SEEDMATIC

3000 3100

SEED DRILLS
WIDE STAGGER
MKII

REESE ENGINEERING LTD
41 KELVIN GROVE ROAD – PO BOX 5056
PALMERSTON NORTH, NEW ZEALAND
PHONE: (06) 357 9323
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Introduction

Dear Valued Owner,

Congratulations, you have just made an excellent investment.

Your new Aitchison drill has been designed and engineered to give years of dependable service. Every consideration has been taken to incorporate the latest technology, thus ensuring optimum seeding is achieved. Aitchison Drills provide the optimum agronomic environment, ensure proper seedling germination, leading to superior crops and thus greater revenue earning potential.

It has often been said “when all else fails-read the operators manual” and to ensure you get the best from your new Aitchison drill it is very important that you thoroughly read through the entire contents of the manual. Please also pay attention to the maintenance recommendations, understand the calibration system and consider the design features and their specific functionality.

Your local dealer carries an extensive range of genuine Aitchison spare parts and consumables that also have been engineered to provide long service and life. It is important that only genuine parts are used on your drill.

Thank you for making your investment in our expertise.

Yours Sincerely,

Ross Simpson
Rob Baan

Directors
Reese Agri

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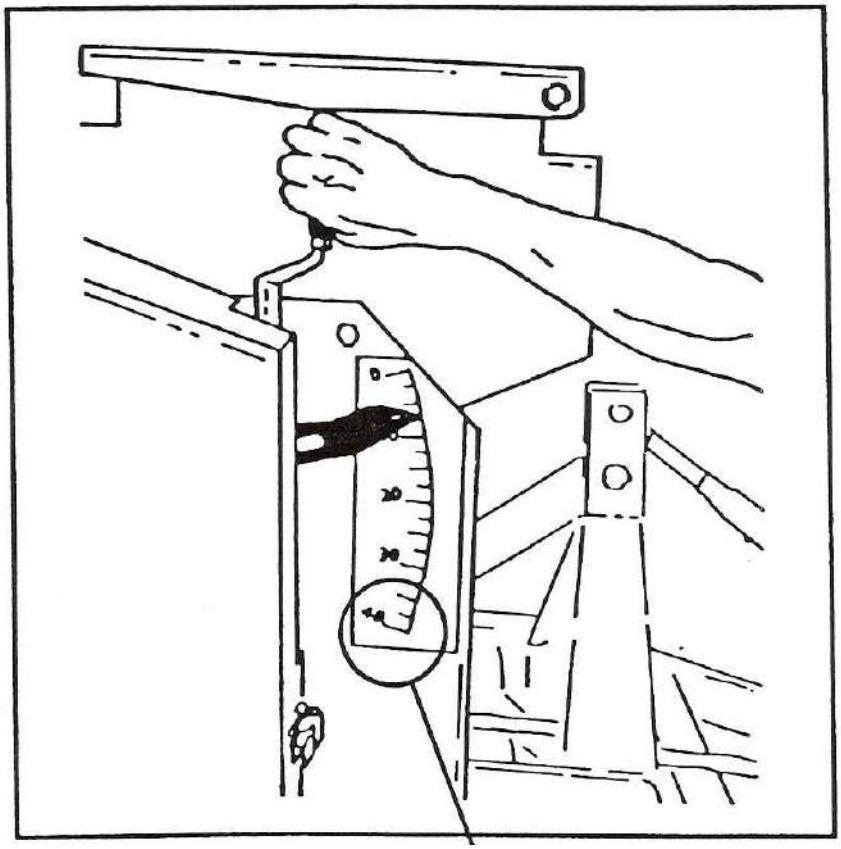
3000 SERIES SEEDMATIC GEARBOX SETTING

WARNING:

SETTING THE GEARBOX AT RATES HIGHER THAN 40 CAUSES INTERNAL DAMAGE (i.e. Spring breakage and bearing slippage)



Maximum setting <u>must</u> not exceed 40

TECHNICAL SPECIFICATIONS

3000 Series (Seed Only)	**3016**	**3020**	**3024**
Overall Width	3.0m	3.6m	4.2m
Overall Height	1.5m	1.5m	1.5m
Overall Length	1.43m	1.43m	1.43m
Weight Empty	750kg	940kg	1125kg
Seed Hopper Capacity (125 l/m)	8.2bu	10.1bu	12bu
Sowing Width	2.4m	3.0m	3.6m
No. Tines	16	20	24
Row Spacing	150mm	150mm	150mm
Opener Stagger	300x300mm	300x300mm	300x300mm

3100 Series (Seed and Fert)	**3116**	**3120**	**3124**
Overall Width	3.0m	3.6m	4.2m
Overall Height	1.5m	1.5m	1.5m
Overall Length	1.43m	1.43m	1.43m
Weight Empty	880kg	1100kg	1320kg
Seed Hopper Capacity (125 l/m)	9.0bu	11.3bu	13.4bu
Fertiliser Box Capacity	375kg	460kg	545kg
Sowing Width	2.4m	3.0m	3.6m
No. Tines	16	20	24
Row Spacing	150mm	150mm	150mm
Opener Stagger	300x300mm	300x300mm	300x300mm

Optional Extras:

Granule Hopper and Variable Gearbox
Trailing Kitset
Disc Coulter Kit

Additional Weight of Extras	**8ft**	**10ft**	**12ft**
Disc Coulter Kit	275kg	340kg	410kg
Trailing Kit	250kg	250kg	250kg

TO THE OWNER AND OPERATOR

Your Aitchison Drill was carefully designed and manufactured to give you years of dependable service. To keep it running efficiently, read and follow the instructions in this operators manual. Any questions you may have that are not covered in this manual should be referred to your dealer:

Dealers Name: _____
Address: _____
Phone No: Business: _____ Private: _____
Date of Purchase: _____
Model: _____ Serial Number: _____

The warranty card on your 3000 Series Seedmatic Drill is included with this manual. Please ensure that the registration card is correctly filled in.

The owner must ensure the dealer, upon delivery of the machine, has completed the **WARRANTY REGISTRATION CARD**. This must be signed by the owner and returned to the factory promptly. **Failure to carry out this function could nullify warranty claim opportunities against the factory in the future**. Warranty claims will only be accepted for registered products.

When ordering spare parts, quote the model and serial number of the drill and use the Aitchison part number given in the parts section. Reference to the right hand and left hand is taken from behind in the direction of travel.

SAFETY FIRST

Keep all covers in place when using the drill.
Stop the drill before making adjustments.
Lower the drill to the ground or put on props when working around the machine.
Tighten all nuts and bolts after initial use.

GENERAL OPERATION IN THE FIELD

When the drill is in work in the field, adjust the top link to make the frame level and the sway chains to give 75-100MM lateral movement. The tractor hydraulics should be set to allow the drill to float over the terrain unimpeded by the movement of the tractor. Adjust the depth wheels evenly on both sides to give the required opener penetration. In extremely hard conditions it is permissible to weight the front of the drill to aid penetration.

The drill should always be moving forward when lowered or raised from work. Avoid stopping and never reverse with drill in work. These precautions will avoid blocking outlets; however make periodic checks for blockages while drilling.

The speed of travel is governed by the conditions e.g. if the ground is rough the drill may tend to bounce which would necessitate a lower speed. In optimum conditions 8 km/h may be maintained.

Always lift the drill out of the ground before turning sharp corners as this will protect the tines and openers and stop the turf from ripping.

Under no circumstances should the tractor wheels be allowed to slip excessively as this will break the turf and the following tines will tear up the ground. If slippage is a problem, use a tractor with more traction or wait for the ground to be in better condition. Towing chain or bar harrows behind the drill is very beneficial as this will crumble the groove and help to cover the seed.

PASTURELAND FARMING WITH SEEDMATIC

Continuous reaping of grasses either by machine or animal will eventually lead to their degeneration. Desired species of grasses and legumes will weaken and their ability to survive adverse climatic conditions will be diminished. Undesirable species of grasses and weeds will eventually tend to dominate or pasture may simply thin out with minimal plant populations. Of course conditions that cause pasture degenerations vary from location to location, and from country to country, but one can assume that every pasture can be improved no matter where its location.

MANAGEMENT CONSIDERATIONS

In describing the technique for sowing seeds into uncultivated soils, we should clarify the terminology. It is most common to refer to CONSERVATION TILLAGE (or CT) but it may be called SOD-SEEDING in Australia, or DIRECT DRILLING in UK or even NO-TILL SEEDING in North America. Wherever it is practical, successful conservation tillage requires well considered and thorough preparation, integrated with a whole farm management program.

The cropping rotation, optimum sowing dates and grazing fertilization program will depend on the seasonal vegetation or weed spectrum, paddock history, soil type, fertility and drainage, and many other factors.

Here is a checklist that should be followed for any CT program (courtesy of Monsanto NZ Ltd):

1. Check that the soil pH is around 6.0.
2. Check soil fertility levels for fertiliser requirement.
3. Ensure your spray boom has a marking system and is fully operational.
4. Establish optimum time for planting.
5. Check and control weeks present, before and during crop establishment.
6. Check and control insect and slug infestation before and during plant establishment.
7. Ensure soil conditions are suitable for drilling.
8. Inspect the crop regularly after planting.

Experience has shown that farmers new to CT often have crop failures on the first occasion, but as their skills and understanding of the technique improve, so do their crop results.

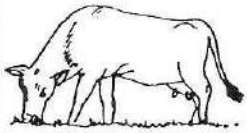
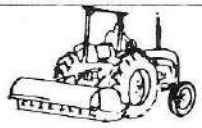
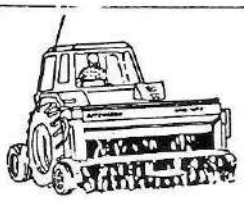
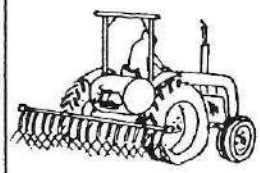
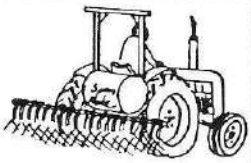
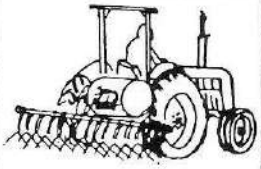
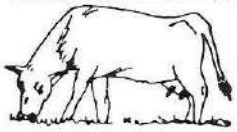
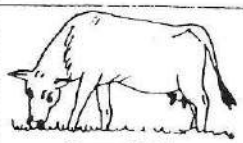
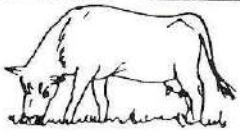
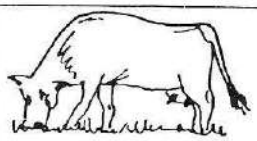
TECHNIQUES AND TIMING FOR PASTURE RENOVATION

There are two basic techniques for pasture renovation, i.e. rejuvenation and renewal. Rejuvenation is the most efficient technique and involves sowing the seeds of new and virile pasture grasses and legumes direct into existing pasture and have them gradually take over the old strain, without causing loss of production due to cultivation. This technique is known as ‘stitching in’. Renewal involves a total herbage control system, i.e. spray off old pasture with a wide spectrum herbicide before drilling.

Local knowledge is invaluable when determining which techniques to use and when to use them. The best time for pasture renovation will vary by region, and is largely governed by the temperature and weather that follow. In temperate climates with mild winters the autumn is best; and tropical climates the spring is the best time when the tropical grasses have not recovered from their winter dormancy. In arid climates the time is directly before or after summer rains.

The basic requirement for seed germination is a warm moist seed bed. The aim should be to sow the seed at a time when there is sufficient moisture for quick germination, and little likelihood for later drought. The Aitchison opener/coulter however will promote germination in much drier soils than any other known coulter when used correctly.

SIMPLE RULES TO FOLLOW FOR SUCCESSFUL PASTURE RENOVATION

TIME	TEMPERATE PASTURELAND		TROPICAL PASTURELAND	ARID PASTURELAND
	REJUVENATION	RENEWAL		
	Autumn or spring	Autumn	Spring	Before or after monsoonal rain
1.	 Graze heavily	 Graze heavily	 * Mow with flail type mower	
2.		 Allow 1 week to recover	 Allow 3 days to recover	
3.	 Seed with Seedmatic	 Spray with total spectrum herbicide. Include insecticide	 Spray for insects. Can use light herbicide rate to control competition	
4.	 Spray for insects and watch for witholding period requirements	 Seed with Seedmatic	 Seed with Seedmatic	 Seed with Seedmatic
5.	 Graze lightly	 Graze lightly	 Graze lightly	 Graze lightly

* An application of a total spectrum herbicide may replace mowing if the ground cover is short. Sowing must be done within 10 days.

MICRO INSECTICIDE GRANULES IN PASTURES

In New Zealand where grass grub is a problem, excellent control had been attained with the use of Gesapon, Dasanit, Dysiston, Mocap, and Lindane in control of this pasture destroyer. Normal rates applied on the pasture surface can be as high as 30 kg/ha but when sown in the soil and hence away from neutralizing effect sunlight, rates as low as four and five kg/ha can be used. If unexposed to sunlight these chemicals can remain effective in the soil as long as three months, thus killing generations of pupae as they emerge. Also, withholding of livestock after treatment is not necessary. Both these factors are important features with the Seedmatic.

Watch for slugs. Slugs like the moist groove produced by the wing blade opener. If slugs become a problem (eating seeds or seedlings underground), a suitable pellet should be used.

DIRECT SEEDING OF FEED CROPS AND ARABLE CROPS WITH SEEDMATIC

We are not in a position to give total formal recommended seeding rates, chemical usage and fertiliser recommendations because of circumstance that the Seedmatic will be used in will be so varied and diverse that some misunderstanding can occur.

Refer to the checklist and ALWAYS confirm with known successful CT operators as well as your local seed specialist and chemical company representatives. Remember that with this technique the environment is not as predictable as with cultivated soils, and take the precaution of using insecticide or increased fertiliser if there should be any element of doubt.

Seeding programs are wide and varied and it is best to look at rotation that starts with a legume or feed crop followed by a grain crop, followed by another feed crop and so on. Heavy pasture into grain is always disappointing, but grain after legume or brassica is outstanding.

Here are just a few possibilities:

Brassicas, Turnips, Swedes, Legumes – Can be sown early spring (for winter feed) or again in autumn for later winter early spring feed. The technique is to blanket spray the entire area and ensure that seeding depths are shallow. A light bar harrow pulled over the seeding areas is beneficial. Use fertiliser and see your chemical company specialist with regard to the correct insecticide to use.

Winter Feed Oats – This can be seeded direct into pasture in early autumn. Herbage control can be carried out also if necessary.

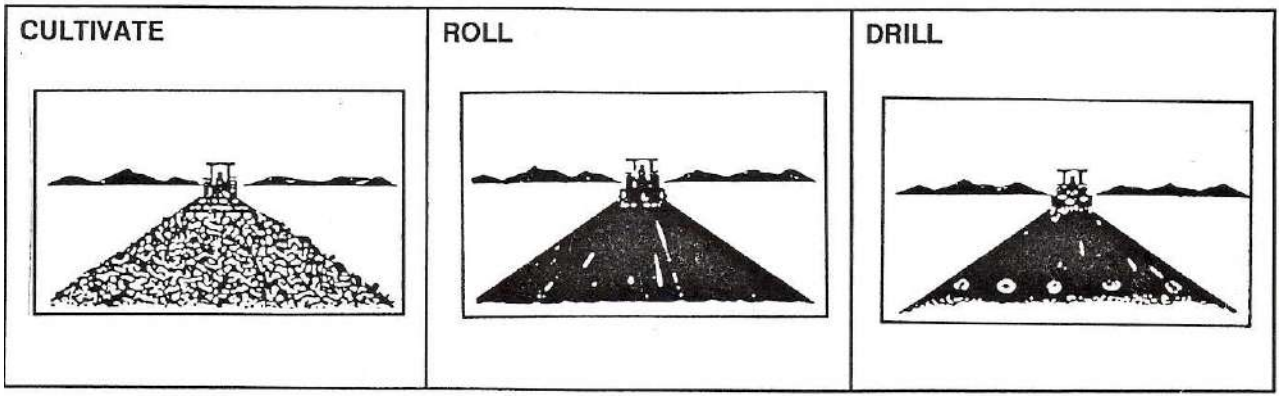
Wheat and Barley – Direct seeding in early spring or autumn depending on variety. Spray out pasture with approved herbicide (may not be necessary after brassica). Always sow with fertiliser.

Lucerne, Alfalfa – Sow in early spring after spraying out entire area with Roundup or Paraquat. It is always a good idea to do a soil test to ensure that the solid pH is satisfactory for plant establishment. Also it is necessary to ensure that the seeds are treated with inoculants to guarantee their germination and nodulation. Use fertiliser and ensure that spraying for insects is carried out – particularly for control of slugs and spring snails.

Green-feed Maize – Carry out in early spring and the same rules apply as with wheat, barley and oats. You may wish to seed in 30 or 45 cm rows and the technique for achieving that is shown under the section **SPECIAL PURPOSE SEEDING** shown later in this booklet.

SOWING IN CULTIVATED SOILS

As this is a tined implement with a direct drill type opener, it is important to treat all seed beds as you would a pasture. With a conventional drill one works up the soil into a fine seedbed so that a broad boot type coulter will pass through leaving the seed behind the soil tilth. With Seedmatic, cultivate the soil to destroy existing vegetation but before seeding, roll the seedbed thoroughly and then drill the seeds required into this rolled seedbed. Good germination results will occur.



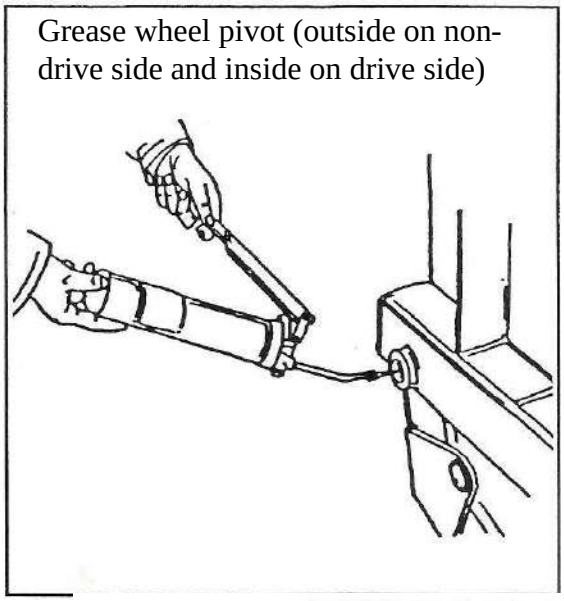
GENERAL MAINTENANCE

LUBRICATION

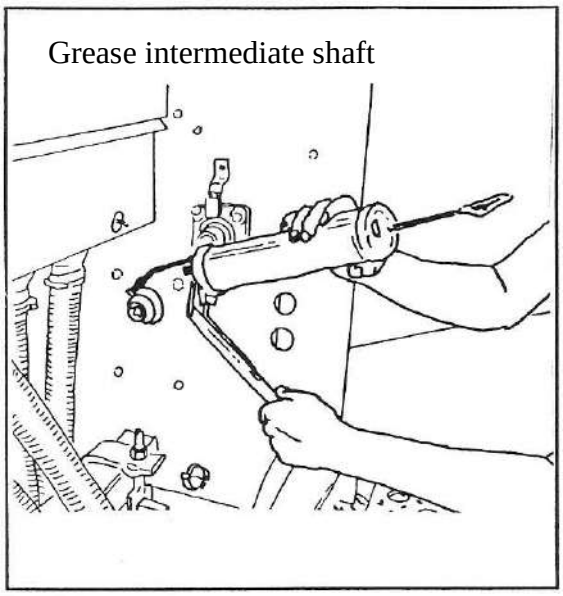
The gearbox should be kept filled to the sight glass through top-ups should seldom be necessary. The oils recommended are: BP ENERGOL, GR-XP 46, MOBIL, DTE 25, SHELL, DONAX TM or equivalent.

