced immediately.
22. Before each usage of the machine, all screws and nuts particularly those which secure the soil engaging parts, should be tight.
Re-Tighten if necessary.
23. Park the machine on a level surface to prevent it from running off.
24. Crushing or cutting zones can be operated by the remote control instruments notably those that are operated hydraulically.

Before getting off the tractor or making adjustments to the machine, turn off the engine, withdraw the ignition key and wait for all moving parts to come to a complete stop.
26. Do not go between the tractor and the machine without having applied the handbrake securely or having placed blocks under the wheels.
27. Before making any adjustments to the machine make sure that it cannot be put in motion accidentally.

HITCHING

1. When hitching or disconnecting the machine from the tractor place the hydraulic control lever in such a position that it cannot cause the lifting or lowering mechanism to be accidentally activated
2. Never stand between the tractor and the machine when operating the control lever to raise or lower the machine.
3. When transporting the machine in the raised position put the command lever in the locked position.

WARNING SYMBOLS



Carefully read operator's manual before handling the machine. Observe instructions and safety rules when operating.



Stay a safe distance from the machine.



Insert safety lock before getting into hazardous area.



Never reach into rotating auger.



Never reach into the crushing danger area as long as parts may move.



Do not ride on platform or ladder.



HYDRAULIC CIRCUIT

1. **Attention!** This circuit is under pressure.
2. When using the hydraulic rams, take care that the circuits are correctly connected, in conformance with the manufacturers instructions.
3. Before connecting the hose to the tractor's hydraulic circuit make sure that the lines both on the tractor side and the machine side are not under pressure.
4. It is strongly recommended that the machine operator puts an identification label on the hydraulic connections between the tractor and the machine to avoid connection errors. **BEWARE!** There is danger of reversing the functions (i.e. raise, lower).
5. Examine regularly hydraulic hoses. Damaged or worn hoses must be immediately replaced. When replacing hoses ensure that only parts approved by the manufacturer are used.
6. When attempting to locate a hydraulic leak, take all possible precautions to avoid accidents.
7. Any liquid under pressure, for example oil in the hydraulic circuit can damage the skin and cause serious injury. In case of injury consult a doctor immediately. There is a danger of infection.
8. Before working on the hydraulic system lower the machine, depressurise the system, turn off the engine and remove the ignition key.

MAINTENANCE

1. Before all maintenance, service or repairs and when trying to identify a breakdown or malfunction you must ensure that the power drive is disconnected and that the engine is switched off and ignition key removed.
2. Check tightness of screws and nuts. Retighten if necessary.
3. Before maintaining a machine in the raised position, support it by appropriate means.
4. Before replacing a working part, wear protective gloves and only use the appropriate tools.
5. To protect the environment, it is forbidden to throw or pour out oils, grease, and filters of any description. They should be given to firms specialising in their disposal.
6. Before working on any electrical circuit disconnect the energy source.
7. Protective covers which are prone to wear should be checked regularly. Replace immediately if damaged.
8. Spare parts must conform to the manufacturers specification. Only use genuine Moore parts.
9. Before undertaking any electrical work on the tractor or attached machine, disconnect the alternator cable and the battery.
10. Repairs carried out on parts under tension or pressure (springs or components under pressure etc.) require specialist knowledge and tooling so should only be carried out by qualified personnel.

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1 SETTING UP

A HITCHING

Hitching Height

The height of the hitching point has a great effect on the smooth running of the machine.

- The hitching point must be permanently fixed. The three point linkage may not be used.
- Give priority to lower hitching heights, particularly when using for direct drilling: (pick up hitch or swinging drawbar).
- The latter is recommended when using large tyres or dual wheels, to allow turning on the headlands.

Locking the drawbar

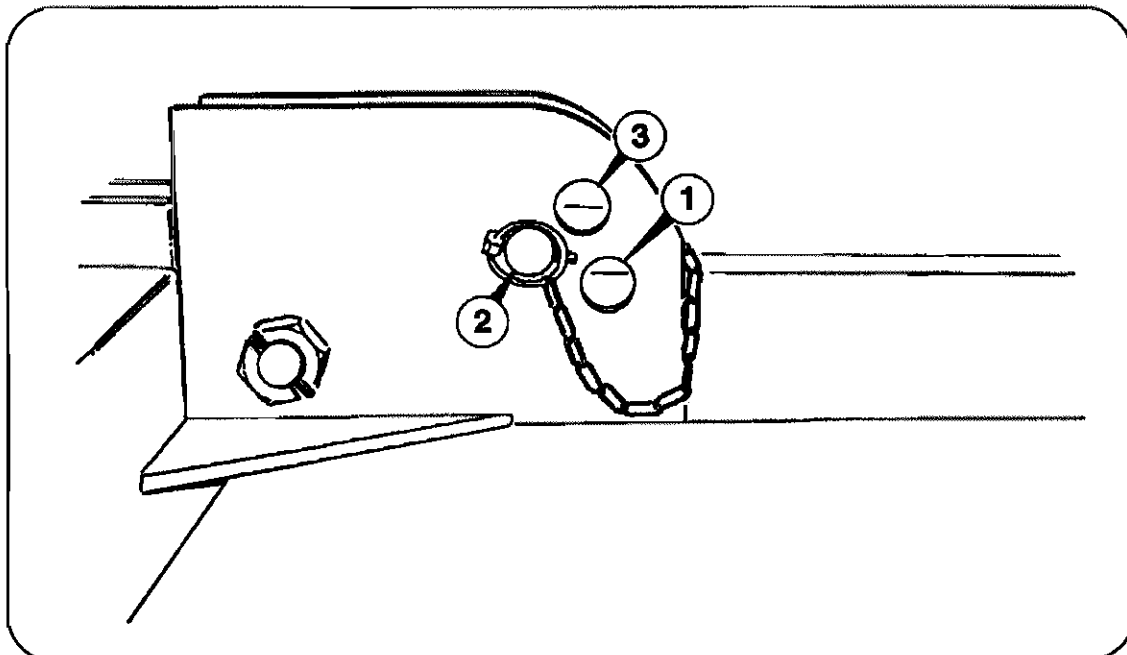
There are 3 locking positions for the drawbar.

- Position ① is used only for sowing in extremely light soil.
- Position ② is the 'normal' working position.

In the event of hard ground where the drill's penetration is insufficient in Position ② try Position ③. If need be, carry out the reverse for very soft ground.

Setting Up

Uncouple the drill on a hard level surface.
Change the position holes.



To change position, unhitch machine.

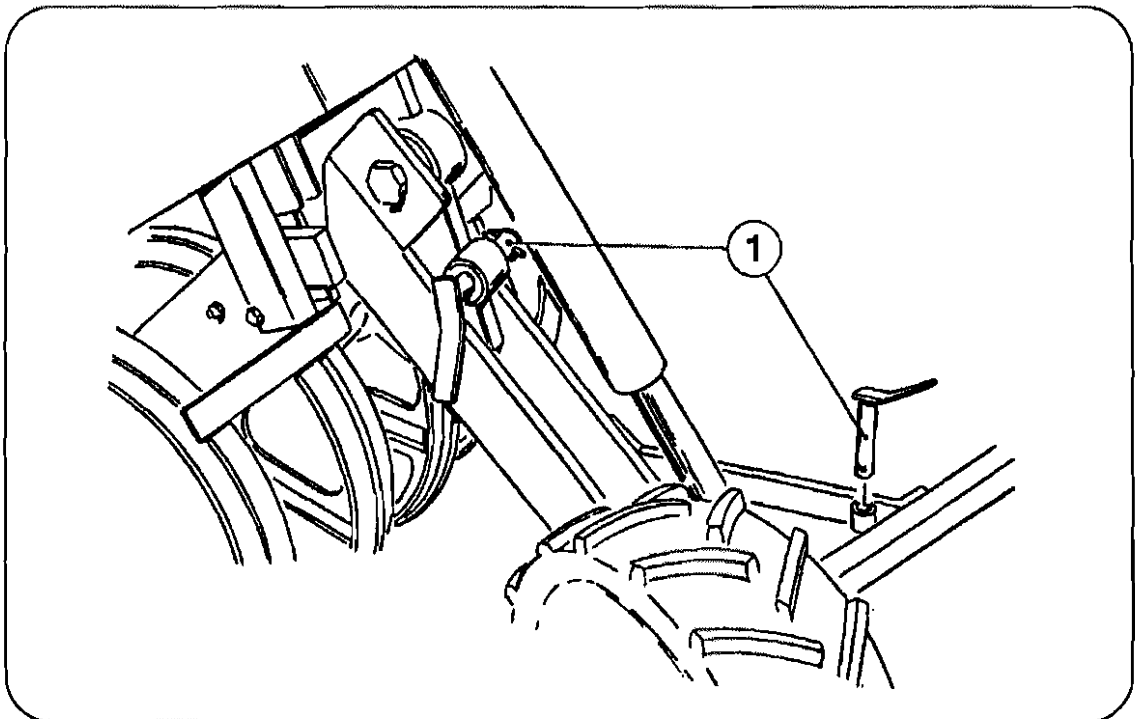
B. Transport

Setting up in the transport position: ①

- Raise the drill
- Set the locking pins
- Lower the machine onto the pins

C. Hydraulic connections

- Double acting hydraulic system which allows machine to be raised.
- BLUE for raising and RED for lowering
- Single acting marker system (Spi Markers).
- Hydraulic Drawbar (Optional) Double acting. BLUE for shallower Working. RED for deeper working.



The user must at all times abide by the Highway Code when on public roads.

2 MACHINE ADJUSTMENT

A SEED TYPE

Distribution slide adjustments

Slide position:

- ① - Closed position (seeds every other row for example).
- ① - 1st position small seeds: rapeseed, flax, lucerne.
- ② - 2nd position, large coarse seeds: cereal, peas.

Peg Wheel Selection

- Standard wheel ① for cereals and large coarse seeds.
- Fine wheel ② for small seeds.

Push the pin into the brass slot on the right hand side of the peg wheel

a Press b Turn

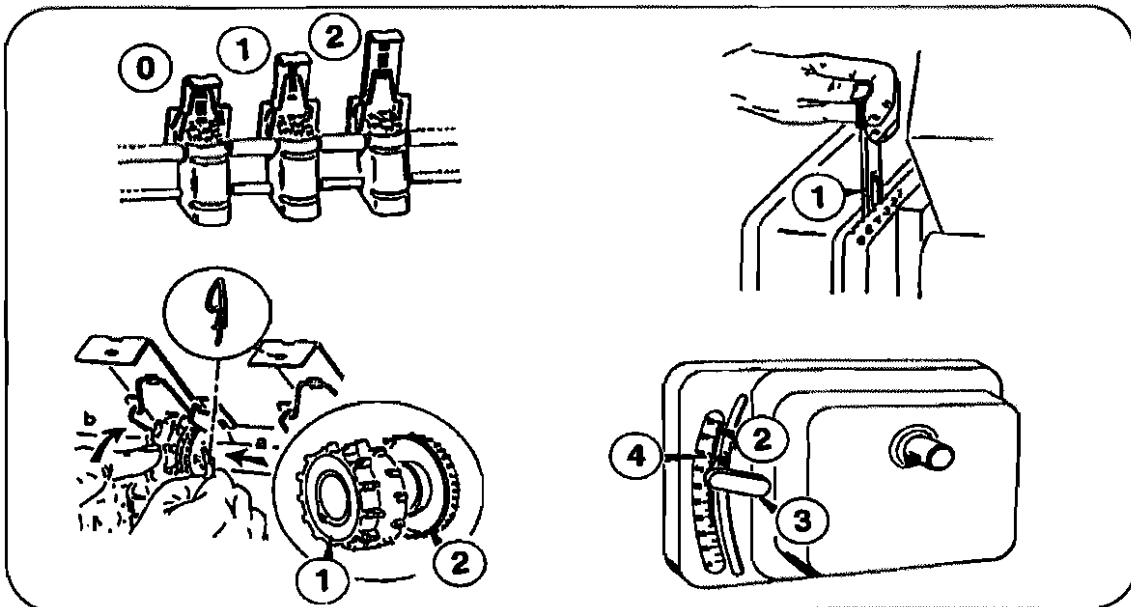
Adjustments to Skid Flaps

Position lever ① at a notch according to the seed:

- 1 Rapeseed 2 Flax/Cereal 3 Cereal
- 4 5 Peas/Beans 6 Large Peas/Beans
- Fully Open - For emptying purposes.

Varlator Adjustment:

Setting pointer ④ can be adjusted between 0-90 on the scale ② as directed in the tables using the Handle ③.



Use the calibration charts.

B Calibration

Precaution

- ensure that all peg wheels are engaged.
- ensure that the distribution slides are closed when not in use. This helps to prevent rodent damage.

Procedure:

- Open tray ① and push it down to make it fit under the distribution points.
- Take the calibration handle and join it to the shaft on the side of the variator or hectaremetre.
- Begin the calibration with 50 turns of the crank-handle to settle the contents, empty the trays.

