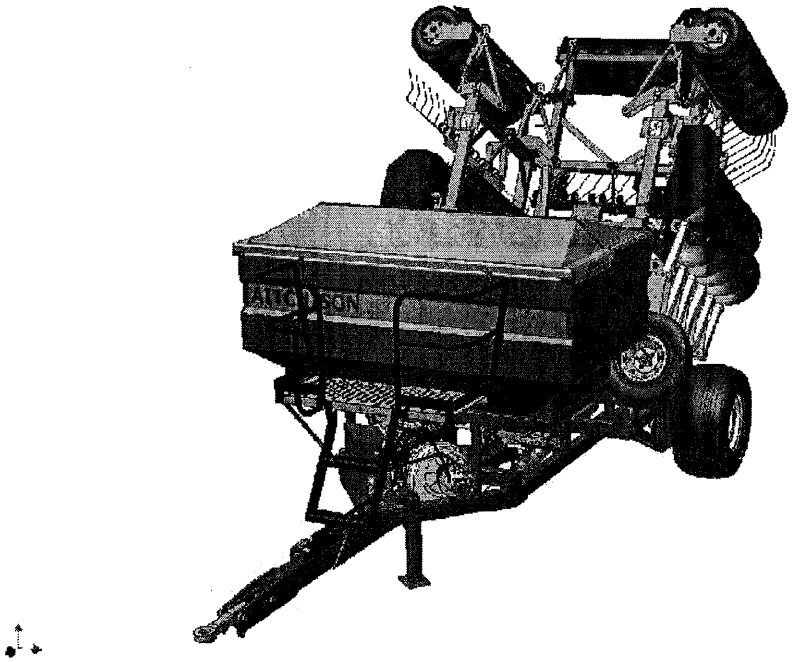
SEEDMAITC
Air-Pro
MK2 4132D
Disc Seed Drill



REESE ENGINEERING LTD
41 KELVIN GROVE ROAD – PO BOX 5056
PALMERSTON NORTH, 4414
NEW ZEALAND
PHONE: +64 6 357 9323
FAX: + 64 6 354 3155

www.reeseagri.com

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

⚠ WARNING

THE OPERATION AND ADJUSTMENT OF THE REESE MACHINE REQUIRES A COMPLETE KNOWLEDGE OF THE CONTENTS OF THIS HANDBOOK. TO VOID PERSONAL INJURY PLEASE ENSURE THAT ALL PERSONNEL ARE THOROUGHLY CONVERSANT WITH ALL DETAILS BEFORE COMMENCEMENT OF OPERATION OR MAINTENANCE.

COMPLETE AND RETURN WARRANTY REGISTRATION TO ENSURE VALIDATION.
IN THE USA RETURN TO: REESE EQUIPMENT INC, PO BOX 20188, LOUISVILLE, KY 40220-0188.
IN AUSTRALIA AND NZ RETURN TO: REESE ENGINEERING LTD, PO BOX 5056, PALMERSTON NORTH, NEW ZEALAND

WARRANTY

REESE warrants that the Machine delivered shall conform to the specifications set out in this Handbook.

REESE make no warranty of saleability or fitness for a particular use, nor is there any other express or implied warranty.

Subject to such other conditions, warranties and/or undertakings which may apply from time to time under any applicable law, REESE warrants with respect to each new AITCHISON Machine sold by its accredited agents, that for a period of twelve months from the dates of original retail sale, REESE will repair or replace free of charge any part found to be defective in factory materials or workmanship under normal use and operation within the United States of America, Canada, Australia and New Zealand provided that;

1. **The Machine**
   - **a.** Has been properly assembled and adjusted.
   - **b.** Has been properly used and operated within the capacity and operating limitations specified by the manufacture thereof, and
   - **c.** has been properly maintained and care for.

2. **The Warranty applies to direct purchase from an authorized AITCHISON dealer. If any defect or fault shall arise such purchaser must return the defective work or Machine to an authorized AITCHISON Dealer within ten working days of such defect or fault arising.**

3. **In the event of the purchaser attempting to repair the work or product without prior written consent of an authorized AITCHISON Distributor this guarantee shall become void. REESE may replace or repair any damaged product or work at its discretion.**

4. **In respect of such Machine this warranty does not apply to**
   - **d.** Misuses or carelessness in handling,
   - **e.** Non-compliance to REESE's operating and maintenance instruction,
   - **f.** Unauthorized repairs or alterations,
   - **g.** Consequential damage resulting from misuse or initials faults,
   - **h.** Parts subject to ware or damage as a result of normal operation i.e. **Disc, Tyres and Hydraulic components.**

5. **Any disputes in relation to this contract or product shall be governed by New Zealand law and shall be determined in a New Zealand court**

TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS

SEEDMATIC Air-Pro	**MK2 4132D**
Overall Width – Transport	2.8m
Overall Width – Seeding	4.6m
Sowing Width	4.0m
Working Speed	6-15 km/h
Tractor HP (min)	100
Weight Empty	4300kg
Seed Hopper Capacity	1000lts
Fertiliser Hopper Capacity	1500lts
No. Disc	32
Row Spacing	125mm
Opener Stagger	285mm

Optional Extras:

Small Seeds Box / Granule Box	#A3880-ASSY
Electronic Drive kit	#ASA2389
Airpro Control Monitor	#A38089

QUICK SYSTEM CHECK

1. Fan Hydraulics: has the drill been set to match your tractors hydraulic system? (Open/Closed centre system) --------see page 20.
2. Fan Hydraulics: does your tractor have a **PRESSURE FREE** return dump port? ----------see page 20.
3. Drawbar Lift Hydraulic: when seeding ensure that your tractors hydraulic bank connected the Drawbar Lift Rams is kept in FLOAT----------see page 15.
4. Seed Metering Units: has the metering units been set up to match your seed type & seeding rate? Ensure that the "Fine Seeds Lock" is locked in the correct position. ----------see page 23.

OPERATING TIPS

1. Run Fans Before Operating drill: by running the fans before seeding helps dry out the seed delivery tubes.
2. Run Fans After Seeding: this will help to clean out any seed/fertilizer that may still be in the air system.
3. Check Locks & Stops: check that the transport locks work & the carrier bolts are adjusted so they are carrying the weight of the machine in transit.
4. Transit Speed: keep your transport speeds below 40km/h at all times.
5. Turning: when seeding don't attempt tight turns, this will scuff up the ground and stress the disc especially in dry hard ground.
6. Storage: if you are storing the seed drill outside leave it in the unfolded state to prevent rain entering the delivery tubes.

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 operator's 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 MK2 4132D Drill is included with this manual. Please ensure that the registration card is correctly filled in.

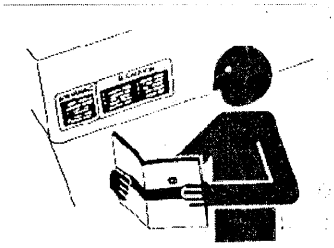
The owner must ensure the dealer, upon delivery of the machine, has completed the **WARRANTY REGISTRATION CARD**. This must be signed by the owner and returned to the factory promptly. **Failure to carry out this function could nullify warranty claim opportunities against the factory in the future**.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

FOLLOW SAFETY INSTRUCTIONS



Carefully read all safety messages in this manual and on your machine safety signs. Replace missing or damaged safety signs, these can be ordered from your local Aitchison dealer.

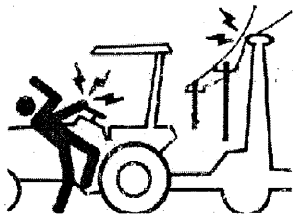
Learn how to operate the machine and how to use controls properly. Do not let anyone operate it without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your Aitchison dealer.

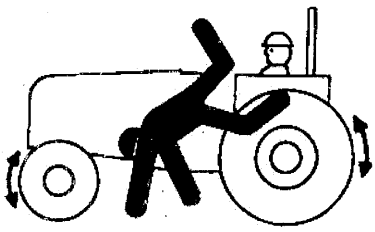
OPERATE YOUR MACHINE SAFELY

Be careful when operating machine to avoid injury.



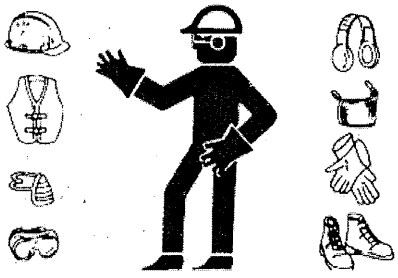
Serious injury or death can result from contact with electric lines. Use care when moving or operating the machine near electric lines to avoid contact.

Be careful when operating on hillsides, tractor can tip sideways if it strikes a hole, ditch or other irregularity.



Permit only one person, the operator, on tractor platform while tractor and drill are in operation. Keep riders off the seed drill. They are subject to injury such as being struck by foreign object and being thrown off the machine. They also obstruct the operators view.

WEAR PROTECTIVE GEAR

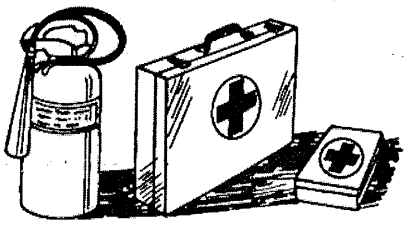


Wear close fitting clothes and safety equipment appropriate to the job.

Wear suitable hearing protective device as prolonged exposure to loud noise can cause impairment or loss of hearing. Wear safety gloves when working with discs as they can have sharp edges.

Operating equipment safely requires the full attention of the operator. Do not wear radio headphones while operating machine.

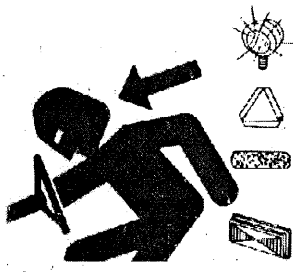
BE SAFE WITH CHEMICALS



Direct exposure to agricultural and hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with Aitchison equipment include such items as lubricants, coolants, fertilizer, paint and adhesives. If in doubt, contact your local Aitchison dealer for information about chemical safety and first aid procedures. Keep a fire extinguisher and first aid kit handy.

