

OPERATING AND MAINTENANCE MANUAL

DISC CULTIVATOR

ARES HP



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

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: disc cultivator

ARES HP

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This CE Declaration of Conformity is no longer valid if the machine has been modified or reconstructed without the manufacturer's consent.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

øtrowski

Grudziądz, 05.12.2017



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ARES HP

MAINTENANCE AND OPERATING MANUAL

Machine identification data:

Туре	
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.



OPERATING AND MAINTENANCE MANUAL ARES HP

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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



Read through the Operating Manual thoroughly before operating the machine

В



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

Ε



Stay away of the machine tilting area



Points of attaching hooks of the lifting equipment

Speed limit sign

ROSIMY O REGULARNE SMAROWANIE PUNKTÓW

Н

ATTENTION
PLEASE OIL REGULARLY LUBRICATION POINTS
UNDER THE OPERATING MANUAL

ACHTUNG WIR BITTEN REGELMABIG DIE SCHMEIRSTELLEN LAUT BEDIENUNGSANLEITUNG ZU SCHMIEREN

Lubricate the machine on regular basis



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.



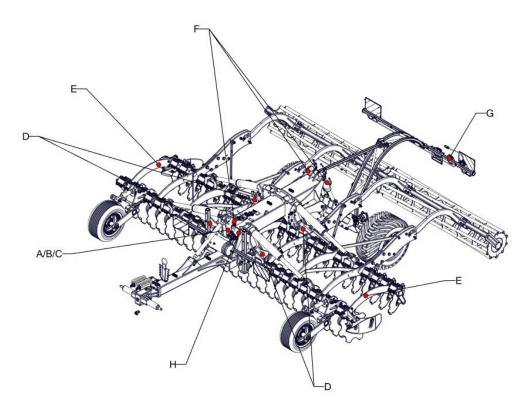


Fig 1: Location of the safety symbols

1.6. Nameplate

The unit data can be found on the nameplate





2. Technical and Identification Data

ARES HP – disc cultivators;

- based on the two rows of ø 660 toothed discs and tillage roller, as required
- ability to connect ETA pneumatic broadcast seeder through a special base plate
- mechanical of hydraulic adjustment of working depth

The machines are manufactured in the following widths:

5.0 m; 6.0 m 8.0 m – version hydraulically foldable for transport.

These compact units for pre-sowing and stubble tillage allow for the treatment of large areas with a low tractor power.

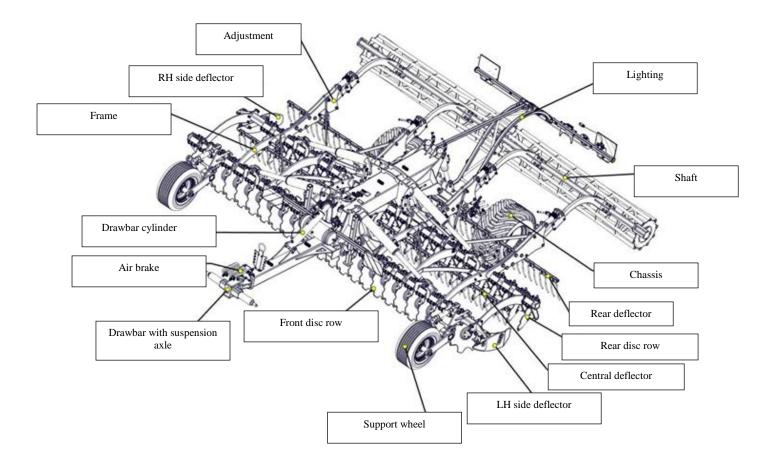


Fig 2: Construction of ARES HP(5H; 6H, 8H)



