

Instruction Manual



AF

Mounted Disc Plough

AFL

Mounted Disc Plough - Light

 **BALDAN**

■ Presentation

We appreciate the preference and would like to congratulate you for the excellent choice you just made, since you have acquired a product manufactured with **BALDAN**

IMPLEMENTOS AGRÍCOLAS S/A technology.

This manual will guide you through the procedures required since its acquisition until operational procedures of usage, safety and maintenance.

BALDAN assures that it has delivered this implement for resale in full and in perfect conditions.

Resale was responsible for the custody and maintenance during the period in its possession, and also for the assembly, retightening, lubrication and overhaul.

During the technical delivery, dealer should guide the user regarding maintenance, safety, their obligations in eventual technical assistance, strict compliance with the warranty term and reading the instructions manual.

Any technical assistance request while in warranty should be made to the dealer from whom you have purchased it.

We reiterate the need for a careful read of the warranty certificate and compliance of all items from this manual, because by doing so you will increase the life of your device.



Instruction Manual



AF

Mounted Disc Plough

AFL

Mounted Disc Plough - Light

BALDAN IMPLEMENTOS AGRÍCOLAS S/A.
CNPJ: 52.311.347/0009-06
Insc. Est.: 441.016.953.110



Scan the QR Code on the identification plate of your device and access this Instruction Manual online.

 **BALDAN**

▪ Index

BALDAN WARRANTY	07
GENERAL INFORMATION	08
<i>To the owner</i>	<i>08</i>
SAFETY RULES.....	09
<i>To the operator.....</i>	<i>09-12</i>
WARNINGS	13-14
COMPONENTS.....	15
<i>AF - Mounted Disc Plough</i>	<i>15</i>
<i>AFL - Mounted Disc Plough - Light.....</i>	<i>16</i>
SPECIFICATIONS	17
<i>AF - Mounted Disc Plough</i>	<i>17</i>
<i>AFL - Mounted Disc Plough - Light.....</i>	<i>18</i>
MOUNTING	19
<i>Game of keys.....</i>	<i>19</i>
<i>Mounting the pipe support - AF/AFL</i>	<i>20</i>
<i>Mounting the discs - AF/AFL</i>	<i>21</i>
<i>Mounting of the cleaners - AF/AFL</i>	<i>22</i>
<i>Mounting the guide wheel - AF/AFL</i>	<i>23</i>
<i>Mounting the support bracket - AF/AFL</i>	<i>24</i>
<i>Mounting of depth wheel (Optional) - AF/AFL</i>	<i>25</i>
COUPLING.....	26
<i>Coupling of the Plow.....</i>	<i>26</i>
SETTING	27
<i>Centralization - AF/AFL</i>	<i>27</i>
<i>Levelling - AF/AFL.....</i>	<i>28</i>
WORK/TRANSPORTATION.....	29
<i>Parking support - AF</i>	<i>29</i>
<i>Parking support - AFL.....</i>	<i>30</i>
ADJUSTMENTS	31
<i>Adjustments of 3rd Point - AF/AFL.....</i>	<i>31</i>
<i>Horizontal adjustments of discs - AF/AFL.....</i>	<i>32</i>
<i>Vertical adjustments of discs - AF/AFL.....</i>	<i>33</i>
<i>Adjustments of the direction - AF/AFL.....</i>	<i>34</i>
<i>Adjustments of guide wheel angle - AF/AFL</i>	<i>35</i>
<i>Adjustments of cleaners - AF/AFL</i>	<i>36</i>
<i>Adjustments of crank - AF</i>	<i>37</i>
<i>Adjustments of spring pressure - AF/AFL.....</i>	<i>38</i>
OPERATIONS.....	39
<i>Recommendations for operation</i>	<i>39</i>

<i>General recommendations</i>	39
<i>Plowing System - Part I</i>	40
<i>Plowing System - Part II</i>	41
CALCULATIONS	42
<i>Approximate hourly output</i>	42
MAINTENANCE	43
<i>Lubrication</i>	43
<i>Lubrication every 10 hours of work</i>	44
<i>Lubrication every 50 hours of work</i>	44
<i>Operational Maintenance</i>	45
<i>Precautions</i>	46
<i>General Cleaning</i>	46
<i>Plow conservation - Part I</i>	47
<i>Plow conservation - Part II</i>	47
<i>Plow conservation - Part III</i>	48
OPTIONAL	49
<i>Optional Accessories</i>	49
IDENTIFICATION	50
<i>Identification plate</i>	50
<i>Product identification</i>	51
NOTES	52-53
CERTIFICATE	54
<i>Certificate of warrant</i>	54-60

▪ **Baldan Warranty**

BALDAN IMPLEMENTOS AGRÍCOLAS S/A ensures the dealer normal performance of the implement for a period of six (6) months as of the delivery date on the retail invoice to the first final consumer.

During this period, **BALDAN** undertakes to repair defects in material and/or of manufacture of its liability, including labor, freight and other expenses of the dealer's liability.

In the warranty period, request and replacement of eventual defective parts shall be made to the dealer of the area, who will submit the faulty piece to **BALDAN** analysis.

When this procedure is not possible and the resolving capacity of the dealer is exhausted, the dealer will request the support of **BALDAN** Technical Assistance through a specific form distributed to dealers.

After analyzing the replaced items by **BALDAN** Technical Assistance, and concluding that it is not a warranty, then the dealer will be responsible for the costs related to the replacement; as well as material expenses, travel including accommodation and meals, accessories, lubricant used and other expenses arising from the call out to Technical Assistance, and **BALDAN** company is authorized to carry the respective invoice in the name of the resale.

Any repairment carried in the product within the dealer warranty deadline will only be authorized by **BALDAN** upon previous budget presentation describing parts and workforce to be executed.

The product is excluded from this term if it is repaired or modified by representatives not belonging to the **BALDAN** dealer network, as well as the application of non-genuine parts or components to the user's product.

This warranty is void where it is found that the defect or damage is caused by improper use of the product, failure to follow instructions or inexperience of the operator.

It is agreed that this warranty does not cover tires, polyethylene tanks, cardan, hydraulic components, etc., which are equipment guaranteed by their manufacturers.

Manufacturing and/or material defects, object of this warranty term, will not constitute, under any circumstances, grounds for termination of a purchase agreement, or for indemnification of any nature.

BALDAN reserves the right to change and/or perfect the technical characteristics of its products, without previous notice, and without obligation to proceed in the same way with the products previously manufactured.

▪ General Information

• To the owner

BALDAN IMPLEMENTOS AGRÍCOLAS S/A is not responsible for any damaged caused by accident due to usage, transportation, or in the improper or incorrect transportation of its implement, whether by negligence and/or inexperience of any person.

Only people with complete knowledge of the tractor and the implement should carry their transportation and operation.

BALDAN is not responsible for any damaged caused in unpredictable or unrelated situations to the normal use of the implement.

The incorrect handling of this equipment may result in severe or fatal accidents. Before running the equipment, carefully read the instructions contained in this manual. Make sure that the person responsible for the operation is instructed as the correct and safe handling. Also make sure that the operator has read and understood the instructions manual of the product.

ATTENTION

NR-31 - SAFETY AND HEALTH AT WORK IN AGRICULTURE, LIVESTOCK FARMING, FORESTRY, FOREST EXPLORATION AND AQUACULTURE.

This Regulatory Standard has the purpose of establishing precepts to be observed in the organization and work environment, compatible to the planning and development of agriculture, livestock, forestry, forest exploitation and aquaculture with safety and health and work environment.

MR. OWNER OR OPERATOR OF THE EQUIPMENT.
Read and carefully comply with provisions of NR-31.

For more information, refer to the site and read NR-31 in full.
<http://portal.mte.gov.br/legislacao/normas-regulamentadoras-1.htm>

▪ Safety rules

- To the operator



THIS SYMBOL INDICATES IMPORTANT SAFETY WARNING. IN THIS MANUAL, WHENEVER YOU FIND IT, READ THE FOLLOWING MESSAGE CAREFULLY AND PAY ATTENTION TO THE POSSIBILITY OF PERSONAL ACCIDENTS.