When disposing of chemicals, make sure hoppers are properly washed to get rid of any chemical residue and that any chemicals are disposed of in an approved manner. Follow instructions of chemical manufacturers for disposal methods.

USE SAFETY LIGHT AND DEVICES



Slow moving tractors and equipment can create a hazard when driven on public roads. They are difficult to see, especially at night. This could lead to personal injury or death if a collision with a vehicle occurs.

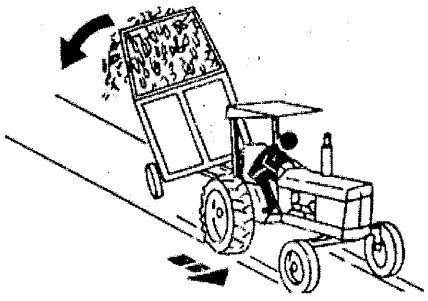
Whenever driving on public roads, use flashing warning lights. Provide extra lighting at night on machine and tractor. An implement safety lighting kit is available from Aitchison Industries.

TRANSPORT SAFELY

Do not exceed transport speed for machine; see your local Aitchison dealer. Never transport at any speed which does not permit adequate control of steering and stopping.
Reduce speed over rough ground

For safe transport, tractor must weigh more than machine.

REDUCE SPEED WHEN TOWING LOADS



Braking to stop towed loads from transport speeds can cause the towed load to swerve and upset. Reduce speed if towed load weighs more than the tractor and is not equipped with brakes. Use additional caution when towing loads under adverse surface conditions, when turning and on lines.

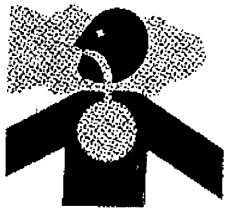
PRACTICE SAFE MAINTENANCE

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service or adjust machine while it is moving. Keep hands, feet and clothing from power driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.



Remove paint before welding or heating. Avoid potentially toxic fumes and dust when sanding, repainting or welding. Do all work outside in a well-ventilated area. Dispose of paint and solvent properly.

Avoid heating near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame, which could result in severe burns to yourself and bystanders.

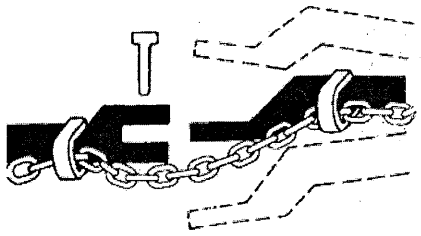
Avoid high-pressure fluids. Escaping fluid under pressure can cause injury. Relieve pressure before disconnecting hydraulic or other lines.

DISPOSE OF WASTE PROPERLY

Improper disposing of waste can threaten the environment and ecology. Use leak-proof equipment when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source. Use the manufacturer's directions on the correct way to recycle or dispose of waste.

USE A SAFETY CHAIN



A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning.
Make sure that the chains you are using have a strength rating double or greater than the gross weight of the towed machine. Do not use the safety chain for towing.

GENERAL OPERATION IN THE FIELD

When the drill is in work in the field, adjust the front Depth Wheels evenly across the width of the drill; also adjust the rear Press Rollers across the width of the drill to give the required opener 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 THE AIRPRO MK2-4132D

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.

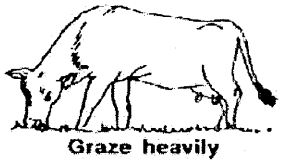
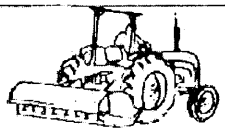
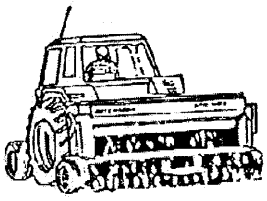
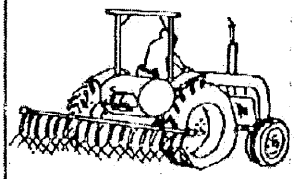
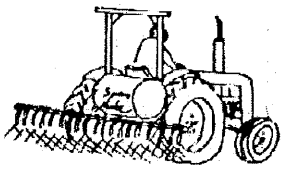
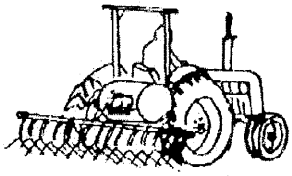
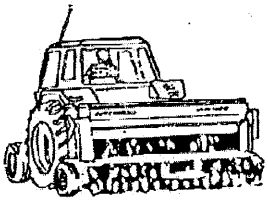
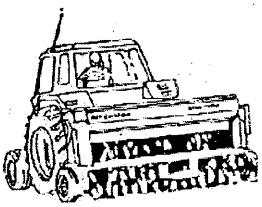
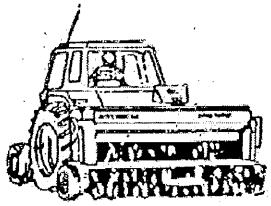
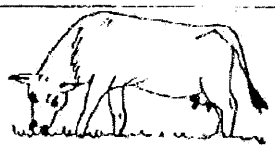
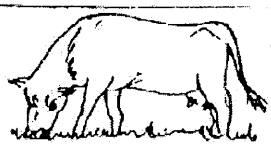
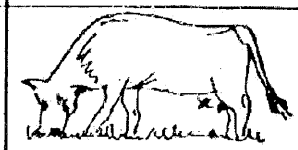
TECHNIQUES AND TIMING FOR PASTURE RENOVATION

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 has 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 Air-Pro.

Watch for slugs. Slugs like the moist groove produced by the single disc 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 AIR-PRO MK2 4132D

We are not in a position to give total formal recommended seeding rates, chemical usage and fertiliser recommendations because of the 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.

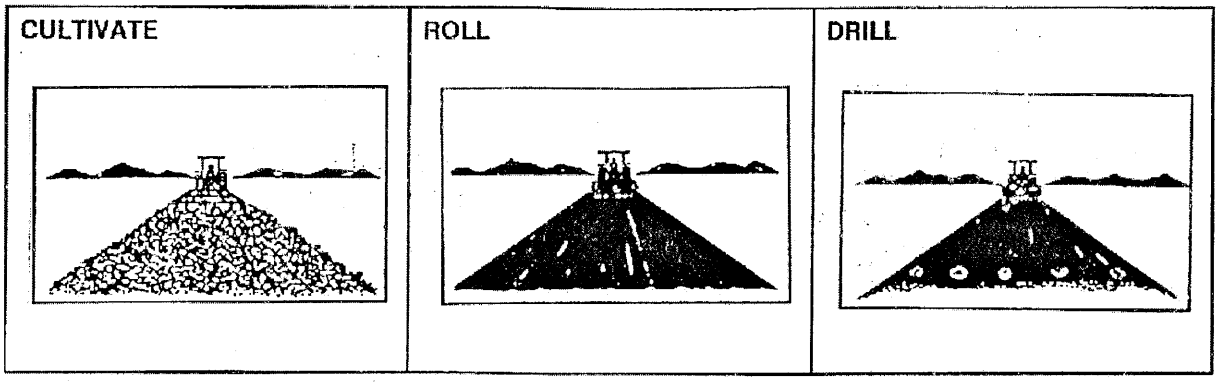
Wheat and Barley – Direct seeding in early spring or autumn depending on variety. Spray out pasture with approved herbicide (may not be necessary after brassica). Always sow with fertiliser.

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.

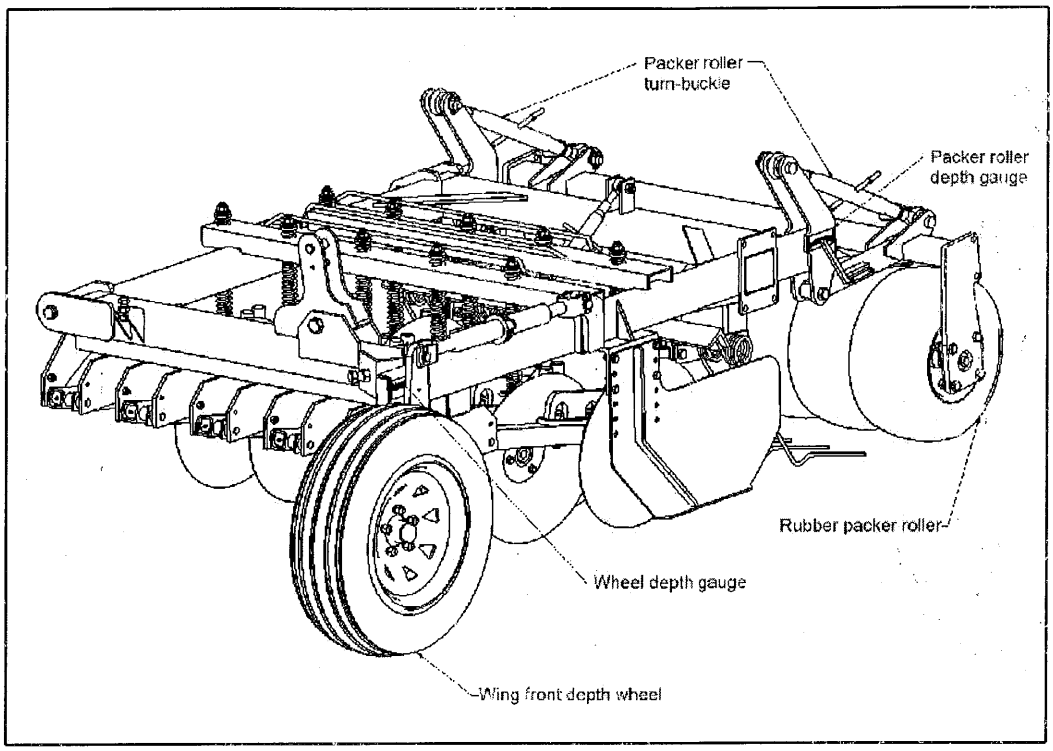
SOWING IN CULTIVATED SOILS

As this is a disc 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 the Seedmatic Air-pro, 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.



