



# John Berends Implements Pty Ltd



AGRICULTURAL ENGINEERS

## OPERATOR'S MANUAL PARTS LIST



### **TH100 - Trailing Tandem Discs – hydraulic folding model**

**PRODUCT NO.**

0966/0972/0960  
0967/0973/0961  
0968/0974/0962  
0969/0975/0963  
0970/0976/0964  
0971/0977/0965

TH100 – 28 plate with 24" x 5mm/24" x 5mm/26" x 6mm discs  
TH100 – 32 plate with 24" x 5mm/24" x 5mm/26" x 6mm discs  
TH100 – 36 plate with 24" x 5mm/24" x 5mm/26" x 6mm discs  
TH100 – 40 plate with 24" x 5mm/24" x 5mm/26" x 6mm discs  
TH100 – 44 plate with 24" x 5mm/24" x 5mm/26" x 6mm discs  
TH100 – 48 plate with 24" x 5mm/24" x 5mm/26" x 6mm discs

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# 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.**

**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.

**TH100 – Trailing Tandem Disc Ploughs**

The TH100 Wheeled Tandem Disc plough introduces an implement that is built in Australia to suit Australian conditions. In designing this machine with its many innovative features, primary consideration was given to the user and the varying conditions he/she would encounter when operating the TH100. With emphasis in design strongly stressed, a machine of a heavy weight with a strong, robust main frame, a disc gang assembly incorporating a heavy axle and heavy castings and finally complete with every wanted feature to enable the machine to leave a high class finish wherever used, has certainly been accomplished. Notably, the TH100 will track straight and not present problems with side draught. The setting of gang axles is easy and quick by means of hydraulic adjustment, allowing the gangs to be folded parallel to the frame for transport.

**MACHINE SPECIFICATIONS**

	<b>28 Plate</b>	<b>32 Plate</b>	<b>36 Plate</b>	<b>40 Plate</b>	<b>44 Plate</b>	<b>48 Plate</b>
Approx. weight	3290kg	3500kg	3680kg	3830kg	4150kg	4300kg
No. Bearings	8	12	16	16	16	16
Cutting Width	3.2m (10'6")	3.6m (12')	4.11m (13'6")	4.57m (15')	5.03m (16'6")	5.48m (18')
No. Axles	4	4	8	8	8	8

**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.

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## Safety Features

The following photo is of the non-folding model however the decal location remains the same.

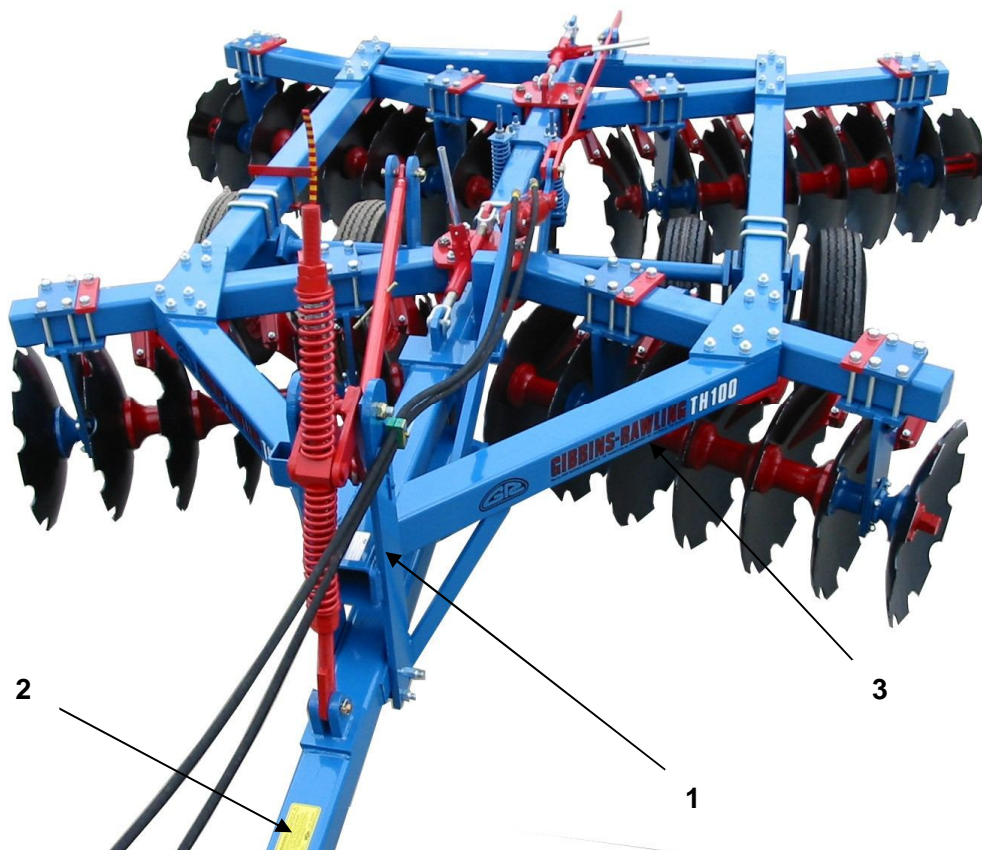
1. SERIAL NUMBER (Decal – inside frame)



