



DISCOTILL C

**Discs harrow « K » design - Semi mounted
Vertical folding - Wheels in the center**

OPERATOR'S MANUAL MAINTENANCE INSTRUCTIONS



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1. INTRODUCTION



READ CAREFULLY THIS MANUAL



To properly start, operate and service your equipment, follow all instructions given in this manual.

THIS MANUAL SHOULD BE CONSIDERED AS A PART OF THE EQUIPMENT AND SHOULD FOLLOW IT WHEN YOU SELL IT.

LEFT HAND SIDE AND RIGHT HAND SIDE, FRONT AND REAR are determined looking from equipment towards tractor when in work.

ALL INFORMATIONS, PICTURE, SPECIFICATIONS in this manual are based on the newer information available at the time of publication. Pictures and drawings might not represent standard equipment and show optional attachments.

Manufacturer reserves right to make any changes at all time **without any obligation to notice or to modify any delivered or already sold machine.**

If the machine has been modified in any way from the original design without written agreement from Grégoire-Besson, the manufacturer does not accept any liability for injury or warranty. Warranty would become void.



This symbol is used in the following manual to **catch your attention on warnings concerning your safety.**

So please when you see it in this manual or on the equipment, **strictly follow given information.**

Grégoire-Besson equipments are exclusively designed to be used by professionals for regular farm tillage in farmed fields. Manufacturer shall not be responsible for damage or injury resulting from any other use.

PRODUCT IDENTIFICATION

Please record here purchasing date, model and serial number of your equipment (refer to identification plate on hitch). Always refer to these information to get prompt and good service.

Purchasing date :

Model :

Serial number :

Salesman's phone :

2. SAFETY INSTRUCTIONS

2.1. SAFETY STICKERS



READ OPERATOR'S MANUAL

Read operator 's manual and safety instructions before starting the use of your equipment and follow them while using.



Reference : UI 129



UNFOLDING AREA

Stay clear of equipment when folding or unfolding.

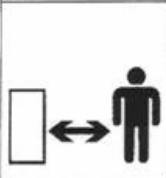
Reference : UI 126



MOVE AWAY FROM THE MACHINE

Danger in the working area, stay clear from the machine.

Reference : UI 127



SECURE THE MACHINE BEFORE ACTION

Always install all lockup devices to secure machine before any intervention on it.

Reference : UI 131



HYDRAULIC LEAK AND MAINTENANCE

Caution, high pressure fluids can cause injury. Follow safe practices.

Reference : UI 128



2.2. SAFETY WHILE ATTACHING AND DETACHING



- Do not let **anyone to stand between the machine and the tractor** during hitching or detaching manoeuvres.
- Before leaving the tractor to hitch or unhitch, set tractor parking brakes.
- Never attempt to attach the machine if pins, tractor hitching balls, tractor drawbar, or machine linkage are worn, cracked or not compatible.
- Completely lower the machine to the ground before unhitching. Make sure it is on a level and firm surface.
- Remove pressure from hydraulic lines before disconnecting them.
- Before leaving the machine for storage, make sure it is in a safe place and that there is no risk to damage whether anything or anyone.

2.3. SAFETY WHILE CONNECTING HYDRAULIC LINES



- Hydraulic circuit might be highly pressurised.
- **Never use your hands to locate a hydraulic leak.** Hydraulic fluids escaping under pressure have sufficient force to penetrate the skin, causing severe injury. In case of any injury, **see a doctor immediately.**
- For equipments loaded with several hydraulic connectors, **make logical and appropriated connections.**
- Before connecting hydraulic circuit, **make sure that there is no pressure on both sides (tractor and machine).**
- Regularly check hydraulic lines and connections. **Replace any damaged or leaking component** by an original part with the same specifications.
- Before any intervention on hydraulic circuit, **lower machine to the ground and release pressure moving control lever in the tractor's cab.**

2.4. SAFETY WHILE OPERATING MACHINE

- **Never attempt** any intervention on the machine while it is in motion.
- Do **not** allow anyone to **stand close to pivot points** : bottoms safety device (shearing bolt or non-stop), all pivoting linkage.
- Wear close **fitting clothing** and **appropriate safety devices** for the job you have to do (heavy leather gloves, safety shoes, earplugs, ...).
- Do not allow anyone to stand close to the machine.
- Do not attempt to do any adjustment if you have not perfectly understood its procedure.
- Always use tools or equipments appropriate to the job you are doing. All Grégoire-Besson equipments are metric standards.
- Learn how to operate your machine and how to use its controls. Do not let anyone operate without instruction.
- Do not extend turnbuckle adjusters too much to avoid any threads damaging or intempestive pulling out.
- Only one person (the operator) should be in the tractor's cab when it is in operation. **No one on the machine while working or travelling on the road.**
- When earring or feeling unusual vibrations, stop the machine. Find the problem and solve it before starting operating again.



If your machine is equipped with a hydraulic folding mechanism, **always use it from tractor's cab**, once you are sure that folding area is free from spectators or obstacles.

2.5. SAFETY FOR MAINTENANCE



- Maintenance area shall be **clean, dry, with enough light and ventilation**.
- For any intervention on the machine in raised position, **always securely support all components** before starting maintenance.
- **Maintenance operations on elements under pressure or under tension** (resorts, accumulators, ...) require specific procedure and equipments. **Only qualified persons shall perform them in appropriate conditions**.
- After servicing remove all tools, components and parts you used.
- Regularly **check tightness of wheel studs, wearing parts bolts, and all other bolts and nuts**.
- **Always use genuine parts corresponding to manufacturer's technical specification requirements**.

