

# ScanStone

P O T A T O S Y S T E M S

## Operator's Instruction Manual

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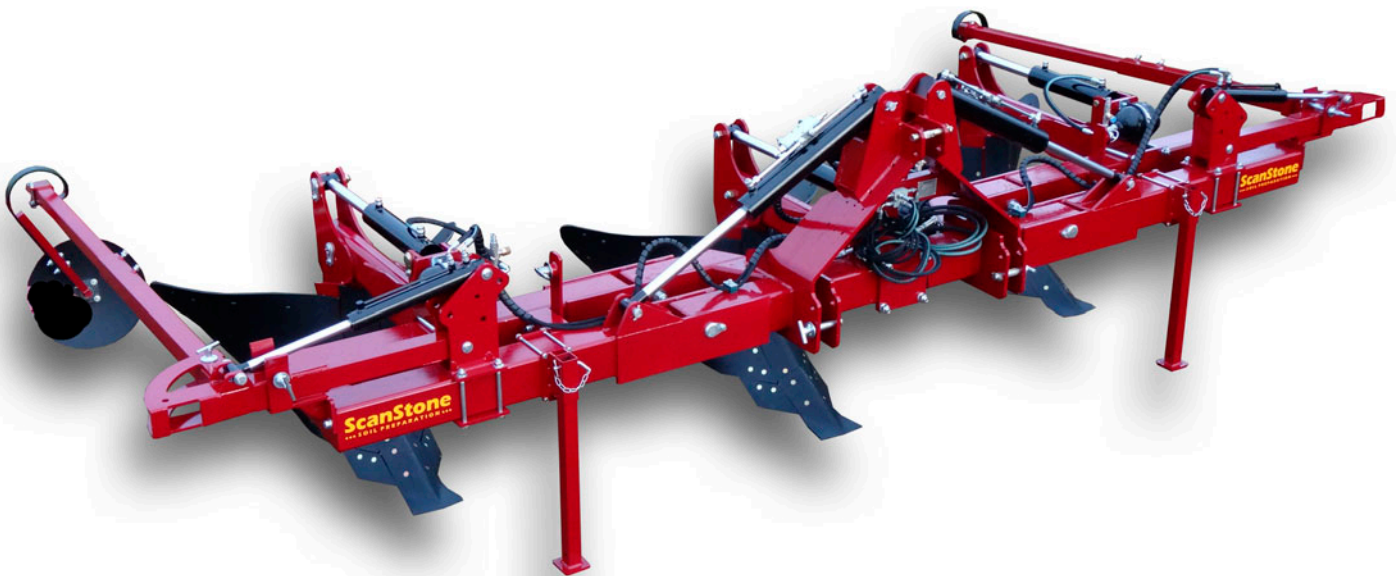
3 B O D Y B E D M A K E R S

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### Models

**3844-SB-FX 3844-AR-FX**

**3844-SB 3844-AR**





# INSTALLATION & REGISTRATION DOCUMENT

**ScanStone**  
SERVICE SUPPORT

**Machine Details:**

Machine Model:	
Serial No:	
Invoice No:	
Delivery Note No:	
Installation Date:	

**Purchaser Details:**

Farm / Business Name:	
Address:	
Postcode:	
Contact Tel:	

**Acceptance by Purchaser:**

I / We have taken delivery and inspected the machine as detailed on this form and acknowledge that it conforms to my / our order placed with the aforementioned dealer / distributor.

I / We have been instructed in the operation, routine servicing procedures and safety precautions and acknowledge the receipt of the Operators instruction manual

I / We understand my / our entitlement to the benefits of the warranty.

I / We will ensure that all operators of the machine will be properly instructed on the operator's manual and that the operator's manual will be available to the users at all times.

Owner

Manager

Contractor

Purchaser Signature: \_\_\_\_\_

Purchaser Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Operating Instructions:**

I / We have carried out the pre-delivery inspection and have delivered and installed the machined detailed on this form.

I / We have explained to the purchaser, the operation, routine servicing procedures and safety precautions involved with this machine and passed on to the purchaser / operator the operators manual.

I / We have advised the purchaser of his entitlement to warranty.

I / We have carried out the relevant checklist with the purchaser or operator overleaf.

**Dealer / Company Representative Details:**

Name:	
Depot Address:	

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Please Note:** This form should be completed by the Dealer / Company representative / Retail customer within 7 days of the installation. Please return to the below postal address or email address.





# EC Declaration of Conformity

in accordance with BS EN ISO/IEC 17050-1:2004



**RGS Forfar Ltd.**

East Mains of Burnside, Forfar, Angus, Scotland DD8 2RX

declare that:

Equipment: ..... **3 Body Bed Maker** .....

Model No. ....

Serial No. ....

in accordance with the following directive:

**2006/42/EC**

Conforms with the essential requirements of the Machinery Directive and its amending directives

has been designed and manufactured to the following specifications:

**BS EN ISO 12100-1 2003 Safety of Machinery** - Basic concepts, general principles for design - Basic terminology, methodology.

**BS EN ISO 12100-2 2003 Safety of Machinery** - Basic concepts, general principles for design - Technical principles and specifications.

**BS EN 982: 1996**

Safety of machinery. Safety requirements for fluid power systems and their components - Hydraulics

**BS EN ISO 4254-1: 2009**

Agricultural machinery - Safety - Part 1: General requirements

**BS EN ISO 13857: 2008**

Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs.

Signed:-

A handwritten signature in black ink, appearing to read 'R. Skea', written over a horizontal line.

