Maxi-Mix
DECLARATION OF CONFORMITY

Simba International Limited hereby declare that the Product described in this Operators Manual, and defined by the Serial Number Plate attached to the Chassis of the Machine (a part copy of which is detailed overleaf and must be completed indicating the relevant machine details), conforms with the following Directives and Regulations, and has been certified accordingly.


In order to fulfill the requirements of health and safety described in the EC Directive, the following standards and technical specifications have been taken into account:

EN 292 - 1
EN 292 - 2

THE MANUFACTURER
Simba International Limited
Woodbridge Road
SLEAFORD
NG34 7EW
Lincolnshire
NG34 7EW
England.

Telephone 01529 304654.

CERTIFIED ON BEHALF OF SIMBA INTERNATIONAL LIMITED.
Philip J. Wright. BSc (Hons) C Eng. MI Agr.E
Technical Director.
Please fill in the general details below (Where applicable)

<table>
<thead>
<tr>
<th>MODEL</th>
<th></th>
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<tbody>
<tr>
<td>WIDTH</td>
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<tr>
<td>MOUNTED/TRAILED</td>
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<tr>
<td>HOPPER TYPE</td>
<td></td>
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<tr>
<td>SPECIAL</td>
<td></td>
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</tbody>
</table>

Please fill in Serial plate details: Serial plate is located on headstock or drawbar

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th></th>
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<tbody>
<tr>
<td>SERIAL NO.</td>
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</table>
WARRANTY
TERMS AND CONDITIONS
2004

In this warranty Simba International 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 receipt by 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 Simba International 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 at the Company's expense, or
(b) make an allowance to the purchaser against the purchase price, or
(c) accept the return of the machine and at the buyer’s option either:
   i) repay or allow the buyer the invoice price thereof, or
   ii) replace the machine 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 12 months from the date of receipt by the Purchaser or his nominee of the machine.

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 4 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%.
(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 Simba International 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 Simba International Ltd., Service Dept., Woodbridge Road, Sleaford, Lincs. England. NG34 7EW, **within 7 days** of installing a new machine.
# MAXI-MIX
## OPERATION INSTRUCTIONS

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**NEW MACHINES**
- DAILY
- WEEKLY
- END OF SEASON
INTRODUCTION

The MAXI-MIX is a heavy duty stubble cultivator for light to medium soils designed as a lower cost alternative to a disc harrow.

The machine is based around two rows of "C" leaf tines with twisted shovel points and wings which are followed by a tandem gang of disc blades, to consolidate the resulting surface one of five types of crumbler roller finishes of the operation.

The machines can either be mounted on 3 point linkage or trailed using a wheels over the back configuration. All models above 4m have hydraulically folding wings and are trailed.

SAFETY

It is the responsibility of the operator to ensure that the following essential safety requirements are adhered to at all times.

!- Never work on/or under machine unless it is fully supported

!- As with any hydraulic system never place hands over suspected leaks, high pressure oil can penetrate skin

!- Especially with mounted models make sure the front axle of tractor is sufficiently ballasted.

!- Always ensure area is clear, before operating wing sections.

!- Do not exceed 18Mph in transport.

!- Wheels over the back versions, ensure tyre pressures are correct.

!- Never allow anyone to ride on the machine or come too close when working.

Safety Inspection
(see also Maintenance section)

!- Check Hydraulic hoses for signs of damage especially where movement is involved .eg. pivot points.

!- Check transport straps regularly, damaged straps can lead to severe failure.

!- Check tyres where used in road transport for pressure and condition.

!- Check all nuts and bolts regularly.
COUPLING TO TRACTOR

Mounted Machines:
Attach to linkage of tractor capable of safely lifting 1500 kg for 3.0m machine, 1700kg for 3.5m and 1900 kg for 4m machine. Make sure there is adequate clearance between machine and tractor.

Trailer Machines:
Ensure drawbar shackle is secured into pick up hitch or clevis. Attach drawbar cylinder to spool valve on tractor.

TRANSPORT

Work to Road (Mounted):
1) Lift machine on tractor hydraulics.
2) Lock tractor hydraulics to prevent machine from lowering.

