

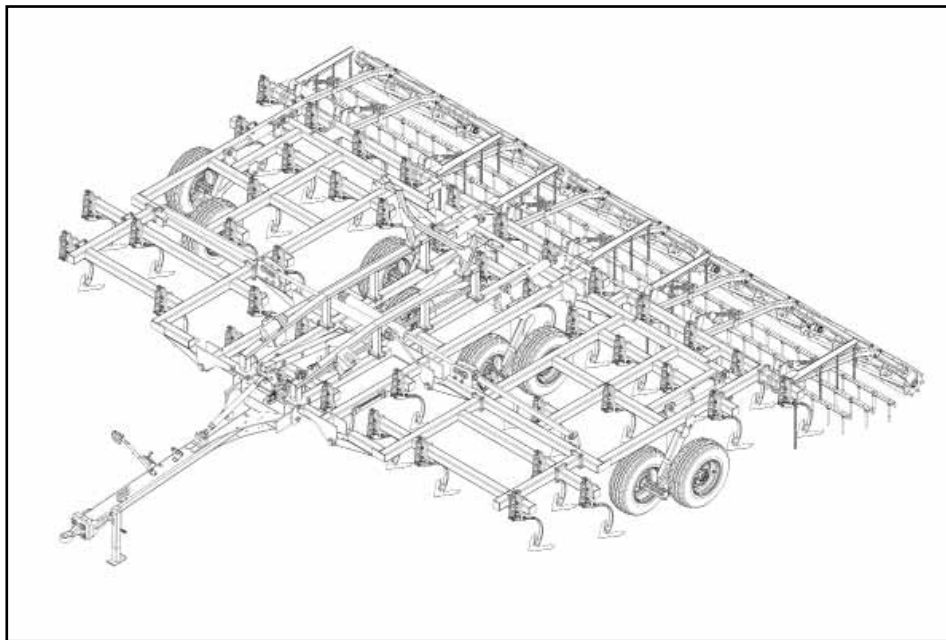
Operator Manual

Field Cultivator Narrow

 **Great Plains**
Manufacturing, Inc.
www.greatplainsmfg.co.uk



Read the operators manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!



Illustrations may show optional equipment not supplied with standard unit.

ORIGINAL INSTRUCTIONS

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620-199M-ENG Rev A

EN

ENG If you require a copy of this document in your native language please contact your dealer or Great Plains.

CZE Požadujete-li kopii tohoto dokumentu ve svém rodném jazyce, obraťte se prosím na svého prodejce nebo na společnost Great Plains.

HUN Ha szeretné ezt a leírást magyarul is megkapni, kérjük, értesítse a forgalmazóját vagy a Great Plains-t.

FRA Pour obtenir un exemplaire du présent document dans la langue de votre choix, veuillez contacter votre représentant ou Great Plains.

LIT Jei prireiktų šio dokumento kopijos Jūsų gimtąja kalba, kreipkitės į savo platintoją arba į „Great Plains“.

BUL Ако ви е необходимо копие на този документ на родния ви език, моля да се обърнете към вашия дилър или към Great Plains.

RUM Dacă aveți nevoie de o copie a acestui document în limba dumneavoastră natală vă rugăm să vă contactați dealerul sau Great Plains.

RUS Чтобы получить копию данного документа на вашем родном языке, обратитесь к своему дилеру или в компанию «Great Plains»

GER Wenn Sie ein Exemplar dieses Dokuments in Ihrer Muttersprache brauchen, dann wenden Sie sich bitte an Ihren Händler oder an die Great Plains.

DECLARATION OF CONFORMITY

Great Plains UK Ltd. hereby declare that the **Great Plains Field Cultivator**, as defined by the Serial Number attached to the Machine Chassis, conforms with the following Directives and Regulations, and has been certified accordingly.

EC Machinery Directive 2006/42/EC.

The Supply of Machinery (Safety) Regulations 2008.

The Provision and Use of Work Equipment Regulations 1998.

Specifically related harmonised standards are:

EN ISO 12100-1: 2003 (Safety of Machinery).

EN ISO 12100-2: 2003 (Safety of Machinery).

EN ISO 4254-1: 2009 (Agricultural machinery - Safety - General Requirements).

THE MANUFACTURER:

Great Plains UK Ltd.
Woodbridge Road
SLEAFORD
Lincolnshire
NG34 7EW
England

Telephone (+44) (0)1529 304654.

CERTIFIED ON BEHALF OF GREAT PLAINS UK LTD:



Colin Adams
Managing Director



WARRANTY

TERMS AND CONDITIONS

In this warranty Great Plains UK Ltd., is referred to as "the Company".

1. Subject to the provisions of this warranty the Company warrants each new machine sold by it to be sold free from any defect in material or workmanship for a period of 12 months from date of installation with the end-user.

Some specific items have additional warranty over and above the standard 12 months. Details of these can be obtained upon request directly from the distributor or Great Plains UK Ltd.

2. If the machine or part thereof supplied by the Company is not in accordance with the warranty given in clause 1 the Company will at its option:
 - (a) make good the machine or part thereof at the Company's expense, or
 - (b) make an allowance to the purchaser against the purchase price of the machine or part thereof, or
 - (c) accept the return of the machine and at the buyers option either:
 - I) repay or allow the buyer the invoice price of the machine or part thereof, or
 - II) replace the machine or part thereof as is reasonably practical.
3. This warranty shall not oblige the Company to make any payment in respect of loss of profit or other consequential loss or contingent liability of the Purchaser alleged to arise from any defect in the machine or impose any liability on the Company other than that contained in clause 2.
4. Any claim under this warranty must be notified to the Company in writing specifying the matters complained of within 14 days from the date of repair.
5. Any claim under this warranty must be made by the original purchaser of the machine and is not assignable to any third party.
6. If the purchaser hires out the machine to any third party the warranty shall apply only to matters notified to the Company in writing within 90 days of the date of delivery and clause 1 shall be read as if the period of 90 days were substituted for the period of 12 months.
7. The warranty will cease to apply if:
 - (a) any parts not made, supplied or approved in writing by the Company are fitted to the machine or
 - (b) any repair is carried out to the machine other than by or with the express written approval of the Company or
 - (c) any alterations not expressly authorized by the Company in writing are made to the machine or
 - (d) the machine is damaged by accident or
 - (e) the machine is abused or overloaded or used for a purpose or load beyond its design capabilities, or used in conjunction with a tractor whose power output capability exceeds the stated implement power requirement by more than 40%. For the purpose of these terms and conditions, "stated implement power requirement" refers to wheeled tractors unless specifically stated. These power requirements should be reduced by 20% when used in conjunction with tracked tractors.
 - (f) the machine is operated as part of a 'cultivation train' where more than one implement is being towed, without the express written approval of Great Plains UK Ltd.
 - (g) any maintenance is not carried out in accordance with the service schedules in the operator's manual.
 - (h) the Installation and Warranty Registration Certificate is not received by Great Plains UK Ltd., Service Dept., Woodbridge Road, Sleaford, Lincolnshire, England, NG34 7EW, within 7 days of installing a new machine.

Machine Identification

Enter the relevant data in the following list upon acceptance of the machine:

Serial Number	
Type of Machine	
Machine Width	
Year of Construction	
Delivery Date	
First Operation	
Accessories	

Dealer Address: Name: _____
Street: _____
Place: _____
Tel.: _____

Dealer's Customer No.: _____

Great Plains Address:

Great Plains UK Ltd.
Woodbridge Road Ind. Est.
Sleaford
Lincolnshire
NG34 7EW

Tel.: +44 (0) 1529 304654
Fax: +44 (0) 1529 413468
E-Mail: simba@greatplainsmfg.com

Great Plains Customer No.: _____

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Introduction

Foreword

Make sure you have read and follow the Operating Instructions carefully before using the machine. By doing so, you will avoid accidents, reduce repair costs and downtime and increase the reliability and service life of your machine. Pay attention to the safety instructions!

Great Plains will not accept any responsibility for any damage or malfunctions resulting from failure to comply with the Operating Instructions.

These Operating Instructions will assist you in getting to know your machine and in using it correctly for its intended purposes. First, you are given general instructions in handling the machine. This is followed by sections on servicing, maintenance and the action to be taken should a malfunction occur.

These operating instructions are to be read and followed by all persons working on or with the machine, e.g.:

- Operation (including preparation, remedying of faults in the operating sequence and servicing).
- Maintenance (maintenance and inspection)
- Transportation.