To Calibrate: The number of turns of the crank should correspond to the operating width of the drill

2.4 m = 50 turns

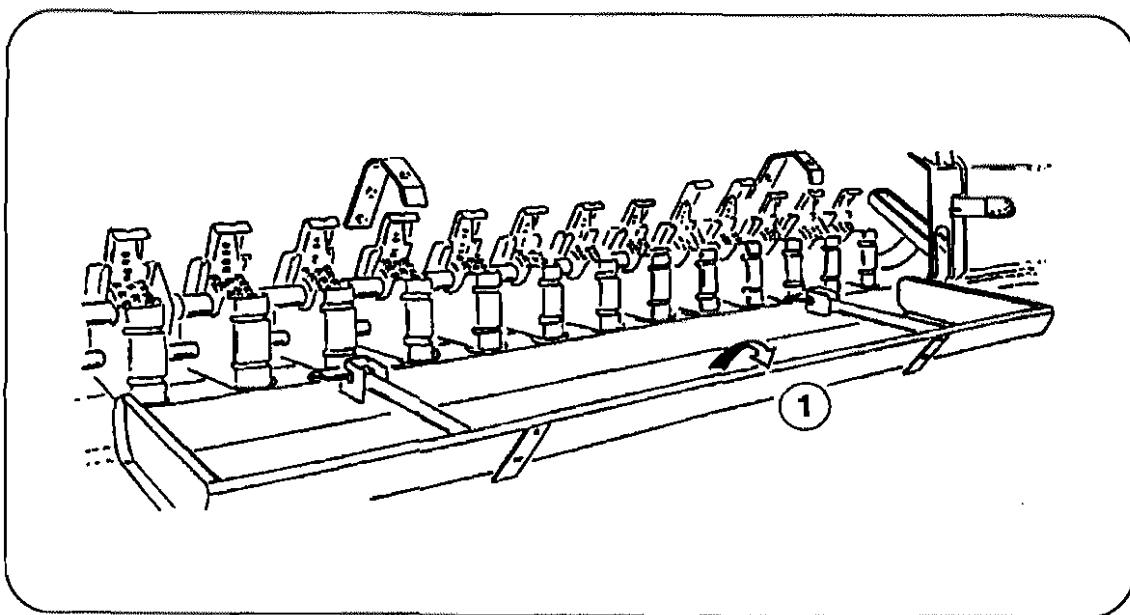
3.0m = 40 turns

4.0m = 30 turns

Weigh the obtained quantity of seeds and multiply by 50 to get the quantity per hectare. OR by 20 to get the rate in Lbs/Acre. Correct the variator indicator if necessary.

Repeat a control test.

Close up the tray.



For accurate seed rates, it is necessary to carry out a calibration test.

C SOWING DEPTH

Adjustment to crank

Control of depth is carried out using a Depth Control Screw acting on weight transfer.

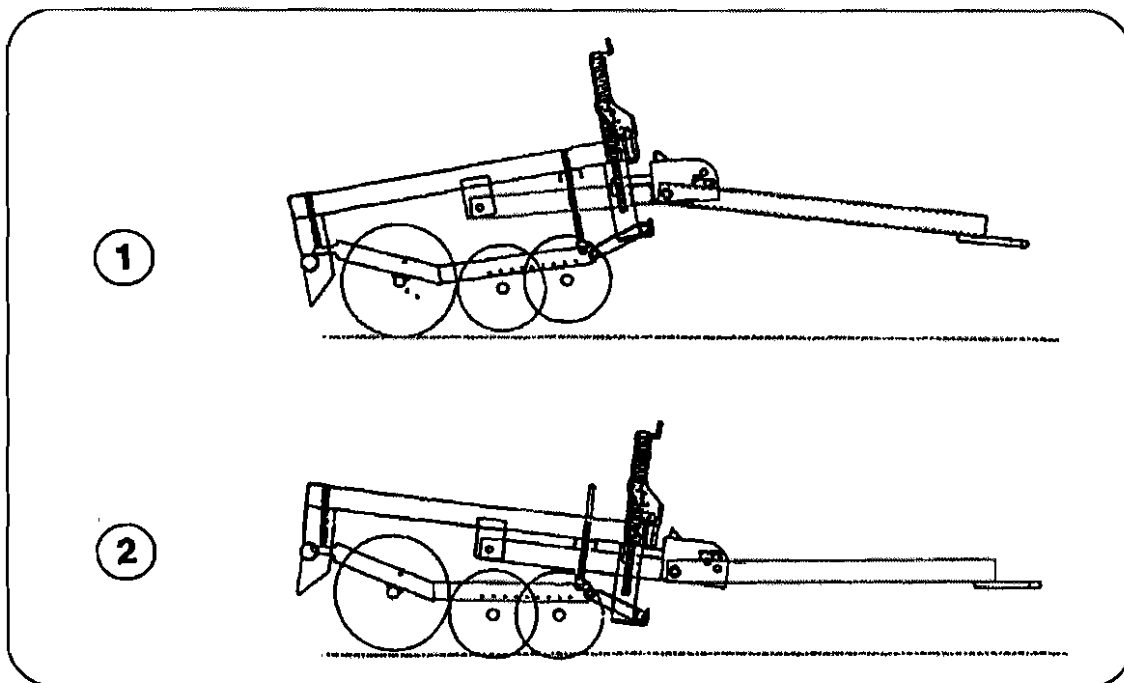
- By turning the crank anti-clockwise, the seed depth is decreased ①
- By turning the crank clockwise, the seed depth is increased ②.
- To reduce pressure on the crank, pressurise the lifting gear.

Use of the hydraulic depth control: (Optional)

Place the ram in middle position.

Regulate seed depth using the crank.

Modulate the depth in + or - activating the ram and using the coloured indicators.



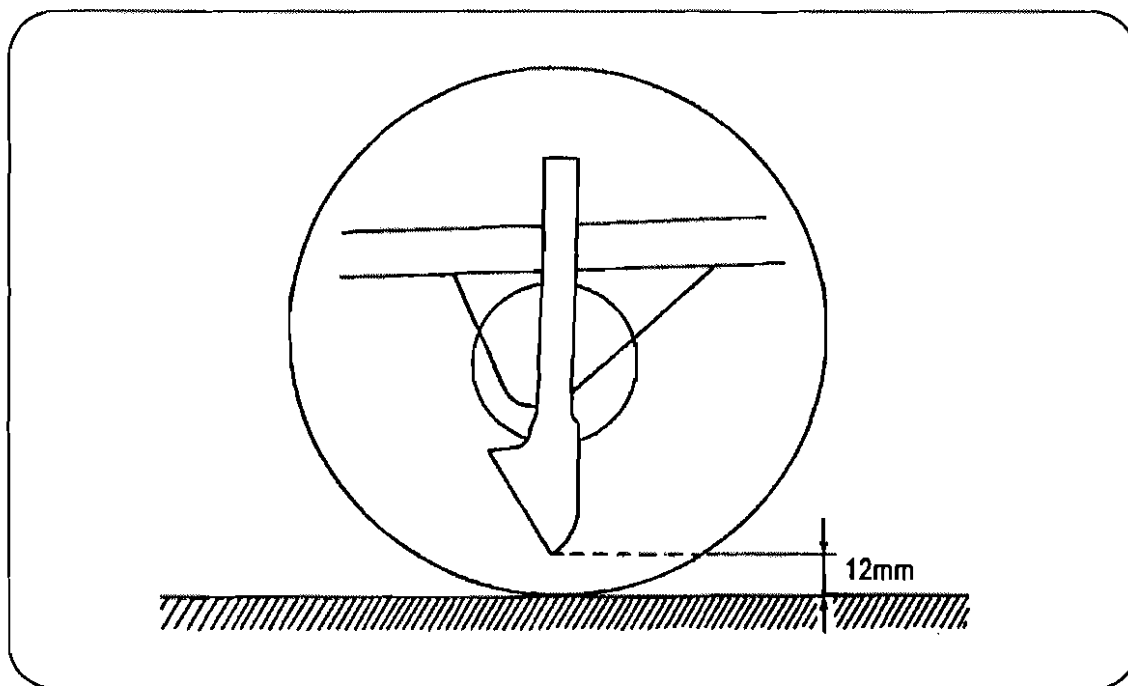
The height of the mounting and the position of the lock on the draw bar will affect the adjustment of the depth. It may be necessary to modify them to obtain desired depth. Refer to the paragraph "hitching". Check the depth of seed accurately by uncovering the seed. Do not sow seeds too deep.

D COULTER ADJUSTMENT

Height Adjustment

- The tip of the coultter is set up about 12 mm from the edge of the disc.
- This minimum distance must be adhered to, in order to protect the coultter from violent impacts, and to allow the disc to cut..
- It is easy to adjust this height, resting the machine on a flat surface, placing a wedge under the coultter.

NB: When used on very trashy soils, it is advisable to raise the coultter tip to about 40 mm from the edge of the disc in order to improve the action.



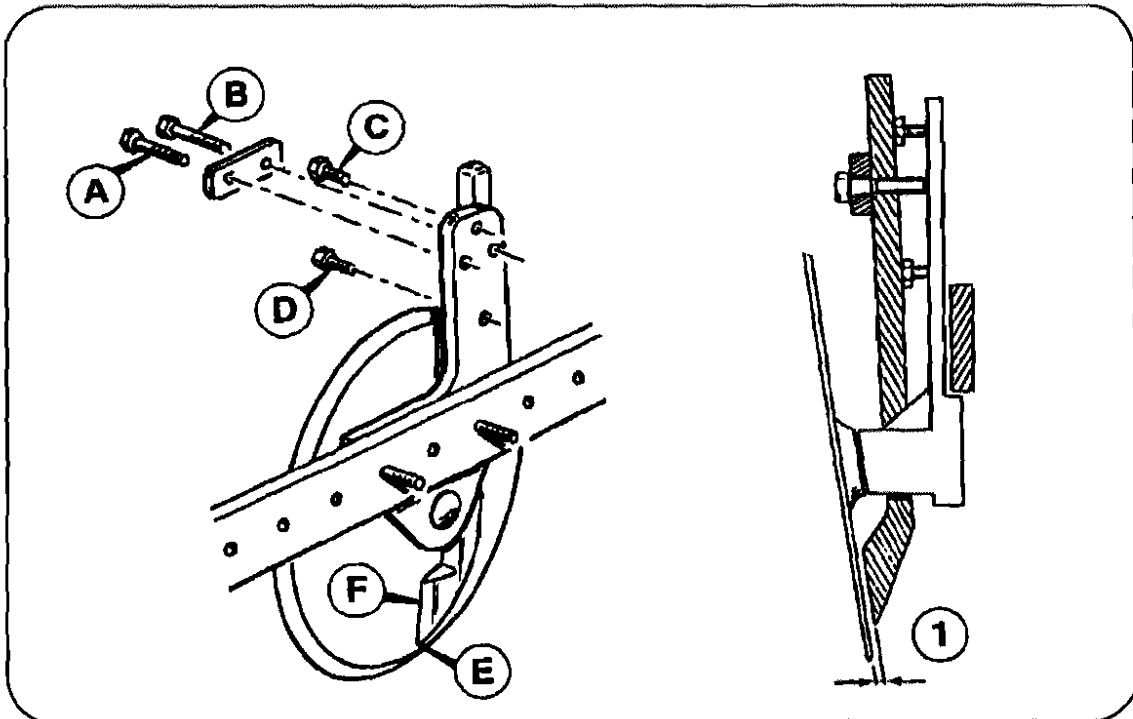
Put transport safety pins in before adjusting coultters.

Coulter Pitch Adjustment

For most seeding conditions and as a general rule the tip E of the seed tube coulter should be set so that it is approximately 12 mm above the outer edge of the disc. The leading edge of the seed coulter should be set parallel to the disc and just touching it ① This can be achieved by means of the retaining bolts A and B and the adjusting screws C and D. If the tip, E of the seed coulter is out from the disc, this can be corrected by tightening bolt A (front bolt) more than bolt B, while the top, F of the seed coulter can be brought in towards the disc by tightening Bolt B (rear bolt) more than Bolt A.

Some discs, may be slightly distorted, but when in work the side force of the soil on the disc will keep it in contact with the seed coulter. A certain amount of bedding-in and wear takes place between the disc and the seed coulter and it may become necessary to adjust screws C and D to position the seed coulter close to the disc.

Check the position of the seed tube coulters in relation to the disc coulters daily.



To obtain better depth control for small seeds e.g. oil seed, rape, turnips etc., in loose or cultivated soil it may be necessary to lower the tip of the seed tube coulter almost to the edge of the disc.