2.6. SAFETY FOR ON HIGHWAY TRANSPORT

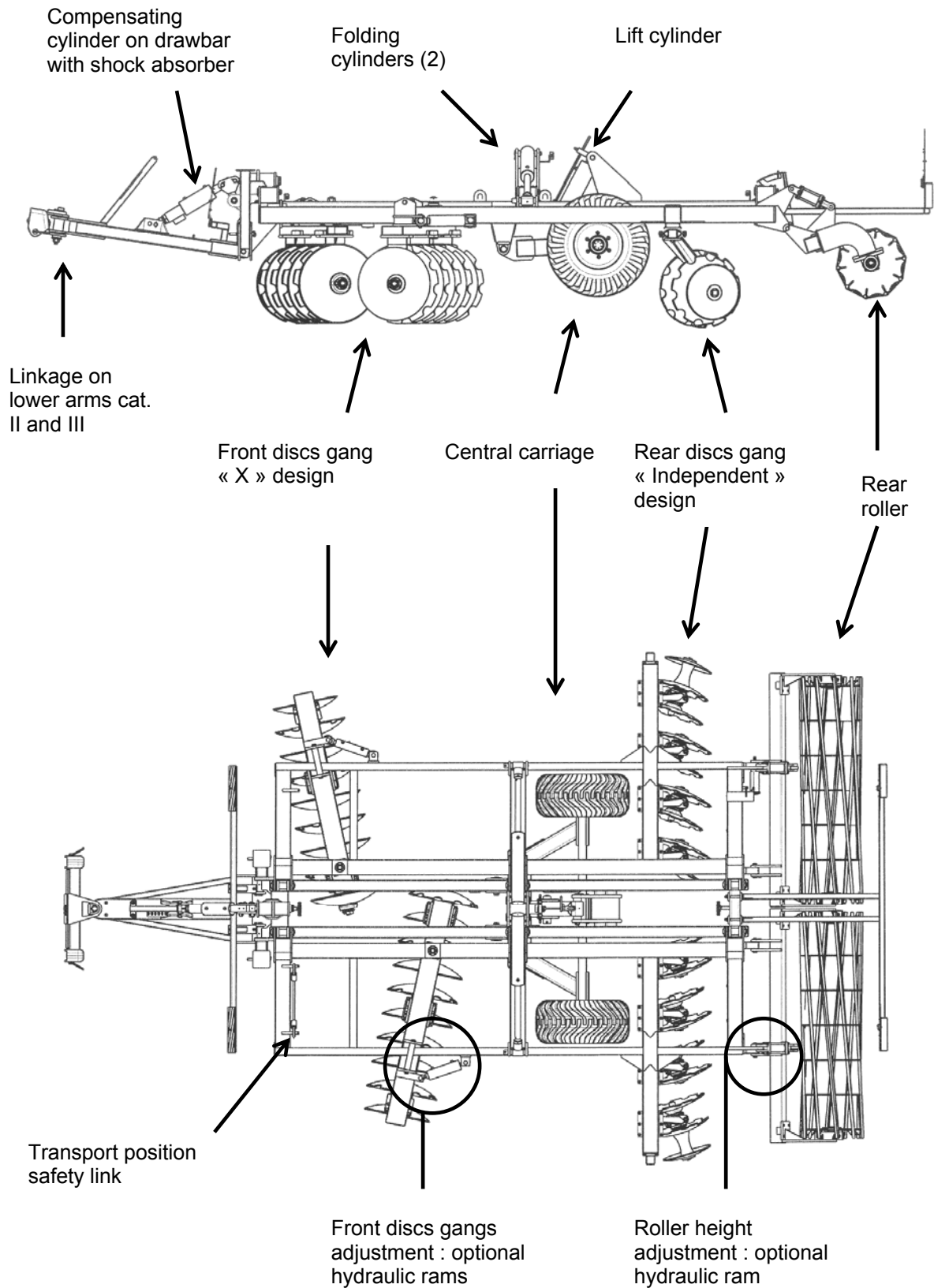


FOR YOUR OWN SAFETY AND THE ONE OF THE OTHER, RESPECT THE FOLLOWING RULES :

- All Grégoire-Besson equipments shall be used **complying with area's current rules and laws** concerning **safety instructions, accident prevention and provision of Highway Code**.
- Before road transport, always **check for wheels studs** and wheels mounting brackets carriage bolts **tightness** ; **check tyres general state and pressure** : do not drive with low pressure, cuts or damaged tyres or rims.
- **Use all devices required by your area's current laws** (lights, reflectors, signs, ...). They might be removed during field operation to prevent from any damage. It is the operator's responsibility to comply with current law and to follow its evolutions.
- Regularly check hitching pins, change them if necessary. Tractor's ball joint may also wear, do not hesitate to replace them with new ones having at least Waltersheid fabrication quality.
- Drive **at reasonable speed** complying with local laws **to always keep control** of tractor and equipment. Pay special attention on irregular or rough roads. **Do not attempt to drive down a hill faster than it could be possible to drive it up**.
- Tractor used for road transport shall have the same power rating and weight as the one used for field operations.
- **Never attempt any manoeuvre if area is not free from spectators**.
- If your machine is equipped with a **folding mechanism** (manual or hydraulic), **use it making sure folding area is free from spectators** and obstacles.
- Follow all **safe driving practices** when travelling, moreover **on corners, rough or narrow roads**.
- When **leaving tractor** even for a short period, **shut off engine, remove ignition key and set parking brakes**.
- Forbid anyone to stand between tractor and machine or on the machine travelling on the road.

3. MACHINE DESCRIPTION

3.1. IDENTIFICATION VIEWS



3.2. TECHNICAL SPECIFICATIONS

Specification	Standard equipment	Optional equipment
Hitch	<ul style="list-style-type: none"> Pivoting hitch on lower link arms cat. II-III 	
Chassis	<ul style="list-style-type: none"> Tube 180 x 180 x 10 mm Vertical folding with 2 rams, 2.50 m width Compensating cylinder on drawbar with rubber shock absorber 	<ul style="list-style-type: none"> Vertical folding with 4 rams
Discs gangs	<ul style="list-style-type: none"> Front gang « X » design <ul style="list-style-type: none"> - frame 180 x 80 x 8 mm - shaft square 40 mm - discs Ø 660 mm, thick. 6 mm - alternated notched / plain - anti-projection discs - mechanical angling adjustment with locking device Rear gang « Independent » design <ul style="list-style-type: none"> - dual mounting on 40 mm square shaft with Roll Choc shock absorber and bearing protection plate - discs Roll Coup flat profile, Ø 630 mm, thick. 7 mm notched - outrigger discs 	<ul style="list-style-type: none"> Full notched discs on front gang Roll Coup flat profile discs, Ø 680 mm, thick. 7 mm on front gang Deflector on front discs gangs Hydraulic angling adjustment on front gang
Central carriage	<ul style="list-style-type: none"> 1 DA ram Wheel axle square 70 mm 2 wheels 400/60/15 14 plys, low pressure 	<ul style="list-style-type: none"> Hydraulic brakes Wheels 19.0/45x17 Lateral gauge wheels 10.0/75x15.3
Roller	<ul style="list-style-type: none"> Crumbler roller, Ø 500 mm, 9 square bars Mechanical height adjustment by turnbuckles 	<ul style="list-style-type: none"> Crumbler roller, Ø 600 mm, 10 square bars Hydraulic height adjustment by rams

A large choice of options is available to improve machine's job.

Grégoire-Besson authorized dealers know area and working conditions.

They may give information according to technical choices and latest equipments evolutions.

Grégoire-Besson is also represented on farm equipment shows.

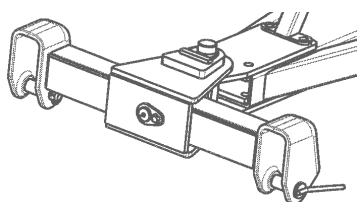
3.3. DIMENSIONS AND WEIGHTS

Front gang spacing	Number of discs	Number of bearings fr. / re.	Working width	Transport width	Over all length	Approx. weight
195 mm	28	4 / 6	2.60 m	2.50 m	8.20 m	4 310 kg
	33	4 / 8	3.35 m	2.50 m	8.20 m	4 560 kg
	37	4 / 8	3.75 m	2.50 m	8.20 m	4 810 kg
	41	4 / 10	4.15 m	2.50 m	8.20 m	5 060 kg
	45	6 / 10	4.55 m	2.50 m	8.20 m	5 460 kg
230 mm	31	4 / 8	3.35 m	2.50 m	8.20 m	4 420 kg
	33	4 / 8	3.75 m	2.50 m	8.20 m	4 610 kg
	39	4 / 10	4.15 m	2.50 m	8.20 m	4 920 kg
	43	4 / 10	4.70 m	2.50 m	8.20 m	5 170 kg
	47	6 / 12	5.25 m	2.50 m	8.20 m	5 540 kg

Dimensions and weights are indicative and subject to variations according to equipments and options.

Note : after use, ground or residue accumulations may increase machine's weight.

