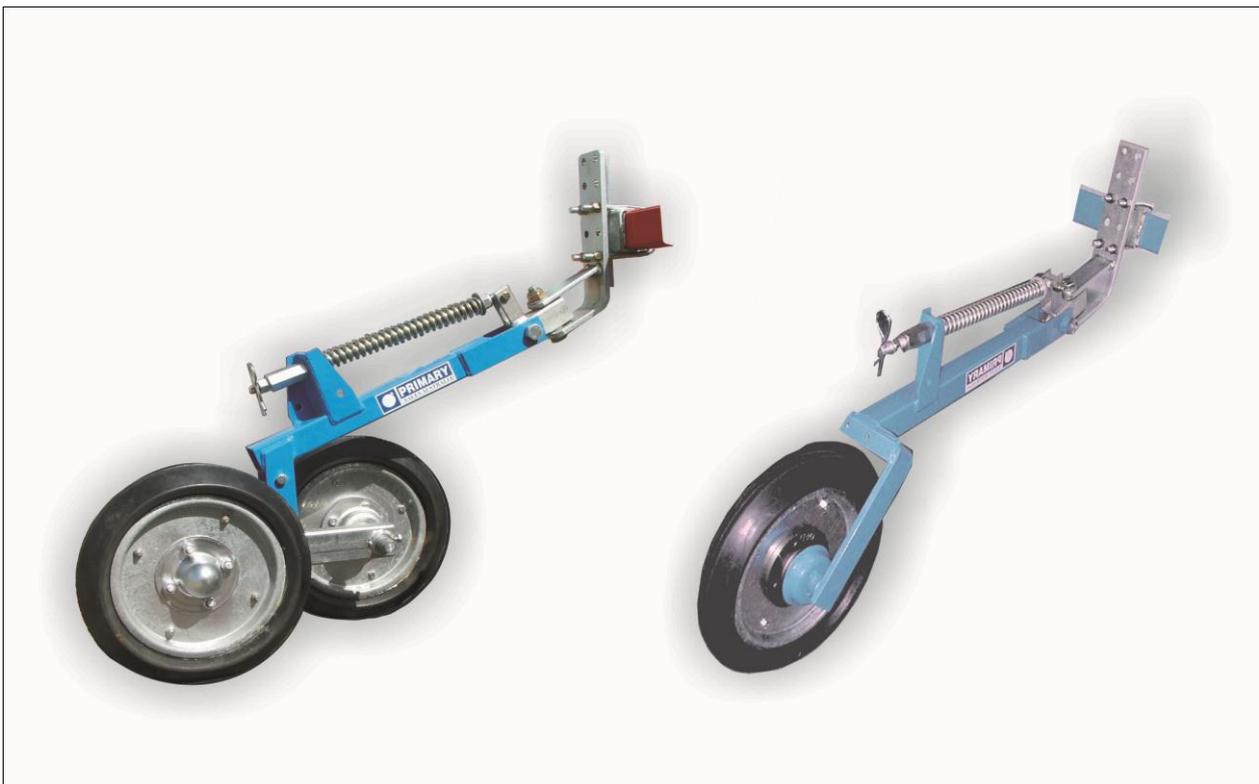


# PRIMARY HEAVY DUTY PRESSWHEEL OWNER'S MANUAL



## **INTRODUCTION**

***Thank you for purchasing this quality product from Primary Sales Australia.***

This manual has been developed as a guide for the installation and operation of your Primary Sales presswheel assemblies to ensure you obtain the optimum results and a long and trouble free service from your investment.

The incorporation of adjustable mountings in the design of the presswheels along with lift height, row spacing and spring pressure adjustments allows the presswheel assembly to operate within a range of angles which: promotes vertical contour following with consistent down-pressure, optimises castering around curves and allows the assembly to be automatically lifted by the bar for tight cornering or transporting. These adjustments also allow the assemblies to be set to accommodate common toolbar height, shank length and point combinations.

Single presswheels vs. Dual walking-beams: Singles offer the best trailing presswheel outcomes in furrow-following and delivery of consistent pressure and are considered essential on the outer wings of larger machines, to cope with the changes in row-spacing that occur when cornering.

