



BEDFORMER BX SERIES

Standen Engineering Limited.
Hereward Works,
Station Road, Ely,
Cambridgeshire.
CB7 4BP
England.

Tel: 01353 661111

www.standen.co.uk

EU & UKCA Declaration of Conformity

According to the Machinery Directive 2006 / 42 / EC
& The Supply of Machinery (Safety) Regulations 2008

Manufacturer: Standen Engineering Limited Station Road, ELY Cambridgeshire CB7 4BP England

We declare that the product, described below, meets the requirements of the above mentioned directive and has been assessed against and complies with the essential safety requirements application as specified in the Standards listed here.

Model	Bed Bedformer - Single
Serial No.	BFS.....

British Standards used in the implementation of this certificate

BS EN ISO 12100-1
BS EN ISO 12100-2
BS EN ISO 13857

Place of Issue: Standen Engineering Limited, Station Road, Ely,
Cambridgeshire, UK



M R Gammon - Technical Manager
For Standen Engineering Limited

EU & UKCA Declaration of Conformity

According to the Machinery Directive 2006 / 42 / EC
& The Supply of Machinery (Safety) Regulations 2008

Manufacturer: Standen Engineering Limited Station Road, ELY Cambridgeshire CB7 4BP England

We declare that the product, described below, meets the requirements of the above mentioned directive and has been assessed against and complies with the essential safety requirements application as specified in the Standards listed here.

Model	Bed Bedformer - Multi
Serial No.	BFT.....

British Standards used in the implementation of this certificate

BS EN ISO 12100-1
BS EN ISO 12100-2
BS EN ISO 13857

Place of Issue: Standen Engineering Limited, Station Road, Ely,
Cambridgeshire, UK



M R Gammon - Technical Manager
For Standen Engineering Limited

IMPORTANT

- **This operator's handbook should be regarded as part of the machine. Suppliers of both new and second-hand machines are advised to retain documentary evidence that this handbook was supplied along with the machine.**
- **On installation of the machine (i.e. starting off in the field), the New Machine Installation Record Card should be completed by the dealer/distributor and be countersigned by the customer. The document is proof that the correct procedures have been followed.**
- **The New Machine Installation Record Card should be returned to Standen Engineering Limited within 7 days of installation. Failure to do so may invalidate the machine warranty.**

On delivery, check that the machine is as ordered and has not been damaged in transit. Please report any shortfall to your Standen dealer.

The contents of this handbook, although correct at the time of publication, may be subject to alteration by the manufacturers without prior notice.

Standen Engineering Limited operate a policy of continual product development. Therefore, some illustrations and/or text within this publication may differ from your machine.

The copyright of this handbook is the property of Standen Engineering Limited, Hereward Works, Station Road, Ely, Cambridgeshire. CB7 4BP. This handbook is issued on the condition that it must not be used, copied or exhibited without their written permission.

Introduction to the Handbook

This handbook provides the information for the operation, adjustment and maintenance of your Standen BX SERIES BEDFORMER. To enable you to achieve the best results from the machine, the manufacturer recommends that you read the handbook thoroughly prior to using the machine for the first time.

Record below the details of your machine:

Dealer's Name:	
Address:	
Telephone No:	
Machine Serial No:	
Date Purchased:	
Date Started Work:	



This symbol indicates important safety messages within this handbook. When you see this symbol, be alert to the possibility of injury to yourself or others and/or damage to the machine and carefully read the message that follows.

Throughout this handbook the terms 'front', 'rear', 'left hand' (LH), 'right hand' (RH) are derived from the tractor drivers position facing forward in the normal direction of travel. Adjustments to the machine may have to be made singly or in combination according to soil conditions.

Always allow the machine to settle to a new setting before making further adjustments.

Recommended lubrication and maintenance instructions are included in this handbook and if followed will help to keep the machine in a safe working condition.

Warranty

Should the machine suffer any faults or defects within the warranty period, please contact your dealer. The warranty shall be effective only if the dealer is informed of any such defect as soon as practicable upon discovery.

Safety

The BX SERIES BEDFORMERS have been designed to comply with current Safety Regulations. However, as with all farm machinery there will be inherent dangers whilst operating and carrying out maintenance on the machine. The following list of precautions should therefore be brought to the attention of all persons operating and working on the machine. The list is not exhaustive. All farm machinery is potentially dangerous and great care must be exercised by the operators at all times. Standen Engineering Limited will not accept liability for damage or injury caused by their products except when such liability is specifically imposed by English statute.

