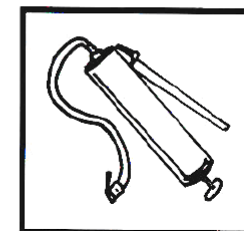
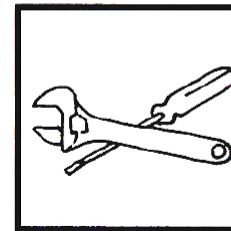


DISCS HARROWS SEMI-MOUNTED

NOTICE 2010

ADJUSTMENT

MAINTENANCE



<< MUSTANG >>

X OR K DESIGNED VERTICAL FOLDABLE

GRÉGOIRE  BESSON



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HYDRAULIC : SPOOL VALVE REQUIREMENTS

FUNCTION	COLOUR	REQUIRED REMOTES	HYDRAULIC SPOOL VALVE
Carriage wheels + compensation ram	RED	1 DA	
Rear roller height adjustment	GREEN	1 DA	
Lateral frames folding	YELLOW	1 DA	
Discs gangs angle		2 DA	1 SELECTOR 6 WAYS 2 FUNCITONS

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INTRODUCTION

READ CAREFULLY THIS MANUAL

In this operator's manual are given all information for proper and safe adjustment, operation and maintenance of the machine.

Read it entirely and carefully before using the machine and follow all safety recommendations.

For an easier and optimal use of the machine, read this manual entirely and follow recommendations in the given order.

This instruction manual must be considered as an integral part of the machine and handed over in case of reselling.

Right hand side and left hand side, front end and rear end are determined by facing in the direction the machine will work in the field.

All information, drawings, and specifications given in this manual are the newest at the time of publication.

Manufacturer reserves right to make any modification at any 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.



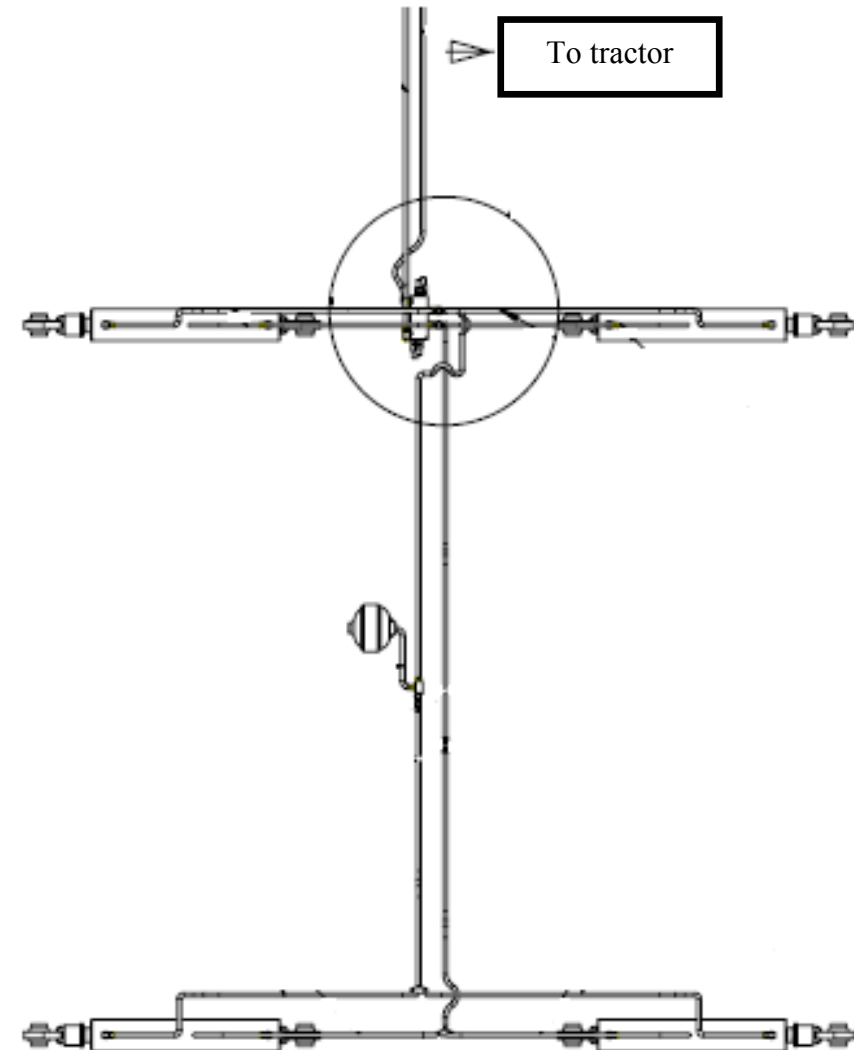
This symbol is used in the following manual to **catch your attention on warnings concerning your safety.**

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.

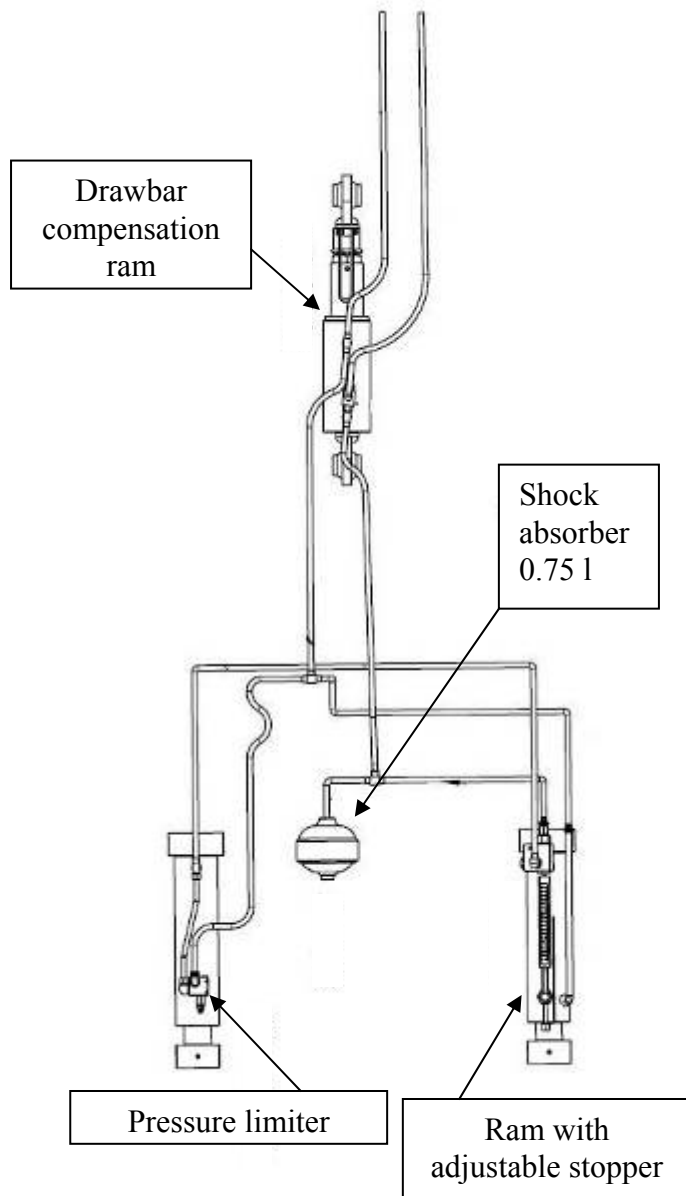
HYDRAULIC DRAWINGS

FOLDING



HYDRAULIC DRAWINGS

CARRIAGE AND DRAWBAR COMPENSATION



SAFETY STICKERS

READ THE INSTRUCTIONS. BOOKLET.