Road to Work (Mounted):
Reverse above procedure

Work to Road (WOB):
1) Lift machine out of work using drawbar cylinder.
2) Close drawbar cylinder taps.
3) Ensure wheel leg turnbuckle is fitted and adjust to provide sufficient transport clearance if necessary.

Road to Work (WOB):
1) Ensure tractor spool is locked.
2) Open drawbar cylinder taps, DO NOT stand under machine when doing so.
3) Lower machine to ground.

WARNING: Transport straps are capable of preventing wing sections from moving when there is no pressure in hydraulic system. Straps will fail if wing circuit is pressurised.

WARNING: Inspect transport straps regularly for any signs of damage. Do Not continue to use a damaged strap as serious damage or injury could result. New straps are available from Simba International part number: 5375

WARNING: Transport straps must be tight, loose straps will encourage shock loads and premature failure of straps.

Work to Road (Folding):
1) Open drawbar and rear axle lift taps.
2) Lift machine.
3) Open Wing circuit taps.
4) Switch diverter valve to fold.
5) Fold wings.
6) Shut wing circuit taps.
7) Attach transport straps and TIGHTEN.
8) Lower machine until both drawbar and rear axle cylinder are fully closed.

**Road to Work (Folding):**

1) Open drawbar and rear axle lift taps.
2) Ensure tractor spool is locked
3) Open wing circuit Taps
4) Remove transport straps
5) Lift machine
6) Unfold wings fully until bumpstop is reached.
7) Lift wings slightly to alleviate pressure.
8) Close wing circuit taps
9) Switch diverter valve to "Work".

**OPERATION**

The basic techniques for setting the Maxi mix are the same for all three layouts, as the components and principle operations are the same. Below is a description of the key features to adhere to when setting the Maxi mix.

**Mainframe**

In order to achieve a level seedbed it is important to set the main tine carrying framework level across both its axis. This is achieved by setting the toplink in the case of mounted models and the relative position of the drawbar rampost in the case of the trailed machines, which by sliding within its mounting can alter the pitch of mainframe. Once set the Tines will all be doing the same amount of work.

To a lesser extent the position of the rear roll and discs will alter the pitch of the mainframe.

**Tines** (see diagram 1 on page 4)

The tine spacing across the machine can vary depending on horse power availability and conditions allowing 2 tines to be optional for example the 3m machine can be fitted with 7 or 9 tines. (690 or 590 ctrs across beam respectively, see diagram) If a tine falls directly in line with a disc blade it may starve the blade of soil and cause a "hollow" which will show even after the crumbler roll, if this is the case individual adjustment of the tine should eliminate this.

In harder conditions it may be necessary to remove the wing points to improve penetration.

**Discs** (see diagram 2 on page 5)

The disc gangs can be adjusted for both pitch and depth using turnbuckles depending on the desired finish. If a lot of tilth is present, tilting the gang rearward and hence lifting the centre up improves the levelling effect of gang and feeds the rear roll with a more consistent surface across the machine.

Mounted machines have a flapper fitted to allow machine to float around its main pivot point on the mainframe, if the machine is used with a floating toplink the instead of the standard rigid attachment the flapper must be removed and the turnbuckle pinned directly into mainframe.
Rear Crumbler

The rear crumbler can be of five types an 11" scraped a 14" scraped, a flat bar a 18" coil or a 24" coil, all of which are adjusted using a further set of turnbuckles which mount on the rear of the disc gang frame.

The scrapers where applicable should be set as close to the roll as possible, especially in wetter conditions to maximise cleaning.

Wings (Folding models only)

The wing sections on the folding wing models are subject to a weight transfer system to prevent the centre mainframe from imposing a "heavy centre effect", causing uneven penetration.

The circuit is isolated from the tractor hydraulics in work to form a closed system, allowing oil to move between cylinders as ground contours dictate. the accumulator which is activated into the circuit when the diverter valve is switched to "work" acts as a suspension unit applying pressure to the wing cylinders. This carries a proportion of the centre section's weight while still allowing relative movement between wings.