2.1. ARES HP specifications

ltom	Parameters		U/m	Type of unit			
ltem			U/III	5,0	6,0	8,0	
1	Type of cultivator		-	Semi-mounted / drawn			
2	Working width		m	5,0	6,0	8,0	
3	Type of harrow		pc.	40	48	64	
4	Max working dep	th XXL,TX,TWIX	cm	15	15		
5	Coulter disc dia.	XXL,TX	cm	66			
	Courter disc dia.	TWIX	cm	61/66			
6	Inter-disc pitch		cm	25	25		
7	Working speed		km/h	10-15			
8	Effective capacity		ha/h	5,0-7,5	6,0-9,0	8,0-12,0	
9 Power demand				116-191	191-205	220-265	
9	Power demand		KM	240-260	260-280	300-360	
10	Operators		people	tractor driver			
	Overall	L		749	749	749	
11	dimensions	W	cm	555	655	855	
	without	Н		168	168	168	
	accessories	П		100		100	
12	Transport width		m	3,0	3,0	3,0/3,7(wide axle)	
	Weight with tu	Weight with tube XXL		6540	7230	8820	
14	roller and with	roller and without TX		7060	7840		
	accessories TWIX			7330	8100		



3. Operating Manual

3.1. First Start

Before the first start of the machine:

- read the Operating Manual thoroughly
- check technical condition of the machine, and in particular, condition of its working parts, protecting mechanisms 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
- empty the hydraulic system and refill it with oil identical to oil contained in the tractor the machine will be connected to

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 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
- the tractor front axle must always be loaded with min 20 % of the tractor net weight
- do not exceed the max allowable axle loads of the tractor individual axles
- 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

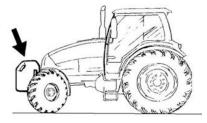


Fig. 3: Tractor lifting rod

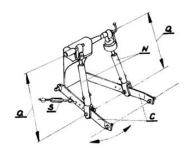


Fig. 4: Front axle weight



3.3. Connection and Disconnection

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

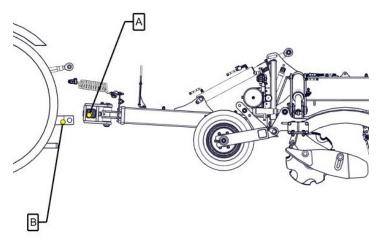


Fig. 5: Connecting the semi-mounted machine

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)

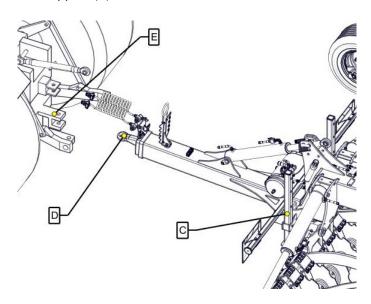


Fig. 6: Connecting the drawn machine to the tractor drawbar (hitch)



Disconnection

- unfold the machine
- 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 and hitch axle (A) (tow hitch type [D])

3.4. Transport on highways

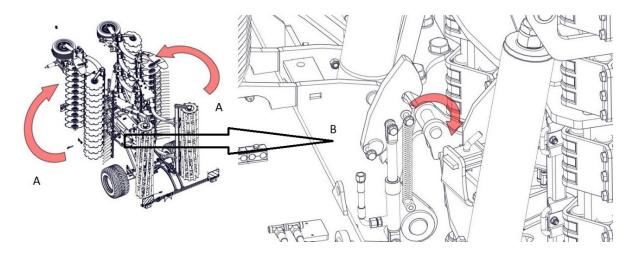


Fig. 7: Transport

- to transport the machine, fold the side sections (A) of the hydraulically foldable machines and secure the outermost frames against unfolding using the hydraulic catch pawls (B)
- the unit consisting of a tractor and agricultural machine connected to it must meet the same requirements as the tractor alone
- driving the unit (i.e. tractor and cultivator) on highways without proper 'C' marking is not allowed
- adjust the chains tensioning the tractor side links (stabilizer arms) accordingly before driving; they should limit the excessive side movements of the cultivator.



3.5. Adjustment of the Cultivator

3.5.1. Working Depth Adjustment

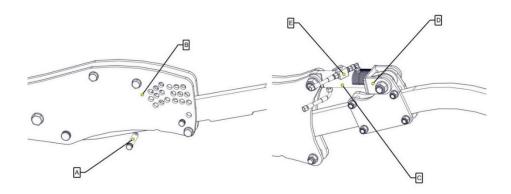


Fig. 8: Working depth adjustment

- a mechanical adjustment
- b hydraulic adjustment
- Adjustment by means of bolts consists of blocking the upper jib position. We achieve this by
 placing the bolt A in a corresponding hole in the plate B while lowering or lifting the machine
 on its chassis.
- Perform hydraulic adjustment by pressurizing the cylinder (C) from the tractor cab, which extends the cylinder. Then, put on the required number of stops (D) and pressurize the cylinder (C) again to slide it back to the stops (D). Through this, you can raise or lower the rear roller of the machine. Secure the cylinder (C) against dropping down with the lever (E).