 **ATTENTION**

Carefully read the instructions manual to learn about the recommended safety practices.

 **ATTENTION**

Only start to operate the tractor when you are properly seated and with the seat belt locked.

 **ATTENTION**

Do not transport people on the tractor or over the equipment.

 **ATTENTION**

There are risks of severe injuries due to tipping when working in sloped terrains. Do not over speed.

 **ATTENTION**

Do not work with the tractor if the front has insufficient ballast to the rear equipment. Should there be a trend to lift, add weights or ballasts to the front or the front wheels.

 **ATTENTION**

Before performing any maintenance in your equipment, make sure it is properly stopped. Avoid being run over.

▪ Safety rules

 **ATTENTION** | DO NOT PERFORM ADJUSTMENTS WHILE AF/AFL IS RUNNING. WHEN PERFORMING ANY SERVICE ON AF/AFL, SWITCH OFF THE TRACTOR FIRST. USE APPROPRIATE TOOLS.

ATTENTION



Do not perform adjustments while AF/AFL is running. When performing any service on AF/AFL, switch off the tractor first. Use appropriate tools.

ATTENTION



Always maintain places of access and work free of residues such as oil or grease to prevent accidents.

ATTENTION



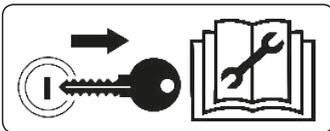
Before beginning the work or transportation of AF/AFL, check if there are people or blockages close to it.

ATTENTION



Careful when handling AF/AFL support since there is risk of accidents.

ATTENTION



Remove the ignition key before performing any type of maintenance in AF/AFL. Protect yourself against possible injuries or death caused by AF/AFL unexpected start-up. Do not start up the tractor if AF/AFL is not properly coupled.

ATTENTION



Hydraulic oil works under pressure and may cause serious injuries if there are any leakages. Periodically check the conservation status of the hoses. If there are any sign of leakage, replace them immediately. Before connecting or disconnecting the hydraulic hoses, relief the system pressure by activating the control with the tractor power switched off.

▪ Safety rules**ATTENTION**

ALCOHOLIC BEVERAGE OR SOME MEDICATIONS MAY CAUSE LOSS OF REFLEXES AND CHANGE THE OPERATOR'S PHYSICAL CONDITIONS. FOR THIS REASON, NEVER OPERATE THIS EQUIPMENT UNDER ANY OF THESE SUBSTANCES.

**ATTENTION**

Dispose residues inappropriately affects the environment and the ecology since you will

be polluting rivers, canals or the soil. Inform yourself about the proper way of recycling or disposing residues.

PROTECT THE ENVIRONMENT!

▪ Safety rules

• PPE Equipment

ATTENTION

DO NOT WORK WITH AF/AFL WITHOUT FIRST WEARING PPES (SAFETY EQUIPMENT). IGNORING THIS WARNING MAY CAUSE DAMAGES TO HEALTH, SEVERE ACCIDENTS OR DEATH.

When performing certain procedures with the **AF/AFL**, place the following Safety Equipment (PPE) below:



IMPORTANT

The safety practice must be performed in all stages of working with the AF/AFL, thus avoiding accidents such as impact of objects, fall, noise, cuts and ergonomics, ie the person responsible for operating the AF/AFL is subject to internal and external damage to your body.

OBSERVATION

All PPEs (Safety Equipment) should have certificate of authenticity.



▪ Warnings

-  When operating with the AF/AFL, do not let people stay close or close to it.
-  When carrying out any maintenance service, use PPE equipment.
-  Do not wear loose clothing, as they may thread into the AF/AFL.
-  When operating the tractor engine, be properly seated in the operator's seat and aware of the full knowledge of the correct and safe handling of both the tractor and the AF/AFL. Always shift the shift lever to the neutral position, turn off the power take-off gear and place the hydraulic controls in the neutral position.
-  Do not switch the tractor on indoors without proper ventilation, as exhaust fumes are harmful to health.
-  When maneuvering the tractor for AF/AFL engagement, make sure you have the space required and that there is no one close at hand, always maneuver at idle and be prepared to brake in an emergency.
-  Do not adjust AF/AFL during operation.
-  When working on sloping terrain, proceed with caution always striving to maintain the necessary stability. In case of imbalance start reduce the acceleration, turn the wheels to the slope side of the terrain and never lift the AF/AFL.
-  Always drive the tractor at speeds that are compatible with safety, especially when working on rough terrain or on slopes, always keep the tractor engaged.
-  When driving the tractor on roads, keep the brake pedals interlocked.
-  Do not work with the tractor with a light rear. If the rear has a tendency to lift, add more weights on the rear wheels.
-  When leaving the tractor put the shift lever in the neutral position and apply the parking brake. Never leave the AF/AFL on the tractor in the raised position of the hydraulic system.
-  Any maintenance on the AF/AFL must be done with the same stopped and the tractor off.
-  Do not travel on highways especially at night. Use warning signs throughout the course.
-  If you need to travel with the AF/AFL on the highways, consult the traffic authorities.
-  Do not allow the AF/AFL to be used by persons who have not been trained, that is, they can not operate it correctly.
-  Do not transport or work with the AF/AFL near obstacles, rivers or streams.
-  It is forbidden to transport people on self-propelled machines and implements.
-  Changes to the original AF/AFL characteristics are not allowed, as they may alter safety, operation and affect the service life.
-  Read all the safety information contained in this manual and AF/AFL carefully.

▪ Warnings

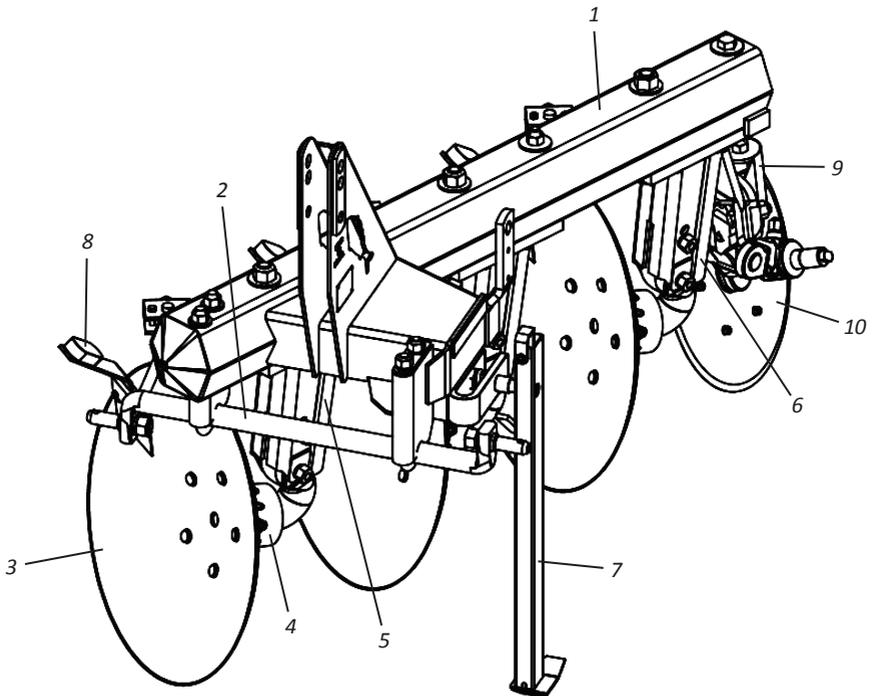
-  Always check that the AF/AFL is in perfect conditions of use. In case of any irregularity that may interfere with the operation of the AF/AFL, ensure proper maintenance before any work or transportation.
-  Maintaining and inspecting AF/AFL risk areas should only be done by a trained or qualified worker, observing all safety guidelines. Before starting maintenance, disconnect all AF/AFL drive systems.
-  Periodically check all AF/AFL components before use.
-  Depending on the equipment used and the working conditions in the field or in maintenance areas, precautions are required. Baldan has no direct control over precautions, so it is the owner's responsibility to implement safety procedures while working with AF/AFL.
-  Check the minimum recommended tractor power for each AF/AFL model. Only use tractor with power and ballast compatible with the load and topography of the terrain.
-  During AF/AFL transport, walk at terrain compatible speeds and never exceed 16Km/h, this reduces maintenance and consequently increases AF/AFL life.
-  Alcoholic beverages or some medications can cause loss of reflexes and change the physical conditions of the operator. Therefore, never operate AF/AFL under the use of these substances.
-  Read or explain all of the procedures in this manual to the user who can not read.

