John Berends Implements Pty Ltd

AGRICULTURAL ENGINEERS

OPERATOR'S MANUAL

PARTS LIST

GM 40

LINKAGE OFFSET DISC CULTIVATOR

JOHN BERENDS IMPLEMENTS PTY LTD
130 FRANKSTON-DANDENONG RD, DANDENONG, VIC. 3175 AUSTRALIA
(ABN 79 007 035 369)
PHONE (03) 9791 2494 FAX NO. (03) 9794 5568

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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.

GM40 Linkage Offset Disc Cultivators

Gibbins Rawling have been making ploughs since 1878 - over 100 years of experience! The GM40 offset disc cultivating plough is designed for Australian conditions and is one of the strongest three point linkage disc ploughs available. It is an ideal disc for both primary and secondary tillage on 45 H.P. to 90 H.P. tractors. The gang bolt axles are made from 28mm square high tensile steel and all bearings are triple sealed with added protection plate. Fitted with 560mm x 5mm (22" x 3/16") or 610mm x 5mm (24" x 3/16"") scalloped discs. Twin pressure screws can be adjusted individually to transfer weight to the rear of the cultivator resulting in even disc penetration. Easy gang adjustment provides a perfect level finish. Prong type scrapers are optional.

MACHINE SPECIFICATIONS

	18 Plate	**20 Plate**	**22 Plate**	**24 Plate**
Approx. weight	820kg	860kg	910kg	940kg
No. Bearings	6	8	8	8
Cutting Width	2.06m (6'9")	2.3m (7'6")	2.5m (8'3")	2.74m (9')
No. Axles	2	4	4	4

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.

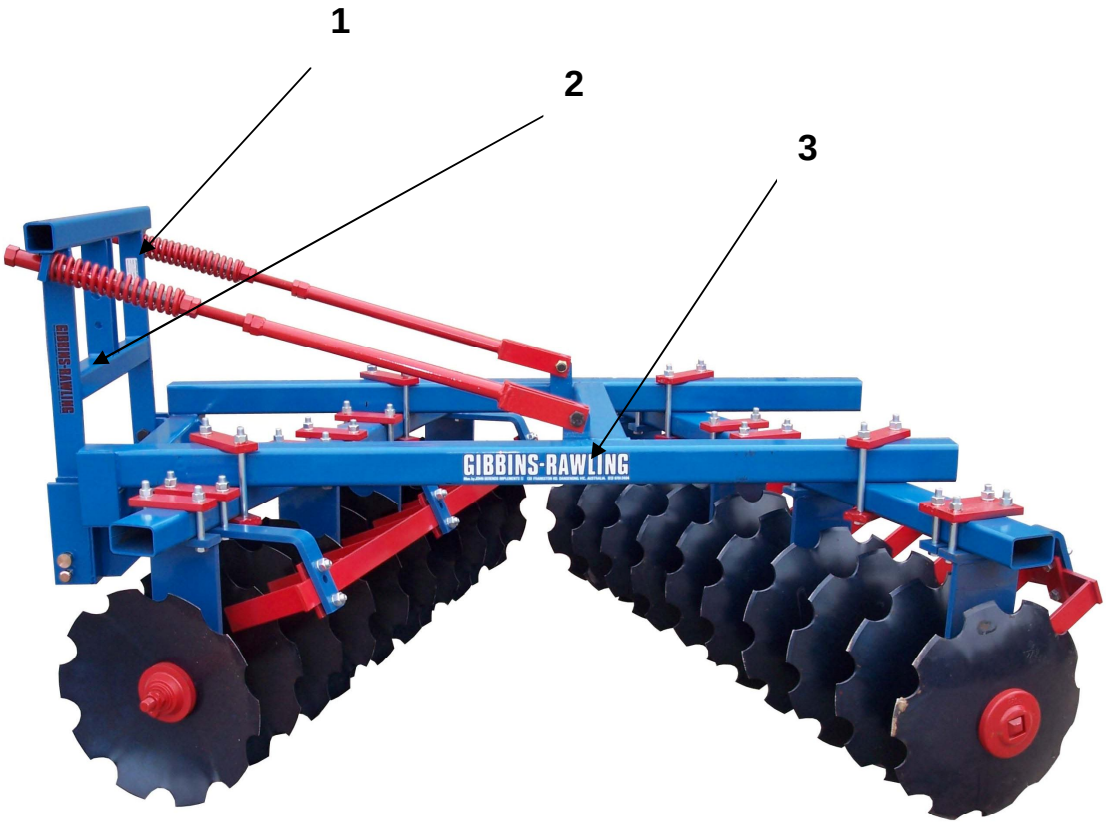
This warranty does not exclude any condition or warranty implied by the Trade Practices Act 1974 or any other legislation which implies any condition which cannot be excluded.