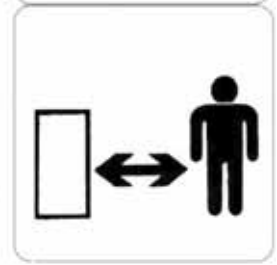
Read the instructions booklet and the safety instructions before the machine start. Respect them during work.

SAFETY ZONE



Stay in the background of the safety zone when the machine is unfolding.

MOVE AWAY FROM THE MACHINE.



Danger in the working zone : stay in the background.



LOCKING BEFORE ACTION.
Install the locking system before any intervention on the machine.



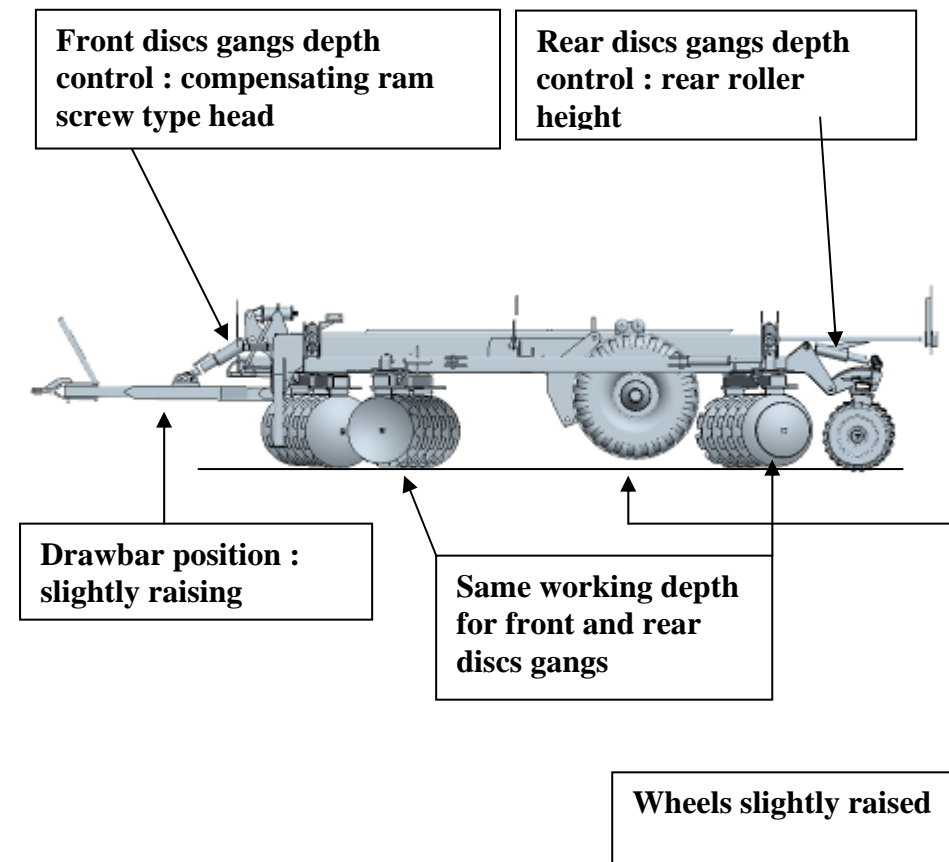
LEAK AND MAINTENANCE.
Be careful of the leaks of fluids under pressure. Refer to the instructions of this booklet for the maintenance.

NOTES ON SAFETY STICKERS

Make sure all safety signs and / or warning signs stay clean and visible.
In case of any damage and / or reparation, make sure all spare parts have the same signs as genuine ones.

Do not hesitate to contact an authorized Grégoire-Besson dealer.

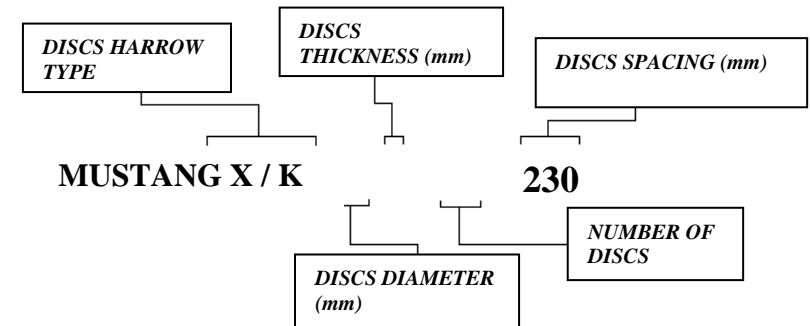
BASICS ADJUSTMENTS



ADJUSTMENT TIPS

PROBLEM	ORIGIN	SOLUTION
Working too shallow	Discs gangs angle too slight Wheels carrying weight	Increase angling Raise wheels and / or roller
Working too deep	Discs gangs angle too important Roller not carrying enough	Decrease angling Lower wheels and / or roller
Machine not pulling straight	L.H. and R.H. discs gangs do not have the same angle	Check gangs angle, they shall be the same on both sides
Stuffing of the discs gangs.	Scrappers not correctly adjusted. Working conditions not suitable	Adjust the scrappers. Reduce the angling.

MACHINE IDENTIFICATION



These indications are given on the serial number plate set on the front end of the main frame. Record here after purchasing date, model and serial number of the machine. Always refer to these information to get prompt and good service.