In the case of doubts consult the After Sales.
Phone: 0800-152577 / E-mail: posvenda@baldan.com.br

▪ Components

• AF - Mounted Disc Plough

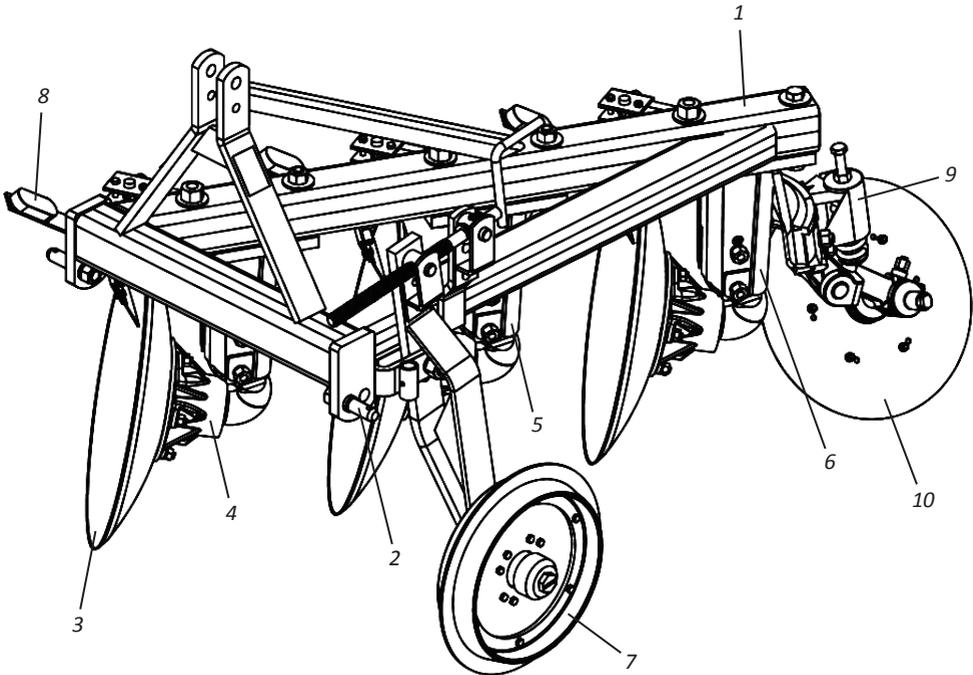
1. Frame
2. Hydraulic coupling shaft
3. Disc
4. Disc hub
5. Front support of pipe
6. Rear support of pipe
7. Parking support
8. Cleaners
9. Guide wheel support
10. Guide wheel



▪ Components

• AFL - Mounted Disc Plough (Light)

1. Frame
2. Hydraulic coupling shaft
3. Disc
4. Disc hub
5. Front support of pipe
6. Rear support of pipe
7. Depth wheel with crank (Optional)
8. Cleaners
9. Guide wheel support
10. Guide Wheel



▪ Specifications

• AF - Mounted Disc Plough

Model	Nr of Discs	Disc Diameter (mm)	Working Width (mm)	Approx. Weight (Kg)			Tractor Power (CV)
				26"	28"	30"	
AF	2	26", 28, 30"	600	308	319	325	40 - 50
	3	26", 28, 30"	900	333	404	412	50 - 60
	4	26", 28, 30"	1200	521	534	549	75 - 90
	5	26", 28, 30"	1500	635	645	664	100 - 120

Working depth (mm) 150 - 300
 Disc spacing (mm) 550

Baldan reserves the right to change and/or perfect the technical characteristics of its products, without previous notice, and without obligation to proceed in the same way with the products previously manufactured. Technical specifications are approximate and informed under normal work conditions.

AF INTENDED USE

- The **AF** was developed for work on land of the most diverse types, providing a quality work and performance in plowing, and can be used also for the construction of contour lines.
- The **AF** must be driven and operated only by a properly trained operator.

NON-ALLOWED USE OF AF

- To avoid damage, serious accident or death, DO NOT transport people over any part of the **AF**.
- **AF** may not be used to attach, tow or push other attachments or attachments.
- The **AF** should NOT be used by an inexperienced operator who is not familiar with all driving, command and operation techniques.

▪ Specifications

• AFL - Mounted Disc Plough (Light)

Model	Nr of Discs	Disc Diameter (mm)	Working Width (mm)	Approx. Weight (Kg)		Tractor Power (CV)
				26"	28"	
AFL	3	26" ou 28	900	332	402	60 - 70
	4	26" ou 28	1200	472	484	80 - 90
	5	26" ou 28	1500	547	566	100 - 120

Working depth (mm) 150 - 300

Disc spacing (mm) 550

Baldan reserves the right to change and/or perfect the technical characteristics of its products, without previous notice, and without obligation to proceed in the same way with the products previously manufactured. Technical specifications are approximate and informed under normal work conditions.

AFL INTENDED USE

- The **AFL** is ideal for soil preparation work cultivated with cereal planting in general, its robust structure allows several adjustments for a better performance of the same in any type of terrain.
- The **AFL** must be driven and operated only by a properly instructed operator.

NON-ALLOWED USE OF AFL

- To avoid damage, serious accident or death, DO NOT transport people over any part of the **AFL**.
- It is NOT allowed to use the **AFL** to attach, tow or push other attachments or attachments.
- The **AFL** should NOT be used by an inexperienced operator who is not familiar with all driving, operating and command techniques.

▪ Mounting

For logistic purposes, **AF/AFL** plows are ex-factory as follows:

- **Intern market:** The **AF/AFL** are semi-assembled only with the disc assembly.
- **External market:** The **AF/AFL** are completely disassembled.

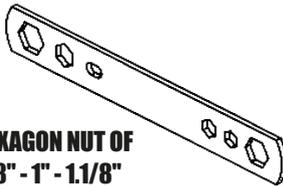
To mount them, follow the instructions below:

- ⚠ **AF/AFL** assembly must be done by resale, through trained, qualified and qualified personnel.
- ⚠ Before starting to mount the **AF/AFL**, find an ideal location where you can easily identify parts and assemble them.
- ⚠ Do not wear loose clothing as they may thread into the **AF/AFL**.
- ⚠ Use PPE (Safety Equipment).