3.5.2. Adjustment of the Central and Rear Deflectors

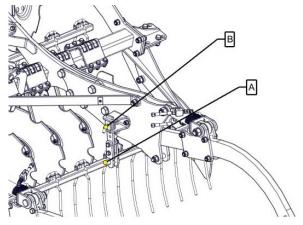


Fig. 9: Adjustment of the deflector

Tines A can be adjusted in one direction.

For vertical direction: remove the cotter pin (B) and lift up or lower the row of tines (A), locking it in the selected holes with the cotter pin (B.)



3.5.3. Adjustment of the External Disc

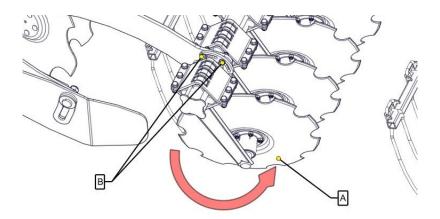


Fig. 10: Adjustment of the external disc

Adjustment of the external disc (A) consists of removing the bolts (B) and lifting up or lowering the disc together with the beam, by rotating the assembly and locking it again in the selected holes with the bolts (B.)

3.5.4. Adjustment of the Folding Hydraulic System

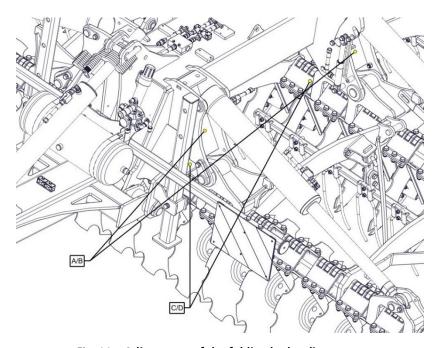


Fig. 11: Adjustment of the folding hydraulic system

- Adjustment bolts (stops) are designed for alignment of extreme positions of the side frames, both vertical and horizontal. Vertical adjustment is made for the proper operation of the transport lock pawls. To do this, release the nut (B) and screw the bolt (A) in or out and lock the nut (B) afterwards.
- Horizontal adjustment is for levelling and alignment of the frames (which is required for the proper operation of the machine.) To do this, release the nut (B) and screw the bolt (A) in or out and lock the nut (B) afterwards.



3.5.5. Adjustment of the Working Depth on the Support Wheel

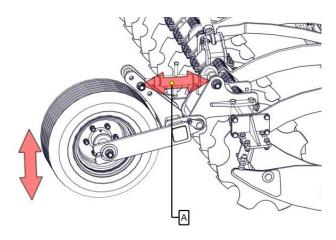


Fig.:12 Wheel depth adjustment

Adjust by rotating the spindle A anticlockwise or clockwise to lift or lower the support wheel, accordingly.

3.5.6. Adjustment of the Side Deflectors

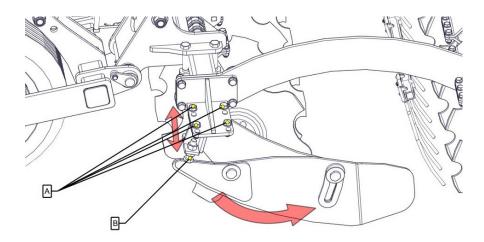


Fig. 13: Adjustment of the side deflectors

Side deflectors can be adjusted in two directions:

- Setting the clearance allows adjustment clearance between the deflector and the disc. Remove the bolts (A) and shift the holder; tighten the bolts (A.)
- Vertical setting allows adjustment the distance between the soil and the guard. Screw the bolt (B) in or out accordingly.



