

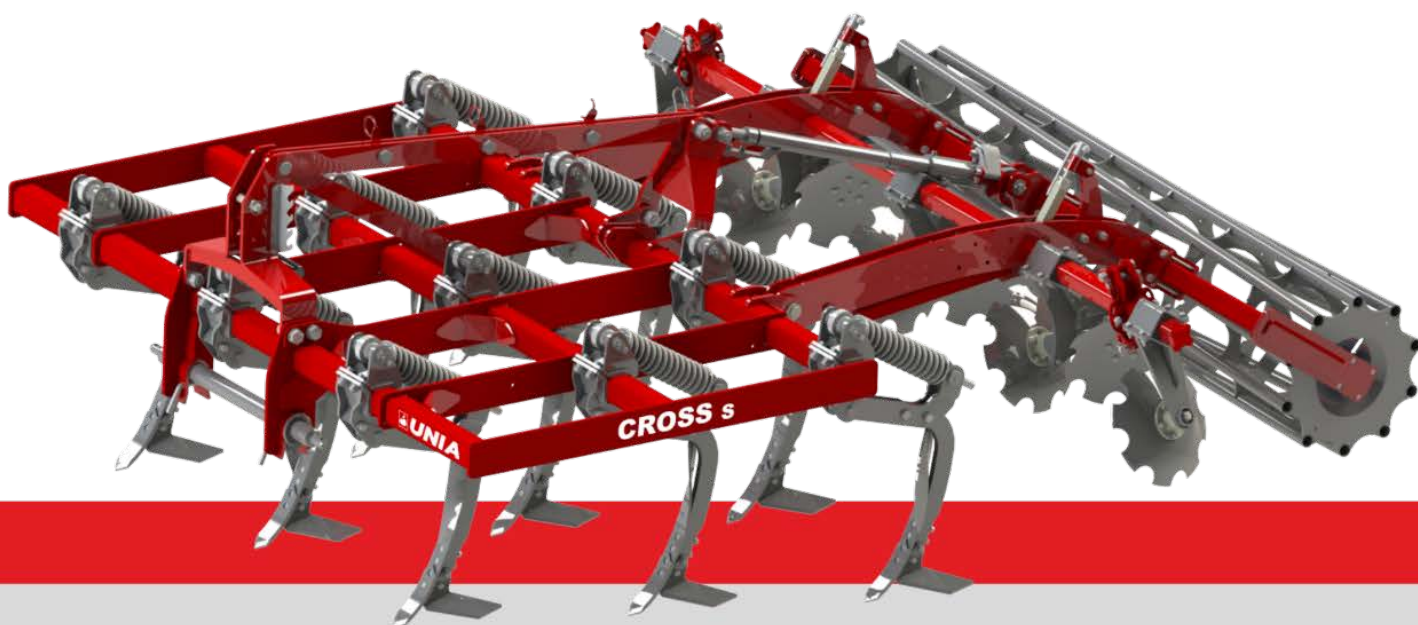


UNIA

OPERATING AND MAINTENANCE MANUAL

CULTIVATOR FOR SIMPLIFIED TILLAGE

CROSS s



UNIA Sp. z o.o.

Szosa Toruńska 32/38, 86 – 300 GRUDZIĄDZ

tel. + 48 56 451 05 00 | Service: + 48 56 451 05 26 | service.unia@uniamachines.com

uniamachines.com



Before starting machine read the operating manual and follow the safety instructions contained in it.

**VERSION
ENG 01/2018**

CE Declaration of Conformity

CE Declaration of Conformity

UNIA Sp. z o.o.

st. Szosa Torunska 32/38
86 – 300 Grudziadz, Poland

Herewith declare with full responsibility that our product:
cultivator for simplified tillage

CROSS

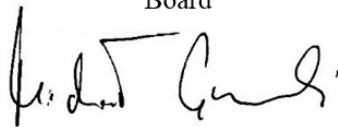
type / model :
manufacturing year :
serial no. :

is in compliance with the Ordinance of the Minister of Economy of October 21, 2008 (Journal of Laws No. 199, item 1228) and the EU Directive 2006/42/EC of May 17, 2006 and the Ordinance of the Minister of Infrastructure of May 4, 2009 (Journal of Laws No. 75/2009, item 639) and the following standards:

PN-EN ISO 12100:2012	PN-EN-ISO 13857:2010
PN-ISO 3600:1998	PN-EN-ISO 4413:2011
PN-ISO 11684:1998	PN-EN 349+A1:2010
PN-EN ISO 11688-1:2010	PN-EN 14017+A2:2009
PN-EN ISO 4254-1:2016-02	PN-EN 13739-1:2012

This CE Declaration of Conformity is no longer valid if the machine has been modified or reconstructed without the manufacturer's consent.

Member of the Management
Board


Michał Guzowski

Member of the Management
Board


Michał Piotrowski

Grudziadz, 05.12.2017

UNIA Sp. z o.o.
st. Szosa Torunska 32/38
PL 86 – 300 Grudziadz
tel. + 48 56 451 05 00
fax. + 48 56 451 05 01
Service tel. + 48 56 451 05 26
uniamachines.com

CROSS S

MAINTENANCE AND OPERATING MANUAL

Machine identification data:

Type	
Production year	
Serial no.	



This maintenance and operating manual is an integral part of the machine. It is important that the manual is always in the possession of the machine user. Access to the manual should be provided to machine operators and cooperating persons while operation, regulation, repairs and renovations.



Before starting the machine please read the operating manual and follow the recommendations and instructions regarding safety and proper usage of the machine.

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PREFACE:

When buying the machine, check completeness of its accessories that include the following components:

- Operating Manual
- Warranty Card

1. Precautions

1.1. Before you Begin to Use Your Machine



- Read the instruction manual.
- Pay always special attention to the text and illustrations marked with this symbol!
- These machines are intended for agricultural use only. Any use outside of this purpose shall be considered as not intended use. Learn how to use your machine correctly and carefully!
- The machine may be dangerous when driven by not authorized individual or when operated carelessly.

1.2. Health and safety regulations

- Before each start, check whether the tractor and machine are safe for road traffic and operation!
- The tractor working with the machine must be equipped with the weights on the front axis! Balance of the tractor with the attached machine, its steerability and braking ability must always be kept.
- When connecting and disconnecting the machine to/from the tractor, its lifting and lowering on the hydraulic lift of the tractor, setting the machine in the transport and working positions and on the headlands, ensure that no bystanders and in particular children are present in the vicinity of the machine. Perform these operations slowly, without sudden jerks!
- Never stay between the tractor and cultivator when the tractor's engine is running!
- The machine may only be operated, maintained and repaired by the personnel who know its construction and are aware of the existing hazards!
- There are some places where crushing or cutting may occur on the parts actuated by the forces other than the human force (e.g. the hydraulic system). When connecting the hydraulic hoses to the hydraulic system of the tractor, always ensure that the hydraulics is depressurized! Check positions of the control levers of the tractor hydraulic system. Only actuate the hydraulically operated attachments when there is nobody present within their range of operation! Check the hydraulic hoses on regular basis and replace them with new items when damaged or worn!
- When driving on highways with the machine attached, lock the operating lever against its lowering!
- The attached warning and indicating signs contain information on safe work: they are intended for your safety!

- Before you start work, learn thoroughly operation of all devices and actuators and functions of the machine. It is too late for this after you start work!
- Avoid wearing any loose clothing, which could be caught by rotating components of the machine.
- Always keep the machine clean in order to avoid fire!
- Always check the surroundings before you start operation. Make sure that you have sufficient visibility!!
- Never back or reverse the tractor when the machine is lowered to the working position. When reversing, pay attention to the components that protrude far away and do not use the independent brakes of the tractor!
- Check air pressure in the wheels of the tractor and cultivator regularly.
- Never transport people on the machine and load it with any additional weights when operating the machine or transporting it!
- Check and attach the traffic equipment, such as lighting, warning devices and possible protective devices.
- Observe the admissible axial loads, total weights and transport dimensions.
- Check tightness of screws and nuts on regular basis and tighten them if required.
- Always use appropriate tools and wear safety gloves when changing tools.
- The spare parts must be conforming to the revisions specified by the manufacturer. This may only be provided by the genuine spare parts. Use typical protection devices and pins for securing all bolts of the unit (tractor + machine). Never use any temporary means of protection, such as screws, bars, wires etc., which can cause damage to the machine or tractor during transport and cause a safety hazard for other road users!
- Attach and disconnect the machine to/from the tractor after having parked the machine on a flat and hardened surface and with the tractor engine stopped. Store the machines unfolded.
- Store the machine in the locations inaccessible for unauthorized people or animals when not in use.
- Besides the above guidelines, follow the general safety rules.