SEED DEPTH ADJUSTMENT

The seeding depth on the Air-Pro 4132D is controlled by the front row of depth / transport wheels and by the rear packer rollers.
LH WING SHOWN.



FRONT DEPTH WHEELS

Each wing RH/LH has a front "Depth Wheel"; this wheel holds the end of the wing at the desired seeding depth.
To adjust these wheels unlock the depth adjustment ratchet and set to the desired height. **Re-lock** the depth adjustment ratchet. **Damage** or changing depth may occur if the ratchets are **not** re-locked.
The transport wheels are also depth wheels, these wheels also need to be set at the same height as the wing depth wheels.
Use the "Depth Gauge" decals to set all the front wheels at the same height. **Re-lock.**

PACKER ROLLERS

The "Packer Rollers" do two jobs: they help to cover the seed slots and control the seeding depth.
These Packer Rollers should be set so the depth of the rear row of Disc are at the same depth as the front row of Disc.
To adjust these rollers loosen the lock tap on the turn-buckles, adjust both turn-buckle in small increments until desired depth is achieved. **Ensure that the turn-buckle handle (Pin) is pointing straight down**, re-tighten lock tap. **Damage** or changing depth may occur if lock taps are **not** re-tightened.

NOTE:

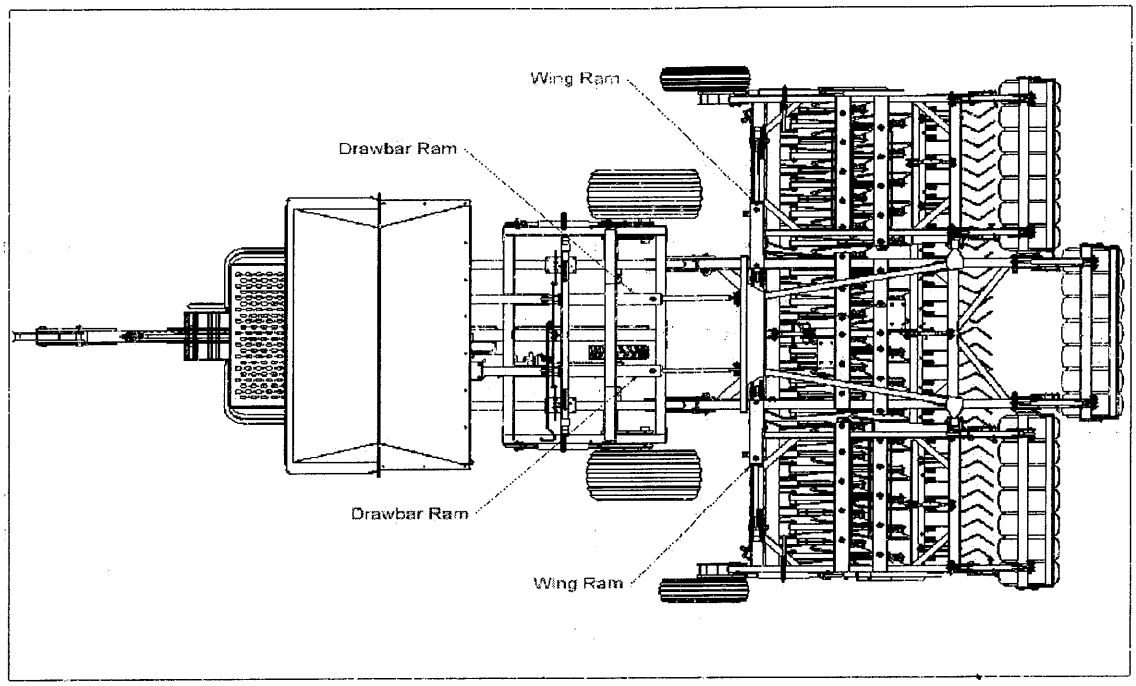
Lift Packer Rollers clear of the ground before attempting adjustments.
The higher you adjust the Depth Wheels and Packer Rollers from the ground the deeper your seed placement will be.

FOLDING HYDRAULIC SYSTEM

The MK2-4132D is fitted with two separate folding hydraulic systems.
One is the "Drawbar Rams" and the other is the "Wing Rams".

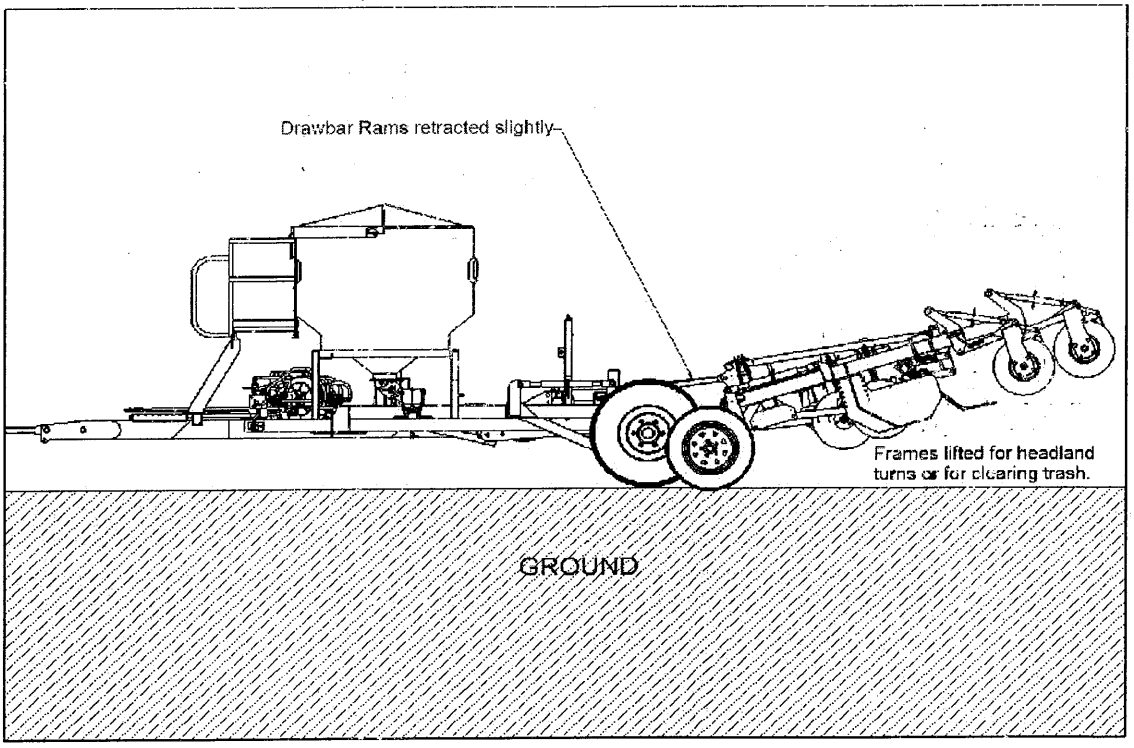
NOTE: Ensure that the MK2-4132D is connected to the tractors drawbar before folding/unfolding to prevent damage or injury.

HYDRAULIC RAMS



DRAWBAR RAMS

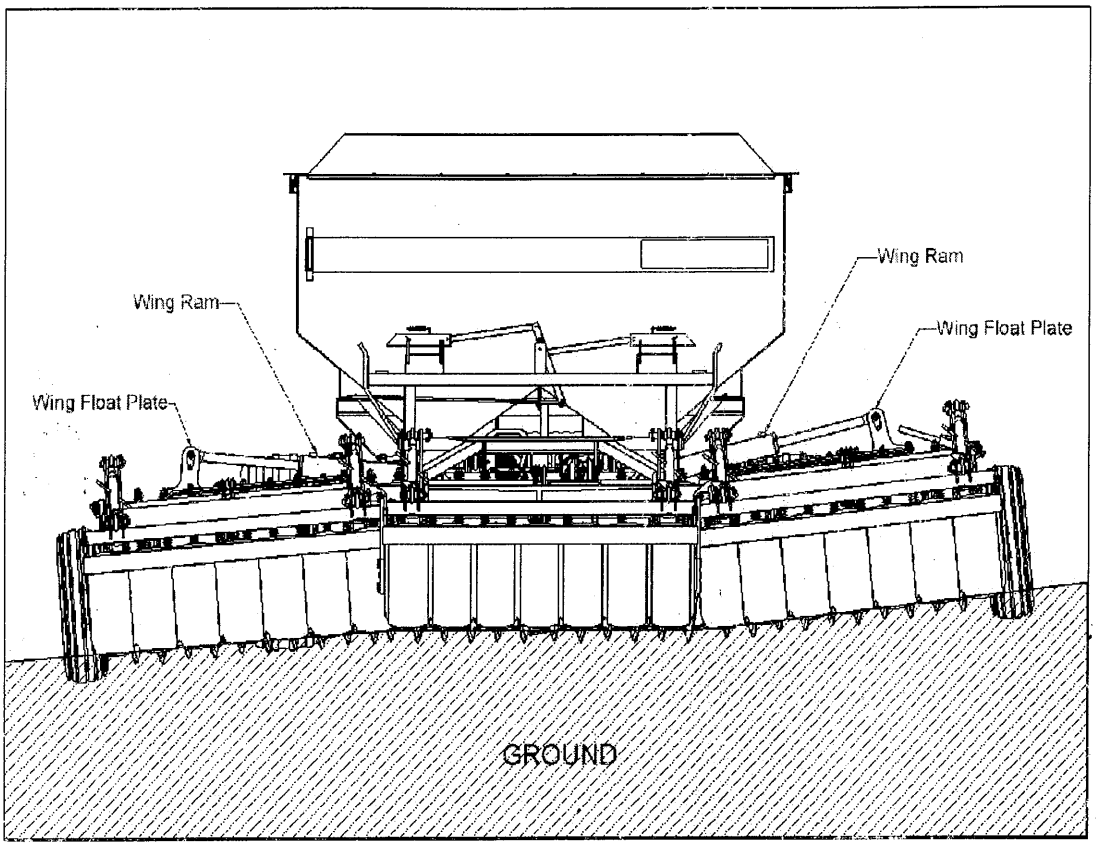
The Drawbar Rams are used to fold/unfold the machine, they are also used to lift the three rear sections clear of the ground in the headlands of the paddocks. They can also be used to lift the rear sections to clear any trash that might be caught up in the Disc.