Dual walking beam assemblies have less mountings to accommodate, put less extra load on the bar hydraulics and have less moving parts. They are cost effective (per row) and their design promotes even down-pressure in all terrain and soil types, unlike “gang” assemblies. A minor imperfection occurs during severe cornering when row spacing widens or narrows at the extreme ends of larger machines and some scuffing occurs.

A general assembly of the presswheel can be seen in figure 1, identifying the major components. Becoming familiar with the assembly will aid in the understanding of this manual and the operation of the presswheels. Ensure you take the time to read and understand this manual before installing or operating Primary Sales Presswheels. Contact your local Primary Sales dealer for any further inquiries.

## **SAFETY**

TAKE NOTE: THROUGHOUT THIS INSTRUCTION MANUAL WE CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

***PRIMARY SALES PRESSWHEELS ARE FITTED TO A RANGE OF MACHINES, THEREFORE IT IS IMPORTANT TO OBSERVE THE FOLLOWING SAFETY POINTS WHEN WORKING ON OR AROUND THE MACHINE AND PRESSWHEEL ASSEMBLIES.***

*Always ensure the machine is secure and wheels chocked before entering the machine space.*

*Always install safety stops before working underneath the machine.*

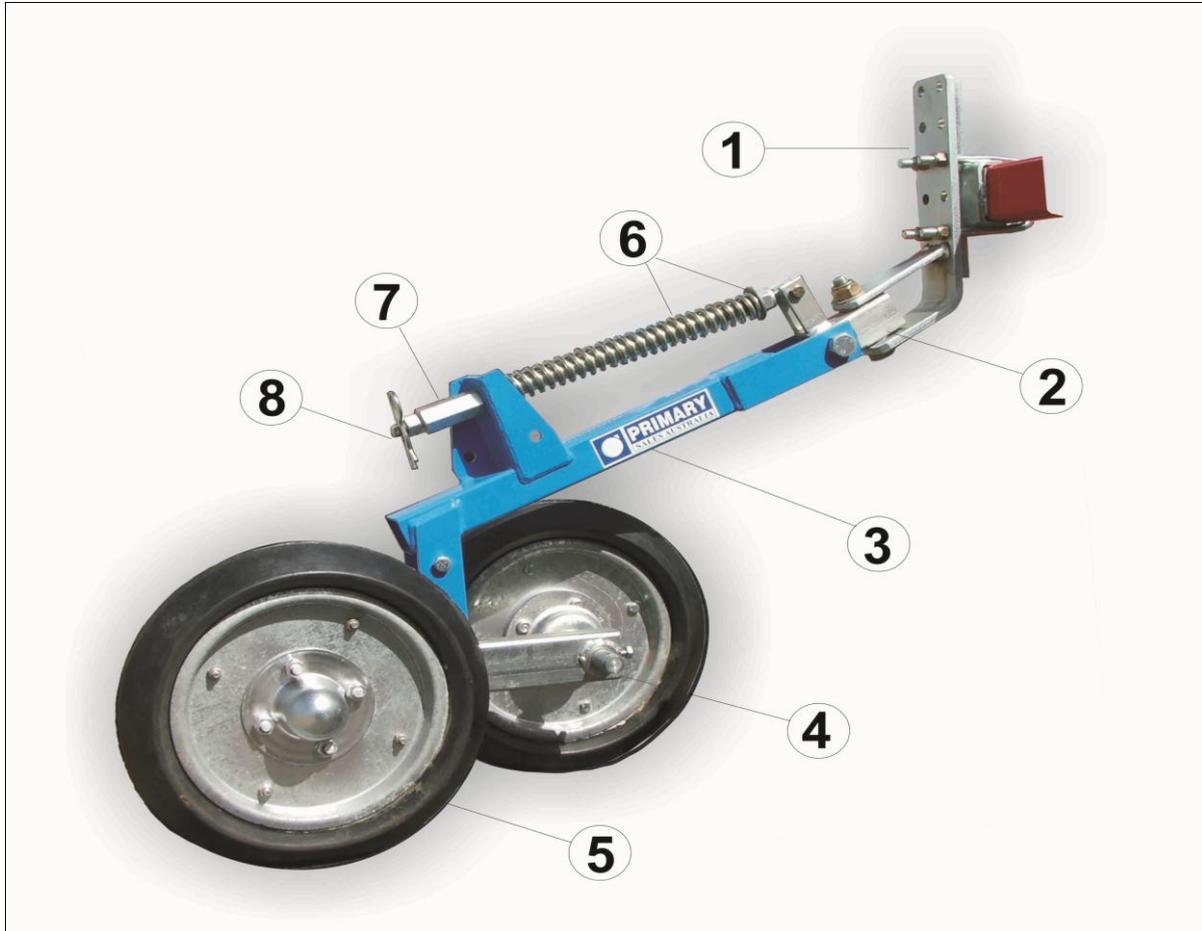
*Only use the presswheels for their designed purpose.*