Together with the Operating Instructions, you receive a Spare Parts List and a Machine Registration form. Field service technicians will instruct you in the operation and servicing of your machine. Following this, the Machine Registration form is to be returned to your dealer. This confirms your formal acceptance of the machine. The warranty period begins on the date of delivery.



We reserve the right to alter illustrations as well as technical data and weights contained in these Operating Instructions for the purpose of improving the machine.

Warranty Guidelines

The period of liability for material defects (warranty) relating to our products is 12 months. In the case of written deviations from the statutory provisions, these agreements shall apply.

They shall become effective upon installation of the machine with the end customer. All wear parts are excluded from the warranty.

All warranty claims must be submitted to Great Plains via your dealer.

1.0 Safety Data

The following warnings and safety instructions apply to all sections of these Operating Instructions.

1.1 Safety Symbols On the machine



Parts may fly off during operation. Keep a safe distance away from the machine!



Read and observe the Operating Instructions before starting up the machine!



Keep clear of the working range of foldable machine components!



Watch out for escaping pressurised fluids! Follow the instructions in the Operating Instructions!



No passengers are allowed on the machine!



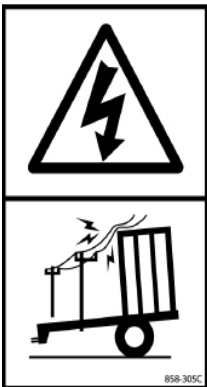
Never reach into areas where there is a danger of being crushed by moving parts!



Never reach into any revolving parts!



Refer to Operating Instructions before attempting maintenance.



Beware of power lines when transporting the machine.

Operating Instructions:

The Operating Instructions distinguish between three different types of warning and safety instructions. The following graphic symbols are used:



Important!



Risk of injury!



Risk of fatal and serious injuries!

It is important that all the safety instructions contained in these Operating Instructions and all the warning signs on the machine are read carefully.

Ensure that the warning signs are legible. Replace any signs that are missing or damaged.

These instructions must be followed in order to prevent accidents. Inform other users of the warnings and safety instructions.

Do not carry out any operations which may affect safe use of the machine.

All references to left and right in this manual are made from the rear of the machine, facing the direction of travel (unless otherwise stated).

1.4 Use for the Intended Purpose

The Great Plains Field Cultivator is built using the latest technology and in accordance with the relevant recognised safety regulations. However, risks of injury for the operator or third parties and impairment of the machine or other tangible assets can arise during use.

The machine is only to be operated when in a technically perfect condition and for the intended purpose, taking into consideration safety and risks and following the Operating Instructions. In particular, faults that can impair safety are to be remedied immediately.

Original parts and accessories from Great Plains have been specially designed for this machine. Spare parts and accessories not supplied by us have not been tested or authorised. Installation or use of non-original Great Plains products may have a detrimental effect on specific design features of the machine and affect the safety of machine operators and the machine itself. Great Plains will accept no liability for damage resulting from the use of non-original parts or accessories.

The Great Plains Field Cultivator is designed solely as a cultivation implement. Use for any other purpose, e.g., as a means of transport, will be deemed to be improper use. Great Plains will accept no liability for damage resulting from improper use. The risk will be borne solely by the operator.

Use of the Field Cultivator behind high power tractors (in excess of 40% above the maximum recommended) can lead to high loads and stresses which can cause long term structural damage to the chassis and key components. Such overloading can compromise safety and is to be avoided.

1.2 Operational Safety

The machine is to be put in operation only after instruction has been provided by an employee of the authorised dealer or an employee of Great Plains. The "Machine Registration" form is to be completed and returned to your dealer.

All protective and safety equipment, such as removable protective equipment, must be in place and functioning reliably before the machine is put in use.



Check screws and bolts regularly for tightness and retighten if necessary.



In the event of malfunctions, stop and secure the machine immediately.



Ensure that any faults are remedied immediately.

1.3 No Liability for Consequential Damage

The Field Cultivator has been manufactured by Great Plains with great care. However, problems may still occur when it is used for the intended purpose. These may include:

- Worn wearing parts.
- Damage caused by external factors.
- Incorrect driving speeds.
- Incorrect setting of the unit (incorrect attachment, non-adherence to the Setting instructions).



It is crucial to always check your machine before and during operation for correct operation and adequate application accuracy.

Compensation claims for damage which has not occurred to the machine is excluded. This includes any consequential damage resulting from incorrect operation.

1.5 Road Traffic Safety

When driving on public roads, tracks and areas, it is important to observe the relevant road traffic laws as well as the specific regulations relating to this machine.



Pay attention to the permitted axle loads, tyre carrying capacity, and total weight in order to maintain adequate braking and steerability (these figures are shown on the serial plate).



Passengers on the machine are strictly forbidden!



Max. road transport speed 16mph (25km/h).

1.6 Accident Prevention

In addition to the Operating Instructions, it is important to observe the accident prevention regulations specified by agricultural trade associations. It is the Operator's responsibility to ensure that all other persons are excluded from the danger zones surrounding or on the machine during its operation.

It is the Owner's responsibility to ensure:

- the Operator is trained and competent to use the machine & tractor,
- the tractor is suitable for the machine,
- adequate Risk and COSHH assessments have been undertaken regarding the machine's use. Specifically, these include issues concerning contact with the soil, dust, crop residues, chemicals, lubricants and other compounds during operation or maintenance, and the possibility of stones being ejected at high speed during work.



Beware of trapping hazards when manipulating moving parts (changing tine depth for example). Ensure any heavy components are fully supported when removing pins / bolts.

1.6.1 Hitching-up the machine

There is a risk of injury when hitching/unhitching the machine. Observe the following:

- Secure the machine against rolling.
- Take special care when reversing the tractor!
- There is a risk of being crushed between the machine and the tractor!
- Park the machine on firm, level ground.

1.6.2 On the Hydraulic System

Do not connect the hydraulic lines to the tractor until both hydraulic systems (machine and tractor) are depressurised.



Any hydraulic system containing an accumulator can remain under pressure permanently (even after following manual depressurisation procedures with a tractor / implement combination). It is therefore important to check all lines, pipes, and screw connections regularly for leaks and any recognisable external damage.



The hydraulic circuit contains specialised fittings which should not be tampered with under any circumstances. Do not attempt to modify hose routings or hose clamping arrangements, doing so may cause serious damage to the machine and/or injury.

Only use appropriate aids when checking for leaks. Repair any damage immediately. Spurting oil can cause injuries and fires!

In case of injury, contact a doctor immediately.

The socket and plugs for the hydraulic connections between the tractor and the machine should be colour-coded in order to avoid incorrect use.

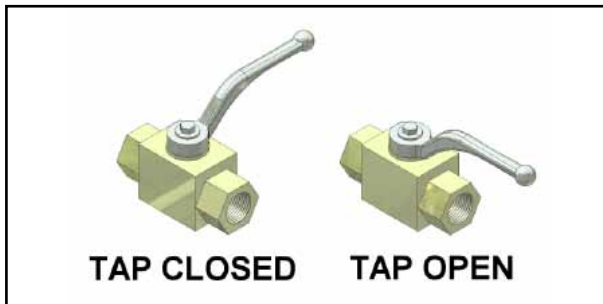


Fig. 1.01: Hydraulic Taps

1.6.3 Changing Equipment

- Secure the machine to prevent it from accidentally rolling away!
- Use suitable supports to secure any raised frame sections suspended above you!
- Caution! Risk of injury due to projecting parts!



Never climb on to rotating parts such as the roll unit. These parts may rotate causing you to slip and suffer serious injury!



Removing components during maintenance may affect the stability of the machine. Ensure it is fully supported in case of unexpected weight shifts.

1.6.4 During Operation

Ensure that the working range and the area around the machine are clear (children!) before operating the machine.

Always ensure adequate visibility!

Do not stand on the machine while it is in operation!

Operators must have a valid driving licence in order to drive on public roads. In the operating area, the operator is responsible for third parties.

The person in charge must:

- provide the operator with a copy of the Operating Instructions, and
- ensure that the operator has read and understood the instructions.
- make sure that the operator is aware of the specific regulations relating to the machine when driving on public roads.

1.7 Servicing & Maintenance

Ensure that regular checks and inspections are always carried out within the periods required by law or specified in these Operating Instructions.

When carrying out service and maintenance work always:

- switch off the tractor engine and remove the ignition key.
- wait until all the machine parts have stopped moving.
- depressurise the hydraulic system.