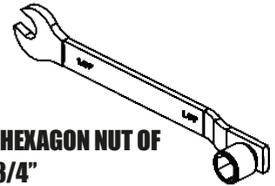
• Game of keys

When mounting, disassembling or servicing the **AF/AFL**, use the set of keys that accompany the plows. The Key Set consists of:

GAME OF KEYS - AF

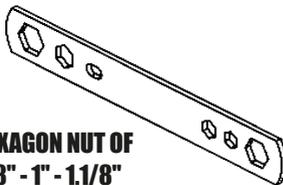


**WRENCH FOR HEXAGON NUT OF
5/8" - 3/4" - 7/8" - 1" - 1.1/8"**



**WRENCH FOR HEXAGON NUT OF
3/4"**

GAME OF KEYS - AFL



**WRENCH FOR HEXAGON NUT OF
5/8" - 3/4" - 7/8" - 1" - 1.1/8"**



**WRENCH FOR HEXAGON NUT OF
3/4" - 7/8"**



ATTENTION

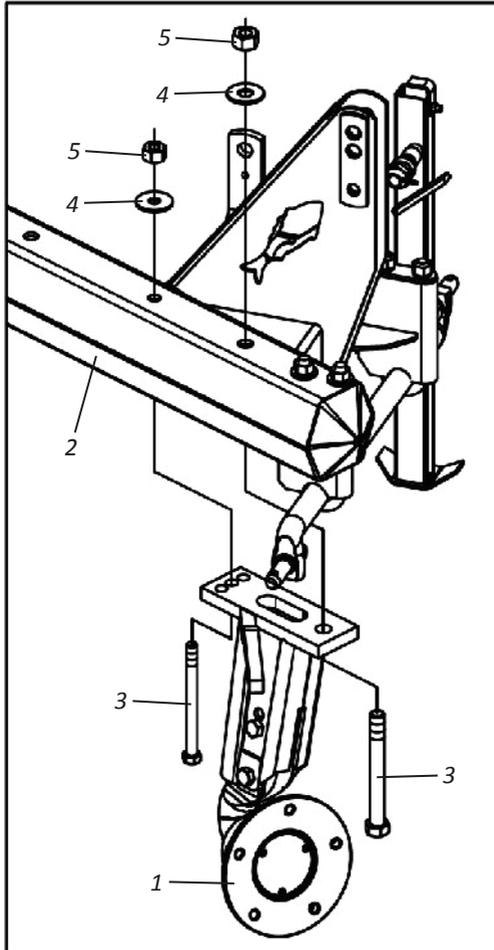
If any key is lost or broken, get another one immediately. Always use original Baldan keys.

▪ Mounting

• Mounting the pipe support - AF/AFL

To mount the pipe support (1), proceed as follows:

- 01** - Attach the pipe support (1) to the frame (2) by attaching the bolts (3), plain washers (4) and nuts (5).

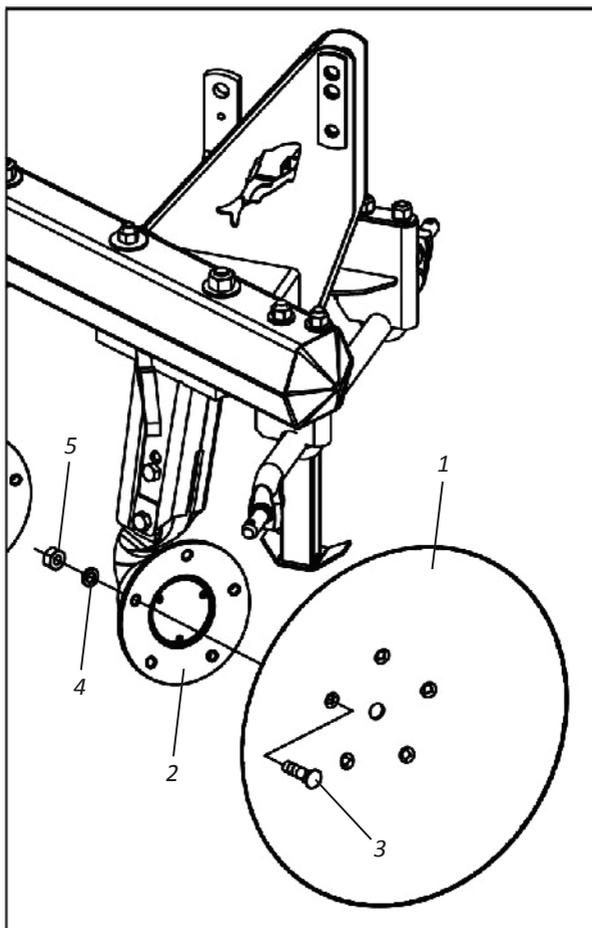


Repeat this procedure for mounting the other pipe supports (1).

▪ Mounting**• Mounting the discs - AF/AFL**

After assembling the pipe supports, fix the discs (1) by doing the following:

- 01** - Attach the disc (1) to the pipe support (2) by securing through the bolts (3), lock washers (4) and nuts (5).

**IMPORTANT**

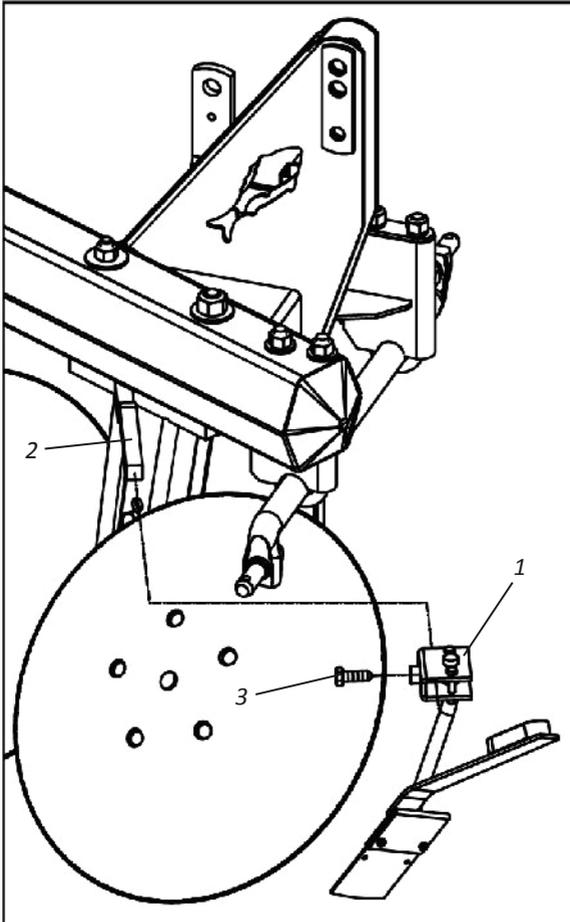
Repeat this procedure to mount the other discs.

▪ Mounting

• Mounting of the cleaners - AF/AFL

After assembling the discs, fix the cleaners (1) by doing the following:

01 - Attach the wiper (1) to the pipe support (2) by securing it through the bolt (3).



IMPORTANT

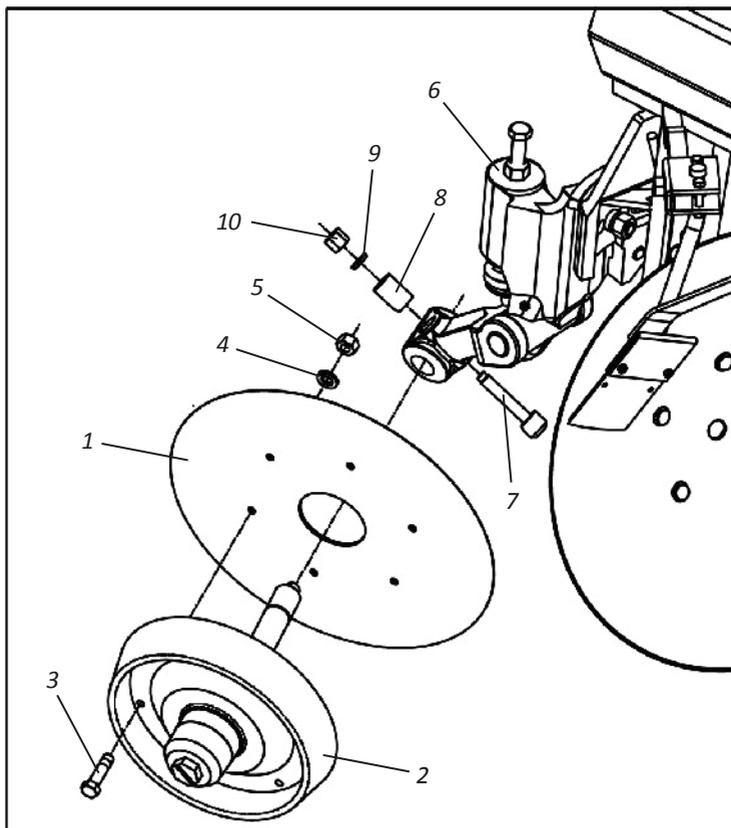
Repeat this procedure to fit the other cleaners (1).