Gordon Skea  
Director  
RGS Forfar Ltd.



at:- RGS Forfar Ltd. Forfar, Angus, UK  
on:- 7th April 2010

## Foreword

ScanStone 3844 series machines have been designed specifically for ridging and bed making purposes and are not intended for any other use. The manufacturer shall not be liable for damage resulting from mis-usage. The user shall bear all responsibility.

Intended use also comprises adherence to the operating, maintenance and servicing instructions outlined by the manufacturer.

The machine must only be used in perfect working condition, in accordance with the aforementioned intended use and with instructions outlined in the operator's handbook. Any functional disorders, especially those which may affect safety of personnel must be rectified without delay.

Following the setting up and operating instructions provided should allow the operator to achieve the best performance from the machine which should result in increased reliability. Owing to wide variations in operating conditions however, it is impossible for the manufacturer to make comprehensive statements in this publication regarding performance or methods of working.

The efficiency of the machine always depends on the suitability of the operating conditions. Working on steep inclines or land that is too wet can significantly affect the finished work.

Operators should read carefully the safety notes contained within the manual prior to using the machine in order to help avoid dangerous situations, expensive repairs and prolonged downtime. In addition operator's should also read all relevant legislation regarding health, safety and accident prevention applicable to the country in which the machine is to be used or resold.

ScanStone products are manufactured to the highest possible standards and specifications in the UK using carefully selected materials and components and in accordance with recognised safety standards.

The right to change specifications, equipment and maintenance instructions at any time, without notice is reserved as part of our policy of continuous development and improvement.

No liability can be accepted for any inaccuracies or omissions in this manual, although every possible care has been taken to make it as complete and accurate as possible.

Owners who encounter a problem not covered in the manual should contact their dealer or ScanStone direct at the following address:-

**The Service Manager,**  
RGS Forfar Ltd.  
East Mains of Burnside, Forfar,  
Angus, Scotland, DD8 2RX  
tel & fax: 00 44 (0) 1307 818994  
e-mail:- rgssales@btconnect.com

The serial number plate is attached to the Bed Maker main frame. Use the space on the sample plate below to record the serial number for future reference.

<b>ScanStone</b> POTATO SYSTEMS	
SERIAL No.	
MODEL	
YEAR	
UNLADEN WEIGHT (KG)	
DRAWBAR WEIGHT (KG)	
AXLE WEIGHT (KG)	
RGS Forfar Ltd. Burnside, Forfar, Scotland	
CE	

## Warranty

ScanStone when supplying new goods guarantee subject to certain conditions that those goods are free of defects both in material and workmanship.

The following conditions apply:-

- That the machine has only been used for ridging and bed making purposes.
- That service and warranty work is carried out only by authorised ScanStone dealerships.
- That the original specification of the machine has not been altered by unauthorised modification.

Correct operation of the machine and regular maintenance will help to prevent breakdowns. If however, operating trouble is experienced during the warranty period the following actions should be adopted:-

Notify the dealer from whom the machine was purchased, quoting the model and serial number.

**This should be done immediately!**

Do not operate the machine. Even though the original failure may be covered by warranty - resultant damage to the machine arising from delay in reporting the fault will not be covered.

It should be noted that items consumed during normal maintenance services, by operation of the machine and by factors over which the manufacturer has no control are not automatically warrantable.

These items include - hydraulic and lubricating oils and ground engaging parts.

The manufacturer cannot accept liability for damage to machines or third party through operational negligence.

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# Part 1 Safety Precautions

**Ignoring these precautions may result in serious personal injury or damage to the machine.**



## Warning Symbol

This symbol is used throughout the manual to draw attention to important information where particular care is required to ensure safe operation and maintenance of the machine.

## General

The operator's handbook should be considered as a part of the machine and should be available for immediate use at any time during operation of the machine. Suppliers of new and second hand machines are advised to obtain documentary evidence that this manual was provided with the machine at time of sale.

Owners of machines should ensure that prior to commencement of work the operator has read and understood the operator's handbook and in particular the information regarding safety. This also applies to persons involved in setting up, maintenance and cleaning of the machine.



## Reading the instructions after work has begun is too late!

Operator's should also consult the tractor handbook for information and instructions on mounting implements and other related safe working methods.

## Before starting work

- Take care when coupling / uncoupling hydraulic hoses to the tractor. Hydraulic oil under pressure can damage your skin. If any fluid is injected into the skin - always seek immediate medical advice
- Do not add to or modify any part of the machine which could affect safety without the prior approval of the manufacturer. This also applies to welding work.
- Check that warning and safety decals are in good condition. Replace any which are missing or those which have become illegible.
- Check the machine to ensure all services are operational and functioning correctly.
- Inspect the field for hazards such as large boulders, poles, overhead power lines and uneven ground. Take care when working to avoid obstacles and when working in unstable conditions.
- Warn bystanders to keep clear of the machine whilst working or when raising or lowering the toolbar or marker arms.

- Use personal protective equipment when circumstances require or to meet legislation. e.g. ear plugs. In extremely dry conditions face masks should be worn if dust levels are unacceptable.

## During work



## Under no circumstances should anyone stand below the toolbar when the frame is in the raised position!

- Reduce tractor speed when working on sloping ground.
- Never leave the driving position of a moving or running tractor.
- Avoid ridging across the face of slopes or on uneven ground where there is a danger of the tractor overturning.
- Check the machine regularly during operations for signs of wear and damage especially if an obstacle is struck.
- Never raise or lower the toolbar or markers arms whilst near overhead power lines.
- Do not allow children to play anywhere near the ridger or on the headlands when the machine is operational especially if hydraulic marker arms are fitted.