E: MARKERS (SPI)

Putting in working position

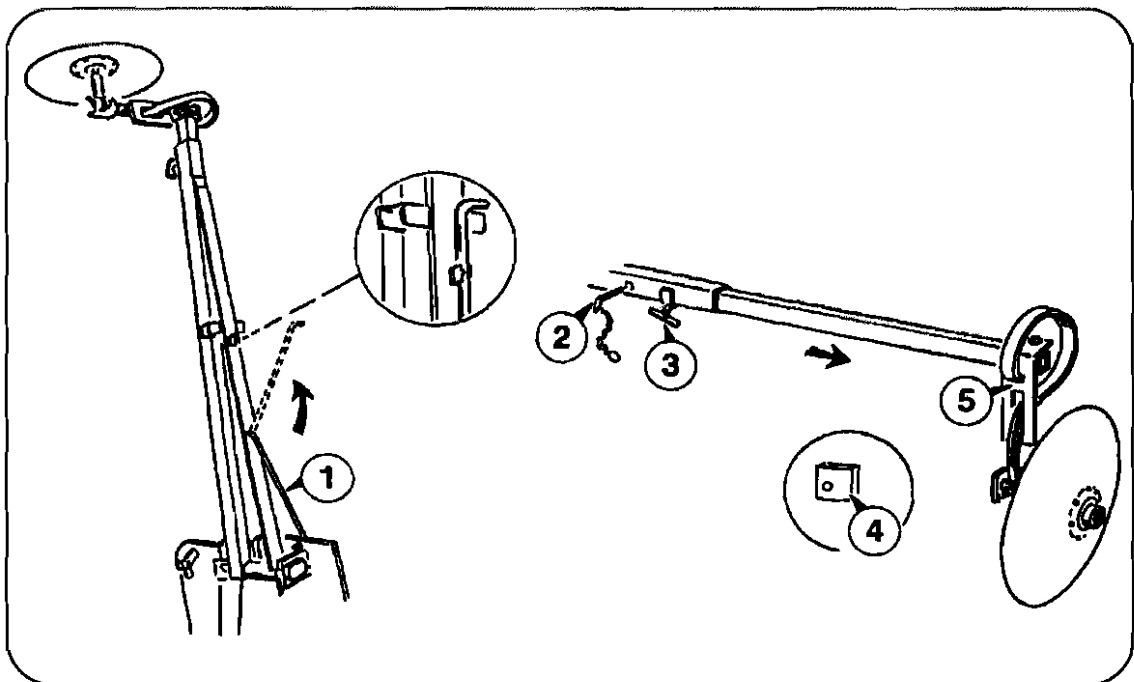
The markers are designed to mark at the centre of the tractor.

Put pressure on the hydraulic circuit.

Pull back the transport locking lever ①

Lower the first marker and extend the arm (pull back pin ② and unscrew screw ③, using the adjustment screw.)

- It is possible to regulate the disc's slope to have a more or less pronounced mark in the ground.
- Four adjustments are possible changing the positioning wedge ④. The markers are preset in the factory. However if you wish to adjust this setting, move the disc ⑤ support on the tube.
- The distance between the last line of seeds and the marker is equal to half the width of the work plus half the gap.



Lock markers during transportation. Neutralise the oil pressure before connecting the drill.

Safety

Marker safety is in place only when machine is working.

Active Safety - Spring Tine shock absorber between the arm and the disc.

Passive Safety - A shear bolt ① is provided with a tensile strength 6 - 8
Replacement bolt ② on the arm-rest.

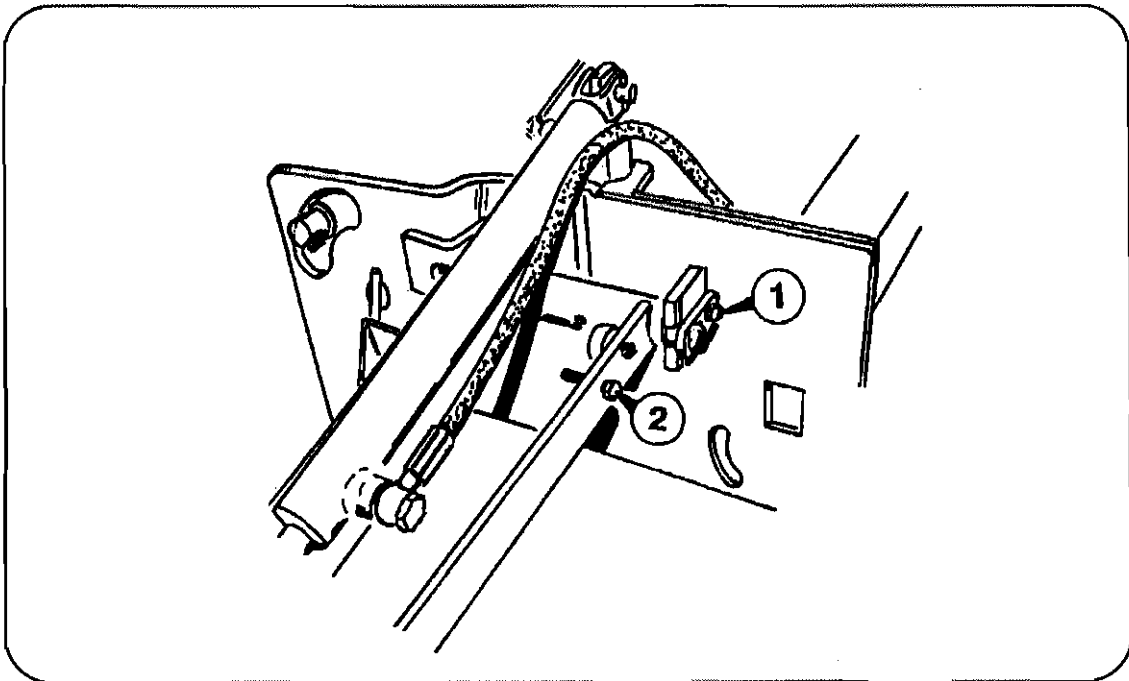
Working:

Put pressure on - 2 markers are raised.

Decrease pressure - 1 marker is lowered

Put pressure on - the lower marker is raised

Decrease pressure - other marker lowered



**The markers should be raised and lowered gently.
Turning at the end of the field should be carried out
with both the markers raised.
For transportation: shorten the arms if the height is
limited.**

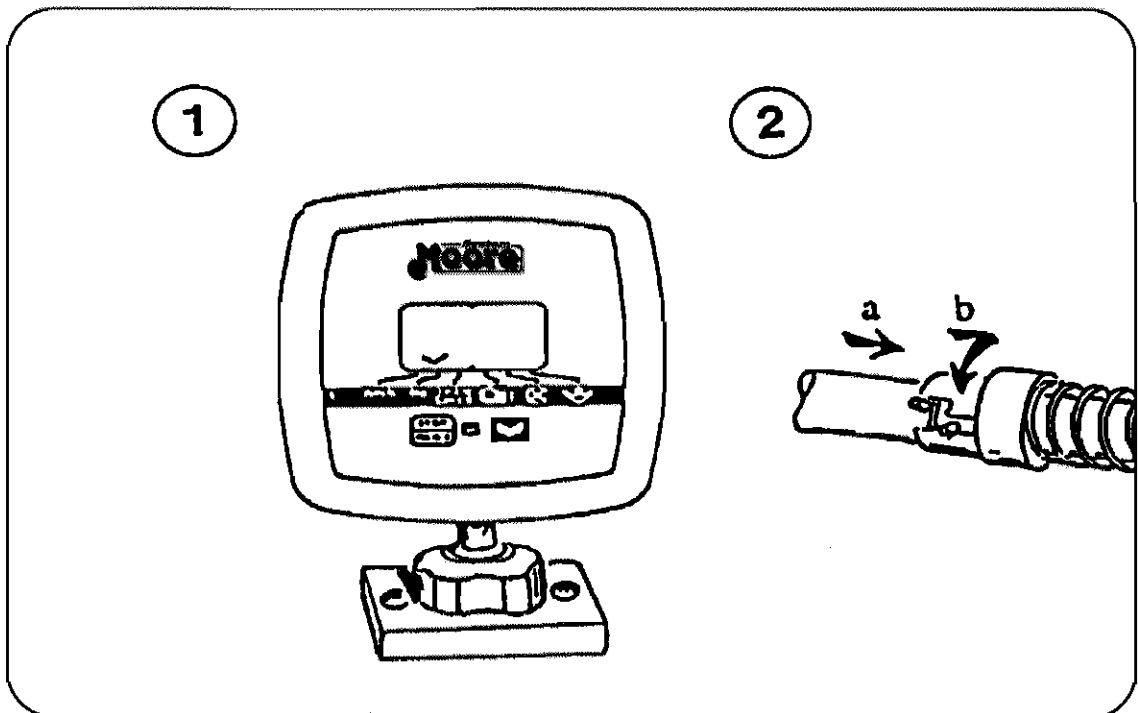
F: ELECTRONIC TRAMLINER

Principle:

Closes the seed flow to the rows forming the tramlines to facilitate further crop treatments taking into account the wheel sizes of subsequent machinery.

Functioning:

- ① **Bowden Cable or Optional MOORETRONIC Drill Control**
Includes Forward Speed, Hectaremetre (X2), Shaft Monitor, Low Hopper Sensor and Tramline Control
- ② **Half Width Shut Off (Where Fitted)**
Clasp the collar midway on the distribution shaft
 - (a) Push
 - (b) TurnOnly the left hand side is disengaged.



For efficient use of the "tramliner" ensure that the electrics are properly connected.

Marking Out Device

This refers to marking out bout widths.

| DRILL | Width of Tramline Metres | Half Drill closed for correct tramlining | INSTRUMENT PAD | |
|-------|--------------------------|--|----------------|------------------------------------|
| | | | Programme | No of Drill runs to start tramline |
| | | | | |
| | 9 | No | 3 | 2 |
| | 12 | Yes | 4 | 2 |
| 3 M | 15 | No | 5 | 3 |
| | 18 | Yes | 6 | 3 |
| | 21 | No | 7 | 4 |
| | 24 | Yes | 8 | 4 |
| | | | | |
| | 12 | No | 3 | 2 |
| | 16 | Yes | 4 | 2 |
| | 20 | No | 5 | 3 |
| 4 M | 24 | Yes | 6 | 3 |
| | 28 | No | 7 | 4 |
| | 32 | Yes | 8 | 4 |
| | 36 | No | 9 | 5 |
| | | | | |



Using the half sower
Begin on the right of the field.
Don't forget to re-engage the half sowing mechanism
before the second width.

Marker remote control

Support ① attaches Bowden Cable in Tractor Cab

When marking out:

Operate the Bowden Cable on the tramline run

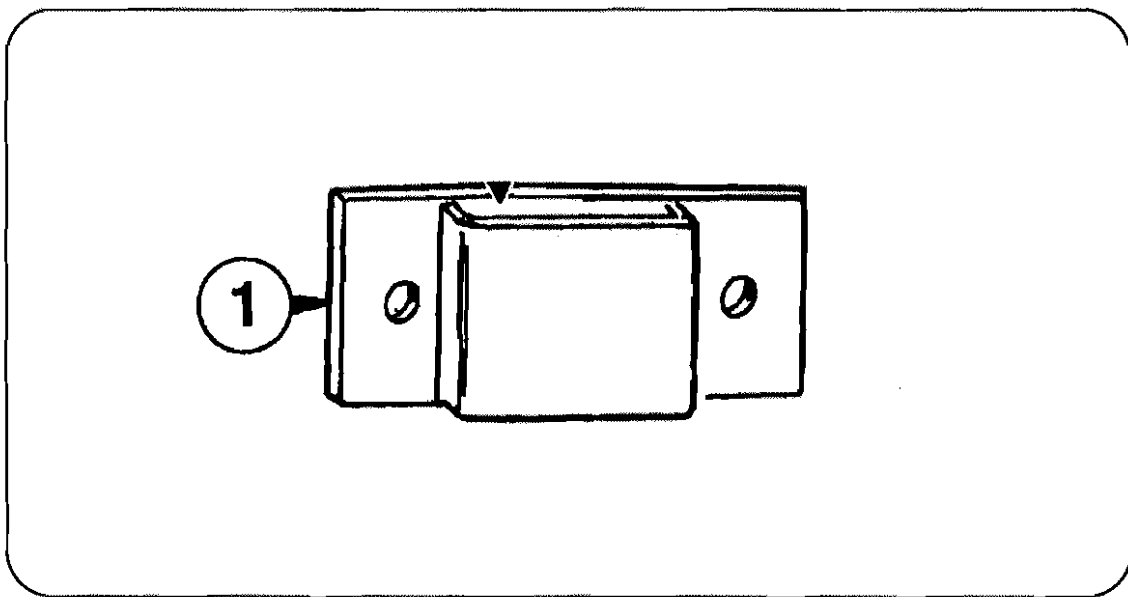
Bouts can be manually counted on the scale included.

MOORE Tronic remote control

The automatic bout counting is based on the movement of the markers, raising the sower in the middle of the field will not change the location.

To change the track width, move the seed tubes to the corresponding rows.

N.B. On drills without markers, the counting function can act on the rear axle using a proximity switch and magnet, this will count on raising/lowering drill.



Maintain pressure on the hydraulic spool lever for a few seconds.

3 MAINTENANCE

A CLEANING

Blow out the inside of the distribution hopper.
Wash the sower.

High pressure cleaners damage electrical circuits.

B GREASING

Regularly grease the machine at the beginning and end of job.

- Every 10 hours - Front Pivots
- Every 20 hours - The markers

Oil the tramline clutch spring, (use penetrating oil).

Oil the distribution chains.

Slack drive chains can be adjusted using slotted holes on seedbox mountings and drive arms.

Grease the gear wheel of the hectare counter (if fitted).

Check the level of oil in the variator (Drill horizontal), adjust the level to the red mark with automatic gearbox oil. ATF - DEXTRON II D or similar.



**The variator should be drained off every 500 hectares or every two years if the machine has not been used.
Never grease peg wheels or seed tubes.**

C CHECKLIST

Check Wear

- **Discs**
This is an essential piece of the system for drilling the ground. If they become too small, problems with trash clearance, bulldozing and penetration may occur.

- **The Guide Plates behind the Drag Arms.**
Never lubricate nor grease
Reverse, turn around or change these plates when they are one third worn.