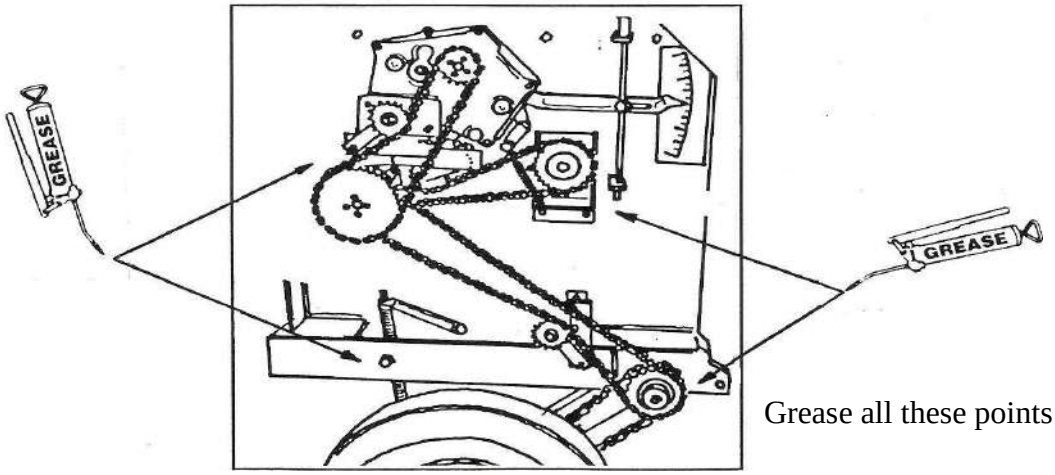
Machines Grease Points:

Grease wheel pivot (outside on non-drive side and inside on drive side)



Grease intermediate shaft





Grease all these points

Greasing location points are labeled on the drill with the "Grease" sticker (shown above). Some greasing points are shown in the above figures. There is also a greasing point on the seed shaft drive axle as well as the fertiliser drive axle. Keep depth control screws (Linkage Drills) well greased. Chains should be kept lubricated and should be removed at least once each season and thoroughly cleaned in diesel.

Other Greasing Points: (not illustrated)

- 4 grease nipples on front quadrant beam (see stickers).
- 2 grease nipples on top of wheel leg lifting arms (see stickers).
- 2 grease nipples each on the bottom of the wheel leg lifting arm. Ensure to grease when the drill is raised.
- Grease nipple at **each end** of the lifting ram.

SEASONAL STORAGE

The drill should be thoroughly cleaned and lubricated. Look for any unusual wear and remedy the cause. If this requires parts it is best to order them well in advance of the next sowing season. Check all nuts and bolts for tightness. Adjust the depth wheels so the weight of the drill is on the tines and not on the tyres. If a trailing kitset is fitted, make sure the chromed ram spears are smeared with grease.

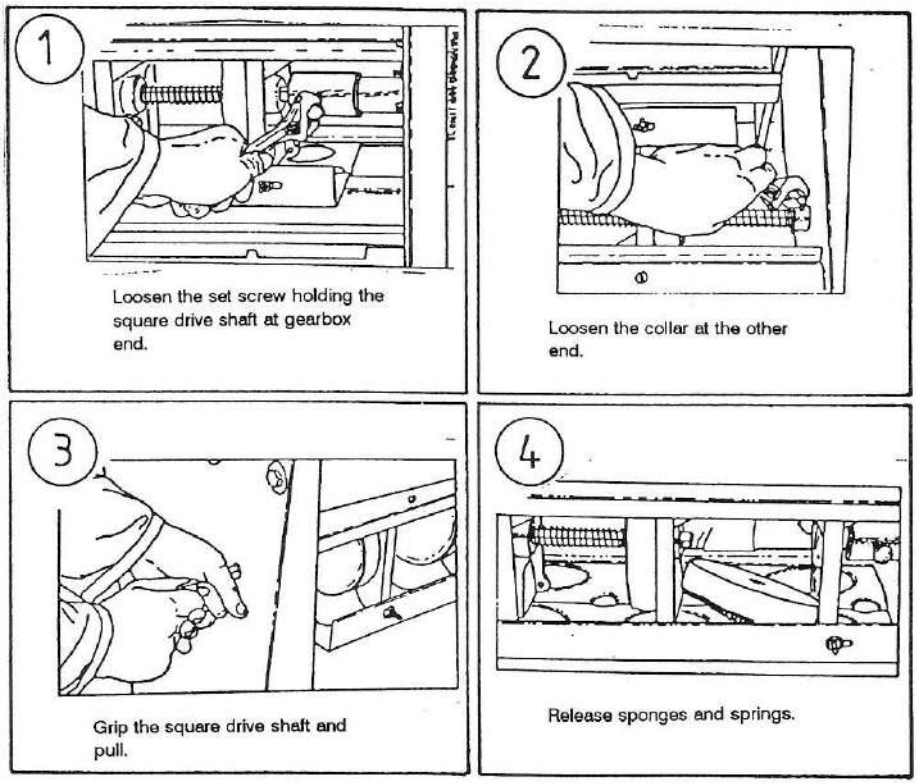
CARE OF THE SPONGE PADS

The sponge feeds are easily accessible for maintenance and cleaning by removing the inspection panel at the bottom of the seed hopper. The seed hopper should be cleaned thoroughly after use as vermin show little respect for a sponge pad if there is seed behind it. A deterrent such as Diasinit may be run through the pads before storage to discourage the entry of vermin into the drill. Leave the guards removed during storage.

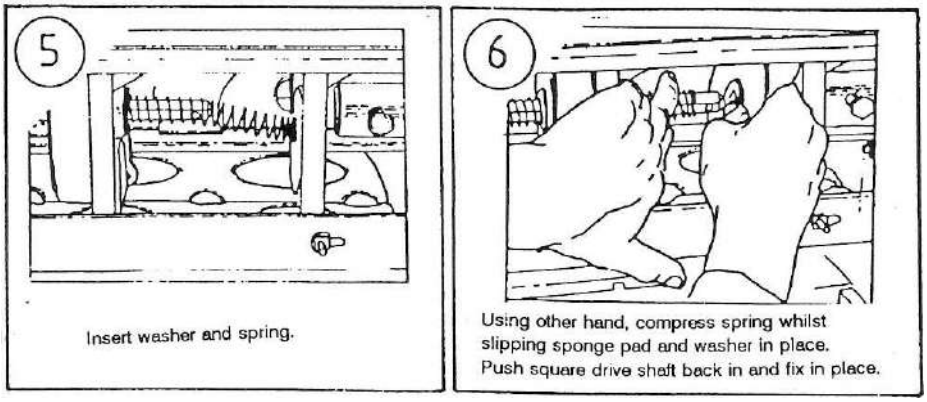
To empty the hopper of seed, push the pads away from the seeder units to let the seed fall through. Do not leave seed lodged between the pad and seeder unit as this will distort the pad giving erratic sowing. The sponge pads are replaced as shown below.

Replacement of Sponge Pads

Removing:

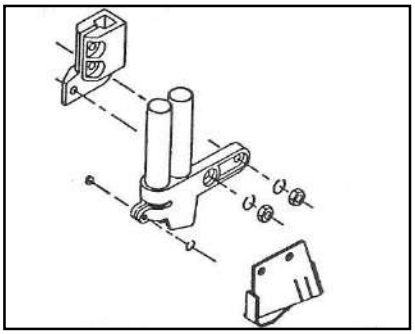


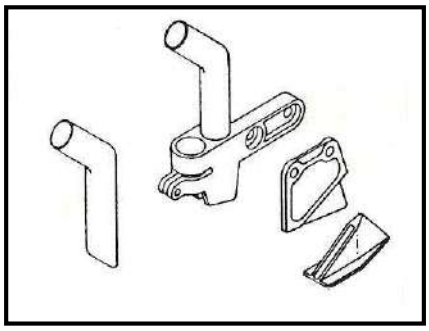
Inserting:



BLADE OPTIONS

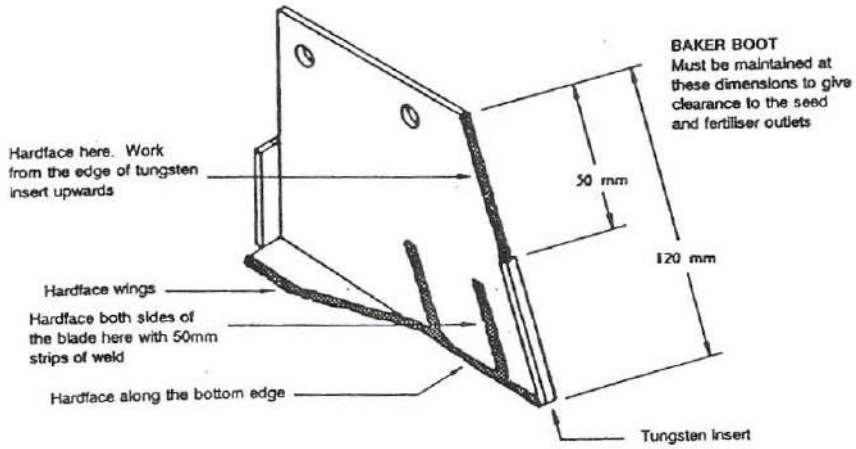
When purchasing a SEEDMATIC 3000 Series Drill, two blade options are available to choose from. There is the standard and well proven 'BAKER BOOT' which is essentially a fabricated blade with hard facing and a tungsten insert affixed to the leading edge. The other is the Aitchison 'knock-on/knock-off' point and blade. This is a cast Ni-Hard tip, also with a tungsten insert affixed to the leading edge. This point is more durable than the Baker Boot with a ground effect that is more aggressive.





BLADE MAINTENANCE (Baker Boot)

Continuous maintenance of blades is necessary. The Tungsten Carbide will hardly wear, but blade surfaces will. Care should be taken to ensure that hard surfacing is applied to the areas shown. If careful attention is paid to this simple maintenance procedure, very satisfactory wear characteristics will ensue.



HARDFACE MATERIAL Stick Weld 1/8" dia Mig Weld 1.2mm							
Analysis							
C%	Si%	Mn%	P%	S%	Cr%	Mo%	Cu%
0.45	3.081	0.38	0.018	0.001	9.23	-	0.25
Hardness: 600+ Brinell 60+ Rockwell							

BLADE MAINTENANCE (Knock-on/Knock-off Point)

The 'knock-on/knock-off' point is constructed from cast Ni-Hard. This is a special nickel chromium alloy with an overall Rockwell hardness of over 60. It is like making the whole opener point from hard-facing rod which has a similar Rockwell hardness.

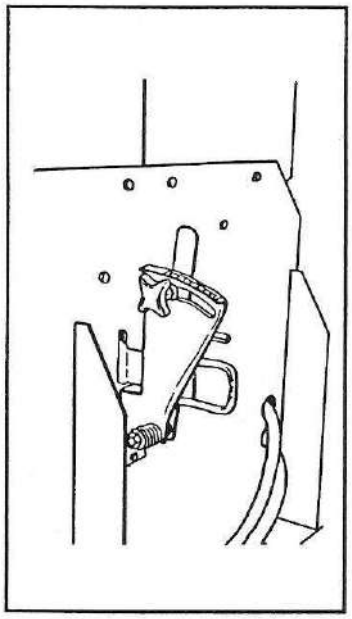
It is not recommended to attempt to hard-face this part as it wears, as sectional crackage will occur. The tungsten carbide insert which is fitted to the front when you purchase it, was applied using a special preheat control technique. It is therefore recommended that should the tungsten carbide insert become dislodged the points should be returned to the factory for remanufacture of the point.

TUNGSTEN CARBIDE INSERT

The tungsten carbide insert is fitted to both the Baker Boot and the Aitchison knock-on/knock-off is the hardest man-made alloy known to man. Being extremely hard it is also brittle. It is not possible to have a tungsten that is super resistant to impact and ultra-wear resistant. We have chosen a grade somewhere down the middle that gives us an acceptable impact resistance. However, should you be working in stones, there is every possibility that some of the inserts may fracture and if this happens the point of the blade will wear excessively. Watch for fractures and replace if this happens. There is no warranty of wear parts. This includes tungsten carbide due to the very uncompromising nature of the job it is being asked to do.

THE FERTILISER SYSTEM

CALIBRATION



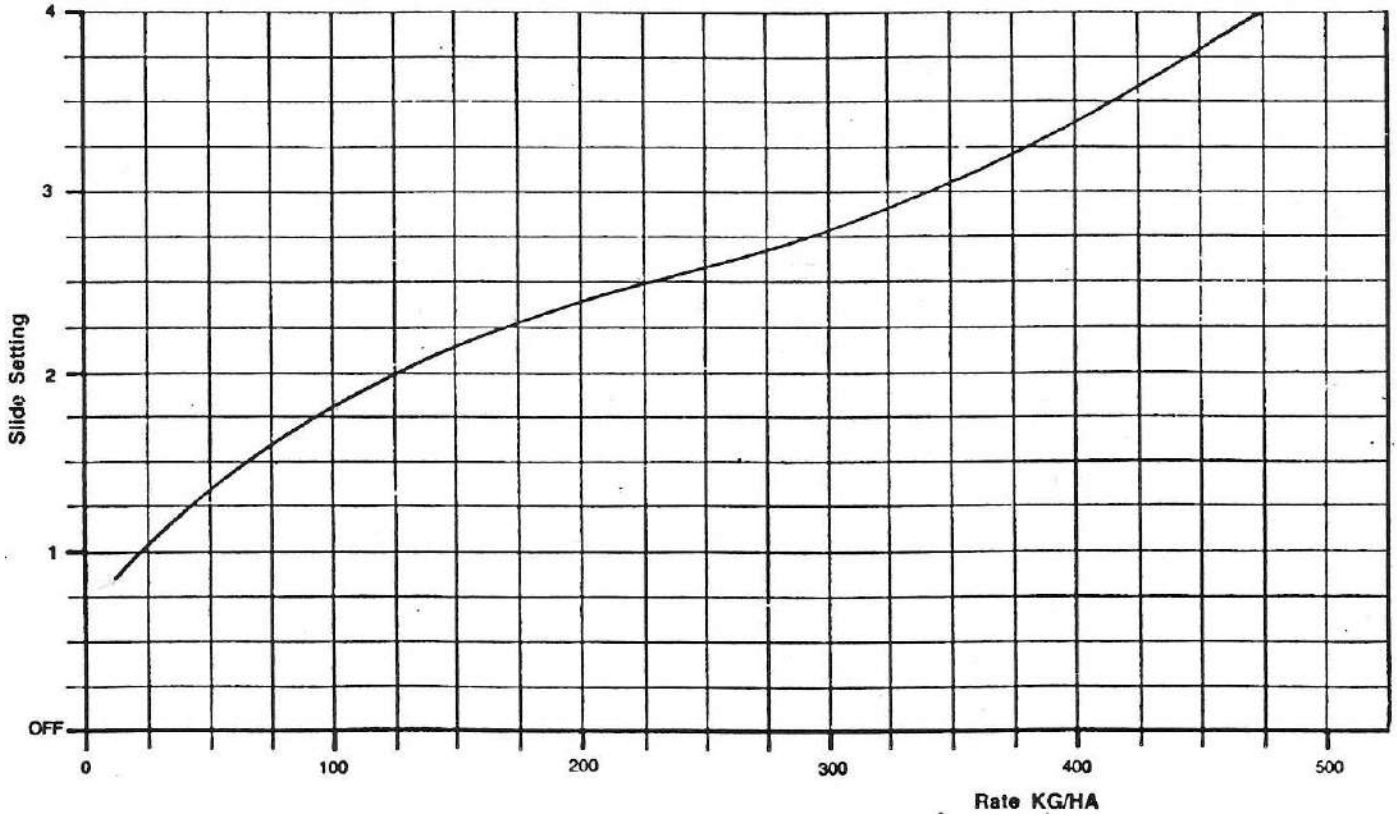
Different types of fertilisers may vary slightly from the general rate of curve given. The fertiliser rate is verified by using the same procedure as checking the seed rate (see section *Calibrating the Drill to check the Seed Sowing Rate).*

It is best to put a known amount of fertiliser in the fertiliser hopper and then go through the normal calibration procedure (i.e. turn the drive-wheel 29 times whilst collecting fertiliser from four rows and divide the resulting weight in grams by three to give the rate in kg/ha).

However, always check the fertiliser used in the field against the area covered.

To calibrate we have a plate that will hold the level in position as shown in the adjacent figure.

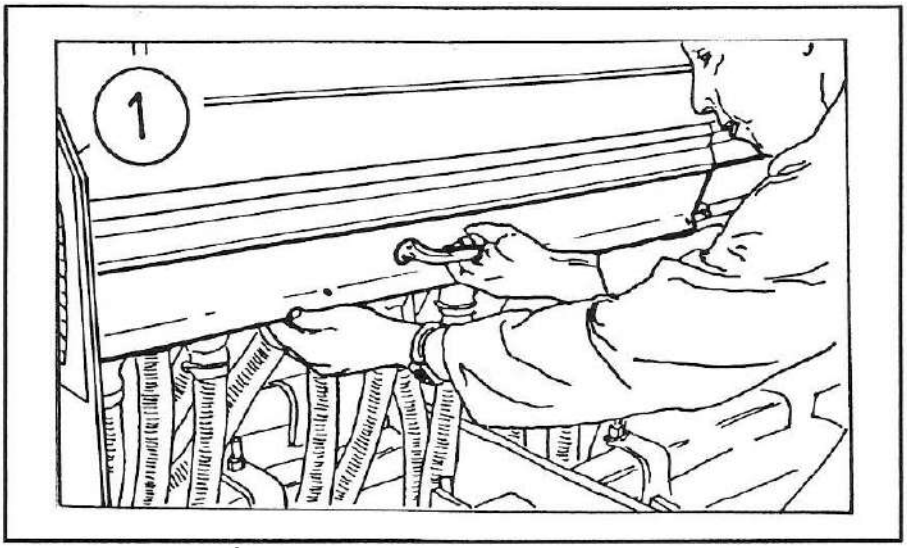
FERTILISER APPLICATION CHART



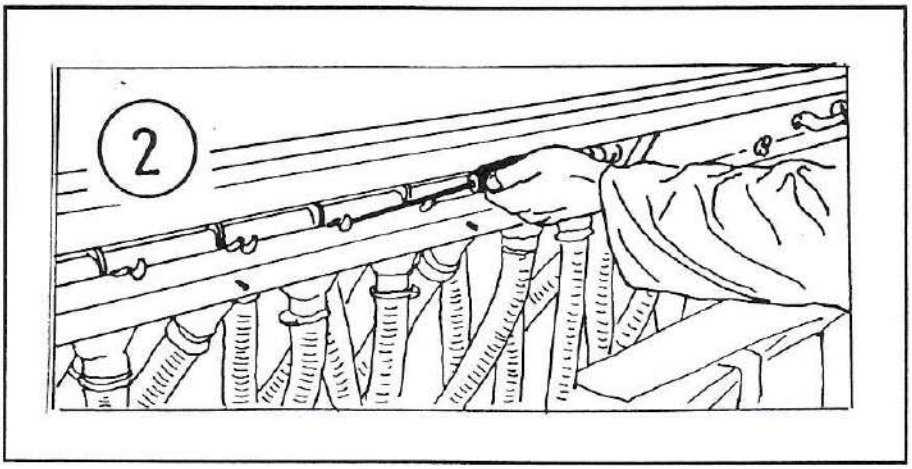
MAINTENANCE AND CLEANING THE FERTILISER HOPPER

The fertiliser hopper should be thoroughly cleaned after use and potential rust areas brushed down with diesel. The fertiliser shaft may be easily removed without tools as shown below. Remove the slide after each working day to ensure it does not corrode in place.

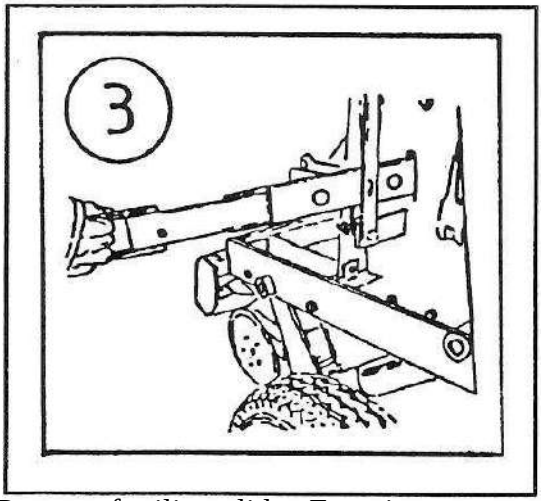
To Clean Fertiliser Hopper



Remove the front panel



Use a screwdriver to chip away any fertiliser deposits



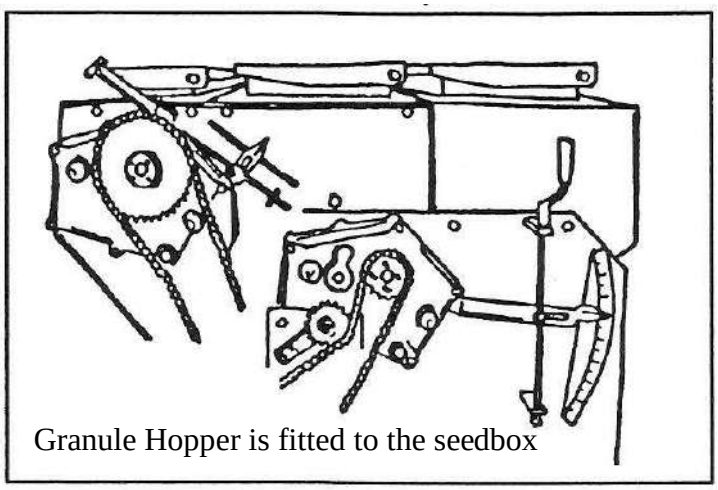
Remove fertiliser slide. For winter storage: withdraw slide and treat with lubricant.