## After work

- Never park the machine or carry out maintenance work when underneath overhead power lines.
- Return marker arms to transport position and lock with pins provided.
- Adhere to replacement intervals noted in the manual if applicable even if signs of wear to components are not evident.

## Safe maintenance and servicing



**Never attempt maintenance or servicing work on the machine when the tractor engine is running. All servicing work should be undertaken on flat, level ground with the folding toolbar frames fully lowered and support stands in place for additional stability. Release any residual pressure in the hydraulic system by operating the spool valve lever in both directions. Always remove the tractor ignition key!**

- Check operator's instruction book for details of service and maintenance schedules.
- Take care when carrying out maintenance under the machine. Make sure adequate support devices are in position to prevent sudden lowering.



- When large assemblies are to be lifted make sure lifting devices, slings and suspension systems have the necessary lifting capacity and are properly attached.
- After cleaning the machine check all hydraulic pipes and hoses for leaking or operational damage. Repair before putting the machine back in service.
- When servicing is complete, check all nuts and bolts loosened during repairs have been tightened satisfactorily.
- Dispose of hydraulic fluids, filters and contaminated materials safely with due consideration to the environment.
- Always use genuine ScanStone spare parts.

## Servicing the Hydraulic system.



**Warning - The hydraulic system works under high pressure.**

- When servicing or repair work is to be carried out on the machine use only suitably qualified engineers working to the relevant hydraulic standards and codes of practice.
- Check hydraulic lines regularly for any sign of leakage. Do not tighten a leaking fitting whilst the hydraulic system is pressurised. Always de-pressurise before maintenance to hydraulic components.

- Ensure hoses are properly fitted, free from twisting and clear of moving parts of machinery.
- Always replace hoses at the first sign of damage.

## Handling of the Machine

The machine should only be moved by means of a tractor connected to the 3 point linkage.

## Road Transportation

- Check that the machine is free of earth, stones and clods, tools or other items of loose equipment before driving on public roads.
- Retract the marker arm extension tubes and secure with the pinch screws. Remove locking pins from pivot mounts and swing marker arms into transport position, Fig 1. Replace pins.
- Fold retractable frame to transport position and secure using the transport lock.
- Disconnect all hoses from the tractor spool block and secure to the machine.
- When turning or at bends - take the width and load of the machine into consideration.
- When stopped - secure the machine to prevent rolling or unauthorised use.

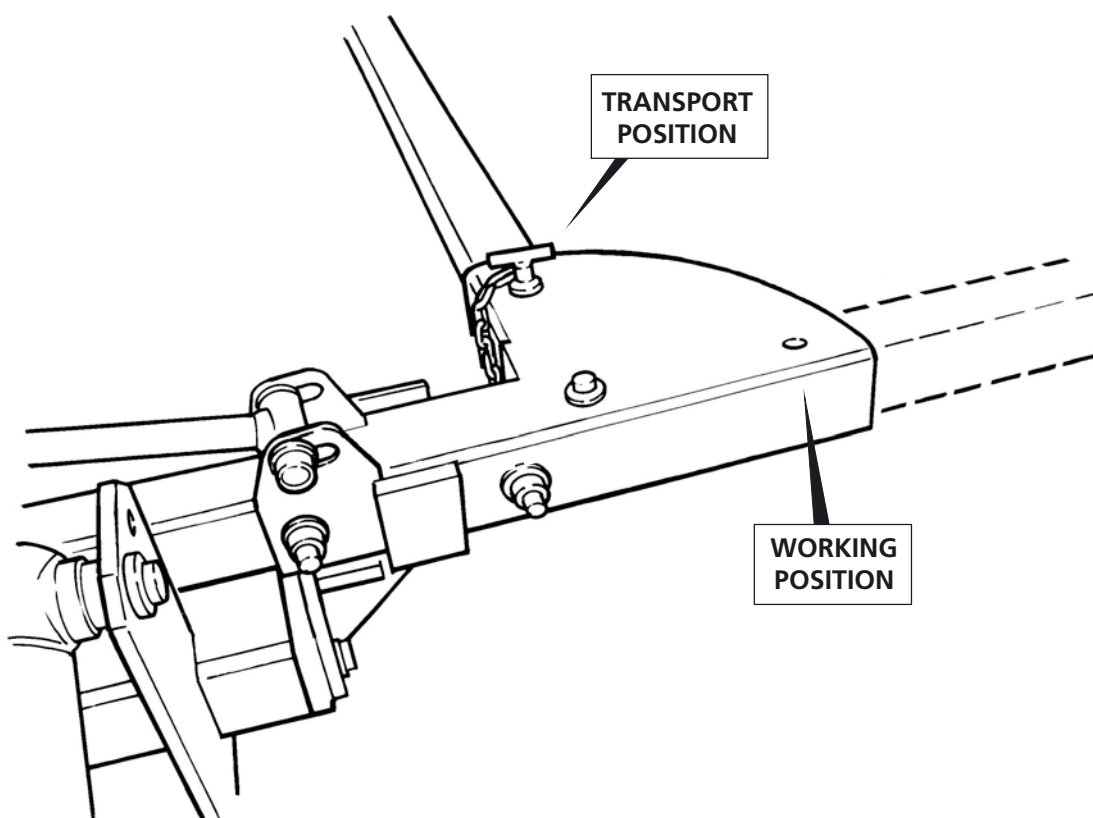


Fig 1

## Part 2 Setting up, Adjustment and Maintenance

### Attaching to the tractor Three Point Linkage

The machine is fitted with standard category 2 three point linkage. This linkage combines the Bed Maker and the tractor into a single working unit. Lift and position are controlled hydraulically.