Safety Features

1. SERIAL NUMBER DECAL

2. WARNING DECAL

3. GIBBINS RAWLING DECAL



MACHINE ASSEMBLY

CAUTION: Due to the size and awkward nature of the discs it is important that all components are adequately supported.

The following instructions relate to all GM40 offset discs.
Refer to the diagram on the back page.

The right side of the front gang should be 15 inches further back from the left side of the front gang. The left side of the rear gang should be 16 inches further back than the right side of the rear gang.
It doesn't matter too much how far forward or back the two gangs should be in relation to the frame however it is important that the gangs don't hit one another.

Ideally when discing the tractor tyre should run in the furrow formed during the previous pass. In the diagram we have shown where the centre point of the far right front gang disc is. This centre point should line up with the inside of the right hand tractor tyre. (Note : On some wider tractors this may cause the gang to be too far to the right. However in these cases the discs usually pull straight anyway) If it is not practical to set the front gang in this way than set it up roughly in the middle of the frame with approximately 2 inches more gang on the right side of the frame. When setting up the back gang the centre point of the far right rear gang disc must be located approximately 4 ½ inches to the left of the corresponding point on the front gang. In sandy soil this gap (A) may be 5 to 6 inches as the soil is likely to turn over further.

Position all bolts on the frame with the thread pointing up and placing the clamp plate above the main frame, secure with nuts and spring washers.

SPRING TENSION

Spring adjustments also depend on the soil conditions and are best altered by a few trials to obtain the level finish.

The spring tension should be set up so that the machine is kept stable during cultivation.

OPERATION

Once all safety procedures have been followed, start the tractor and raise the disc cultivator off the ground using the hydraulics remotes on the tractor.

Turning

When turning with the implement whilst cultivating, always turn into the vee of the gangs (to the right). Otherwise if turning away from the vee of the gang (to the left) the discs are to be raised clear of the ground until the turn is completed. If this is not done, excessive strain may be placed on the tractor and discs, eventually causing damage.

Stopping

Lower the cultivator, stop the tractor engine (removing the ignition key) and apply the park brake. Ensure that the cultivator is well supported when not in use.

CAUTION: When the cultivator is on the ground, yet not linked to the tractor, it may be unstable. Ensure the machine is prevented from rolling backward or forward.

Levelling the machine

The only positive way to ensure the machine is level, is to work through the ground at the desired depth. Whilst the discs are still in the ground, check the penetration at each end of the gang frames. Should the machine require levelling because the discs are lifting out or digging into the ground, the best suggested method of adjusting is to raise the machine clear of the ground and adjust the tension springs as required.

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 cultivator must be adequately supported under its body (Make certain it cannot fall).

Bolts & Nuts
Keep all bolts tight, in particular gang bolts.

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.