THE SPONGE SEED SOWING SYSTEM

MICRO-GRANULE SECONDARY HOPPER

Safety

Always wear protective clothing when handling insecticide granules. This includes respirator, gloves and overalls. The micro-granule box is for those operators who use granules regularly, thus dispensing with the need to mix granules with the seed in the seed hopper which is at best a hazardous operation.



Granule Hopper is fitted to the seedbox

Calibration

Since granules differ in appearance between brands the chart is only a guide and the rate should be checked as outlined in the 'CALIBRATION THE DRILL TO CHECK THE SEED SOWEING RATE' section. It is best to catch the granules from the granule deliver tubes rather then the coulters.

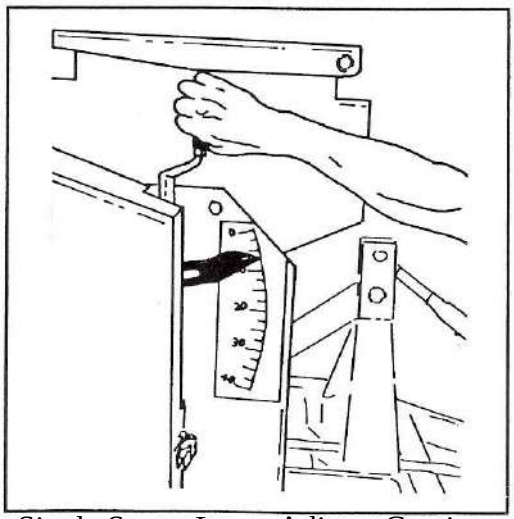
THE SEEDBOX

An infinitely variable gearbox is used to change the seeding rate from zero to maximum. There is one sprocket change to give two input speeds to this gearbox. The sprocket configurations of the two seeding ranges are shown on the seed charts.

The seed charts can be used as a **guide only**. Different varieties of the same species and seed mixtures can have significantly different sowing rates at the same drill setting due to seed size, weight, etc. Thus an initial setting can be chosen from the charts and the operator must do this own calibration for his own seed mix.

If the seed species required is not shown on the chart, pick the seed group that has a similar physical appearance. If seed mixtures are used, always choose the dominant seed and adjust after calibration has been carried out.

After ascertaining the seed application rate along the lower edge of the seed chart, read up the chart until your finger crosses the line that is your required seed group. Then set the calibration pointer as per the following illustration.



Single Screw Lever Adjusts Gearing Ratio 0 to 40

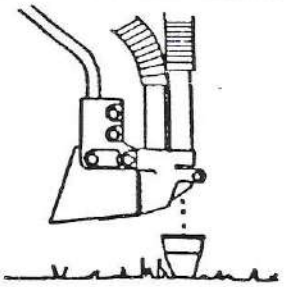
CALIBRATING THE DRILL TO CHECK THE SEED SOWING RATE

(1)

Place seed in the hopper over 4 outlets that feed the middle row of coulters. Rotate the seed shaft by attaching the Seed Calibration Arm and turning until a steady flow of seed can be witnessed falling from the seed outlets.

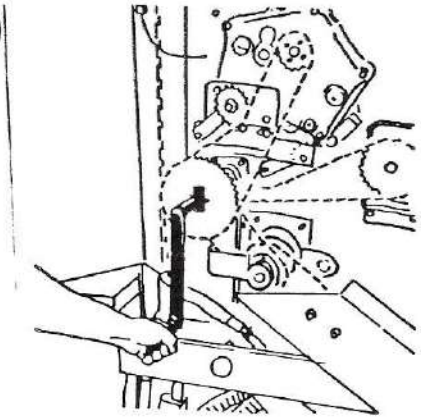
Set the pointer in the appropriate position from the seed rate chart.

(2)



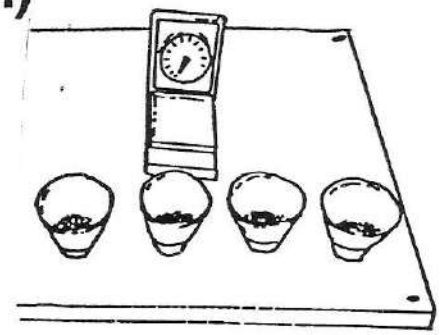
Place a cup, plastic bag, or any other container under the four outlets to catch the seed.

(3)



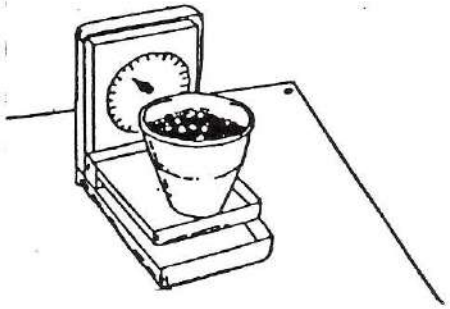
Rotate the Seed Calibration Arm 29 times

(4)



Catch and weigh the total amount of seed dropped (in grams).

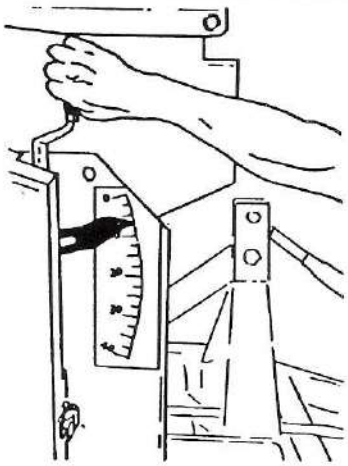
(5)



Divide the weight measured by 3 to establish kilograms per hectare (kg/ha):

ie: 45 grams ÷ 3 = 15 kg/ha

(6)



If above or below the desired rate, make adjustment on the adjustor lever.

LAYMANS GUIDE TO SEEDING VARIANCE

The Aitchison Sponge Seed Delivery System is a highly accurate, consistent and gentle method for delivery of seeds. We are pleased you chose to make use of our technology. To get started, we have created the attached seed charts. They are guides that will in many cases allow you to start with reasonable accuracy.

Along with these charts you will also need to know how to compensate for variations in seeds. We are fortunate to have many companies that are constantly providing new seed; however, this also makes any seed chart a GUIDE ONLY. Use the rules listed below when suitable, and when you need mare accuracy consider the following.

The seed count may be different; the coatings on the seed may be different; the humidity can be different; the seed size due to cultivars may be different; the moisture content of the seeds may be different; the seed may be husked or still have it's beard; and other differences which would affect the seeding rate.

Example

Temperate charts was calibrated for Ryegrass. Line 1 on Range 1 was calibrated at an ambient temperature of 64^{o}F (18oC). Moisture content of the seed was 14%. The 1000 seed count was 0.07 ounce (2 grams) and the seeds were approx ¼" long (6.6mm) by 1/16" wide (1.5mm). There were no coatings or dressings and was cleaned of gin trash.

Note also that all seeds used on original chart were uncoated.

As it is unlikely your sample will directly match the above and we suggest calibration at all times. Below are some general guidelines on what influences will affect you seeding.

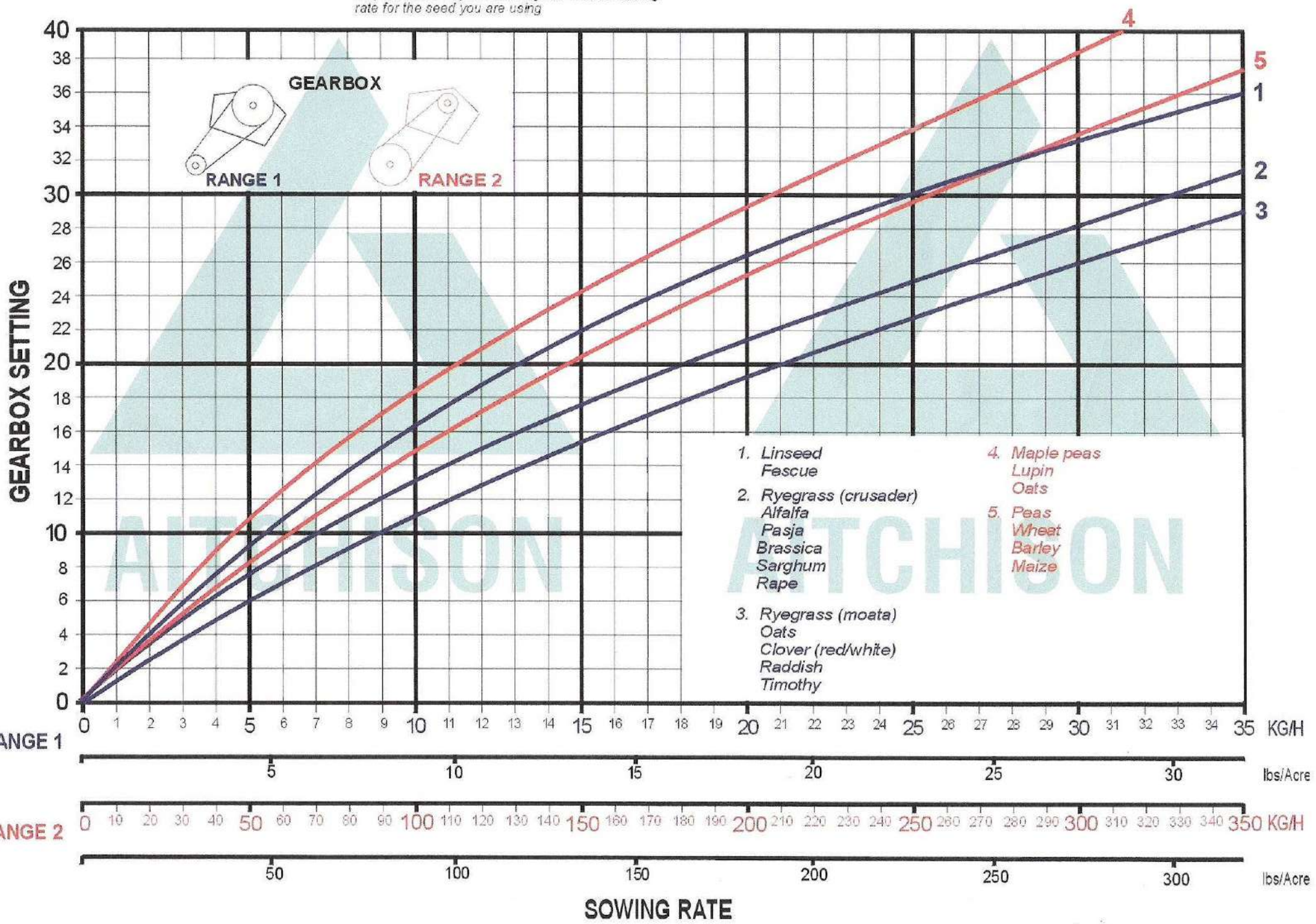
SEED SIZE: Small seeds flow faster
SEED COATING: Fungicides that are dull and sticky will slow seeding rates.
TEMPERATURE: Cold will slow seeding rates, heat will increase.
HUMIDITY: High humidity slows sowing, dry increase sowing rates.
SEED MIXTURE: Sowing small round seeds will flat long seeds, i.e. ryegrass and cover the rate will be increased significantly.
WHEEL DIAMETER: On cultivated soil slippage will reduce sowing rate.
RECORD PREVIOUS RESULTS: Keep a note book and record for future reference, mixtures, conditions and setting chosen.

Think in four quarters not the whole paddock. When the hopper runs out (1/4 paddock) check your rate back from the area covered.

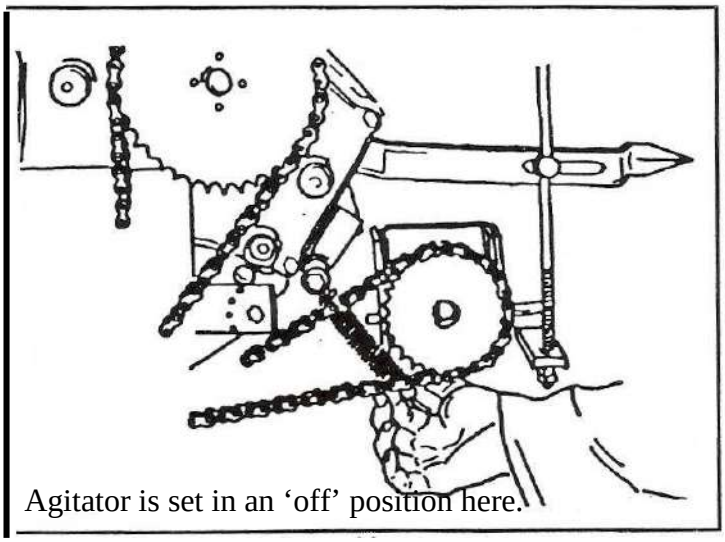
ALWAYS CALIBRATE BEFORE SEEDING!!!

TEMPERATE SEEDS

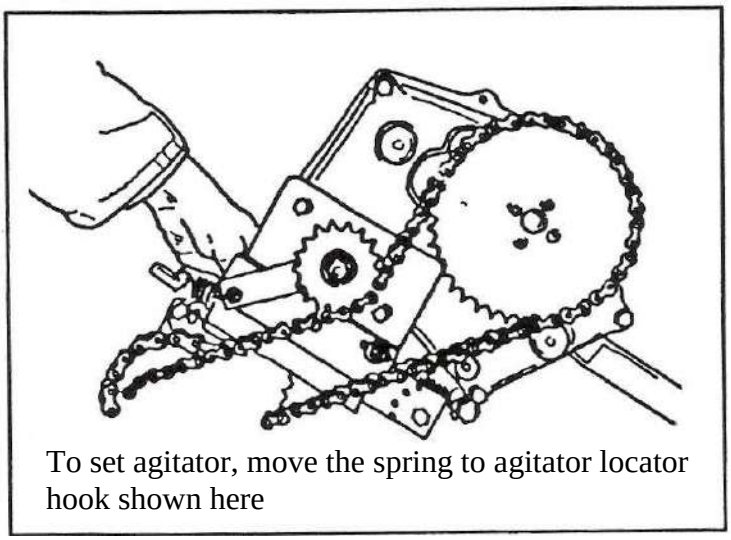
NOTE: *This chart is a **GUIDE ONLY** and different seed lines within a species can have markerly different results. Therefore calibration is recommended as the only truly accurate way of obtaining the desired sowing rate for the seed you are using*



TO SET THE SEED AGITATOR



Agitator is set in an 'off' position here.



To set agitator, move the spring to agitator locator hook shown here

For normal seeding the agitator is not required but is generally recommended for seed mixtures and most of the difficult to sow seeds (i.e. matua, prairie grass, peas, beans etc).

DIFFICULT SEEDS TO SOW

There are a number of seeds that are difficult to sow due to their physical shape and weight. These include:

Prairie Grass
Buffel Grass
Callida Rhodes Grass
Unclipped oats

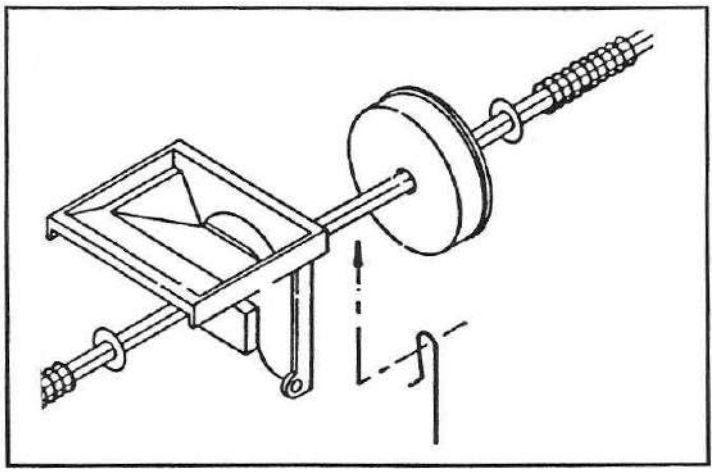
If seeds adhere to the sponge pad, fit the oat wiper (Part # A2366). If there are problems with large seeds failing to pick up with the sponge it will be necessary to fit the bean spacers (Part # A2365-01) which space out the pads leaving a greater surface to pick up seed.

OAT WIPER AND BEAN SPACER

Oat Wiper

The oat wiper is an optional extra that is designed to wipe clean the sponge pad if heavily awned seeds are not being sown. These will tend to collect on the pad and as the build-up increases inaccuracies in the seeding rates will occur.

To fit the wiper, remove the front panel from seed box. Pull the sponge pad from the seeder assembly and place the wiper on the centre shaft BETWEEN the pad and the casting. The wiper works in such a way that it presents a flexible edge on the oats and in effect 'wipes' the seeds that may be sticking to the pads on each rotation.



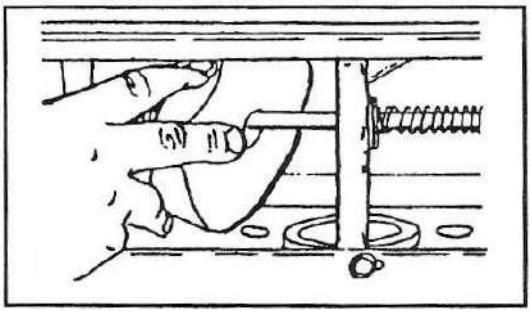
Fit the Oat Wiper between the sponge pad and the seeder unit.

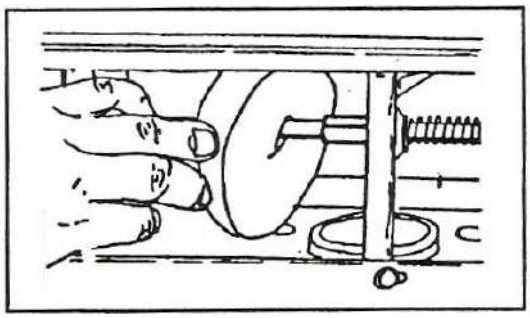
Bean Spacer

Markedly improved seeding performance is achieved by fitting spacers between the sponge and the seeder casting. This in effect moves the sponge away from the seeder casting and allows for better entry of the seeds into the sponge. A better 'pick up' is attained and seeding consistency is improved.

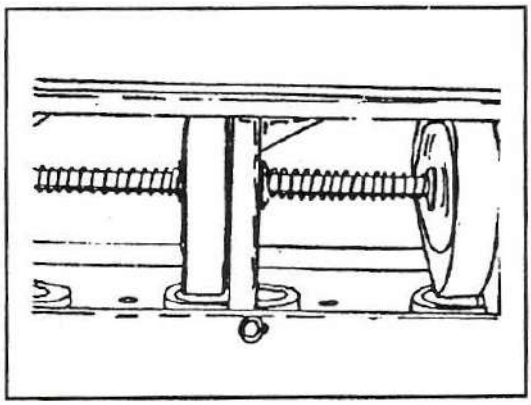
Also to decrease the advent of intermittency and improve seed spacing it is advisable to use the seeder agitator set on maximum spring pressure.

To fit the spacers follow these instructions:





1. Pull the sponge away from the seeder casting.
2. Fit the Bean Spacer between the sponge pad and the seeder unit.
3. Allow the sponge pad to return to the seeding position with approx (3mm) between the sponge pad and seeder unit.



WARNING: When the bean spacers are fitted always go back and recalibrate the drill.

If small seeds need to be sown (i.e. grass seed, brassicas) or small grains (i.e. wheat) always remove the spacers and store in a safe place.