- **Seed Tube Coulters**
Adjust the tip of the coulters to approx 12 mm from the edge of the disc. Also adjust the leading edge of the coulters to run parallel to the disc and allowing the disc to turn freely.
Performance in wet conditions can be impaired with worn coulters tips, which allow wet soil to block the opening.

Check the tightness.

After every 20 hours of use: Check tightness of main nuts and bolts.
After every 10 hours use: Check the tightness of all soil engaging nuts and bolts on the drill and the studs on the discs. Also check for slack roller and disc bearings.

If there is play in these bearings it is necessary to retighten them:

- Remove the dust cap
- Tighten the bolt until the disc rotates smoothly.
- Make it a practice to check the bearings every day for trouble free use.

Check periodically the tightness of the rims and the pressure of the tyres.

| Model / Tyre | 10-5 x 15-3 x 10 | 31-0 x 15-5 - 15 | 19-0 x 45 - 17 |
|--------------|------------------|------------------|----------------|
| 2.4 M | 1.5 | N/A | N/A |
| 3.0 M | 1.5 | 1.0 | N/A |
| 4.0 M | N/A | 1.4 | 1.0 |

Pressure in bar @ 30 Km/Hr with empty seedbox.



Regular checking of the bearings will ensure trouble free use, especially during the first 100 Hectares.

D SPECIFICATIONS

Identification

When accepting ownership of your machine note the following information:

Number on the machine:

Type of machine:

Accessories:

Specification:

MOORE UNIDRILL 2.4 M GRASSLAND

| | |
|---------------------|----------|
| Width of work | 2.40 m |
| Transport width | 2.40 m |
| Seedbox capacity | 700 lit |
| Row Width | 13.3 cms |
| No of Rows | 18 |
| Horsepower Required | 80 |
| Weight | 1950 Kg |

MOORE UNIDRILL 3M GRASSLAND

| | |
|---------------------|----------|
| Width of work | 3.00 m |
| Transport width | 3.00 m |
| Seedbox capacity | |
| Row Width | 13.3 cms |
| No of Rows | 22 |
| Horsepower Required | 100 |
| Weight | 2500 Kg |

MOORE UNIDRILL 3 M

| | |
|---------------------|----------|
| Width of work | 3.00 m |
| Transport width | 3.00 m |
| Seedbox capacity | |
| Row Width | 16.6 cms |
| No of Rows | 18 |
| Horsepower Required | 90 |
| Weight | 2150 Kg |

MOORE UNIDRILL 4 M

| | |
|---------------------|----------|
| Width of work | 4.00 m |
| Transport width | 4.00m |
| Seedbox capacity | |
| Row Width | 16.6 cms |
| No of Rows | 24 |
| Horsepower Required | 120 |
| Weight | 2670 Kg |



Safety stickers have been placed on your machine.

Their purpose is to contribute to your safety and that of others.

Read their contents and make sure they remain stuck on.

Review the notes and the instruction contents in the instruction leaflet with the operator of the machine.

Keep the stickers clean and legible. Replace when they deteriorate.

4 OPERATION

A. PREPARATION AND CALIBRATION

Attach the drill to the tractor and raise the drill to its maximum height, remove the road transport pins. Calibrate the seeding mechanism for seeds to be sown as in section 2 B.

B. RUNNING IN

If the drill is new and is to be used in cultivated soil, it is better to 'run-in' the drill in hard ground, such as a grass field. It is easier to work off the paint and rough edges from the seed tube and disc coulters when working in firm ground where there is more friction to turn the discs. This only requires a few turns across a field without seed. The depth control of the All-Till Seedbed Drill can be tried out by turning the depth control screw up or down to increase or decrease the depth of penetration. Check that all the discs turn relatively freely; it may be necessary to slacken off seed tubes that are rubbing tight against the discs.

C. FIELD OPERATION

Do not turn sharp corners with the All-Till seedbed drills, especially in direct drilling operations as this will give wrong disc-to-soil side thrust. When this happens the disc is parted from seed coulter and trash can then enter between them resulting in blockage to the seed flow. It is better to lift the machine out of and into work when turning corners.

D. WORK RATE

As there is no disc bounce, due to the high inertia coulter system with press wheels, relatively high ground speeds can be tolerated giving high work rates. The operating speed and the quality of work which results is controlled by field conditions but wherever possible a steady speed should be maintained. As field conditions vary, it may be necessary to adjust the coulter settings to maintain seed depth and cover.

E. SEEDBED PREPARATION

It is not necessary to prepare a fine seedbed as for other drills. The All-Till Seedbed Drill prepares its own mini seedbed by using an angled disc and seed tube coulter tine. In most fields it is only necessary to plough and perhaps level and roll. If the soils are loose, puffy soft or have loose stones on the surface, it will generally be advantageous to roll the field first. This will reduce blockages and help maintain even depth control.

Where a fine seedbed has been prepared and it gets wet, then the soil acts as a sponge and absorbs a lot of water, making it almost impossible for the drill or any other implement to work in it. Therefore it is better to consolidate loose seedbeds so that they will not absorb so much water. The drill will work on most firm consolidated seedbeds provided the drill is being used at speed. At a speed of over 6 M.P.H. the centrifugal force on the discs and rollers tends to fling the sticky soil from them; just like driving a tractor along a road, where the dirt on the tyres is thrown off when it reaches a certain speed.

F. DRILLING IN CONVENTIONAL SEEDBED

When working in cultivated soil, most of the drill weight is carried on the press wheel rollers and tractor drawbar. Seed depth can be obtained by adjusting the depth control screw in the usual manner. The soil is usually tracked to the depth required by the disc seeding units and consolidated by the press wheel rollers - this gives ideal conditions for seed germination.

It is recommended that the centre of the field should be drilled first and the headlands last. If the headlands are planted first then the tractor and drill will travel and turn on planted ground, thus disturbing, compacting and moving seeds that have been placed at a constant depth. Check seeding depth in the field and on headlands, remember the headlands tend to be more consolidated than the remainder of the field.

On rougher type of seedbeds the drill itself tends to be self levelling. The seed tube and disc coulter units tend to move the soil from humps to hollows. **IT IS NOT NECESSARY TO HARROW AFTER SOWING.** Harrowing will move seeds either shallower or deeper thus giving uneven germination. Remember seeds that are planted two to three inches deep take about two weeks longer to germinate and appear as weak plants, that are under stress and are susceptible to disease.

If rolling behind the drill on lighter soils is thought to be beneficial, remember that the seed has been accurately placed at the ideal depth for early and even emergence. Rolling will tend to flatten the ridge of soil between each press wheel mark and will in fact add to the soil cover over the seed thus slowing emergence and probably reducing vigour. This extra soil cover over the seed must be allowed for, when deciding drilling depth when starting the field.

G. DRILLING IN WET CONDITIONS

The All-Till Seedbed Drills are now fitted with adjustable scrapers for the press wheels. Wet soil will usually build up to about one inch on any wheel. Adjust the scrapers so as to knock off the excess soil that would build up over the normal amount of soil that sticks to the press wheels. Leave a gap of 25 to 30 mm between the scraper and the press wheel. Never reverse the drill with the seed tube coulters in the ground as this would block the seed outlets with soil. Where there are very wet pockets of soil in some fields, the road wheels can be used to slightly raise the drill out of the ground thus assisting the drill too high; always keep the stalker wheel in contact with the ground.

H. DRILLING INTO STRAW INCORPORATED SOIL AND TRASHY CONDITIONS

In heavy trash conditions it may be necessary to raise the tip of the seed tube coulters so that the disc will cut through the trash before the coulter opens the slit. In heavy maize trash, especially in the direct drill or no-till situation, it may be necessary to raise the tip of the seed tube coulter 30 to 40mm above the edge of the disc.

The discs cut through the trash very positively. The weight of the press wheels keep the discs anchored and do not allow the discs to ride out of the soil, even when there is a lot of trash present. Bulldozing normally occurs when a disc meets trash, tries to ride up over the trash, then pushes it in front of the disc, thus causing bulldozing and blockages. If this happens it is usually due to the soil underneath being too loose. The drill will cut cleanly through, given that it has something to "bite on". Consolidating the field with either rollers or a land packer, sufficient to allow the drill's discs to turn, will usually cure the problem.

The trash itself, on decaying, produces acids, toxins, etc., which tend to damage or kill the germinating seed. If the trash is mixed with the soil and consolidated tightly to give good straw/soil contact then the soil will absorb the toxins as they are formed, before they can harm the germinating seedlings. The press wheels on the All-Till Seedbed Drill consolidate the trash, soil and seed in exactly the right manner to give very healthy plant stands even in the heaviest incorporated residues. If straw is incorporated into the soil to leave a loose fluffy seedbed then it is better to consolidate this first using either a roller, crumbler bar, land packer, etc., before drilling.

I. MINIMUM TILLAGE AND DIRECT DRILLING

In certain soils, especially if they contain stone or trash, it is recommended that the top 1" or 2" should be cultivated or scratch tilled. This will encourage the germination of volunteer cereals and weed seeds. It will also help to level out the tramline and wheeled tracks. Also if stones are left undisturbed in the top layer, they become embedded and the disc will ride from stone to stone without getting good penetration.

In soft field conditions it is essential to set the discs deep enough to cut through all the mat or surface trash. Seed will germinate and grow better when in contact with the soil. In wet, soft conditions the disc may be set to penetrate deeper than required. As the drill moves forward the seed is trapped by the sides of the slit and do not necessarily fall to the bottom of the slit.

J. DIRECT DRILLING GRASS PASTURES

Four methods are suggested for direct reseeding grass into grass pastures.

A. If the pasture has been badly poached or there are bare patches due to frost kill etc., over the winter, about 20 lbs/acre of a vigorous growing type of grass (e.g. I.R.G.) should be drilled just before growth starts (March/April).

B. Where a first or second cut of silage is being taken, cut low to the ground and direct drill the new grass mixture the next day. There should be enough moisture retained in the soil to germinate the seed and get it growing before the cut sward can fully recover.

C. Graze the pasture as bare as possible, then spray Gramoxone (1 pint/acre) and direct the new seeds mixture. The Gramoxone used at a low rate will not completely kill the old grass sward but should retard its growth sufficiently to get the new seeds established.

D. Where the old pasture is very weedy and a complete reseed is

required, spray with Roundup to get a total kill of vegetation. Leave the field for the recommended period and direct drill with the new seeds mixture. To get a better grass cover, cross drilling at an angle is recommended, especially with the wider row spacing Uni-Drills.

Check the reseeded for leather jacket, slug or frit fly damage and treat accordingly.

Grass sown after 1st August should be sprayed pre-emergence with Dursban or Spannit to protect from frit fly and leather jackets. Slug pellets should be used as required.

K. OTHER SUGGESTIONS

(i) PRE-EMERGENCE MARKING

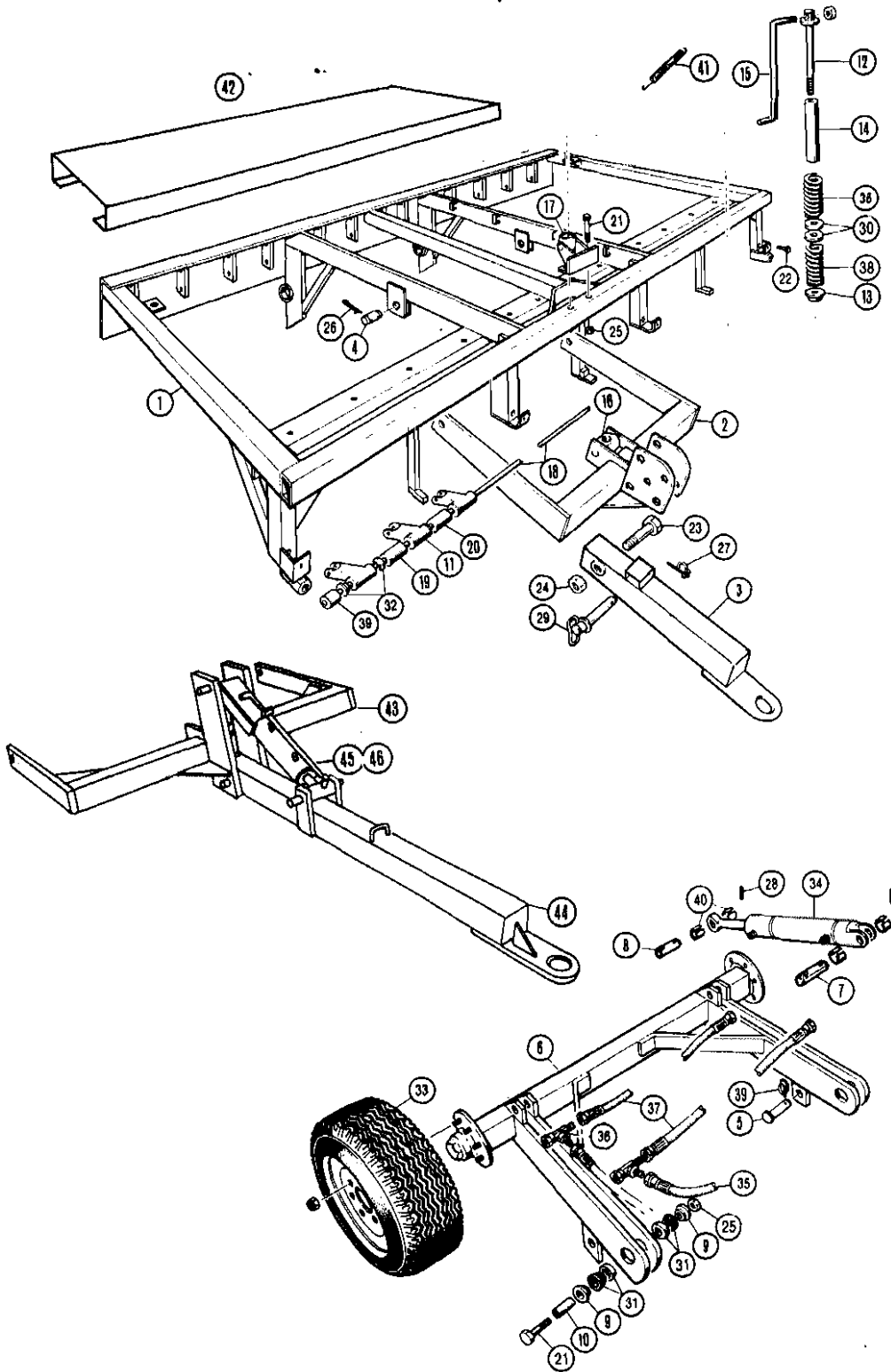
Once the operator is used to the hydraulic system operating the transport wheels, the wheels can be adjusted to just make a mark on the soil behind the drill. This can be easily followed for pre-emergence chemical applications. This is achieved by activating the float position on the spool valve whilst on the tramline bout.