3.5.7. Adjustment of Brakes

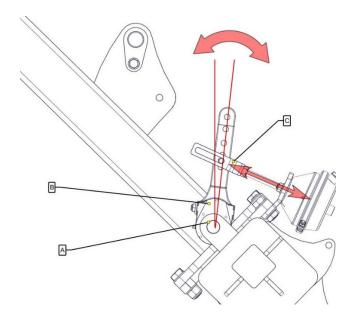


Fig.:14 Adjustment of brakes

- Inspect and adjust the air brake twice a year, before beginning the field work (i.e. using the machine) or after the machine operator states any drop in the braking force.
- Adjustment of the braking force consists of decreasing the idle stroke of the cylinder. Begin from depressurizing the braking system, and then disconnect the lever (B) from the yoke (C) and unscrew the yoke (B) towards the lever (C). Reconnect the system.
- If the further adjustment of the yoke (C) is impossible, replace the position of the lever (B) on the splined connection of the brake expander (A). You can do this step only once if the braking force continue to drop, begin adjustment from verification condition of the brake linings.

CAUTION! THE SYSTEM IS PRESSURIZED!

- Depressurize the system before beginning any work on it.
- Daily maintenance consists of checking the system for leaks and visual inspection of air lines.

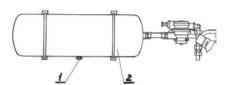


Fig. 17: Dewatering of the system

- Replace any damaged components with new ones immediately.
- Dewater the air system at least twice a year and in particular before the winter. In order to do this, remove the plug (1) in the bottom part of the air tank (2). Replace the plug and check the system for leaks after dewatering.
- Clean the line filter as required, however not less frequently than once a year.
- Add an antifreeze agent for the safe operation of valves in the compressed air system. Follow the tractor manufacturer's recommendations.
- Release brakes and depressurize the system and drain the water from the tank before the winter storage.



3.6. 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 (4H; 5H & 6H) to the working position after disconnection of the locking rod
- 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.

4. Servicing and Maintenance

4.1. 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.
- Set the machine on a hard and equal surface, in the unfolded position and supported on its wheels and front supports before beginning any work at it. Also, disconnect the machine from the tractor (i.e. all hoses and hitch.)

CAUTION! THE HYDRAULIC SYSTEM IS PRESSURIZED!

CAUTION! THE LIGHTING SYSTEM IS LIVE!

CAUTION! THE BRAKING SYSTEM IS PRESSURIZED!

4.2. 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.



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

Fastener class					
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
	1,5	35	46	65	76
M10	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

4.4. 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.
- Unfold the machine and set it 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.



4.5. 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.

4.6 Lubrication

• Use mineral oils for lubrication. Clean the lubrication points before lubricant injection. Lubricate at the marked points.

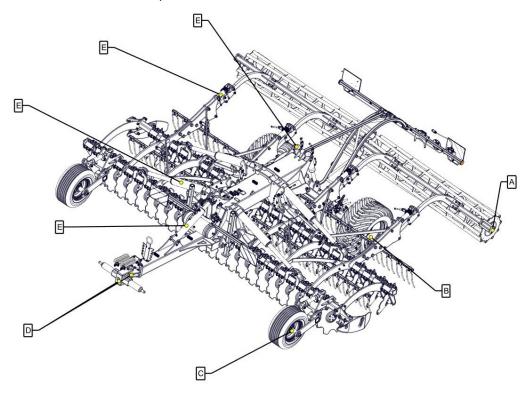


Fig.:16 Lubrication points in ARES HP

Lubrication point

Item	Designation	Specification	Lubricant grade	Lubrication interval (h)
1	Α	Roller bearings	ŁT-4S-3 grease	20
2	В	Chassis wheel hub	-11-	200
3	С	Support wheel hub	-11-	100
4	D	Axle pins	-11-	50
5	E	Cylinders	-11-	200

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



4.7. 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 lubrication points specified in Table 3
- 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

4.8. Disassembly and Disposal

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

4.9 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.



COMMENTS AND NOTE		



COMMENTS AND NOTE



COMMENTS AND NOTE		



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 deficienci	es or damages occurred	d during the transport? If so, please specify what :
_			
3.			1
4.		-	machin
5.			
6.	=		
7.			ne's work
,.	vviide is your genere	ar opinion about macini	10 S WOTK
8.			n of the machine
9.	Your comments reg	arding changes, improv	vements of construction and machine operation
10.	Your remarks conce	erning this manual	
	User address :	Name & surname	
	oser address.		
		Place	
		Postal code	
		Province	
	Date		Signature





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