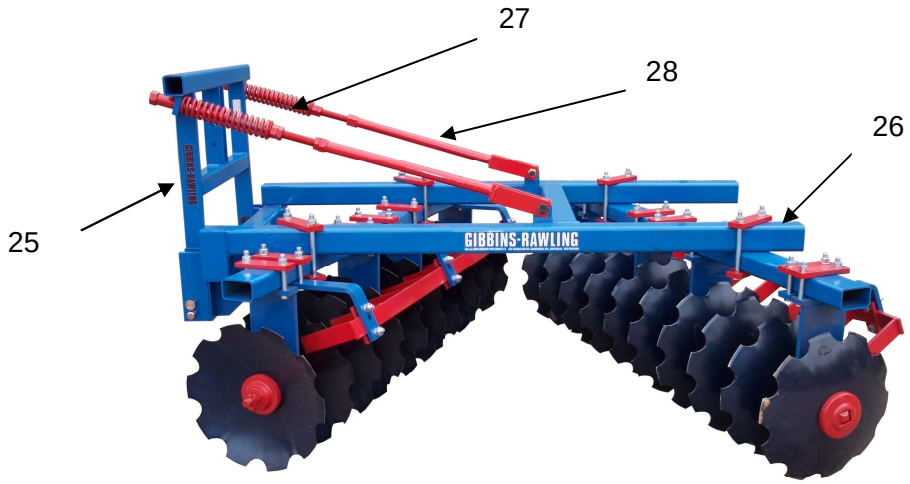
Lubrication
Lubrication plays a very important part in extending the life of wearing parts.
Threaded rod - should be kept covered with a smear of grease to keep nuts and thread corrosion free.

Disc Bearings
These are a greasable bearing which will require regular attention. It is recommended that they be given a couple of pumps of HP grease every 8 working hours. Although the flange will prevent most material from getting into the bearing, objects such as grass and wire wrapping around the bearing should be removed regularly to prevent early bearing failure.