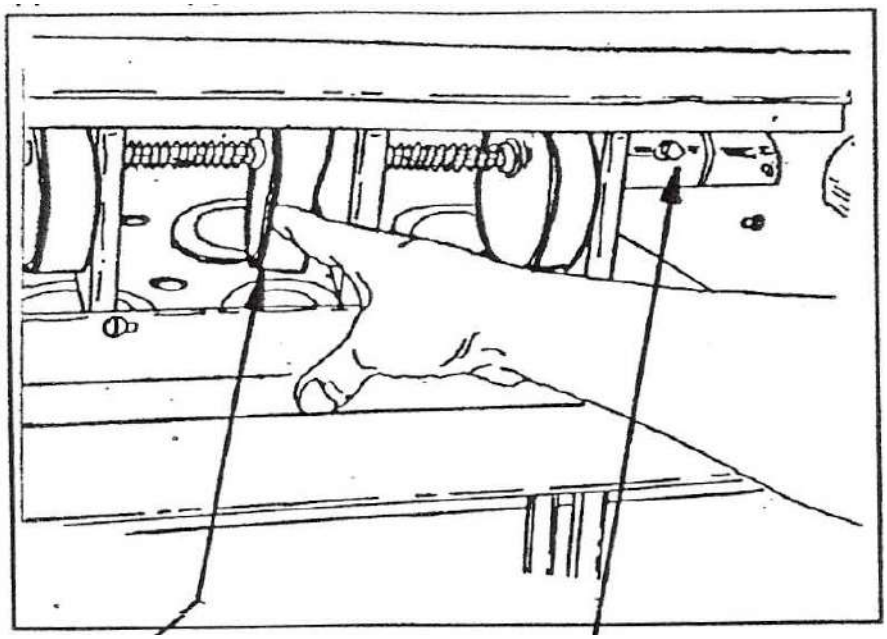
RODENT DANGER

The sponge seed mechanism is unique – it has great capacity to sow seed consistently and accurately. However, if seeds are left in the hopper over the winter months rats and mice will find an entry point into the hopper by chewing through the sponge pad to reach the seeds. The simple solution therefore is to remove the seeds.

To give added protection, sponge pads can be treated with any strongly odoured insecticide powder – DIASINIT, LINDANE, MALATHION, THIMET. **Note**: Rodent repellant can also be ordered from Aitchison via you local dealer (Part # 9341).

REMOVAL OF SEED FROM HOPPER

There is probably no easier drill to clean than this Aitchison Drill. Remove the front panel by way of wing nuts and manually move the sponge pads away from the seeder casting. Any remaining seeds within the hopper will simply fall out.



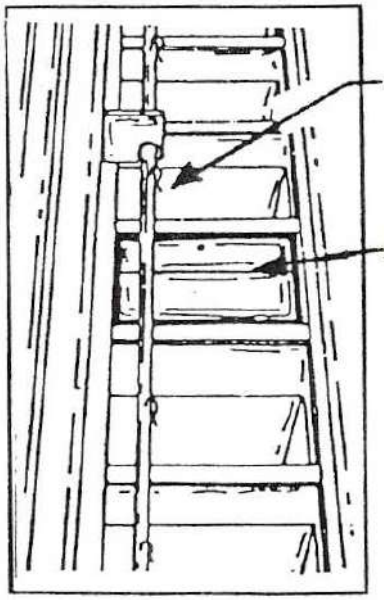
Push pads away to clean out seeds. To remove pads, loosen this set screw and move shaft to the left.

SPECIAL PURPOSE SEEDING

If the quantity of seed is too small to accurately weigh then collect the seed from 8 outlets and halve the result before applying the general formulae.

Using Blank Off Plates

If the blank off plates are used – this drill is calculated for rates of 150mm spacing. Blank off plates can be used if wider rows are required. These are fitted by removing the "R" clip agitator pin and fitting a plate (see illustration)



Plank off plates are inserted on each alternative seeder outlet.

For calculating your seeding rates:

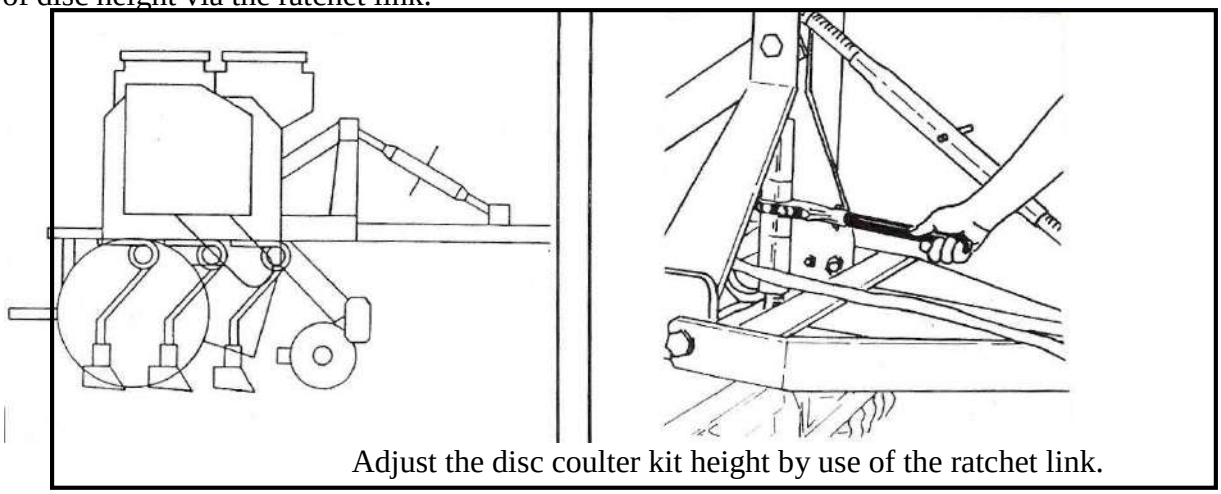
- If every **second row** is blanked off (300mm spacing) catch seed from four outlets and divide by 6 (not 3).
- If every **second and third row** are blanked off (450mm spacing) catch seed from four outlets and divide by 9 (not 3)

THE OPTIONAL ACCESSORIES

DISC COULTER KITSET

Setting up the Disc Coulter Kit

The following illustrations show the set up of the disc coulter kit on the drill and the adjustment of disc height via the ratchet link.



Adjust the disc coulter kit height by use of the ratchet link.

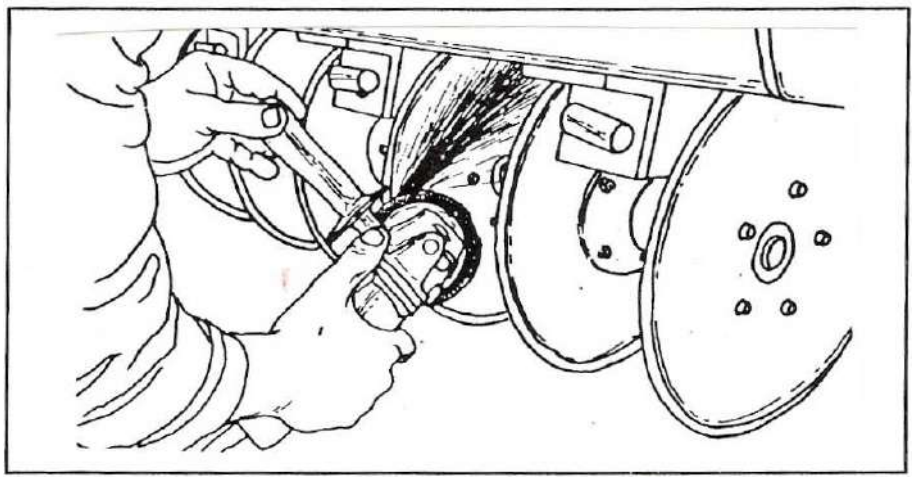
Preparing the Disc Coulter Kit for use

Discs are usually set slightly higher then tines. A lot depends on the soil conditions. The disc must cut a track for the tine and Baker boot to follow. If the soil is very hard then it is not possible for the disc to cut a track deeper then a few mm into the soil surface. If the 'depth of cut' is not reduced it will have the effect of keeping the tine points out of the ground. Adjust to suit the soil hardness.

With a new drill the disc will be 'shop blunt'. It will take some concerted use before the discs are sharpened from in-soil use. We suggest they be sharpened before use.

Sharpening the Disc Coulters

Raise the disc coulter frame until the discs are clear of the ground. Using a rotary end grinder fitted with a soft sanding disc and an abrasive 33 grit emery disc, hold the disc against the 11" or 14" disc coulter until it begins to spin freely.



With fluted discs sharpening should not be necessary as the fluted shape naturally assists the cutting of the soil and trash.

THE TRAILING KIT

If your machine is fitted with the trailing kit, it is important that the drill rides level when seeding, as explained below.

Leveling the Drill

- The trailed drill must be drawn at all times so that it travels level. If this is not achieved the tine openers will not have an even sowing depth. If it is pitched forward the front row of tine operators will be deeper then the rear row.
- To achieve this leveling effect use the top link adjustor to raise or lower the drawbar tongue height so the drill sits level.

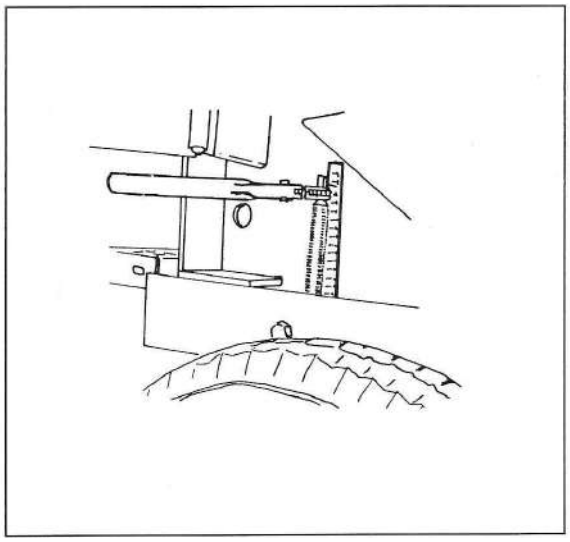
Transport

Transport of the drill in a raised position will not be a problem but if the drill should be trailed behind a truck for instance, there may be problems in connecting the drill hydraulic hose to the tractor outlet because of the weight (and pressure) of the 'quick-fit' ball valve. This can be overcome by having a pressure valve fitted to the hose or alternative solution is to simply raise the drill off its wheel rams by means of a car jack. Once pressure is eased no problem will be experienced in connecting the hydraulic hose.

SEED DEPTH ADJUSTMENT

Linkage

On all linkage drills, use the depth control rod to adjust the wheel height and therefore the sowing depth. Remember on the gearbox side (RH side) open the drive cover first before setting about to use the height adjustor. Use the height gauge label to set both wheels at the same depth position.



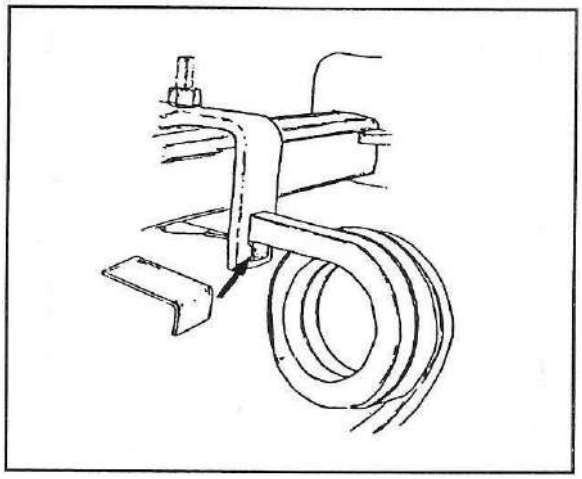
Use the height gauge to set both wheels at the same position.

Trailed

Refer to adjusting the seed depth when using the linkage drill (above). When seeding, use the hydraulics to move the rear transport as far off the ground as possible. This prevents interference of the transport wheels with the seeding depth.

DIAGRAM (NEW)

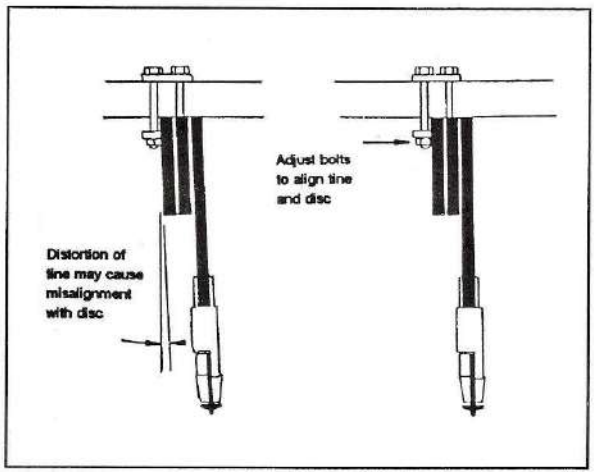
MULTI-SIZE TINE CLAMPS



We intend to standardise one tine clamp to suit all tine sizing (i.e. 20mm, 22.5mm, and 25mm). All clamps will now be punch with a 26mm square holes as will the eyebolt. When fitting 20mm and 22.5mm tines in the 26mm clamp, always fit a *TINE CLAMP SPACER PLATE* (Part # A2383) on the lower side of the tine as shown in the figure below.

ALIGNMENT OF COIL TINES

There is always some difficulty with distortion to the coil tines. When using the single eyebolt type clamp assembly it may prove difficult to align the Disc Coulter Kit disc with the tine (for disc coulter machines).



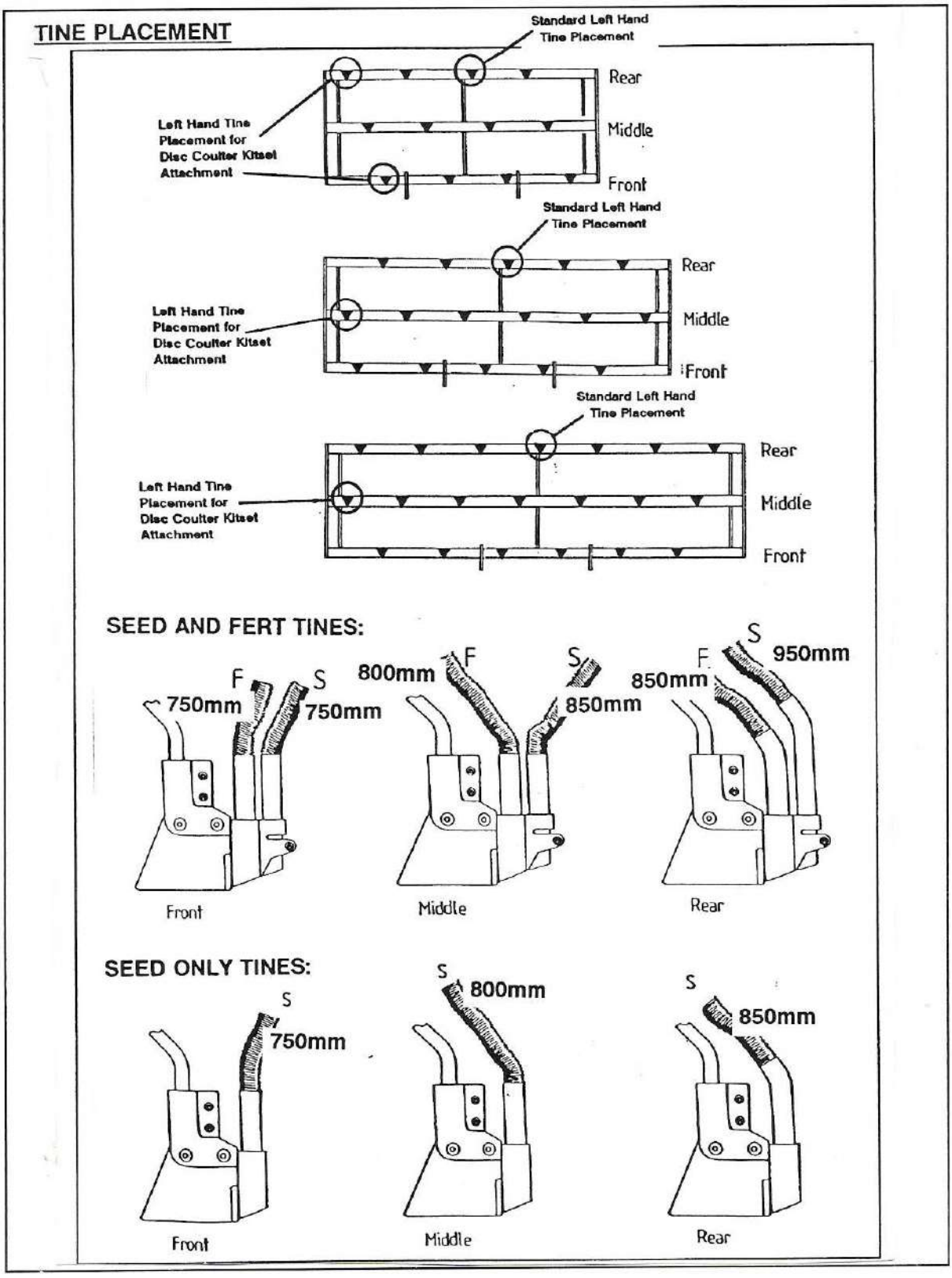
For easier alignment we have supplied a four bolt plate type of clamp. This setup allows by tightening or loosening bolts on either side of the tine to adjust the tine left or right. See the following illustration.

Therefore align the tine so that it tracks in the groove cut by the disc coulter.

LEFT HAND (LH) AND RIGHT HAND (RH) TINES

We now use double coulter tines on all machines. This poses a problem when fitting some tines in that space taken by the extra coil does not allow for alignment of the tine and the disc on the Disc Coulter Kit. We have overcome this problem by fitting a LH tine.

The tine configuration is as shown below.



If fitting the *AREAMETER* to another Aitchison Drill, below is the Calibration Factors.

Drill	CIRCUMFERENCE	Width MEASSUREMENTS
Seedmatic 3000 Series		
3016/3116	1700mm	2.4m
3020/3120	1700mm	3.0m
3024/3124	1700mm	3.6m

MONITOR INSTRUCTIONS

Hollin Applications Standard Farm Monitor

Basic Functions of:
Running Area in Acres or Hectares.
Total Area in Acres or Hectares.
Speed displayed in Kms/hour or Miles/hour
Distance Displayed in Kms.Meters

Optional Functions of:
Working Time
4 section width switch inputs for spray area
Low / High Speed Alarm

Introduction

This is a standard designed control by Hollin Applications for the general use in agriculture.

Using a small magnetic reed relay sensor mounted close to the wheel or propshaft with the magnet fixed to the rotating mechanism, the unit counts the number of turns and the rotational speed of the ground wheel.

There is a second magnetic sensor or switch input which can be used to disable the area counts at headlands etc. This can be paralleled up to a pause switch if required.

The unit stores all relavent information at switch off.

Two panel buttons allow for all adjustments of the functions on the large display.

Technical

Power supply	-	DC 10 to 30 Volts low current.
Fused	-	not applicable
Dimensions	-	6” * 4” * 21/2”
Display	-	4 character, some alphanumeric
	-	Optional backlight.
Magnetic Reed Sensor	-	M12 nylon, 40mm length, 2 mounting nuts.
	-	Protection fitted to the wheel sensor.
	-	Working distance to magnet 10 to 25mm
Circuit board	-	Standard Monitor unit – ST6265 Processor 8MHz
	-	Memory retention of Count and options

Installation

Mount the control box within the cab so that the display can be easily seen. Position using a suitable bracket and the side mount M6 bolt fixings.

With the control switched off run the power cable to a suitable 12 volt dc power source. This must have permanent power and not be switched through the ignition or data may be lost at power off. Brown or red core for positive and blue or black for negative. The control is reverse polarity protected.

Run the wheel sensor cable, identified with the protection sleave, down through the cab to a suitable position on the axle of the wheel. Fashion a bracket to mount the wheel sensor with ½ inch hole or cable tie the sensor in a suitable position. Mount the powerful linear magnet onto the wheel hub with a suitable epoxy glue. Check that the magnet will not catch the sensor and will pass within 25mm of the sensor.

Run the machine cut off sensor cable, identified as the sensor without the protection sleeve down to a position where the machine will move at headlands. When the magnet is close to this sensor the area counters are disabled, but the speed displays are still enabled. There are many possibilities for positioning this sensor,

- Lever movements within the cab,
- Three point linkage movements at the headlands,
- Arm movements on the machine.
- Cut the sensor off and fit to spare terminals on a spray cut-off switch
- Short circuit to dissable the area count.

Check again that the sensor comes within 25mm of the magnet when the unit moves.

Circumference and Width measurements.

In the start up procedure the control allows for the input of the wheel circumference and the width of the machine.

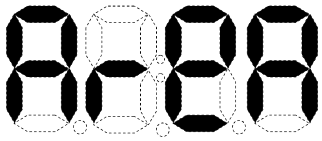
Circumference, The measurement required is actually the distance the machine moves between each pass of the sensor.
For the magnet fitted to the wheel.

1. mark the ground and the wheel.
2. drive in a straight line with a second person counting the number of wheel turns. Stop at ten turns precisely.
3. Measure the distance travelled and divide by ten.
4. Keep a record of this value for future reference.

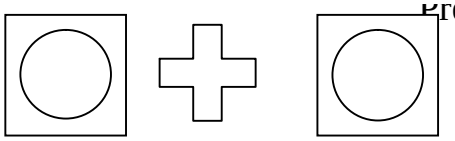
Width is input as span of the machine, to 25.6 m maximum

Start-Up

After power on the control displays Area for 2 seconds.
During this time the control performs its own self tests.
During this period it is also possible for the user to switch
To Options mode.