(ii) PRE LOADING DRAGARMS

If it is seen that during drilling, the coulters behind the tractor wheels are not drilling at the same depth as the rest. The dragarms on these coulters can be pre loaded by placing washers or similar spacers between the front spring - lower and the spring locating bush.

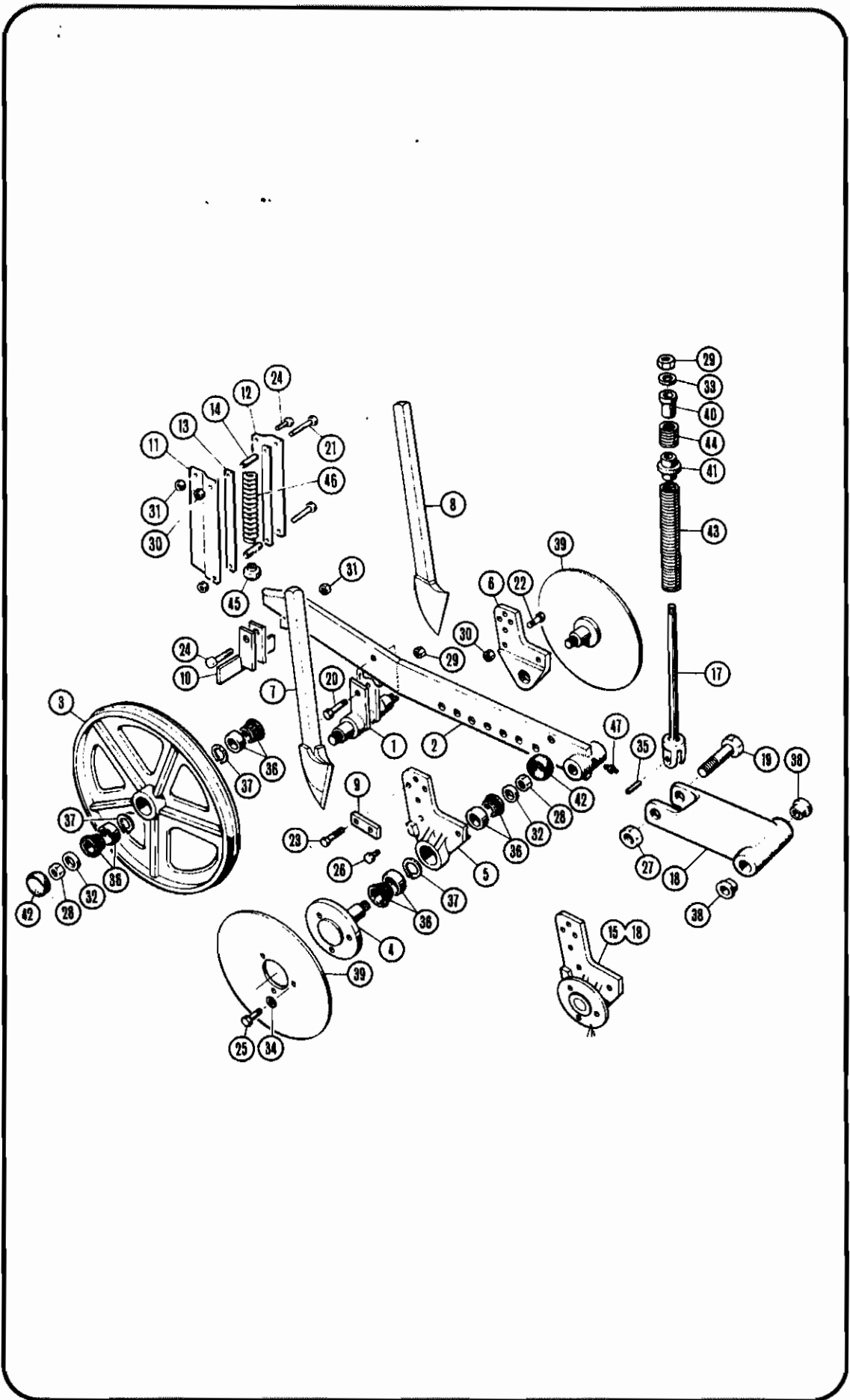
5. PARTS LIST

MAIN FRAME & DRAWBAR



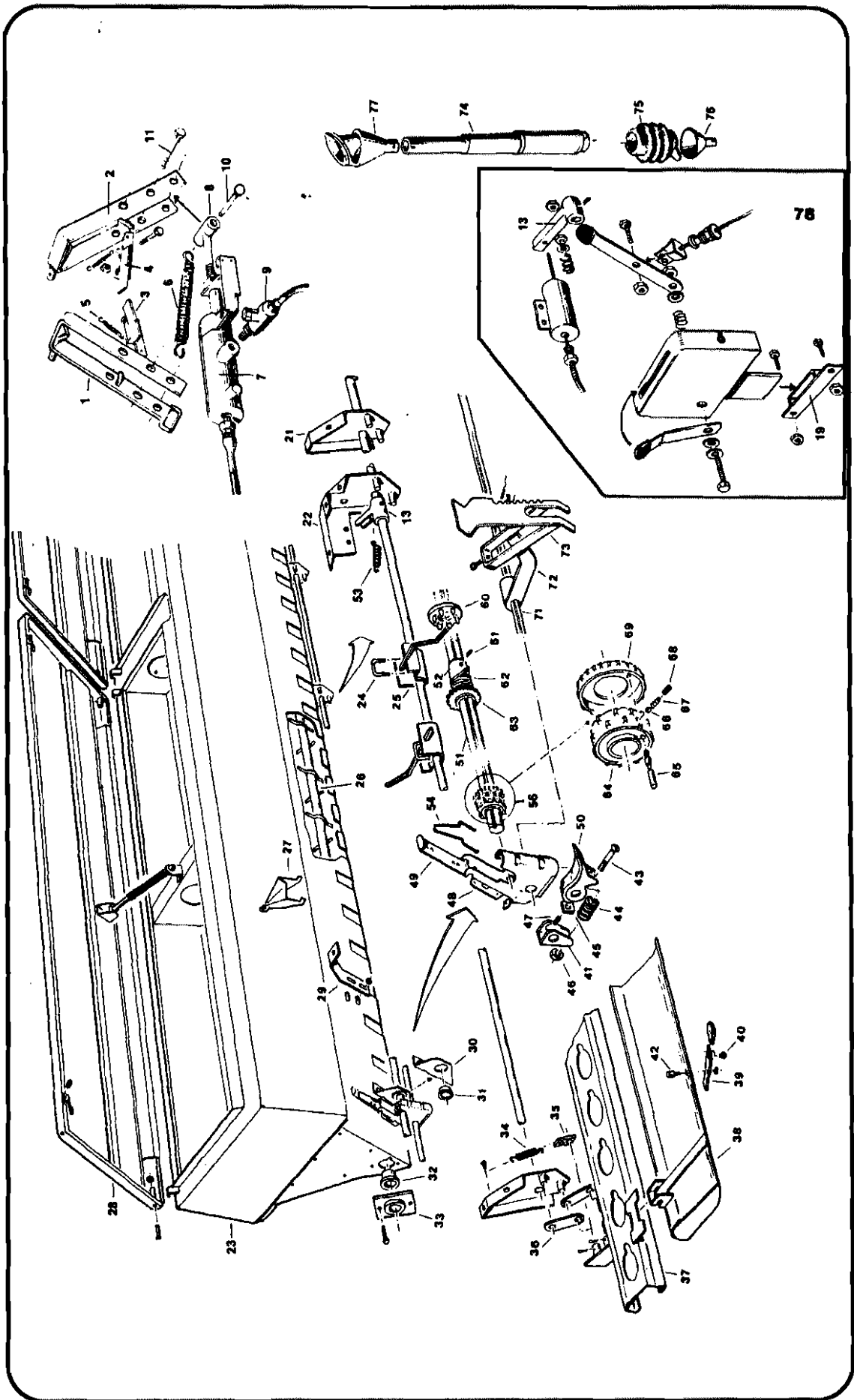
MAIN FRAME & DRAWBAR ASSEMBLY

| ITEM | PART NO. | DESCRIPTION |
|------|------------|---|
| 1 | 110 - 04 | Main Frame 4M |
| | 110 - 03 | Main Frame 3M |
| | 110 - 01 | Main Frame 2.4M Grassland |
| | 110 - 22 | Main Frame 3M Grassland |
| 2 | 120 - 04 | Drawbar Assembly 4M |
| | 120 - 03 | Drawbar Assembly 3M |
| | 120 - 01 | Drawbar Assembly 2.4M Grassland |
| | 120 - 22 | Drawbar Assembly 3M Grassland |
| 3 | 121 - 1234 | Drawbar Towing Arm |
| 4 | 122 - 1234 | Drawbar Connecting Pin |
| 5 | 125 - 1234 | Transport Pin c/w Lynch Pin |
| 6 | 126 - 04 | Axle Mounting Unit 4M |
| | 126 - 03 | Axle Mounting Unit 3M |
| | 126 - 01 | Axle Mounting Unit 2.4M Grassland |
| | 126 - 22 | Axle Mounting Unit 3m Grassland |
| 7 | 128 - 1234 | Ram - Top Pin |
| 8 | 129 - 1234 | Ram - Bottom Pin |
| 9 | 130 - 1234 | Pivot Collar - Axle Unit |
| 10 | 131 - 1234 | Pivot Bush - Axle Unit |
| 11 | 132 - 1034 | Pivoting Arm Unit |
| 12 | 134 - 1234 | Depth Control Screw |
| 13 | 135 - 1234 | Depth Control Screw - Nut |
| 14 | 136 - 1234 | Depth Control Screw - Tube |
| 15 | 137 - 1234 | Depth Control Screw - Handle |
| 16 | 138 - 1234 | Depth Control Screw - Trunnion |
| 17 | 139 - 1234 | Depth Control Screw Holder |
| 18 | 141 - 0004 | Front Pivot Bar 4M |
| | 141 - 0030 | Front Pivot Bar 3M & 3M Grassland |
| | 141 - 1000 | Front Pivot Bar 2.4M Grassland |
| | 142 - 0234 | Spacer Bush - Inner Standard |
| 19 | 142 - 1000 | Spacer Bush - Inner Narrow |
| | 143 - 0234 | Spacer Bush - Inner Bushed Standard |
| 20 | 143 - 1000 | Spacer BUSH - Inner Bushed Narrow |
| | A 101 | 1" x 6" UNC Bolt |
| 22 | A 110 | M12 x 75 Bolt |
| 23 | A 117 | 1 1/4" x 7 1/2" UNC Bolt |
| 24 | A 129 | 1 1/4" UNC Nyloc Nut |
| 25 | A 130 | 1" UNC Locknut |
| 26 | A 150 | M6 x 50 Split Pin |
| 27 | A 152 | Lynch Pin |
| 28 | A 153 | M8 x 40 Spirol Pin |
| 29 | A 154 | 1 1/4" x 8" Drawbar Pin |
| 30 | A 155 | 2" Timkin Thrust Bearing |
| 31 | A 156 | 1 3/8" Timken Taper Roller Bearing |
| 32 | A 159 | Oilite Bush |
| 33 | A 164 | Road Wheel - 10.5 x 15.3 x 10 Ply |
| | A 165 | Road Wheel - 15.0 / 55 - 17 |
| | A 166 | Road Wheel - 19.0 / 45 - 17 |
| 34 | A 169 | 2 1/2" Dia. Hydraulic Cylinder |
| 35 | A 171 | Hydraulic Hose - Ram Tractor |
| 36 | A 173 | 3/8" B.S.P. Tee M.M.F. |
| 37 | A 178 | Hydraulic Hose - Ram Ram 3M |
| 37 | A 179 | Hydraulic Hose - Ram Ram 4M |
| 38 | A 185 | Depth Control Spring |
| 39 | 144 - 0004 | Spacer Bush - End 4M |
| | 144 - 0030 | Spacer Bush - End 3M |
| | 144 - 1000 | Spacer Bush - End 2.4M |
| 40 | A 199 | 1 1/8" x 1" Hardened Bush |
| 41 | A 493 | Tension Spring |
| 42 | A 295 S | Safedeck 2.4M |
| | A 296 S | Safedeck 3M |
| | A 297 S | Safedeck 4M |
| 43 | 120 - 04 H | Hydraulic Drawbar Assembly - 4M |
| | 120 - 03 H | Hydraulic Drawbar Assembly - 3M |
| | 120 - 01 H | Hydraulic Drawbar Assembly - 2.4M Grassland |
| | 120 - 22 H | Hydraulic Drawbar Assembly - 3M Grassland |
| 44 | 121 - 34 H | Hydraulic Drawbar Towing Arm |
| 45 | 123 - 34 H | Hydraulic Stay |
| 46 | 123 - 34S | Standard Stay |