SERIAL NUMBER

MODEL

PURCHASING DATE

d

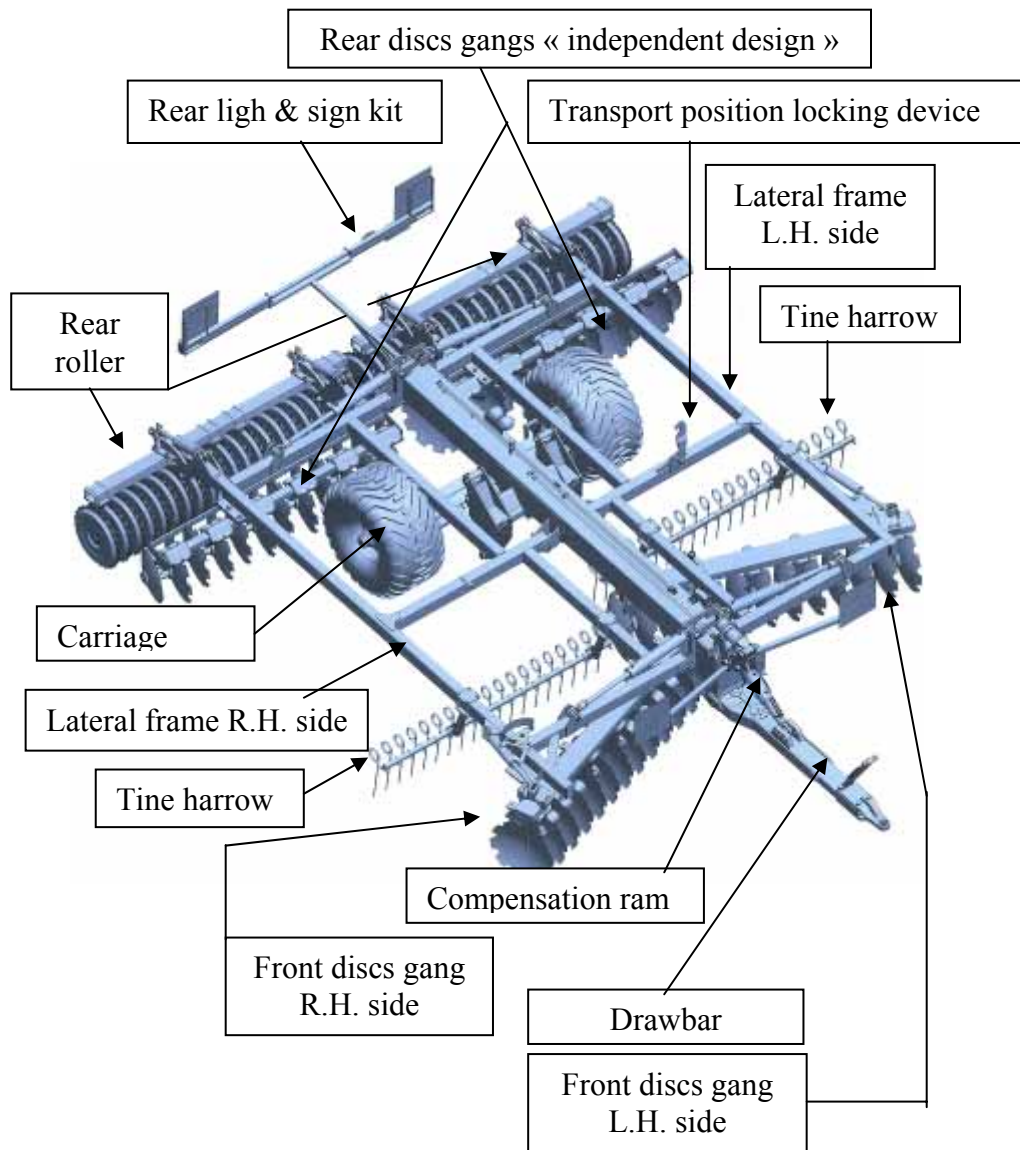
NEVER REMOVE IDENTIFICATION PLATE

This machine is equipped with an hydraulic rear 3 points hitch.
Available rollers for combination : RBRV2 or SRV2.



MAXIMUM SPEED ON PUBLIC ROAD (km/h)

IDENTIFICATION VIEW MUSTANG K DESIGN



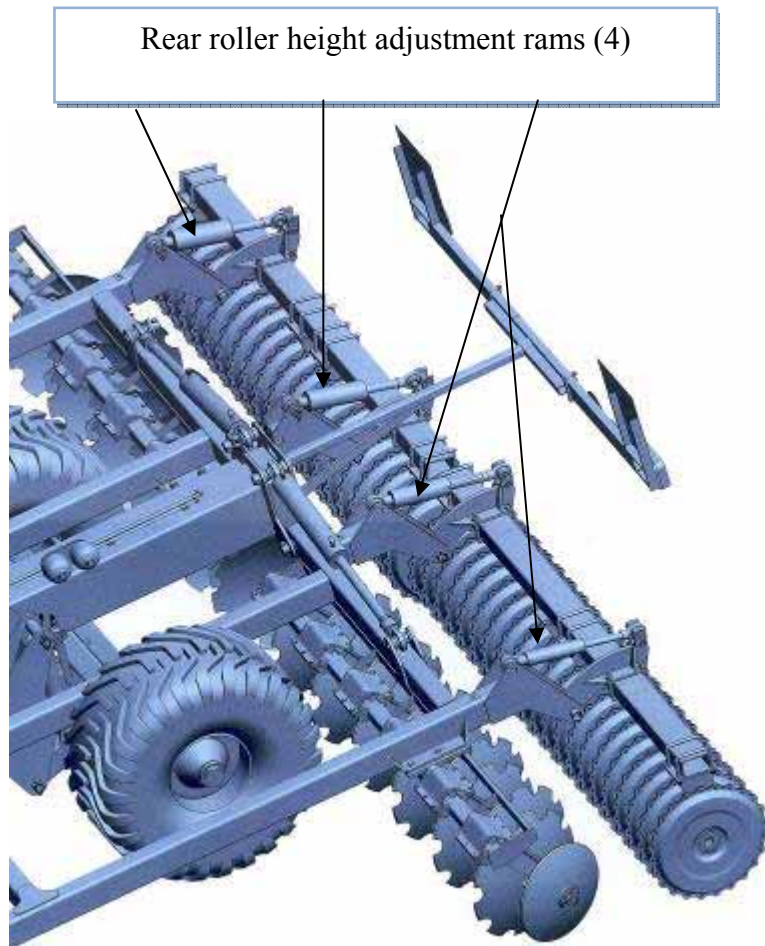
WORKING DEPTH ADJUSTMENT

To have an even disking depth, follow hereafter given recommendations:

- set discs gangs angle according to ground conditions : increase angle in hard conditions
- if machine leaves a ridge in the middle ahead from the roller, reduce rear discs gang angle
- if machine leaves a hole in the middle ahead from the roller, increase rear discs gang angle
- check machine levelling both side to side and front to rear :
 - => side to side folding rams length adjustment
 rear roller height adjustment
 - => front to rear rear roller hydraulic circuit shall be purged
 drawbar compensation ram adjustment
 central carriage adjustable stopper height