Many hydraulic circuits contain lock or overcentre valves which can retain pressure in the lines even after depressurising the tractor side of these circuits. If in doubt, consult trained personnel (such as your local Great Plains Dealer) to ensure such valves are depressurised to the correct procedure before removing or servicing any parts connected downstream of these valves.

Check all hydraulic lines for leaks, loose connections, chafe marks and damage. Remedy any deficiencies immediately! Pay particular attention to hose renewal intervals as outlined in the specific sections which follow. ALL hydraulic hoses have a safe maximum working life of 6 (SIX) years from date of installation, provided they remain in a safe condition. Hoses which exceed 6 years of age should be replaced, or inspected and certified by a suitably qualified person to have an extended life period which should be recorded.

Pay particular attention to those items which require specialist service tools or training to be carried out by qualified personnel. Do not attempt to service these items yourself! These include items retaining pressure (e.g. hydraulic circuits), or force (e.g. spring tines).

Prior to performing maintenance and servicing work, ensure that the machine is positioned on solid, level ground and is secured to prevent it rolling away. Do not use any parts to climb on to the machine unless they are specifically designed for this purpose.

Before cleaning the machine with water, steam jets (high-pressure cleaning apparatus) or other cleaning agents, cover all openings into which, for reasons of safety or operation, no water, steam or cleaning agents are to penetrate (bearings, for instance).

Lubricate all the lubricating points to force out any trapped water.

When carrying out servicing and maintenance work, retighten any loose screw connections.

When servicing the machine take precautions against soil, dust, seed coatings, oil or any other hazardous substances that you might encounter.

On a new machine tighten all nuts and bolts after 5 hours work and again after 15 hours. This also applies to parts that have been moved or replaced. After the initial 15 hours of work a once a week check should be sufficient depending on daily work rates.

1.8 Safety Decals

Your implement comes equipped with all lights, safety reflectors and decals in place. They were designed to help you safely operate your implement.

- Read and follow decal directions.
- Keep lights in operating condition.
- Keep all safety decals clean and legible.
- Replace all damaged or missing decals. Order new decals from your Great Plains dealer.
- When ordering new parts or components, also request corresponding safety decals.

To install new decals:

1. Clean the area on which the decal is to be placed.
2. Peel backing from decal. Press firmly on surface, being careful not to cause air bubbles under decal.

1.9 Operating Areas

The operating areas include the drawbar, hydraulic connections and depth adjustment equipment as well as all operating points requiring maintenance.

All operating areas will be specified and described in detail in the following chapters on servicing and maintenance.

Observe all safety regulations included in the section dealing with Safety, and in the subsequent sections.

1.10 Authorised Operators

Only those persons who have been authorised and instructed by the operator may operate the machine. The operator must be at least 16 years of age.

1.11 Protective Equipment

For operation and maintenance, you require:

- Tight fitting clothing.
- Strong protective gloves (to provide protection against sharp-edged machine components).
- Protective goggles (to stop dirt getting into your eyes).

2.0 Transportation and Installation

Transportation and initial installation of the machine are described in this chapter.

2.1 Delivery

The machine is normally delivered, fully assembled from your dealer.

- The machine can be lifted off with a crane or other suitable lifting equipment.
- The machine should be hitched to a tractor and driven off a low-loader.

2.2 Transportation

The Field Cultivator can be transported on public roads by hitching it up to a tractor or on a low-loader.

- It is important to observe the permitted dimensions and weights when transporting the machine.
- If the machine is transported on a trailer or a low-loader, it must be secured using straps or other devices.
- Before transporting the machine on public roads, it must be adjusted to its transportation position and the stipulations relating to road transportation fulfilled.



The transportation width can vary according to the adjustment of working parts (eg. depth wheels, tines, etc). It may be necessary to adjust these elements in order to achieve the minimum transport width.



Adjustments, including the attachment of transport devices, should be made at ground level; lowering the machine may be necessary to achieve this.

- The maximum permissible transport speed is 25 km/h.

2.3 Installation

When carrying out installation and maintenance work there is a higher risk of injury. It is important that you familiarise yourself with the machine and read the Operating Instructions beforehand.

Operator instruction and initial installation of the machine are carried out by our service technicians or authorised distributors.

The machine must not be used in any way beforehand! The machine can only be released for operation after instructions have been provided by our service technicians or authorised distributors.

- If any modules or parts have been removed for transportation, these shall be mounted by our service technicians/ authorised dealers before the instruction takes place.
- Check all important screw connections!
- Lubricate all nipples and joints!
- Check all hydraulic connections and lines for damage.

2.4 Hose Couplings

Great Plains hydraulic hoses are color coded using caps and cable ties to identify the different circuits to help you hookup hoses to your tractor outlets. Hoses that go to the same remote valve are marked with the same color.

Colour	Hydraulic Function
Red	Lift (2 hoses)
Yellow	Fold (2 hoses)

Hoses with 1 tie indicate the cylinder side of the circuit while hoses with 2 ties indicate the rod side.

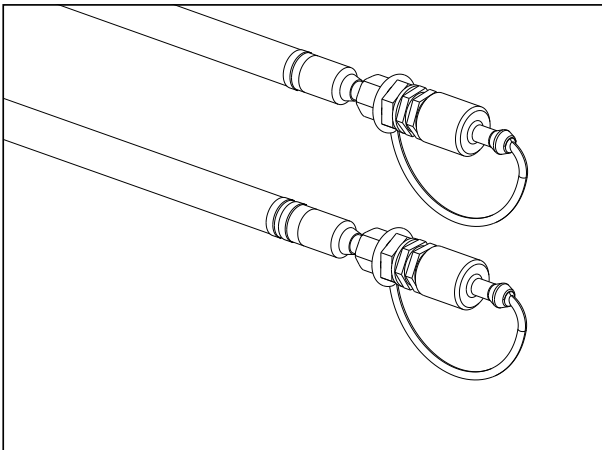


Fig. 2.01. Hydraulic Hoses

2.5 Hitching Up

2.5.1 Hitching up a Tractor to the Field Cultivator / Preparing for Transport



When hitching-up the machine, ensure that no-one is between the tractor and the machine.



Stop tractor engine and set parking brake before attaching cables and hoses.



When the Field Cultivator is parked for extended periods of time it should ideally be left in the unfolded, i.e. work, position for stability, safety and ease of access for maintenance. However, parking the Field Cultivator in the folded position (using the parking pins provided) is acceptable in the normal course of operation.



Tractor Oil Flow Adjustment: As a general rule the tractor oil flow rate should be set in the lowest setting before starting. This can then be increased to allow the desired rate of operation as applicable. This will minimise excessive oil flow and consequent power usage and heat generation.

1. Ensure the tractor hydraulics are depressurised and in the locked or closed (not float) setting.
2. Couple the hydraulic hoses to the tractor ensuring that the two wing hoses (yellow) are together and the two lift circuit hoses (red) are together.
3. Use the jack to raise or lower the height of the shackle before hitching up to the tractor drawbar clevis.



Do not use the tractor pick-up hitch to attach the machine to the tractor. This could cause damage to the tractor and the machine.

4. After hitching tractor to Field Cultivator, store jack on storage tube on top of Field Cultivator tongue.
5. Secure Field Cultivator safety chain to an anchor on the tractor capable of pulling the unit.
6. If the machine is already folded it is now ready for transport. If the machine is unfolded then operate the fold circuit. Refer to 2.7.2.

2.6 Air Brake Coupling Procedure

Please refer to the following procedure when coupling or decoupling any item of Great Plains machinery fitted with an AIR brake or AIR and HYDRAULIC brake system. Please note that this procedure does not apply to any machines fitted with a HYDRAULIC system ONLY.

2.6.1 When Coupling

1. Reverse up to the machine and connect the machine to the tractor as instructed to in Section 2.5.1.
2. With the machine connected couple the air lines. When coupling ensure the yellow line is attached first followed by the red line.
3. Your brake hoses are now attached and are ready for operation.
4. Continue with the coupling process as instructed in Section 2.5.1.

2.6.2 When De-coupling

1. Bring the machine to the parking position as instructed to in Section 2.9.
2. With the machine still connected to the tractor remove the red brake line followed by the yellow line.
3. Your brakes will now be ON and will hold, ensuring they have been adjusted and maintained correctly, the machine in position. Note: if the machine's tank is drained of air once all lines have been detached the brakes will come off (same situation as pushing the shunt valve).
4. Continue de-coupling the machine until it is fully disconnected.



By following the above instructions you will see that at NO point in the coupling or decoupling process has the red line been left in the tractor on its own. This is intentional and should be considered the 'rule' to coupling the hoses.