2. WARNING DECAL



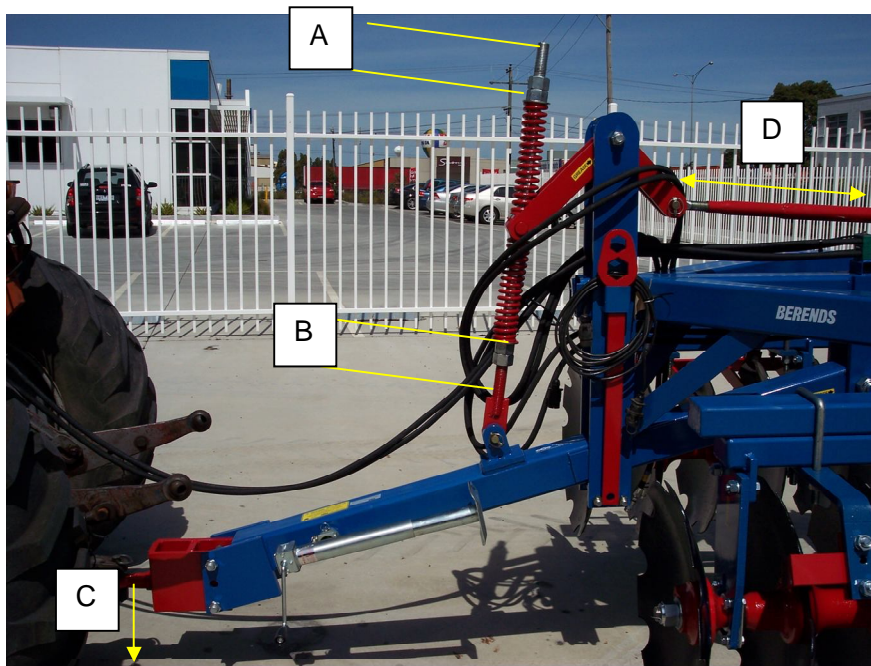
3. GIBBINS RAWLINGS DECAL (Top of frame)



## MACHINE ASSEMBLY

The machine should be completely assembled prior to delivery. It may be necessary to make some minor alterations prior to operation depending on the tractor it is connected to and the job required.

### Drawbar set-up (main springs)



**A** – 185mm

This refers to the distance from the end of the thread to the start of the flat washer.

**B** – 225mm

This refers to the distance from the top end of the lug to the start of the flat washer.