3.4. HITCH ON TRACTOR'S LOWER LINK ARMS



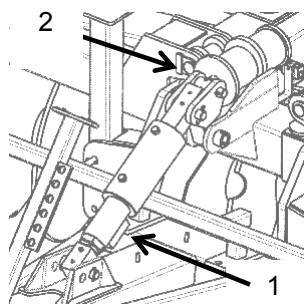
Hitch on tractor's lower link arms allows safe operations (hitching and unhitching) from the cab. It allows sharp turns, improving machine drivability.

Used with a drawbar compensating ram, it contributes to a good weight transfer from the machine to the rear of the tractor.

This hitch is dedicated to tractors equipped with locking devices (lateral and vertical).

For any transport on public road, follow hitch height recommendation (refer to operator's manual) and lock hitch position.

3.5. COMPENSATING RAM ON DRAWBAR

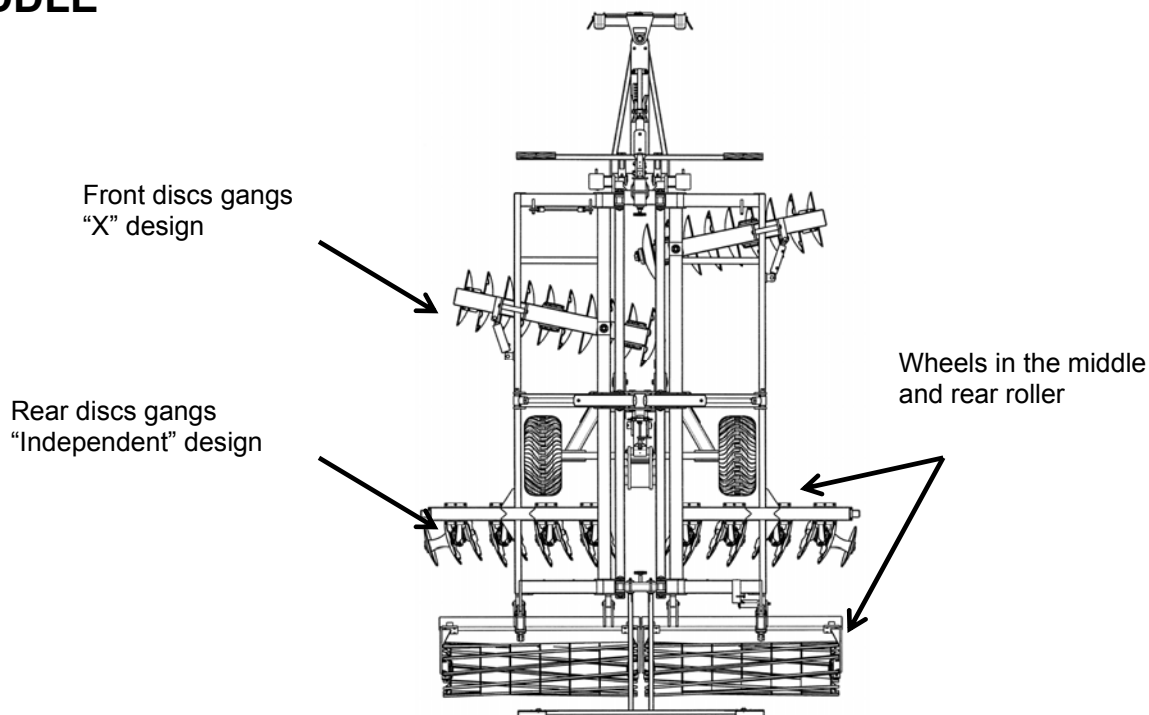


Screw type adjustable head of compensating ram (1) is used for front to rear levelling of the machine which shall always work parallel with the ground.

In working position, ram gives rigidity to the machine to tractor linkage. Machine is more stable, weight transfer is improved.

For more comfort (especially during transport) there is a rubber shock absorber (2).

3.6. DISCS HARROW « K » DESIGN WITH WHEELS IN THE MIDDLE



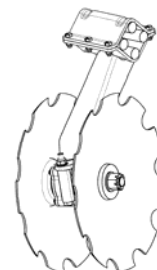
3.6.1. Front discs gangs

At the front, two discs gangs overlapping each other with adjustable angle ("X" type design). It gives penetration power to the machine and so adaptability to work in all conditions. The overlapping design allows complete width disking without unworked central strip.

3.6.2. Rear discs gangs

At the rear, two discs gangs face to face with duo-disques assembly ("Independent" type design) : two flat profile Roll'Coup discs Ø 630 thick. 7 mm, on an independent arm with a 40 mm square shaft and a Roll'Choc rubber shock absorber.

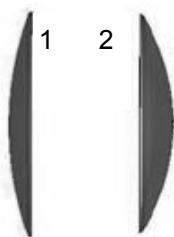
It insures finishing quality and levelling.



3.6.3. Wheels in the middle and rear roller

This configuration leads to a machine compact and drivable. This design allows depth control 100% by rear roller or shared between rear roller and central carriage. It gives perfect stability to the machine at work.

3.7. ROLL'COUP FLAT PROFILE DISCS

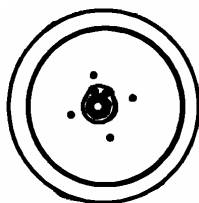


Roll'Coup flat profile discs (1) have less concavity than standard discs (2). They are easier to pull. They have a good penetration power. They have a very good cutting power (decreasing the size of residues). They are throwing less than standard discs.

They are standard discs on duo-disques assembly and compatible on all discs harrows with 40 mm square shaft.

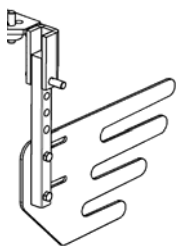
They are well adapted to narrow discs spacing (195 mm) on regular "X" or "V" designed machines.

3.8. ANTI-PROJECTION DISCS



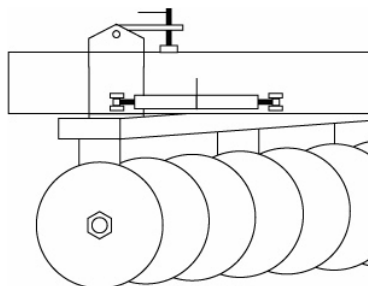
This device set on the external discs on front gangs reduces projections (less ground entering into the disc). It prevents from ridging.

3.9. DEFLECTOR DEVICE



This device set on the external sides of front gangs reduces projections. Outrigger discs of rear gangs can take back all ground thrown by front gang and leave a levelled finish. It prevents from ridging, especially for high speed operation.

3.10. DISCS GANGS LOCKING DEVICE



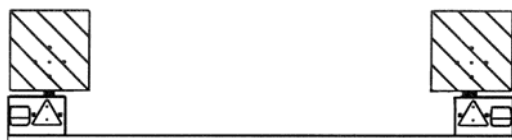
Discs gangs angle is set using a turnbuckle. A locking device (screw + puck) keeps the gang in the chosen position. As an option, a hydraulic ram can replace the turnbuckle.

3.11. HYDRAULIC BRAKES

A hydraulic braking device is available as an option.

Note: it is the operator's responsibility to comply with local current applicable law before any transport on public road.

3.12. LIGHTS AND SIGNS KITS



Light and signs kits are available for all Grégoire-Besson equipments. Contact an authorized dealer.

Note: it is the operator's responsibility to comply with local current applicable law before any transport on public road.

4. PREPARING THE TRACTOR

Follow recommendations given in the safety section of this manual. They are not restrictive.