NOTE: When the drill is in work planting seeds the **Drawbar Rams should be left in float.**

WING RAMS

The wing rams are only used to fold/unfold the machine for transport.
Each ram is fitted with a "Wing Float Plate". This plate allows the wings to float over the contours of the ground being sown



NOTE: When the drill is in work planting seeds the **Wing Rams should be fully extended**, there is no need to leave them in float.

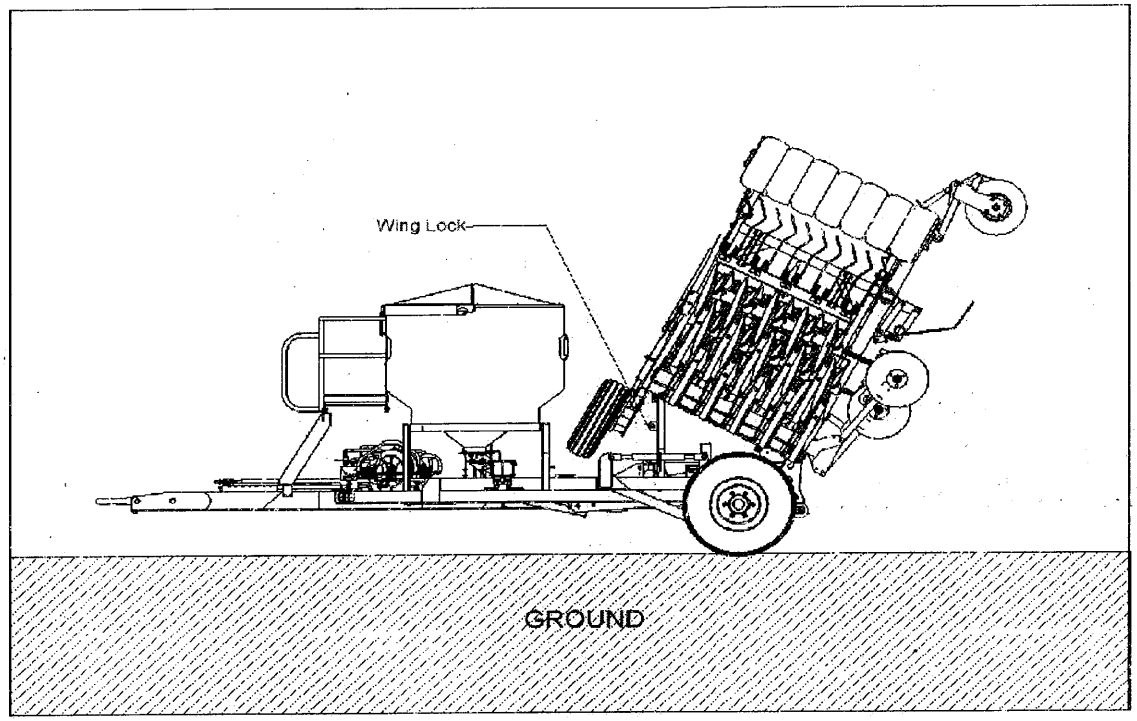
FOLDING & UNFOLDING

When you are about to unfold the MK2-4132 the "Wing Lock" will need to be pulled outward and locked out. To do this the operator will need to exit the tractor and physically pull out and lock-out the Wing Lock mechanism.

NOTE: Ensure that the MK2-4132 is connected to the tractors drawbar before folding/unfolding to prevent damage or injury.

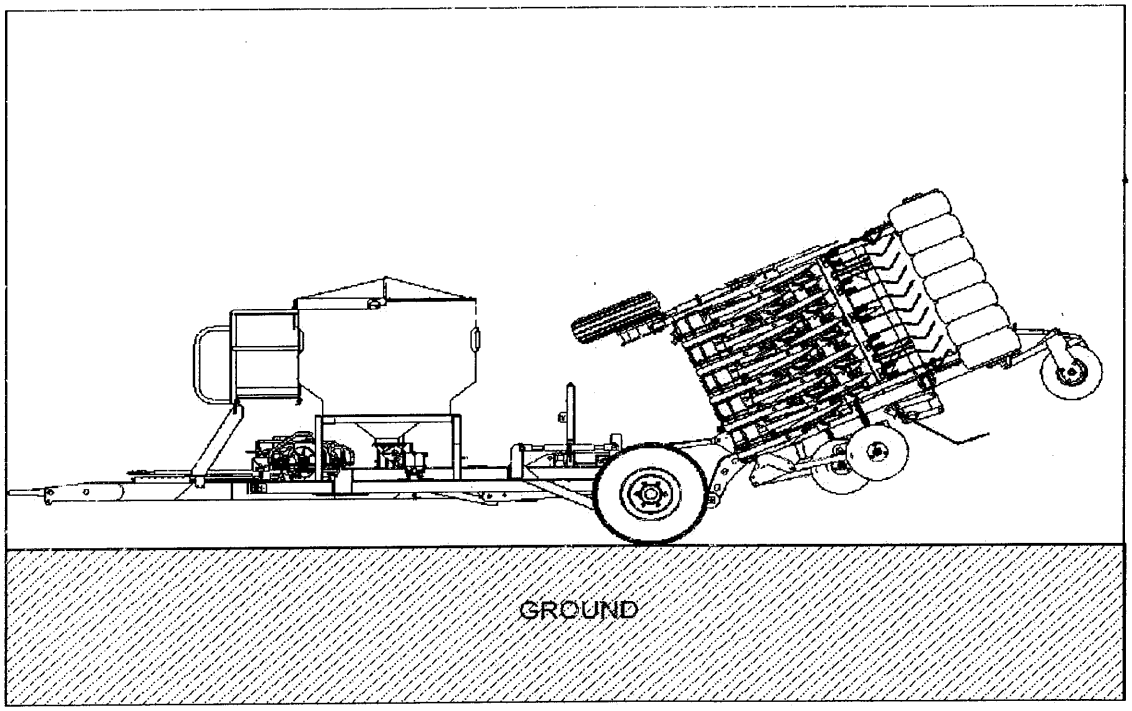
STEP 1. UNLOCK

Lock-out Wing Lock mechanism.



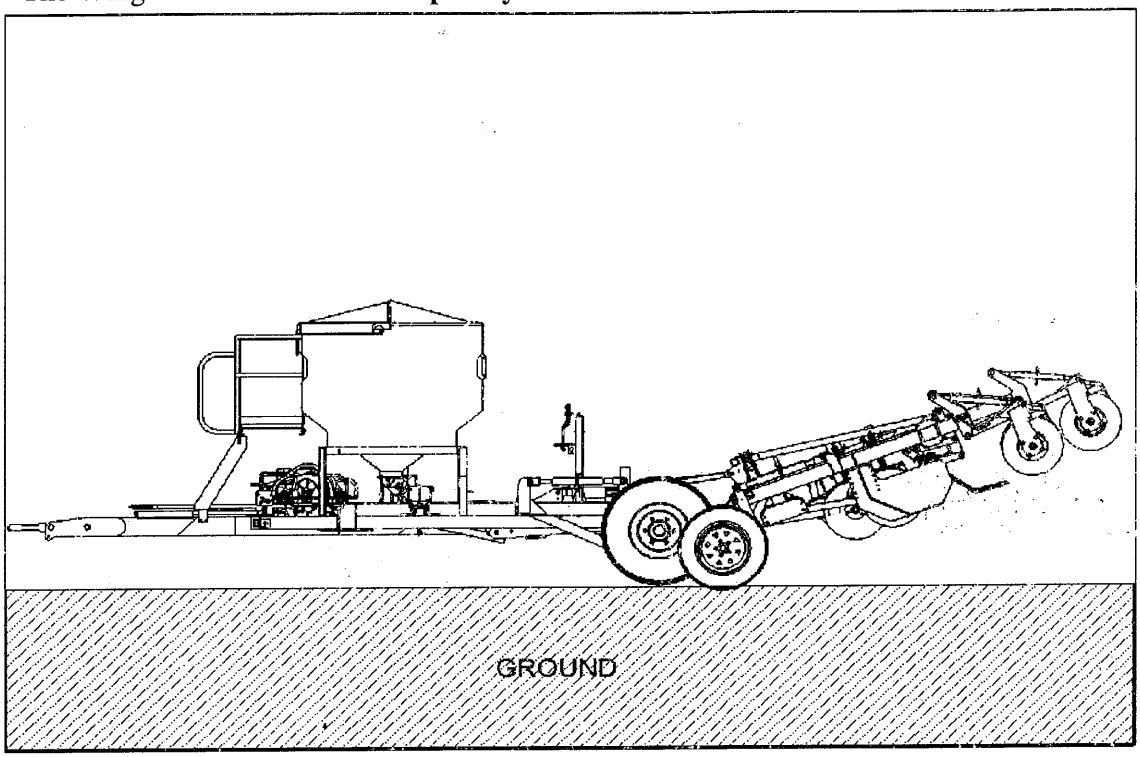
STEP 2. LOWER BACKWARDS

The Drawbar Rams can now be **partly extended**. (Half way).