1.3. Servicing



- Service the machine when it is lowered onto the ground! If the machine is coupled with the tractor, engine of the tractor must be off and brakes on!
- Use only tools in good technical condition and genuine materials and spare parts for servicing.
- Always protect the machine with appropriate supports when performing any maintenance or repair work on the machine lifted up.


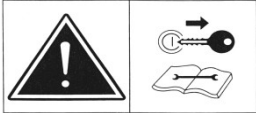





1.4. Transport on highways



- Never exceed the speed limits allowed on highways and follow traffic regulations of the respective country!
- Pay special attention when passing and overtaking other vehicles and on curves (the unit is pivotally connected to the tractor)!

- The machine, as the part of the vehicle that protrudes outside the rear side outline of the tractor covering the rear lamps of the tractor, poses a threat for other vehicles in the traffic.
- When transporting the machine on highways, always use warning lights, distinguishing plate and side reflectors.
- Maximum width of the machine, which can be moved on highways is specified in the detailed regulations of the country of use. They should be observed.


1.5. Safety Symbol

- | | | |
|---|---|---|
| A |  | Read through the Operating Manual thoroughly before operating the machine |
| B |  | Stop the tractor engine and take away the ignition key before any servicing and repair work |
| C |  | Keep safe distance off the machine |
| D |  | Never reach into the crushing area as long as the components can move |
| E |  | Stay away of the machine tilting area |
| F |  | Points of attaching hooks of the lifting equipment |
| G |  | Speed limit sign |

- | | | |
|---|---|--|
| H | <p>UWAGA
PROSIMY O REGULARNE SMAROWANIE PUNKTÓW SMARNYCH</p> <p>ATTENTION
PLEASE OIL REGULARLY LUBRICATION POINTS UNDER THE OPERATING MANUAL</p> <p>ACHTUNG
WIR BITTEN REGELMÄßIG DIE SCHMEIRSTELLEN LAUT BETRIEBSANLEITUNG ZU SCHMIEREN</p> | Lubricate the machine on regular basis |
|---|---|--|

- | | |
|---|--|
| I | <p>ACCORDING TO THE ROAD SAFETY REGULATIONS (REGULATION OF THE MINISTER OF INFRASTRUCTURE OF 31/12/2002 - DZ. U. NO. 32 OF 2002, ITEM 262), DRIVE ON HIGHWAYS ONLY AFTER HAVING OBTAINED AUTHORIZATION FROM THE COMPETENT HIGHWAYS ADMINISTRATION BODY WHERE THE JOURNEY BEGINS.</p> |
|---|--|

For the machines that exceed the allowable transport width 3.0m

- | | |
|---|---|
|  | <p>Safety signs and inscriptions should be protected against damage, dirt and overpainting. Replace any damaged or illegible signs and inscriptions with new ones that are available from the manufacturer or vendor of the machines.</p> |
|---|---|

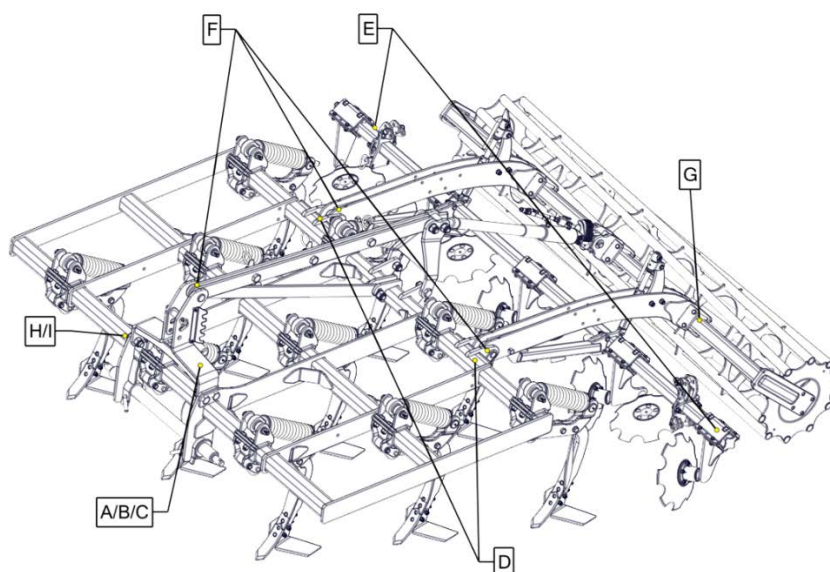


Fig 1: Location of the safety symbols - CROSS

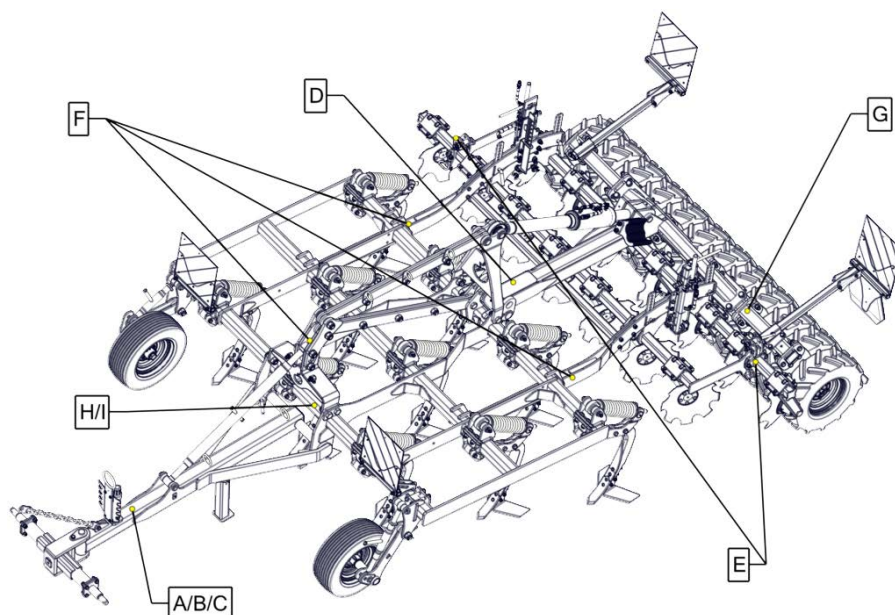




Fig 2: Location of the safety symbols - CROSS DRIVE

1.6. Nameplate

The unit data can be found on the nameplate, which is mounted on its front, on the left – CROSS (3.0m; 3.5m; 4.0m) CROSS DRIVE (3.0m; 3,5m; 4.0m).

	Sales Department Phone: +48 564510500 e-mail: info@uniamachines.com uniamachines.com		
	Producent / Producer UNIA Sp. z o.o. 86-300 Grudziądz, ul. Szosa Toruńska 32/38		
MODEL	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
TYP / TYPE			
ROK PROD. / YEAR			
NUMER / SERIAL NO.			
MADE IN EU			

2. Technical and Identification Data

CROSS cultivators are versatile units used for ploughless tillage, well-proven in the technology of simplified cultivation, and thanks to the tines with undercutters, also for skimming;

CROSS machines are delivered in the following versions:

- **CROSS** – mounted cultivator consisting of 3 rows of CX tines and harrows type A and cultivating roller, as required.

CROSS machines can also be supplied in the following version:

- **DRIVE** – semi-mounted or drawn cultivator consisting of 3 rows of CX tines and harrows type B or C and tyre-and-transport roller.

