



# John Berends Implements Pty Ltd

AGRICULTURAL ENGINEERS

## OPERATOR'S MANUAL PARTS LIST



### Ground Breakers

**PRODUCT NO.**

0340  
0341

4 Tine Ground Breaker  
6 Tine Ground Breaker

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## Safety Features

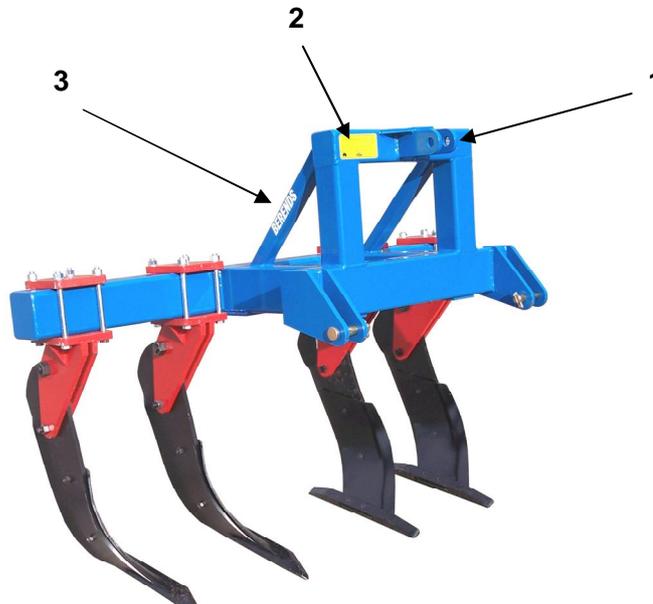
1. SERIAL NUMBER (Decal)



2. WARNING DECAL



3. BERENDS DECAL



**INTRODUCTION:**

This manual was developed specifically for the machine you have purchased. The information within is to assist you in preparing, operating and maintaining your machine. Please read and understand the contents of the manual completely before attempting to operate your machine, paying special attention to all safety details. With our policy of continuous improvement, products and specifications may change without notice and without incurring the obligation to install such changes on any unit previously delivered.

**Ground Breakers**

The Ground Breakers are designed to loosen the soil more effectively than conventional straight shank tine by gently vibrating the hard pan from the bottom up. This produces more lateral fracturing between the tines without bringing the sub soil to the surface or burying residue. Retaining surface residue will prevent top soil erosion and reduce moisture loss through evaporation. It also less likely to create clods on the surface, leaving a smoother finish. For a clean finish, it is most effective when there is some moisture in the soil but not too wet. Compact soils prevent root development and reduce water absorption.

By loosening the soil, roots are able to access groundwater during dry periods.

**MACHINE SPECIFICATIONS**

MODEL	4 tine	6 tine
No. Tines	4	6
Tine Size	15mm	15mm
Machine Width	2.0m	3.25m
Frame Size	150 x 150 x 10mm RHS	150 x 150 x 10mm RHS
Tractor H.P.	100 HP Plus	150 HP Plus
Tractor CAT connection	3 Point Linkage – Cat 2	3 Point Linkage – Cat 2

**WARRANTY**

John Berends Implements P/L warrants each new product sold to be free from defects in material and workmanship, under normal use and service, as outlined in the operators manual, for a period of 12 months.

This warranty is void if any damage to the machine has been caused by misuse or non genuine parts have been used or any repairs have been made by any persons other than authorised dealer service personnel.

The manufacturer/dealer is not obligated to any transportation charges incurred in the repair or replacement of parts.

This warranty does not exclude any condition or warranty implied by the Trade Practices Act 1974 or any other legislation which implies any condition which cannot be excluded.



# SAFETY



Farm machinery is dangerous if operated incorrectly so please read this manual in its entirety prior to operating the machine.

 No operator, however experienced in farm machinery operation, should attempt to use any machine they have not been competently trained to use. Your local Department of Agriculture can help you with training, as can most Occupational Health and Safety offices, Agricultural schools and colleges and farm equipment dealerships.