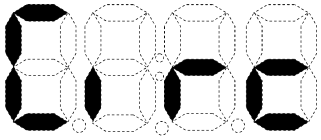


CHANGE **DISPLAY**

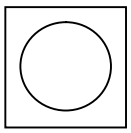


Pressing Change and Display buttons at the same time, whilst the control is in the initial test mode enters the option change mode. .

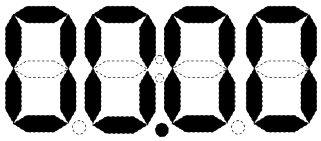
Initially Circ for Circumference is displayed for 2 seconds



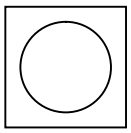
CHANGE



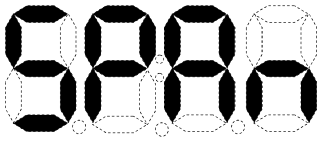
Press change to increase the circumference to the value required. Note the maximum circumference is 5.12 metes, always displayed in meters ie 5m12cm Press and hold will increment automatically.



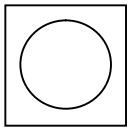
DISPLAY



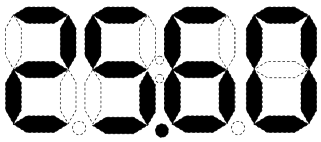
Press display once to store the new circumference and Move on to input the span of the machine.



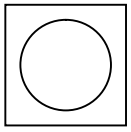
CHANGE



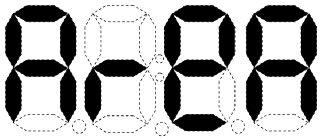
Press change to increase the machine span to the value required. Note the maximum machine width is 25.6 meters, always displayed in meters ie 25m60cm Press and hold will increment automatically.



DISPLAY



Press display once to store the new span value and Move on to the operational mode.

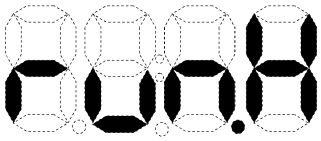


Operational Mode

After the initial 2 second display of area the control will always switch to display the identifier for the last Mode i.e. if switched off in distance then on in distance.

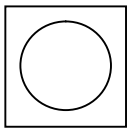
There are seven displayed modes of operation. These are swapped sequentially with each press of the display button. Holding the button displays a character sequence as an identifier. Press and hold the change button to reset the area and distance counts.

Running Hectare and Acre Display

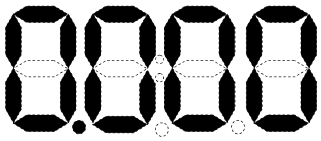


Displays an accurate running Hectare Area covered.
The smallest denomination displayed is 0.001 Hectares ie 10 m2.

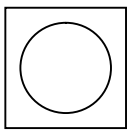
CHANGE



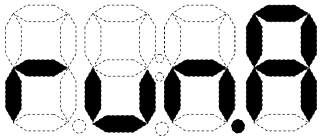
Press and hold change to clear the running Area store.
Note this also clears the running Acre display



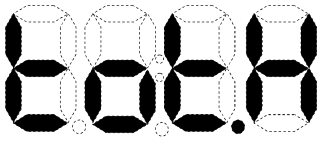
DISPLAY



Press display once to convert to show in Acres.

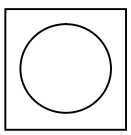


Total Hectare and Acre Display

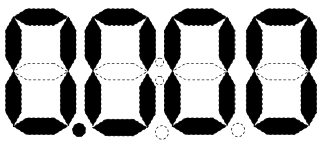


Press Display again to change to the total or machine area displays
This displays an accurate running Hectare Area covered.
The smallest denomination displayed is 0.001 Hectares ie 10 m2.

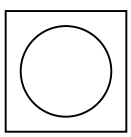
CHANGE



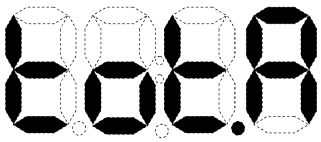
Press and hold change to clear the running Area store.
Note this also clears the running Acre display



DISPLAY

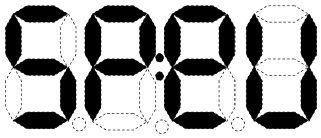


Press display once to convert to show in Acres.



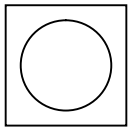
Two Speed Displays

Press Display again to change to the speed display.
This displays an accurate running ground speed.

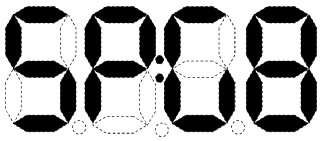


Initially displays SP:EU for european measurements and displays Ground speed in Km's per hour

DISPLAY



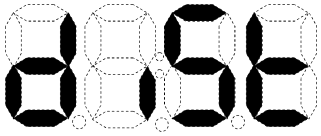
Press display once to convert to show in Miles/hour.
Initial shown by SP:GB



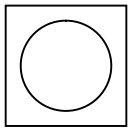
Speed Display is updated every 2 seconds.
If there are no pulses for 10 seconds then the display will clear.

Display Distance in Kilometers and Meters.

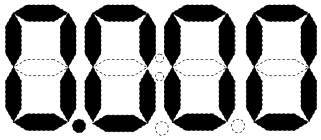
Press Display again to change to show Distance
This displays an accurate running Distance covered.
The smallest denomination displayed is 0.001 Kms or 1 m.



DISPLAY

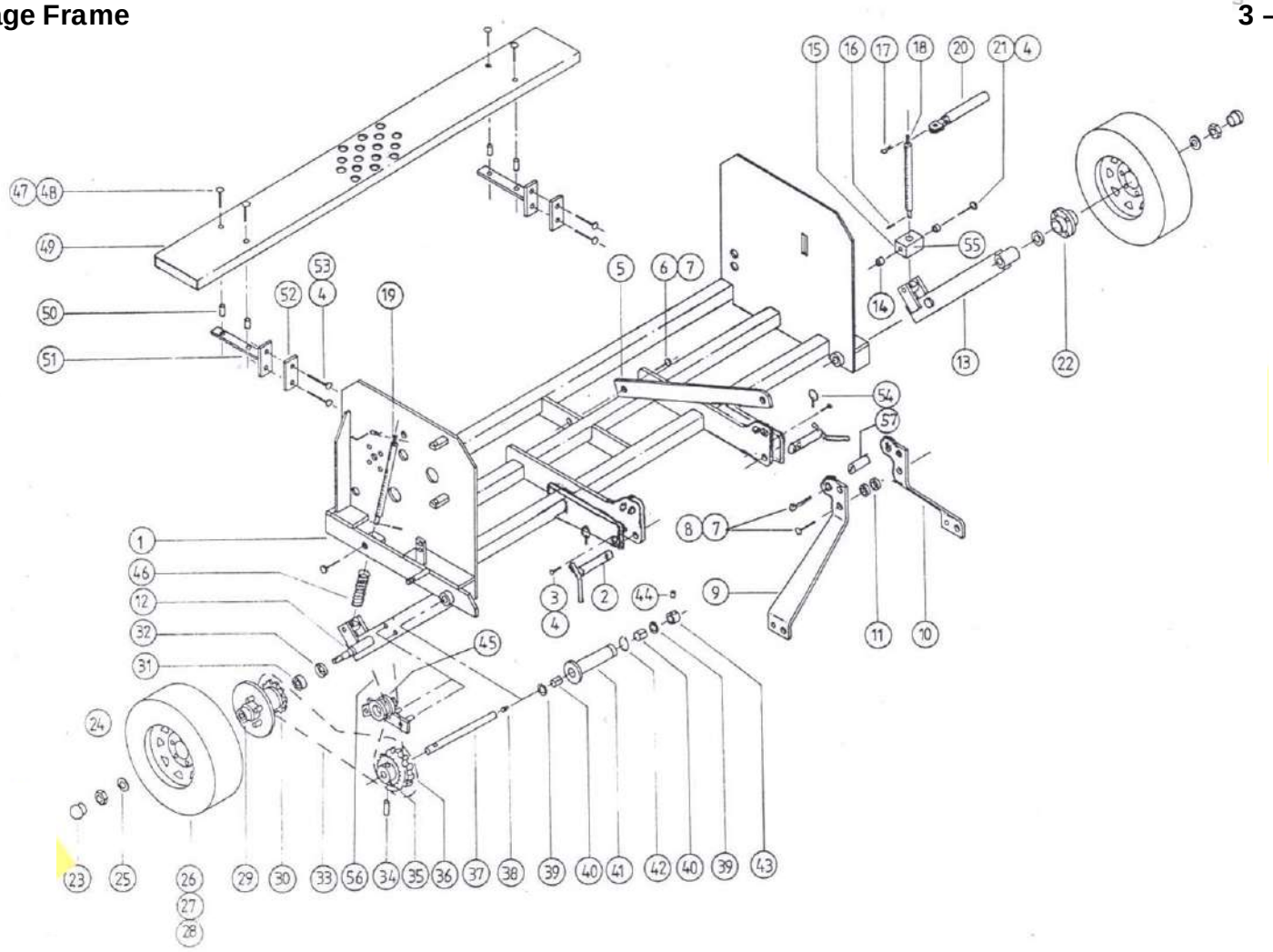


Press and hold change to clear the Distance store.

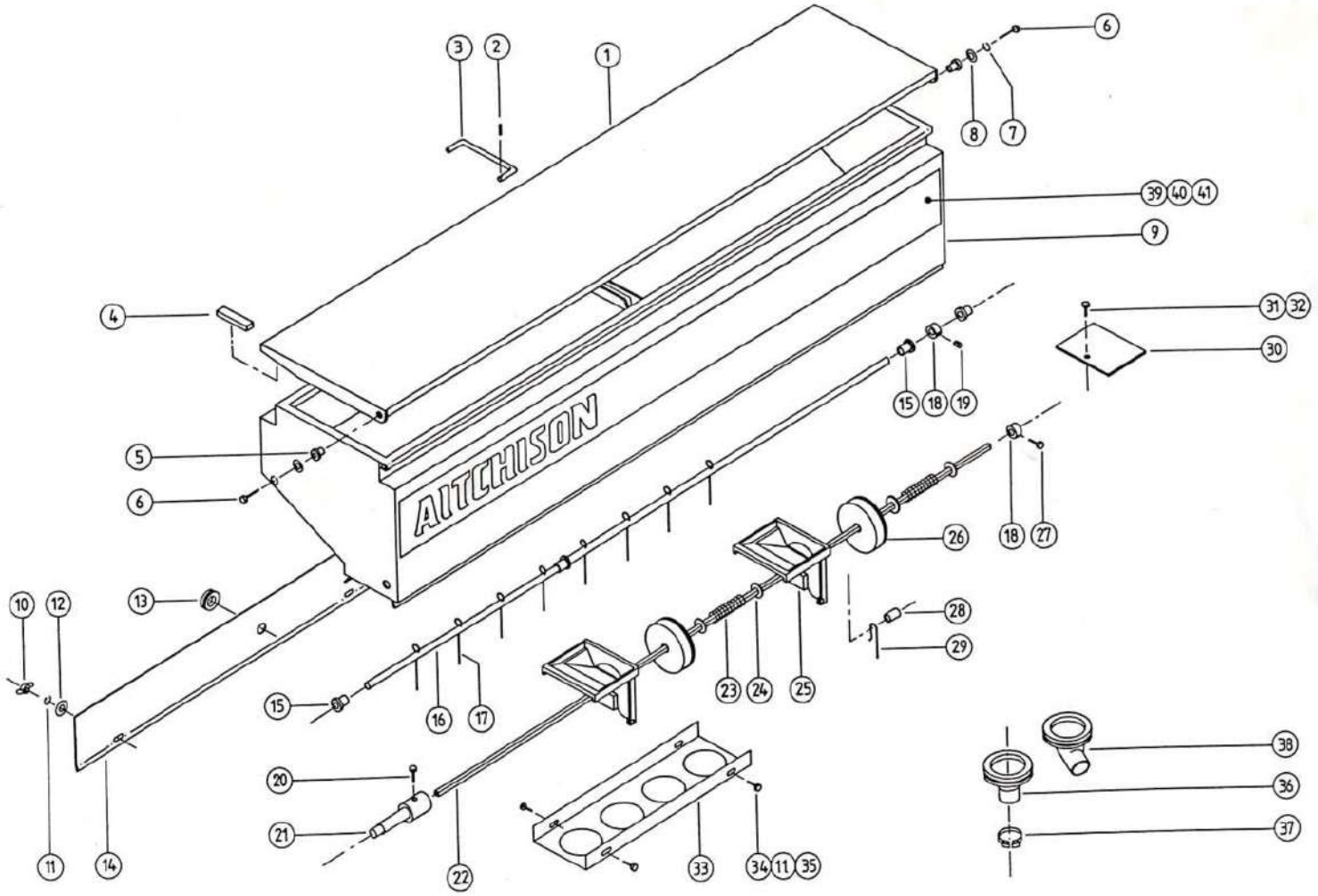


Press display again to revert to running area.

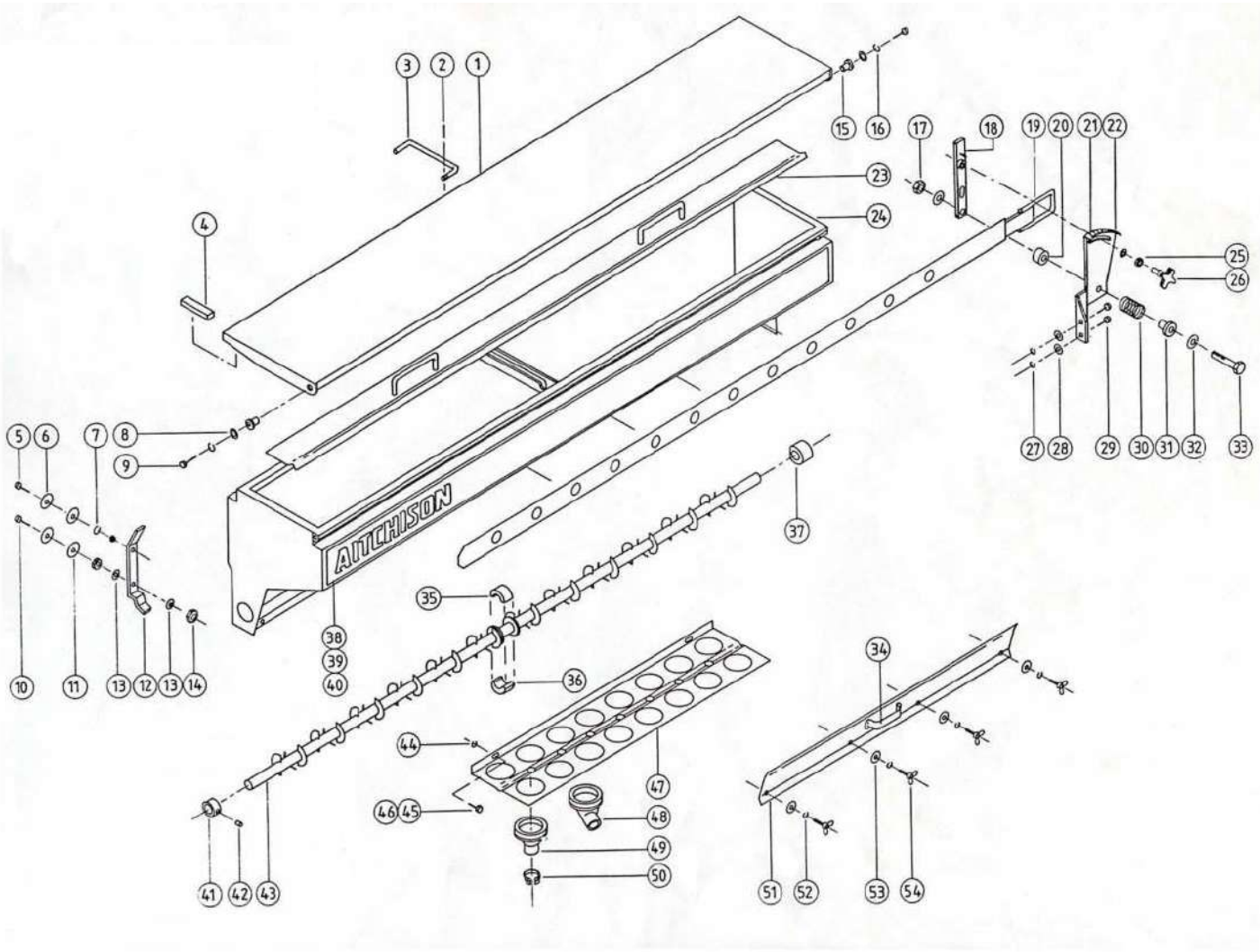
Seedmatic Linkage Frame



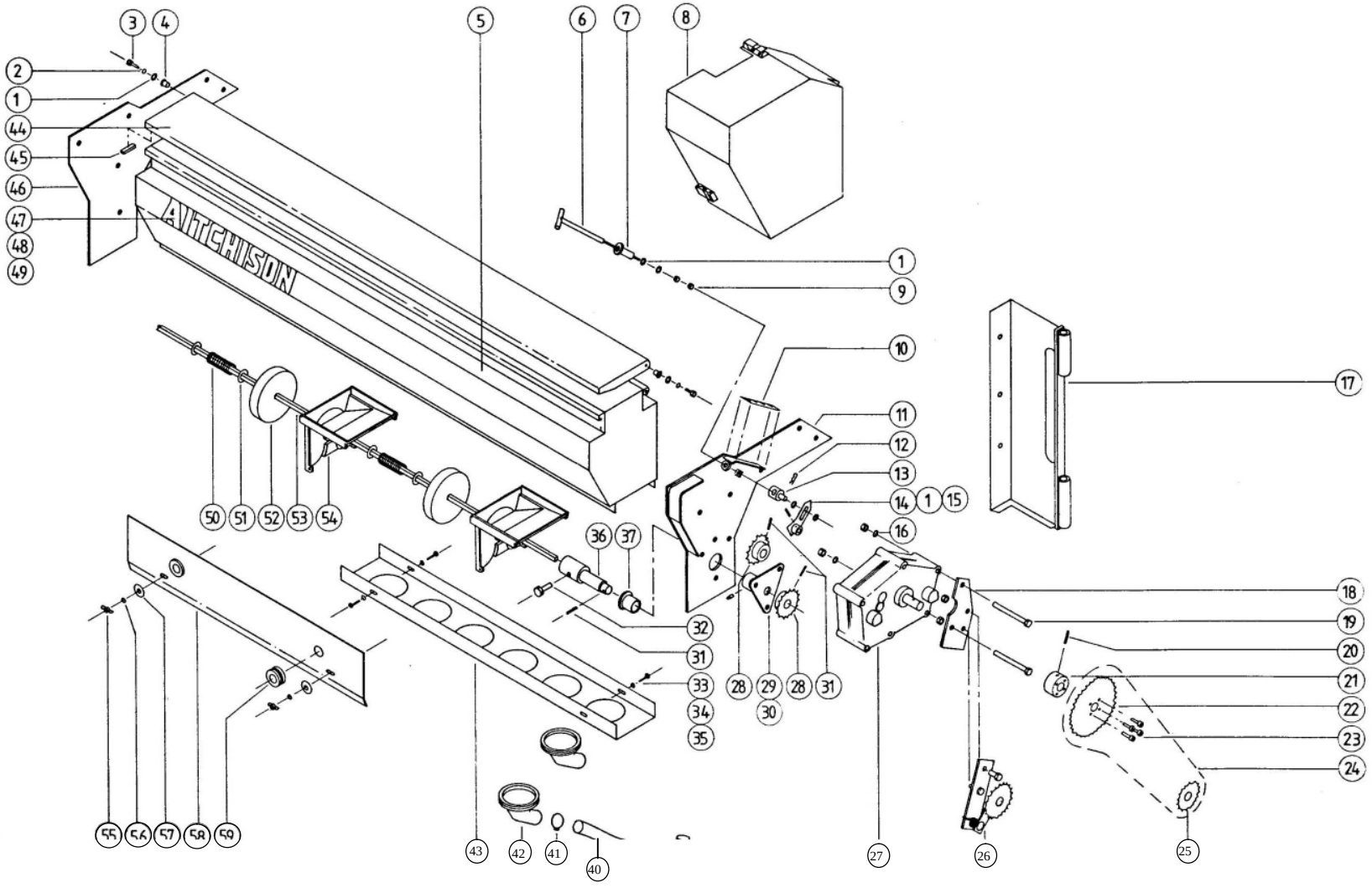
Item No.	Part No.	Description	Item No.	Part No.	Description	Item No.	Part No.	Description
1	A2391	Main Frame 3016/3116	26	A2328	13" Wheel Rim	51	A2319	Treadboard Bracket
	A23103	Main Frame 3020/3120	27	A2328	13" x 165 Tube	52	A2319-02	Treadboard Bracket Plates
	A2401	Main Frame 3024/3124	28	A2328	13" x 165 Tyre	53	8610H/9161	Bolt & Nut M16 x 120 ZP HT8.8
2	A2327	Linkage Hitch Pin	29	TR082030-03	Tapered Roller Bearing	54	9288	Lynch Pin 11mm (7/16") AG3
3	8609H/9161	Bolt & Nut M16 x 65 ZP HT8.8	30	A2320	Hub & S32 13T Sprocket	55	9323	Grease Nipple M6 Straight
4	9061	Washer Spring M16	31	TR082030-04	Tapered Roller Bearing	56	ZCH1/2	Chain 1/2" Drive Super Sh
5	A2301	Head Stock Stay	32	TR082030-01	Oil Seal		ZCH1/2-J	Chain 1/2" Conn Link Super Sh
6	8801H/9193	Bolt & Nut M24 x 65 ZP HT8.8	33	ZCHS32	Chain S32 Drive ZP	57	A2302-03	3 Point Head Stock Spacer
7	8802H/9193	Bolt & Nut M24 x 120 ZP HT8.8		ZCHS32-J	Chain S32 Conn Link ZP			
8	9082	Washer Spring M24		ZCHS32-L	Chain S32 Offset Link ZP	NS	A3015-02	Top Cover - Drive Leg
9	A2302	RH Head Stock	34	9262	Tension Pin 6 x 50	NS	A3015-03	Bottom Cover - Drive Leg
10	A2303	LH Head Stock	35	A2322-01	Sprocket 1/2" 27T Boss 20mm ID			
11	A2304	A-Frame Spacer	36	A2323-01	Sprocket S32 12T Boss 20mm ID			
	A23115	A-Frame Spacer w/ Disc Coulter	37	A2313	Drive Leg Lay Shaft (20mm)			
12	A2305	Drive Side Depth Leg	38	9323	6mm Tap-in Grease Nipple			
13	A2306	Non Drive Side Leg	39	9229	Oil Seal			
14	A2307/A2308	Top Trunnion Bush Outer / Inner	40	A28011	MB 2025 DU Glacier Bush			
15	A2309	TopTrunnion	41	A2314	Depth Leg Knuckle Joint			
16	9250Z	Tension Pin 6 x 30 ZP	42	9242	Circlip 35x1.5mm External			
17	9281	"R" Clip 4mm ZP AG7	43	A2324	Locking Collar 20mm			
18	A2310	Non Drive Side Depth Control Rod	44	8204	Grub Screw M6 x 8			
19	A2311	Drive Side Depth Control Rod	45	A2316	S32 Chain Tensioner			
20	A2312	Depth Control Rod Ratchet	46	A2325	Spring- Drive Leg			
21	8602H/9161	Bolt & Nut M16 x 40 ZP HT8.8	47	8413/9143	Coach Bolt & Nut M10 x 65 Galv			
22	TR082030	Hub Kit	48	9041	Washer Spring M10			
23	TR082030-02	Hub Cap	49	A2317	Treadboard 2.4m			
24	9194	Castle Nut 3/4" UNF		A23106	Treadboard 3.0m			
25	9083	Washer Flat 3/4" ZP	50	A2318	Treadboard Spacer			