The machines are manufactured in the following widths:

- 3.0m; 3.5m; 4.0m – rigid version

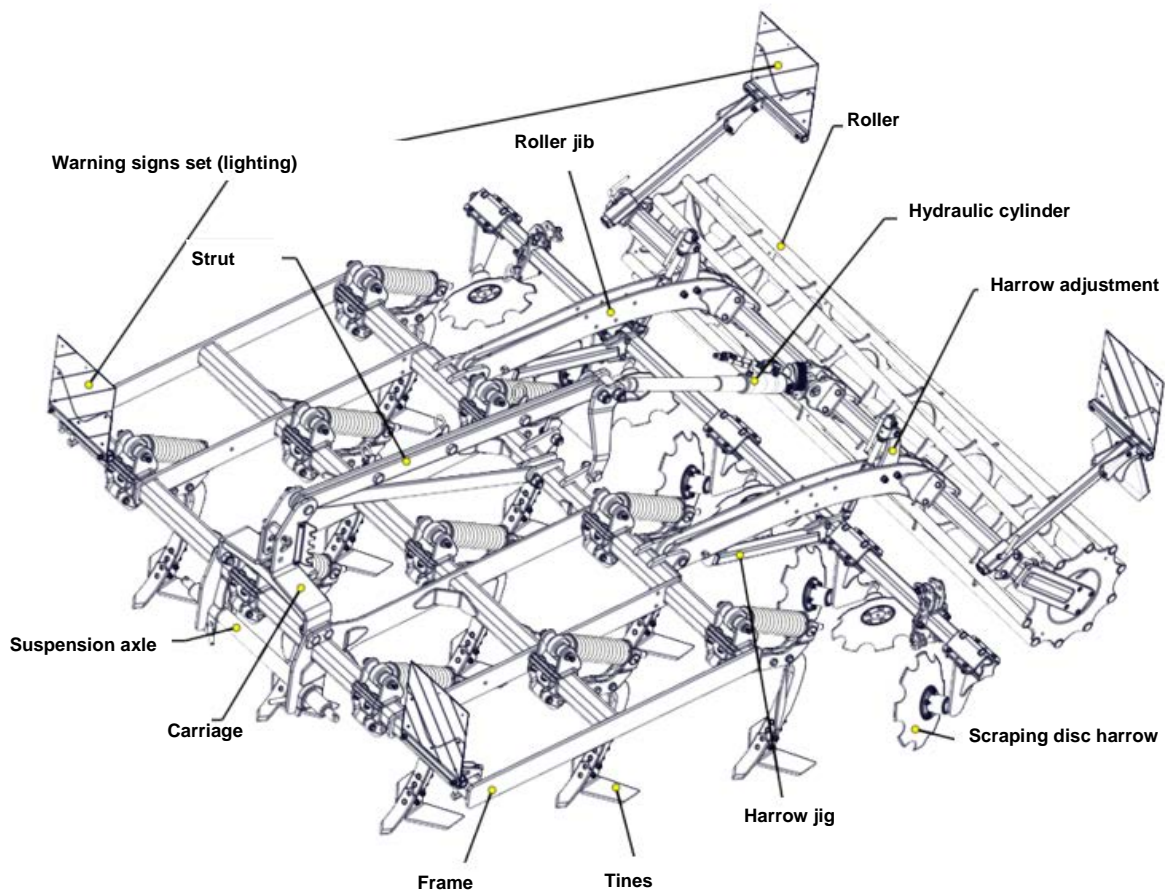


Fig 3: Construction of CROSS

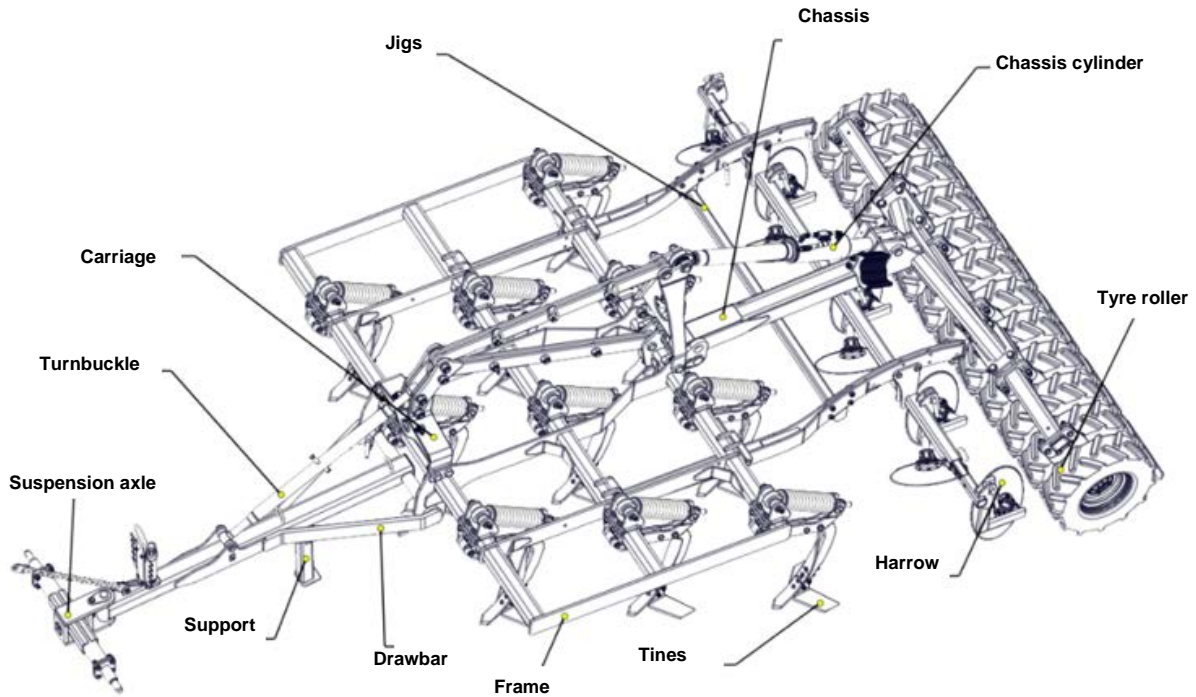


Fig 4: Construction of CROSS DRIVE

2.1. CROSS Specifications

Item	Parameters		U/m	Type of unit				
				3,0	3,0	3,5	4,0	4,0
1	Type of cultivator		-	Mounted				
2	Working width		m	3	3	3,5	4	4
3	Type of harrow		pc.	A ø460				
4	No. of CX tines		pc.	10	12	12	13	15
5	Tine spacing		cm	30	25	29	31	27
6	Max. working depth of tines		cm	30 (without undercutters)				
7	Max. working depth of discs		cm	8÷9				
8	Clearance under the frame		cm	85				
9	Spacing of tine rows		cm	80				
10	Working speed		km/h	10÷15				
11	Effective capacity		ha/h	3.0÷4.5	3.0÷4.5	3.5÷5.25	4.0÷6.0	4.0÷6.0
12	Power demand		HP	150÷180	150÷180	160÷190	170÷200	170÷200
13	Operators		No.	one				
14	Overall dimensions	L	cm	420	420	420	420	420
		W		374	374	424	474	474
		H		160	160	160	160	160
15	Transport width		m	3	3	3,5	4	4
16	Weight without accessories		kg	2110	2270	2470	2670	2850

3. Operating Manual

3.1. First Start

Before the first start of the machine:

- read the Operating Manual thoroughly
- check technical condition of the unit, and in particular, condition of its working parts, mechanisms protecting tines from overload and the hydraulic system. When finding any damaged or worn parts, replace them with new ones
- check tightening of all screws, bolts and nuts. Tighten any loose nuts especially at the beginning of operation of the machine
- check fitting of the quick-connectors of the hydraulic hoses of the machine to the sockets on the tractor
- check, whether the disc coulters, rollers and spindles (turnbuckles) can rotate without any jams
- check the pressure in tyres acc. to the manufacturer's recommendations
- check, whether the components requiring lubrication are lubricated
- check, whether the machine attachment system fits the tractor attachment system

3.2. Preparation of the Unit (Tractor + Machine)

- pressure in the tractor wheels must be equal on the same axle in order to provide uniform working depth of the machine
- the tractor lower links (c) must be stiffened (lock the oblong holes) and at the same height above the ground level
- set the lifting rods of the tractor links (w) so that you can pull down the lower links to the height equal 15 cm below the hitch axle in order to achieve the required working depth, while obtaining sufficient lifting height of the links for transport
- mount the front axle weights in order to keep balance of the tractor and the machine
- quick-connectors of the machine hydraulic hoses must fit the sockets on the tractor
- the hitch axle should be in the middle of the machine
- category of the lower articulated joint of the hitch axle must be the same on both the tractor and the machine sides!