▪ Mounting

• **Mounting the guide wheel - AF/AFL**

Then fasten the guide wheel by doing the following:

- 01** - Attach the disc (1) to the guide wheel (2) by securing through the bolts (3), lock washers (4) and nuts (5).
- 02** - Then, attach the guide wheel (2) to the bracket (6) by attaching the nut (7) of the nut (8), the locking washer (9) and the nut (10).



! IMPORTANT

The guide wheel is always mounted on the right side of the plow.

🕒 NOTE

The expression "right side" is called looking behind the plow.

▪ Mounting

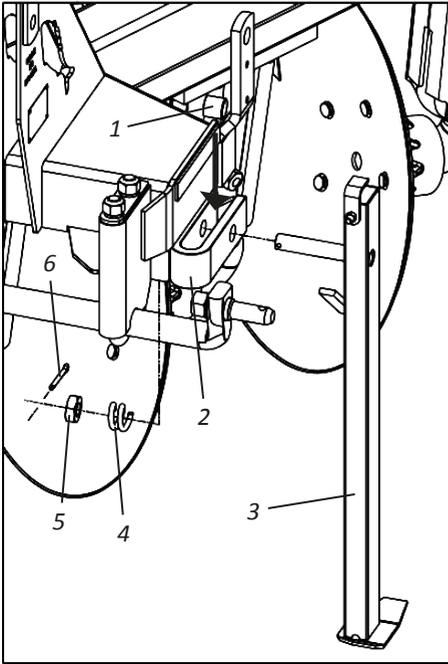
• Mounting the support bracket - AF/AFL

To mount the support bracket, proceed as follows:

AF

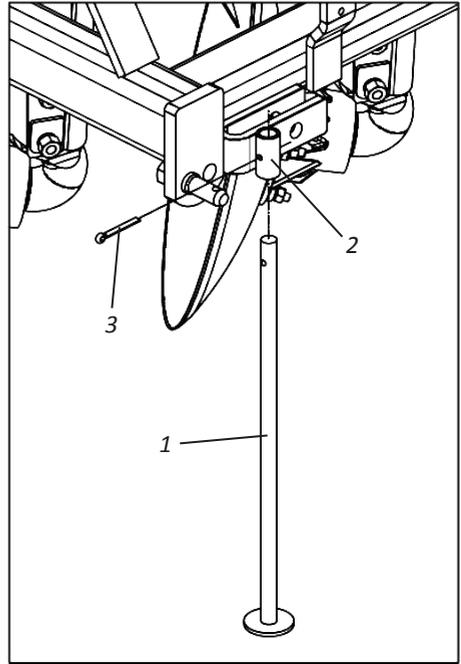
01 - Insert the bushing (1) into the frame (2).

02 - Then, attach the support bracket (3) to the frame (2), securing through the spring (4), nut (5) and cotter pin (6).



AFL

01 - Attach the support bracket (1) to the frame (2) by attaching it through the cotter pin (3).



ATTENTION

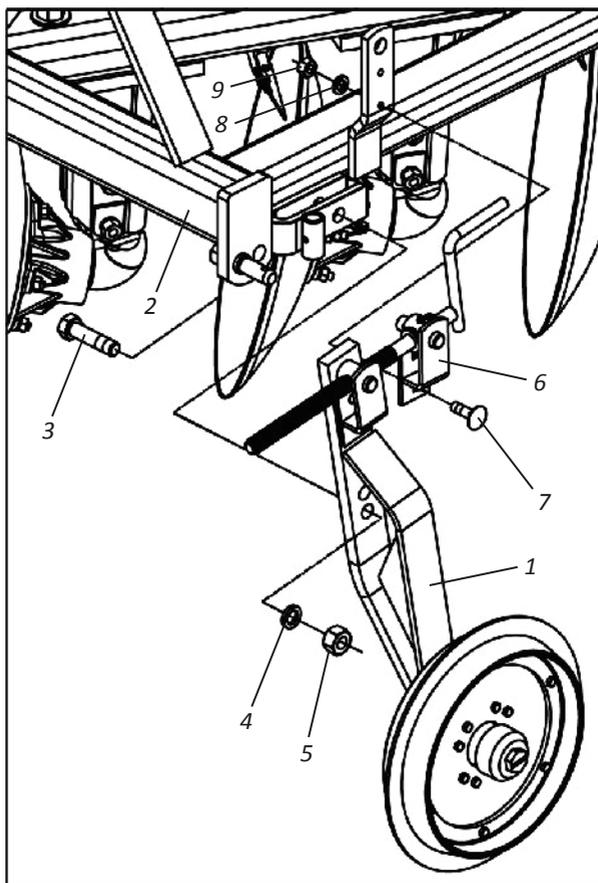
When AF/AFL is purchased with a deep wheel, the support bracket does not follow the plow.

▪ Mounting

• Mounting of depth wheel (Optional) - AF/AFL

To secure the depth wheel (1), proceed as follows:

- 01** - Engage the depth wheel (1) on the frame (2) and secure it through the bolt (3), washer (4) and nut (5).
- 02** - Then secure the handle crank (6) to the frame (2) by means of the bolts (7), lock washers (8) and nut (9).



ATTENTION

When the depth wheel is purchased after purchasing the AF/AFL, the support bracket must be removed to mount it in its place.

▪ Coupling

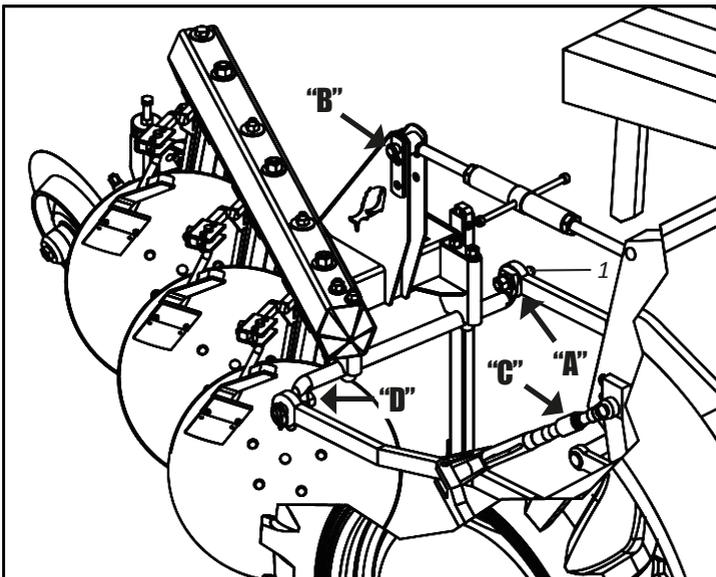
• Coupling of the plow

Before coupling the **AF/AFL**, check if the tractor is prepared for work by observing the following items:

- Check if the tractor is equipped with a set of weights and ballasts at the front or on the front wheels to avoid the tractor from being raised. For the rear wheels, it will give the tractor more stability and traction on the soil.
- Adjust the eyelet of the lower arms of the tractor.

Observe the instructions above, proceed as follows:

- 01** - Slowly bring the tractor close to the plow on reverse, paying attention to the application of the brakes. Use the position control lever of the hydraulic when drawing close to the plow, leaving the left lower arm at the level of the coupling of the plow.
- 02** - Couple the left lower arm of the tractor through the coupling pin (1) to support "A" of the plow.
- 03** - Couple the 3rd point of the tractor to support "B" of the plow.
- 04** - Finally, with the aid of the regulating lever "C", couple the right lower arm of the tractor to support "D" of the plow.