WORKING DEPTH ADJUSTMENT

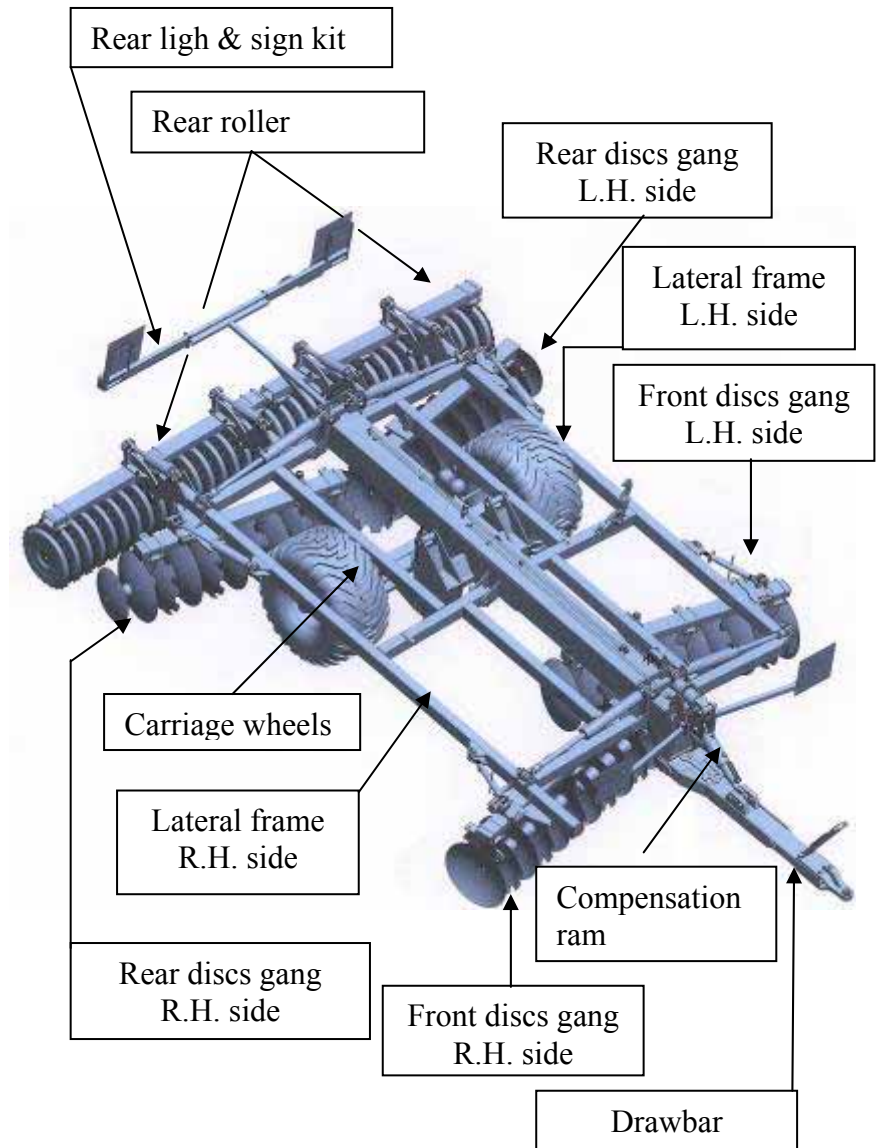
REAR ROLLER HEIGHT ADJUSTMENT RAMS



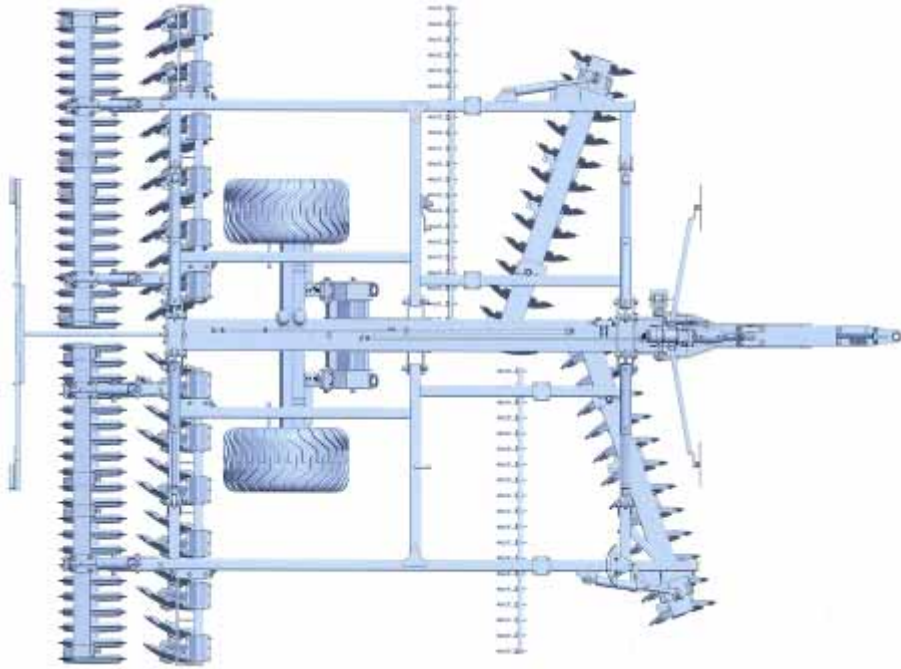
Rear roller height adjustment is set through an independent hydraulic circuit (function B = green colour on machine). All 4 adjustment rams are assembled in a master / slave configuration.

Once properly purged, this system allows an even L.H. and R.H. height adjustment.