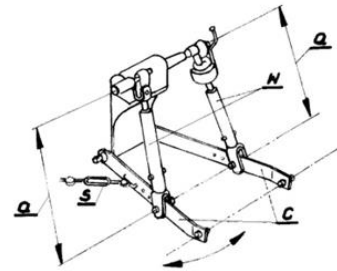


Fig. 5: Tractor lifting rod

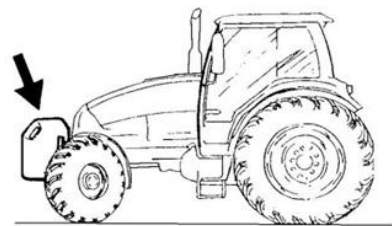


Fig. 6: Front axle weight

3.3. Mounting and Disconnection of machines

3.3.1. Mounted machines

The tractor should stand on a hard and plain surface in order to connect the machine to it in a correct and safe way.

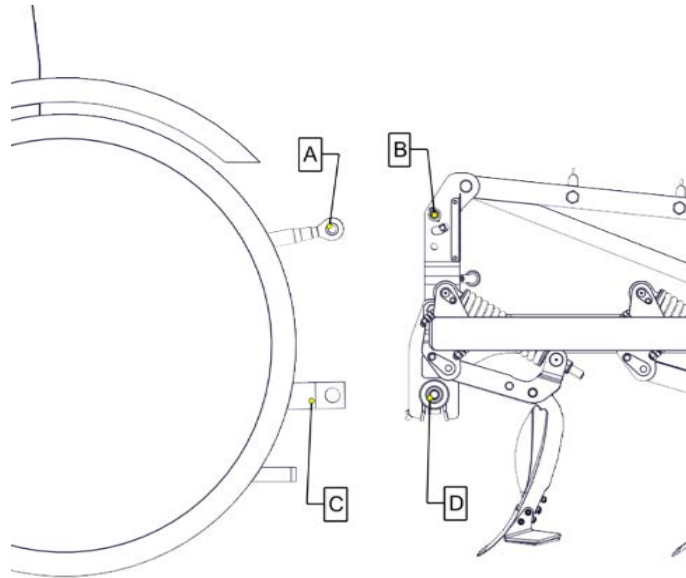


Fig. 7: Connecting of the mounted machine

a) Mounting

shift the tractor hydraulics to the position adjustment

- disconnect the suspension axle (D) from the cultivator and put it on the lower tractor tow bar (C)
- back the tractor to a distance that allows connection of the suspension axle (D) to the frame plates and the upper connector (A) of the tractor
- secure the suspension axle (D) in the frame plates with bolts and cotter pins
- connect the upper tractor connector (A). Select position of the upper bolt (B) in the carriage acc. to the requirements and terrain. During work of the cultivator, the upper fixing point should be located higher than the point of fixing this connector to the tractor

b) Disconnecting

- lower the cultivator onto a flat and hard surface
- disconnect the suspension axle and upper tractor connector

3.3.2. Semi-mounted machines

The tractor should stand on a hard and plain surface in order to connect the machine to it in a correct and safe way.

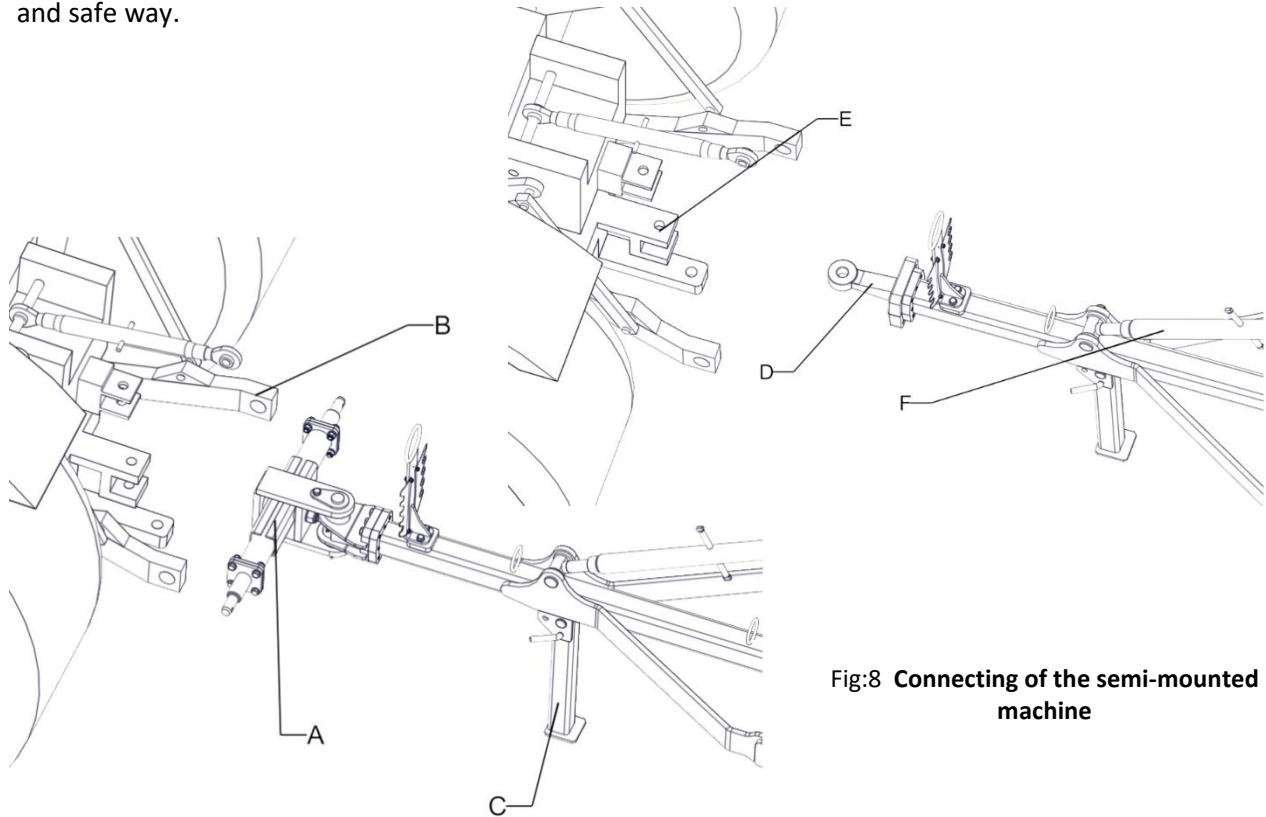


Fig:8 Connecting of the semi-mounted machine

a) Mounting

- shift the tractor hydraulics to the position control
- back the tractor to a distance that allows connection of the hitch axle [A] (tow hitch type [D]) to the tractor lower links (lift arms) (B) (with the tractor tow hitch type [E])
- secure the hitch axle [A] (tow hitch type [D]) in the tractor lower links (lift arms) [B] (with the tractor tow hitch type [E]) with bolts and cotter pins
- connect the machine hydraulic hoses to the tractor external hydraulic system and check the hoses for tightness. Check lifting, lowering and unfolding of the machine. Remember to connect all hoses to all tractor 2-way hydraulic connectors in pairs
- lift and secure the support [C]

b) Disconnection

- lower and secure the support [C]
- lower the machine onto a flat and hard surface
- depressurize the cultivator hydraulic system by shifting the tractor hydraulic levers to their free (floating) position
- disconnect the hydraulic hoses
- disconnect the hitch axle [A] (tow hitch type [D])