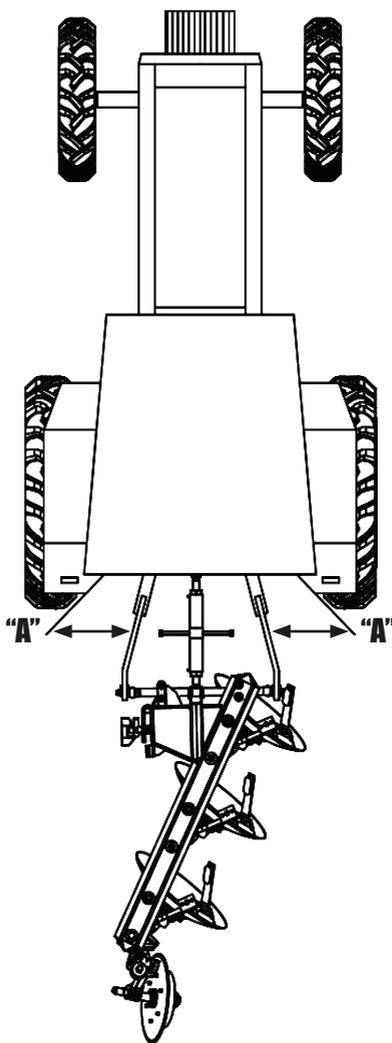


▪ Adjustment

• Centralization - AF/AFL

To centralize the **AF/AFL** in relation to the longitudinal axis of the tractor, proceed as follows:

- 01** - Align the upper coupler of the plow with the 3rd point of the tractor, checking to see if the distances "A" of the lower arms of the hydraulic system. are the same in relation to the tractor tires. The lower arms should be leveled with one another.

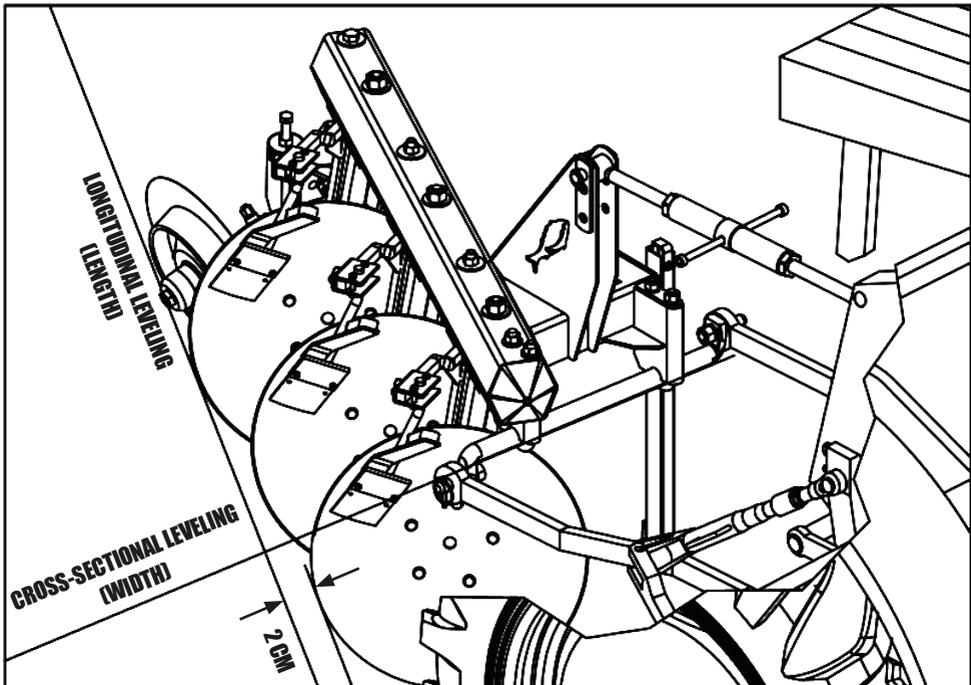


▪ Adjustment

• Leveling - AF/AFL

To level the **AF/AFL**, proceed as follows:

- 01** - First, the tractor should be on a flat plane.
- 02** - Then, level the plow in the cross-sectional direction (width) through the crank of the right lower arm of the hydraulic coupler.
- 03** - Afterwards, execute longitudinal leveling (length).
- 04** - This is executed through the 3rd point arm. Observe that the rear discs of the plow should be approximately 2 cm above ground level, as shown in **figure 10**.



ATTENTION

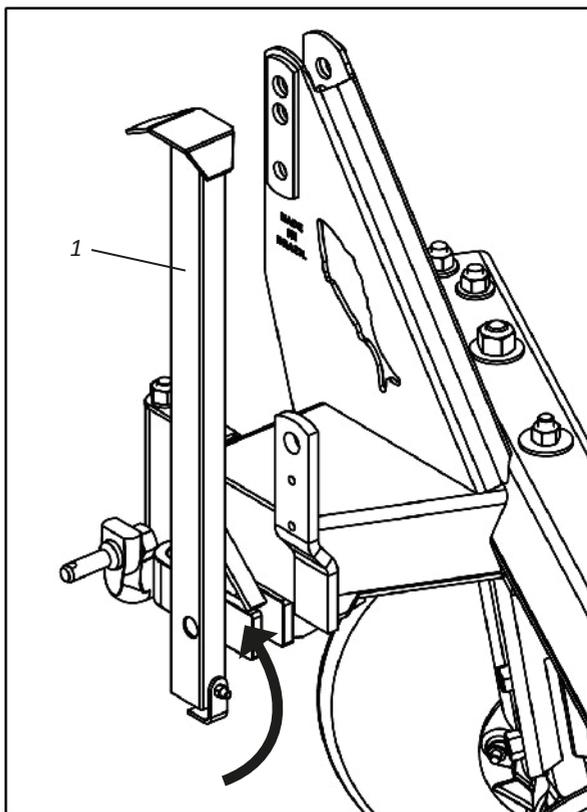
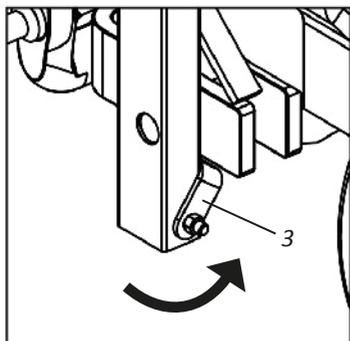
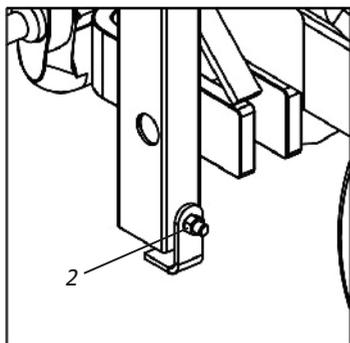
Ensure that the rear disc of the plow is approximately 2 cm above ground level in order for the discs to have the same penetration depth in the soil.

▪ Work/Transportation**• Support foot - AF**

If the **AF** is provided with the support foot, proceed as follows before working or transporting the plow:

01 - Raise the support foot (1).

02 - Then, loosen the nut (2), turn the lock (3) and retighten the nut (2) to lock the support foot (1).

**ATTENTION**

Before working / transporting the AF lift the support foot.
Ignoring this warning can cause damage or serious accidents.

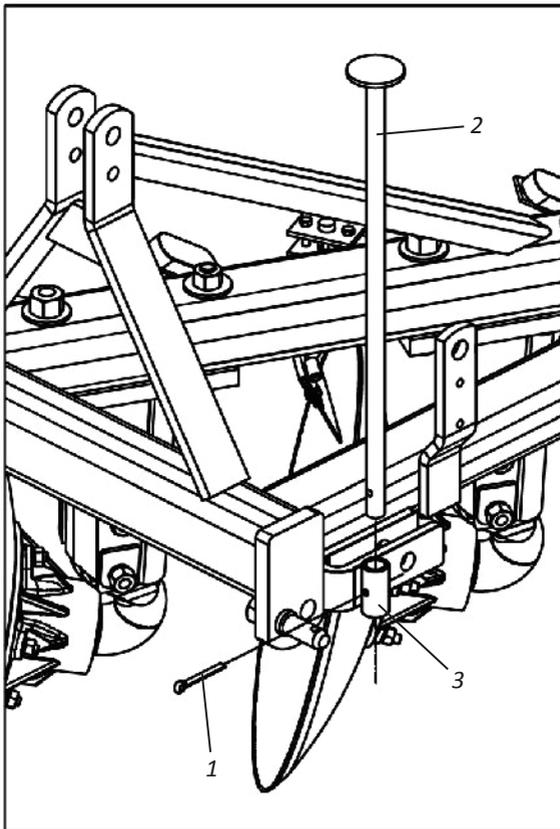
▪ Work/Transportation

• Support foot - AFL

If the **AFL** is provided with the support foot, proceed as follows before working or transporting the plow:

01 - Release the cotter pin (1) and remove the support foot (2).