2.7 Folding and Unfolding

2.7.1 Unfolding into the Work Position

1. Fully raise machine.
2. Pressure wings in.
3. Remove wing lock pins on each side of machine (see Fig. 2.03).
4. Close the tap (1) and move the lever (2) to the right (refer to Fig. 2.02).
5. Lower all wheels.
6. Unfold machine - fully extend the wing cylinders.

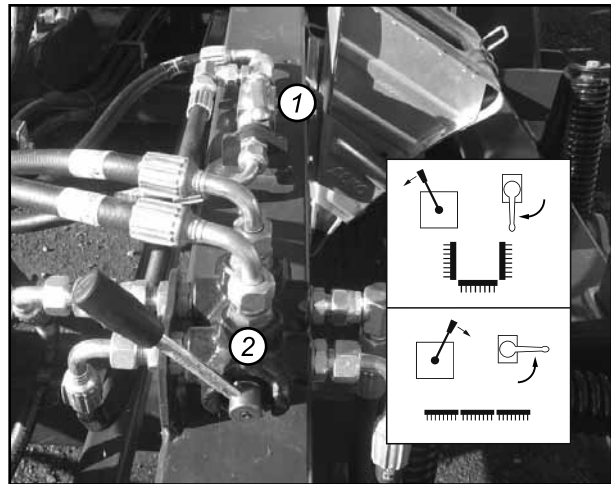


Fig. 2.02. Folding / Unfolding

2.7.2 Folding into the Transport Position

1. Fully raise machine.
2. Open the tap (1) and move the lever (2) to the left (refer to Fig. 2.02).
3. Fold machine fully.
4. Retract the depth control wheels so they do not protrude past the 3 metre transport width when folded.
5. Fit transport shims into transport wheel cylinders, pin into place.
6. Lower the machine onto shims.
7. Fit wing lock pins (see Fig. 2.03).
8. Remove excess soil from machine.

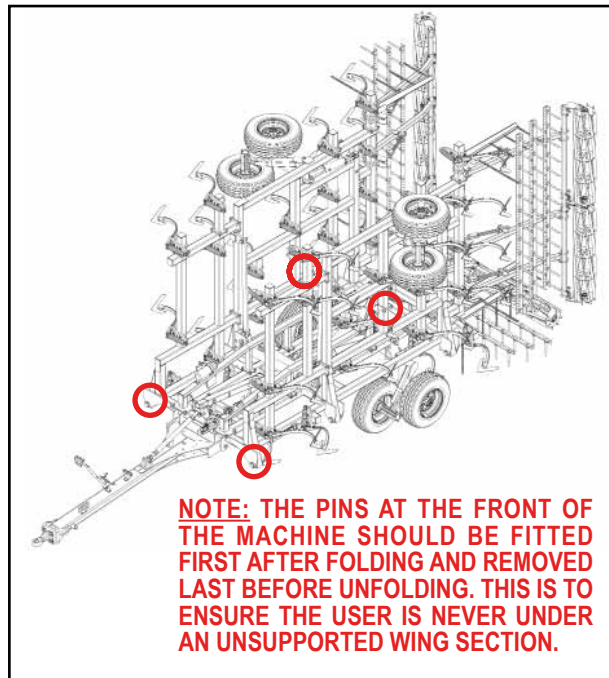


Fig. 2.03. Wing Lock Pins



Road transport speed should not exceed 16mph (25km/h).

2.8 Transporting

See *Hitching Tractor to Field Cultivator* on page 18 before transporting the Field Cultivator.

Check Tractor Capacity and Configuration
Consult your tractor manual for 3-point limitations.

Add weights to tractor as required.

When determining the weight of your Field Cultivator, be sure to include the weight of any options.

2.8.1 Transport Checklist

- Plan the route. Avoid steep hills. Keep Clearances in mind.
- Make all electrical and hydraulic connections. See *Hitching Tractor to Field Cultivator* on page 18.
- Raise Field Cultivator.
- Be sure all transport locks are installed.
- Always have lights on for highway operation.
- Comply with all federal, state and local safety laws when traveling on public roads.
- Travel with caution. Allow safe clearance.
- Remember that the Field Cultivator May be wider than the tractor.

2.8.2 When driving on the road

When driving on the road the machine must be converted to the transportation position.



When driving on the road, raise the machine completely to prevent the working elements dragging on the ground.



Loss of Control Hazard: Use a tractor rated for the load. Add tractor ballast as needed. Do not exceed 25 km/h. Towing the Field Cultivator with a vehicle that is not adequate, or at high speeds, could lead to loss of vehicle control. Loss of vehicle can result in a serious road accident, severe injury or death. Check that your tractor has enough to handle the weight of the Field Cultivator. Refer to your tractor's operator manual for capacities and ballast requirements.

2.9 Parking the machine

In order to avoid damage as a result of moisture, the machine should be parked, if possible, indoors or under cover.



When manoeuvring the machine, pay attention to your surroundings. Ensure that nobody is in the manoeuvring area (watch for children!).

- Park the machine on level and solid ground.
- Fit chocks under the wheels
- Lower the machine to the ground, ensuring that it is stable.
- Fit jack to drawbar and extend to take weight.
- Remove the drawbar pin and drive forward slowly until hitch is clear of tractor drawbar.
- Switch off the tractor.
- Disconnect hydraulic lines from the tractor.

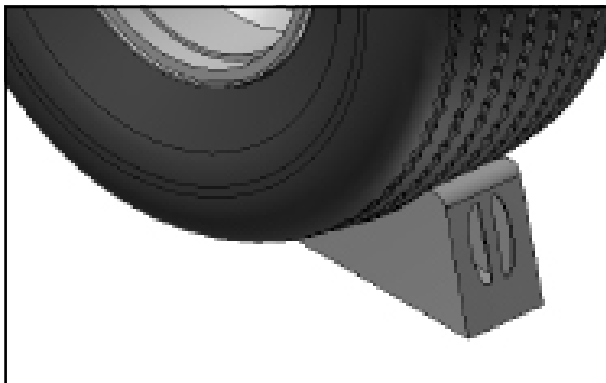


Fig. 2.04: Wheel Chocks

3.0 Technical Data Field Cultivator

	FCC8308N
Working Width	7800mm
Transport Width	2950mm
Transport Height	3995mm
Transport Length	9282mm
Base Weight	5500Kg
Power Requirement*	175-225
Drawbar Load Max**	305Kg
Centre of Gravity***	5485mm

* It is important to correctly match your implement to your tractor for optimum performance.
** Varies with lift, tilt and options.
*** Dimension from hitch in road transport.