Wheels (Trailed machines only)

With the trailed machines it is possible to control the depth of the machine by using the wheels in work. On a WOB machine this is done by altering the position of the wheel beams within the pivot profiles at the front of the machine and adjusting the turnbuckle fixed to the centre of disc gang. For road transport this should always be fitted.

The rear axle on a folding machine is hydraulically activated allowing the axle to be adjusted on the move, however it is normal practice to run with the cylinder fully closed.
LUBRICANTS

THIS MACHINE IS FILLED WITH
TOTAL AZOLLA ZS 32 OIL

SPECIFICATIONS

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<tr>
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<tr>
<td>AFNOR NF E60-200</td>
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AZOLLA ZS 32

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<td>Viscosity @ 100 °C cSt</td>
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**GREASE**

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<td>Soap%</td>
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<tr>
<td>Oil%</td>
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</tbody>
</table>

For further Information Contact:
TOTAL LUBRICANTS ADVISORY SERVICE, POTTERY LANE, FERRYBRIDGE,
W YORKSHIRE WF11 8JY
TEL: 0977 673421  FAX: 0977 607026  TELEX: 557595

**MAINTENANCE**

**NEW MACHINES**
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 initial 15 hours of work a once a week check is sufficient. See daily and weekly service sections for routine maintenance details (page 5).

**DAILY SERVICE**
1. **Do not** grease crumbler roll or disc axle bearings. Over greasing of these bearing units may lead to the grease seal being forced out of the housing and bearing failure will follow almost immediately.
2. Grease all pivot points until grease shows.
3. Check point bolts and tighten if necessary.
4. Check points for wear.
5. Check for broken or bent scrapers/star cleaners or rails, any damage to these may cause inefficiency and/or further damage to crumbler.
6. Check hydraulic connections for leaks. Leaking hydraulics may allow machine to lower in transport or in work.
7. Check disc blades for damage, damaged discs may lead to failure of other components.

**WEEKLY SERVICE**

1. **Do not** grease crumbler roll or disc axle bearings. (see daily service)

2. Tighten all nuts and bolts including wheel nuts. Vibration through the machine may cause nuts and bolts to become loose leading to wear.

   Check the scraper rail to crumbler arm retaining bolts and the crumbler arm to main frame bracket retaining bolts to ensure that they are fully tight as a significant load is transmitted through these areas during turning.

   SPECIAL CONSIDERATION SHOULD BE GIVEN TO ALL BOLTS ASSOCIATED WITH THE CRUMBLER UNITS AS SEVERE DAMAGE MAY RESULT IF THESE ARE NEGLECTED.

3. Check disc axles are tight, loose discs will damage both axle and disc preventing axle from being tightened sufficiently. If the axle requires tightening carry out the following:
   
   a) Loosen the bearing pillar "U" bolts on one of the pillars.

   **Note:** This allows the bearing to move slightly when being tightened avoiding any preloading which would otherwise take place, leading to premature failure.

   **Note:** When axle needs tightening again, loosen the pillar not moved previously.

   b) Bend back the locking tab from the axle nut.

   c) Ensure the end disc has located into the square section of the axle before tightening, failure to do so will prevent the axle from being tightened.

   d) Bend locking tab around the axle nut

   e) Retighten the bearing pillar "U" bolts

   f) Adjust position of the disc scraper's

4) Check tyre pressures

   400/60 15.5 14 ply -5 stud (Folding Wing) = 50 psi (3.5 bar)

   10.0/75 15 10 ply -5 stud (WOB) = 50 psi (3.5 bar)

**NUTS AND BOLTS**

Keep all nuts and bolts tight and check them regularly, more often when the implement is working in hard / dry ground conditions as vibration may loosen them. Keep to the maintenance schedule to maximise wearing part life and overall machine condition.

Never use a hammer to assist the tightening of nuts and bolts.