Operation



Never operate the machine with the auto-reset leg locking arms in the locked position as serious damage may occur.



The machine must never be operated by untrained personnel or children.



*Never set machinery in motion without giving prior notice.
Ensure that everyone in the vicinity is aware of your intentions.*



Never allow children in the vicinity where machines are working.



Before carrying out any work on the machine, lower the machine to the ground, switch off the tractor engine, apply the handbrake, remove the ignition key.



*Normal safe working procedures should be adopted at all times.
Reduce speed when transporting the machine on sloping ground.*



Do not work on ground where there is a possibility of overturning, or across steep slopes.



The working area should be kept clear and free of obstructions at all times.

1.3

SAFETY PRECAUTIONS



Be alert for hidden obstructions. Should the machine hit an obstruction, stop and check for damage before proceeding.



Wear substantial or proper safety footwear. Wear gloves when handling the implement or parts with sharp edges.



The operator must not leave the tractor seat until the machine has been lowered to the ground, the tractor engine switched off, the handbrake applied and the ignition key removed.



Never reverse or turn unless the machine is in the fully raised position.



All guards, covers, warning transfers and safety devices must be correctly fitted and operable at all times.



Inspect the machine on a regular basis and replace damaged or worn parts as necessary.



Never operate the machine in a state of disrepair.

Transport



When in transport, the side arms and marker arms must be locked in the raised position.



Only transport the machine at a speed suitable to the prevailing conditions. Be aware of the weight and overall length of the machine at all times.



To avoid collision with the tractor cab, always reset and secure the depth wheels into the transport position before folding the side arms.



When folding or unfolding the machine for transport, always ensure everyone in the vicinity is aware of your intentions.

Maintenance



When left free standing, i.e. not attached to the tractor, the machine must be on level ground, supported using the stands supplied. If fitted with auto-reset legs, the legs must be locked prior to detaching from the tractor.



Never work under the machine when its in the raised position.



Inspect the hydraulic hoses and fittings for cuts and abrasions. Replace immediately.



On machines fitted with auto-reset legs the accumulator manifold unit contains gas at extremely high pressures and should not be tampered with. Never attempt to service or remove any manifold fittings including the pressure gauge.



Regularly lubricate the machine and check the tightness of all nuts and bolts.



Always use mechanical or additional help when lifting heavy parts.



Safety is the responsibility of the persons working with this machine. Think 'Safety' at all times. Read and remember the contents of this handbook.

Connecting to the Tractor

The 2-bodied, 3-bodied and 4-bodied BX Series Bedformers are designed to be fitted to the rear 3 point linkage of the tractor. When fitting to the tractor, the machine must be standing on hard, level ground. Ensuring the depth wheels (4-bodied machines only) do not come into contact with the tractor cab, slowly reverse the tractor up to the Bedformer and engage the lower link arms onto the bottom lift lugs. If required, a linkage spacer kit is available through your Standen Dealer. Fit the top link and adjust to level the Bedformer. The tractor lower link arm check chains should be set to allow some sideways float.

Once mounted to the tractor connect the hydraulic hoses as follows:

On a 2 or 3-bodied Bedformer connect the two hoses from each marker ram to two separate double acting spool valves on the tractor. On a 4-bodied Bedformer connect the two hoses for the folding side arms to one double acting spool valve, and connect the two remaining hoses for the outer ridger bodies and disc markers to another double acting spool valve (pressure hose marked red).



The stands (item 1, fig 1) at the front of the Bedformer must be raised before commencing work. If auto-reset legs are fitted, the leg locking arms (item 1, fig 2) will need to be set into the working position. When disconnected from the tractor always ensure the stands are reset and leg locking arms locked to support the machine.