3.4. Access to the Field – Transport

3.4.1 Mounted machines

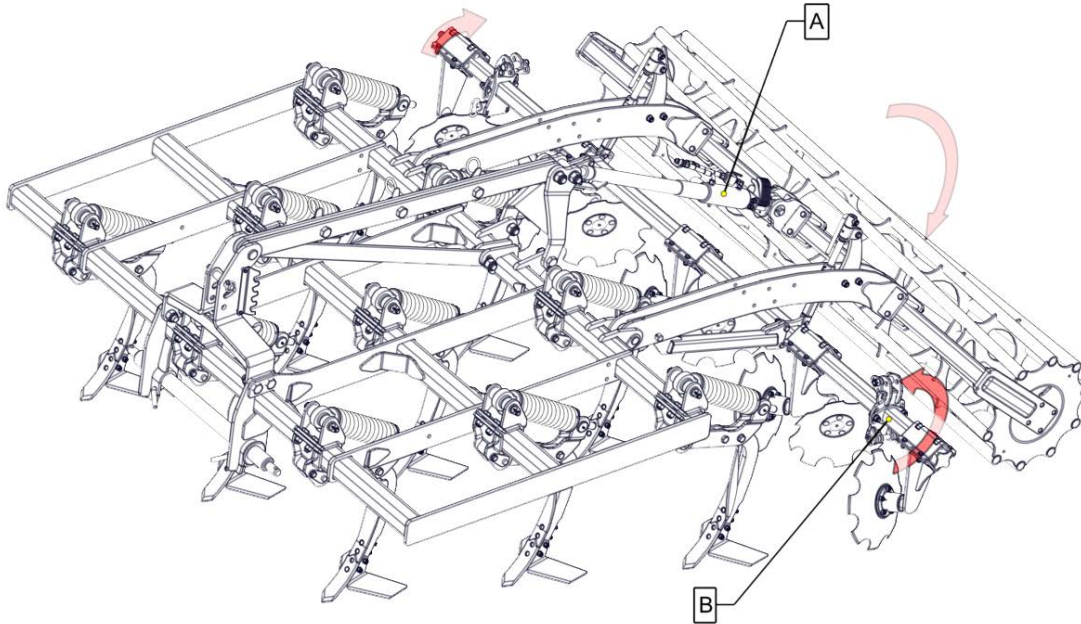


Fig. 9: Transport

- Width of the machine can exceed 3.0m depending on the accessories
- After finishing your work, clean the machine from soil and other dirt
- Extend the cylinder **[A]**, by applying pressure to it
- Fold the frame extensions **[B]** with the external discs. Remove the cotter pin and the bolt, rotate the extension arm of 180° on the hinge and secure it in the upper position with the bolt and the cotter pin
- Clean the warning components (lighting – optional accessory) from dirt
- A unit consisting of a tractor and agricultural machine connected to it must meet the same requirements as the tractor alone
- Adjust the chains tensioning the side tow bars (stabilizers) of the tractor accordingly before driving; they should limit the excessive side movements of the unit
- Observe the 'Road Traffic Law' regulations when driving on highways

3.4.2 Semi-mounted machines

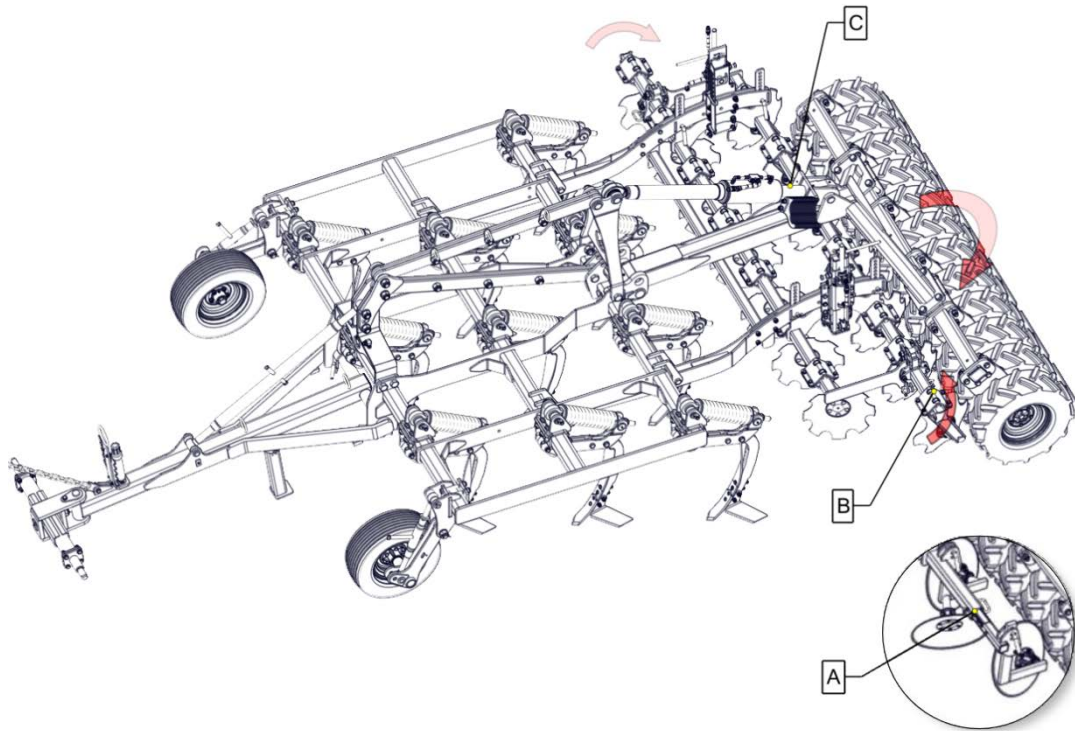


Fig. 10 **Transport A**

- After finishing your work, clean the machine from soil and other dirt
- Fold the frame extension arms **[B]** with the external discs. Remove the cotter pin and the bolt, rotate the extension arm of 180° on the hinge and secure it in the upper position with the bolt and the cotter pin
- Retract the frame extension arms **[A]** with the external discs. Remove the cotter pin and the bolt, move the extension arm and secure it in with the bolt and the cotter pin
- Clean the warning components (lighting – optional accessory) from dirt
- Lift the machine using the chassis cylinders **[C]** by extending it to its extreme position. Insert all stops on the cylinder and apply pressure to the cylinder in the opposite direction until the cylinder head rests on the stops
- A unit consisting of a tractor and agricultural machine connected to it must meet the same requirements as the tractor alone
- Adjust the chains tensioning the side tow bars (stabilizers) of the tractor accordingly before driving; they should limit the excessive side movements of the unit
- Observe the 'Road Traffic Law' regulations when driving on highways

3.5. Adjustment of the Cultivator

3.5.1. Working Depth Adjustment - Cross

Cross units are designed for operation up to 15 cm with undercutters and up to 30 cm without or with narrow coulters. Do not exceed these values.

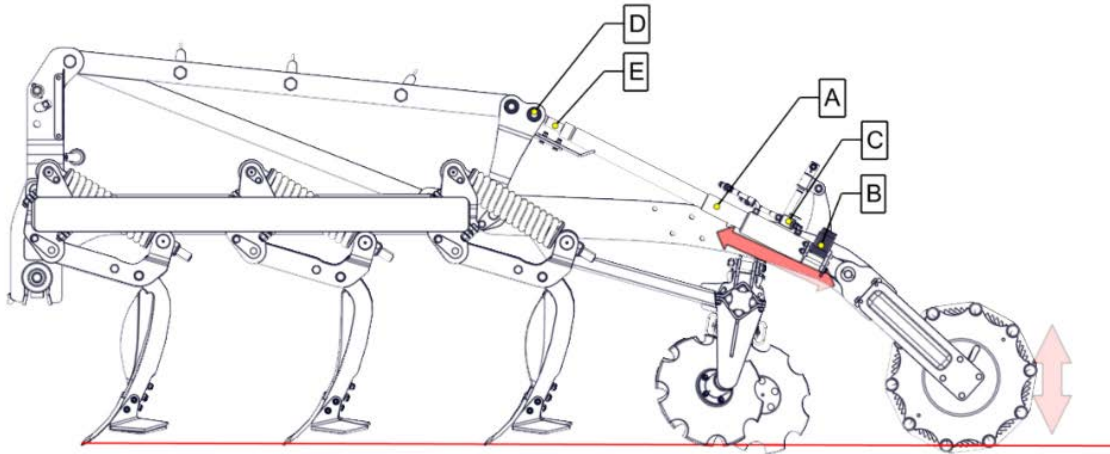


Fig. 11: Working depth adjustment

- Perform hydraulic adjustment by pressurizing the cylinder (A) from the tractor cab, which extends the cylinder. Then, put on the required number of stops (B) and pressurize the cylinder (A) again to slide it back to the stops (B). Through this, you can raise or lower the rear roller of the machine. Secure the cylinder (A) against dropping down with the lever (C).
- When adjusting the working depth with the cylinders, keep in mind the parallel position of the machine frame during operation. Lower the machine correctly on the tractor three-point linkage/hitch.
- If required, repeat the steps above several times to obtain the desired working depth.
- After setting the working depth, you can begin adjustment of the disc harrow.