**C** – This is the distance from underneath the drawbar to ground level.

**D** – This is the distance between hole centres on the top link.

It may be necessary to make some adjustments to the parallel lift system depending on the height of the tractor drawbar. As a general guide we suggest you position the springs as shown in the above picture (A and B). To do this we suggest you begin with the discs on the ground and the wheels at ground level (not connected to the hydraulics)

Before connecting to the tractor determine how high the TH100 drawbar needs to be in relation to the tractor. Adjust the parking jack to obtain the required height. It may be necessary remove the two 8" x 1" bolts holding the tongue to the drawbar and reposition it. The toplink adjustment (D) will need to be adjusted depending on what height the drawbar is (C). The objective is to create a level main frame when operating the wheels. Connect the drawbar of the tractor.

The following adjustments are a guide only.

If you require a drawbar height (C) of 300mm then you will need to adjust the toplink (D) to a measurement of 2265mm hole centres.

If you require a drawbar height (C) of 400mm then you will need to adjust the toplink (D) to a measurement of 2340mm hole centres.

Therefore for every extra 100mm of drawbar lift required, the top link needs to be extended by 75mm.

To test that the machine is now lifting parallel, connect the hydraulic hoses for the wheelkit.

### **CAUTION:**

*Ensure the transport lock top links are removed from each wheel before hydraulically operating the wheelkit. Ensure that nobody is in close proximity of the discs when operating the hydraulics.*



Lower the wheels slowly until they are all the way down. If the settings are correct then the main frame should lift evenly at the front and back. A visual inspection of this parallel lift should be sufficient.

**CAUTION:**

*Keep a close eye on the springs as you lower the wheels to ensure the main threaded rod arrangement does not come in contact with the main frame. If it gets too close then stop immediately as damage may occur. This indicates that your settings are not correct and some adjustment will need to be made to your topline or possibly the height of the tongue at the tractor end.*

Once you have achieved parallel lift you are ready to connect the hydraulics for the front and rear gangs to the tractor. Start off by completely closing the gangs so that they are parallel with the main frame. Should they not be parallel, adjust the individual top link for each gang to move them in line with the frame. This will ensure that every time you close the gangs they will return to the same position.

## **OPERATION**

### **Jack**

Prior to moving the machine, retract jack well clear of the ground, and if the implement is to cross very rough terrain, consider removing the jack completely.

### **Transit**

When the machine is being transported, close the four gangs up using the hydraulics, connect the top link on each side of the machine to the wheelkit. This will remove any undue stress away from the hydraulic ram. A recommended maximum travelling speed is 25km/hr however due consideration must be given to varying surface conditions. Always secure the top links when travelling on roads or between jobs. Ensure the rear transport lights are connected to the tractor and are operating.

### **Gang Setting**

This machine is capable of a variety of gang angles. The front gang is always working in harder ground than the rear gang, so there should always be approximately two degrees more angle on the rear gang to compensate. The more angle the greater the bite of the disc. The front gangs should be in the region of 21° to 23° as a guide and the rear gangs 23° to 25°. A degree is one in 60, so an in-field adjustment can be made. It is best to pre-determine your angles and then mark them out on the turntable so that you can revert back to them easily.

**CAUTION:**

*Avoid operating the discs at excessive gang angles as this will place undue stress on the machine as well as leaving an undesirable finish.*

(Note: at the time of print of this document there was no angle gauge available for this machine. It is currently being worked on and hopefully will retrofit existing models)

Setting gang angles is entirely related to conditions as they are presented. Observe the closeness of the two P.594 end castings in the centre when setting the front gangs. Minimum clearance of 1 1/2"(40mm) will avoid contact of these parts when operating.

Don't be afraid to experiment with gang angles or ever moving gangs or discs, as the machine must be set to achieve the ultimate result and this will vary because of soil, moisture content, tractor speed etc.



## **1) Ridging**

Don't accept ridging, as this is the result of any one of the following reasons, if you understand the reason you can solve the problem.

- a) Speed too fast - possibly reducing the back gang angle will be the solution.
- b) Gang angles too great for speed travelled - close gangs up or reduce speed.
- c) Back gang (particularly) set too close to each other in the centre on gang frames - follow steps in note on "moving disc gang" and move gang away from the centre of machine.