4.0 Adjustment/Operation

4.1 Description

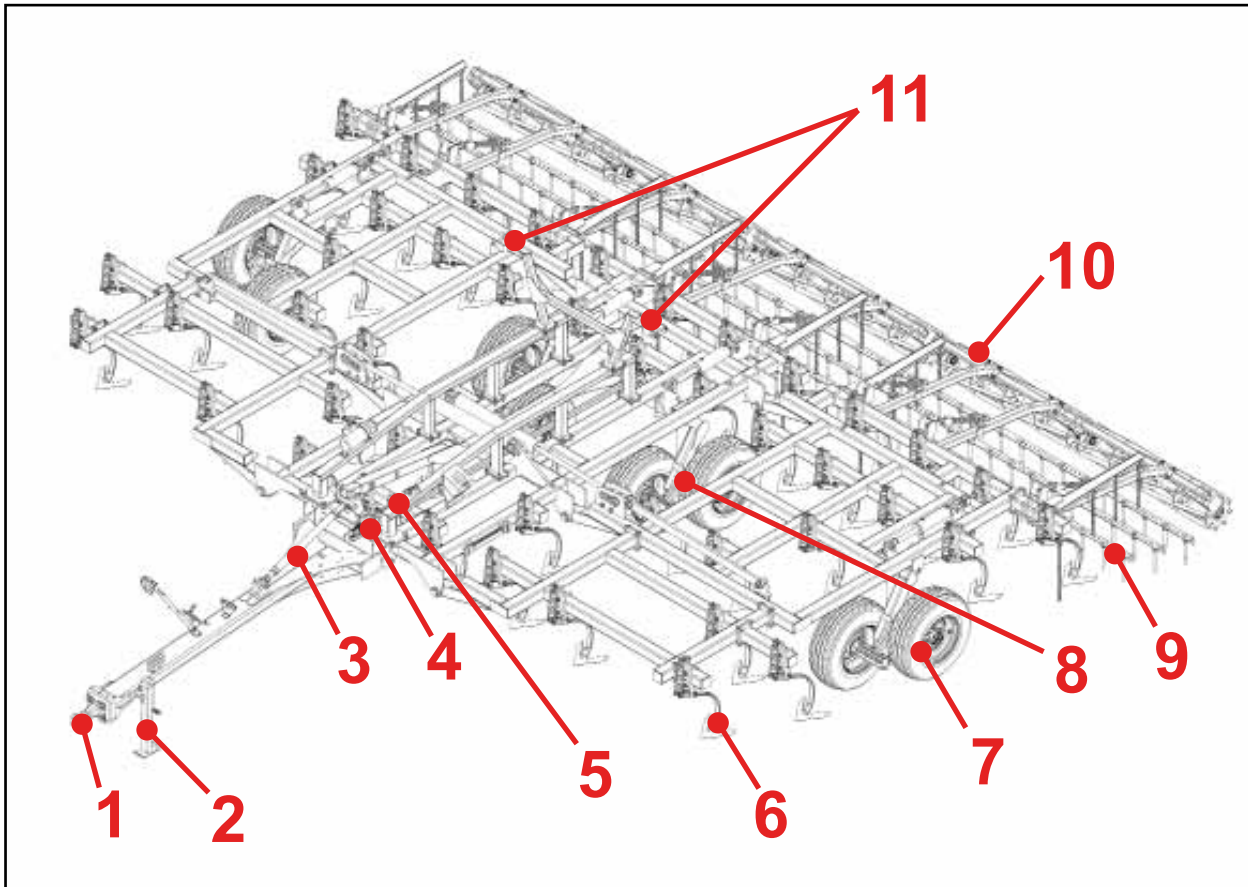


Fig. 4.01: Great Plains Field Cultivator

1. Hitch
2. Drawbar jack
3. Levelling adjuster
4. Depth stop
5. Fold lever and tap
6. Shanks
7. Depth Wheels
8. Transport wheels
9. Spike drag
10. Reel
11. Wing locks

The FCC8308N Field Cultivator is a three section seedbed preparation tillage tool. The implement is designed for secondary field operations to smooth, level, eliminate weeds and incorporate chemicals. Various finishing attachments are available to further smooth, redistribute residue, firm soil and break clods.

This section covers general operating procedures. Experience, machine familiarity, and the following information will lead to efficient operation and good working habits. Always operate farm machinery with safety in mind.

4.2 Pre-Start Checklist

Perform the following steps before transporting the FCN8308M Field Cultivator to the field.

- Carefully read the section *Safety Data* starting on page 9.
- Lubricate Field Cultivator as indicated under *Maintenance Overview* and *Lubrication* on pages 33 and 34.
- Check all tyres for proper inflation. See *Tyre Inflation Chart* on page 31.
- Check all bolts, pins, and fasteners. Torque as shown on page 38.
- Check Field Cultivator for worn or damaged parts. Repair or replace parts before going to the field.
- Check hydraulic hoses, fittings, and cylinders for leaks. Repair or replace before going to the field.

4.3 Preparation and Setup

This section helps you prepare your tractor and FCN8308N Field Cultivator for use, and covers tasks that need to be done seasonally, or when the tractor/Field Cultivator configuration changes.

Before using the Field Cultivator in the field, you must hitch it to a suitable tractor, inspect systems and level the Field Cultivator. Before using the Field Cultivator for the first time, and periodically thereafter, certain adjustments and calibrations are required.

4.3.1 Prior to Going to the Field Checklist

Complete this checklist before routine setup: Read and understand “Field Cultivator Important Safety Information” on page 1.

- Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
- Make sure your tractor horsepower matches the implement you are pulling. This is important so the implement can do the best possible job.
- Clean all hydraulic couplings and connect to tractor as shown on page 18.
- If machine is folded, remove the transport pins from wing stops. (DO NOT remove pins if the wing is leaning against the pins or putting pressure on the pins. Use the hydraulics to pull the wings in completely before unpinning them). Once the pins are removed, slowly unfold the unit. Make sure no one is under the wings during the unfolding process.
- Check again for hydraulic leaks and watch that hoses do not get pinched in hinges, wing stops, etc.
- After the machine is completely unfolded, raise and lower the Field Cultivator several times to purge air from the hydraulic system. Again check for hydraulic leaks and tighten or replace if necessary.
- Check safety chain hookup. Make sure all warning lights are hooked up and functioning correctly.
- Check that all grease fittings are in place and lubricated. See *Maintenance Overview* and *Lubrication* on pages 33 and 34. The hubs will come pre-greased and will not need greased at this time.
- Check that all safety decals and reflectors are correctly located and legible. Replace if damaged.
- Inflate tyres to pressure recommended and tighten wheel bolts as specified. See *Tyre Inflation Chart* on page 31.
- Refold the machine slowly. Put wing stop pins in place. Always use the transport pins when moving from field to field. You are now ready to go to the field.

4.4 General Operation and In-Field Adjustments

Remove the transport pins and unfold machine. Make sure the fold cylinders are fully extended to allow the wings to fully flex in the field.

If possible have someone observe the machine during first time operation for levelness, front to rear and wings to center frame. Adjust each as needed. For front to rear, either extend or shorten the length of the turnbuckle on the self-leveler. Never run the machine with the back lower (deeper) than the front. To adjust the machine from side to side, use the eyebolt on each wing. See the following pages for information setting the machine.

The ideal working speed for the Field Cultivator is 9-11 km/h (6 to 7 mph). Working too slow may cause plugging, poor incorporation or mixing of crop residue and reduced weed kill. Running too fast may cause streaks in chemical incorporation and ridging.

The Field Cultivator is designed as a secondary tillage tool and is designed to leave a finished seedbed following some form of autumn or spring tillage. For best results, if at all possible, run the machine at a slight angle of the rows. This will improve trash flow and help spread the residue more evenly throughout the field.

When you have the machine set to the desired working depth, set the depth stop slide on the depth control bar. This is located at the front of the machine on the brace bar. This will maintain a constant depth each time after raising and lowering the machine.

If after setting the depth stop, the detent on the tractor kicks out before the stop contacts the button on the depth stop, slow the hydraulic flow speed down. If the problem persists, contact the factory service representative for the possible adjustments. Do not adjust the rebound valve without first contacting the factory service rep.

Adjust the drag to leave the desired results while maintaining the trash flow through the drag.

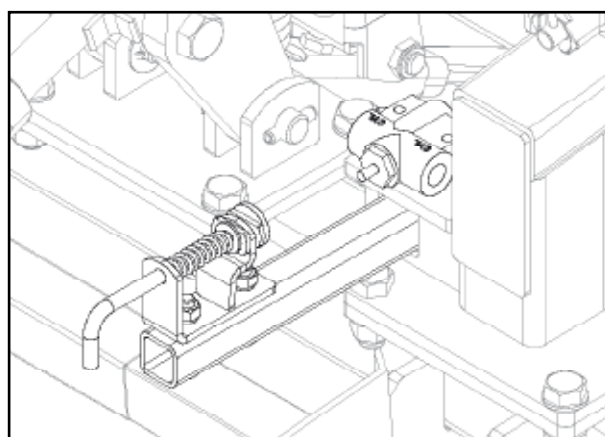


Fig. 4.02: Depth Stop

Turning:



Before turning, the machine should be eased out of work onto the transport wheels while driving. Likewise, it should be eased back into work once the turn has been completed.

4.5 Pre-levelling

Pre-leveling of machine can be done on a concrete slab or level surface. Lower machine so sweeps are 25-50mm off of ground on the center frame. Adjust turnbuckle at the front of machine to level it from front to back. (Shorten to bring front down, extend to bring front up). Level machine with the front row tines just slightly deeper or lower than the back.

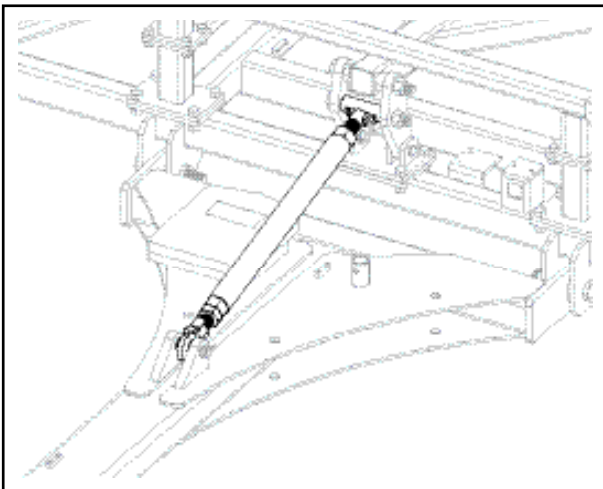


Fig. 4.04: Front to rear levelling

4.6 Side to Side Levelling

Set the wings to match the depth of the center. This is done by adjusting the adjustment bolt assembly on each wing. Start by loosening the locking nut, then adjust the adjustment rod. Lengthen the adjustment rod (turn counter-clockwise), to run shallower, shorten the bolt (turn clockwise) to run deeper.