AITCHISON

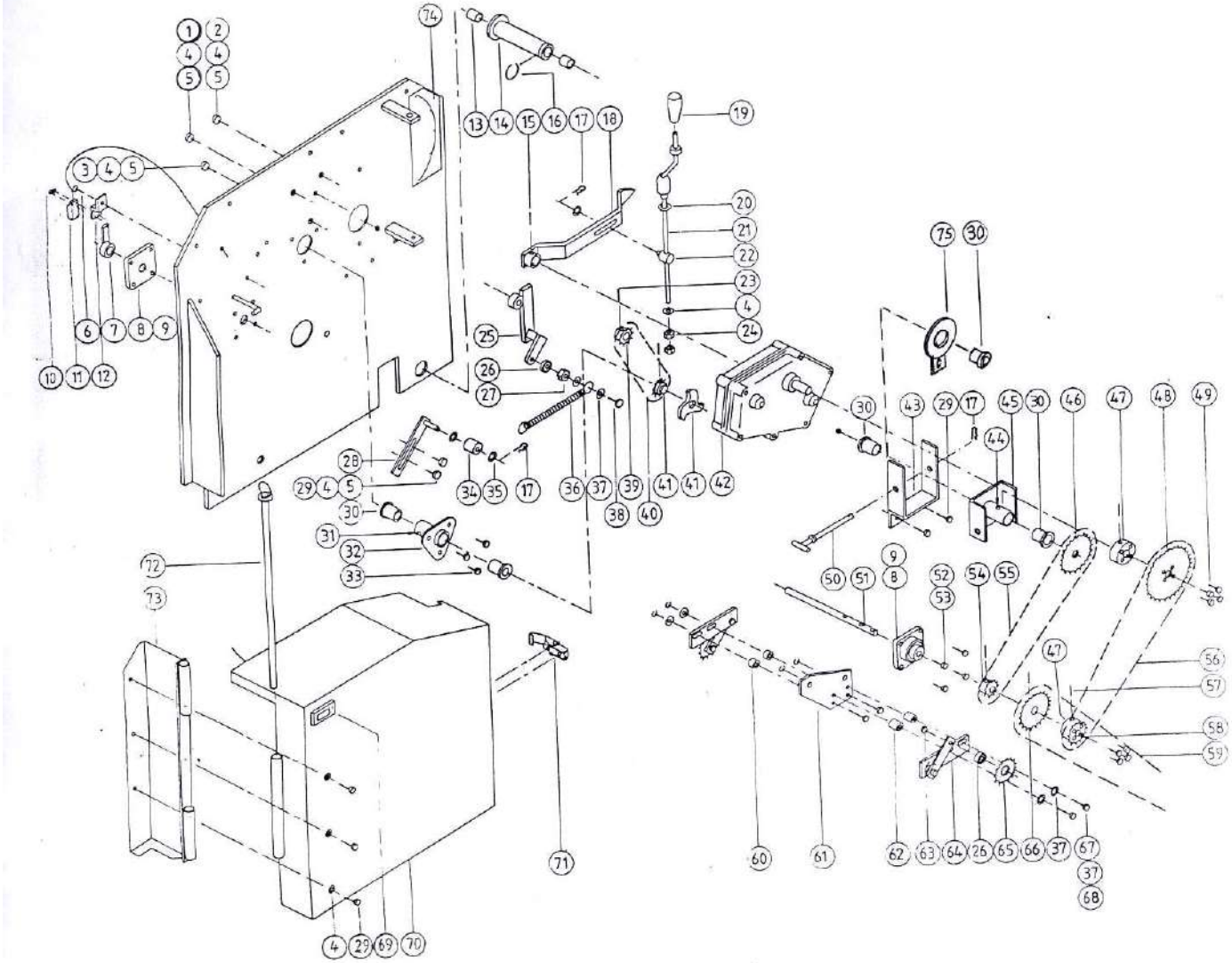
Item No.	Part No.	Description	Item No.	Part No.	Description	Item No.	Part No.	Description
1	A2371	Hopper Lid 3012/3112	17	A2359	Agitator Shaft R-Clip 3.15mm		D1514	Decal- Black "3020CTR" Label
	A2396	Hopper Lid 3016/3116	18	A2290-07	Locking Collar 12mm		D1538	Decal- Black "3024CTR" Label
	A23111	Hopper Lid 3020/3120	19	8204	Grub Screw M6 x 8			
	A2405	Hopper Lid 3024/3124	20	8418H	Bolt M10 x 25 ZP HT8.8			
2	9264	Tension Pin 3 x 10	21	A2361	Seed Shaft Axle			
3	A2354	Seed Box Lid Stay	22	A2362	Seed Shaft 3012/3112			
4	A2375	Buffer Pad Strip		A2395	Seed Shaft 3016/3116			
5	A2355	X Lube Flanged Bush		A23110	Seed Shaft 3020/3120			
6	8422H	Bolt M10 x 60 ZP HT8.8		A2403-02	Seed Shaft 3024/3124			
7	9041	Washer Spring M10 ZP	23	A23105	Spring- Spongepad Compression			
8	9042	Washer Flat M10x24odx1.5 ZP	24	9044	Washer Flat 9/16" ZP			
9	A2356	Seed Box 3012/3112	25	A2363	Seeder Unit			
	A2393	Seed Box 3016/3116	26	A2364	Sponge Pad & Disc			
	A23108	Seed Box 3020/3120	27	8208H	Bolt M6 x 16 ZP HT8.8			
	A2404	Seed Box 3024/3124	28	A2365-01	Bean Spacer			
10	9108	Nut M6 Wing ZP	29	A2366	Oat Wiper			
11	9021	Washer Spring M6 ZP	30	A2367	Blanking Plate			
12	9022	Washer Flat Penny M6 ZP	31	8209	Screw 5x10gx1/2 S/T P/H Poz ZP			
			32	9021	Washer Spring M6 ZP			
14	A23151	Removable Panel 3012/3112	33	A2373	Single Cup Mount Plate 4 Run			
	A2397	Removable Panel 3016/3116	34	8205H	Bolt M6 x 20 ZP HT8.8			
	A23112	Removable Panel 3020/3120	35	9121	Nut M6 Plain ZP			
	A2406	Removable Panel 3024/3124	36	A2368	Straight Rubber Cup			
15	A2357	X Lube Flanged Bush	37	A2370	35mm Cray Clip			
16	A2358	Seed Agitator Shaft 3012/3112	38	A2369	Angle Rubber Cup			
	A2394	Seed Agitator Shaft 3016/3116	39	D1509	Decal-Yellow Panel Label 2.5M			
	A23109	Seed Agitator Shaft 3020/3120	40	D1510	Decal- Black Seedmatic Label			
	A2403-01	Seed Agitator Shaft 3024/3124	41	D1512	Decal- Black "3016CTR" Label			


AITCHISON

Item No.	Part No.	Description	Item No.	Part No.	Description	Item No.	Part No.	Description
1	A2371	Hopper Lid 3012/3112	23	A23149	Auger Baffle 3112	43	A23150	Fertiliser Auger 3112
	A2396	Hopper Lid 3016/3116		A23169	Auger Baffle 3116		A23170	Fertiliser Auger 3116
	A23111	Hopper Lid 3020/3120		A23174	Auger Baffle 3120		A23178	Fertiliser Auger 3120
	A2405	Hopper Lid 3024/3124		A2410	Auger Baffle 3124		A2411	Fertiliser Auger 3124
2	9264	Tension Pin 3 x 10	24	A23144	Fertiliser Hopper 3112	44	9021	Washer Spring M6 ZP
3	A2354	Seed Box Lid Stay		A23168	Fertiliser Hopper 3116	45	8206	Gutter Bolt M6 x 30 ZP
4	A2375	Buffer Pad Strip		A23175	Fertiliser Hopper 3120	46	9108	Nut Wing M6 ZP
5	8212S/9121S	Bolt & Nut M6 x 30 SS		A2408	Fertiliser Hopper 3124	47	A23157	Double Seed Tray 8 Run
6	9022S	Washer Flat Penny M6 SS	25	9141	Nut M10 Plain ZP		A23158	Double Seed Tray 4 Run
7	9021S	Washer Spring M6 SS	26	A23145	M10 Fert Adjuster Handle	48	A2369	Angle Rubber Cup
8	9042S	Washer Flat M10 SS	27	9030	Washer Spring M8 ZP	49	A2368	Straight Rubber Cup
9	8422H	Bolt M10 x 60 ZP HT8.8	28	9031	Washer Flat M8 X 21od x 1.5 ZP	50	A2370	35mm Cray Clip
10	8310S/910S	Bolt & Nut M8 x 35 SS	29	8301H/9106	Nut & Bolt M8 x 30 ZP HT8.8	51	A23151	Removable Panel 3112
11	9032S	Washer Flat Penny M8 SS	30	A23146	Spring- Fert Handle		A23171	Removable Panel 3116
12	A23141	Baffle Handle	31	00122-05	X Lube Flanged Bush		A23179	Removable Panel 3120
13	9031S	Washer Flat M8 SS	32	9051	Washer Flat M12x28odx1.6 ZP		A2407-01	Removable Panel 3124
14	9105S	Nut Nyloc M8 SS	33	8524H	Bolt M12 x 90 ZP HT8.8	52	9030S	Washer Spring M8 SS
15	A2355	X Lube Flanged Bush	34	A23147	Grab Handle	53	9032S	Washer Flat Penny M8 SS
16	9041	Washer Spring M10 ZP	35	A23153	Central Fert Auger Boss	54	8305W	Wing Stud M8 x 25mm SS
17	9151	Nut Nyloc M12	36	A23153	Central Fert Auger Boss			
18	A23142	Fertiliser Control Arm	37	A23154	End Fert Auger Boss			
19	A23156	Fertiliser Slide 3112	38	D1513	Decal- Yellow Panel Label 3M			
	A23167	Fertiliser Slide 3116	39	D1510	Decal- Black Seedmatic Label			
	A23173	Fertiliser Slide 3120	40	D1521	Decal- Black 3116CTR Label			
	A2409	Fertiliser Slide 3124		D1522	Decal- Black 3120CTR Label			
20	A23142-01	10mm Spacer (30 x 12.5mm)		D1534	Decal- Black 3124CTR Label			
21	A23143	Fert Calibration Plate	41	A23148	Locking Collar 22mm			
22	D1520	Decal- SM Fert Calibration	42	8204	Grub Screw M6 x 8			


AITCHISON

Item No.	Part No.	Description	Item No.	Part No.	Description	Item No.	Part No.	Description
1	9042	Washer Flat M10x24odx1.5 ZP		ZCH1/2-J	Chain 1/2" Conn Link		D1514	Decal- Black "3020CT" Label
2	9041	Washer Spring M10 ZP	25	A2350-01	Sprocket 1/2" 17T Plate 20ID ZP		D1538	Decal- Black "3024CT" Label
3	8422H	Bolt M10 x 60 ZP HT8.8	26	A2350	1/2" Fixed Chain tensioner		D1521	Decal- Black "3116CT" Label
4	A2355	X Lube Flanged Bush	27	A2342	Gearbox		D1522	Decal- Black "3120CT" Label
5	AZ230079	Granule Box 3012/3112	28	A2339	Sprocket 1/2" 13T Boss 20ID ZP		D1534	Decal- Black "3124CT" Label
	A2475	Granule Box 3016/3116	29	A2337	Seed Shaft Mount	50	A23105	Spring- Sponge Pad Compression
	A2476	Granule Box 3020/3120	30	9323	Grease Nipple M6 Straight	51	9044	Washer Flat 9/16" ZP
	A2477	Granule Box 3024/3124	31	9251	Tension Pin 6 x 40	52	A2364	Sponge Pad
6	A28015	Granule Seed Control Lever	32	8418H	Bolt M10 x 25 ZP HT8.8	53	A2362	Seed Shaft 3012/3112
7	A8009	X Lube Flanged Bush	33	8206	Gutter Bolt M6 x 30 ZP		A2395	Seed Shaft 3016/3116
8	A2482	Granule Box Drive Cover	34	9110	Nut M6 Pressed Square		A23110	Seed Shaft 3020/3120
9	9141	Nut M10 Plain ZP	35	9021	Washer Spring M6 ZP		A2403-02	Seed Shaft 3024/3124
10	D1508	Decal- Seed Calibration SM	36	A2361	Seed Shaft Axle	54	A2363	Seeder Unit
11	A2356-03	Seed Box End Panel- Drive Side	37	A2352	X Lube Flanged Bush	55	9108	Nut M6 Wing ZP
12	9282	"R" Clip 2mm ZP	40	A2384-01	Seed Dropper Hose	56	9021	Washer Spring M6 ZP
13	A2334	Swivel Collar	41	A2370	35mm Cray Clip	57	9022	Washer Flat Penny M6 ZP
14	A2470-01	Granule Seed Calibration Arm	42	A2369	Angle Rubber Cup	58	A2374	Removable Panel 3012/3112
15	9250	Tension Pin 6 x 30	43	A28030	Single Cup Mount Plate 8 Run		A2397	Removable Panel 16 Run Seedbox
16	9030	Washer Spring M8 ZP		A2373	Single Cup Mount Plate 4 Run		A23112	Removable Panel 20 Run Seedbox
17	A2387	Gearbox Cover Mount	44	AZ230090	Granule Box Lid 3012/3112		A2407-01	Removable Panel 24 Run Seedbox
18	A2470-02	Granule Box Tensioner Plate		A2478	Granule Box Lid 3016/3116			
19	8307H/9106	Bolt & Nut M8 x 100 ZP HT8.8		A2479	Granule Box Lid 3020/3120			
20	9262	Tension Pin 6 x 50		A2480	Granule Box Lid 3024/3124			
21	A2343	Sprocket Boss 3000 Series	45	A2375	Buffer Pad Strip			
22	A2344	Sprocket 1/2" 38T Plate 20ID ZP	46	A2356-04	Seed Box End Panel- Non Drive			
23	8207	Capscrew M6 x 20 Socket Hd	47	D1509	Yellow"Aitchison" Panel Label 2.5m			
24	ZCH1/2	Chain 1/2" Drive	48	D1510	Decal- Black Seedmatic Label			
	ZCH1/2-L	Chain 1/2" Offset Link	49	D1512	Decal- Black "3016CT" Label			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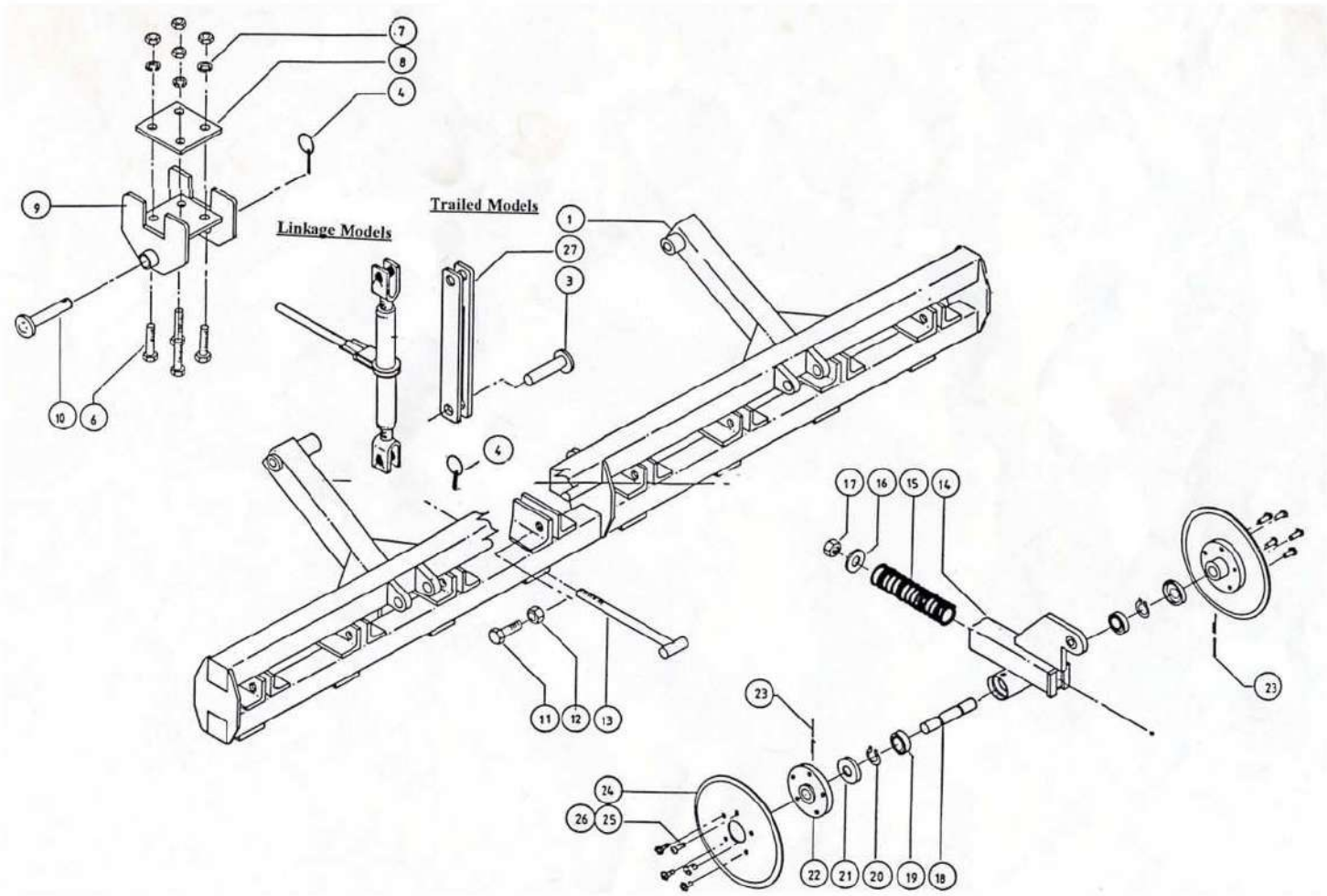
Item No.	Part No.	Description	Item No.	Part No.	Description	Item No.	Part No.	Description
1	8403H	Bolt M10 x 50 ZP HT8.8	29	8305H/9106	Bolt & Nut M8 x 25 ZP HT8.8	56	ZCH1/2	Chain 1/2" Drive
2	8416H	Bolt M10 x 40 ZP HT8.8	30	A2352	X-Lube Flanged Bush	57	9262	Tension Pin 6 x 50
3	8415H	Bolt M10 x 30 ZP HT8.8	31	9323	Grease Nipple M6 Straight	58	A2347	Sprocket 1/2" 17T Plate ZP
4	9039	Washer Flat M10 GALV	32	A2337	Seed Shaft Mount	59	ZCH1/2	Chain 1/2" Drive
5	9041	Washer Spring M10 ZP	33	8205H/9121	Bolt & Nut M6 x 20 ZPHT8.8		ZCH1/2-J	Chain 1/2" Conn Link
6	8205H/9121	Bolt & Nut M6 x 20 ZP HT8.8	34	A2336-04	Roller- Nylon	60	A2270-11	Tensioner Spacer 10mm
7			35	9051	Washer Flat M12x28odx1.6 ZP	61	A2348	Tensioner Mount Plate
8	9220	Bearing Housing	36	A2338	Spring- Agitator	62	A2270-10	Tensioner Spacer 20mm
9	9221	Bearing	37	9039	Washer Flat M10 Galv	63	8415H	Bolt M10 x 30 ZP HT8.8
10			38	8403H	Bolt M10 x 50 ZP HT8.8	64	A2350	Tensioner - 17T Sprocket 1/2" Ch
11	A2389	Farmscan 1100 Hectaremeter	39	A2339-01	Sprocket 1/2" 13T Boss 20ID	65	A2350-01	Sprkt 1/2" 17T Tens Plate ZP
12	A2388	Hectaremeter Mount Plate	40	A2340	Chain 1/2" 580mm + Joiner	66	A2322-01	Sprocket 1/2" 27T Boss 20ID
13	A28011	MB 2025 DU Glacier Bush	41	A2341	Sprocket 1/2" 13T & 3 Lob Cam ZP	67	8308H	Bolt M8 x 50 ZP HT8.8
14	A2314	Depth Leg Knuckle Joint	42	A2342	Seedmatic Gearbox	68	9031	Washer Flat M8 x 21od x 1.5 ZP
15	9250Z	Tension Pin 6 x 30 ZP	43	AZ211368	Fertiliser Shaft Bracket			
16	9242	Circlip 35x1.5mm Extnl		A23140	Fert Auger Mount Drive	70	A2386	Drive Cover (Seedmatic)
17	9282	"R" Clip 2mm ZP	44	9324	Grease Nipple M6 45deg	71		
18	A2331	Seed Calibration Arm	45	AZ250133	Fertiliser Shaft Mount	72	A2351	Drive Cover Pin
19	A2332	Adjustor Handle	46	A23130	Sprocket 1/2" 27T Boss 22ID ZP	73	A2387	Gearbox Cover Mount
20	9051	Washer Flat M12x28odx1.6 ZP	47	A2343-01	Sprocket Boss 3000 Series ZP	74	D1508	Seed Calibration Label
21	A2333	Seed Adjustor Lever	48	A2344	Sprocket 1/2" 38T Plate 20ID ZP	75	A23140	Fert Auger Mount Drive
22	A2334	Swivel Collar	49	8207S	Cap Screw M6 x 20 Socket Hd SS			
23	9251	Tension Pin 6 x 40	50	AZ250128	Locking Pin			
24	9141	Nut M10 Plain ZP	51	A2345	Intermediate Drive Layshaft			
25	A2335	Seed Agitator Arm Assembly	52	8402H/9141	Bolt & Nut M10 x 35 ZP HT8.8			
26	9219	Bearing	53	9039	Washer Flat M10 Galv			
27	9141	Nut M10 Plain ZP	54	A2339-01	Sprocket 1/2" 13T Boss 20ID			
28	A2336	1/2" Fixed Chain Tensioner	55	A23139	Chain 1/2" 985mm + Joiner			