02 - Then, reverse the support foot (2) and attach it to the frame (3) by securing it through the cotter pin (1).



ATTENTION

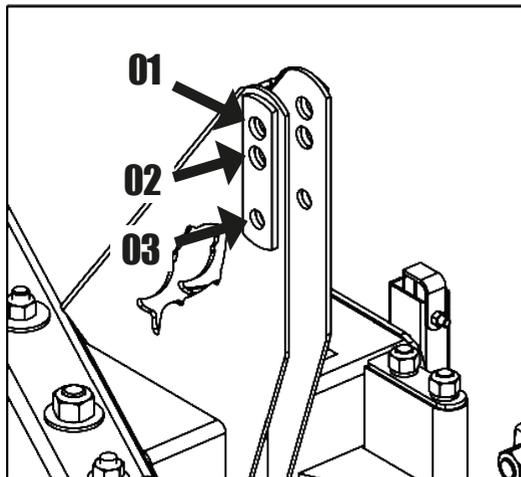
Before working/transporting the AFL, reverse the support bracket. Ignoring this warning can cause damage or serious accidents.

▪ Adjustments

• Adjustments of 3rd point - AF/AFL

The AF/AFL has adjustments on the coupling of the 3rd point that are used for different types of soil.

AF

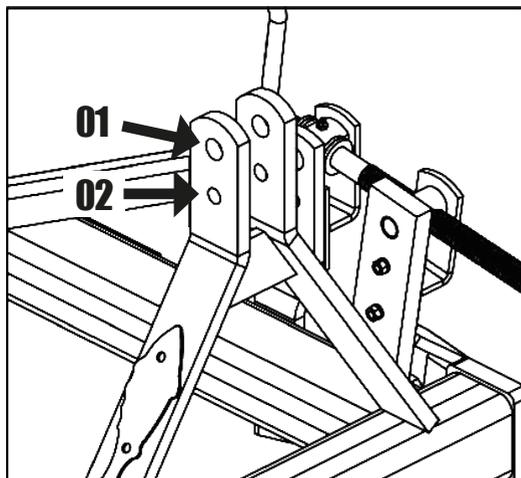


01 - For category II tractors.

02 - For medium and heavy soils

03 - For light soils, category I tractors.

AFL



01 - For category II tractors.

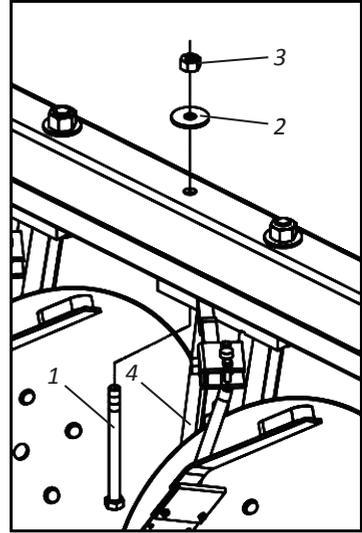
02 - For category I tractors.

▪ Adjustments

• Horizontal adjustment of discs - AF/AFL

The **AF/AFL** has horizontal adjustment that can be adjusted when less or more disc rotation is required. To set the adjustments, proceed as follows:

- 01** - Loosen the bolt (1), flat washer (2) and nut (3).
- 02** - Then adjust the pipe (4) as required by the work.
- 03** - After adjusting, replace the bolt (1), flat washer (2) and nut (3).



The horizontal adjustment has 3 positions:

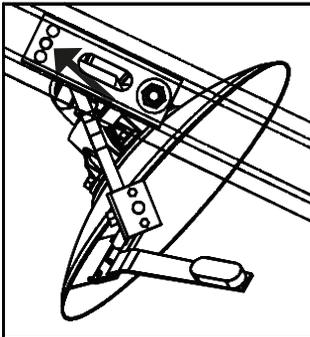
ADJUSTMENTS	
Position 00	Normal
Position 01	Less Rotation
Position 02	More Rotation



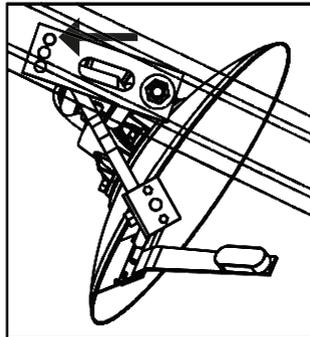
ATTENTION

Repeat the same adjustment for the other discs.

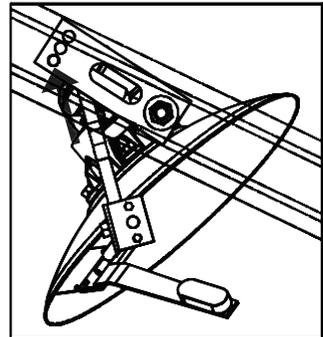
POSITION 00



POSITION 01



POSITION 02

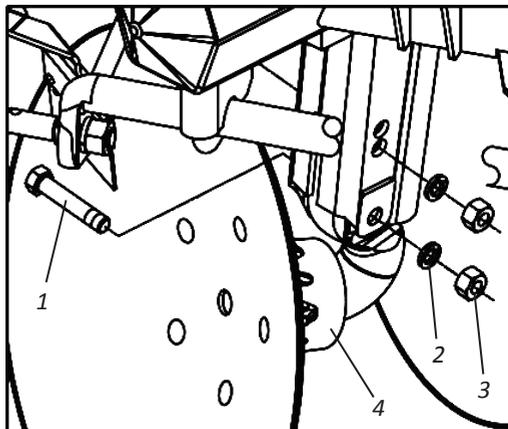


▪ **Adjustments**

• **Vertical adjustment of discs - AF/AFL**

The AF/AFL has vertical adjustment that can be adjusted when the increase or decrease of disc depth is required. To set the adjustments, proceed as follows:

- 01 - Loosen the bolts (1), pressure washers (2) and nuts (3).
- 02 - Then adjust the pipe (4) as required by the work.
- 03 - After adjusting, replace the bolts (1), pressure washers (2) and nuts (3).

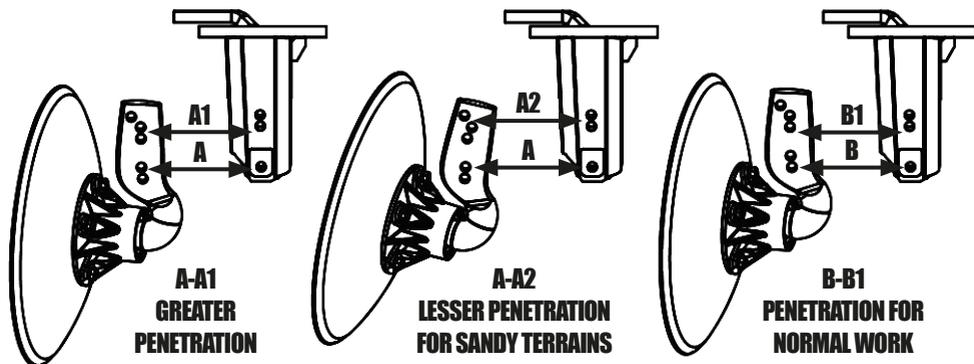


ATTENTION

Repeat the same adjustment for the other discs.

ADJUSTMENTS	
Disc in Low Position:	Indicated for loose and normal soils (B-B1)
Disc in High Position:	Indicated for hard soils (A-A1 / A-A2)

The vertical adjustment has 3 positions.