 All instructions relating to tractor safety as per the tractor operators manual should be followed. When making any machine adjustments, stop the tractor engine first and wait for all moving parts to stop. Maintain the tractor to ensure it remains safe to use. Do not operate faulty or damaged equipment.

 Extreme caution should be taken when fitting equipment to the tractor's three point linkage. Avoid standing between the implement and the tractor when coupling machinery.

 All machines should be mounted and retained correctly. All guards must be kept in place and correctly maintained. P.T.O. shafts must be correctly attached and secured to both the tractor and the machine. Decals must be visible and legible at all times. Keep well clear of all moving parts.

 Keep all people and animals at a safe distance from all moving parts. Children must not be allowed to operate this equipment and all passengers must have the same level of protection as the operator.

 Wear protective clothing where appropriate.

 Never operate when tired (not alert) or in poorly lit areas and stay alert for humps and other hidden hazards. Remove all timber, rocks and foreign objects prior to operation.

 Avoid operating the machine in wet conditions.

 Exercise extreme caution when changing direction on hills. Avoid sudden movement, sudden breaking, high speeds, rough terrain and steep slopes.

 If machine starts to vibrate, stop tractor, turn off engine and investigate.

 After striking a foreign object or if there are doubts about the performance of the machine, stop the tractor as described and check if machine is making excessive noise.

 Extreme caution must be taken when working in public areas (roadsides etc). It is recommended that flaps and chains are fitted to slashers when operating in public areas. These are available as optional extras. Rear flaps are compulsory in public areas.

 Watch overhead clearance and beware of underground pipes and cables.

 Where fitted, hydraulic hoses and fittings must be maintained so as to prevent damage.

 Do not modify this equipment in anyway, or use it for any other purpose than it was designed to do.

 Never work under unsupported machines or adjust unsupported machines. Do not enter the danger zone where a load being carried by a machine could fall on you, for example a round bale from a bale fork, a log from a carryall or material from a rear end loader.

These instructions should be used in conjunction with any local regulations regarding safety ie OHS.

**Maintenance is essential for safe operation. Ensure maintenance is carried out regularly by people qualified to do so. This is of particular importance on P.T.O. drive machines where driven parts can fly off at high speed if wearing parts are not properly maintained.**

**FAILURE TO FOLLOW THESE INSTRUCTIONS AND PROCEDURES MAY RESULT IN EQUIPMENT MALFUNCTION, OR DAMAGE, SERIOUS INJURY OR EVEN DEATH.**

## **ASSEMBLY**

The frame and tine components are extremely heavy so ensure that all parts are adequately supported when assembling. The best method is to raise the frame horizontally off the ground allowing enough clearance underneath to mount the tines without them touching the ground. Support the frame adequately so that it can't fall over. This process would require a forklift or similar.

Always ensure that assembly is carried out on flat even ground.

It may take two people to mount the tines onto the frame. Tine spacing is up to the discretion of the operator and the conditions it is to be worked in. Generally, hard soil conditions can have a wider tine spacing compared to those operated in moist conditions. Secure the tines with the clamp plates and 10" x 3/4" HT bolts provided. When all tines are fitted, lower the frame to the ground so that it is resting on the tines. It will tip backwards slightly at this point however this is how it would normally rest.

Ensure that the frame is secure whilst lowering it slowly. If it is lowered too quickly it's momentum may tip the machine backwards.

Line the lower linkage arms between the lower linkage plates of the machine, slide the linkage pins through the holes and secure with linch pins. Attach the top link to the Ground Breaker. The lower linkage arms must be level with each other. The tractor top link may need to be adjusted to ensure the Ground Breaker points are parallel to the ground when working. However, never have the top link horizontal as this will cause the cultivator to move sideways and make it difficult to track.

If the tines are trying to pull out of the ground it is likely that the top link is too long and needs to be shortened.

It is possible that once optimum depth is achieved, the tines may keep trying to pull into the ground. It is then likely that the top link is too short and may need to be lengthened.

If the points are not running horizontal in the ground then it may lead to unsatisfactory results such as clods occurring.

To make adjustment easier to regularly alter, a hydraulic top link can be used.