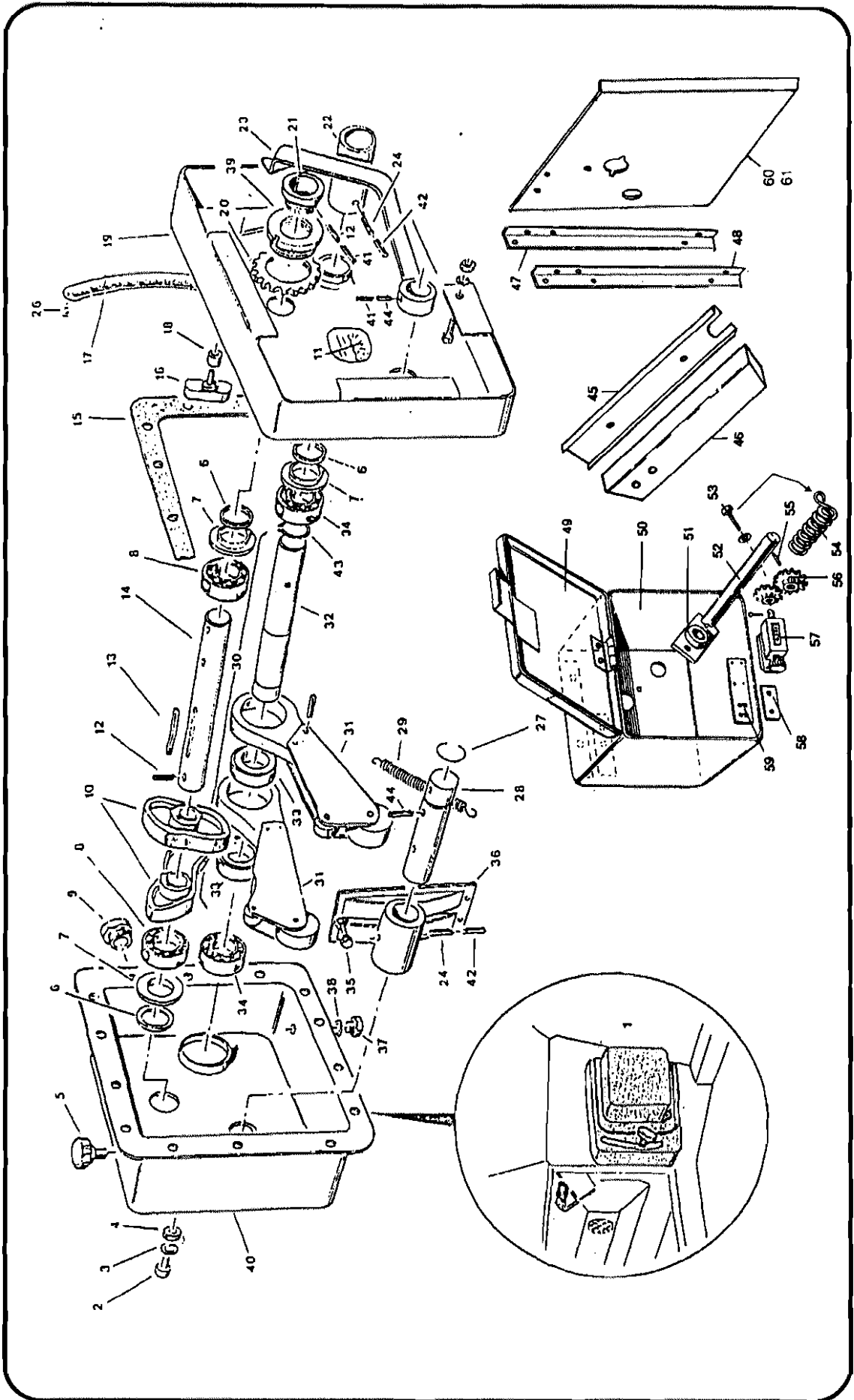


DRAGARM SEEDING UNIT

| ITEM | PART NO. | DESCRIPTION |
|------|---------------|--|
| 1 | 201 - 0234 | Dragarm Axle Unit |
| | 201 - 1000 | Dragarm Axle Unit Grassland |
| 2 | 220 - 1034 | Dragarm Mounting Bar |
| 3 | 203 - 1034 | Press Wheel |
| 4 | 204 - 1234 | Disc Hub |
| 5 | 205 - 34 | Disc Mounting Bracket - R.H. |
| | 205 - 12 | Disc Mounting Bracket - R.H. Grassland |
| 6 | 206 - 34 | Disc Mounting Bracket - L.H. |
| | 206 - 12 | Disc Mounting Bracket - L.H. Grassland |
| 7 | 207 - 1234 | Seed Tube Coulter - R.H. 25mm |
| | 207 - 1234 T | Seed Tube Coulter - R.H. 25mm Tungsten |
| | 207 - 1234 L | Seed Tube Coulter - R.H. 30mm |
| | 207 - 1234 LT | Seed Tube Coulter - R.H. 30 mm Tungsten |
| 8 | 208 - 1234 | Seed Tube Coulter - L.H. 25mm |
| | 208 - 1234 T | Seed Tube Coulter - L.H. 25mm Tungsten |
| | 208 - 1234 L | Seed Tube Coulter - L.H. 30mm |
| | 208 - 1234 LT | Seed Tube coulter - L.H. 30mm Tungsten |
| 9 | 209 - 1234 L | Seed Tube Retaining Plate |
| 10 | 210 - 0034 | Press Wheel Scraper |
| | 210 - 1000 | Press Wheel Scraper Grassland |
| 11 | 211 - 1234 | Dragarm Guide Plate - R.H. |
| 12 | 212 - 1234 | Dragarm Guide Plate - L.H. |
| 13 | 213 - 1234 | Guide Plate Bar |
| 14 | 214 - 1234 | Guide Plate Distance Piece |
| 15 | 215 - 34 | Disc Bearing Replacement Unit - R.H. |
| | 215 - 12 | Disc Bearing Replacement Unit - R.H. Grassland |
| 16 | 216 - 34 | Disc Bearing Replacement Unit - L.H. |
| | 216 - 12 | Disc Bearing Replacement Unit - L.H. Grassland |
| 17 | 221 - 1234 | Front Spring Arm |
| 18 | 132 - 1034 | Pivot Arm Unit |
| 19 | A 103 | 1" x 4 ³ / ₄ " UNC Bolt |
| 20 | A 107 | M16 x 55 Bolt |
| 21 | A 110 | M12 x 75 Bolt |
| 22 | A 111 | M12 x 55 Bolt |
| 23 | A 113 | M10 x 70 Bolt |
| 24 | A 114 | M10 x 50 Bolt |
| 25 | A 120 | ³ / ₈ " x ³ / ₄ " UNF Setscrew |
| 26 | A 122 | M10 x 20 Setscrew |
| 27 | A 130 | 1" UNC Locknut |
| 28 | A 132 | ³ / ₄ " UNF Locknut |
| 29 | A 137 | M16 Locknut |
| 30 | A 138 | M12 Locknut |
| 31 | A 139 | M10 Locknut |
| 32 | A 145 | M20 x 35 H.D. Washer |
| 33 | A 146 | M16 x 32 H.D. Washer |
| 34 | A 148 | ³ / ₈ " Spring Washer |
| 35 | A 149 | ¹ / ₂ " x 1 ³ / ₄ " Spirol Pin |
| 36 | A 157 | 1" Timken Taper Roller Bearing |
| 37 | A 158 | 1" Tinken Circlip |
| 38 | A 159 | Oilite Bush |
| 39 | A 160 | Seed Disc Coulter 16" |
| | A 160 L | Seed Disc coulter 18" |
| 40 | A 180 | Spring Retaining Bush |
| 41 | A 181 | Spring Locating Bush |
| 42 | A 182 | Dust Cap - Small |
| 43 | A 186 | Front Spring - Lower |
| 44 | A 187 | Front Spring - Upper |
| 45 | A 188 | Rear Spring Bush |
| 46 | A 189 | Rear Spring - H.D. |
| 47 | A 190 | Grease Nipple |