NOTE: It is considered as a general rule, the earth that the front gangs throw out the rear gang must throw back, otherwise unevenness will occur.

## **2) Harrow Finish**

Should you be faced with a hollow depression left in the centre of the harrowed area - this can be rectified by reversing the "ridging" solution instructions.

The gangs are able to be opened right out to almost 90° from the frame. To achieve this you may need to adjust the individual toplinks on each gang. Remember that any alterations at this point will provide a different gang position when closing them up. ie they will no longer be parallel with the main frame.

## **Sliding Clamps**

Ensure the two sliding clamps controlling the gangs remain firm but not too tight. They must have little play but still be able to slide freely. Use the locking bolts on the top and one side to tension the nylon slides inside the clamp. To obtain the correct tension, do the bolts up by hand as tightly as possible, then secure the locking nut. This should pull back the bolt slightly giving a neat fit. The nylon slide plates will wear over time and are easily replaced. Keep a close check on the tension of the clamp plates and adjust the tension bolts accordingly. Failure to do so may result in the clamp becoming sloppy resulting in wear. A lubricant on the main centre beam will also help increase the life of the nylon slides.

## **Scrapers**

Set scrapers when discs are revolving, don't have scrapers touching (otherwise the scallop in the disc may pick up the blade).

## **Turning**

Do not turn sharp and fast at corners. Should this be unavoidable lift disc clear of the ground.

## **Discs**

This machine has been designed to perform in the most adverse conditions, but we as manufacturers are aware that someone will require big gang angles to plough extremely tight soil conditions, therefore we recommend that a backing disc be used as support to the opening discs, this can be achieved economically by using a worn disc of smaller diameter behind the opening discs.

## **CAUTION:**

Don't alter the design, or attempt to add weight to implement's frame.

## **MAINTENANCE**

### **Bolts, Pivot Pins and Bronze Bushes**

Keep all bolts tight, in particular gang bolts. All bronze bushes should be checked each season as they are a wearing part and may need replacing.

### **Gang Bolts**

Don't forget to keep the gang bolts tight with regular checks, particularly when the machine is new (when the machine is new friction will cause the disc and spacers to wear in). The gang bolt is vulnerable to damage or breakage if not in tension and damage caused because of loose gang bolts would void warranty.

### **Furrow Fillers & Furrows**

Operators will observe as the discs wear the furrow filler disc will start to leave a furrow (mainly because it is not a cutting disc and should only flick surface dirt back into the furrow). Its diameter will not wear at the same rate as other discs so it should be replaced with a smaller disc from time to time to give maximum benefit, a discarded worn out disc can readily be employed to suit this need.

### **Cast Axle Bearings**

Don't lubricate cast axle bearing blocks (this will cause a type of graphite "abrasive paste" which will cause expensive wear to the high tensile axle.

NOTE: Bearing blocks (Pt 3405) are in matching halves and can be turned over or replaced if wear occurs.

### **Lubrication**

Lubrication plays a very important part in extending the life of wearing parts.

- 1) Threaded rod - should be kept covered with a smear of grease to keep nuts and thread corrosion FREE.
- 2) Gang slide - regularly lubricated with oil will produce very easy gang adjustment.
- 3) Grease nipples - have been provided on heavily worked parts and are to be greased regularly. It is important that the turntables be kept adequately lubricated as they do most of the work
- 4) Wheel hubs - are pre-packed with grease and should only need attention at the end of each season, unless dusty conditions cause seals to break down. Force wheel bearing grease between rollers cone and cage, using hand method or grease packing equipment. Add grease in wheel hub between hub between caps and fill hub cap.

### **Wheel Bearing Adjustment**

Tighten adjusting nut while rotating or oscillating wheel until the wheel binds slightly. Back off castellated type nuts between 1/6 to 1/4 turn. Wheel should now turn freely, having between .001" and .010" end play. Lock with split pin securely at this position.

### **Disc Bearings**

These are a greasable bearing and should be kept adequately lubricated.