4.1. REQUIRED HORSE POWER

Tractor requirements may vary according to ground and working conditions (type of soil, type of tractor, type of tyres, ...). Following data are only indicative. Ask an authorized Grégoire-Besson dealer for any further information.

Working width	Required horse power
2.60 m	90 cv
3.35 m	100 cv
3.75 m	115 cv
4.15 m	130 cv
4.55 m / 4.70 m	145 cv
5.25 m	155 cv

4.2. TRACTOR WHEELS

4.2.1. Tractor tyres

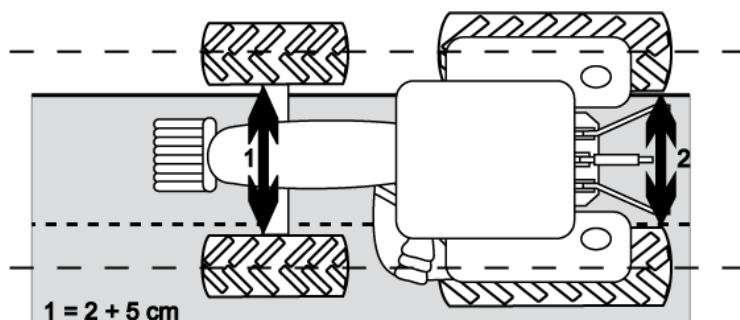
Check tractor tyres general state and pressure. Pressure should be the same on both sides of the tractor for a nice drivability in the field and on the road.



IMPORTANT : inflate tyres following manufacturer's recommendations.

4.2.2. Distance between tractor tyres

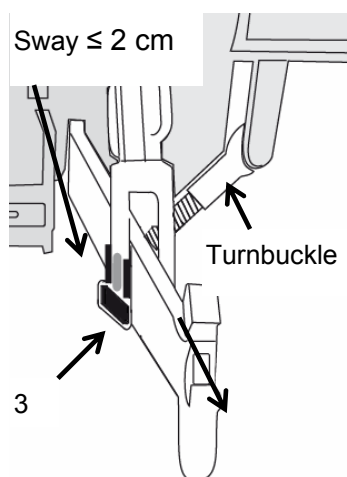
Generally, using a large tillage equipment, the wider is the distance between tyres, the better is the drivability.



To be able to steer the tractor, the middle of the front axle shall be lined up with the middle of the rear axle.

In sloping fields, a large distance will provide good stability.

4.3. POSITIONING STABILIZERS

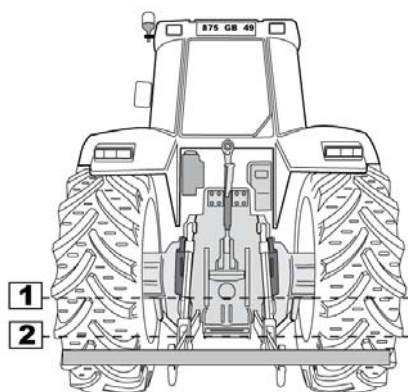


To hitch any tillage equipment on lower link arms, stabilizers shall be set so that arms have minimum lateral sway (≤ 2 cm) and are centred with tractor traction line. This will both prevent from any risk of shock during manoeuvre or road transport and keep machine lined up behind tractor at work.

Note : it is easier to adjust and / or service stabilisers bolts and threads before hitching the machine.

Horizontal lift links pins (3) shall be in fixed position to avoid any loose and / or damageable shock.

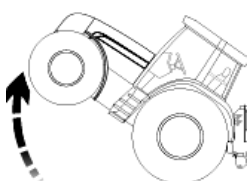
4.4. LIFT LINKS LENGTH



Lift link arms length determines tractor hitch levelling and lift cylinder position at working depth.

- Set lift links length so that tractor hitch is level (refer to picture).
- Set lift links length to have at least 30 mm clearance on lift cylinder rod when machine is working at desired depth. This will give adjustment possibilities for front gang depth from tractor's cab and allow efficient tractor draft control

4.5. FRONT END WEIGHTING



Wheels weights (front and rear) and front end weights may be required to avoid excessive slippage and to increase stability in rough and sloppy grounds.

Weights shall not be added once all slippage is eliminated. Refer to tractor operator's manual and to tractor's dealer. Follow tyre manufacturer's recommendations.

5. ATTACHING AND DETACHING

Follow recommendations given in the safety section of this manual. They are not restrictive.

IMPORTANT : always make sure that hitching never leads to :

- overload : respect maximum hitch capacity
- unbalance: load tractor front end if necessary. Refer to point 4.5.

5.1. ATTACHING MACHINE TO TRACTOR

5.1.1. Tractor equipped with tie rods lower links

- Before any manoeuvre, check for diameter and length compatibility between hitch pins and tractor tie rods.
- Remove safety bolts and hitch pins.
- Back up tractor to line up tie rods and machine hitch holes.
- Install pins and secure them with their safety clips.
- If holes are difficult to line up : extend telescopic arms as indicated in tractor operator's manual. Once hitch pins are inserted and secured with their safety clips, slowly back up tractor to lock back lift arms. Check for lift arms locking.

5.1.2. Tractor equipped with automatic hooks lower links

- Remove safety bolts and hitch pins.
- Remove balls from tractor lift link automatic hooks.
- Check for balls and pins general state and compatibility.
- Install balls on pins through lower machine hitching holes. Secure with safety bolts.
- Slowly back up tractor till automatic hooks are lined up underneath hitch balls.
- Raise tractor hitch about 5 cm above ground surface till automatic hooks are locked.
- Check for automatic hooks latch handles good locking.



IMPORTANT : make sure to have enough clearance between machine yoke hitch and tractor lower lift links to avoid any possibility of contact from working to raised position. A second verification shall be done once machine is in the field in truth working conditions.

Connect hydraulic hoses and control box.

5.2. DETACHING THE MACHINE

Before detaching, make sure that ground is flat and firm enough to support the machine. Use safety blocks to support machine components and / or parking stand if necessary.



DANGER : do not let any part of your body underneath the machine when lowering it to the ground.

Crushing may lead to death.

Proceed in the logical attaching opposite way :

- 1) Put machine in working position = it shall stay on its discs
- 2) Put stands in parking position = vertical
- 3) Completely lower the machine to the ground,
- 4) Remove pressure, disconnect hydraulic lines and control box (which can be totally removed from the machine if stored outside)
- 5) Detach lower lift links.

Always operate with care.

6. HYDRAULIC CONNEXIONS

Follow recommendations given in the safety section of this manual. They are not restrictive.

6.1. REQUIRED HYDRAULIC REMOTES

- 1 DA for **central carriage lift + compensating cylinder on drawbar**.
- 1 DA for vertical hydraulic **folding**
- 1 DA for hydraulic adjustment of **rear roller height** (optional)
- 1 DA for hydraulic adjustment of **front discs gangs angle adjustment** (optional)

6.2. REQUIRED HYDRAULIC PRESSURE

Required tractor hydraulic pressure is 180 to 200 bars.

6.3. HYDRAULIC CONNECTIONS

- Always wipe hydraulic couplers with a clean rag on both tractor and machine sides before connecting circuits.
 - Always check for machine hydraulic connectors and tractor remotes compatibility.
 - Logically connect hydraulic lines for the user :
- ⇒ Put most frequently used functions on closest lever
- ⇒ Watch for the way hydraulic flow is delivered : pull the lever to put machine in transport position (raise up / fold), push it to put machine in working position (lower / unfold).
- ⇒ Identify hoses using colour collars and signs (+ to extend rods, - to retract them).
- Check for hydraulic hoses length : too short they may break during sharp turns, too long they may interfere with tractor lift arms or tyres.