Linkage Models
Trailed Models
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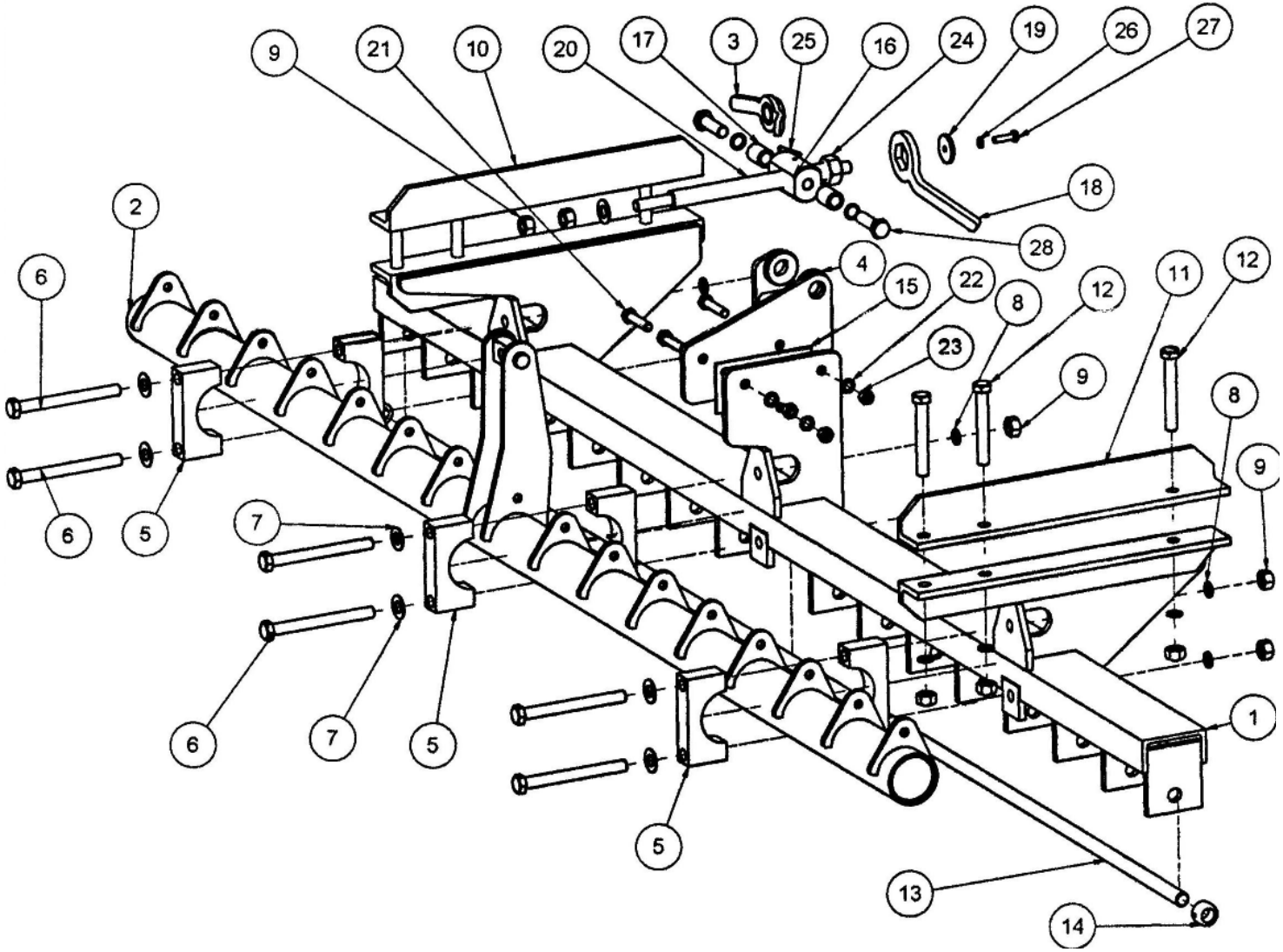
Item No.	Part No.	Description	Item No.	Part No.	Description	Item No.	Part No.	Description
1	A23129	Disc Coulter Bar 8Ft	27	A23127	Ratchet Ram			
	A23131	Disc Coulter Bar 10Ft						
	A2413	Disc Coulter Bar 12Ft						
3	A23114	Ratchet Pin						
4	9288	Lynch Pin 11mm (7/16") AG3						
5	A23115	A-Frame Spacer w/ Disc Coulter						
6	8610H/9161	Bolt & Nut M16 x 120 ZP HT8.8						
7	9061	Washer Spring M16 ZP						
8	A23116	Clamp Plate						
9	A23117	Disc Bar Clamp						
10	A23118	Clamp Pin						
11	A23119	Disc Coulter Bolt						
12	9172	Nylock Nut M20						
13	A23120	Threaded Rod						
14	A23121	Disc Coulter Mount						
15	A23122	Spring- Disc Coulter						
16	A23123	Disc Coulter Washer						
17	16A	Nut Nyloc M16						
18	A23124	Disc Coulter Axle						
19	9212	Bearing						
20	9244	Circlip 25x2mm External HD						
21	9234	Oil Seal						
22	A23125	Disc Coulter Casting						
23	9266	Tension Pin 8 x 45						
24	A23126	11" Disc Plain						
	A23126-01	11" Disc Fluted						
25	8205H	Bolt M6 x 20 ZP HT8.8						
26	9021	M6 Spring Washer						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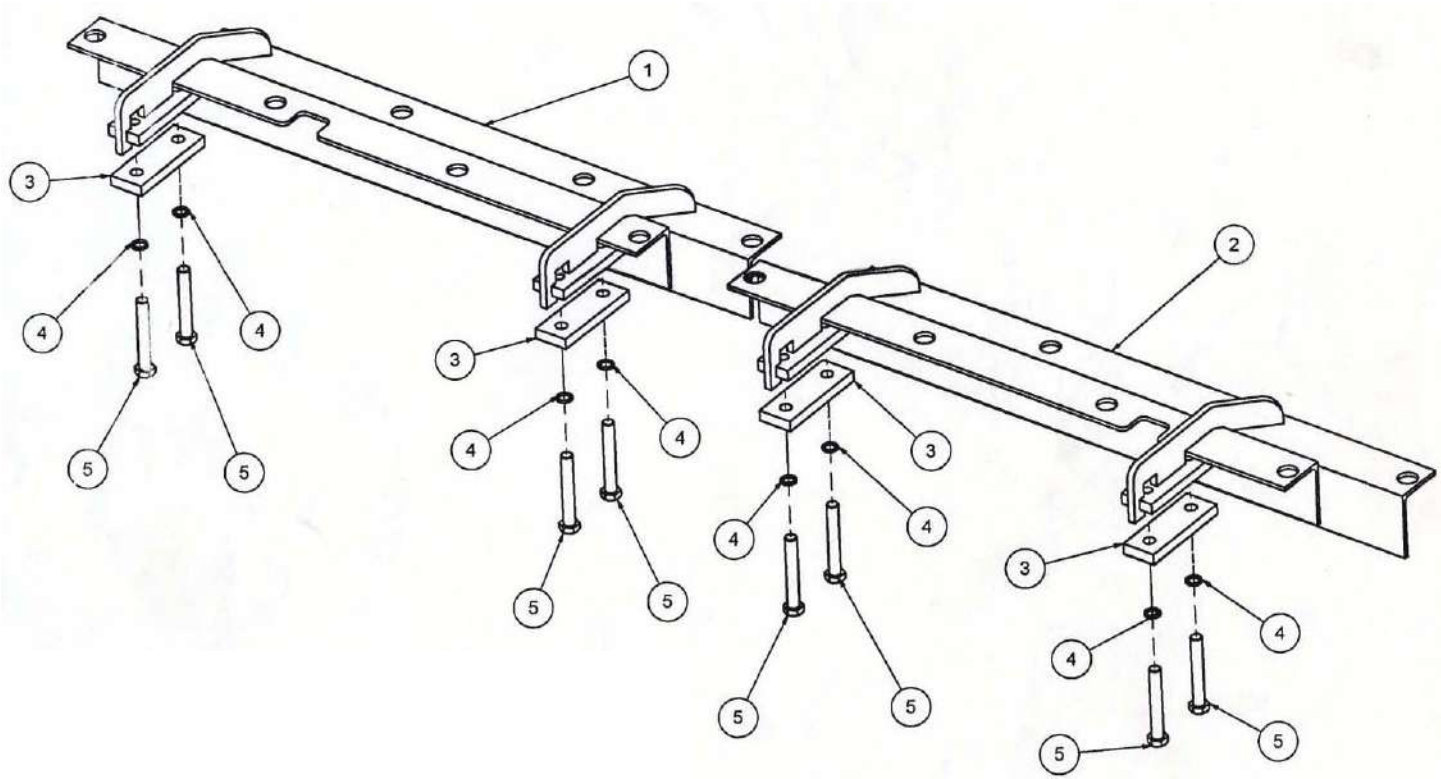
Item No.	Part No.	Description	Item No.	Part No.	Description	Item No.	Part No.	Description
1	A23227	16 Run Dragarm Mounting Bar	27	8301H	Bolt M8 x 30 ZP HT8.8			
	A23230	20 Run Dragarm Mounting Bar	28	8603H	Bolt M16 x 55 ZP HT8.8			
2	A23256	Depth Control Bar						
3	A23257	Depth Control Bar Lock Nut						
4	A23258	Depth Control Trunnion Mount						
5	A23259	Depth Control Bar Pivot Block						
6	8614H	Bolt M16 x 160 ZP HT8.8						
7	9063	Washer Flat M16x32odx1.5 ZP						
8	9061	Washer Spring M16 ZP						
9	9161	Nut M16 Plain ZP						
10	A23227-08	Dragarm Mount Mount LH						
11	A23227-05	Dragarm Mount Mount RH						
12	8612H	Bolt M16 x 110 ZP HT8.8						
13	A23228	8Ft Dragarm Pivot Shaft						
	A23231	10 Ft Dragarm Pivot Shaft						
14	A2324	Locking Collar 20mm						
15	A23258-05	Depth Control Trunnion Mount Packer						
16	AZ230010	Threaded Trunnion						
17	AZ230009	Trunnion Pivot Bush						
18	A23262	Depth Control Adjuster Handle						
19	A23261	Depth Control Adjuster Washer						
20	A23260	Depth Control Adjuster						
21	8512H	Bolt M12 x 55 ZP HT8.8						
22	9052	Washer Spring M12 ZP						
23	9152	Nut M12 Plain ZP						
24	9193	Nut M24 Plain ZP						
25	9268	Tension Pin 6 x 60						
26	9030	Washer Spring M8 ZP						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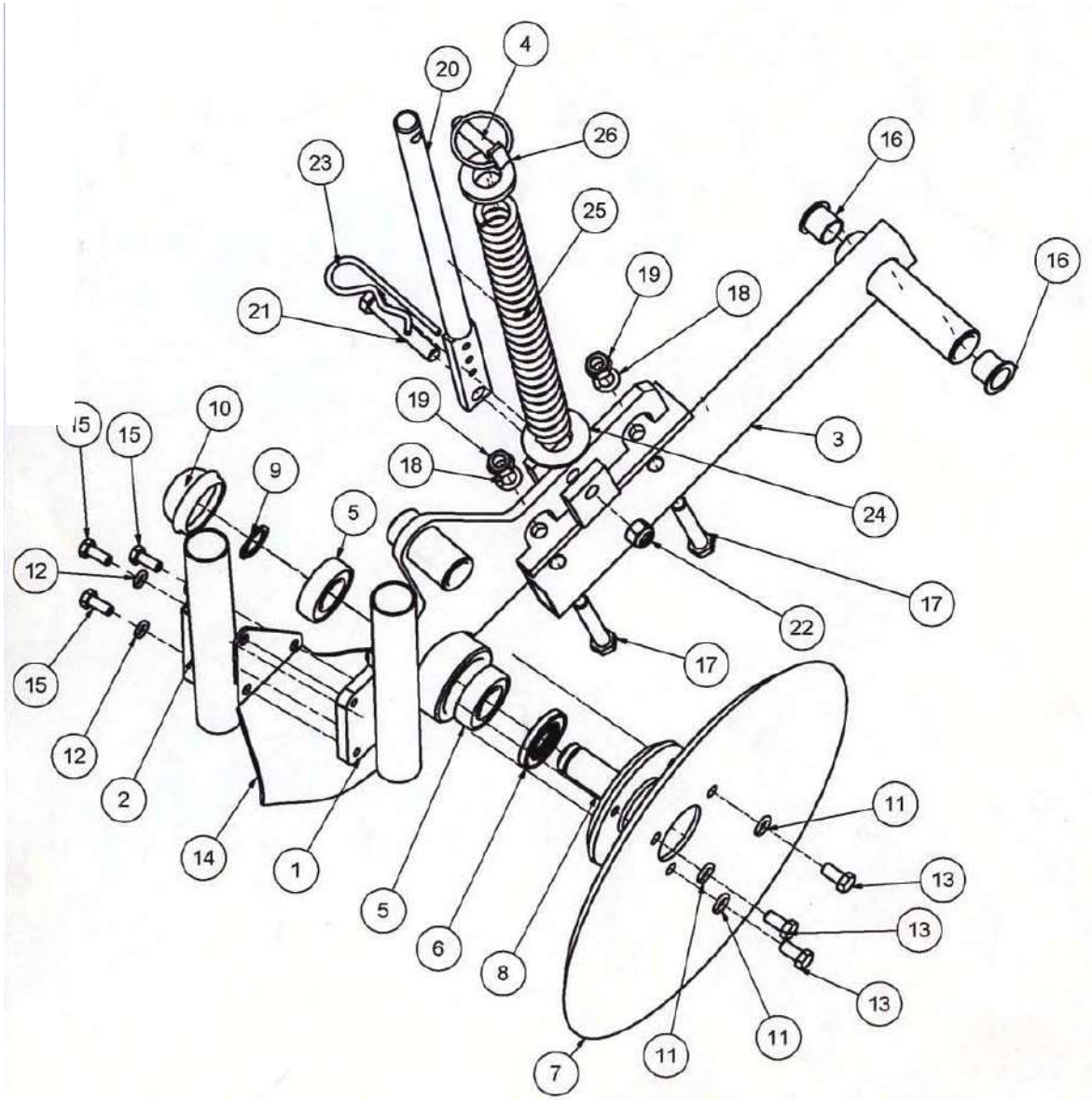
Item No.	Part No.	Description	Item No.	Part No.	Description	Item No.	Part No.	Description
1	A23220	16 Run Disc Press Beam LH						
	A23224	20 Run Disc Press Beam LH						
2	A23221	16 Run Disc Press Beam RH						
	A23225	20 Run Disc Press Beam RH						
3	A23222	Press Beam Clamp						
4	9061	Washer Spring M16 ZP						
5	8612H	Bolt M16 x 110 ZP HT8.8						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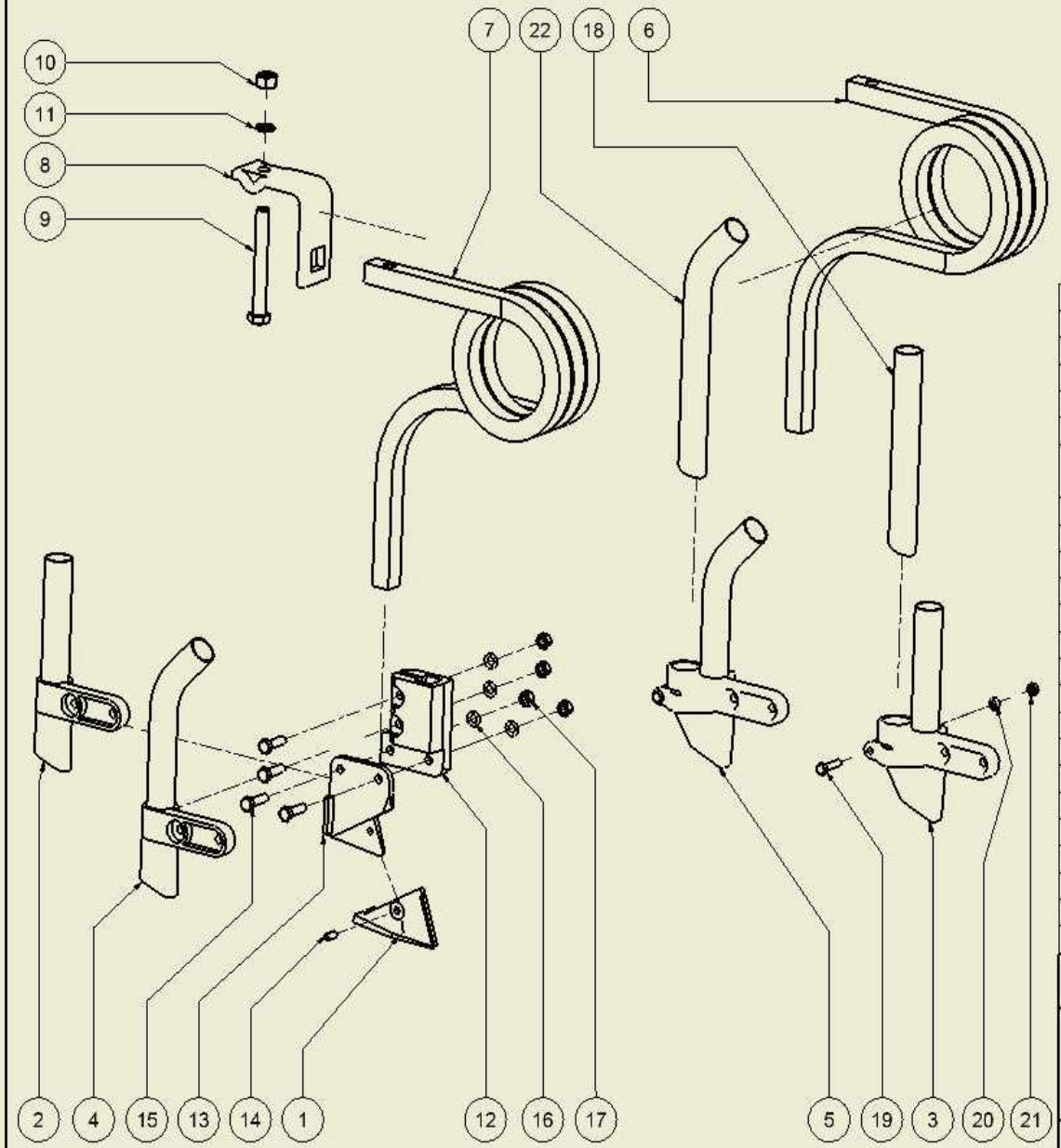
Item No.	Part No.	Description	Item No.	Part No.	Description	Item No.	Part No.	Description
1	A2852R	RH Disc Carrier	25	A23210	Spring- 3000 Disc Dragarm			
	A2852L	LH Disc Carrier	26	A23211	Drag Arm Push Rod Bush			
2	A23212-02	Fertiliser Tube						
3	A23201	Dragarm Short - Long Bush						
	A23204	Dragarm Long - Long Bush						
	A23206	Dragarm Long - Short Bush						
	A23208	Dragarm Short - Short Bush						
4	9288	Lynch Pin 11mm (7/16")						
5	9212	Bearing						
6	9235	Oil Seal						
7	A23194	14" Concave Disc (3 holes)						
8	A23195	3000 Disc Axle						
9	9244	25mm External Circlip						
10	A4623	52mm Hub Cap						
11	9041	Washer Spring M10 ZP						
12	9030	Washer Spring M8 ZP						
13	8525	Bolt 3/8" x 3/4" UNF						
14	A23196/99	Seed Shield RH / LH						
15	8311H	Bolt M8 x 20 ZP HT8.8						
16	A23202	X Lube Flanged Bush						
17	8525H	Bolt M12 x 75 ZP HT8.8						
18	9052	Washer Spring M12 ZP						
19	9152	Nut M12 Plain ZP						
20	A23209	Dragarm Push Rod						
21	8526H	Bolt M12 x 70 ZP HT8.8						
22	9151	Nut Nyloc M12						
23	9289	"R" Clip 5mm ZP						
24	9081	Washer Flat M24x54odx3 ZP						