Consult the Tractor Operator's manual for instructions on mounting implements and for rear hitch adjustment.



**During hitching operations or when using external lift controls, the operator must at all times keep outside the drawbar frame.**

Fit ball ends to the bottom link pins. Carefully reverse the tractor until the lower links are positioned below the pins and lift to engage.

Connect the tractor top link to the machine using one of the three holes in the headstock and secure with the pin provided.

The stabilizer chains on each lower link should be evenly adjusted to reduce side play to approximately 1½" (38mm) to each side of the tractor.

Fit front end weights (1000kg) for stability and steering control as load will be transferred from the front to the rear wheels of the tractor when the three point linkage is raised.

### Adjustment of Ploughs

The effective length of the mouldboard stays can be adjusted to increase or decrease the plough width allowing the operator to vary the shape of the bed to suit the type and condition of the soil.

To adjust the width:-

Loosen the nut attaching the inner end of the stays to the plough mounting leg, Fig 2:1.

Loosen the locknuts attaching the stays to the mouldboard brackets, Fig 2:2 and increase or decrease the stay length to suit the new setting required.

Ensure both sides are adjusted equally before tightening nuts.

Although a trial run is often the best way to decide on bed shape - wider plough widths which produce shallow sided ridges are generally more suited to heavier clay type soils. In moist sandy conditions - narrower ploughs producing a steeper wall angle are more suitable.

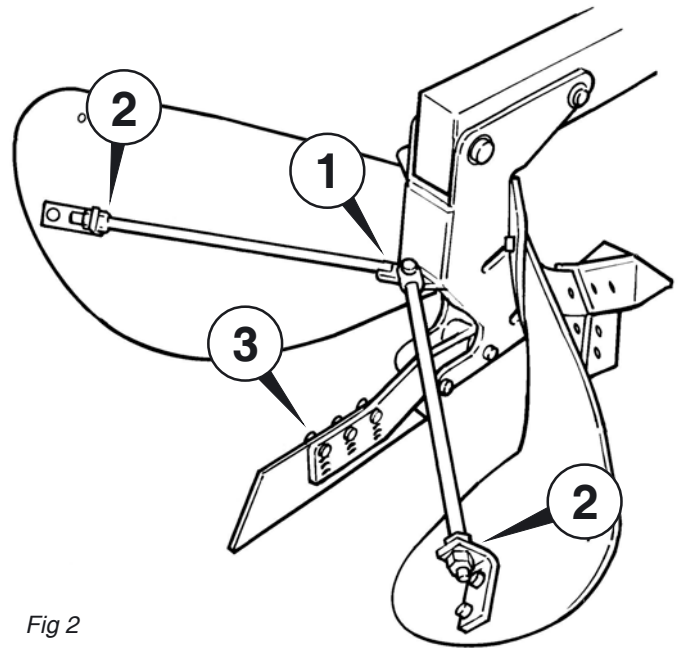


Fig 2

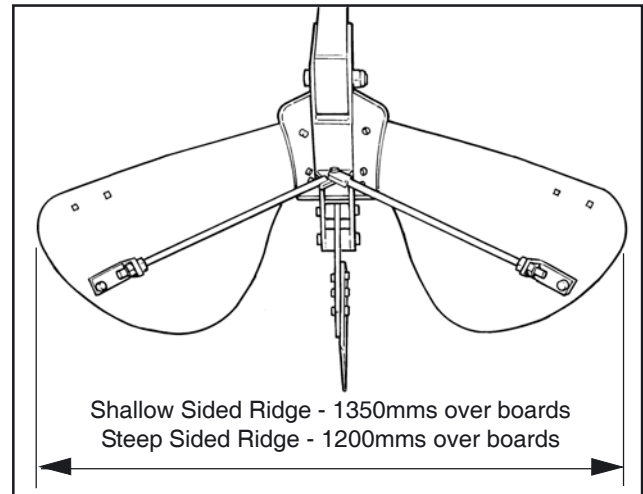
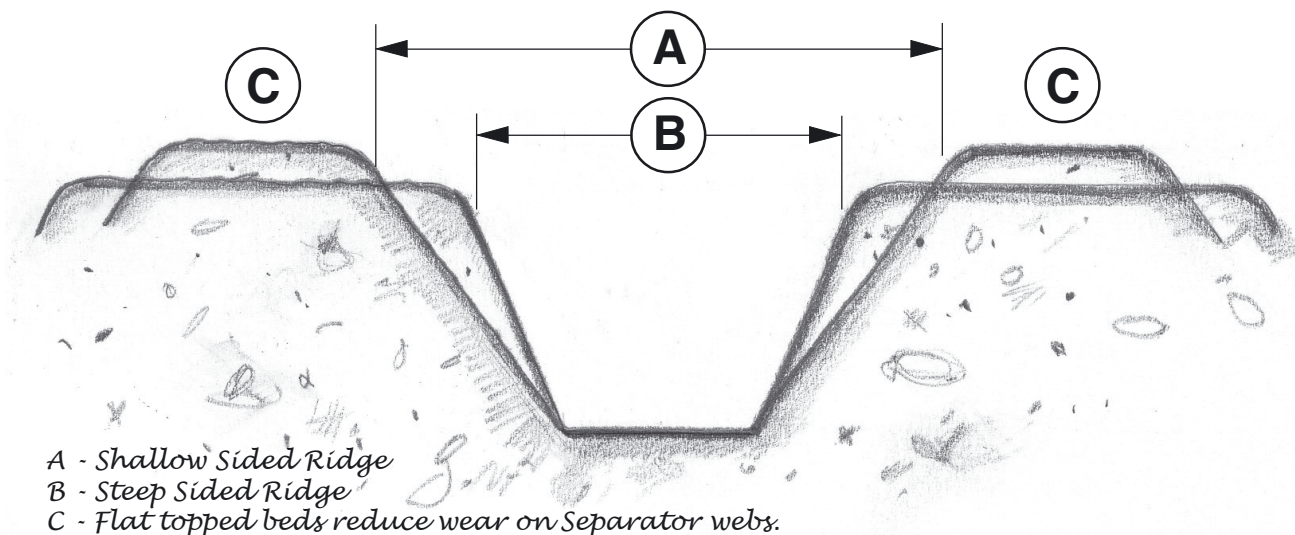