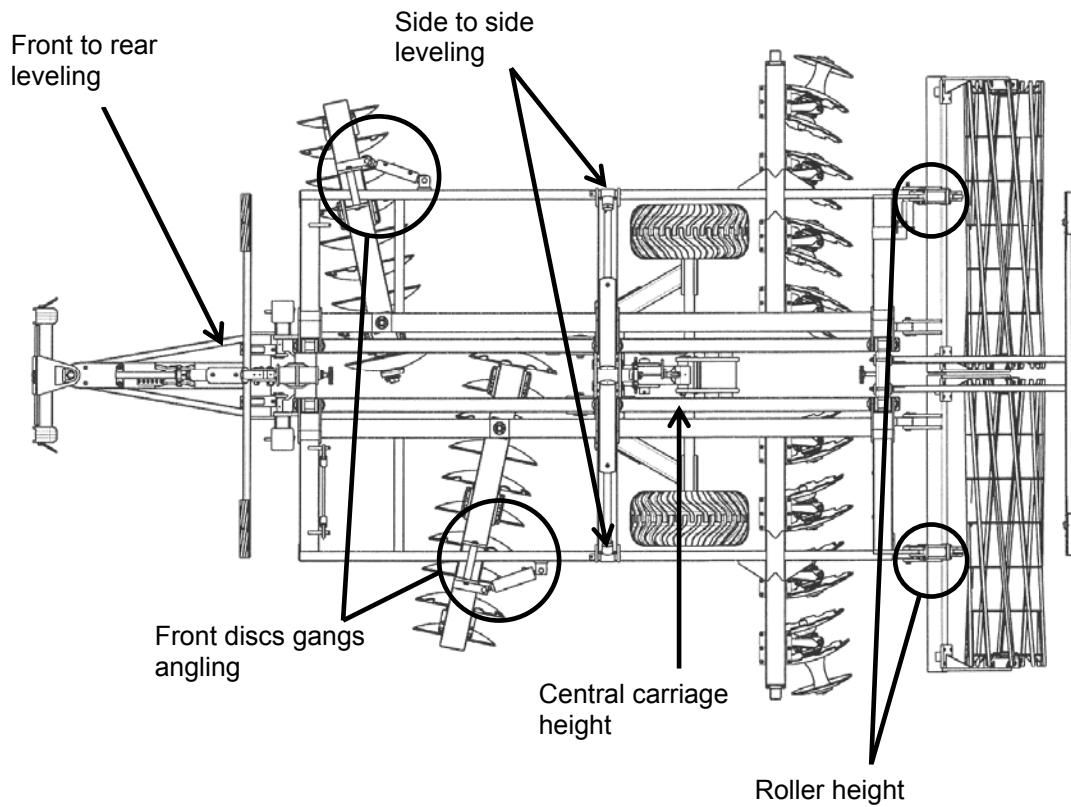
In case of any problem, do not hesitate to contact an authorized Grégoire-Besson dealer.

7. PREPARING THE MACHINE

Follow recommendations given in the safety section of this manual. They are not restrictive.

7.1. ADJUSTING POINTS LOCALIZATION

Find adjusting points and check their lubrication and work. Doing this checking task close from a machine shop is better than doing it in the field.



7.2. MACHINE WHEELS

7.2.1. Tyre inflation

Air pressure shall be checked every week.

Tyre dimension	Recommended pressure	Maximum speed
400 / 60 x 15 - 14 plys	4.8 bars	25 km/h - 15 mph
19.0 / 45 x 17 - 10 plys	3.0 bars	25 km/h - 15 mph

Follow tyre manufacturer recommendations (written on tyre side)



Tyre « above - inflation » = exploding risk.
Tyre « below - inflation » = rim come off risk.

7.2.2. Wheel studs

Check wheels general state and studs tightness every day.
Tread types tires may need more checking than conventional tires (more vibrations).
Always check for studs tightness before driving on public road. Tight them if necessary.

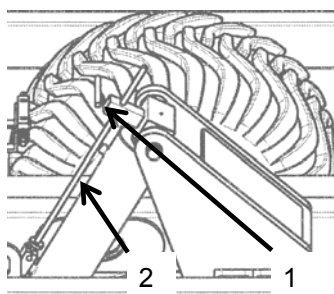
7.3. CENTRAL CARRIAGE HEIGHT

Discotill C carriage wheels are situated in the centre of the machine.
This central carriage is used for road transport and for headlands manoeuvres.
At work, it can be used to carry part of the weight of the machine (using depth stop-limit on lift ram) or it can be totally raised (depth is then 100% controlled by rear roller).

- To raise the machine, extend ram rod.
- To lower the machine, retract ram rod.

Depth 100% rear roller controlled : raise wheels to the maximum and control depth using rear roller (length of turnbuckles or rams).
Central carriage can be lowered to work on punctual spots.

Using central carriage for depth control : set depth control stop-limit (situated on left ram) to lock central carriage position when it has reached the desired height.

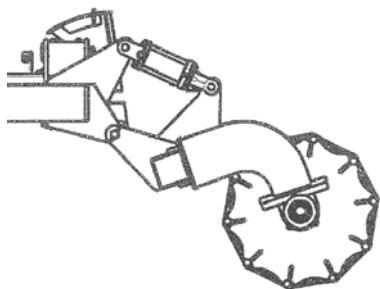


Adjustment procedure

- Loose locking screw 1.
- Set rod 2 position.
- Tight back locking screw 1.

7.4. ROLLER HEIGHT

Machine is equipped with a rear roller in 2 sections with vertical folding. It can be used for all or part of the depth control.



- To **increase working depth**, raise roller shortening turnbuckles or rams (option).
- To **decrease working depth**, lower roller lengthening turnbuckles or rams (option).
- **Both turnbuckles or rams (options) shall have the same length for the machine to work the same depth on both sides.**
- Machine with optional rams for rear roller height : regularly purge rear roller height hydraulic circuit to

make sure that both rams have the same length. Raise the machine, completely lower the roller extending rams and wait for a few seconds before removing control lever in the cab. Keep purging to chase air away till both rams have the same length.

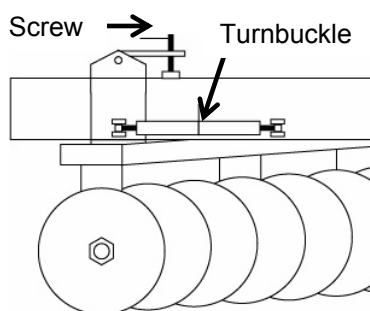
7.5. FRONT DISCS GANGS ANGLE

Generally the more front discs gangs angle is important, the more the machine tends to work deeper, the harder it is to pull

the more front discs gangs angle is slight, the more the machine tends to work shallower. A too slight angle may lead to poor penetration and to difficulties working the full spacing between two discs.

Indicative length for turnbuckle : 500 mm (standard manufacture adjustment).

Both front discs gangs shall have the same angle for the machine to work fine (= both turnbuckle shall be set the same).