If the adjustment range does not match the actual field conditions, you can change it by varying the cylinder length:

- Remove the nut and pull out the bolt [D]. Caution: the cylinder tip can be released freely, endangering your health, so support or suspend it
- Extend the cylinder to its extreme position [A] by applying pressure to it
- Screw the cylinder head in or out, aligning the hole in it with the hole in the carriage
- Secure the cylinder with the bolt and the nut

3.5.2. Adjustment of the Working Depth of the Disc Harrow Type A

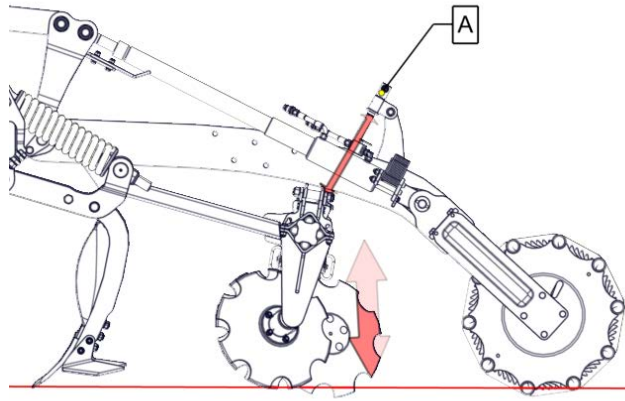


Fig. 12: Adjustment of the harrow type A

- Set the position of the harrow by turning the adjustment spindle handle accordingly: the longer the spindle, the deeper harrow operation.
- The harrow should never operate deeper than the tines.
- The harrow is used for levelling the field surface after the tine section passage.

3.5.3. Extreme Disc Adjustment in the Cross Harrow Type A

We do this in order to reduce the depth of the trace at the edge of the machine's working width (if any.)

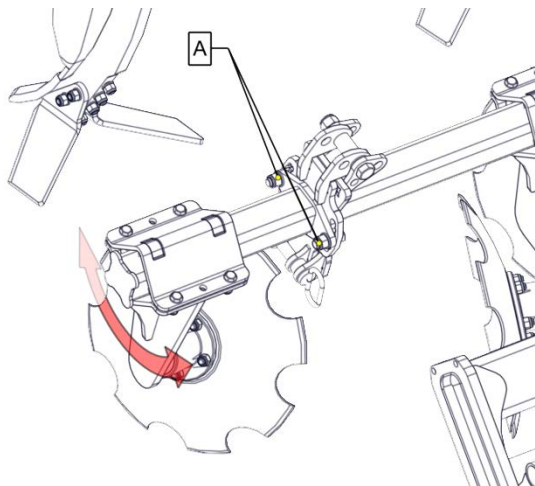


Fig. 13 Extreme disc

- Extend the extension arm together with the coulter to the Operation position
- Loosen the bolts **[A]**
- Rotate the arm with the coulter in order to set it to deeper or shallower operation (turning to the roller makes it operates shallower)
- Tighten the bolt **[A]**

3.5.4. Heavy-Duty Tine, Type CX

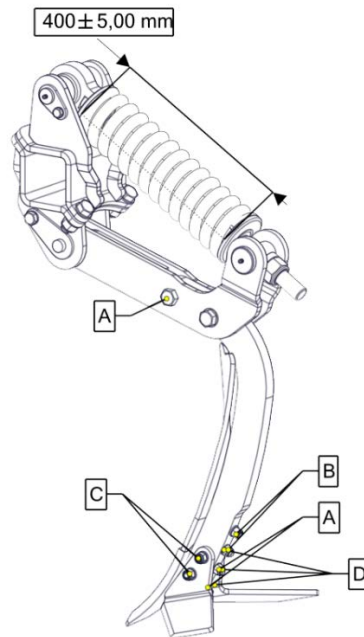


Fig. 14: Heavy-Duty Tine

- Tines of CROSS HP feature automatic protection against overload in the form of a compression spring.
- Overload protection is preset to 5500N of the trigger force on the coulter share point.

THIS SETTING MUST NOT BE CHANGED!

- Only trained personnel may disassembly the protection device.
- Any intervention in the mechanism may result in serious personal injury or even death.
- Check all screw connections around the tine and tighten any loose connections before each use.
- Measure the spring tension (compression) on a regular basis..
- A sheared bolt [A], which breaks after exceeding a limit value is an additional safety measure.

USE ONLY GENUINE PROTECTION DEVICES!

- Replace any working components as soon as the effects of the machine operation deteriorate.
- Remove the screws [D] to replace the undercutters.
- remove the screws [A] to replace the coulter.
- Remove the screws [B] to replace the mouldboard.
- Remove the screws [D] to replace the narrow coulter.
- You may need to use a drift in order to remove the screws from the slots after removing the nuts.
- Remove the undercutters before replacing the coulter.

USE ONLY GENUINE SPARE PARTS!

3.5.5. Working Depth Adjustment in the Cross Drive

Cross units are designed for operation up to 15 cm with undercutters and up to 30 cm without or with narrow coulters. Do not exceed these values.

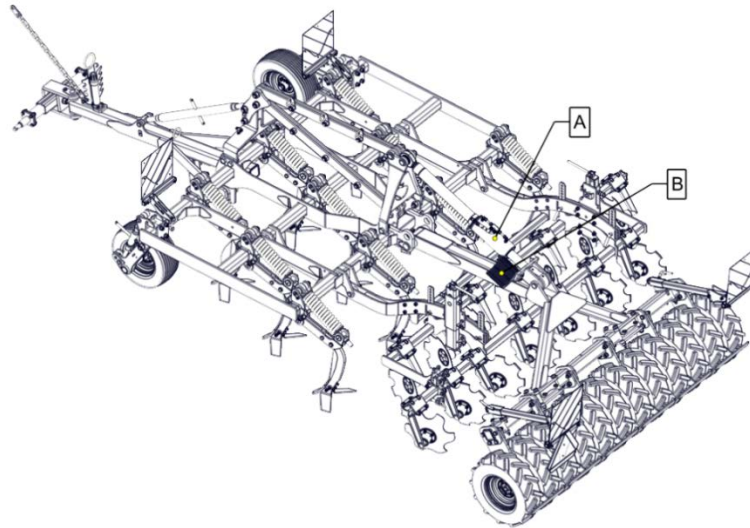


Fig. 15. Working depth

- Hydraulic adjustment consists of application of pressure from the tractor cab to the cylinder **[A]** causing it to extend. Put the appropriate number of stops **[B]** and apply pressure on the cylinder **[A]** again, causing it to slide to the stops **[B]**, so that you can raise or lower the rear roller of the machine. After initial setting of the roller actuators, adjust the drawbar turnbuckle (cylinder) accordingly
- Make sure to set the working depth on the cylinders, keeping in mind the parallel position of the frame during the machine operation
- Repeat these steps several times to obtain the desired working depth
- After adjusting the depth, proceed to adjust the scraping disc harrow

3.5.6. Working Depth Adjustment on the Drawbar in the Cross Drive

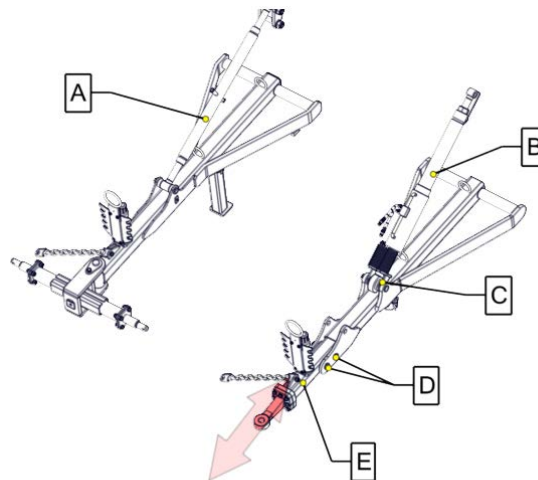


Fig. 16 Depth adjustment on the drawbar

After having set the depth of machine on the roller in the Cross DRIVE, set the appropriate depth on the drawbar. The determinant is the parallel position of the frame in relation to the ground during operation.

- Adjustment with the turnbuckle involves turning the turnbuckle **[A]** to the left or right so that you can raise or lower the front of the machine
- Hydraulic adjustment consists of application pressure from the tractor cab to the cylinder **[B]** causing it to extend. Put the appropriate number of stops **[C]** and apply pressure on the cylinder **[B]** again, causing it to slide to the stops **[C]**, so that you can raise or lower the machine

Optionally, the machine is provided with a pull-out drawbar that allow setting of 3 different lengths, i.e. 2.2m (factory setting), 2.7m and 3.2m accordingly. They are used for working with tractors with twin wheels mounted. Perform this adjustment on the machine lowered.