*Do not exceed the working limits of the presswheels.*

*Take care when servicing compression springs as residual spring pressure can result in serious injury.*

## OVERVIEW

A general assembly is shown in figure 1. An explanation of the function of each component follows.



1. **Mount Bar**: This bolts onto the tool bar fixing the assembly to the machine. The height for fixing is adjustable to suit most machines (see below). U bolts and a locker plate make up the assembly.
2. **Pivot Block**: This allows the assembly to contour follow as well as corner. The vertical pivot consists of a spacer and two sealed ball bearings. The horizontal pivot should always be lubricated with grease through the adjacent nipple.
3. **Carriage Arm**: The carriage arms are designed using lock nuts to ensure the performance of the assembly. Arms are zinc plated before powder coating for extended life.
4. **Walking Beam**: (not used on single assemblies) The beam pivots on two sealed ball bearings located by an inner and two outer spacers. Extra seals fit each outer spacer. Axle bosses are designed to allow for various row spacing. Snake chains can be fixed to the beam, but are not available from P.S.A.

5. **Tyres and Hubs:** Tyres are semi pneumatic to prevent the build up of mud. (Note; single presswheel assemblies can be fitted with mud scrapers for extreme conditions.) Hubs use quality automotive stub axles, greasable tapered roller bearings and triple lip seals.
  
6. **M20 Nyloc nut & Spring:** the spring provides constant pressure between the tyre and soil, whilst allowing the assembly to pass over obstructions. The M20 nut allows the contact pressure to be increased or decreased to suit the particular operation. Compressing the spring increases down pressure.  
*Tip: always apply the least pressure, which achieves the desired furrow effect, to avoid or packing the soil too much.*
  
7. **Lift Height Adjuster:** Adjusting this allows the height which the wheels lift off the ground surface to be adjusted. Ensure the M16 nut is always locked against the adjuster to prevent it from vibrating loose.
  
8. **“R” Clip:** The “R” clip is used to pin the assemblies up, out of the way, when they are not required. The storage hole for the R clip is positioned as a failsafe for the height adjuster. If the adjuster comes loose, it can not vibrate off and be lost.

## INSTALLATION & SETUP

### Layout:

Firstly, fit the toolbar/s, (Primary Sales can help with design advice).

Contact your local dealer for assistance if required. Most purchasers build their own, using 75mm square RHS and U bolts to maximise flexibility and minimise the extra load on hydraulics. Determine the number of single and dual assemblies required from the number of tines on the machine and mark out the mounting positions on the toolbar.

Walking beam arrangements should always be mounted midway between the two adjacent tines they are to follow. This allows both axles to be extended the same amount, keeping the assembly in balance. Different axle extensions can compromise the performance of the assembly.

The mounting for single presswheel assemblies should line up directly behind the tine. When a machine is fitted with an odd number of tines, ensure the one single arm presswheel is fitted to either the left or right outside tine.