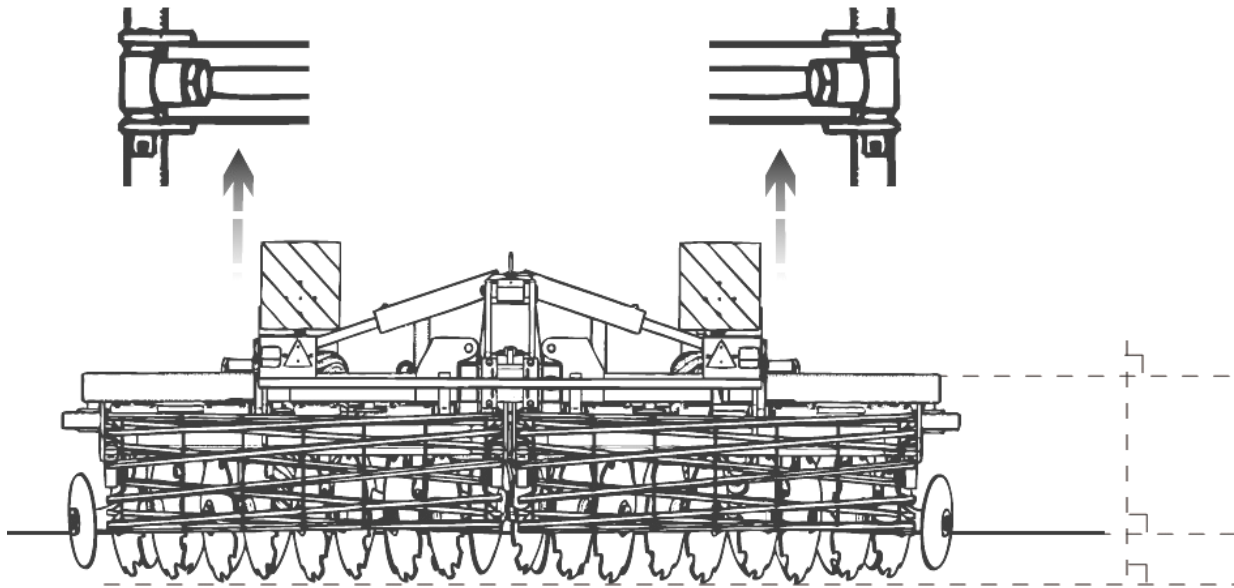


Front discs gangs angle adjustment procedure

- Loose locking device screw.
- Length turnbuckle to increase discs gang angle.
- Shorten turnbuckle to decrease discs gang angle.
- Tight back locking device screw.

Note : front discs gangs angle may be controlled by turnbuckles and locking devices (standard equipment) or hydraulic rams (option).

7.6. SIDE TO SIDE LEVELLING (= L.H SIDE TO R.H. SIDE)



Side to side levelling is done adjusting folding rams screw type heads. Once unfolded in working position, machine shall be levelled. This adjustment is done at the manufacture and shall be changed only exceptionally.

Before any modification of standard manufacture's adjustment :

- Put the machine on a surface flat and firm enough to support its weight.
- Check tyres : they must be all the same, inflated the same, having the same general state.

Side to side adjustment procedure :

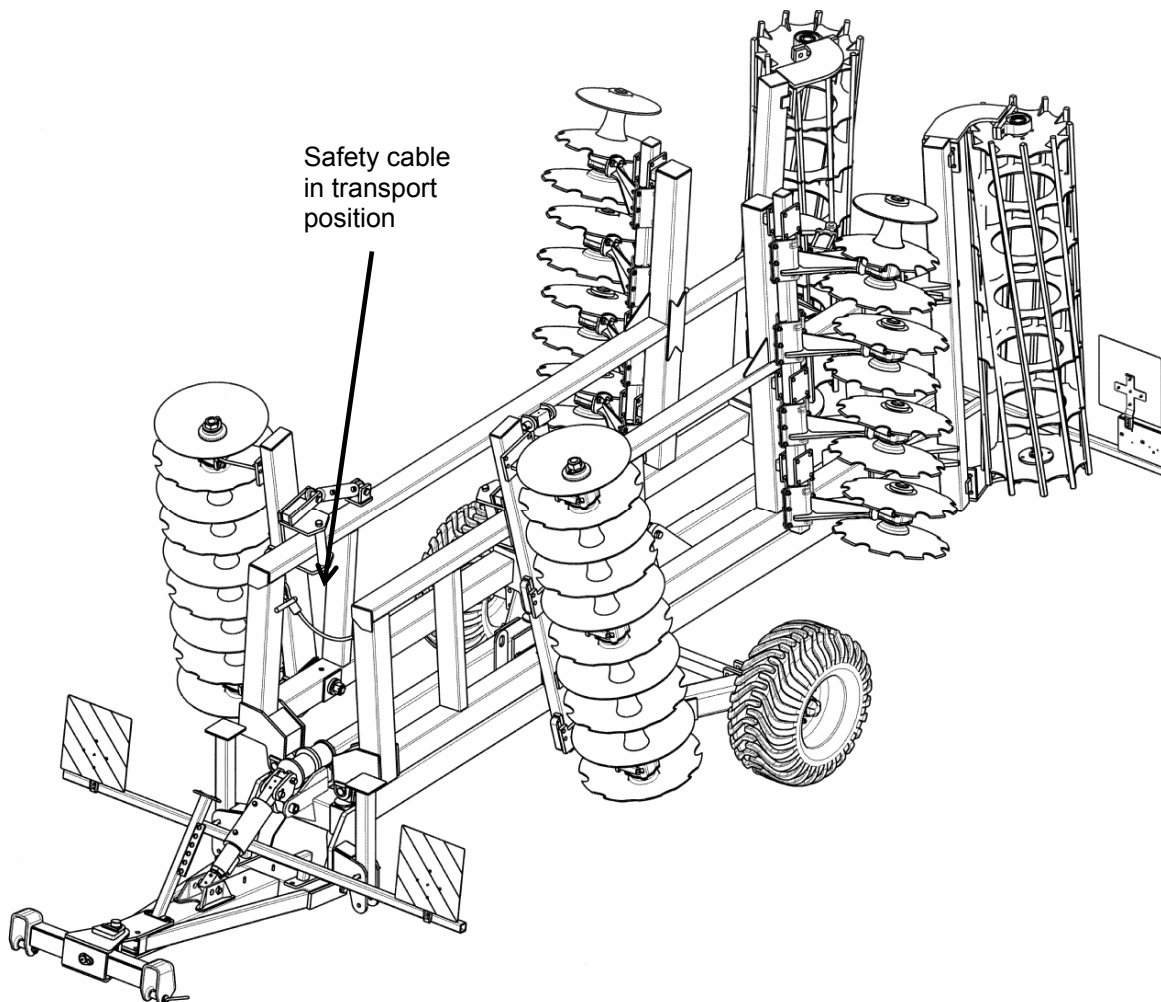
- Unfold machine in working position. Raise it so that discs do not touch the ground.
- Check for machine levelling (getting a reasonable distance will help).
- If a lateral wing is too low, raise it shortening folding cylinder = screwing head on threaded rod.
- If a lateral wing is too high, lower it lengthening folding cylinder = unscrewing head on threaded rod.

Note : lowering the machine on its discs may help for this adjustment.

8. TRANSPORTING

Follow recommendations given in the safety section of this manual. They are not restrictive.