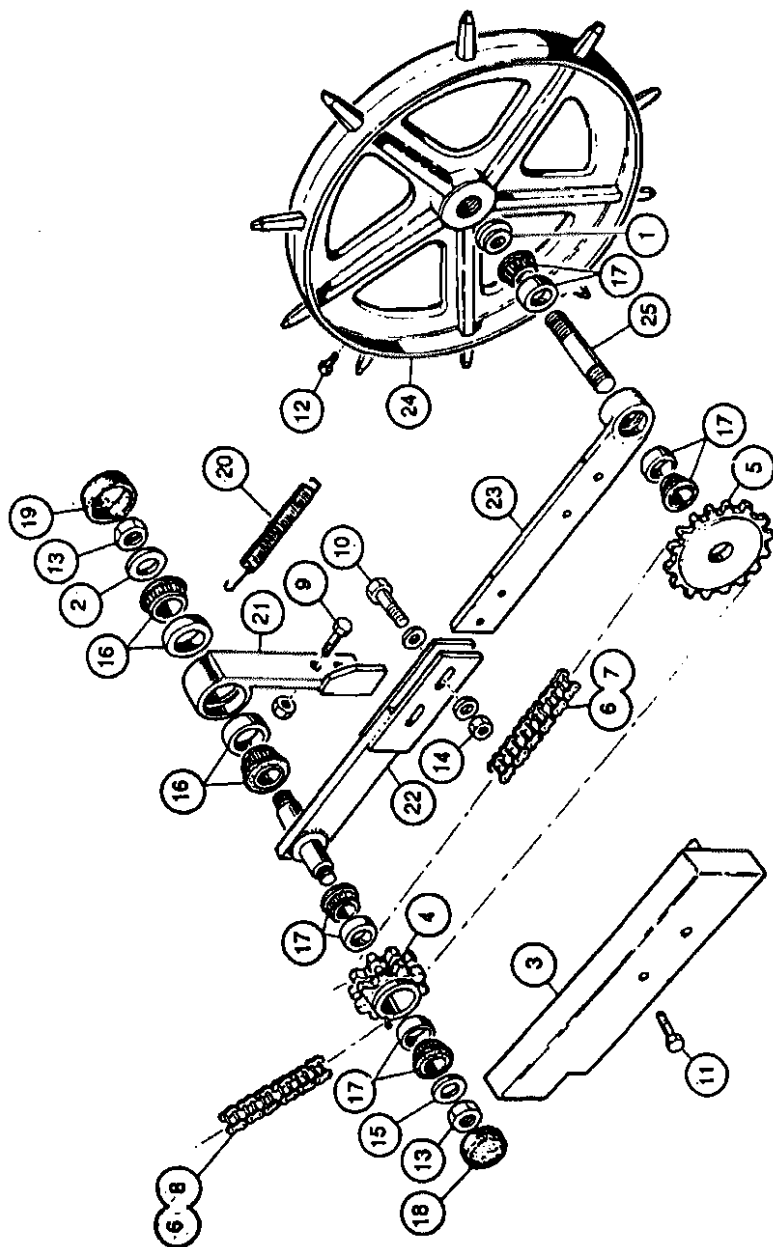


| ITEM | PART No | DESCRIPTION | ITEM | PART No | DESCRIPTION |
|------|----------|--------------------------|------|----------|-----------------------------|
| 1 | S900191 | Marker Level R.H. | 39 | S909076 | Tray Spring Clip |
| 2 | S900192 | Marker Level L.H. | 40 | S555660 | M6 x 10 Setscrew |
| 3 | S900189 | Click Unit R.H. | 41 | S904599 | Skid Flap Support |
| 4 | S900190 | Click Unit R.H. | 42 | S908278 | Tray Pin |
| 5 | S909085 | Click Spring | 43 | S525895 | M8 x 45 Screw |
| 6 | S909095 | Ram Return Spring | 44 | S909081 | Skid Flap Spring |
| 7 | S908271 | Hydraulic Ram | 45 | S571806 | M8 Square Nut |
| 8 | S900644 | Ram Piston | 46 | S571458 | M8 Locknut |
| 9 | S795511 | Control Valve | 47 | S540855 | M8 x 15 Screw |
| 10 | S900655 | Pivot Bolt | 48 | S900489 | Seed Feeding Unit |
| 11 | S552540 | M14 x 90 Bolt | 49 | S907381 | Feed Trap Shutter |
| 13 | S909508 | Adjustable Stop | 50 | S908288 | Skid Flap |
| | | | 51 | SM901446 | Seed Feed Drive Shaft 4 M |
| | | | | SM901447 | Seed Feed Drive Shaft 2.4 M |
| | | | | SM90144 | Seed Feed Drive Shaft 2.4 M |
| | | | 52 | S901543 | Clutch Hub |
| | | | 53 | S909095 | Retention Spring |
| | | | 54 | S909068 | Feed Trap Spring |
| 19 | S900054 | Control Box Holder | 56 | S900520 | Seed Wheel Unit |
| | | | 60 | S900043 | Tramline Lever |
| 21 | S900052 | Spring Holding Plate | 61 | S554610 | M6 x 20 Screw |
| 22 | S9000045 | Ram Holding Plate | 62 | S909083 | Clutch Spring |
| 23 | SM90062 | Seed Box 4M | 63 | S901538 | Fine Seed Clutch Wheel |
| | SM90096 | Seed Box 3M | 64 | S901539 | Standard Seed Wheel |
| | SM90090 | Seed Box 2.4M | 65 | S901452 | Seed Wheel Lock Pin |
| 24 | S901578 | U-Bolt Clamp | 66 | S580104 | Steel Ball |
| 25 | S906168 | Tramline U-Plate | 67 | S909082 | Spring |
| 26 | SM900019 | Seed Agitator 4M | 68 | S901541 | Plastic Screw |
| | SM900004 | Seed Agitator 2M | 69 | S901537 | Fine Seed Wheel |
| | SM900010 | Seed Agitator 2.4M | 71 | SM901448 | Skid Adj. Shaft 4M |
| 27 | S907671 | Plastic Partition | | SM901449 | Skid Adj. Shaft 3M |
| 28 | SM909733 | Seed Box Lid 4M | | SM901444 | Skid Adj. Shaft 2.4 |
| | SM909734 | Seed Box Lid 3M | 72 | S900975 | Skid Adj. Handle |
| | SM909735 | Seed Box Lid 2.4M | 73 | SM900076 | Central Adj. Bracket |
| 29 | S906154 | Tray Clip Clutch | 74 | A 315 | Flex. Seed Tube |
| 30 | S901473 | Shaft Brg. Plate | 75 | A325 | Seed Tube Bellows |
| 31 | S901547 | Plastic Bearing | 76 | A326 | Seed Tube Joint 25mm |
| 32 | S901546 | Seed Box End Brg. | | A326L | Seed Tube Joint 30mm |
| 33 | S900952 | Agitator Brg. Plate | 77 | A330 | Seed Cup Holder |
| 34 | S908010 | Retention Spring | 78 | A345 | Bowden Cable c/w Hand Unit |
| 35 | S904319 | Spring Fastener | | | |
| 36 | S904388 | Nylon Pivot Arm | | | |
| 37 | SM900210 | Seedcup Holder Unit 4M | | | |
| | SM900207 | Seedcup Holder Unit 3M | | | |
| | SM900208 | Seedcup Holder Unit 2.4M | | | |
| 38 | SM900969 | Cover/Coil Tray 4M | | | |
| | SM900967 | Cover/Coil Tray 3M | | | |
| | SM900968 | Cover/Coil Tray 2.4M | | | |



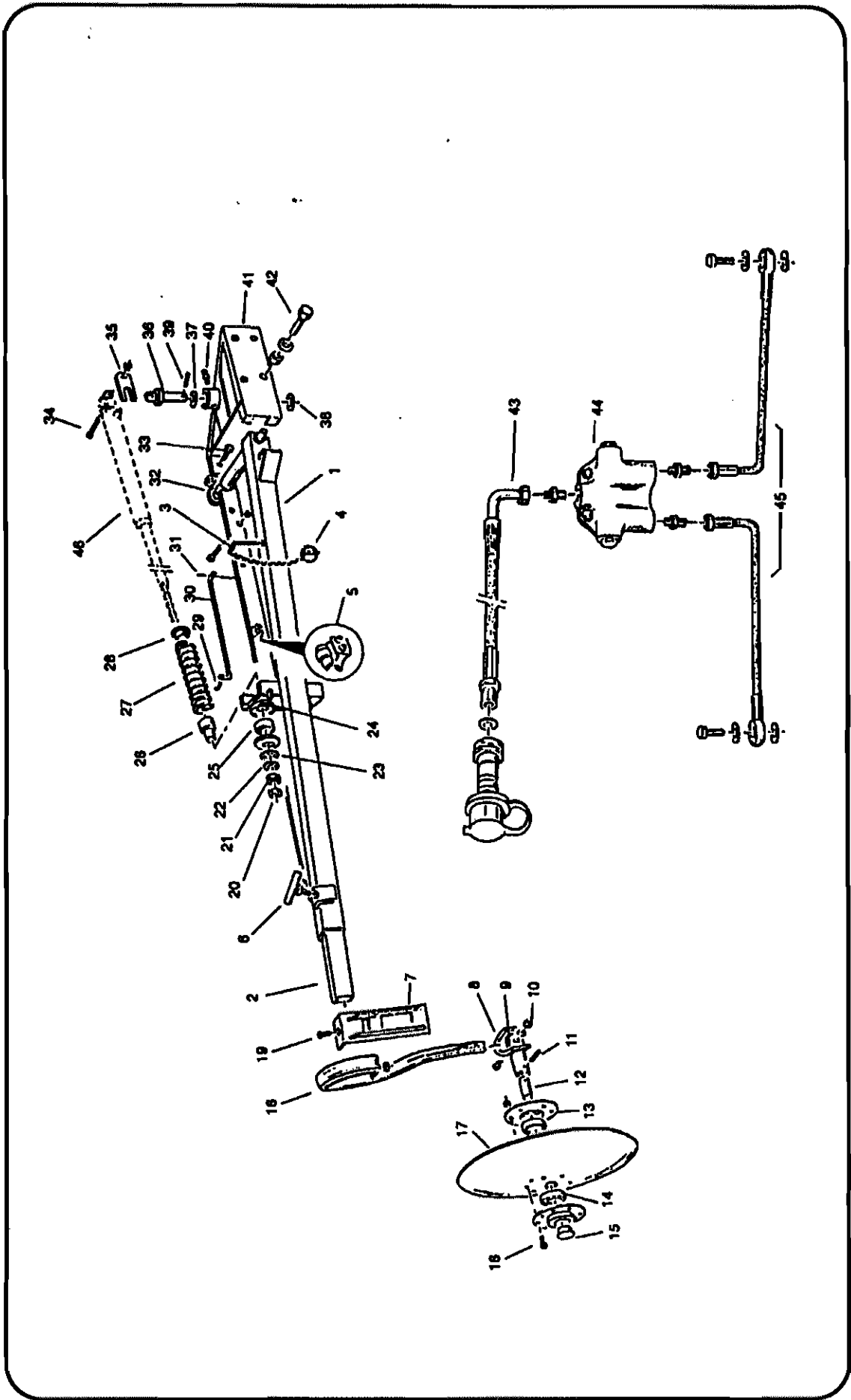
SEED BOX DRIVE UNITS (B)

| ITEM | PART No | DESCRIPTION | ITEM | PART No | DESCRIPTION |
|------|---------|---------------------------|------|----------|--------------------------|
| 1 | S910221 | Variator 2 | 38 | S737003 | Oil Drain Seal |
| 2 | S553612 | Allen Screw 6 x 12 | 39 | S712012 | Freewheel Collar |
| 3 | S573107 | Washer M6 | 40 | S914025 | Variator Cover |
| 4 | S571206 | Nut M6 | 41 | S590106 | Spirol Pin 3.5 x 30 |
| 5 | S795060 | Oil Filter Plug | 42 | S590257 | Spirol Pin 5 x 35 |
| 6 | S751005 | Seal 20 x 35 x 7 | 43 | S574225 | Circlip 0 25 |
| 7 | S963080 | Butt Join | 44 | S590307 | Spirol Pin 6 x 35 |
| 8 | S711010 | Bearing 6204 20 x 47 x 14 | 45 | 342-1034 | Chain Guard Cover |
| 9 | S795070 | Lubricant Indicator | 46 | 341-1034 | Chain Guard Upper |
| 10 | S935002 | Double Cam | 47 | 338-1034 | S.B. Inner Angle Bracket |
| 11 | S480002 | Dextron oil | 48 | 339-1034 | S.B. Outer Angle Bracket |
| 12 | S590306 | Roll Pin 6 x 30 | 49 | S900204 | Counter Lid |
| 13 | S596875 | 6 x 56 Key | 50 | S900998 | Counter Casing |
| 14 | S922033 | Drive Shaft | 51 | S900952 | Agitator Bearing |
| 15 | S987703 | Gasket | 52 | SM900004 | Agitator 3M |
| 16 | S910296 | Handle 8 x 40 | | SM900019 | Agitator 4M |
| 17 | S989002 | Scale | | SM900010 | Agitator 2,4M |
| 18 | S925027 | Spacer | 53 | S551685 | M6 x 35 Setcrew |
| 19 | S918096 | Variator Chain Guard | 54 | S909078 | Spirol Screw Hectametre |
| 20 | S901040 | Free Wheel Sprocket | 55 | S590357 | M6 x 35 Spirol Pin |
| 21 | S923043 | Free Wheel Inner Bush | 56 | S900205 | 20 Tooth Pinion 3M |
| 22 | S915014 | Distribution Colle=ar | | S900206 | 15 Tooth Pinion 4M |
| 23 | S915012 | Distribution Lever | | S900207 | 25 Tooth Pinion 2.4M |
| 24 | S590457 | Spirol Pin 8 x 35 | 57 | S900828 | Hectametre |
| 26 | S598041 | Rivet 4 x 10 | 58 | S905302 | Small Support Plate |
| 27 | S732001 | Circlip 2.65 x 15.1 | 59 | S904566 | Adjustable Support Plate |
| 28 | S922029 | Plateau Shaft | 60 | | Seed Box Side LH |
| 29 | S981004 | Lever Spring | 61 | | Seed Box RH |
| 30 | S910239 | Freewheel Assembly | | | |
| 31 | S914022 | Cam Lever | | | |
| 32 | S922031 | Freewheel Shaft | | | |
| 33 | S712013 | Freewheel Bearing | | | |
| 34 | S711009 | Bearing 6005 25 x 47 x 12 | | | |
| 35 | S551684 | Screw 6 x 30 | | | |
| 36 | S915013 | Plateau | | | |
| 37 | S984008 | Oil Drain Plug | | | |



SEED BOX DRIVE UNITS (C)

| ITEM | PART NO. | DESCRIPTION |
|------|------------|----------------------------|
| 1 | 318 - 1034 | Drive Wheel Spacer |
| 2 | 319 - 1234 | Pivot Bkt. Washer |
| 3 | 340 - 1034 | Chainguard - Lower |
| 4 | 343 - 1034 | 18T Double Drive Sprocket |
| 5 | 344 - 1034 | 20T Drive Sprocket - Lower |
| 6 | 348 - 1034 | Connecting Link |
| 7 | 346 - 1034 | 134L. Drive Chain - Lower |
| 8 | 347 - 1034 | 114L. Drive Chain - Upper |
| 9 | A 106 | M20 x 70 Bolt |
| 10 | A 111 | M12 x 55 Bolt |
| 11 | A 115 | M12 x 80 Bolt |
| 12 | A 1121 | M10 x 40 Setscrew |
| 13 | A 132 | 3/2" UNF Locknut |
| 14 | A 138 | M12 Locknut |
| 15 | A 145 | M20 x 32 H.D. Washer |
| 16 | A 1561 | 1 7/8" T.T.R. Bearing |
| 17 | A 157 | 1" T.T.R. Bearing |
| 18 | A 182 | Dustcap - Small |
| 19 | A 183 | Dustcap - Large |
| 20 | A 493 | Tension Spring |
| 21 | 313 - 0034 | Support Arm - Pivot Bkt. |
| 22 | 314 - 1234 | D.W. Support Arm - Upper |
| 23 | 315 - 1234 | D.W. Support Arm - Lower |
| 24 | 316 - 1234 | Drive Wheel |
| 25 | 317 - 1234 | Drive Wheel - Axle |