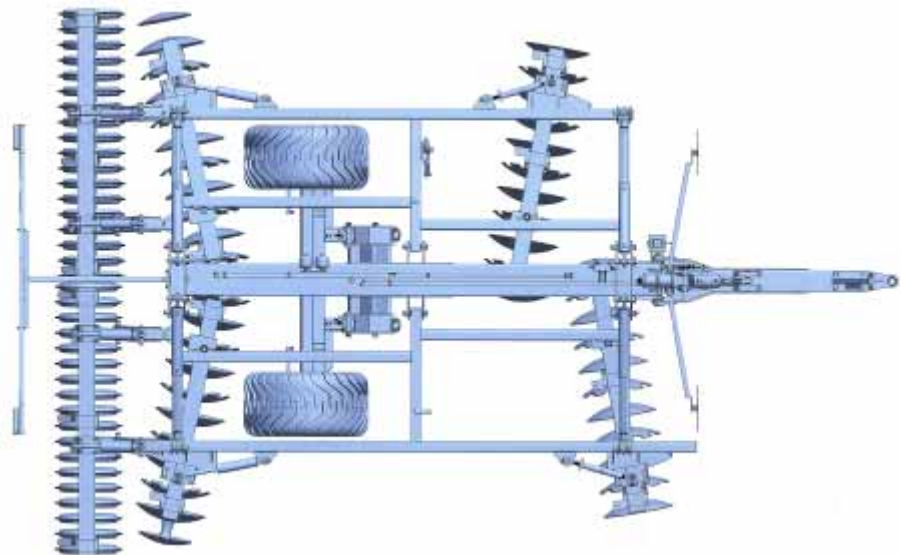
IDENTIFICATION VIEW MUSTANG X DESIGN



MUSTANG K DESIGN



MUSTANG X DESIGN



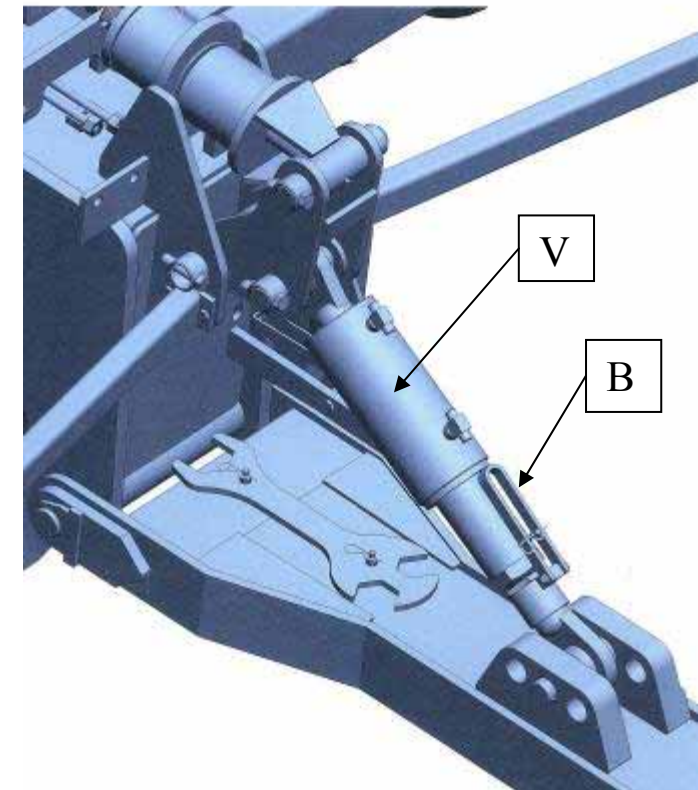
WORKING DEPTH ADJUSTMENT

DRAWBAR COMPENSATION RAM ADJUSTMENT

Drawbar compensation ram (V) controls front discs working depth through screw type head (B) position.

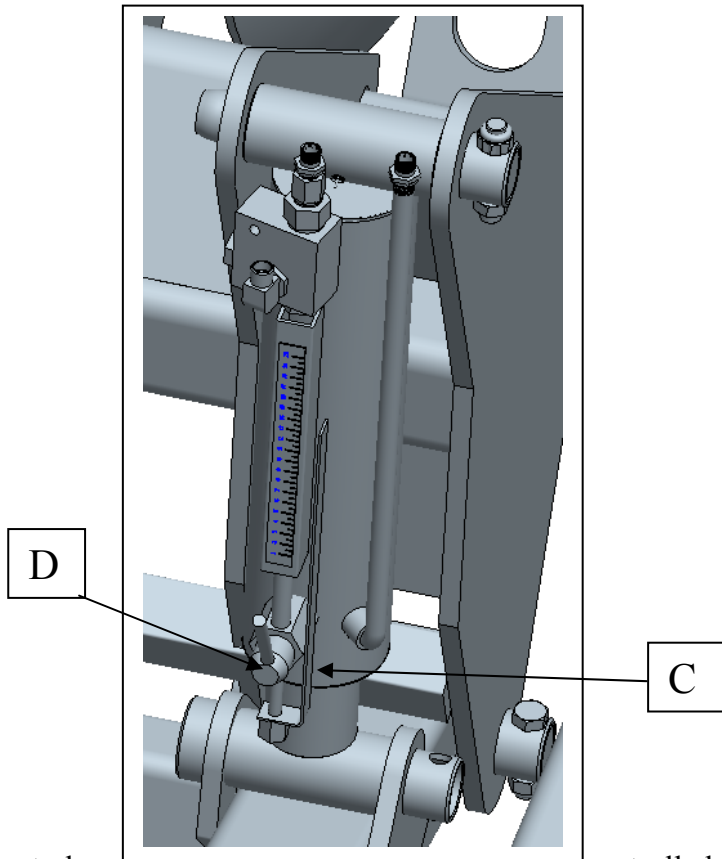
To increase front discs working depth, unscrew ram screw type head (B) for ram to retract more.

Both front and rear gangs shall work at the same depth, so the right balance shall be found between adjustments of compensation screw type head (B) and central carriage adjustable stopper (C).



WORKING DEPTH ADJUSTMENT

CENTRAL CARRIAGE HEIGHT ADJUSTMENT



Central carriage wheels height adjustment is controlled with adjustable stopper C.

Loose nut D and set carriage height sliding adjustable stopper C. Tight back nut D

Note : for machine equipped with rear roller for depth control, at desired working depth wheels shall be slightly raised so that machine is held by both ends (tractor on front end / roller at the rear).

MAKE SURE NOBODY ACTS ON HYDRAULIC LIFT CIRCUIT DURING ADJUSTMENT

MUSTANG DESCRIPTION

As any other Grégoire-Besson implement, MUSTANG X / K are 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.

MUSTANG X / K are vertically foldable, transport width < 3.0 m.

MACHINE FRAME DESIGN

Machine main frame is designed as follows :

- 1 main frame single tube with central carriage
- 2 lateral frames, each receiving 2 discs gangs and a rear roller
hydraulic vertical fold
discs gangs position “X” or “K”
rear roller Ø 600 mm, whether crumbler or Emopak

Machine stays level when lifting or lowering since carriage rams and compensation ram are linked.

This Grégoire-Besson implement has been exclusively designed to be used by professionals for regular farm tillage in farmed fields.



Manufacturer shall not be responsible for any damage or injury resulting from any other use.

Machine shall be operated, maintained and serviced by persons knowing its particular specifications and corresponding required safety equipments and procedures.

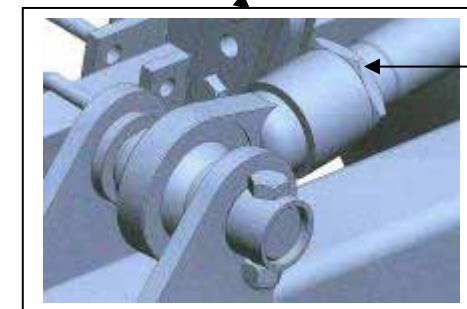
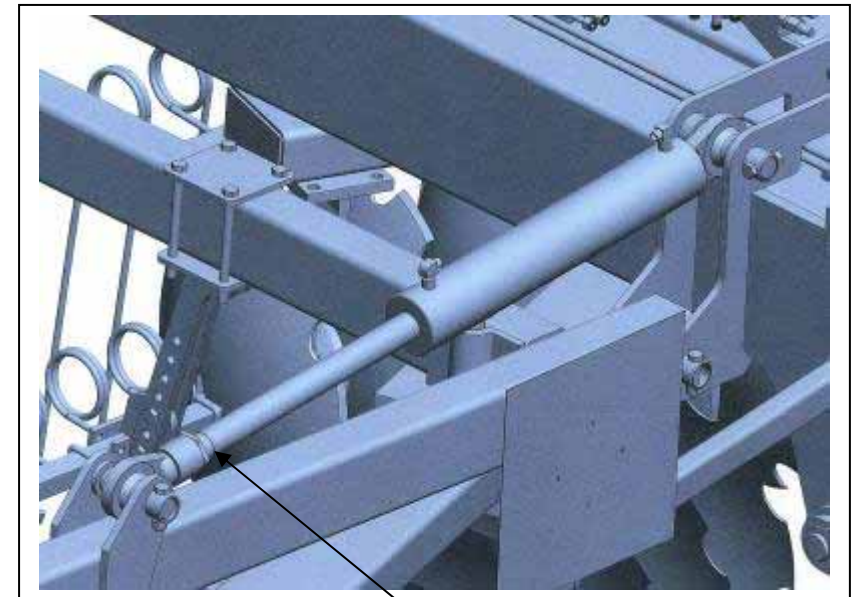
Learn how to operate the machine before using it in the field. Then it will be too late.