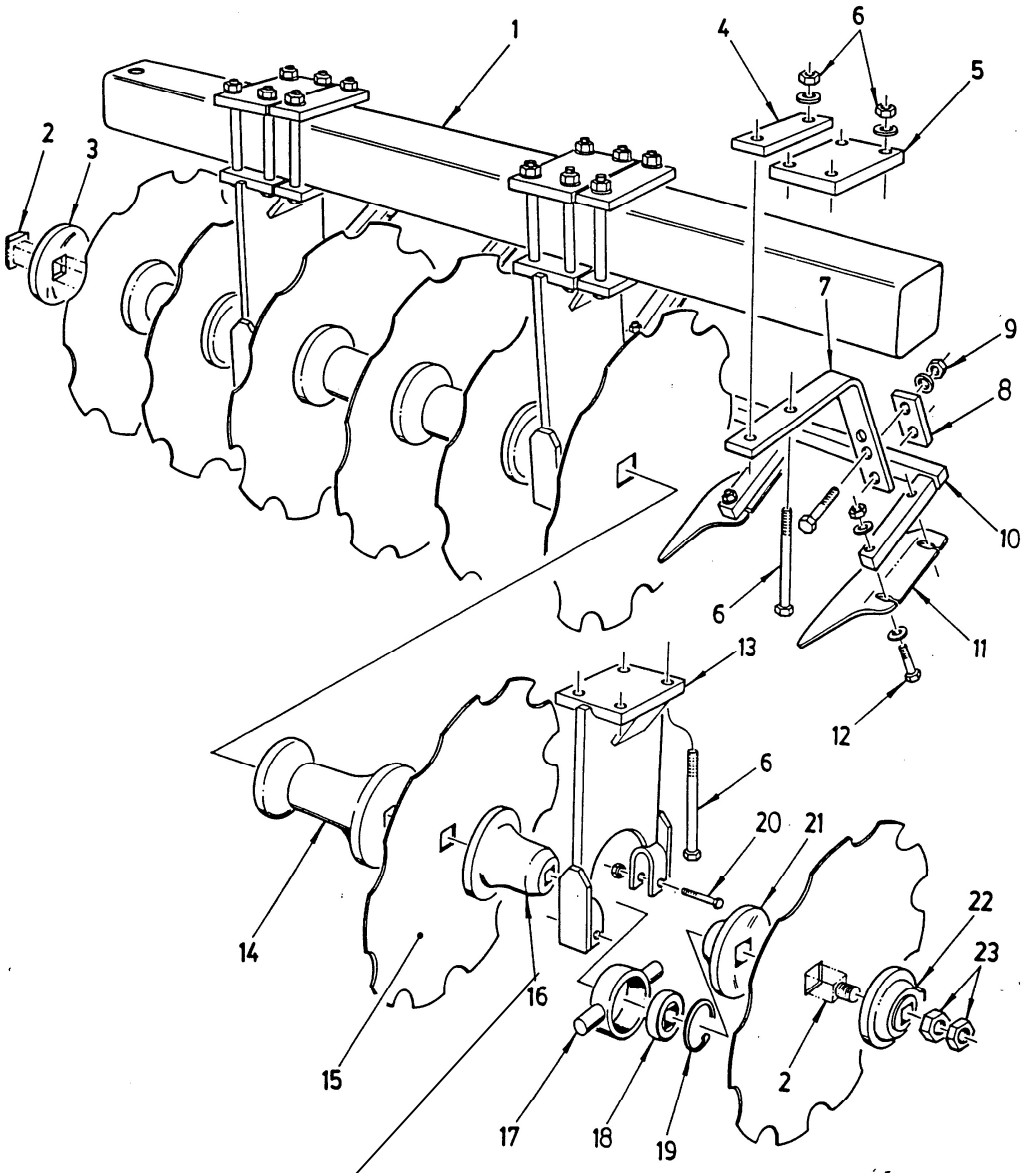
GM40 – Linkage offset discs

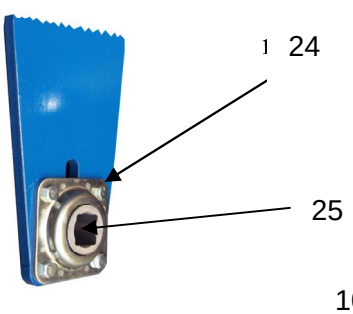
Note – All scrapers are optional in either a prong type (shown below) or formed scraper (next page)