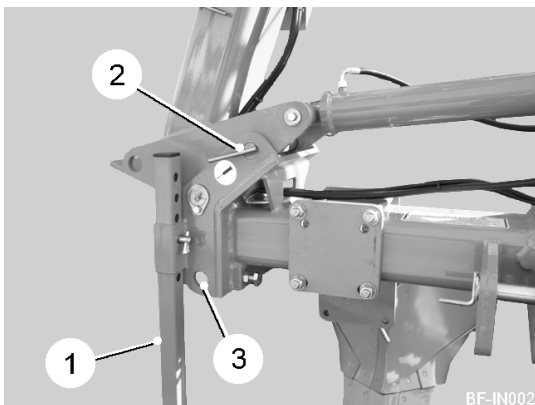


Fig 1

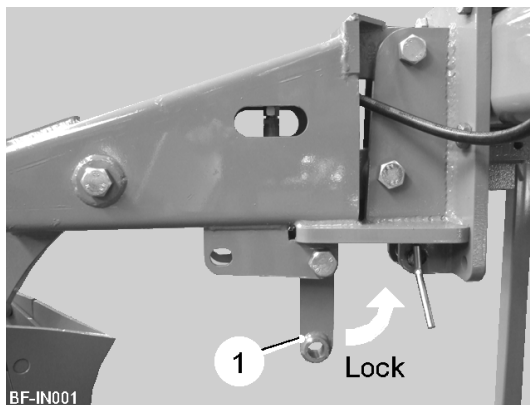


Fig 2

Unfolding for Work (4-bodied machine)

1. Remove the arm locking pins (item 2, fig 1).
2. Lower the side arms.
3. Re-position the locking pins into the working position (item 3, fig 1).
4. Unlock the auto-reset legs (if fitted).
5. Rotate the depth wheels into their working position and secure.

Folding for Transport (4-bodied machine)

1. Remove the arm locking pins (item 3, fig 1).
2. Fold the depth wheels into their transport position and secure.
3. Fold the disc markers into their transport position.
4. Raise the side arms.
5. Finally, fit the locking pins into the transport position (item 2, fig 1).



When actuating the side arms always ensure everyone in the vicinity is aware of your intentions.

Outer Ridger Half-Depth/Full-Depth Parallel Linkage

To minimise frame stress, the 4-bodied Bedformer has automatic depth adjustment (half depth to full depth) on the outer ridger bodies. This promotes equal pulling forces across the machine, making the tractor more controllable and easier to drive in a straight line. Operation is fully automatic, activated when the markers are changed over by the driver at the ends of the field. The tap (item 1, fig 3) on top of the parallel linkage ram allows the ridger to be locked in position.

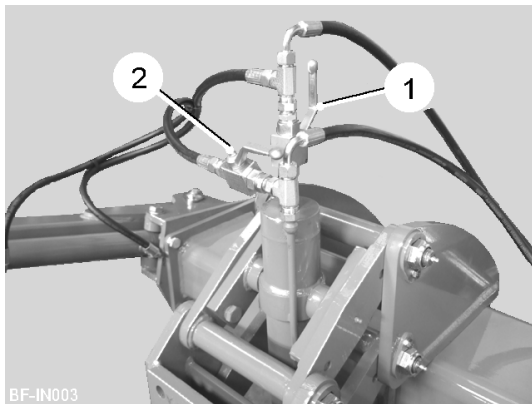


Fig 3

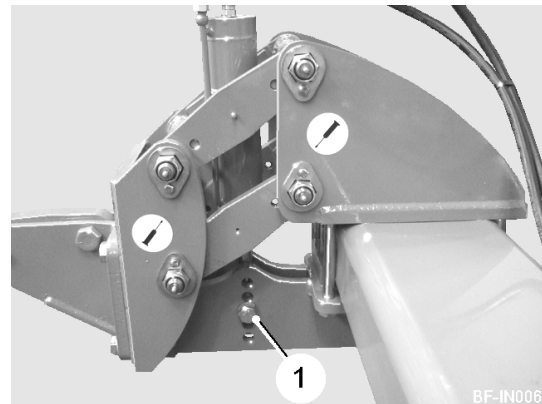


Fig 4

The working height of the outer ridger bodies can be adjusted by repositioning the ram pin (item 1, fig 4) into a different hole. Moving the pin into a higher hole will raise the ridger body, reducing the overall working depth.

Marker Arm and Parallel Linkage Circuit (4-bodied machine)

The marker and parallel linkage hydraulic circuit is designed so that when an outer ridger body is in the raised position the adjacent marker arm is in the lowered position. If the ridger and markers get out of sequence the marker arm taps (item 2, fig 3) can be used to re-sequence them. When in work the marker arm taps should be in the unlocked position (as shown).

To Prepare the Markers for Work:

1. Unlock one of the marker arms by opening the tap (item 2, fig 3).
2. Actuate the hydraulics to lower the marker arm.
3. Unlock the other marker arm by opening its supply tap.
4. Actuate the hydraulics to lower the marker arm. The other marker should simultaneously raise.