- Never attempt any intervention on the machine while it is in motion.
- Wear close fitting clothes and safety equipments appropriate to the job to do.
- Define a safety area for bystanders.
- Never perform any adjustment as long as its procedure is not perfectly understood.
- Always use tools or equipments appropriate to the job to do.
- Every component shall remain properly set on the machine (strings, electric wire, hydraulic hose, ...) to avoid any unforeseen movement that could lead to severe injury.
- Before operating, check for bolts, wheel studs and hydraulic connexions tightness.
- Never approach any component while it is in motion. Keep your distances.
- In case of any plugging because of an excess of material (ground or residue) :
 - in a first time, reduce speed
 - if it is not enough, stop tractor, remove ignition key and set tractor parking brakes. Use gloves and required tools if material has to be handily removed.

In working position, discs gangs shall run level with the ground.

Procedure for this adjustment :

- unfold machine in working position
- lower the machine to the ground, it shall stand on its discs
- release pressure form hydraulic folding circuit acting on control lever from the cab
- loose jam nut E
- use provided special wrench to adjust ram length
- tight back jam nut E



E

TRANSPORT POSITION

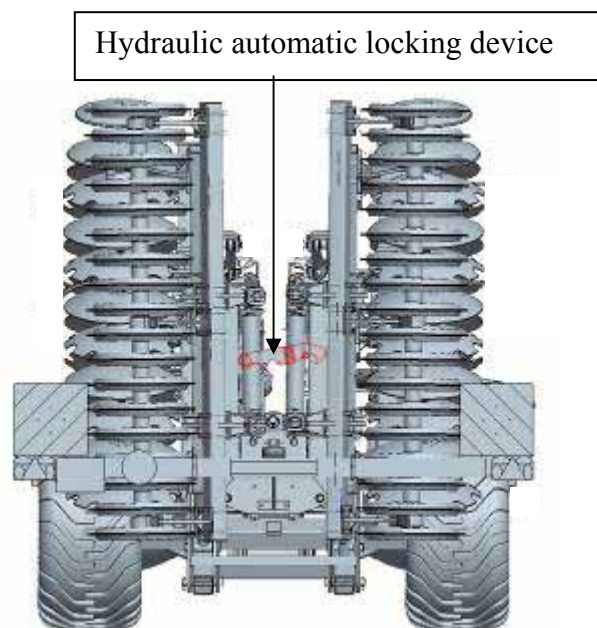


IMPORTANT: Make sure area is clear from bystanders before starting any folding / unfolding operation.

To put machine in transport position, act on hydraulic control lever to fold lateral frames (function C = yellow colour on the machine).

When lateral frames reach their vertical position, keep acting on control lever a few seconds. A hydraulic device will automatically lock them to secure transport position.

To put machine in working position, act on hydraulic control lever the opposite way to unfold lateral frames. In a first time, hydraulic device releases lateral frames, then it lowers them in working position.



Mustang in transport position = lateral frames folded + locking device

SAFETY INSTRUCTIONS

Electric lines

- Machine over all height may exceed 3.50 m during folding / unfolding manoeuvres. Always make sure there is no possibility of contact with an electric line before beginning manoeuvre.
- In case of any contact between machine and an electric line, immediately stop movement. Stop tractor engine and set parking brakes. Check if you can leave tractor without any contact with electric line. If so, jump from your position making sure there will be no contact with the ground during your movement.
- Make sure nobody touches whether machine or tractor as long as electric line is on power.

Hitching

- Machine shall be properly attached through points dedicated for.
- Never stand between machine and tractor while engine is running. Always set both machine and tractor parking brakes.
- For attaching / detaching manoeuvres, choose a very slow gear.
- To attach the machine, lock tractor hydraulic control levers to avoid any unforeseen manoeuvre.
- Once machine is attached, all hitch pins shall be properly secured.
- Before every use, check tractor to machine connexions : general state (no wear) and proper locking device.

Hydraulic lines

- Before any intervention on hydraulic circuit, make sure pressure has been removed.
- Remove pressure before disconnecting hydraulic lines.
- Check all components proper tightness before pressurizing circuit.
- Hydraulic accumulator is pressurized with nitrogen. Never attempt to change its external aspect by welding, grinding or drilling.
- Immediately replace any damaged component by a genuine one.

SAFETY INSTRUCTIONS

Machine handling

- Use dedicated hocks to handle machine properly and safely. Always use required equipments (loader, chain lock, ...). Respect maximum admissible loads.



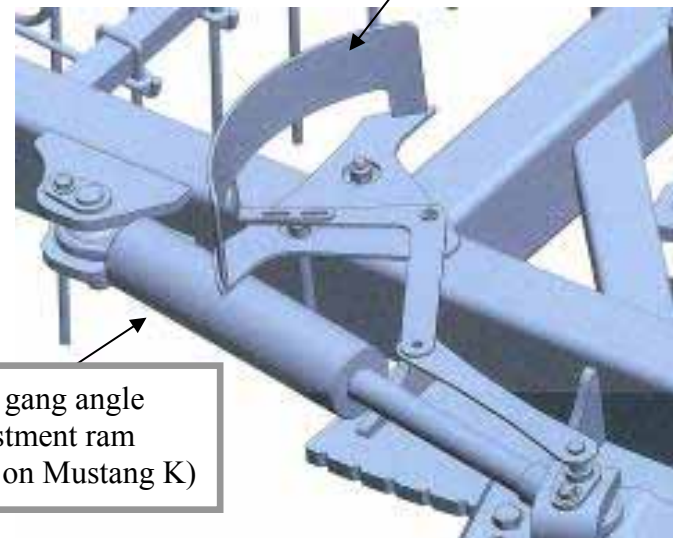
RECOMMANDATIONS

- Get used to the disc harrow functioning and disc harrow controls. Do not let anybody use the disc without previous training.
- Only the operator is allowed to be in the tractor cab. He can not leave his seat during is working.
- Nobody is allowed to be on the implements during the work..
- In case of unfolding the disc gangs and the roller, be sure that there is nobody standing in the turnover area of the implements. Operate the folding system only from the cab of the tractor.