8.1. CHANGING TO TRANSPORT POSITION



Before driving on a public road with the machine, put it in transport position :

- **Raise machine to the maximum.**
- **Fold lateral wings.**
- **In the cab lock all control levers** (hydraulic remotes, hitch, ...), to prevent any unforeseen movement and potential accident.
- **Install safety cable in transport position** (refer to drawing), do not forget safety clips to keep it in place. Be very carefully during this operation. Stay clear of lateral wings folding area.
- **Install all lights, reflectors and signs required by current applicable law.**

Transporting machine hooked on tractor's lower link arms :

- Respect hitch height recommendation (refer to tractor operator's manual).
- Lock hitch position.

8.2. CHANGING TO WORKING POSITION

Follow here above described procedure in the opposite way.

Put safety cable in work position, do not forget to install safety clips. Stay clear of lateral wings folding area.

Remove lights and signalisation kits if necessary.

8.3. DRIVING ON PUBLIC ROAD

Before driving on a public road :

- **Be sure all signs, reflectors and lights required by local current law are in place, clean and visible to traffic.**
- Make sure there are no interferences between tractor and machine.
- Adopt a gentle attitude towards other public road users.

On public road, comply with local applicable laws :

- Tractor required for road transport shall equal the size and the horse power rating of the tractor used to work in the field.
- Do not drive over 25 km/h (= 15 mph).
- Drive at a reasonable speed to maintain complete control of both tractor and machine.
- Reduce speed on corners and on rough grounds.
- Do not drive down a hill faster than it could be possible to drive it up.
- Do not apply the tractor brakes to attempt a sharp turn.
- Always check wheel studs tightness before driving on a public road. They may get loose because of vibrations.
- Respect authorized maximum size for transport load (width, weight, length). For over sized loads, comply with current law taking all necessary precautions (signs, lights, escort, authorizations, ...).
- Respect the maximum wheel axle load and the maximum total driving load. Make sure front axle carries at least 20% of tractor's tare. Use front end weights if necessary.

ATTENTION : driving on public roads, operator is responsible for both tractor and equipment. He has to comply with current applicable law (getting in conformity with it and following its evolutions).

9. FIELD ADJSUTMENT

Follow recommendations given in the safety section of this manual. They are not restrictive.

9.1. FIELD UTILIZATION

Put machine in working position (refer to previous section).

To reach a decent finish, operating speed shall be between 6 and 10 km / h (= 3.7 to 6 mph). Higher speed may lead to over wearing of wearing parts.

Always lift up machine before manoeuvring or turning on headlands.

Never attempt a sharp turn with the machine in the ground.

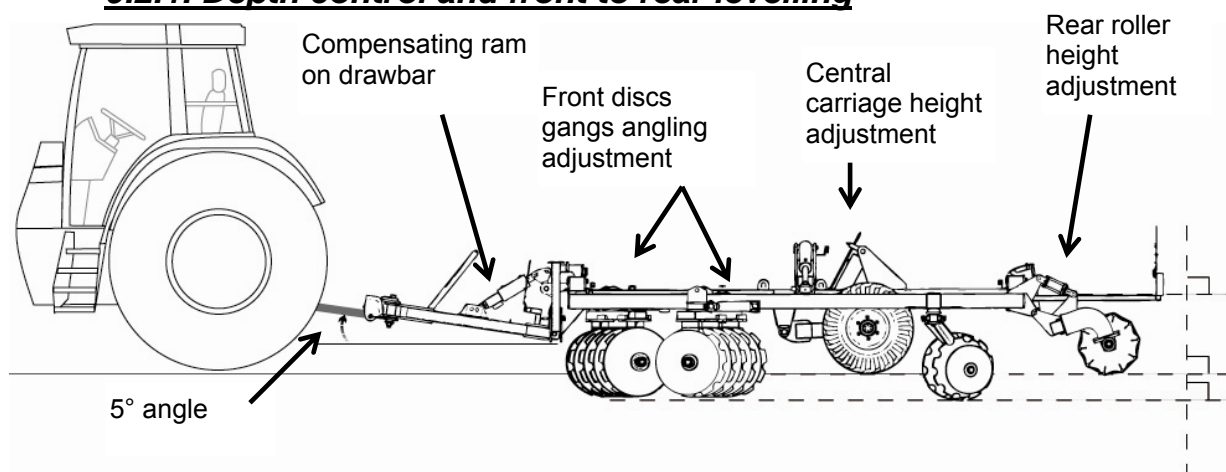
Reduce speed before manoeuvring or crossing obstacles (ditch, ridge, rocky spots, ...).

IMPORTANT : before beginning field utilization, entirely read this chapter to understand all adjustments, their order and procedure.

IMPORTANT : always do one adjustment at a time. Then it is easier to check its performance and to change it if necessary.

9.2. FIELD ADJUSTMENT

9.2.1. Depth control and front to rear levelling



Working depth is controlled with the followings :

- rear roller height : turnbuckles or hydraulic rams (option)
- compensating ram on drawbar : adjustable screw type head
- central carriage height : depth control stop-limit

Note : depth control can be done using rear roller alone or in combination with central carriage wheels. If rear roller has to entirely control depth, in working position raise central carriage to the maximum.

In working position, make sure that :

- main frame is parallel to the ground
- drawbar have a light up angle (5°). Refer to drawing.

To increase working depth

- Raise roller shortening turnbuckles or rams
- Raise central carriage (if depth is not 100% rear roller controlled)
- Increase front discs gangs angle lengthening turnbuckles or rams (to have the discs more aggressive so working deeper)

To decrease working depth

- Lower roller lengthening turnbuckles or rams
- Lower central carriage (if depth is not 100% rear roller controlled)
- Decrease front discs gangs angle shortening turnbuckles or rams (to have the discs less aggressive so working shallower)

9.2.2. If ground is not levelled

If machine leaves a hole in the middle

Front discs gangs remove more ground than what rear discs gangs can bring back.

Possible solutions for this problem :

- reduce front discs gangs angle (turnbuckles or rams)
- reduce front discs gangs working depth (adjustable head of compensating ram on drawbar)
- increase rear discs gangs working depth (rear roller / central carriage)

If machine leaves a ridge in the middle

Rear discs gangs bring back more ground than what front discs gangs removed.

Possible solutions for this problem :

- increase front discs gangs angle (turnbuckles or rams)
- increase front discs gangs working depth (adjustable head of compensating ram on drawbar)
- decrease rear discs gangs working depth (rear roller / central carriage)

If machine leaves a mark between two passes

Front discs gangs throw ground too far for rear discs gangs to bring it back.

Possible solutions for this problem :

- reduce operating speed
- install anti-projection discs on front discs gangs (contact an authorized Grégoire-Besson dealer)
- install deflector devices on front discs gangs (contact an authorized Grégoire-Besson dealer)

10. MAINTENANCE

Follow recommendations given in the safety section of this manual. They are not restrictive.

10.1. GENERAL INSTRUCTIONS



Operator and owner are responsible for good machine maintenance.



Inspect machine before and after each use. Repairs and service have to be done immediately so that they are not forgotten. Always leave the machine in a good state.

Cleaning the machine facilitates inspection. Check general state of machine, weldings, wheels studs, tyres, ...

Be careful with hydraulic lines : frictions may lead to excessive wearing and lines may leak. Never search a leak with your hands. Immediately replace any defective component. Spare components shall have the same characteristics.

Parts working in the ground may be sharpened and cause severe injury. Take particular care and use heavy leather gloves to remove them.

Never attempt any intervention on the machine while tractor engine is running.

Always properly secure all components before starting any maintenance operation underneath the machine.