To Prepare the Markers for Transport

1. Lock the raised marker arm by closing the tap (item 2, fig 3).
2. Actuate the hydraulics to raise the other marker arm.
3. Lock this marker arm in the raised position by closing its supply tap.



When actuating the markers ensure everyone in the vicinity is aware of your intentions.

Disc Markers

The markers can be adjusted to suit various marking settings. To adjust, slacken the retaining bolts (item 1, fig 5) and slide the disc to the required position and retighten. The width of furrow that the disc makes can be varied by slackening the two locking bolts (item 2, fig 5) and rotating the disc to the desired position.

Each disc arm (item 3, fig 5) is fitted with a rubber torsion block (item 4, fig 5) which allows the disc to ride over any obstructions. Disc height and pressure can be increased/decreased by loosening the fixing bolts (item 5, fig 5) and rotating the disc arm in the slots and retightening.



During transport the marker ram taps (item 6, fig 5) must be set in the locked position.

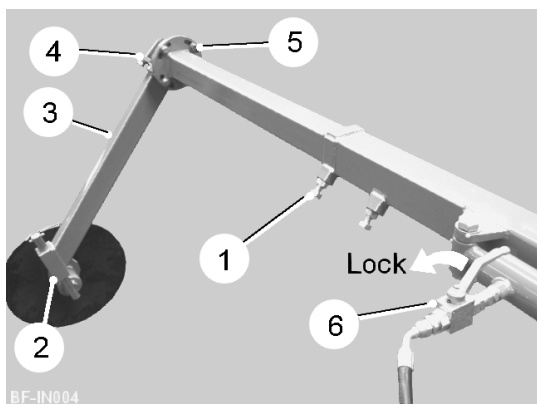


Fig 5

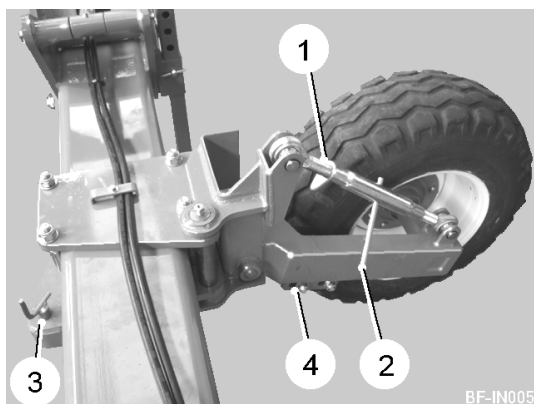


Fig 6

Depth Wheels

The depth wheels (4-bodied machines only) control the depth at which the ridger bodies work. To alter the working depth, loosen the adjustable link locking tab (item 1, fig 6) and turn the link bar (item 2, fig 6). Adjust both depth wheels evenly.

The depth wheels have a working position (as shown in figure 6) and a transport position. To set for transport, remove the locking pin (item 3, fig 6) and swing the depth wheel through 90°. Resecure with the locking pin.



To avoid collision with the tractor cab, always set depth wheels into the transport position before raising the side arms.

The wheel scraper (item 4, fig 6) should be set as close to the surface of the tyre as possible without fouling it.

Ridger Bodies

The ridgers bodies are protected by either a shearbolt device or an auto-reset device. Both devices prevent damage to the machine by allowing the ridger body to pivot backwards when hitting an obstruction. With the shearbolt device, as the name suggests, the grooved shearbolt (item 1, fig 7) breaks allowing the ridger to pivot up over the obstruction. Once the obstruction is clear the shearbolt must be replaced. With the auto-reset device the ridger body will pivot up and then automatically return to its working position once the obstruction has cleared.

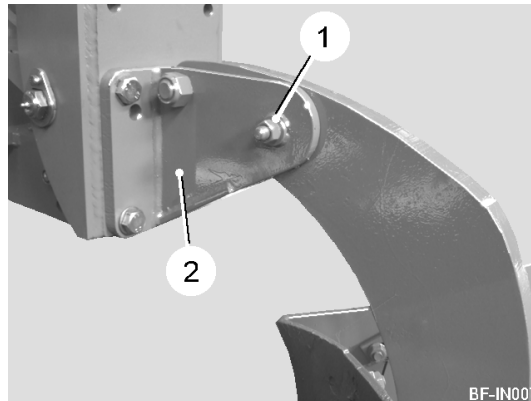


Fig 7



Always replace a broken shearbolt with a genuine Standen replacement. When fitting the new shearbolt, for it to function correctly, the nyloc nut must be on the 'spacer side' of the leg mounting bracket (item 2, fig 7). Failure to observe the above precautions may cause damage to the machine.