Fig 3



A - Shallow Sided Ridge  
 B - Steep Sided Ridge  
 C - Flat topped beds reduce wear on Separator webs.

Fig 4

If bed tilling or stone and clod separation is to take place after ridging - note that ridged beds should be prepared with tops as flat as possible. This will help to minimise wear damage to the centre of the machines.

A stabiliser fin is fitted to each plough body to provide stability whilst ridging.

When new, this fin is bolted to the top set of holes in the plough stabiliser bracket, Fig 2:3, but can be fitted to each of 3 other sets of holes as wear occurs.

### Hydraulic System Pressure

On Auto-reset models the hydraulic system is pre-charged using the tractor hydraulics to a pressure setting sufficient to hold the ploughs in work.

Accumulators are positioned on both right and left hand toolbar arms and centrally on machine.

**NOTE: Alternative accumulators are used on the equipment depending on which plough body system is installed.**

**Standard ScanStone plough bodies are fitted with 1.4 litre accumulators and AR+ Double Action plough bodies are fitted with 2.0 litre accumulators, Fig 5.**

Follow the instructions below to pressurise the system:-

- Starting with the first accumulator - couple the quick release pressurising hose (from the accumulator lock valve) to the tractor auxiliary hydraulic outlet.
- Open the system lock valve by turning in an anticlockwise direction, Fig 6.
- Operate the tractor auxiliary system to obtain a pre-charge working pressure shown on the gauge **according to the table below.**
- Close the lock valve by turning in a clockwise direction.
- Disconnect the quick release pressurising hose from the tractor auxiliary outlet and repeat procedure for each accumulator.

Tie up to prevent the hose end from trailing on the ground during operation.

The system is now charged and ready for use.

Accumulator type	Pre-charge Working Pressure
1.4 Ltr.	172 bar (2500 psi)
2.0 Ltr.	115 bar (1670 psi)



### WARNING

Do not use the lock valve to depressurise the system, or at any other time unless the pressure hose is connected to the tractor hydraulic outlet.

### Accumulator Pressure

If Standard ScanStone bodies are fitted the 1.4 litre accumulators are each pre-charged to 170 bar (2465 psi). For AR+ Double Action type bodies the 2 litre accumulators fitted are each pre-charged to 110 bar (1595 psi).

Accumulators require no user maintenance.

If a fault develops with an accumulator the operator should notify his ScanStone dealer.

### Hydraulic Connections - Toolbar Frame

The toolbar frame is fitted with rams which allow the machine to be folded up into the retracted position for transportation or down into the working position.

Locate the 2 quick release hoses leading from the headstock 'lower manifold' and connect to the tractor spool block.

These hoses are interchangeable and may be re-positioned on the spool block if required to obtain functions consistent with the operation of the lever.



**Remove the transport lock before operating the toolbar frame lift / lower control.**

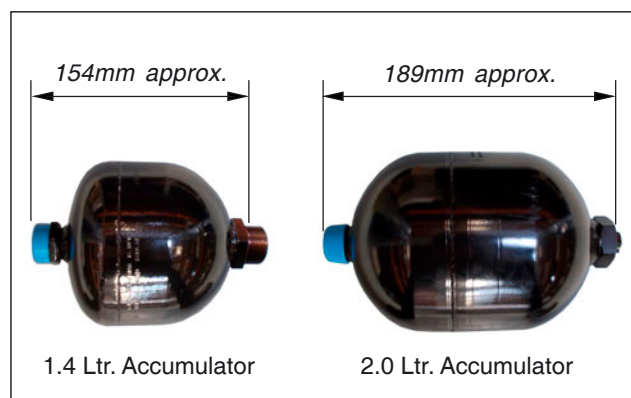


Fig 5

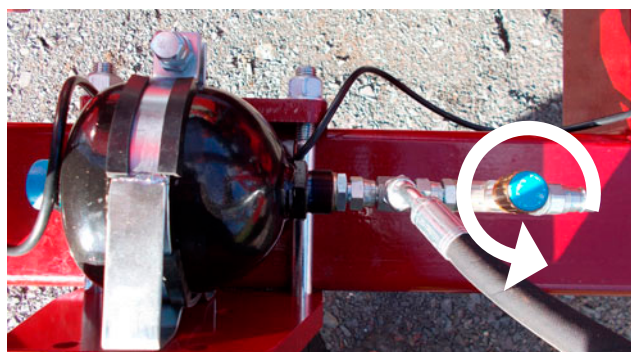


Fig 6

## Part 2

### Hydraulic Connections - Marker Arms

Hydraulically operated marker arms are fitted to allow the operator to retract the markers when turning at headlands. (see Fig 1 for pin position details).