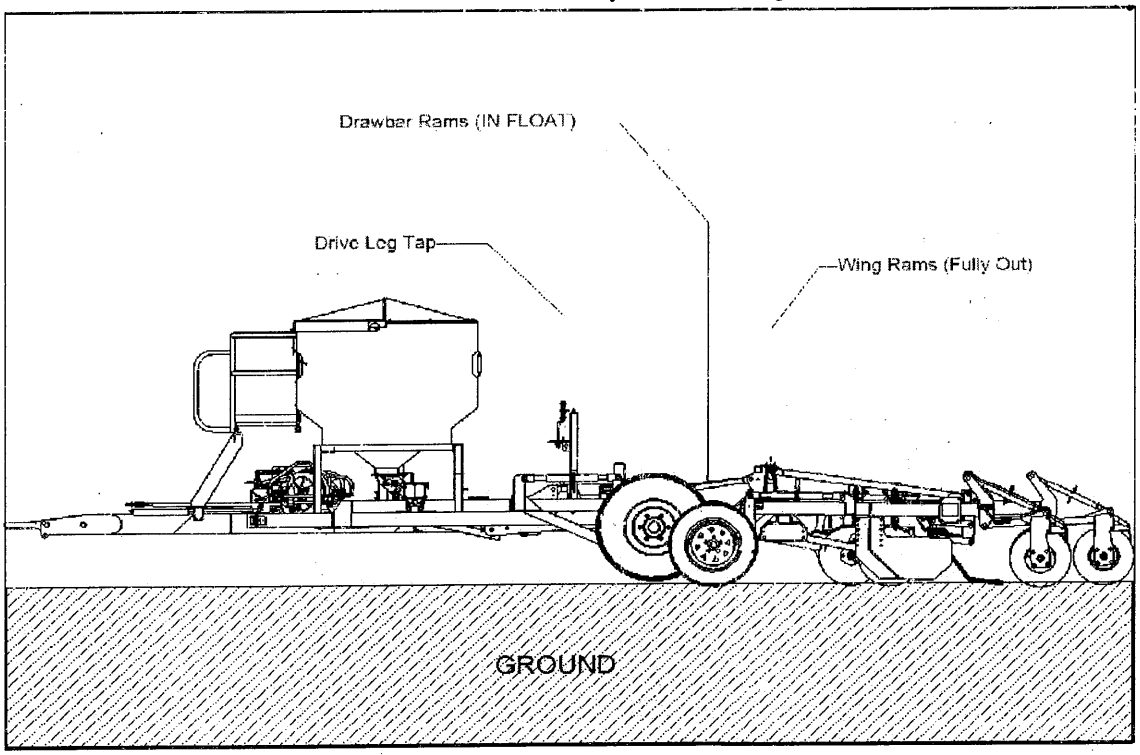
STEP 3. FOLD OUT WINGS

The Wing Rams can now be **completely extended.**



STEP 4. LAY FLAT ON GROUND

The Drawbar Rams extended so the seed drill lays flat on the ground. (**Rams in float**).

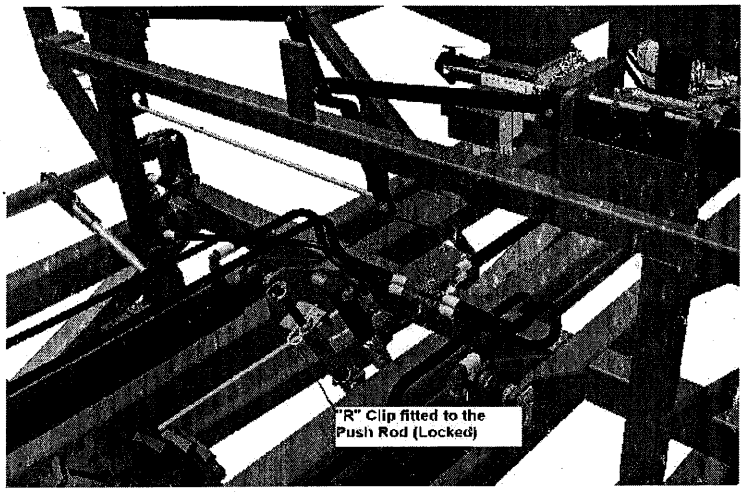


NOTE: If the wings are folded/unfolded without the Drawbar Rams extended half way (As shown in Step 2) **damage will occur.**

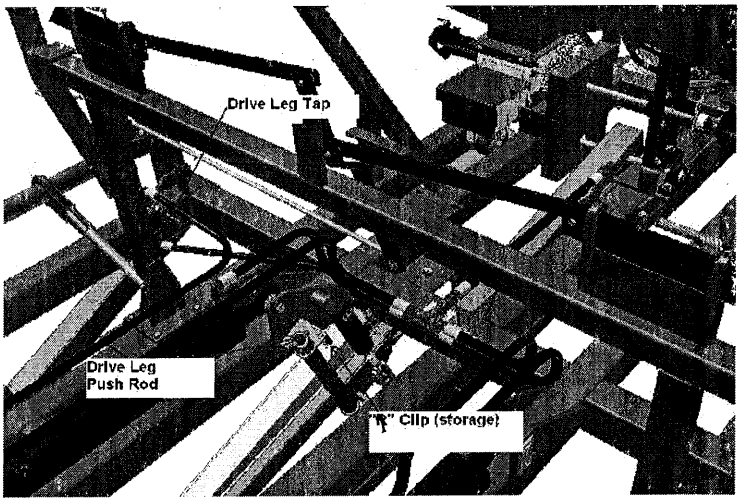
STEP 5. TURN DRIVE WHEEL RAM TAP ON

After the seed drill is lowered flat onto the ground the "R" clip can be removed from the drive leg Push Rod.
The "Drive Wheel Tap" can now be **turned ON**, this will engage the drive wheel onto the ground.
This Drive Wheel is the drive/clutch that drives the seed and fertiliser metering units.

Drive Leg Tap & "R" Clip.



Drive Wheel Up (Transport)



Drive Wheel Down (Seeding)

FOLDING UP FOR TRANSPORT

To fold the seed drill up for transport follow steps 4,3,2 & 1.

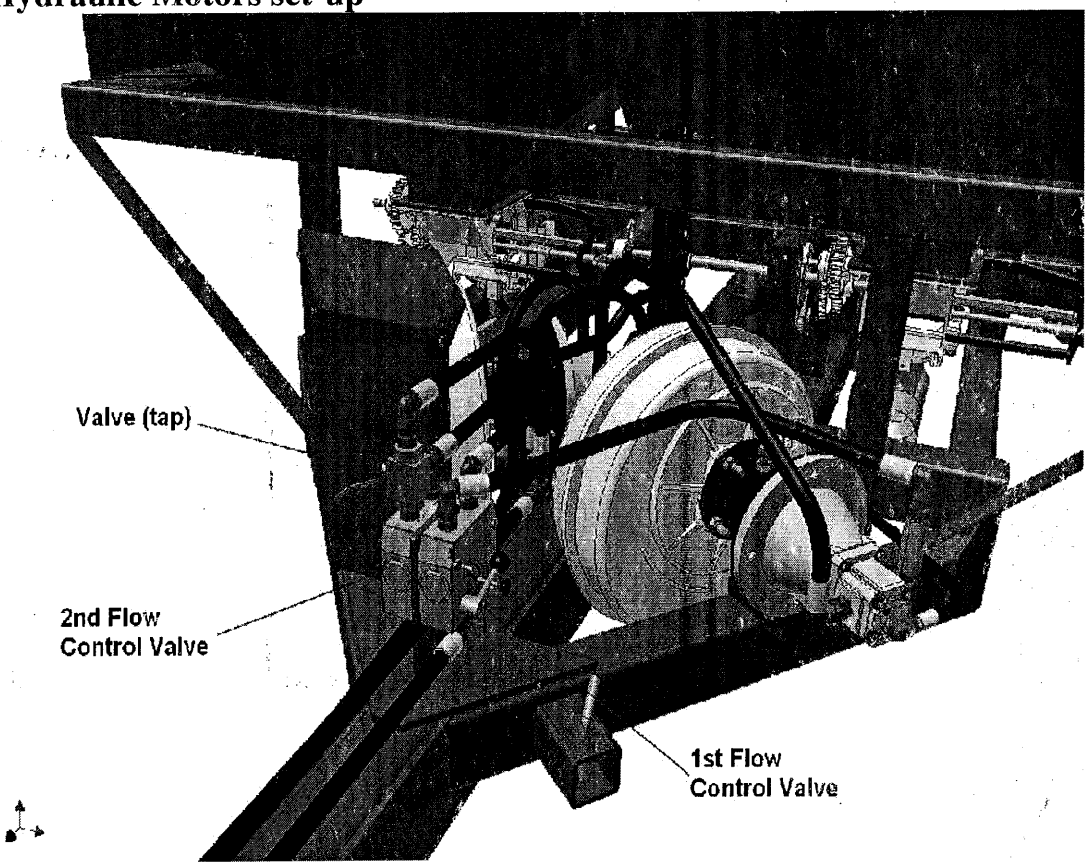
With the seed drill lifted at the rear **STEP 3, ensue that the Drive Wheel is clear of the ground:** the Drive Leg Tap should be turned off and the "R" clip fitted through the drive leg Push Rod. This "R" clip is a second fail-safe device.
The Wing Lock mechanism can also be **unlock** at this stage too.
The Wing Lock will automatically lock when the seed drill is completely folded up/in.

NOTE: If the drive leg is not **LOCKED** in the **UP** position while the seed drill is being transported **damage may occur**.

HYDRAULIC FAN DRIVE

The MK2-4132D has 1 hydraulic fan drive system; this hydraulic system has two hydraulic motors controlled by two flow control valves.
One fan us used to deliver product from the seed hopper and the other fan is used to deliver product from the fertiliser hopper.
The hydraulic motors require 10 to 20 l/m to run and should turn at about 2000 to 4000rpm.
This hydraulic system has been designed to be compatible with either open centre or closed centre hydraulics; this is achieved by having a valve (tap) plumbed into the hydraulic circuit.
Have this valve **closed** for "**Closed Centre**" systems or **open** for "**Open Centre**" systems.
This system requires continuous oil flow. One PRIORITY hydraulic bank with the lever locked on, (motor spool) setting. It's very important that the fans maintain a constant speed especially when the seed drill is lifted for the headlands.