Auto-Reset Leg Hydraulic Pressure

There are two hydraulic systems within the auto-reset leg circuit. One system sets the pressure at which the ridger bodies release (break-back pressure) and the other sets the accumulator pressure which re-sets the ridging bodies once the obstruction has cleared (accumulator gas pressure). The pressures can be set to suit various field conditions using the table below. Setting the gas and break-back pressures is easily done using the tractor hydraulics. No special tools are required.



WARNING: *The accumulator manifold unit (item 1, fig 8) contains gas at extremely high pressures and should not be tampered with. Never attempt to service or remove any manifold fittings including the pressure gauge. For service contact your Standen Dealer.*

Setting the accumulator unit gas pressure:

The accumulator gas pressure must be set before the break-back pressure. The standard accumulator unit supplied with the machine is pre-set at 85 bar, therefore the minimum gas pressure possible will be 85 bar (see table below). If a lower gas pressure is required, additional accumulator manifold units are available through your Standen Dealer.

Before setting the gas pressure, the pressure within the break-back circuit must be released. To do this:

1. Ensure the flow valve (item 2, fig 8) is fully closed and then connect the hose (item 3, fig 8) to the tractor spool valve.
2. Set the spool valve to 'lower' to allow a return flow (if using a tractor switch off the engine).
3. The pressure gauge (item 4, fig 8) indicates the pressure within the break-back circuit. Dump the pressure by opening the flow valve (item 2, fig 8) until the gauge reads '0 bar' then disconnect the hose (item 3, fig 8).

The accumulator gas pressure can now be set as follows:

4. Ensure the flow valve (item 5, fig 8) is fully closed and then connect the hose (item 6, fig 8) to the spool valve. Accumulator unit gas pressure is indicated on the gauge (item 7, fig 8). With no hydraulic pressure within the break-back circuit the indicated pressure is the pre-set pressure of the accumulator unit.
5. To increase the gas pressure, set the spool valve to 'neutral' and open the flow valve (item 5, fig 8). Operate the spool valve and pressurise the system until the gas pressure gauge (item 7, fig 8) reads 10 bar above the required setting and then close the flow valve (item 5, fig 8).
6. Set the spool valve to 'lower' to allow a return flow (if using a tractor switch off the engine).
7. Slowly reduce the gas pressure to the required setting (e.g. 95 bar) by fractionally opening the flow valve (item 5, fig 8). Tightly close the flow valve when reached.
8. Disconnect the hose (item 6, fig 8) from the spool valve.

The break-back pressure can now be set.

Setting the break-back pressure:

For the auto-reset break-back system to function correctly, the hydraulic pressure within the break-back circuit must be matched to the gas pressure within the accumulator unit (item 1, fig 8).

1. Connect the hose (item 3, fig 8) to the spool valve and open the flow valve (item 2, fig 8).
2. Operate the tractor spool valve and pressurise the system until the gauge (item 4, fig 8) reads approximately 10 bar above the required operating pressure and then close the flow valve (item 2, fig 8).

Note: The accumulator pressure gauge will also rise to equal the break-back pressure.

3. Set the spool valve to 'lower' to allow a return flow (if using a tractor switch off the engine).
4. Slowly reduce the system pressure to the required setting (e.g. 114 bar) by fractionally opening the flow valve (item 2, fig 8). Tightly close the flow valve when reached.
5. Finally, disconnect the hose (item 3, fig 8) from the spool valve.

Accumulator gas pressure (set with no break-back pressure)	Break-back oil pressure (set after gas pressure)
70 bar	84 bar
75 bar	90 bar
80 bar	96 bar
85 bar	102 bar
90 bar	108 bar
95 bar	114 bar
100 bar	120 bar
105 bar	126 bar
110 bar	132 bar