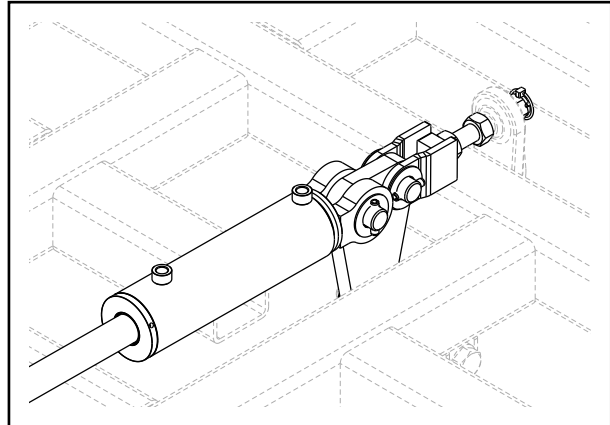


Fig. 4.05: Wing Adjustment

Tighten locking nut, back against clevis. In some conditions the wings will need to be set slightly lower than the center, as the center may tend to run deeper behind the tractor tyres.

4.7 Rear Attachment Settings

4.7.1 Spike Drag Settings

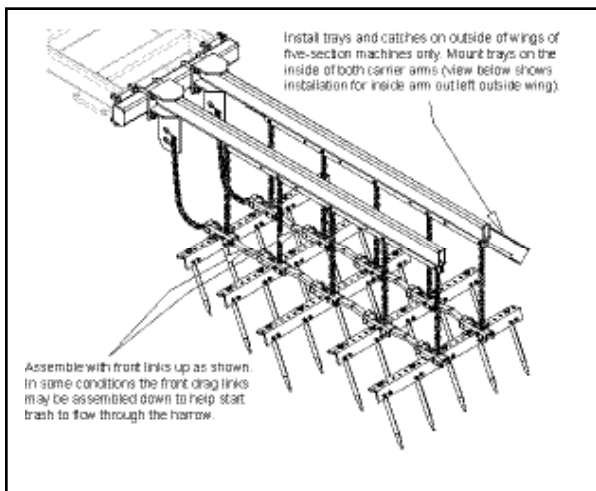


Fig. 4.06: Spike Drag

On the spike drag, start with 5 links hanging from the chain in drag arm bottom slot. (This is the starting point for worst conditions). The cleaner the ground, the shorter the pull chain may be pulled up. On the spike drag, one of the links in the first row of angles is turned over. This allows the trash to start flowing through the drag easier by changing the angle of the first row of teeth. Always make sure that the drag is never pulling off of the hang chains. If so, shorten pull chains.

4.7.2 Coil Tine Settings

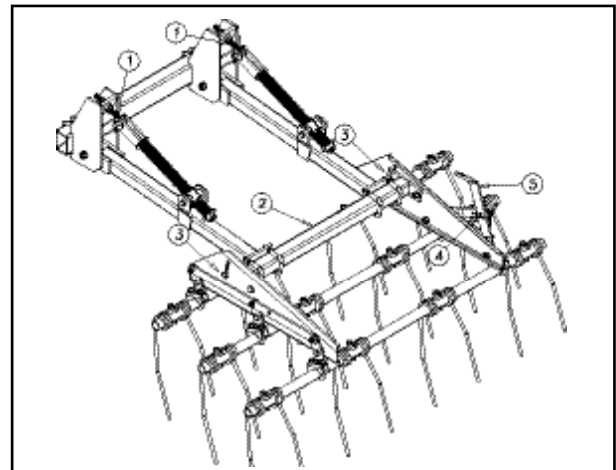


Fig. 4.07: Coil Tines

On coil tine drags start with the top eyebolt (1) centered. Then level drag mainframe (2) by changing position of leveling bolts (3). There are two holes in the arm and four in the mainframe. One of these will get you where you need to be to be level. To lay teeth back, remove the clip pin (4) on each end and move strap adjustment by pushing the handle (5) forward. The strap has 5 holes in the arm that will let you lay the teeth back several degrees.

If it is desired to set one row, usually the first, different to the rest as far as the angle is concerned, it can be adjusted individually by loosening the u-bolt and set-screw on each end of the drag bar.

Down pressure on the drag is achieved by lengthening the eyebolt (1) on the top bracket. Depending on the amount of down pressure, you may need to re-level the mainframe.

4.7.3 Heavy Reel Adjustment

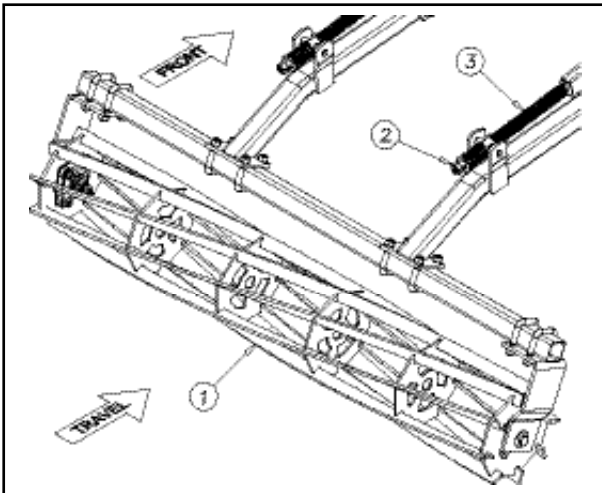


Fig. 4.08: Reel

The reel (1) down pressure may be adjusted by loosening the locking nut (2) and then either increasing or decreasing the spring pressure (3). When the desired amount of spring pressure is set, re-tighten the locking nut. Note: It is recommended to run little or no down pressure in wet or sticky field conditions.

The bars on the reels are angled forward and should be installed as such on the machine. In some conditions in which a firming of the soil is more desirable than breaking up clods then these reels can be mounted in reverse. This does however increase the chance of causing damage to the bars in rocky soil.

Be sure reels are installed with twisted bars oriented forward as shown. Mounting in reverse can damage reel in rocky soil.

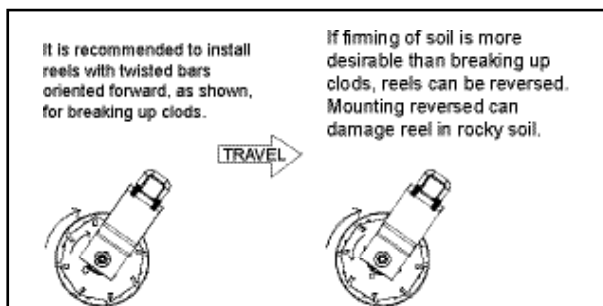


Fig. 4.09: Reel Direction

5.0 Servicing and Maintenance



Follow the safety instructions for servicing and maintenance.

5.1 Servicing

Your machine has been designed and constructed for maximum performance, operational efficiency and operator friendliness under a wide variety of operating conditions.

Prior to delivery, your machine has been checked at the factory and by your authorised dealer to ensure that you receive a machine in optimum condition.



To ensure trouble-free operation, it is important that servicing and maintenance work is performed at the recommended intervals.

Always use the transport lock when working on or doing maintenance to the Field Cultivator. If folded, be sure your wing stop pins are in place. Read and understand all safety decals on your equipment.

5.2 Cleaning

In order to ensure that the machine is always in operating condition and to achieve optimum performance, perform the cleaning and servicing work at regular intervals.

Avoid cleaning the reel bearings with a high-pressure hose or a direct water jet. The housing, screwed connections and ball bearings are not watertight.

If machine is stored outdoors over the winter months, it is a good idea to fold the machine then set it down on the ground so all the cylinders are retracted to protect the

cylinder rods. This will extend the life of the cylinder seals and reduce internal and external leaks.

By following and maintaining a routine service and lubrication program, your tillage equipment will give you many years of service.

5.3 Brakes & Wheel Hubs

The brakes should be tested before using for the first time and after the first laden journey.