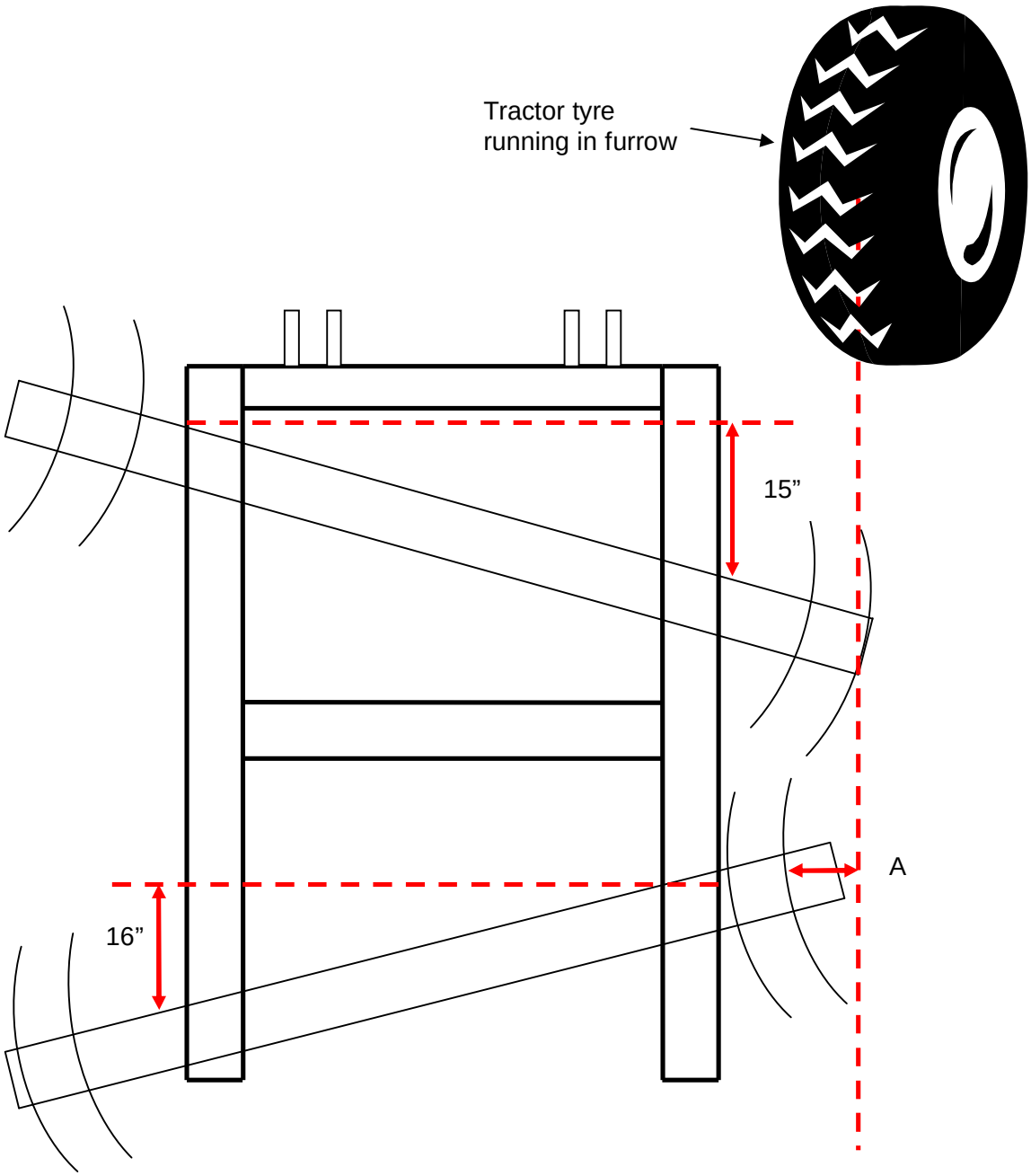
Key No	Part No	Quantity	Description
1			Gang Frame
2	3347	ar	C.54 - 4 disc gang bolt axle
	3348	ar	C.55 - 5 disc gang bolt axle
	3349	ar	C.56 - 6 disc gang bolt axle
	3350	ar	C.57 - 7 disc gang bolt axle
	3351	ar	C.58 - 8 disc gang bolt axle
	3352	ar	C.59 - 9 disc gang bolt axle
3	0586	ar	P.504 Head washer
4	3424	ar	Clamp plate, scraper to gang frame
5	3425	ar	Hanger bracket clamp plate
6	3426	ar	Bolt/nut/sw
7	3427	ar	Scraper clamp bent bracket
8	3428	ar	Scraper clamp plate
9	3428	ar	Bolt/nut/sw
10		ar	Scraper bracket
11	3429	ar	Formed scraper R/H
	3430	ar	Formed scraper L/H
12	3431	ar	Bolt/nut/sw
13	3919	ar	Hanger bracket (specify bearing type)
14	0578	ar	P.586 Disc spacer
15		ar	Disc - refer disc list
16	0582	ar	P.588 Bearing spacer
17	3357	ar	P.531 Bearing housing
18	3319	ar	C.50 Sealed ball race bearing
19	3358	ar	C.51 Circlip
20	3343	ar	Bolt/locknut, trunnion retaining
21	0580	ar	P,587 Bearing spacer
22	0584	ar	P.595 End washer
23	3325	ar	Locknut (hexagon)
	3359	ar	Plain washer
24	3920	ar	Flanged disc bearing complete
25	3921	ar	Flanged disc bearing bolt/nut/sw
25		1	Headstock
26		1	Main frame
27	1640	2	Spring
28	3922	2	Pressure screw



The set-up below shows the two different bearings arrangements used.
The main line drawing shows triple sealed bearings pressed into a cast housing and contained by a circlip.
The bottom photo shows the current flanged disc greaseable bearing set-up which was introduced in 2006







Position A = 4” – 6” depending on soil condition.