### Mount Bar Height:

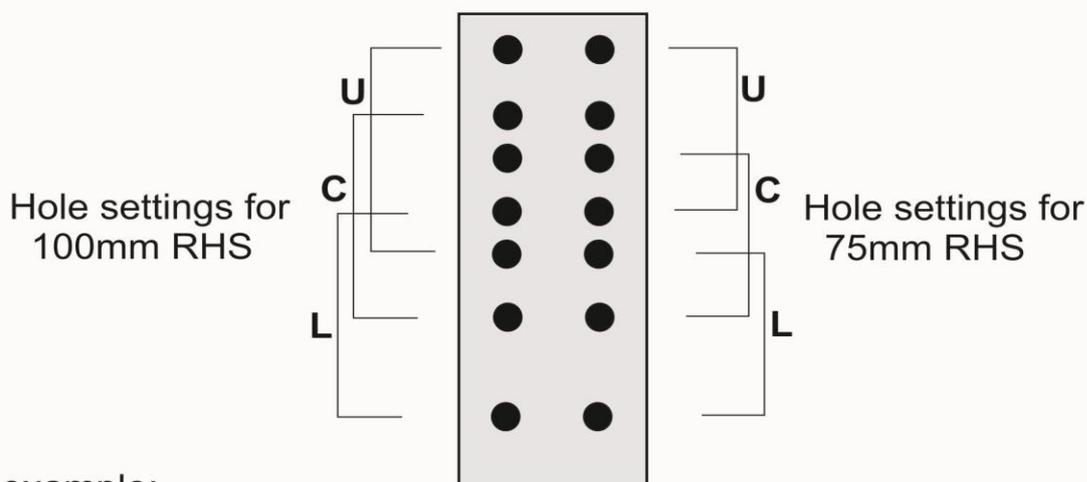
To determine the height setting of the mount bar, first decide on an approximate working depth for the machine. Use the settings applicable to your machine shown in figure 2, when setting up your presswheel mountings on a 75mm or 100mm RHS toolbar. Mount the U Bolts through the indicated holes to ensure optimum presswheel operation.

**Use this guide when setting up your presswheel mountings on a toolbar. Mount the U-bolts through the indicated holes in the mounting arm to ensure optimum presswheel operation.**

**Select holes which allow the pivot block and carriage arm to be as closely aligned in the same plane as possible, with the wheels and points touching the ground. This allows maximum adjustability and optimum furrow-following performance.**

**If constructing a toolbar from 'scratch', a distance of 700-800mm from the ground surface to the underside of the toolbar (with points in the ground) is satisfactory.**

**Note, these indications allow for the length of Superseeder or other narrow points. When using shallow-working points, use the next lower set of holes.**



For example:

**Upper holes for:** Gason Scaritill, Ecotill, Hydratill (all with tines extended) and Ezee-on 7400 CP and Flexicoil 550/650

**Centre holes for:** Flexicoil 350, Morris 9000, Concept 2000, Case PTX 600

**Lower holes for:** Bourgault, Ezee-on 3500, HB Scaribar, John Deere 1610

**Assembling the Presswheels:**

Once the all the mount bars are fixed in place, the presswheel assembly can now be completed. Refer to the overview section for identifying individual components. (Some of the assembly may have been completed in our factory.)

The pivot blocks are supplied with the bearings and spacers pressed into place and the grease nipple fitted. Align the pivot block bearings with the 21mm holes in the mount bar. The M20 x 2mm stainless steel washers must be fitted above and below the pivot block, (with the smooth side of the washer against the bearing face, for best results). Once the 20mm bolt is fitted, tighten the nyloc to 220 ft.lbs., and check the pivot for free rotation movement.

**Carriage Arm;** Fix the carriage arm to the pivot block with one of the M20 bolts supplied. Tighten the horizontal bolt until enough thread protrudes to fit the M20 half nut (lock nut). Ensure the bolt is not over tightened causing the carriage to bind on the pivot block and prevent the movement of the arm. Check the arm for movement and then fit the half nut and tighten to 220 ft.lbs.

**Spring Rod and Spring;** Place the spring over the spring rod and pass the 16mm threaded end of the spring rod through the attachment plate on the carriage arm. (see figure 3). Screw the hex lift adjuster on 3 or 4 turns, just enough to hold the spring rod and adjuster in place. Fix the spring rod to the pivot block saddle through the boss with a 7/16" bolt supplied. Tighten the nyloc until the saddle starts to close up. Do not tighten to the extent where the saddle is tight against the boss. However ensure there is exposed thread past the nyloc nut. Screw the hex lift adjuster up to allow the M16 nut to be fitted, as well as the R clip through the bottom hole. This arrangement is shown in the figure below. Setting the lift height adjuster is explained in a later section.