Hydraulic Motors set-up



System overview.

The tractor oil is fed into the 1st Flow Control Valve, some oil is used to drive the SEED fan. The excess oil is then diverted to the 2nd Flow Control Valve, which is used to run the FERTLIZER fan, the oil is then returned back to the tractor.
The **CASE DRAIN** hose (the hose with the female coupling) is used to drain any oil that has sneaked pass the main seals in both hydraulic motors. This CASE DRAIN hose needs to be connected to the tractor oil tank **without any restriction.**

NOTE: If the case drain hose is pressurised or blocked sever **damage will occur.**

SETTING THE HYDRAULIC FAN DRIVE

1. Ensure that the "Case drain hose" is connected.
2. Ensure you have set the Valve (tap) to match your tractors hydraulic system. Valve closed for closed centre or valve open for open centre hydraulics.
3. Ensure that the hydraulic feed and return hoses are connected to the priority hydraulic bank on the tractor and this bank spool is set to **motor setting.**
4. Ensure that the "RPM' monitors are on.

NOTE:

This hydraulic system has two flow restrictor valves built into it; these valves restrict the amount of oil that can be pumped through the system. This protects the hydraulic motors from over revving.
If the fan motors don't start up slow the flow of oil down from the tractor.

FIRST INITIAL SETUP.

Close the 2nd Flow Control Valve (lever up) and have the 1st Flow Control Valve haft open.
With oil flowing adjust the 1st Flow Control Valve until you have your desired fan RPM (2800) for most smaller seeds. Lock valve lever in place with thumbscrew.
With oil flowing now open and adjust the 2nd Flow Control Valve until you have your desired fan RPM (3400) for most fertilizers. Lock valve lever in place with thumbscrew.
Now check that both fans are operating at their desired RPM, if not readjust Flow Control Valves until this is achieved.

After the fan speed have been set to their desired speeds, the tractors oil flow can be adjusted so it delivers **JUST** enough oil to keep both fans at their set speeds.
This will ensure that the tractor has enough oil left over to run all the other hydraulic systems on the drill.

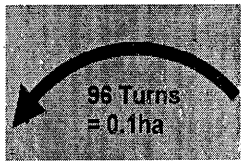
CALIBRATION

The MK2-4132D is fitted with two adjustable fluted rollers; these fluted rollers gauge the amount of seed/fertiliser that is to be dispensed into the airstream.

NOTE: Only clean dry granulated fertiliser products should be used:
Using inferior products may result in blockages and failure of the Fluted Rollers.

SEED & FERTILISER RATES

	SEED TYPE	WHEAT	BARLEY	OATS	BEANS	GRASS	PHOSPHATE
	(Kg/Litre)	0.77	0. 68	0.50	0.85	0.36	1. 20
		Kg/ha	Kg/ha	Kg/ha	Kg/ha	Kg/ha	Kg/ha
SCALE: STANDARD SOWING "A"	10	16	14	20	22		40
	15	36	30	34	39	**17**	**61**
	20	53	44	48	57	**24**	**81**
	25	69	57	62	74	**32**	**104**
	30	85	72	**75**	**92**	**39**	**128**
	35	**100**	82	**89**	**109**	47	**150**
	40	**114**	93	**102**	**127**		**175**
	45	**130**	**106**	**116**	**145**		**200**
	50	**144**	**118**	**129**	**162**		
	55	**160**	**133**	**140**	178		
	60	**175**	**145**	**154**	197		
	65	**190**	**157**	**167**	214		
	70	**205**	**170**	**180**	231		
	75	221	**182**	196	249		
	80	237	**195**	207	266		
	85	251	208	219	284		
	90	267	220	232	301		
	95	282	234	245	318		
	100	298	246	256	335		
	105	314	260	270	352		
	100	330	273	282	370		

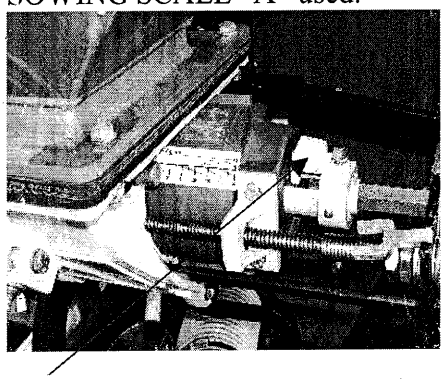


FINE SEEDS

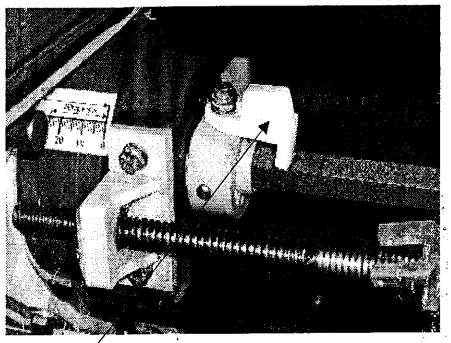
	RAPE	GRASS
	Kg/ha	Kg/ha
SCALE: Fine seeds "Z" 2.5	**1.7**	
5	**4.3**	
7.5	**6.4**	2.6
10	**8.5**	4.9
12.5	**10.7**	**6.8**
15	12.9	**8.6**
17.5	15.0	**10.5**
20	17.1	**12.4**
22.5	19.3	**14.1**
25	21.5	**15.2**

FINE SEED SETTING

Each fluted roller-metering unit has a FINE SEEDS setting; this fine seed setting is used for the metering of fine seeds or granules at low rates.
The fine seed lever works on from 0 to 25 on the fine seed scale "Z", if higher rates than this are needed the fine seeds lever needs to be locked out and the STANDARD SOWING SCALE "A" used.



Fine seeds lever locked out (scale "A").
For sowing most seeds from 15kg/ha up.



Fine seeds lever locked (scale "Z").
0 < 25 only.
Adjustments over 25 with lever lock will result in **damage**.

CALIBRATION OF SEED & FERTILISER

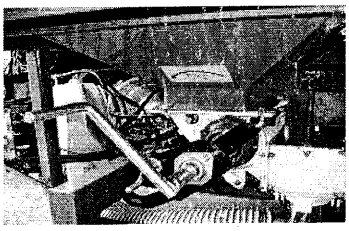
1. Ensure that the "DRIVE WHEEL" is clear of the ground.
   If not use the drawbar ram system to disengage the wheel.
2. Place Seed/Fertiliser in hopper.
3. Remove "Venturi" from bottom of metering unit.
4. Turn Crank Handle to prime system. Discard product.
5. Turn Crank Handle 96, 48, 24 or 12 turns.

Choose the amount of turns that meters enough product that can be weighed accurately.

6. Weigh metered product in grams. = (Weight)

96 turns of crank handle; (weight) -:- 100 = kg/ha.
48 turns of crank handle; (weight) x 2 -:- 100 = kg/ha.
24 turns of crank handle; (weight) x 4 -:- 100 = kg/ha.
12 turns of crank handle; (weight) x 8 -:- 100 = kg/ha.

Crank handle.

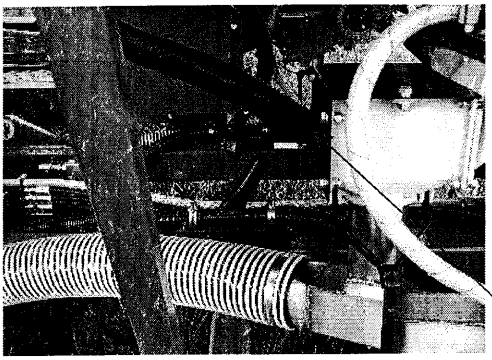


NOTE: The fans should <u>not</u> be running during calibration.

SMALL SEEDS BOX

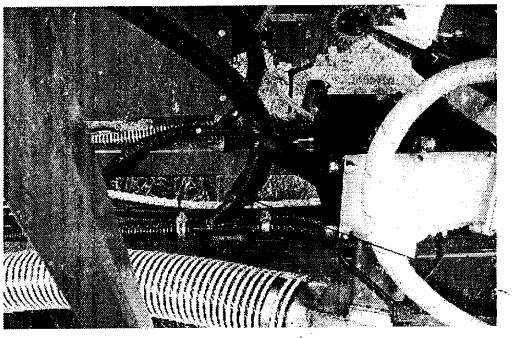
Most MK2-4132D are fitted with a small seeds box; this small seeds box is fitted to the rear of the main hopper. This small seeds box is used to apply small seeds or slug bates at independent rates.
This small seeds box has a variable speed gearbox to control its metering rates.
Product metered from this box can be placed down the main airstream or broadcast at the rear of the seed drill.

PRODUCT DOWN MAIN AIRSTREAM



Delivery hose attached here for product down the main airstream.

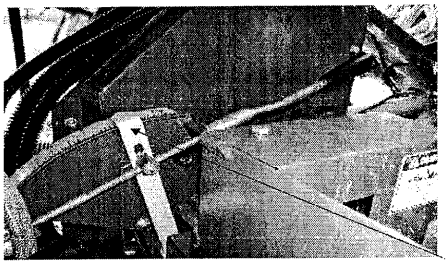
PRODUCT BROADCASTED



Delivery hose attached here for product broadcasting.

SMALL SEEDS BOX CALIBRATION

The small seeds box is calibrated in the same manner as the main hopper.
Unplug the bottom end of the **two seed tubes** from either main air stream or broadcast venturi and place **both** in container to catch metered product.
Turn crank handle the required amount of turns; 80, 40, 20 or 10.
Weigh product;
Divide by the appropriate numbers. (see "CALIBRATION OF SEED & FERTILISER").
If rates need to be increased/decreased adjust the variable speed gearbox. (Scale 1<40.)



Scale 1<40.

GENERAL MAINTENANCE

LUBRICATION

The variable speed gearbox should be kept filled to the sight glass, though top-ups should seldom be necessary. The oils recommended are: BP VANELLUS DD50, GR-XP 46, MOBIL, DTE 25, SHELL, DONAX TM or equivalent.