- Detach and remove the hydraulic hoses and electric cables from the front drawbar **[E]**
- Remove the nut and pull out the bolts **[D]**
- Pull the front part of the drawbar **[E]** to the next holes (you can repeat the step one more time)
 - **Caution:** Never pull the drawbar to the end since it can fall out of its guides, which can cause personal injuries
- Lock the drawbar in the new position by inserting the bolts and securing the nuts
- Replace the hydraulic hoses and electric cables



3.5.7. Working Depth Adjustment on the Support Wheel in the Cross DRIVE (Option)

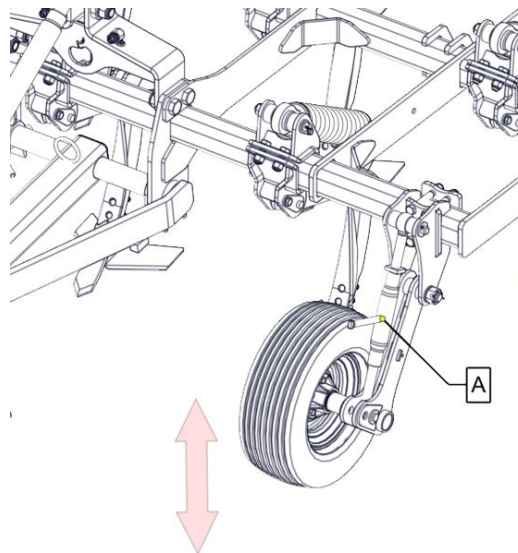


Fig. 17: Working depth adjustment on the support wheel

- Adjustment with the turnbuckle involves turning the turnbuckle **[A]** to the left or right so that you can raise or lower the support wheel

3.5.8. Adjustment of Scraping Disc Harrow Type A in the Cross DRIVE

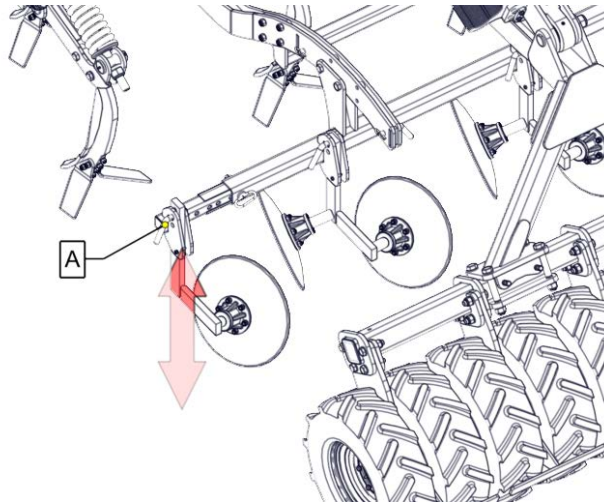


Fig. 18 Working depth of harrow type A

Adjust the harrow position by changing the position of each coulter separately.

- Release the bolt [A] and pull it out. At the same time, hold the coulter, which can spontaneously fall down
- Move the coulter in the desired direction and align the holes in the coulter with the holes in the holder
- Secure the coulter with the bolt and the cotter pin
- The harrow may never operate below the level of operation of the tines
- The harrow is used to level the field area after the tine section pass

3.5.9. Adjustment of Scraping Disc Harrow Type B in the Cross DRIVE

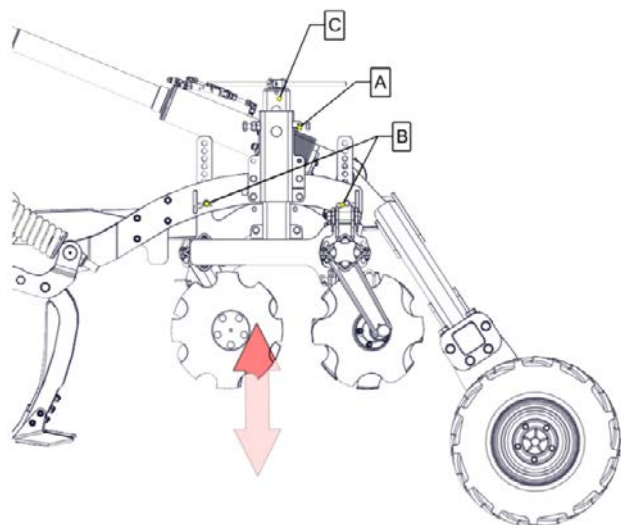


Fig. 19 Working depth of harrow type B

Perform adjustment by shifting the position of the harrow frame evenly, using two adjustment mechanisms. You can make large depth adjustments in several small passes on both mechanisms alternately; otherwise you will lock the mechanism.

- Loosen the locknut and the bolts **[A]** on both mechanisms
- Pull out the locking bolts **[B]**, 4 ea
- While turning the mechanism handle **[C]**, change the position of the harrow in the desired direction. Remember to shift the mechanisms alternately
- Align the holes in the harrow frame with the holes in the jibs
- Insert the securing bolts **[B]**, 4 ea
- Lock the mechanisms with the bolts and the locknuts **[A]**
- The harrow may never operate below the level of operation of the tines
- The harrow is used to level the field area after the tine section pass

3.5.10. Adjustment of Extreme Disc Type B in the Cross DRIVE

We do this in order to reduce the depth of the trace at the edge of the machine's working width (if any.)

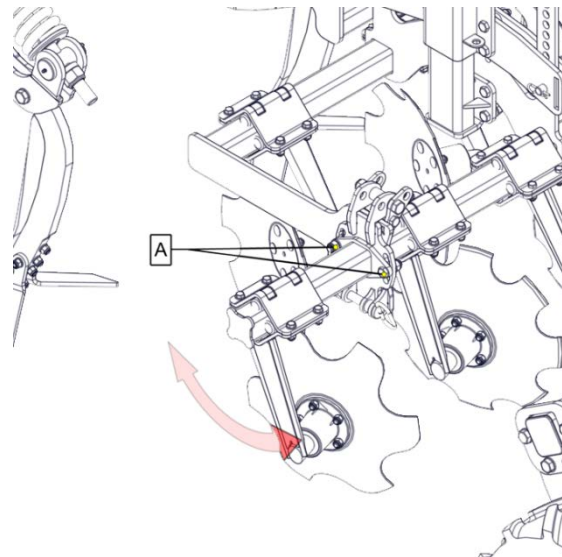


Fig. 20 Harrow type B, extreme disc

- Extend the extension arm together with the coulter to the Operation position
- Loosen the bolts **[A]**
- Rotate the arm with the coulter in order to set it to deeper or shallower operation (turning to the roller makes it operates shallower)
- Tighten the bolt **[A]**

4. Operation (see par. II Safety)



Before beginning the field work with the machine:

- disassemble the warning signs (together with the screwed brackets) for transport on highways
- unfold the foldable units to the working position
- switch the hydraulic system to the position or mixed control mode

Adjust the cultivator during the first passage. When the unit is correctly levelled, its frame is parallel to the ground. When the cultivator becomes clogged with excessive amount of plant debris, clean it by lifting up on the tractor hydraulic lift for a while.

5. Servicing and Maintenance

5.1. General



- Always use the genuine spare parts since they are of the proper quality and fit the machine correctly. Besides, it is one of the warranty conditions.
- Always set the machine on a hard and equal surface, supported on its wheels and supports before beginning any work at it. Also, disconnect the machine from the tractor.

CAUTION! THE HYDRAULIC SYSTEM IS PRESSURIZED!

CAUTION! THE LIGHTING SYSTEM IS LIVE!

5.2. Replacement of the Machine Components



- Replace all working parts (wearing parts) in due time to protect the other, more expensive assemblies against wear.



- Contact the manufacturer's service department in order to replace any component of the hydraulic system and springing.

5.3. Hydraulic System

- Drain all oil remaining in the hydraulic system before first start and fill the system with oil recommended and used in the tractor connected to the machine.
- Check the hydraulic system and cylinders for leaks every day and remove any leakages as soon as possible.
- Take care of the cleanliness of the cylinders and especially their piston rods.
- Set the machine in the parking position, and depressurize the system before beginning any work at the hydraulic system.
- Only connect and disconnect the hoses to and from the tractor when the hydraulic system is depressurized.
- Replace the hydraulic hoses after five years of operation of the machine at the latest.

5.4. Lighting

- Check the correct connection of the 7-pin plug outputs before the first start.
- Check the lighting, plug, wiring and lamps every day.
- Check cleanliness of the reflector plates.