**FIGURE 3 Spring Rod Assembly**

**Walking beam:** Align the center boss and outer spacers with the holes in the carriage arm cheek plates. The bearing inner spacer may need aligning. This is best achieved with a screwdriver or similar tool from the nut side, whilst fitting the M20 bolt from the other side. Ensure both seals are in place around the outer spacers. Tighten the bolt to 220 ft.Lbs and then fit and tighten the M20 half nut.

### **Aligning wheels behind tines:**

When setting up your mounting gear, you will have placed single wheel mountings directly behind appropriate tines and walking beam dual mountings between two adjacent rows.

Fit the wheel and hub assemblies to the walking beams with the left hand wheel at the front of the beam.

Align the tyre to the tine by eye and fit and tighten the lock bolt.

Run your machine in a straight line down the paddock with the points just in the ground to leave a neat visible furrow to identify which tines/wheels are not in line. The individually adjustable axles on the walking beams can now be moved in or out to perfectly align each wheel with its furrow. Lock in place with the bolt and locknut.

When making changes relating to the position of the wheels, be sure to set the left-hand wheel to the front of the assembly, as field experience has confirmed that this configuration performs best.

### **Setting the lift height**

Lift heights will vary depending on the operation of the machine. It is important that the wheels have no down pressure when performing sharp corners, as they are not designed to travel backwards.

If the machine is working up and back or on raised beds the lift height should be set so the assemblies are off the ground when the machine is turning at the headlands.

If the machine is working around in a rotation pattern, the presswheels should be set to rise at the same time as the points come out of contact with the ground.

If using this setting it is important to raise the machine when performing tight turns towards the center of a field, or where turns tighter than 90 degrees occur.

### **Setting down pressure**

When correctly mounted, the load will start to be applied as the points move below the soil surface, and reach their designed pressure when points reach working depth. Increase pressure by winding the M20 Nyloc nut down the rod toward the wheels.

With the assembly set up with the arm, pivot block and mount in the same plane (see figure 1) the designed down-pressure ranges from a minimum of 12kg per wheel to a maximum of 19kg per wheel. The presswheels have been designed so that the set pressure only changes slightly over the arc of travel as it contour- follows. The down pressure should be doubled for single assemblies. (Note; slight variation will occur with different tyre and rim specifications). The range of down-pressure meets most popular requirements for improving soil-seed contact and enhancing furrow shape for water-harvesting.

**Tip:** Always apply the least pressure which ~~is~~ ~~ach~~ ~~ies~~ the desired furrow effect and good seed-soil contact, whilst avoiding smearing or over packing.

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## OPERATION

The following section outlines directions and tips to follow when using the presswheels

### **Reversing:**

Trailing-arm presswheels (just like harrows) are not designed to be driven backwards. Substantial damage may result! Should you need to clear melons, wireweed etc. or turn sharply to the extent that one part of your machine will be moving backwards, lift the machine so that the presswheels are clear of the ground.

### **Lift Height Setting:**

Having positioned the assembly at approximately the right height on the toolbar (see the previous table) you can now wind the adjuster (see Fig. 1) in or out so that the presswheels leave the ground at the same moment as the points and thus have a similar clearance for transport.

### **Pinning up:**

Should you want to seed or cultivate a particular paddock without presswheels or transport a low ground-clearance rig on roads with high crowns, simply pin each assembly up (or the center frame only, if transporting) by lifting carriage arms until the top hole in the spring rod is exposed behind the support bracket and inserting the "R" clip.

### **Travel Limiter:**

A travel limiting device is available, welded to the pivot block, to limit sideways movement to that usually required for normal operations. These should be used on wing sections to control the orderly positioning of press wheel assemblies during folding and unfolding.

## MAINTANCE & SERVICING

These assemblies are designed for long service life and feature quality components throughout.

Low-maintenance automotive stub axles, tapered bearings and multi-lip seals are features of our heavy duty wheel assemblies and are complemented with double bearings set within the walking beam and in the upper pivot block.

### **Pre-season maintenance:**

**All bolts and nuts should be checked pre-season or in rough conditions, weekly.**

**Grease the nipple for the horizontal bolt in the pivot block.**

**Grease and check preload on wheel hubs, repacking if necessary.**

**Ensure carriage arm spring rods and springs are uniformly adjusted (see previous pages) and in working order.**

**Check condition of tyres and bearings (pivot block x2, walking beam x 2, hub x 2 each), replacing where necessary.**

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