Check that the road and parking brakes operate and release correctly before using the machine.



Check for hydraulic fluid and air leaks.



Brake and hub maintenance and servicing (apart from routine greasing) should be carried out by an authorised Great Plains dealer.

5.3.1 Tyre Warranty Information

All tyres are warranted by the original manufacturer of the tyre. Tyre warranty information is found in the brochures included with your Operator's and Parts Manuals or online at the manufacturer's web sites listed below. For assistance or information, contact your nearest Authorized Farm Tyre Retailer.

Manufacturer	Website
BKT	www.bkt-tire.com

Tyre Inflation Chart		
Wheel	Tyre Size	Inflation
All Wheels	10.0/75-15 14-ply	87 psi 6.0 bar

5.4 Shanks / Drag



When performing maintenance work on shanks extreme care should be taken. Wear goggles and gloves at all times when maintaining tines.



Ensure the machine is safely supported before attempting maintenance work on shanks. With the machine attached to the tractor it can be lowered onto the parking stands for tine maintenance.



Do not attempt to assist fitting shank points with a steel headed hammer, this can lead to splintering of the metal due to its hardness, which can cause injury. If tine fitting requires assistance, a copper/hide or plastic mallet should be used.



Ensure the shank leg is supported when removing pins to ensure it doesn't fall.



Check shank pivot bolts for tightness regularly. Check shank pivot bolts on the spring-loaded shank, these must remain tight to prevent excessive wear on the shank assembly.



Check drag bolts for looseness or excessive wear. Replace broken or bent teeth. Your drag is an important part of the tillage operation.

5.5 Maintenance Intervals

Apart from daily maintenance, the maintenance intervals are based on the number of operating hours and time data.

Keep a record of your operating hours to ensure that the specified maintenance intervals are adhered to as closely as possible.

Never use a machine that is due for maintenance. Ensure that all deficiencies found during regular checks are remedied immediately.



Avoid sharp-edged and pointed parts (tines, etc.) when working on the machine.




Place the machine on suitable supports when working underneath! Do not work under a machine which is not supported!


On a new machine tighten all nuts and bolts after 5 hours work and again after 15 hours. This also applies to parts that have been moved or replaced. After the initial 15 hours of work a once a week check should be sufficient depending on daily work rates.

Replace or rotate worn parts as needed - hinge bolts, clevis pins, bearings, sweeps, shanks, etc.

5.6 Maintenance Overview


Key

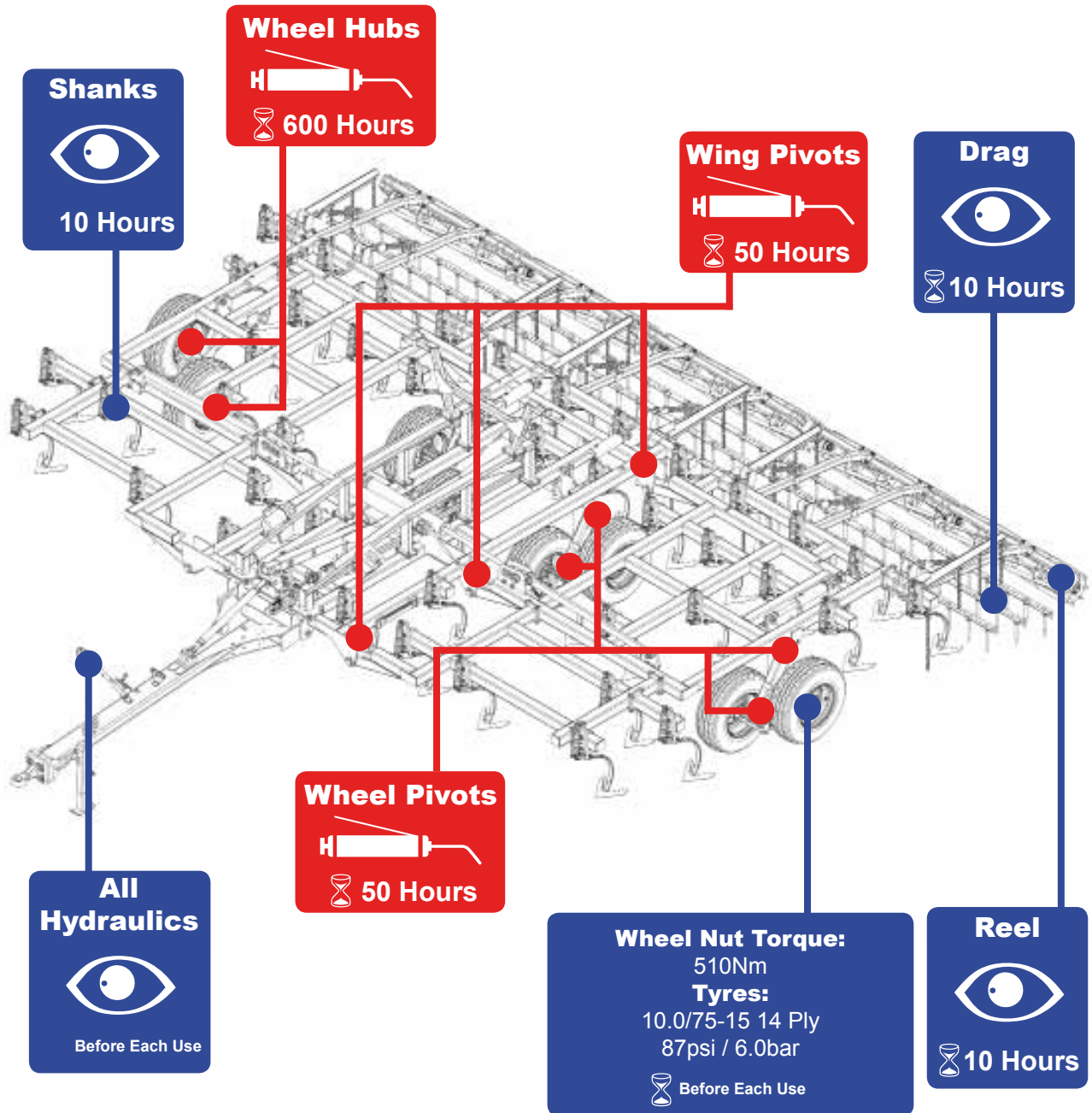
 **Inspect**

 **Grease**

Check Settings



 10 Hours



5.7 Lubricating the Machine

Please read the section entitled *Handling of Lubricants* carefully before lubricating the machine.

The machine must be lubricated regularly in order for it to remain serviceable. Regular lubrication also contributes towards extending the service life of your machine.

After it has been washed using a high-pressure hose or steam cleaned, the machine should always be lubricated using a grease gun.

5.8 Handling of Lubricants

Please ensure that you read the following instructions as well as the relevant information. This also applies to any of your employees who handle lubricants.

Hygiene

Lubricants do not present a health hazard provided they are used for their specified purpose.

In the case of prolonged skin contact, lubricants - especially low-viscosity oils - may remove the natural layer of fat contained in the skin, resulting in dryness and possible irritation .

It is important to take extreme care when handling waste oil as it may contain other irritants.

Vapours given off by cleaning agents and oils are also a potential health hazard. You should therefore not carry any oily cloths around. Change soiled work clothing as soon as possible.

Always exercise extreme care and observe the recommended hygiene rules when handling mineral oil products. Details of these handling regulations can be found in information provided by the health authorities.

Storage and Handling

- Always store lubricants where they cannot be accessed by children.
- Never store lubricants in open or unlabelled containers.

Fresh Oil

- Apart from taking the usual care and observing hygiene rules, there is no need to take any special precautions when handling fresh oil.

Waste Oil

- Waste oil can contain harmful contaminants which may cause skin cancer, allergies and other illnesses.

Attention!

Oil is a toxic substance. Should you swallow any oil, do not try to vomit. Contact a doctor immediately.

Protect your hands with barrier cream or wear gloves to avoid contact with the skin. Wash off any traces of oil thoroughly with soap and hot water.

- Wash your skin thoroughly with soap and water.
- Use special cleaning agents to clean any dirt off your hands.
- Never wash oil residue from your skin with petrol, diesel fuel or paraffin.
- Avoid skin contact with any oily clothing.
- Do not keep any oily rags in your pockets.
- Wash soiled clothing before wearing it again.
- Ensure that any oily footwear is disposed of in the proper manner.

Measures in case of injury through oil**Eyes:**

Should any oil be splashed into your eyes, rinse with water for 15 minutes. If the eye is still irritated, contact a doctor immediately.