5.5. Bolt, screw and nut tightening torques (Nm)

Strength class of bolts					
size	pitch P	6.8	8.8	10.9	12.9
1.	2.	3.	4.	5.	6.
M4	0.7	2.4	3.2	4.5	5.2
M5	0.8	4.5	6	8.4	10
M6	1	8	11	15	17
M8	1.25	18	27	34	40
	1	16	21	30	35
M10	1.5	35	46	65	76
	1.25	31	41	57	67
	1	27	36	50	59
M12	1.75	59	79	111	129
	1.25	49	65	91	107
M14	2	92	124	174	203
	1.5	76	104	143	167
M16	2	127	170	237	277
	1.5	104	139	196	228
M18	2	194	258	363	422
	1.5	135	180	254	296
M20	2.5	250	332	469	546
	1.5	172	229	322	375
M22	2.5	307	415	584	682
	1.5	212	282	397	463
M24	3	432	576	809	942
	2	322	430	603	706
M27	3	640	740	1050	1250
	2	480	552	783	933
M30	3,5	755	1000	1450	1700
	2	560	745	1080	1270
M36	4	980	1290	1790	2020
	2	730	960	1340	1500

5.6 Lubrication

- Use mineral oils for lubrication. Clean the lubrication points before lubricant injection. Lubricate at the marked points. If the machine worked less number of hectares, please lubricate it before starting work and after its completion, and at all lubrication points

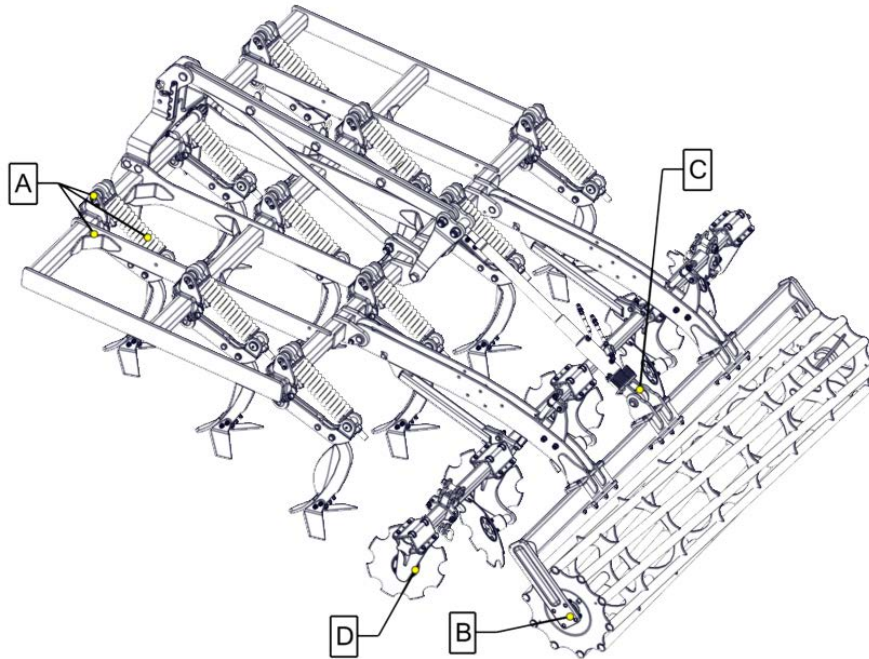


Fig.:21 Lubrication points in CROSS

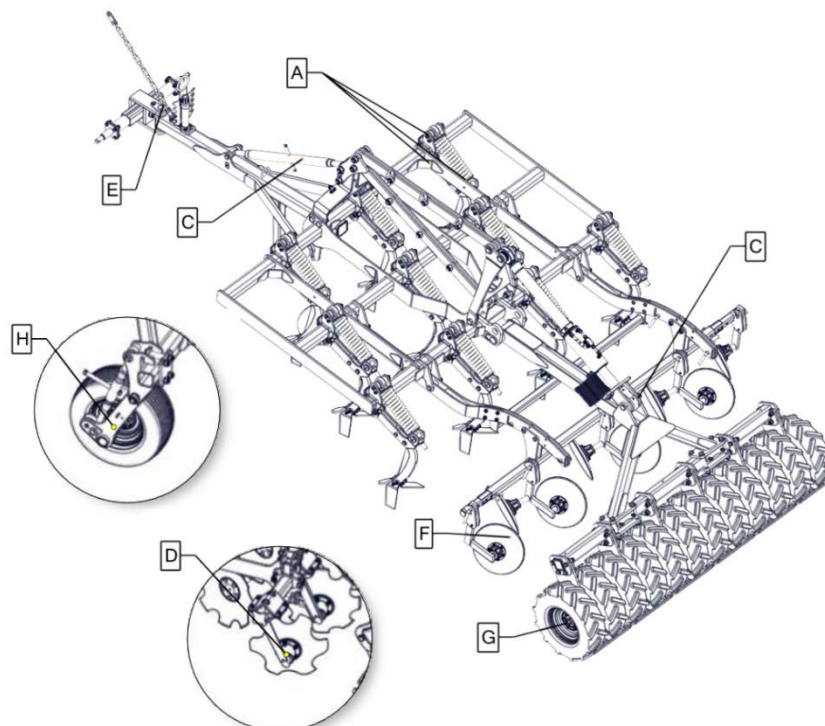


Fig.:22 Lubrication points in CROSS DRIVE

Item	Designation	Specification	Lubricant grade	Lubrication interval (h)
1	A	Tine sleeves, 3 points	ŁT-4S-3 grease	20
2	B	Roller bearings	-II-	20
3	C	Cylinder heads	-II-	200
4	D	Maintenance-free coulter hubs	-II-	200
5	E	Suspension axle joints	-II-	100
6	F	Regular coulter hub	-II-	20
7	G	One roller segment hubs	-II-	200
8	H	Support wheel hub	-II-	200

If the machine operation life is shorter than specified for it, lubricate the machine once a year.

5.7. Storage of the Cultivator

Clean the machine from soil each time after finishing work and then inspect all parts and assemblies. Replace any worn or damaged parts with new ones. Tighten any loosen screw connections. Store the machine on hardened surfaces.

After the season:

- clean the cultivator thoroughly
- lubricate the machine at the specified lubrication points
- wash faces of the coulter discs, rollers and hitch axle pivots with kerosene and protect them against corrosion applying grease with brush
- repair spot defects of the paintwork by repainting
- when the machine is to be stored outdoors in winter – disassembly the hydraulic cylinder together with the hoses and keep them in a dry, well ventilated and possibly darkened room

5.8. Disassembly and Disposal

- After its working life, the cultivator is to be scrapped. Disassembly should be performed by a specialized company.

5.9 Warranty Conditions and Warranty Services



Agricultural machinery is warranted to the provisions specified in the Instruction Manual for proper operation and maintenance. Under the warranty period, only the genuine parts made by 'UNIA' Grudziądz may be used.

Any modifications or repairs made by the user are not allowed in the warranty period. This may lead to loss of warranty. For more detailed information on how to file a complaint, see the Warranty Card attached to each machine together with its Operating Manual.

The warranty services are performed by: the supplier (dealer) entered to the Warranty Card when buying the machine.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

This image shows a full page of white paper with horizontal dashed lines, typical of primary-ruled notebook paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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UNIA Sp. z o.o.

st. Szosa Torunska 32/38, 86-300 Grudziadz

QUESTIONNAIRE

Please read the entire questionnaire and write a short answer:

1. Machine serial number
received on.....
2. Have any deficiencies or damages occurred during the transport? If so, please specify what :
.....
.....
3. When did you start work with the machine.....
4. How many [ha] have you worked with the machin.....
5. Tractor power (HP).....
6. Which damages occurred.....
.....
.....
7. What is your general opinion about machine's work
.....
.....
8. What difficulties occur during the operation of the machine
.....
.....
.....
9. Your comments regarding changes, improvements of construction and machine operation
.....
.....
.....
.....
10. Your remarks concerning this manual.....
.....
.....
.....

User address :

Name & surname

Place

Postal code

Province

Date

Signature



UNIA Sp. z o.o.

Szosa Toruńska 32/38

86 – 300 GRUDZIĄDZ

tel. + 48 56 451 05 00

fax. + 48 56 451 05 01

Service tel. + 48 56 451 05 26

uniamachines.com