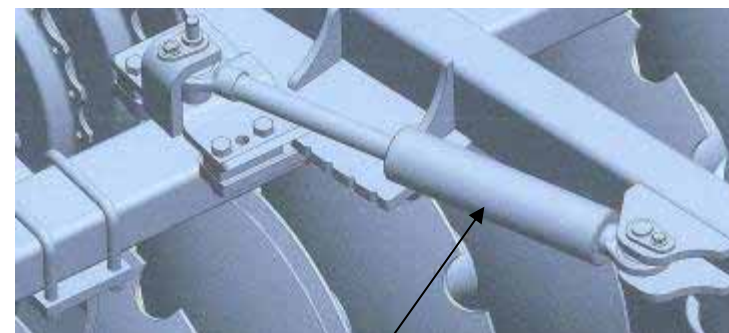
DISCS GANGS ANGLING

HYDRAULIC ADJUSTMENT (option)

Gang angle indicator (example on Mustang K)



Front gang angle adjustment ram (example on Mustang K)



Rear gang angle adjustment ram (Mustang X)

DISCS GANGS ANGLING

MECHANICAL ADJUSTMENT (standard)

Discs gang angle may be changed according to conditions : desired working depth, type of soil, ...

- Increase discs gangs angle to give aggressiveness to the machine (heavy or dry grounds).
- Decrease discs gangs angle to reduce aggressiveness of the machine (light grounds).

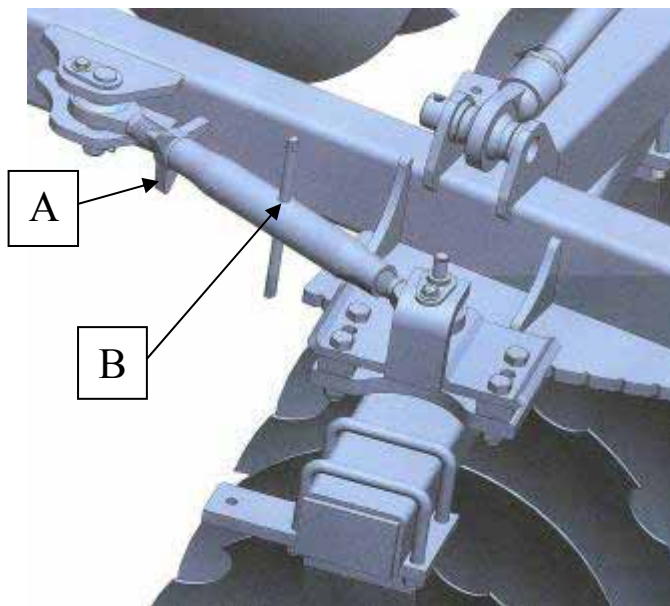
Find the right balance between front discs gang and rear discs gang.

- If machine leaves a ridge in the middle, reduce rear discs gang angle.
- If machine leaves a hole in the middle, increase rear discs gang angle.

To set discs gang angle : act on turnbuckle (B)

- Loose both jam nuts (A)
- Adjust turnbuckle (B) length
- Tight back jam nuts (A)

It is important to have the same angle : on both front gangs
on both rear gangs



SAFETY INSTRUCTIONS


Maintenance

During maintenance, be sure that the safety instructions are respected. Maintenance area must be clean, dry and well lighted.

- In case of intervention or unmaking of a disc gang with lifted machine, do systematically a shoring by means of holders. Make sure all tools and equipments are removed after any intervention.
- All the articulation and greasing points must be greased at regular intervals with quality grease.
- Check regularly tightening of nuts and bolts.
- Always use original genuine parts.
- Keep a correct tyre inflation pressure. Do not exceed recommended inflation pressure.

WHEEL 15 R 22.5	→ 6.0 bars
WHEEL 385 / 65 R -22.5	→ 8.0 bars
WHEEL 500x45-22.5	→ 3.3 bars
WHEEL 600x50-22.5	→ 2.7 bars

WARNING

 - Explosion of the tyre with rim can provoke serious injuries. Only experienced people are allowed to repair tyres and rims with the appropriate tools.

- Always use genuine spare parts, the only ones meeting manufacturer requirements.

Lubrication

- Use quality grease dedicated to roller bearings.
- Lubricate all pivot point every 14 working hours.
- Discs gang bearing lubrication : keep greasing till grease starts escaping from bearing.

**THE GOOD MAINTENANCE OF YOUR IMPLEMENTS
GUARANTEES ITS LONG LIFE**

SAFETY INSTRUCTIONS

Storage

- If the machine is unused after the season, clean it carefully to prevent from every risk of corrosion and dampness.
- If necessary, carry out paint touching up
- Check, if there is some worn or broken parts, and place an order, to be sure to have your implements ready for the next season.
- Park machine in working position (unfolded), under cover, ram rods retracted or greased.
- Remove pressure from hydraulic lines.

Hydraulic connexions

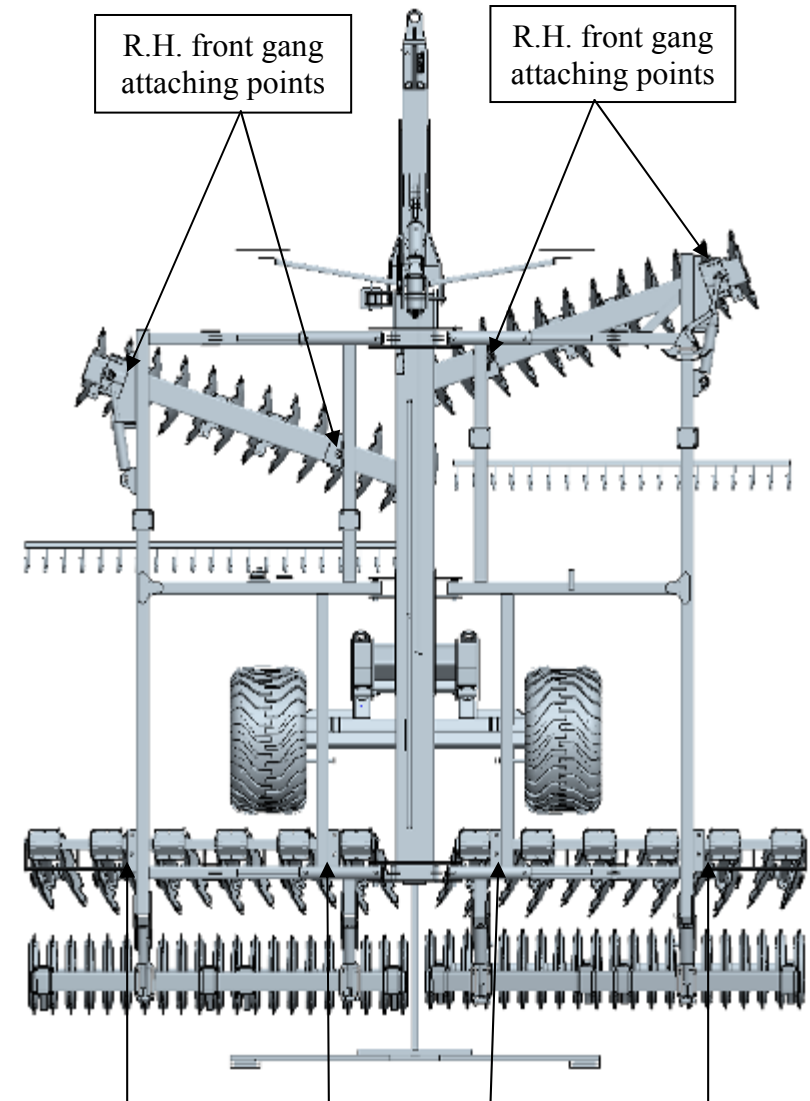


Hydraulic connexions are subjected to high pressures.