NOTE: DO NOT USE A HYPOID TYPE OF OIL. Damage will occur.

Machines Grease Points:

Machine Grease Points:	**No. Of Nipples**	**Greasing Regularity**
Dragarm units:		
Dragarm Front Pivot	1 per dragarm	10 hours
Frame:		
Depth Leg Pivots	1 per leg	40 hours
Drawbar Main Pivots	2 per unit	10 hours
Wing Main Pivots	2 per unit	10 hours
Ram end Pins	2 per ram	10 hours
Rear Roller Axle	2 per axle	10 hours
Drive System:		
Drive Leg Top Shaft	1 per machine	40 hours
Bottom Lay Shaft	2 per shaft	40 hours
Top Lay Shaft	1 per Shaft	40 hours
Metering Units	1 per Unit	40 hours

Keep threads corrosion free by periodically coating with a copper coating (grease tends to attract dust)

- Disc Coulter Ratchet Threads
- Depth Control Ratchet Threads

Greasing location points are labelled on the drill with the "Grease" sticker (shown above). Some greasing points are shown in the above figures. Chains should be kept lubricated and should be removed at least once each season and thoroughly cleaned in diesel.

SEASONAL STORAGE

The drill should be thoroughly cleaned and lubricated.

The drill should be stored out of the weather and in an unfolded state; this will ensure that no water gets into the air system.

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.

- Ensure there is absolutely no seed left in the hopper or hoses.
- Ensure there is absolutely no fertiliser left in the hopper.
- Check lid closed on hopper.
- Replace any damaged hoses.
- Check all hydraulic fittings.

DRAGARM MAINTENANCE

The Dragarms fitted to the MK2-4132D drill should require very little maintenance, however they should be check daily.

Things to look for are:

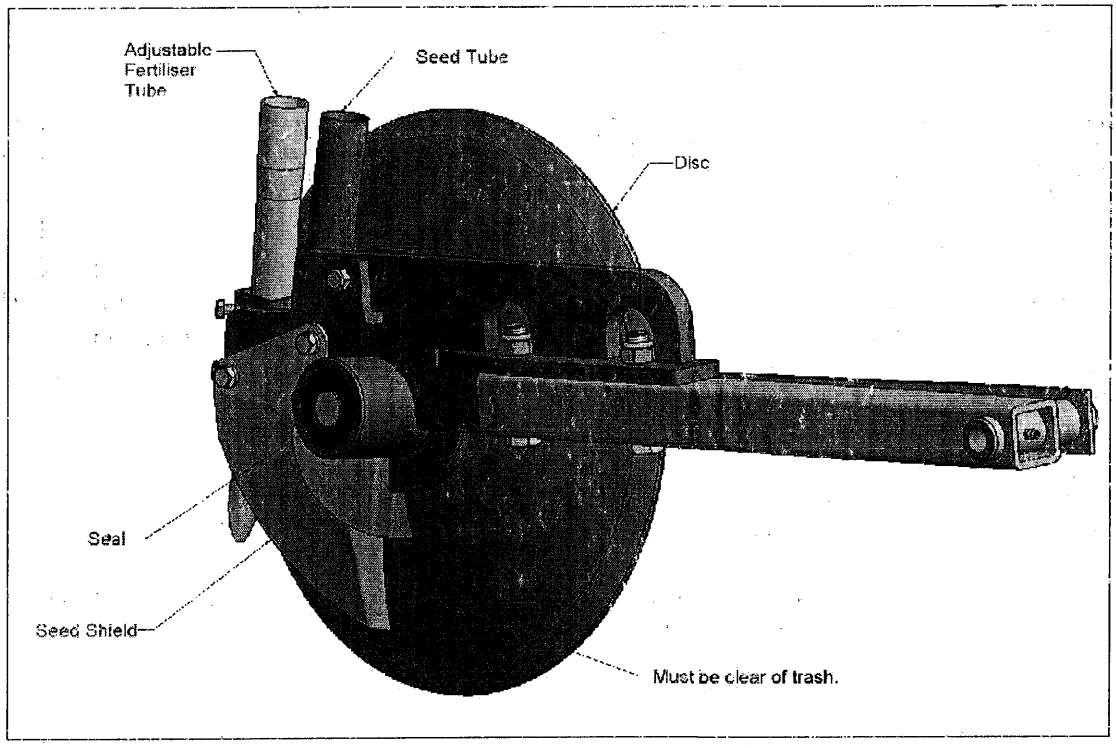
1. All seals are intact.
2. All Seed Shields are intact and clear of trash.
3. All Discs turn freely.
4. All Dragarm Pivot Pin bolts are intact.

1. Check that the disc axle seals are intact and clear of mud and foreign objects.
   Replace any seal missing or showing signs of wear.

2. The Seed Shields should make light contact with the Disc, and be free of trash.
   Remove trash. Ensure Shields are making contact with Disc.

3. The Disc should turn freely; there might be a little drag caused by the Seed Shield rubbing against the Disc.
   Replace any bearing and seals that might be failing.

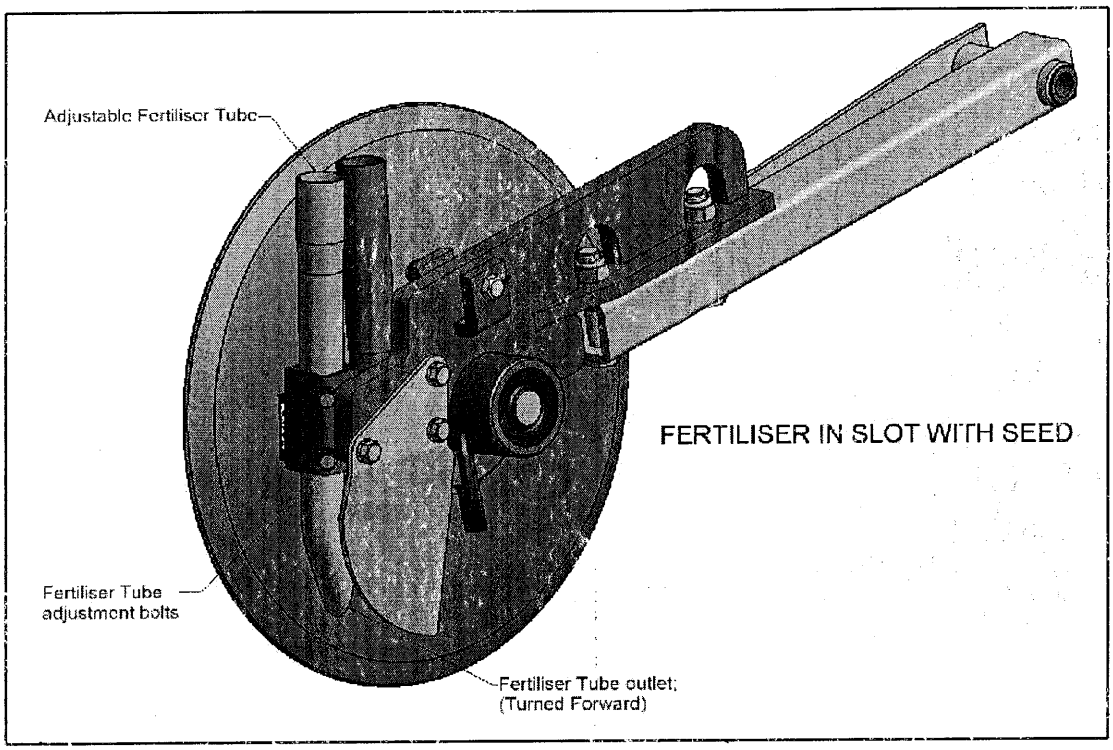
4. Check that all the bolts holding the Dragarm Pivot Pins are intact and tight, replace if needed.

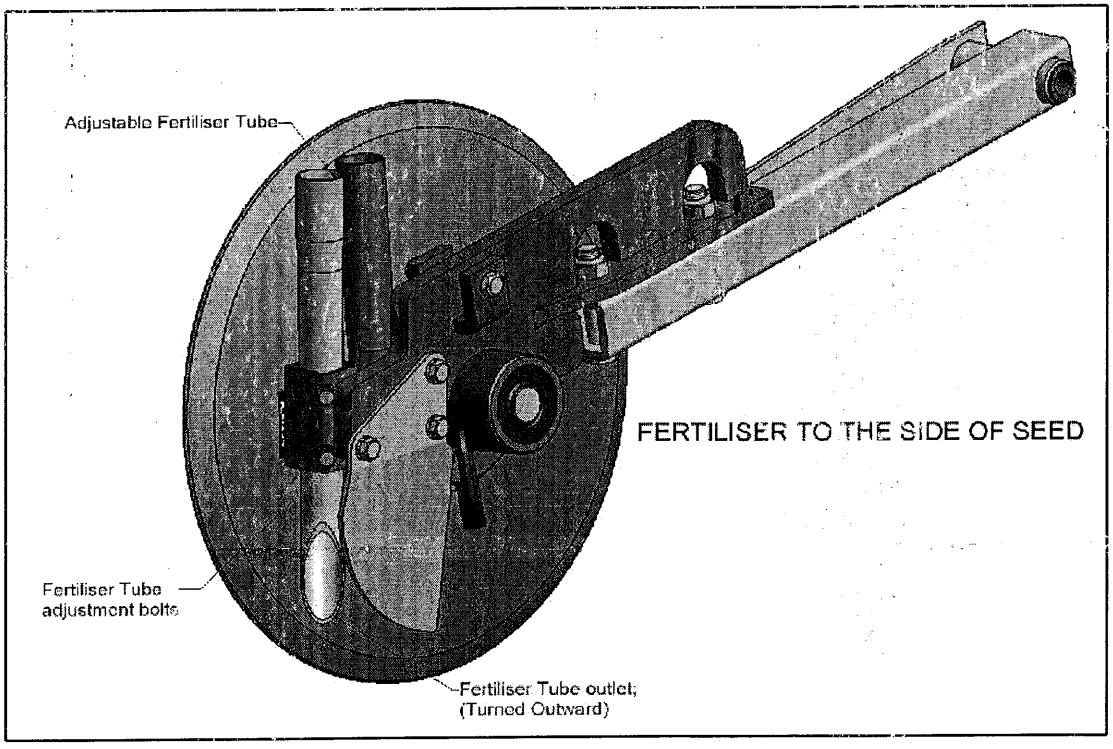


FERTILISER PLACEMENT

The Dragarms fitted to the MK2-4132D have an adjustable fertiliser tube. This tube can be adjusted to control the placement of the fertiliser.