Before using the machine for the first time, check all bolts tightness. Verify after 50 working hours and then at the beginning of each season. Pay special daily attention on :

- wheel studs tightness
- wearing parts bolts and nuts tightness in rocky or dry conditions (lots of vibrations).

Wrong waste management is a danger for environment : collect waste oil, paint removers, accumulators, worn tyres ... Bring them back to a distributor or to an authorized collector. Do not let them in the nature.

10.2. LUBRICATION

A good lubrication of all moving parts will both allow the machine to work fine and insure its long-lasting.

Grease fittings are installed on all pivot points. Grease both lubricates moving parts and chases away abrasive dust or water that could come into pivot points.

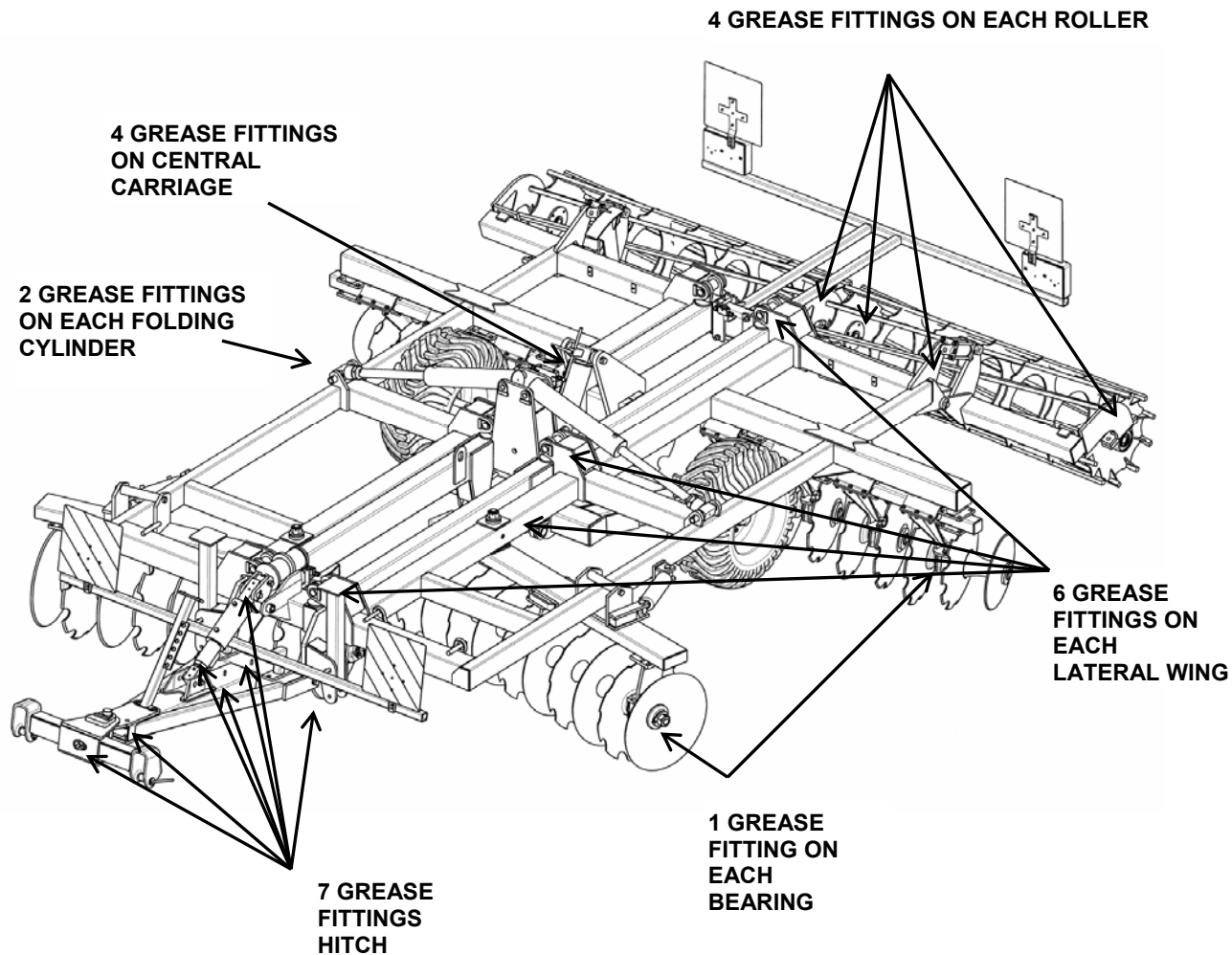
Use quality grease, type Unil – Opal MS02 or equivalent.

Always wipe grease fittings with a clean rag before introducing grease. Do not hesitate to change any worn or broken grease fitting. Check for good grease course.

Remove all grease accumulation around grease fittings or moving parts.

Refer to grease fittings placement and frequency on the following drawing. Hard or intense conditions would require more.

The best is to grease regularly with regular quantity. Do not over grease.



Grease fitting placement	Frequency
Lateral wing pivot point	50 h
Folding cylinder (1 grease fitting on each end)	10 h
Compensating drawbar cylinder and lift cylinder	10 h
Discs gangs bearings (4 shots)	50 h
Central carriage articulations and hitch articulations	10 h
Rear roller bearings (4 shots)	50 h

10.3. SPARE PARTS

Genuine Grégoire-Besson parts have been specially designed and developed. Only the use of these parts will ensure proper fit, longevity and field quality work of the machine.



Using any other spare part than certified from Grégoire-Besson will void warranty.

Changing wearing parts too late may be source of poor quality work (penetration troubles, poor mixing ...) and may damage structure parts°.

10.4. STORAGE SAFETY

- Before detaching the machine for storage, make sure ground is clean, flat and firm enough.
- Use parking stand and all other locking devices to prevent from any unforeseen movement during detachment or later on.
- Always store machine in working position (= unfolded).
- Block machine wheels to avoid any unforeseen movement.
- During storage, wheels shall not carry any weight.
- NEVER detach machine in raised position.
- Remove pressure from hydraulic circuit (engine shut off, shake hydraulic control lever in the cab).
- Store machine away from human activity.
- Store machine in a dry and dust free area (shed). Protect ram rods that cannot be retracted from rust using grease or oil.

CAUTION : never let children play around farm equipment.

11. QUICKLY STARTING - DISCOTILL C

Take all precautionary measures. Respect safety recommendations.

PREPARING THE TRACTOR

1. Check tyre pressure

It should be the same on both sides on each axle.
Always follow tyre manufacturer recommendations.

2. Adjust tractor hitch levelling

Set lift links length for tractor hitch to be perfectly level with the ground.
Arms shall be long enough so that working at desired depth there is still 30 mm chrome visible on lift ram.

3. Adjust lift links sway

Lateral sway minimum (≤ 2 cm)
No vertical sway (0 cm)

HITCHING

4. Attach lower links

5. Make sure there are no interferences between machine and tractor from raised position to working position

Machine shall never come in contact with tractor.
There should be no contact between tractor lift links and machine yoke hitch.

6. Connect hydraulic lines

7. Transport / working positions

Transport position	central carriage lowered = machine raised lateral wings folded transport safety cable positioned
Working position	remove transport safety cable lateral wings unfolded

FIELD ADJUSTMENT

8. Set working depth using

Roller height adjustment
Compensating cylinder on drawbar adjustment
Central carriage height adjustment

MAINTENANCE

9. Follow recommendations given in this manual according to lubrication and maintenance of the machine

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