CURRENT MODELS SINCE 2007



Parts List			
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	KoKo Point	A2382
2	1	Centre Coulter Casting & Pipe	A2380
3	1	Centre DBL Coulter & Pipe	A23160
4	1	Rear Coulter Casting & Pipe	A2398
5	1	Rear DBL Coulter Casting & Pipe	A23163
6	1	25mm LH Double Coil Tine	A2377-25L
7	1	25mm RH Double Coil Tine	A2376-25R
8	1	3000 Series Tine Clamp	A2378
9	1	M16 x 130 Bolt	8613H
10	1	M16 Nut	9161
11	1	16mm Spring Washer	9061
12	1	Coulter Clamp Casting 25mm	A2379U
13	1	KoKo Point Holder	A2381
14	1	8 x 20 Roll Pin	9265
15	4	M10 x 35 Bolt	8402H
16	4	10mm Spring Washer	9041
17	4	M10 Nut	9141
18	1	Adjustable Middle Seed Tube	A23160-02
19	1	M8 x 35 Bolt	8310H
20	1	8mm Spring Washer	9030
21	1	M8 Nut	9106
22	1	Rear Adjustable Seed Tube	A23163-01

AITCHISON INDUSTRIES

EXPLODED VIEW DRAWING

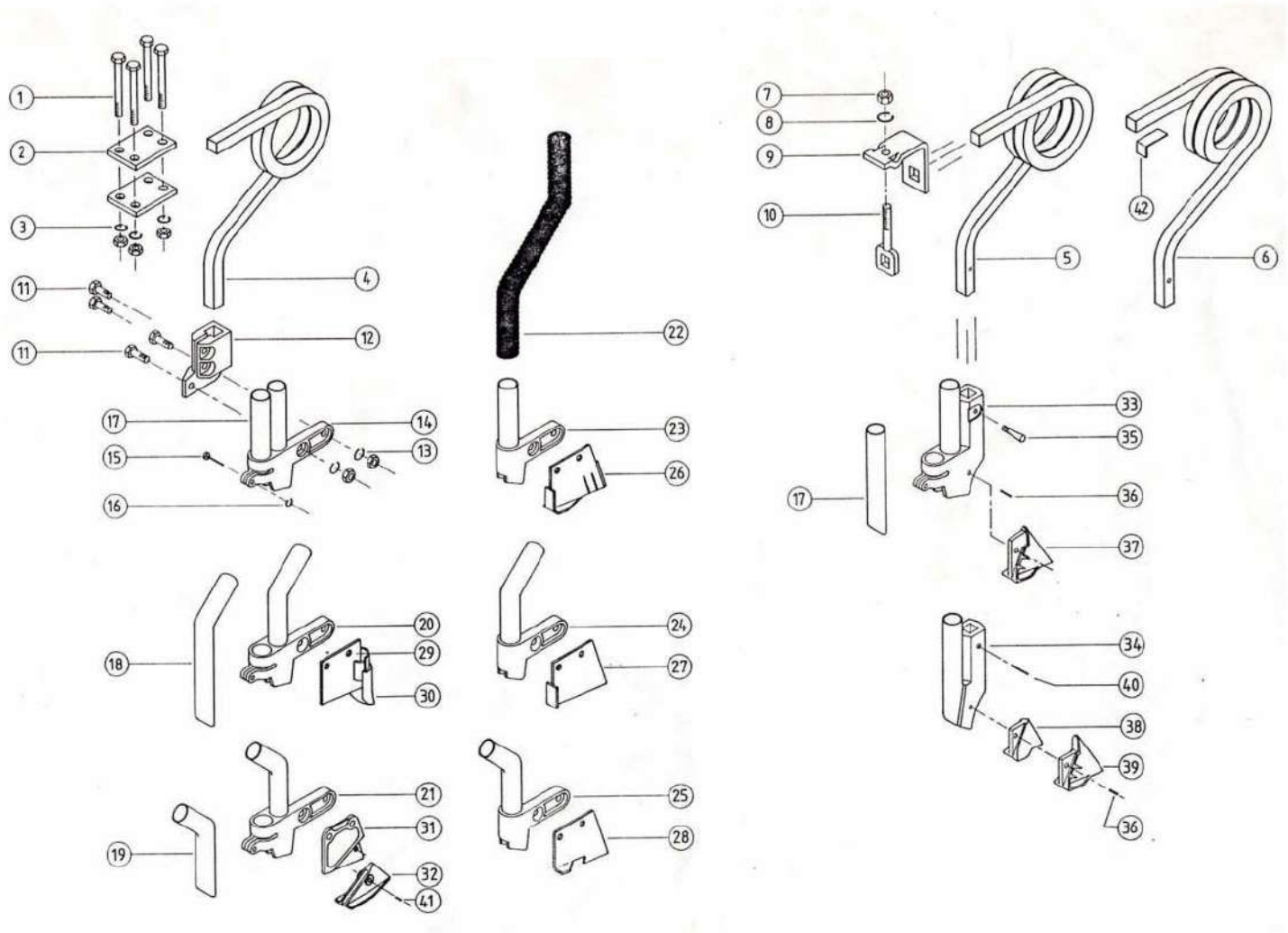
PRODUCT: *3000 Series 25mm Tine & Parts*

DRAWN BY: Phil.W
DATE: 17/03/2008

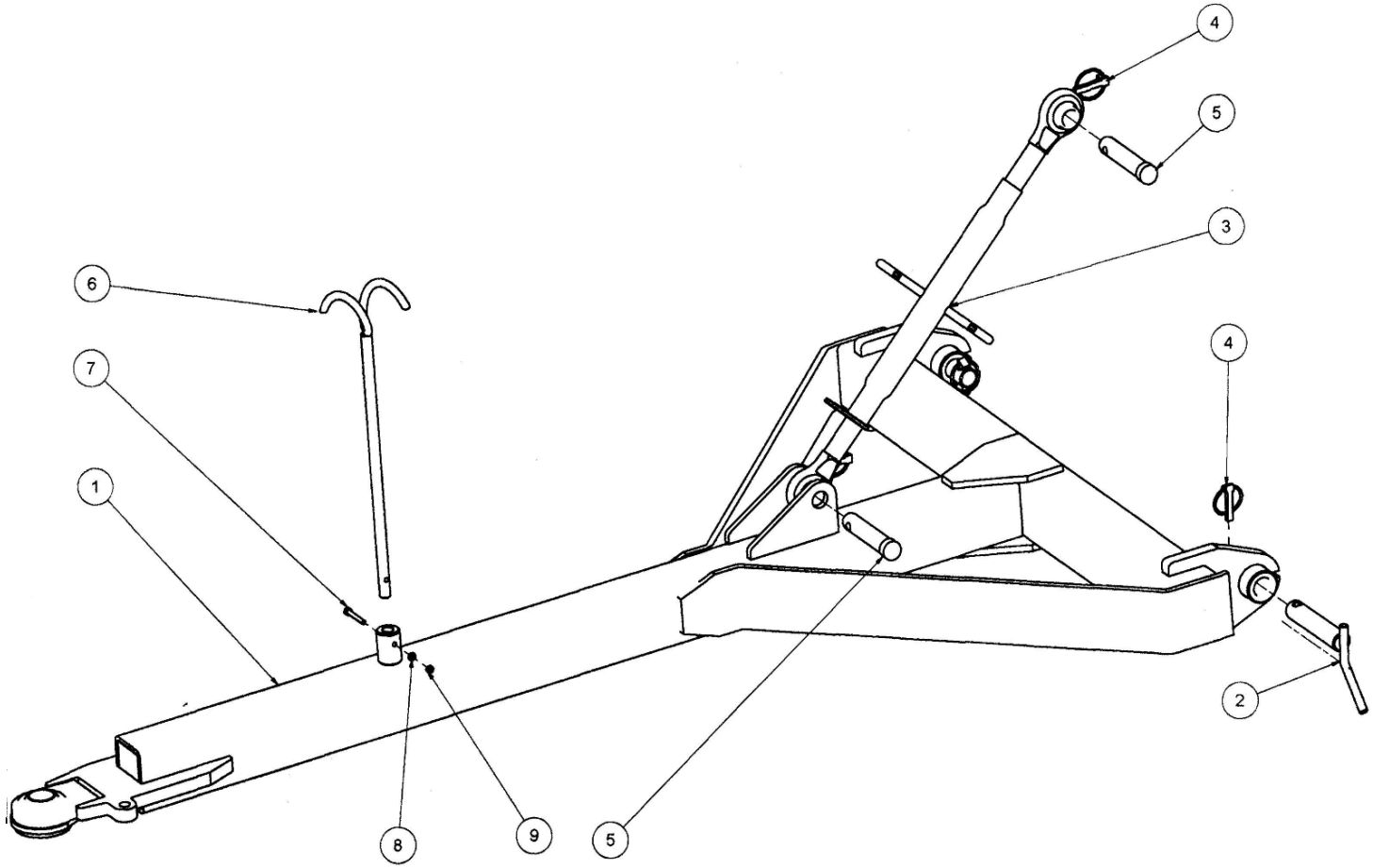
OLD MODELS

PRIOR TO 2007 MODELS

Seedmatic Tine And Point Selection



Item No.	Part No.	Description	Item No.	Part No.	Description	Item No.	Part No.	Description
1	8530H/9152	Bolt & Nut M12 x 130 ZP HT8.8		A2384-01	Seed Dropper Hose 35mm			
2	A23116	Bolt Clamp Plate	23	A2380	Centre Coulter Casting & Pipe			
3	9052	Washer Spring M12 ZP	24	A2398	Rear Coulter Casting & Pipe			
4	AZ340501	20mm RH Single Coil Tine	25	AZ250235	Front Coulter Casting & Pipe (Seed Only)			
	AZ340514	22.5mm RH Single Coil Tine	26	AZ250003	Baker "T" Superblade Tungsten/Hard Facing			
5	A2376	22.5mm RH Double Coil Tine	29	AZ470060	Marlow Point Blade			
6	A2377	22.5mm LH Double Coil Tine	31	A2381	Aitchison Point Blade			
7	9161	Nut M16 Plain ZP	32	A2382	Aitchison Knock-on/Knock-off Point			
8	9061	Washer Spring M16 ZP	33	AZ211386	Cambrian Casting Seed/Fert 22.5mm Hole			
9	A2378	Tine Clamp	34	AZ211383	Cambrian Casting Seed Only 22.5mm Hole			
10	8609	Eye Bolt M16	35		Ø10 x 45 Cotter Pin			
11	8402H/9141	Bolt & Nut M10 x 35 ZP HT8.8	36		8 x 30 Roll Pin			
12	AZ310026	Coulter Clamp Casting 20mm Hole	37	AZ310106	Large Tungsten "TUFFTIP" (Large Tongue)			
	A2379	Coulter Clamp Casting 22.5mm Hole	38	AZ211388	Small Tungsten "TUFFTIP" (Small Tongue)			
13	9041	Washer Spring M10	39	AZ211389	Large Tungsten "TUFFTIP" (Small Tongue)			
14	A23163	Centre Dbl Coulter Casting & Pipe	40	S4950	Tension Pin 8 x 55			
15	8309H/9106	Bolt & Nut M8 x 40 ZP HT8.8	41	9265	Tension Pin 8 x 25			
16	9030	Washer Spring M8 ZP	42	A2383	Tine Clamp Spacer Plate			
17	A23160-02	Adjustable Middle Seed Tube						
18	A23163-01	Rear Adjustable Coulter Tube						
19	AZ320010	Front Adjustable Coulter Tube						
20	A23163	Rear Dbl Coulter Casting & Pipe						
21	AZ250237	Front Dbl Coulter Casting & Pipe						
22	A2384	750mm Seed Dropper Hose (Front)						
	A2385	800mm Seed Dropper Hose (Centre)						
	A2399	850mm Seed Dropper Hose (Rear)						
	A2384-01	Fertiliser Hose (Front)						
	A2384-01	Fertiliser Hose (Centre)						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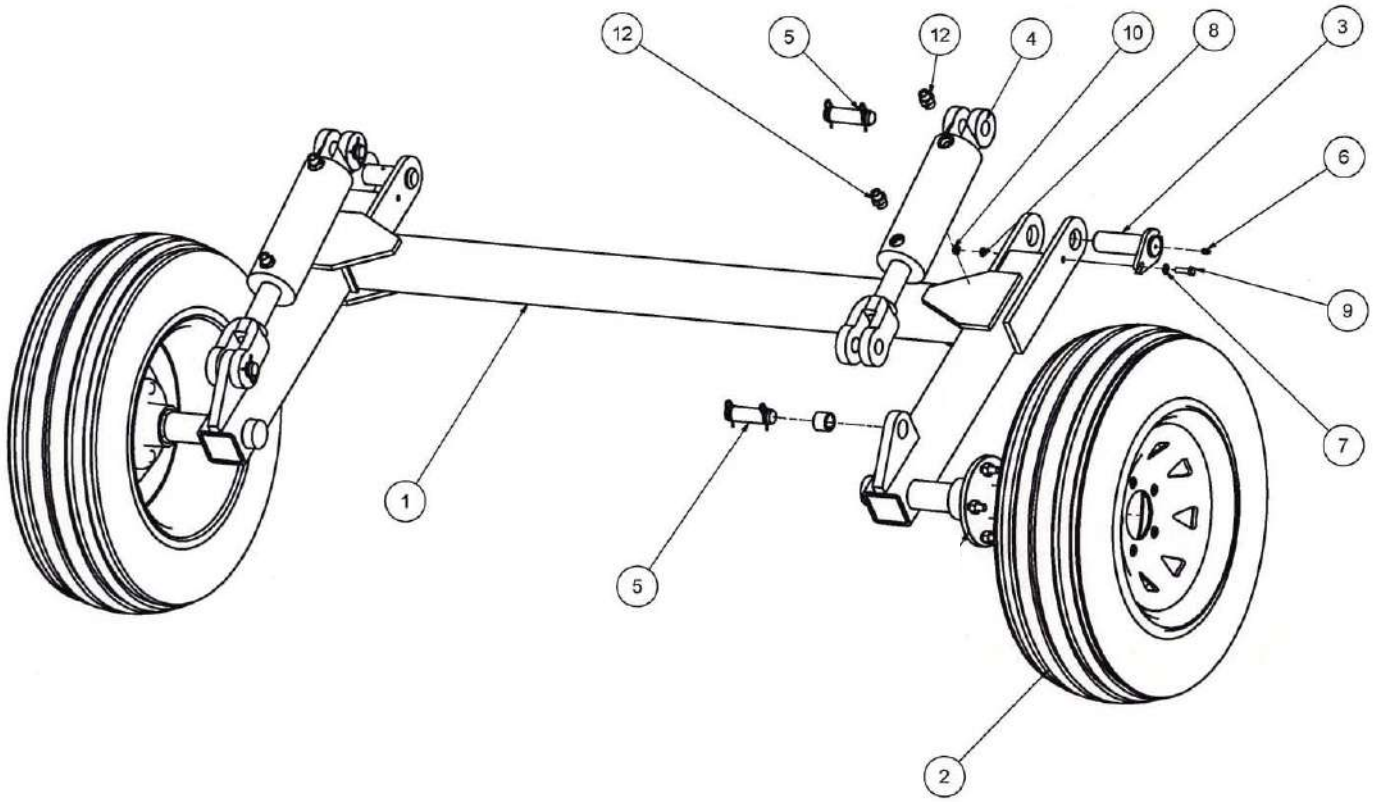
Item No.	Part No.	Description	Item No.	Part No.	Description	Item No.	Part No.	Description
1	A23188	Rear Transport Lift Drawbar						
2	A2327	Linkage Hitch Pin						
3	A23189-01	Top Link B-314						
4	9288	Lynch Pin 11mm (7/16")						
5	A23189-02	Top Link Pin B76						
6	A23188-15	Pig Tail- Hydraulic Hose						
7	8203H	Bolt M6 x 45 ZP HT8.8						
8	9021	Spring Washer M6 ZP						
9	9121	Nut M6 ZP						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Item No.	Part No.	Description	Item No.	Part No.	Description	Item No.	Part No.	Description
1	A23190	Transport Leg Assembly						
2	A23184	Wheel Assy- 14"						
3	A23185	Transport Leg Pivot Pin						
4	A23186	Ram 2.5 x 6 Double Clevis						
5	A23187	Pin 1"						
6	9323	Grease Nipple M6 Straight						
7	9031	Washer Flat M8 x21od x1,5 ZP						
8	9030	Washer Spring M8 ZP						
9	8301H	Bolt M8 x 30 ZP HT8.8						
10	9106	Nut M8 Plain ZP						
11	A23128	Disc Coulter Hardened Bush						
12	H3215	3/8 BSP to 3/4 UNO Adaptor						