Spl Vertical Lift Marker (D)

| ITEM | PART NO. | DESCRIPTION |
|------|----------|--------------------------------------|
| 1 | S 917109 | Marker Arm Outer |
| 2 | S 940032 | Marker Arm Inner |
| 3 | S 927002 | Marker Arm Pin |
| 4 | S 594606 | Lynch Pin |
| 5 | S 415752 | Stay Clip |
| 6 | S 918093 | Length Adjusting Handle |
| 7 | S 916049 | S Tine Support |
| 8 | S 914011 | Marker Angle Adjustment Bracket |
| 9 | S 963025 | Angle Adjustment Block |
| 10 | S 552115 | Bolt M10 x 60 |
| | S 573110 | Washer M10 |
| | S 571460 | Nut M10 |
| 11 | S 590307 | Roll Pin M6 x 35 |
| 12 | S 921017 | Marker Disc Shaft |
| 13 | S 908360 | Bearing Holder |
| 14 | S 711000 | Marker Bearing |
| 15 | S 415717 | Marker Bearing End Cap |
| 16 | S 551662 | Bolt M6 x 15 |
| | S 571270 | Nut M6 |
| 17 | S 980102 | Marker Disc |
| 18 | S 980003 | S Tine |
| 19 | S 552125 | Bolt M10 x 70 |
| | S 571460 | Nut M10 |
| 20 | S 571366 | Nut M16 x 7 |
| 21 | S 571216 | Nut M16 x 15 |
| 22 | S 573166 | Washer M16 |
| 23 | S 573170 | Washer M20 |
| 24 | S 573905 | Nylon Bush Locator |
| 25 | S 981801 | Nylon Bush |
| 26 | S 964064 | Nylon Ram Locator |
| 27 | S 981302 | Spring |
| 28 | S 985009 | Spring Locator |
| 29 | S 592202 | R Clip |
| 30 | S 962074 | Marker Stay - Left |
| | S 962072 | Marker Stay - Right |
| 31 | S 589207 | Roll Pin M5 x 35 |
| 32 | S 914071 | Marker Pivot Shaft |
| 33 | S 551890 | Shear Bolt M8 x 35 |
| | S 571208 | Shear Nut M8 |
| 34 | S 552720 | Ram Pivot Bolt M16 x 70 |
| | S 571216 | Ram Pivot Nut M16 |
| 35 | S 962071 | Locking Plate |
| 36 | S 920019 | Lateral Pivot |
| 37 | S 732005 | Washer |
| 38 | S 573174 | Washer M25 x 50 |
| 39 | S 590207 | Pin M8 x 35 |
| | S 590407 | |
| 40 | S 719001 | Grease Nipple M8 |
| 41 | S 918157 | Marker Mounting Bracket - Left |
| | S 918158 | Marker Mounting Bracket - Right |
| 42 | S 552731 | Mounting Bracket Bolt M16 x 80 |
| | | Mounting Bracket Washer M16 |
| | | Mounting Bracket Nut M16 |
| 43 | S 683013 | Hydraulic Hose Tractor/Shuttle Valve |
| 44 | S 683901 | Shuttle Valve |
| 45 | S 683009 | Hydraulic Hose Shuttle Valve/Markers |
| 46 | S 982301 | Marker Ram |

6. SEED RATE CHARTS

| Slide Position 2 Skid Flaps 2 Pegwheel Standard | | Row Space | |
|---|------------------|-----------|------|
| | | 13,3 | 16,6 |
| kg/ha | Variator Setting | | |
| 75 | | | 31 |
| 80 | | | 33 |
| 85 | | | 35 |
| 90 | 30 | | 38 |
| 95 | 32 | | 40 |
| 100 | 33 | | 42 |
| 105 | 35 | | 44 |
| 110 | 37 | | 46 |
| 120 | 40 | | 50 |
| 130 | 44 | | 53 |
| 140 | 47 | | 57 |
| 150 | 50 | | 60 |
| 160 | 53 | | 63 |
| 170 | 56 | | 66 |
| 180 | 58 | | 69 |
| 190 | 61 | | 72 |
| 200 | 63 | | 74 |
| 210 | 66 | | 77 |
| 220 | 68 | | 79 |
| 240 | 72 | | |
| 250 | 74 | | |
| 260 | 76 | | |

W
H
E
A
T

| Slide Position 1 Skid Flaps 1 Pegwheel Standard | | Row Space | |
|---|------------------|-----------|------|
| | | 13,3 | 16,6 |
| kg/ha | Variator Setting | | |
| 16 | | | 5 |
| 18 | 5 | | 6 |
| 20 | 6 | | 7 |
| 22 | 7 | | 8 |
| 24 | 8 | | 9 |
| 26 | 9 | | 10 |
| 28 | 10 | | 11 |
| 30 | 11 | | 12 |
| 32 | 12 | | 13 |
| 34 | 13 | | 14 |
| 36 | 14 | | 15 |
| 38 | 15 | | 16 |
| 40 | 16 | | 17 |
| 42 | 17 | | 18 |
| 45 | 18 | | 19 |
| 48 | 19 | | 20 |
| 50 | 20 | | 21 |

R
A
D
I
S
H

| Slide Position 2 Skid Flaps 2 Pegwheel Standard | | Row Space | |
|---|------------------|-----------|------|
| | | 13,3 | 16,6 |
| kg/ha | Variator Setting | | |
| 60 | | | 30 |
| 63 | | | 31 |
| 67 | | | 33 |
| 71 | | | 36 |
| 75 | 30 | | 38 |
| 80 | 32 | | 40 |
| 85 | 34 | | 43 |
| 90 | 36 | | 46 |
| 95 | 38 | | 48 |
| 100 | 40 | | 50 |
| 105 | 43 | | 53 |
| 110 | 45 | | 55 |
| 120 | 49 | | 60 |
| 130 | 52 | | 64 |
| 140 | 56 | | 68 |
| 150 | 60 | | 71 |
| 160 | 63 | | 75 |
| 170 | 66 | | 78 |
| 180 | 69 | | 81 |
| 190 | 72 | | 84 |
| 200 | 75 | | 87 |
| 210 | 78 | | |

B
A
R
L
E
Y

| Slide Position 2 Skid Flaps 2 Pegwheel Standard | | Row Space | |
|---|------------------|-----------|------|
| | | 13,3 | 16,6 |
| kg/ha | Variator Setting | | |
| 50 | | | 41 |
| 63 | | | 42 |
| 67 | | | 45 |
| 71 | | | 47 |
| 75 | 41 | | 50 |
| 80 | 43 | | 53 |
| 85 | 45 | | 56 |
| 90 | 48 | | 59 |
| 95 | 51 | | 62 |
| 100 | 53 | | 65 |
| 105 | 56 | | 67 |
| 110 | 58 | | 70 |
| 120 | 63 | | 75 |
| 130 | 67 | | 79 |
| 140 | 71 | | 84 |
| 150 | 75 | | 89 |
| 160 | 79 | | |
| 170 | 82 | | |
| 180 | 86 | | |
| 190 | 90 | | |

O
A
T
S

Slide Position 2
Skid Flaps 5 (6)
Pegwheel Standard

Row Space 13,3 16,6

| kg/ha | Variator Setting | |
|-------|------------------|------|
| | 13,3 | 16,6 |
| 130 | | 22 |
| 140 | | 25 |
| 150 | | 28 |
| 160 | 22 | 30 |
| 170 | 24 | 33 |
| 180 | 27 | 36 |
| 190 | 29 | 39 |
| 200 | 31 | 41 |
| 210 | 33 | 44 |
| 220 | 35 | 46 |
| 230 | 39 | 50 |
| 250 | 41 | 52 |
| 260 | 43 | 54 |
| 280 | 47 | 58 |
| 300 | 50 | |
| 320 | 54 | |
| 340 | 57 | |
| 360 | 60 | |

**P
E
A
S**

Slide Position 2
Skid Flaps 5 (6)
Pegwheel Standard

Row Space 13,3 16,6

| kg/ha | Variator Setting | |
|-------|------------------|------|
| | 13,3 | 16,6 |
| 75 | | 13 |
| 80 | 10 | 14 |
| 85 | 11 | 15 |
| 90 | 12 | 16 |
| 95 | 13 | 17 |
| 100 | 14 | 18 |
| 105 | 15 | 19 |
| 110 | 16 | 21 |
| 120 | 17 | 23 |
| 130 | 19 | 26 |
| 140 | 21 | 28 |
| 150 | 23 | 31 |
| 160 | 25 | 34 |
| 170 | 27 | 37 |
| 180 | 30 | 39 |
| 190 | 32 | 42 |
| 200 | 34 | 45 |
| 210 | 36 | 48 |
| 220 | 38 | |
| 240 | 43 | |
| 250 | 45 | |
| 260 | 47 | |

**B
E
A
N
S**

Slide Position 1
Skid Flaps 1
Pegwheel Fine

Row Space 13,3 16,6

| kg/ha | Variator Setting | |
|-------|------------------|------|
| | 13,3 | 16,6 |
| 1 | | 5 |
| 1,25 | 5 | 6 |
| 1,5 | 6 | 7 |
| 1,75 | 7 | 9 |
| 2 | 8 | 10 |
| 2,5 | 10 | 13 |
| 3 | 12 | 15 |
| 3,5 | 14 | 18 |
| 4 | 16 | 21 |
| 4,5 | 19 | 24 |
| 5 | 21 | 27 |
| 5,5 | 23 | 29 |
| 6 | 25 | 32 |
| 7 | 30 | 38 |
| 8 | 35 | 43 |
| 9 | 39 | 48 |
| 10 | 43 | 53 |
| 11 | 47 | |
| 12 | 51 | |
| 13 | 55 | |

**R
A
P
E**

Slide Position 1
Skid Flaps 1
Pegwheel Fine

Row Space 13,3 16,6

| kg/ha | Variator Setting | |
|-------|------------------|------|
| | 13,3 | 16,6 |
| 1,25 | | 5 |
| 1,5 | 5 | 6 |
| 1,75 | 6 | 7 |
| 2 | 7 | 8 |
| 2,5 | 8 | 10 |
| 3 | 10 | 12 |
| 3,5 | 11 | 14 |
| 4 | 13 | 16 |
| 4,5 | 14 | 18 |
| 5 | 16 | 20 |
| 5,5 | 18 | 22 |
| 6 | 19 | 25 |
| 7 | 23 | 29 |
| 8 | 26 | 33 |
| 9 | 30 | 37 |
| 10 | 33 | 41 |
| 11 | 36 | 45 |
| 12 | 39 | 49 |
| 13 | 42 | 53 |
| 14 | 46 | |
| 15 | 49 | |
| 16 | 53 | |

**M
U
S
T
A
R
D**

| | | Slide Position 1 Skid Flaps 1 Pegwheel Standard | |
|-----------|------------------|---|----|
| Row Space | 13,3 | 16,6 | |
| kg/ha | Variator Setting | | |
| 11 | | | 6 |
| 12 | | | 7 |
| 13 | 5 | | 9 |
| 14 | 6 | | 10 |
| 15 | 7 | | 11 |
| 16 | 8 | | 13 |
| 17 | 10 | | 14 |
| 18 | 11 | | 15 |
| 19 | 12 | | 17 |
| 20 | 13 | | 18 |
| 21 | 14 | | 19 |
| 22 | 15 | | 20 |
| 24 | 17 | | 22 |
| 25 | 18 | | 23 |
| 26 | 19 | | 25 |
| 28 | 21 | | 27 |
| 30 | 22 | | 29 |
| 32 | 24 | | 31 |
| 34 | 26 | | 33 |
| 36 | 28 | | 35 |
| 38 | 29 | | 37 |
| 40 | 31 | | 39 |

**R
Y
E
G
R
A
S
S**

| | | Slide Position 1 Skid Flaps 2 Pegwheel Standard | |
|-----------|------------------|---|----|
| Row Space | 13,3 | 16,6 | |
| kg/ha | Variator Setting | | |
| 45 | | | 25 |
| 48 | 20 | | 27 |
| 50 | 22 | | 28 |
| 53 | 23 | | 30 |
| 56 | 25 | | 31 |
| 60 | 27 | | 34 |
| 63 | 28 | | 35 |
| 67 | 30 | | 38 |
| 71 | 32 | | 40 |
| 75 | 34 | | 42 |
| 80 | 36 | | 45 |
| 85 | 38 | | 47 |
| 90 | 40 | | 49 |
| 95 | 43 | | 52 |
| 100 | 45 | | 54 |
| 105 | 47 | | 56 |
| 110 | 49 | | 58 |
| 120 | 52 | | 62 |
| 130 | 56 | | 66 |
| 140 | 59 | | |
| 150 | 62 | | |
| 160 | 65 | | |

**L
I
N
S
E
E
D**

| | | Slide Position 1 Skid Flaps 1 Pegwheel Standard | |
|-----------|------------------|---|----|
| Row Space | 13,3 | 16,6 | |
| kg/ha | Variator Setting | | |
| 16 | | | 5 |
| 18 | 5 | | 8 |
| 20 | 6 | | 7 |
| 22 | 7 | | 8 |
| 24 | 8 | | 9 |
| 26 | 9 | | 10 |
| 28 | 10 | | 11 |
| 30 | 11 | | 12 |
| 32 | 12 | | 13 |
| 34 | 13 | | 14 |
| 36 | 14 | | 15 |
| 38 | 15 | | 16 |
| 40 | 16 | | 17 |
| 42 | 17 | | 18 |
| 45 | 18 | | 19 |
| 48 | 19 | | 20 |
| 50 | 20 | | 21 |

**L
U
C
E
R
N
E**

| | | Slide Position 1 Skid Flaps 1 Pegwheel Standard | |
|-----------|------------------|---|----|
| Row Space | 13,3 | 16,6 | |
| kg/ha | Variator Setting | | |
| 16 | | | 5 |
| 20 | 5 | | 6 |
| 22 | 6 | | 7 |
| 24 | 7 | | 8 |
| 26 | 8 | | 9 |
| 28 | 9 | | 10 |
| 30 | 10 | | 11 |
| 32 | 11 | | 12 |
| 34 | 12 | | 13 |
| 36 | 13 | | 14 |
| 38 | 14 | | 15 |
| 40 | 15 | | 16 |
| 42 | 16 | | 17 |
| 45 | 17 | | 18 |
| 48 | 18 | | 19 |
| 50 | 19 | | 20 |
| 53 | 20 | | 21 |
| 56 | 21 | | 22 |

**C
L
O
V
E
R**