*To fold / unfold:-*

Locate the 2 quick release hoses leading from the headstock 'upper manifold' and connect to the tractor spool block. Use the tractor spool lever to operate the marker arms to fold or unfold.

As with the toolbar frame these hoses are also interchangeable and may be repositioned if required.

Note: When the markers are supplied they may be set up to operate in one of the two following ways:-

- When the spool lever is engaged the marker arms at each side of the machine will fold together.  
*or*
- When the spool lever is engaged the first marker arm will unfold to the working position followed by the other, and vice-versa when folding.

Operators who wish to change from one system to the other can do so by disconnecting the two hose ends on one of the marker arm rams and changing their positions.

### Marker Arms and Discs

Marker Arms consist of inner and outer sliding tubes held by pinch screws, Fig 6:1, which when loosened allow the operator to extend the inner tube to the required position. A pig tail spring attached to the end of the inner tube holds the marker disc in work.

To increase or decrease the marking depth - remove bolts and reposition them in any of the holes provided, Fig 6:2.

**Note:** Always retract the marker arm outer tubes and secure with pinch screws before travelling on public roads.

### Shearbolts

Plough Stems are connected to the beams using special Shearbolts, Fig 7:1. These Shearbolts will snap free should the plough become snagged on an underground obstruction. Do not replace the shearbolts with ordinary bolts as this could cause serious damage to the mounting plates.

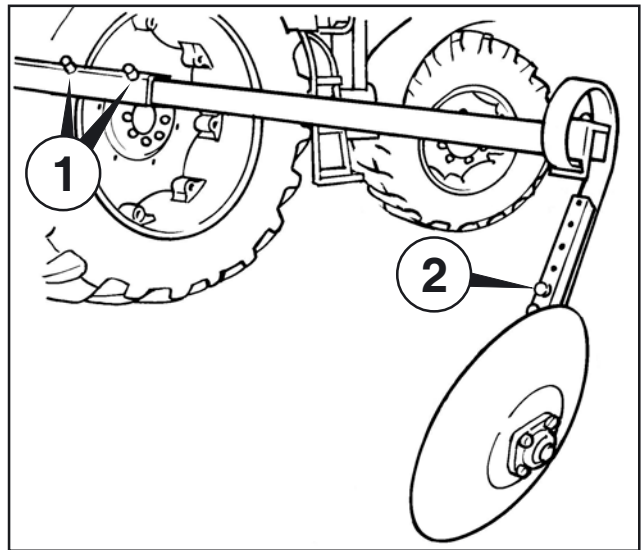


Fig 6

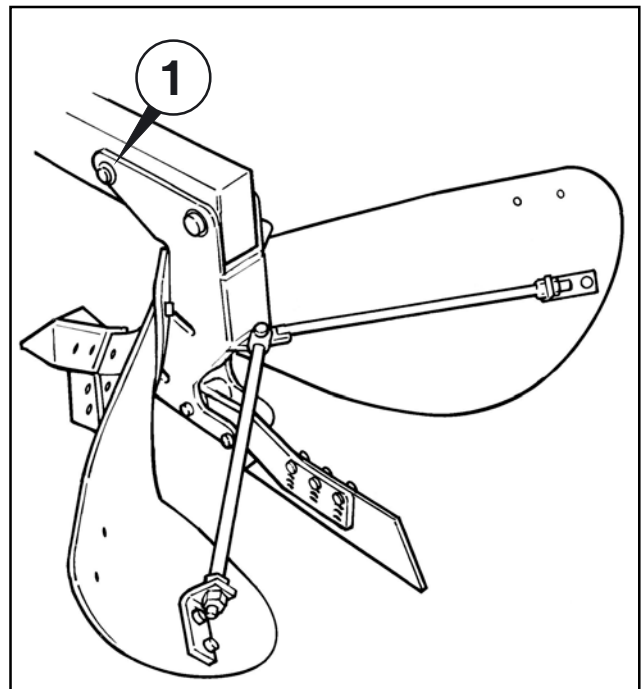


Fig 7



### Coupling to the ScanStone Bed Tiller

Before coupling to the Bed Tiller the linkage kit should be fitted to the Tiller as shown, Fig 8.

The kit consists of linkage mount frames, Fig 8 (A), mount brackets (B), top link extension brackets (C), top links (D), latches (E), and all necessary pins and bolts.

Fit the pivot pins in either of the 3 height adjustment holes in the mount brackets, Fig 8:1.

Remove the latch retaining bolts, and raise latches ready to mount the Bedmaker, Fig 8:2.

Mount the Bed Tiller on the tractor 3 point linkage and raise the Support Stand.

Fit lower link pins to the Bed Maker, in either upper or lower holes, Fig 8:3.

Reverse the mounted Tiller slowly toward the Bed Maker until in position below the Bed Maker lower link pins. Raise the Bed Tiller to engage the lower link pins and ensure they are properly seated in the linkage jaws. Re-fit the latch plate retaining bolts.

Connect the top links and adjust so that the Bed Maker is leaning back slightly.