Using an incorrect size or grade of bolt may result in damage to the implement.
<table>
<thead>
<tr>
<th>BOLT SIZE</th>
<th>GRADE</th>
<th>TORQUE</th>
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<tbody>
<tr>
<td>M16</td>
<td>4.6</td>
<td>10 KG/M (73lb/ft)</td>
</tr>
<tr>
<td></td>
<td>8.8</td>
<td>24 KG/M (176lb/ft)</td>
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<tr>
<td>M20</td>
<td>4.6</td>
<td>20 KG/M (146lb/ft)</td>
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<tr>
<td></td>
<td>8.8</td>
<td>48 KG/M (352lb/ft)</td>
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<tr>
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<td>4.6</td>
<td>30 KG/M (220lb/ft)</td>
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<td>8.8</td>
<td>80 KG/M (587lb/ft)</td>
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<td>10.9</td>
<td>110 KG/M (807lb/ft)</td>
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<tr>
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<td>4.6</td>
<td>60 KG/M (440lb/ft)</td>
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<td>8.8</td>
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<td>M36</td>
<td>4.6</td>
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</tr>
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<td></td>
<td>8.8</td>
<td>280 KG/M (2055lb/ft)</td>
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<table>
<thead>
<tr>
<th>NUMBER OF WHEEL STUDS</th>
<th>TORQUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 STUD 5/8&quot; BSF</td>
<td>20.7 KG/M (150 LB.FT)</td>
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</tbody>
</table>

**END OF SEASON SERVICE**

1. Supply ONE PUMP ONLY to each of the crumbler roll and disc axle bearings from grease gun.

   **NOTE:** The grease lubricates the bearing to housing mating faces, this is the MAXIMUM amount required. Any more than this is to the detriment of bearing. The seals in the cast bearing units can be displaced by over greasing. Misaligned seals not identified will result in rapid failure of the bearing.

2. Grease any exposed areas of hydraulic cylinder rods to prevent them from becoming pitted.
3. Tighten all nuts and bolts. (see weekly service section)
4. Dismantle all toplink adjusters and grease all threads and inside tube.
5. Wheel bearings are pre packed with grease at the factory but should be inspected and regreased.
6. Check for worn or damaged components and replace as necessary.
7. Grease all exposed bolt threads.
8. Grease disc axle bearings.
9. If possible lower machine to the ground to reduce the loading on the tyres over a long period of time, therefore reducing risk of tyre deformation.

   If this is not possible ensure that the pressures are correct and check them regularly.
DISC AXLE 1 1/4" - 1500mm
SCRAPERS L/H P3644, R/H P3645
SCRAPER INNER L/H P5663, R/H P5664

REAR RAIL - 1070mm
SPOOL - 2055mm
P1147 CONCAVE SPACER P1148

CRUMBLEER OPTIONS--
U0058 DIA 11" SCRAPED
U0053 DIA 14" SCRAPED
U0081 FLAT BAR
U0085 18" COIL
U0070 24" COIL
CRUMBLEER O/A - 3820mm
SCRAPER RAIL O/A - 3640mm

NOTE-- NO FLAPPER
11 TINE STANDARD WINGS AN OPTIONAL EXTRA

3.5 MTR MAXIMIX - 11 TINE

UPDATED 9/9/08
FROM SERIAL NO. TO SERIAL NO. ISSUE DRAWING NO.

A AS226-
NOTE: NO FLAPPER 13 TINE STD WINGS AN OPTIONAL EXTRA

DISC AXLE 1 1/4" - 1000mm, P7712

SPOOL 295mm, P7747
CONCAVE SPACER P7748

410 REF.
SCRAPPERS INNER L/H P5561
INNER R/H P5584
SCRAPER L/H P3644, R/H P3844

BEARING PILLAR L/H P5280, R/H P5281
REAR RAIL -1910mm
P6081

CRUMBLER OPTIONS:-
UD034 DIA 11" SCRAPED
UD035 DIA 14" SCRAPED
UD281 FLAT BAR
UD282 16" COIL
UD281 34" COIL
CRUMBLER C/A 4100mm
SCRAPER RAIL C/A 4120mm

MAINFRAME P5483
LINK ARM W/A P5193
OUTER DISC O.D 500mm
DISC GANG BEAM P5485

UPATED FROM SERIAL NO. TO SERIAL NO. ISSUE DRAWING NO.
7/5/06 A AS227