- When the machine is equipped with several plugs, be sure to put them right.
- Before plugging a push-pull, be sure that there is no pressure on both sides (tractor and machine).
- If a hose is damaged don't hesitate to replace it.
- Never search a leak of oil with your finger. Leaking fluids and especially oil can provoke some very serious injuries. Contact a doctor in case of contact
- In case of an intervention on the hydraulic system, bring the implement in contact with the ground; remove pressure by switching off the engine and then acting the spool valve.

ASSEMBLING DISCS GANGS UNDER LATERAL FRAMES

MUSTANG K DESIGN



ASSEMBLING DISCS GANGS UNDER LATERAL FRAMES



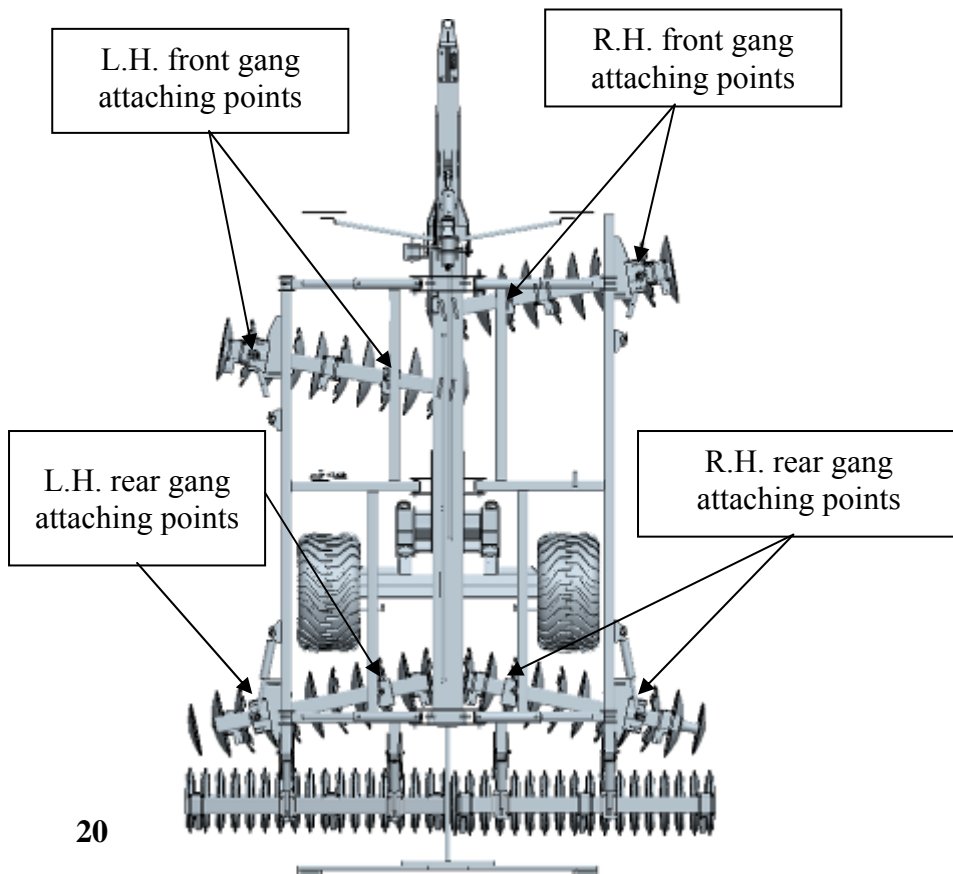
ATTENTION: this operation is delicate because of the important weight of discs gangs (350 to 1 000 kg) according to models, and because of the difficult access to fixing points.

Only specially trained persons used to this kind of job and properly equipped shall do it.

Chain lock with front to rear movement possibility or fork lift strong enough to carry the weight is required.

Discs gangs are fixed on lateral frames through 2 pins. To lock the 2 nuts a special wrench is located on drawbar.

MUSTANG X DESIGN



SAFETY INSTRUCTIONS

Road transport



**FOR YOUR SAFETY AND THE ONE OF THE OTHERS
RESPECT FOLLOWING RECOMMENDATIONS**

- While hitching the machine to the tractor, check hitch height and tractor drawbar fixing (centred).
- If machine is foldable, make sure there is no one in the area and fold it.
- All Gregoire-Besson equipments shall be used complying with current applicable laws concerning road safety and occupational medicine.
- Drive at reasonable speed to keep control of vehicle at any time. Stay alert and careful.
- Pay special attention on rough roads, drive slowly and avoid sharp turns. Do not accelerate or stop suddenly.
- Drive safely on curves or narrow roads.
- Never attempt any manoeuvre if someone is close from the machine or from the tractor.
- Operate the machine with daylight or use lighting kit. All lights, reflectors and signs required shall be installed for road transport and may be removed during field operation to prevent from any damage.
- When leaving the tractor, even for a short period, shut off engine, remove ignition key, set parking brakes. If machine is equipped, set its brakes too.
- No one shall stand on the machine or between machine and tractor during road transport.
- Regularly check hitching ring state, do not hesitate to change any worn part.
- Regularly check tyre pressure and wheel stud tightness.

ASSEMBLY

To facilitate transport from manufacture, machine may not be totally assembled at delivery.

MUSTANG has a main frame on which two lateral frames are set, each one receiving two discs gangs and one rear roller. These lateral frames are equipped with vertical hydraulic folding for transport position.

The four discs gangs (= machine working elements) are set per pair on the machine.

HITCHING MACHINE TO THE TRACTOR

- Check hydraulic connectors cleanness before plugging them to the tractor.
- Connect hydraulic lines following the logical way.

Function A = hoses with red tie rap : lift rams and compensating ram on drawbar.

Function B = hoses with green tie rap : rear equipment adjustment (roller height).

Function C = hoses with yellow tie rap : lateral frames folding.

For machines equipped with hydraulic spool valve, it is set on yellow marked hoses. Acting on switch operator will choose the function he controls.

Hydraulic spool valve has to be connected to the 12 V plug at the rear of the tractor.

Tine hydraulic height adjustment and roller folding may be separate functions if tractor is equipped with 3 double acting remotes (= no spool valve).

- **Attach** machine ring hitch to the tractor hitch acting on remote controlling carriage height and drawbar compensating ram (function A = red). Properly lock hitch pin once machine is attached.
- **Raise** machine and pivot parking leg, lock it in working position with its pin.
- **Unfold** machine, put lateral frames parallel with the ground.
- **Put** lateral frames 1.10 m approx. above ground surface to attach discs gangs.