Test run the combined unit adjusting the top link if necessary to ensure that the ridge bottom width is sufficient for stone and clod placement during separation and that the plough points are not bringing up uncultivated soil onto the ridge.

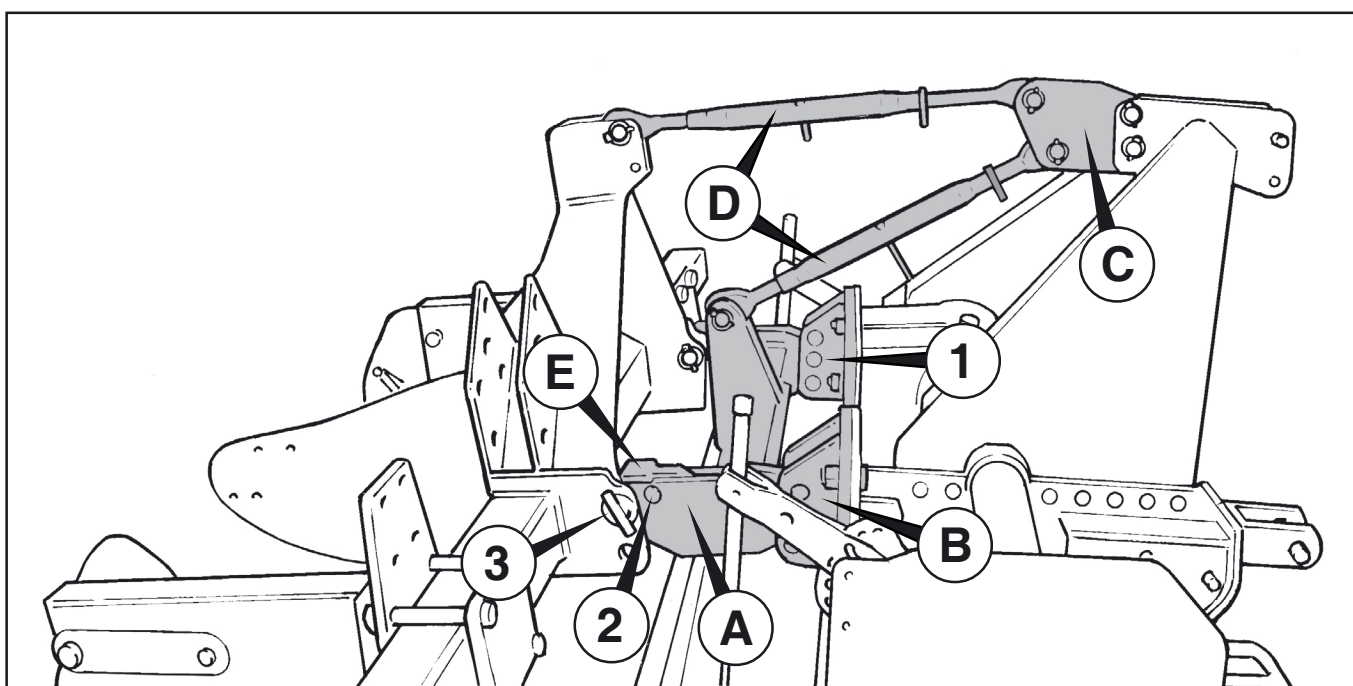


Fig 8

### Maintenance Note

**Hose Replacement Intervals** - Hoses should be replaced every 5 years even if signs of wear or damage is not apparent.

When replacing hoses always use the correct specification\*:-

\*SAE 100 R2 AT • DIN EN 853 2SN

SIZE	WORKING PRESSURE	MIN. BURST PRESSURE
1/4"	400 Bar (5800 psi)	1600 Bar (23200 psi)
3/8"	330 Bar (4800 psi)	1320 Bar (19150 psi)

## Part 2

### Lubrication

Grease nipples are fitted on the main fold ram ends, and on the lift frame pivot bushes, (as arrowed Fig 9). Grease daily.

Grease nipples are fitted on the beam mounts, (as arrowed Fig 10). Grease daily.

Grease nipples are fitted on Auto-reset models, located on ram ends and beam pivot pins. Grease daily.

Grease nipples are fitted on marker disc bearings, (Fig 11). Grease every 40 hours.