If oil is swallowed

If oil is swallowed, it is important not to induce vomiting. Contact a doctor immediately.

Skin irritation caused by oil

In case of prolonged skin contact, wash off the oil with soap and water.

Oil Spills

Use either sand or a suitable granular absorbent to soak up any spilt oil. Dispose of the oil-contaminated absorbent in the proper manner.

Oil Fires

Never use water to extinguish an oil fire. The oil will float on the water causing the fire to spread.

Burning oil/lubricant must be extinguished using a carbon dioxide powder or foam extinguisher. Always wear respiratory equipment when dealing with fires of this type.

Waste Oil Disposal

Oil-contaminated waste and used oil must be disposed of in accordance with current legislation.

Waste oil must be collected and disposed of in accordance with local regulations. Never pour used oil into unsealed sewage systems or drains or onto the ground.

5.9 Lubricants & Hydraulic Oil**Hydraulic System**

The hydraulic fluid from the tractor is mixed with the hydraulic fluid from the machine.

The supplied machine hydraulic system contains Total AZOLLA ZS 32 oil.

Lubricants

All lubricating points on the machine can be lubricated with multigrade lubricating grease as specified in DIN 51825 KP/2K - 40.

5.10 Hydraulics



A low oil flow should be used, i.e., tractor tickover or low flow selected.



The wing circuit is controlled by an overcentre valve contained within the manifold block which positively locks oil flow until pressurised by the tractor. System pressure can be retained in the circuit **even after depressurisation** of the tractor quick release couplings.



Exercise extreme care when checking the valve or circuits, and *under no circumstances* attempt to adjust or loosen fittings without prior reference to your authorised Great Plains dealer, and detailed maintenance instructions.



Check and tighten or replace any hydraulic leaks. Check hoses for any leaks. It is important that there are no leaks on the equipment.

5.10.1 Hydraulic Connectors and Torque

All hoses and fittings on the machine are BSPP (British Standard Parallel Pipe). Leave any protective caps in place until immediately prior to making a connection.



Fig. 5.01: BSPP Connector

British Standard Parallel Pipe Thread (BSPP, ISO 1179)			
Pipe Thread	Turns from finger tight	Torque ft-lbs	Torque N-m
1/8" - 28	2-3	13	18
1/4" - 19	2-3	37	50
3/8" - 19	2-3	46	63
1/2" - 14	2-3	118	160
3/4" - 14	2-3	148	200
1" - 11	2-3	250	340
1 1/4" - 11	1 1/2-2 1/2	332	450
1 1/2" - 11	1 1/2-2 1/2	413	560

5.11.1 Rebound Valve Factory Settings

The valve block (see Fig. 5.02) contains a counter balance valve (A) to keep the lift cylinders in phase in use and a pressure reducing valve (B) to ensure the wings stay level in work.

The factory setting for the counter balance valve (A) is to turn the valve all the way in using an allen key and then turn it back by 1 ¼ turns.

The factory setting for the pressure reducing valve (B) is to turn the valve in all the way and then turn it back 4 ¼ turns.

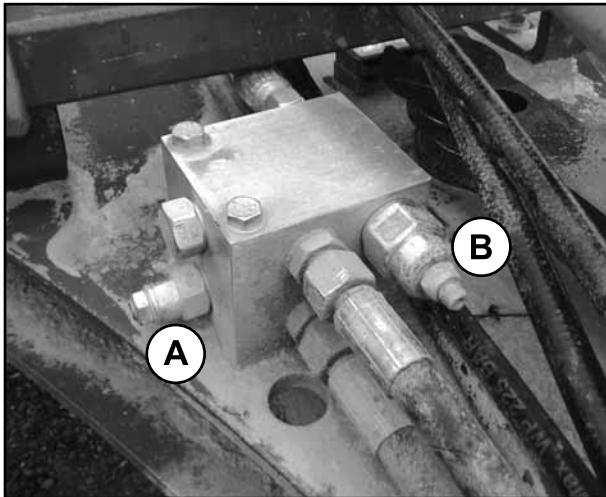


Fig. 5.02: Valve Block

5.11 Operator Support

If you have a problem, please contact your dealer. They will endeavour to solve any problems which may occur and provide you with support at all times.

In order to enable your dealer to deal with problems as quickly as possible, it helps if you can provide them with the following data. Always state the:

- Customer Number
- Name and Address
- Machine Model
- Serial Number of Machine
- Date of Purchase and Operating Hours
- Type of Problem

For the most current manual information, visit Great Plains website:







www.greatplainsmfg.co.uk

For more information on operating, adjusting or maintaining your Great Plains Field Cultivator, assistance is available. Contact:

Product Support

Great Plains UK Ltd., Service Department
Woodbridge Road, Sleaford
Lincolnshire, NG34 7EW, UK
+44 (0)1529 304654

5.12 Bolt Torques

Bolt Size in-tpi ^a	Bolt Head Identification						Bolt Size mm x pitch ^c	Bolt Head Identification					
													
	Grade 2		Grade 5		Grade 8			Class 5.8		Class 8.8		Class 10.9	
	N-m ^b	ft-lb ^d	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb	
1/4-20	7.4	5.5	11	8	16	12	M 5 X 0.8	4	3	6	5	9	7
1/4-28	8.5	6	13	10	18	14	M 6 X 1	7	5	11	8	15	11
5/16-18	16	11	24	17	39	25	M 8 X 1.25	17	12	28	19	36	27
5/16-24	17	13	26	19	37	27	M 8 X 1	16	13	28	21	39	29
3/8-16	27	20	42	31	59	44	M10 X 1.5	33	24	52	39	72	53
3/8-24	31	22	47	35	67	49	M10 X 0.75	39	29	61	45	85	62
7/16-14	49	32	67	49	95	70	M12 X 1.75	58	42	91	67	125	93
7/16-20	49	36	75	55	106	78	M12 X 1.5	60	44	95	70	130	97
1/2-13	66	48	105	78	145	105	M12 X 1	90	66	105	77	145	105
1/2-20	75	55	115	85	165	120	M14 X 2	92	68	146	106	200	150
9/16-12	95	70	150	110	210	155	M14 X 1.5	99	73	155	115	215	160
9/16-18	105	79	165	120	235	170	M16 X 2	145	105	225	165	315	230
5/8-11	130	97	205	150	285	210	M16 X 1.5	155	115	240	180	335	245
5/8-18	150	110	230	170	325	240	M18 X 2.5	195	145	310	230	405	300
3/4-10	235	170	380	285	510	375	M18 X 1.5	220	165	350	260	495	365
3/4-16	260	190	405	295	570	420	M20 X 2.5	260	205	440	325	610	450
7/8-9	225	165	365	270	520	385	M20 X 1.5	310	230	650	480	900	665
7/8-14	250	185	400	295	570	420	M24 X 3	490	365	760	560	1050	780
1-8	340	250	495	365	700	515	M24 X 2	525	390	830	610	1150	845
1-12	370	275	535	395	760	560	M30 X 3.5	960	705	1510	1120	2100	1550
1 1/8-7	480	355	700	515	1000	735	M30 X 2	1060	785	1680	1240	2320	1710
1 1/8-12	540	395	790	585	1130	835	M36 X 3.5	1730	1270	2660	1960	3680	2700
1 1/4-7	660	500	960	710	1380	1020	M36 X 2	1880	1380	2960	2190	4100	3020
1 1/4-12	750	555	1090	805	1570	1160							
1 3/8-6	990	735	1440	1070	2080	1540							
1 3/8-12	1010	745	1470	1090	2120	1570							
1 1/2-6	1180	870	1680	1250	2420	1790							
1 1/2-12	1330	980	1900	1400	2780	2050							

- a. in-tpi = nominal thread diameter in inches-threads per inch
- b. N-m = newton-meters
- c. mm x pitch = nominal thread diameter in mm x thread pitch
- d. ft-lb = foot pounds

Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.

25199

5.13 End of Season Service/Storage

The machine should be left parked in the unfolded position

Wheel bearings should be inspected and re-packed with grease if required

All greased pins/pivots should be lubricated.

Check for worn or damaged components and hardware, replace where required.

If fitted, check and where required adjust DD roller tension

Where hydraulic cylinder rods are exposed, re-coat chrome with oil/grease.

If the machine has been washed before storage it is good practice to function all hydraulic cylinders and services before storage.

Remove all fertiliser and seed from all metering units and hoppers.

Remove all metering cassette elements.



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