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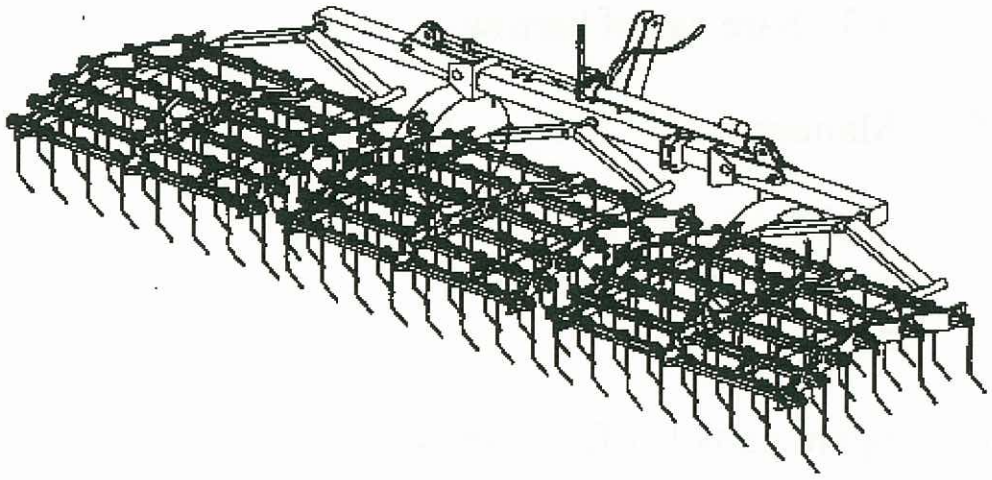
Operating Instruction

Spring tine harrow

WORKING WIDTH
1.5m and 8m



Quality from OPICO

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Spring tine harrow

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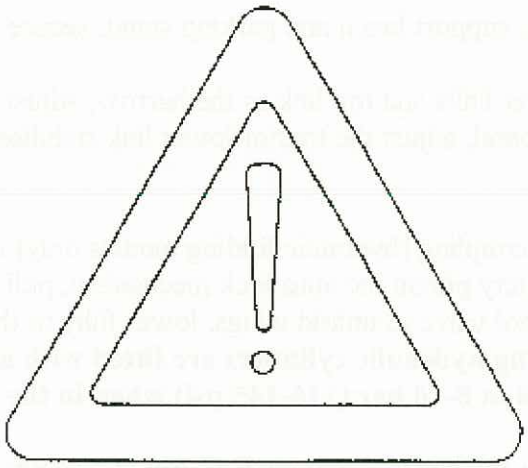
ATTENTION!!! very important!!!



Safety instructions

- Do not remain in the working area of the implement
- It is prohibited to remain in the folding area of the implement during the process of folding – danger of being crushed
- Put a mechanical support to prevent the implement from lowering, if you do repair or maintenaince work under the implement in the raised position on the tractor
- Riding on the implement is not allowed, either during transport or during work
- Lower the tractor linkage and machine when leaving the tractor seat (either in folded or unfolded position)
- Take extra care when crossing or driving on slopes

3. Harrow assembly instructions

Assembly instructions relate to Fig. 1 below

A. Fit the support wheels, support beam and parking stand, secure with pins

B. Attach the tractor lower links and top link to the harrow, adjust the top link until the harrow frame is horizontal, adjust the tractor lower link stabilisers so the machine is held stable and rigid

C. Fit the hydraulic hose coupling (hydraulic folding models only) into the tractor hydraulic service, remove the safety pin on the auto lock mechanism, pull the auto lock handle, operate the tractor spool valve to unfold wings, lower fully to the ground
NOTE: Single acting hydraulic cylinders are fitted with an accumulator pressurised at 8-10 bar (116-145 psi) when in the working position

D. Fit the carrier forks for the harrow sections **Ref. Fig. 2**, securing with washer and roll pin.

E. Hang the harrow beds onto the carrier fork with chains on the outside of the carrier tube using the last chain link and secure with safety pins

F. Fit the stabiliser bars between adjoining carrier frames, adjust so the carrier frame is horizontal and secure with safety pins. Failure to fit the stabiliser bars will result in poor machine performance and damage to the machine

G. Raise the tractor lift arms to lift the machine clear of the ground

H. Lift up the rear support stand and depth wheels, secure with pins

I. Operate the tractor spool valve to fold the wings to the upright transport position. The auto lock mechanism needs to be operated every time a hydraulic model is unfolded.