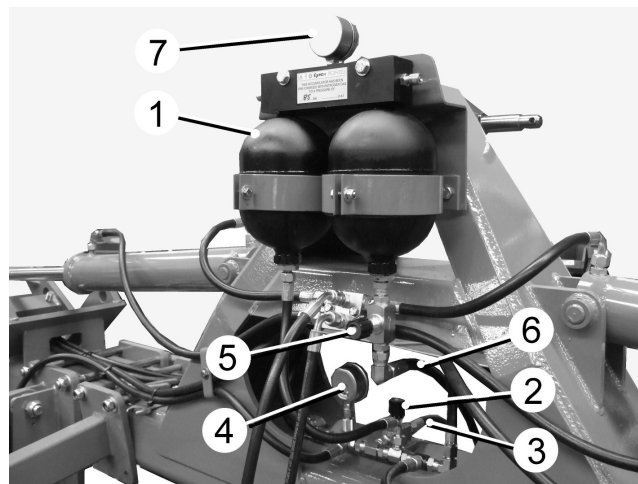
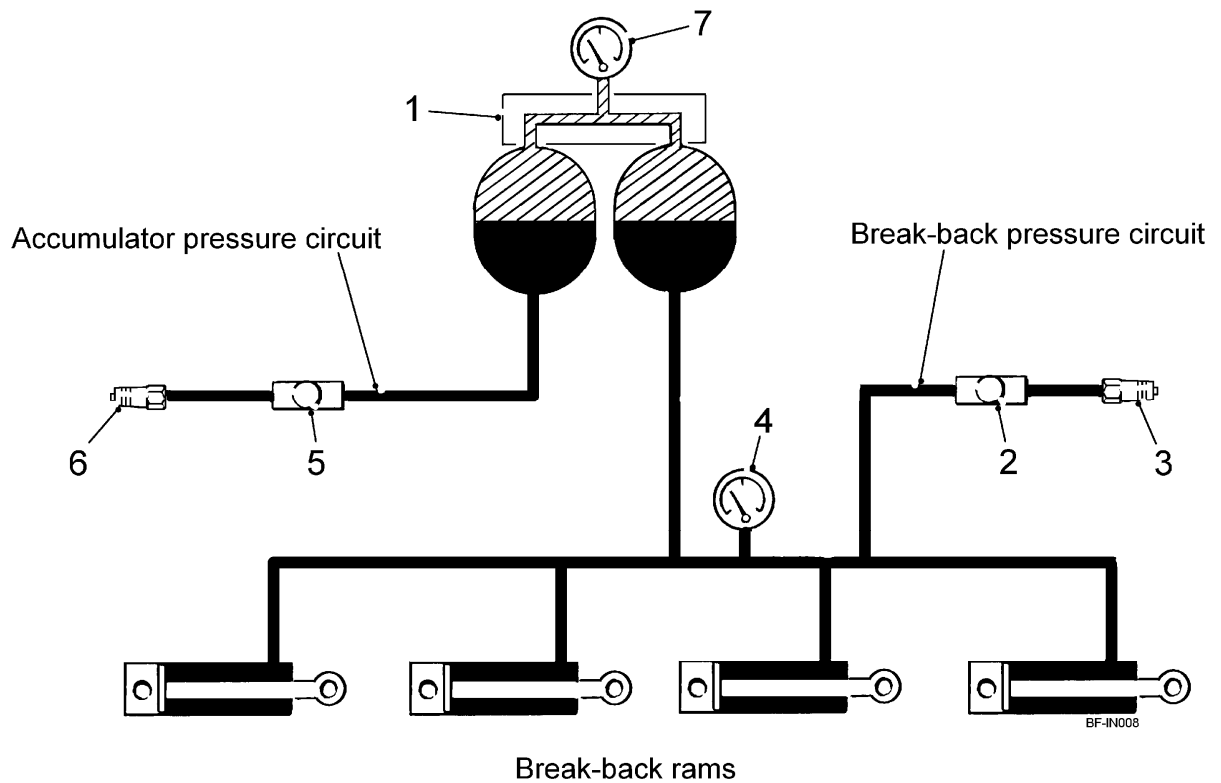


Fig 8



Bed Loosening Tines

Optional bed loosening tines can be fitted to promote a better bed structure. The tines (item 1, fig 9) are mounted between the ridging bodies and on optional outriggers if fitted. The working depth of the tines is adjusted by repositioning the tine bracket (item 2, fig 9) to align with a different set of holes.

On 4-bodied machines the outer sets of tines are designed to fold so reducing the width of the machine for transport.

To fold for transport:

1. Raise the side arms.
2. Remove the two locking pins (item 3, fig 9).
3. Pivot the tine unit inwards until the locking pin hole aligns with the transport position hole.
4. Reinsert the locking pins (item 3, fig 9) and secure.



The tine units are very heavy and should always be folded and unfolded with the side arms in the raised position.