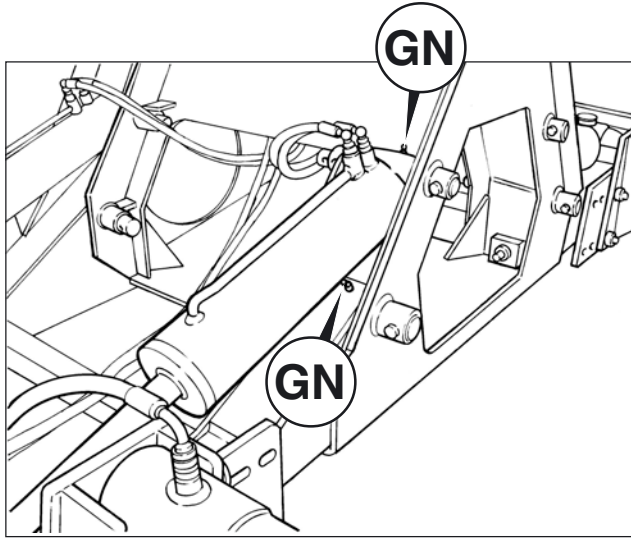


Fig 9

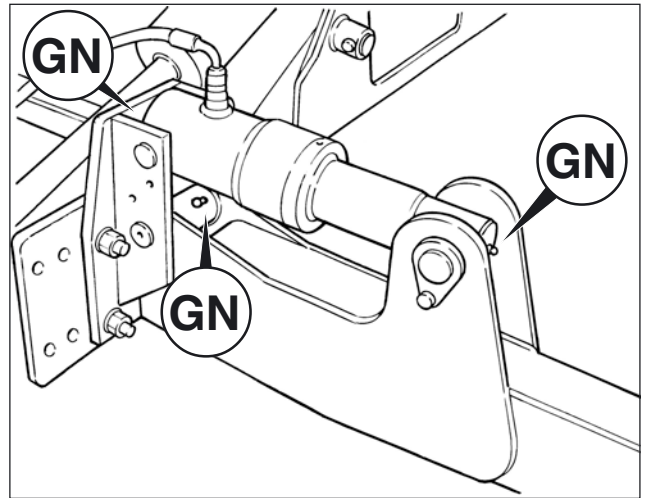


Fig 10

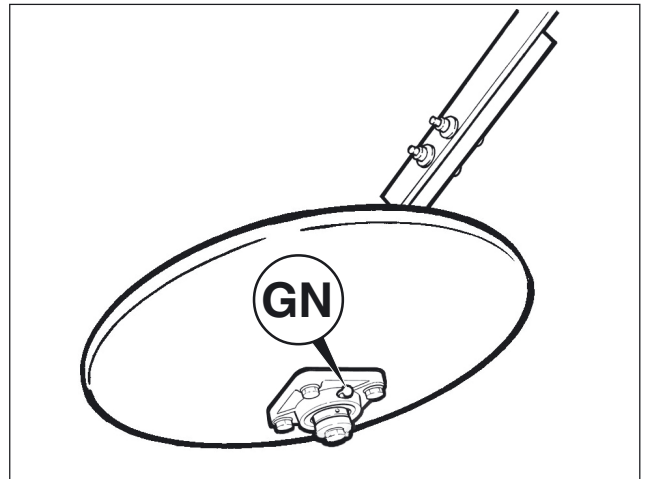


Fig 11

### End of Season Storage

- Park the machine on even level ground with toolbar frames lowered and resting on parking stands.
- Clean the machine thoroughly to remove all remains of dirt.
- Check for any signs of wear or damage, and replace badly worn parts as necessary.
- Inspect shearbolts for damage replacing only with special ScanStone shearbolts.
- Grease all plough parts thoroughly.
- Store the machine in dry conditions under cover.
- Tie up all hydraulic hoses ensuring ends are clear of the ground.

## Part 3 Troubleshooting

Problem	Probable Causes	Suggested Remedy
<ul style="list-style-type: none"> <li>● Ploughs trip too easily.</li> </ul>	<ul style="list-style-type: none"> <li>● Extremely hard or compacted subsoil.</li> <li>● Low hydraulic pressure.</li> </ul>	<ul style="list-style-type: none"> <li>● Subsoiling/deep cultivation required with chisel plough or similar prior to ridging.</li> <li>● Charge the hydraulic system pressure as described on page 2.2 and to the pressures given in the table.</li> <li>● Connect the quick release pressurising hose to the tractor auxiliary outlet, and allow the hydraulic oil to flow back to the tractor. With the ploughs in the ground move the tractor forward until the ploughs are in the maximum trip position. Disconnect the hose from the first ram and drain the remaining oil into a container for safe disposal. Take care to avoid sudden discharge of oil due to residual system pressure when disconnecting the ram hose. Use the tractors hydraulic system to flush the hose allowing oil to expel as much air as possible. Loosely reconnect the hose to the ram to allow any remaining air to be bled before final tightening up of connector. Repeat these procedures for the second ram. The system should now be free of trapped air and can be charged up to working pressure.</li> </ul>
<ul style="list-style-type: none"> <li>● Excessive Shearbolt failure.</li> </ul>	<ul style="list-style-type: none"> <li>● Ploughs are snagging under large rocks, tree roots or other obstacles.</li> </ul>	<ul style="list-style-type: none"> <li>● Reduce system working pressure and tractor forward speed when working in fields which have roots or other hidden obstructions.</li> <li>● Have the accumulator pressures checked by your local ScanStone dealer.</li> </ul>



### Handling Oil & Grease

Oil and grease products used on this machine are not considered to be particularly hazardous to health unless ingested. Handle these products responsibly and in accordance with good industrial hygiene and safety practices.

Contact with skin:-

Wash skin with plenty of soap and water for several minutes. Seek medical attention if irritation develops or persists.

Contact with eyes:-

Flush eyes with plenty of water for several minutes. Seek medical attention if irritation develops or persists.

**Warning:** Diesel fuel or hydraulic fluid under pressure can penetrate the skin or eyes and cause serious personal injury, blindness or death. Fluid leaks, under pressure, may not be visible. Use a piece of cardboard or wood to find leaks. DO NOT use your bare hand. Wear safety goggles for eye protection. If any fluid is injected into the skin, it MUST be surgically removed within a few hours by a doctor familiar with this type of injury.





Every effort is made to ensure the data contained in this manual is as accurate and as up to date as possible at time of going to print. RGS Forfar Ltd. however reserves the right to make changes or add improvements to its range of products at any time without notice.

Part No. **UN-07057**

# **ScanStone**

P O T A T O   S Y S T E M S

**RGS Forfar Ltd.**

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