J. Re-tighten all nuts and bolts after initial use

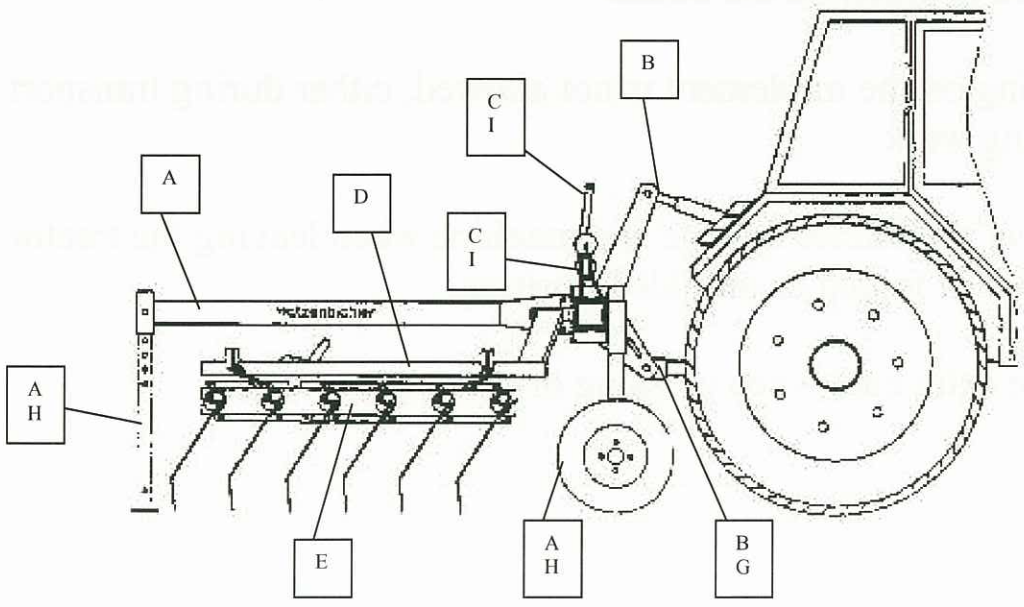


Fig. 1

Placement of carrier forks

It is important that the carrier frames are fitted in the correct position, with left and right hand forks postioned as shown in Fig. 2

If the carrier forks are incorrectly mounted the stabiliser bars will not fit or operate correctly when the machine is folded into the transport position

Harrow - 5m working width

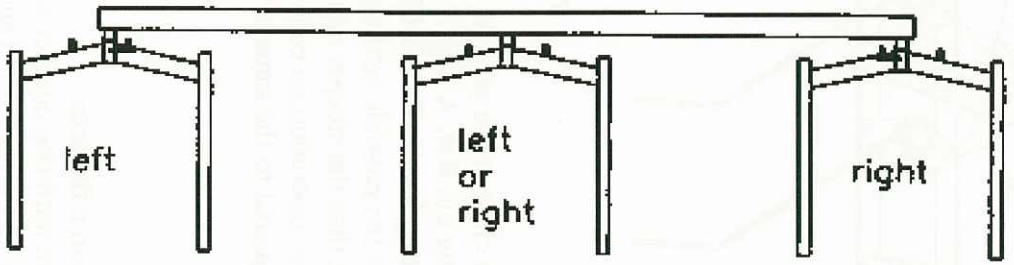


Fig. 2

4. Working Instructions

4.1) Basic harrow adjustments

Tine angle

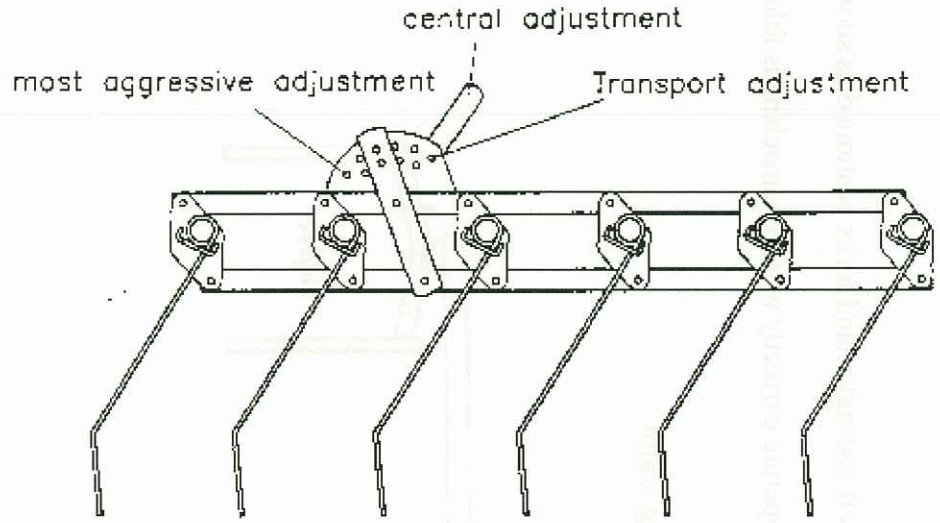


Fig. 3

1. Raise the machine clear of the ground
2. Remove the locking pin **Ref. A Fig. 3** at the base of the adjusting handle
3. Operate the adjusting handle **Ref. B Fig. 3** to increase / decrease the agressiveness of the tines, there are ten possible settings. The flatter adjustment will produce less vigorous weeding than the steeper adjustment.
4. Carry out the above operation on each individual harrow bed section. (Ensure that each section is adjusted to the same setting)