## **OPERATION**

Once all safety procedures have been followed, start the tractor and raise the Ground Breaker off the ground. Ensure the tine spacing is acceptable and all tines are secure.

The Ground Breaker leaves a cleaner soil surface than most other rippers and ploughs. However, in different conditions the result will vary. If soils are ripped when it is too wet or too dry they will tend to gape or produce excessive clods. Ideally, the machine should be used when conditions are optimal, preferably with some soil moisture at around 50% or less of field capacity. If conditions are too dry, then larger clods may form. If conditions are too wet, then plant material can collect and stick to the leading edge of the tines creating gaps in the surface.

The best time for using the Ground Breaker is just before rain. If the outlook for rain is not good then it is suggested that the tine spacing be increased so that only half of the surface profile is disturbed. This will ensure that the root matter which is left undisturbed is not exposed to the dry/hot conditions.

## **Working Depth**

In most cases, Ground Breakers are used to break open the hard pan. Therefore, the operator needs to know at what level the hard pan is situated. It is of not much point digging well below the hardpan as this takes more horsepower and fuel for no real additional benefit. Once the bottom of the hardpan is found and measured, the tines can be set to go no more than 4" (100mm) below this hardpan. Adjustment of the top link may be necessary at this stage to ensure the bottom of the tine is parallel to the soil surface.

If there is no hard pan to break then the tines can set at full working depth of approximately 18" (460mm).

Be careful working in areas where there are rocks. Most rocks will probably be lifted to the surface. If there are rock layers under the soil, adjust the tine depth to be above these layers. Failure to do so will result in breaking shearbolts or possibly worse.

## **Working Speed**

Tractor speed is governed by the condition of the soil and the HP of the tractor. An approximate ground speed would be around 8kph.

## **Turning/Reversing**

Lift the Ground Breaker out of the soil. Never turn before the tines are completely free from the soil, otherwise the innermost tines will be forced sideways and backwards. When making part turns with the Ground Breaker in the soil, you must use so big a circle that the innermost tines never move backward.

Never reverse with the tines in the soil, but make sure the machine is fully raised. When reversing in the soil the tines can very easily be overloaded, which later leads to shear bolt breakages.

## **Stopping**

Lower the machine, stop the tractor engine (removing the ignition key) and apply the park brake. Ensure that the Ground Breaker is well supported when not in use. The tines do sit evenly on the surface which will result in the frame tipping back slightly. It is relatively stable in this position but be careful not to place excessive weight on the front or back of the frame unless it is well supported.

# **MAINTENANCE**

When doing any type of maintenance on this machine, always follow the safety steps described in this manual. Use only authorised genuine parts for replacement.

The Ground Breaker must be adequately supported under its body (Make certain it cannot fall).

## **Tines & Shins**

Clay and sandy soils can cause excessive wear on tines. Points should be reversed when there is less than 4-5" (100-125mm) of point remaining.

Replace shins once excessive wear occurs.

## **Bolts**

Ensure all bolts are regularly checked and kept tight.

# SPARE PARTS

ORDER SPARE PARTS THROUGH YOUR ORIGINAL SUPPLIER OR YOUR LOCAL JOHN BERENDS IMPLEMENTS DEALER.

Always quote the machine serial number or product number, spare part number and its part name as stated in the operator's manual.

## Ground Breaker (0340/0341)

Key No	Part No	Qty	Description
1		1	Ground Breaker frame
2	3816	ar	Ground breaker tine assembly complete (specify left or right hand)
3	3704	ar	Shank (specify left or right hand)
4	3705	ar	Protection shin plate (specify left or right hand)
5	3706	ar	Reversible point
6	3707	ar	Inner/outer roll pins suit point (2 set per point)
7	3708	ar	Bush
8	3709	ar	Shearbolt/nut
9	3817		Tine bolt/nut
10	3728	ar	Bottom clamp plate (with legs)
11	3818	ar	Top clamp plate
12	3819	ar	Clamp bolts/nuts/sw (4 per tine)
13	1970	2	Cat 1/2 stepped push through pin