On 4-bodied machines, additional depth adjustment can be achieved by moving the mounting beam pivot bolts and locking pins (item 3, fig 9) to align with a different set of holes in the mounting bracket. The pivot bolt and locking pin locations will need to be swapped so that the outer units can still fold up for transport.

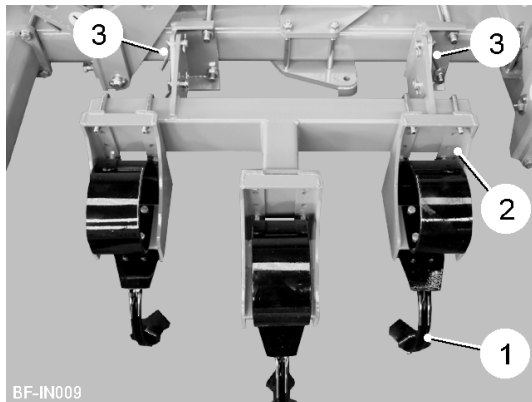


Fig 9

Subsoilers

Optional subsoilers can be positioned in front of the ridger bodies. They have two uses, firstly to break up soil in front of the ridger and secondly to help keep the unit in a straight line when in use. The subsoiler leg is adjustable for height and is protected by a shearbolt. There are two choices of foot available, a chisel foot and a bullet foot.



Always replace a broken shearbolt with a genuine Standen replacement. Failure to observe the above precaution may cause damage to the machine.

To assemble the subsoiler to the unit:

1. Remove the ridger body assemblies from the 'A' frame. Great care is needed when doing this as they are awkward to manoeuvre. It may be beneficial to fit one subsoiler at a time.



Always use mechanical or additional help when lifting heavy parts.

2. Place the subsoiler mounting beam with the large 20mm holes against the beam of the 'A' frame and fix loosely using the flange and four bolt fixings.
3. Adjust to the correct centres required then tighten securely against the 'A' frame.
4. Place the subsoiler leg between the two plates of the mounting beam.
5. With the leg at the desired height, insert the pivot bolt in the upper hole and the shearbolt and bushes in the lower hole and tighten accordingly.
6. The ridger body assembly can now be reattached to the rear plate on the mounting beam with the fixings supplied.

Dismantling an Auto-Reset Leg



The auto-reset leg hydraulic circuit is under pressure even with the machine at rest. Therefore, before breaking into any pipework the pressure within the break-back circuit must be released.



Before releasing the pressure, ensure the reset legs are locked using the leg locking arms (item 1, fig 2) mounted under each leg.

1. Ensure the flow valve (item 2, fig 8) is fully closed and then connect the hose (item 3, fig 8) to the tractor spool valve.
2. Set the spool valve to 'lower' to allow a return flow (if using a tractor switch off the engine).
3. The pressure gauge (item 4, fig 8) indicates the pressure within the break-back circuit. Dump the pressure by opening the flow valve (item 2, fig 8) until the gauge reads '0 bar'
4. Finally, disconnect the hose (item 3, fig 8).



WARNING: *The accumulator manifold unit (item 1, fig 8) contains gas at extremely high pressures and should not be tampered with. Never attempt to service or remove any manifold fittings including the pressure gauge. For service contact your Standen Dealer.*

When refilling the break-back circuit with oil all air must be expelled from the system. This can be carried out (one ram at a time) by loosening the drain plug fitted to the bottom of each reset ram. It may be necessary to loosen the top hose connection slightly to release all air from the ram body. Once all air has been expelled from the ram retighten the fittings. Repeat for each reset ram.

Lubrication

Regular lubrication will ensure that the machine will provide a long and efficient service life. Depending on soil and weather conditions the frequency of lubrication will vary. Apply grease to all pivot points, slideways and exposed threads etc. to ensure they operate easily and remain free of corrosion. Bright surfaces such as the ridger mouldboards, hydraulic cylinder rods etc. should be smeared with grease or an anti-rust agent after work to prevent corrosion.

BX Series Bedformer Specifications

Model	2-bodied shearbolt	2-bodied auto-reset	3-bodied shearbolt	3-bodied auto-reset	4-bodied shearbolt	4-bodied auto-reset
Bed widths	1.5–2.0 m	1.5–2.0 m	1.5–2.0 m	1.5–2.0 m	1.6–2.0 m	1.6–2.0 m
Tractor HP	120	120	165	165	180	180