Height setting

1. Park the machine on a flat area
2. Lower the machine until tine contact with the ground is made, adjust the top link to ensure the harrow bed is horizontal and tines are in even contact with the ground
3. Set the depth wheels using the locking pin to suit the required effect, this will depend on crop, soil type & moisture and operating conditions
4. The more aggressive tine setting required, the higher the wheels should be set

4.2) Work in the field

Spring tine harrow weeders can be used in a wide range of crops, including grassland, maize, winter and spring cereals, winter and spring pulses, potatoes and some vegetables crops. Different weed control strategies will be needed for different weeds, with the effectiveness of the harrow being dependent on the individual weed species present and their growth stage. Weeding timing, the number of passes and the intensity of weeding needs to be specific to the weed type present, the crop and soil conditions

4.2) Work in the field (cont)

1. Use of the spring tine harrow:
    - Mechanical weed control
    - Aerating the soil structure
    - Activates natural nitrogen
    - To maintain optimum soil condition
    - Stimulating crop tillering
    - Scarifying the soil surface

2. Blind Harrowing:
    - Use to flush the weed bank prior to drilling this will improve crop establishment by reducing weed competition. Use immediately before or after planting to break soil cap and remove germinating weeds
    - For breaking soil caps, use the strongest pressure settings

3. Grassland:
    - For effective grassland management, use to rip out moss and dead thatch, open up the soil surface, improve aeration and encourage new growth. Improve manure dispersal and incorporation
    - A medium to strong pressure setting should be used for a single pass in grassland, to loosen weeds, remove dead thatch and scarify the ground surface. A second pass may be required depending on conditions

4. Maize:
    - Use to germinate weed seed in stale seedbeds and perform weed strikes pre drilling. Harrow pre-emergence to 'blind harrow'. Spring harrowing when maize plants are between 10-30cm
    - A less vigorous, flatter setting

5. Winter Cereals:
    - Use to germinate weed seed in stale seedbeds and perform weed strikes pre drilling. Weed pre-emergence & 6-7 days after sowing. When soil conditions allow, cereal crops should be autumn weeded at the 2-leaf stage (growth stage 13) onwards. Weeding in the spring should take place at the tillering stage (growth stage 22-30).
    - A medium to strong pressure setting should be used for a single pass in cereals (to loosen weeds), followed by second pass at a lower pressure setting

6. Spring Cereals:
    - Use to germinate seeds in stale seedbeds and perform weed strikes pre drilling. Weed pre-emergence 6-7 days after sowing. Early spring weed at the 2nd leaf stage (growth stage 13) followed up with a second weeding at tillering stage (growth stage 22-30)
    - A medium to strong pressure setting should be used for a single pass in cereals (to loosen weeds), followed by second pass at a lower pressure setting

7. Field Beans:
    - Use to germinate weed seed in stale seedbeds and perform weed strikes pre drilling. Early autumn or spring weeding at 8-leaf stage
    - A light harrow pressure setting to minimise crop damage

8. Vegetables & Root crops:
    - Pre-drilling, stale seedbed weed strikes (may knock edges of beds). Post emergence in-row weeding. Brassicas pre-emergence to germinate weed seed in stale seedbeds and perform weed strikes, three weeding passes up to 6 weeks after planting, with a maximum of 10 days gap between weeding
    - A low to medium setting

4.3) Safe use of the harrow

1. Fully lower the machine to the ground, ensure the carrier fork is pressurising the harrow bed via the ware pads. Do not allow the harrow bed to operate loose, this will cause premature ware on the carrier chains and damage the machine
2. The harrow is set up correctly when the tines vibrate vigorously from side to side as the harrow moves forward. This produces the most effective weeding & scarifying action.
3. Operating speed will vary dependant on the type of work and conditions, the harrow operates best between 6–12 km/h (3.5-7.5 m.p.h)
4. The machine should be lifted clear of the ground when turning
5. Do not reverse the tractor when the machine is in contact with the ground

5. Maintenance

5.1) Daily

1. Check all frame nuts and bolts are tight
2. Check hydraulic hoses for damage
3. Check tine condition & tine bolts

5.2) Weekly

1. Lubricate all grease points on the machine
2. Maintain a maximum tyre pressure of 2.5 bar (35 psi) [16x6.50-8]
3. Check wheel nuts are tight

5.3) Storage

1. While out of use park on parking stands
2. Ensure that the tines are not under any pressure / loading and are free floating
3. Clean the machine thoroughly, and paint any bare metal
4. Check for any oil leaks on hydraulic hoses and rams
5. Grease hydraulic ram piston rod (if left unfolded)
6. Oil / grease all pivots
7. Check harrow section for ware and/or breakage