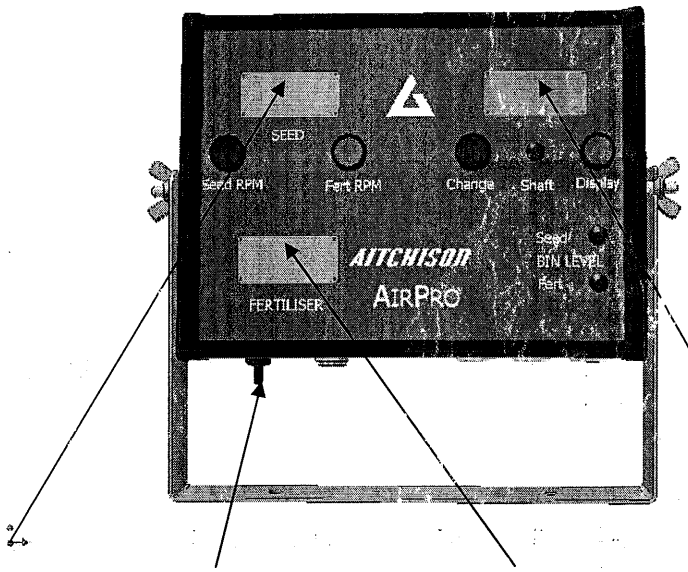
1. Fertiliser in slot with seed.
2. Fertiliser placed to the side of seed.





HECTARE METER

The MK2-4132D should be fitted with an Aitchison AirPro hectare meter; this unit can monitor both Fans RPM, calculate area sown and alert the operator when the seed and fertiliser bins are empty.



Seed Fan RPM **On/Off Switch** **Fertiliser Fan RPM** **Area Meter**

This unit has built in alarms:

1. Low Seed fan RPM.
2. Low Fertiliser fan RPM.
3. Shaft stoped.
4. Bin empty.

Installation

Mount the control box within the cab so that the display can be easily seen. Position using the supplied 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. (Cigarette Plug) 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.

The unit stores all relevant information at switch off.

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

Circumference and Width measurements.

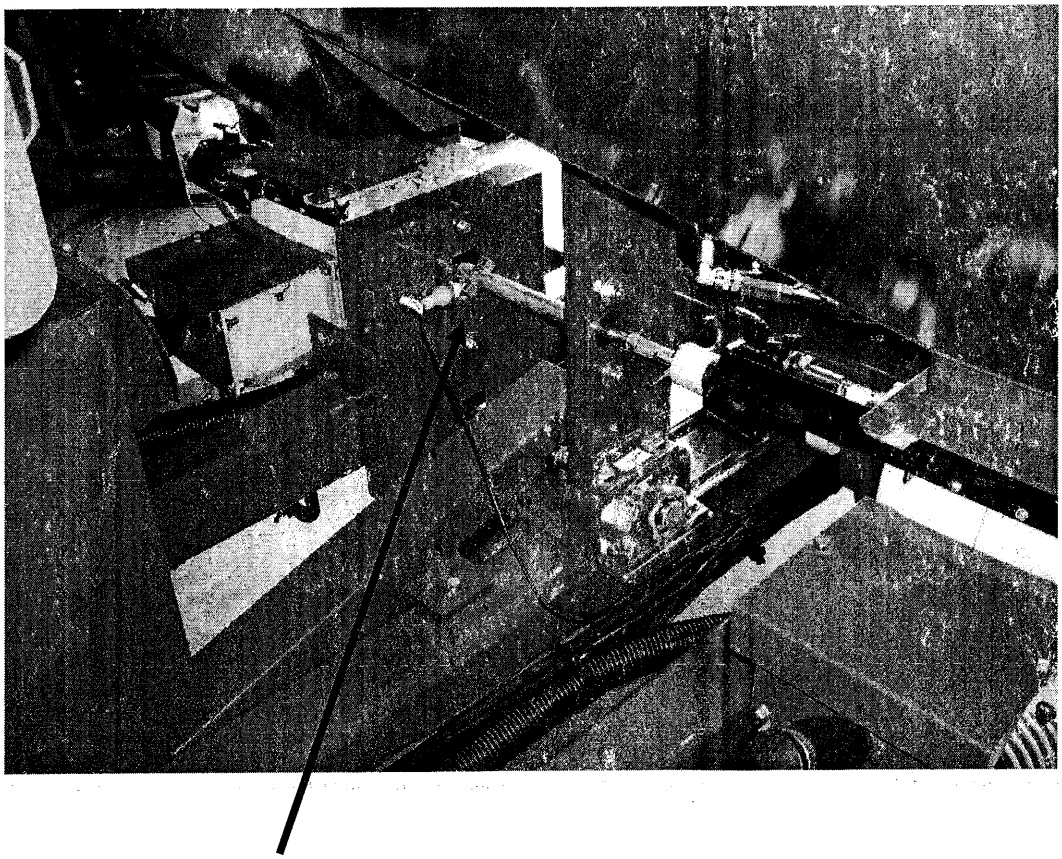
In the start up procedure the control allows for the input of the wheel circumference and the width of the machine.

Circumference, The measurement required is actually the distance the machine moves between each pass of the sensor and magnets.

The MK2 4132 AirPro is fitted with two ground speed magnets; fitted to the hopper drive shaft, this ensures a more accrete circumference input.

1. Mark the ground with a reference point to the machine.
2. Drive in a straight line with a second person counting the number of Hopper drive shaft turns. Stop at ten turns precisely.
3. Measure the distance travelled & divide by twenty.
4. Keep a record of this value for future reference.

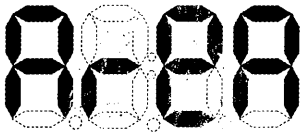
Circumference input is: 2.52-one magnet, 1.26-for two magnets.
Width is input as span of the machine, 4.8m.



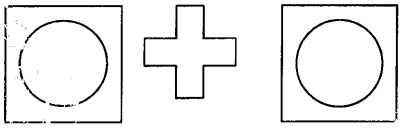
Hopper drive shaft fitted with two magnets.
Used for Circumference input

Start-Up

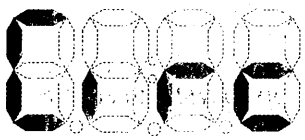
After power on the control displays Area for 2 seconds.
During this time the control performs its own self tests.
During this period it is also possible for the user to switch to Options mode.



CHANGE **DISPLAY**

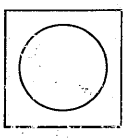


Pressing Change and Display buttons at the same time, whilst the control is in the initial test mode enters the option change mode.

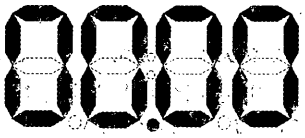


Initially Circ for Circumference is displayed for 2 seconds

CHANGE

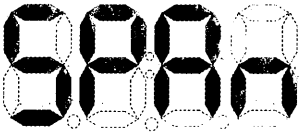


Press change to increase the circumference to the value required. Note the maximum circumference is 5.12 metes, always displayed in meters ie 5m12cm Press and hold will increment automatically.

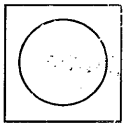


DISPLAY

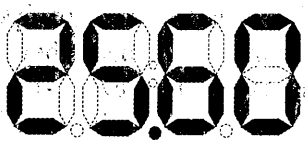
Press display once to store the new circumference and Move on to input the span of the machine.



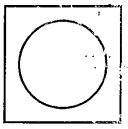
CHANGE



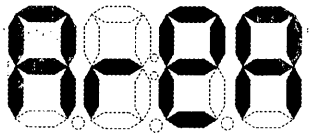
Press change to increase the machine span to the value required. Note the maximum machine width is 25.6 meters, always displayed in meters ie. 25m60cm Press and hold will increment automatically.



DISPLAY



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

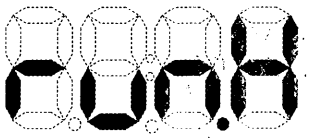


Operational Mode

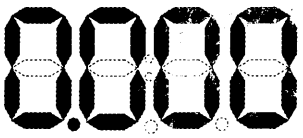
After the initial 2 second display of area the control will always switch to display the identifier for the last Mode i.e. if switched off in distance then on in distance.

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.

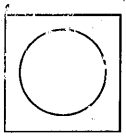
Running Hectare and Acre Display

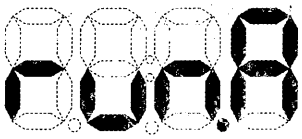


Displays an accurate running Hectare Area covered.
The smallest denomination displayed is 0.001 Hectares ie 10 m2.



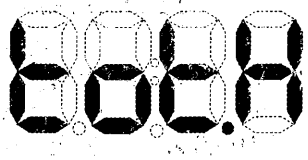
CHANGE Press and hold change to clear the running Area store.
Note this also clears the running Acre display



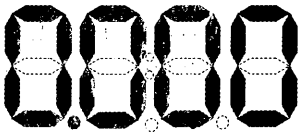


DISPLAY Press display once to convert to show in Acres.

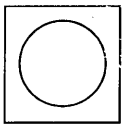
Total Hectare and Acre Display

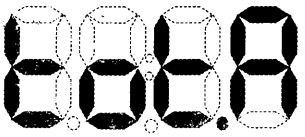


Press Display again to change to the total or machine area displays
This displays an accurate running Hectare Area covered.
The smallest denomination displayed is 0.001 Hectares ie 10 m2.



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.