IMPORTANT

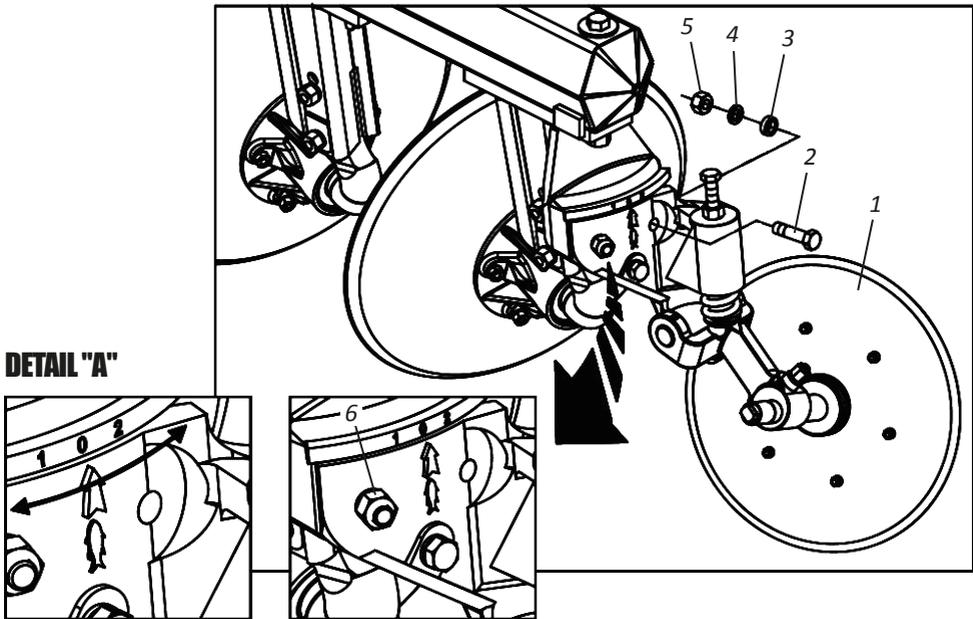
The AF / AFL leaves the factory mounted and adjusted in the B and B1 position.

▪ Adjustments

• Adjustment of the direction - AF/AFL

During the work, if the tractor tends to move to the right or left, adjust the guide wheel (1) to the side it tends to move. To adjust the guide wheel (1), proceed as follows:

- 01** - First, remove the bolt (2), bushing (3), pressure washer (4) and nut (5).
- 02** - Then loosen the nut (6) and adjust the guide wheel (1) to the right or left, **according to adjustments 1, 0 and 2 of detail "A"**.
- 03** - After adjusting, retighten the nut (6) and replace the bolt (2), bushing (3), pressure washer (4) and nut (5).



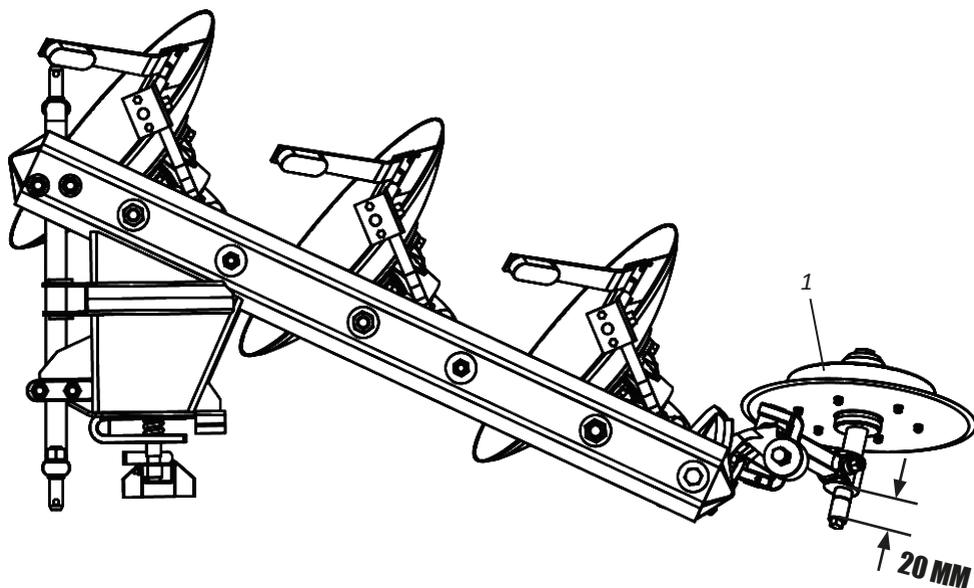
Adjust the guide wheel (1) to the side the tractor tends to move.

▪ Adjustments

• Adjustment of guide wheel angle - AF/AFL

Besides allowing greater or lesser penetration of the discs, the guide wheel (1) is responsible for aligning the tractor and plow set, acting as rudder, preventing side deviations.

Adjust the guide wheel (1) so that it remains in the same direction as the coupling tower of the 3rd point of the plow, and the shaft remains at least **20 mm** from the support.



ATTENTION

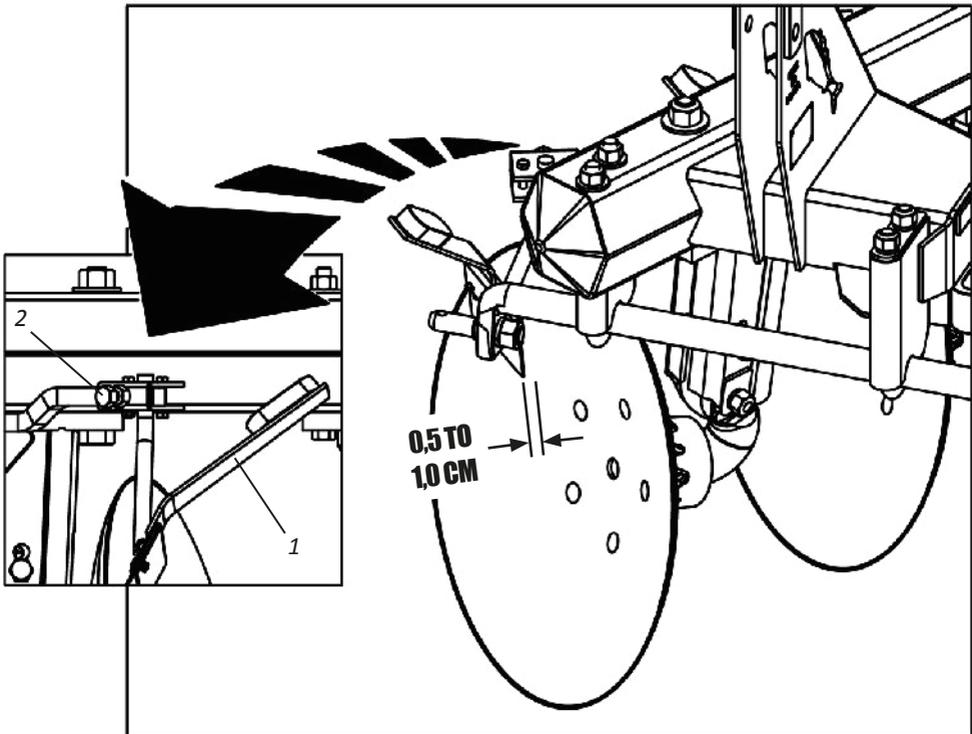
Do not operate the plow with the shaft mounted less than 20 mm from the support.

▪ Adjustments

• Adjustment of cleaners - AF/AFL

The **AF/AFL** has cleaners (1) that can be adjusted according to necessity. To adjust the cleaners (1), proceed as follows:

- 01** - First loosen the bolt (2).
- 02** - Then adjust the cleaner (1) according to the distances mentioned below.
- 03** - Complete by retightening the bolt (2).



ATTENTION

When adjusting the cleaners (1), these should be 0.5 to 1.0 cm away from the discs.

IMPORTANT

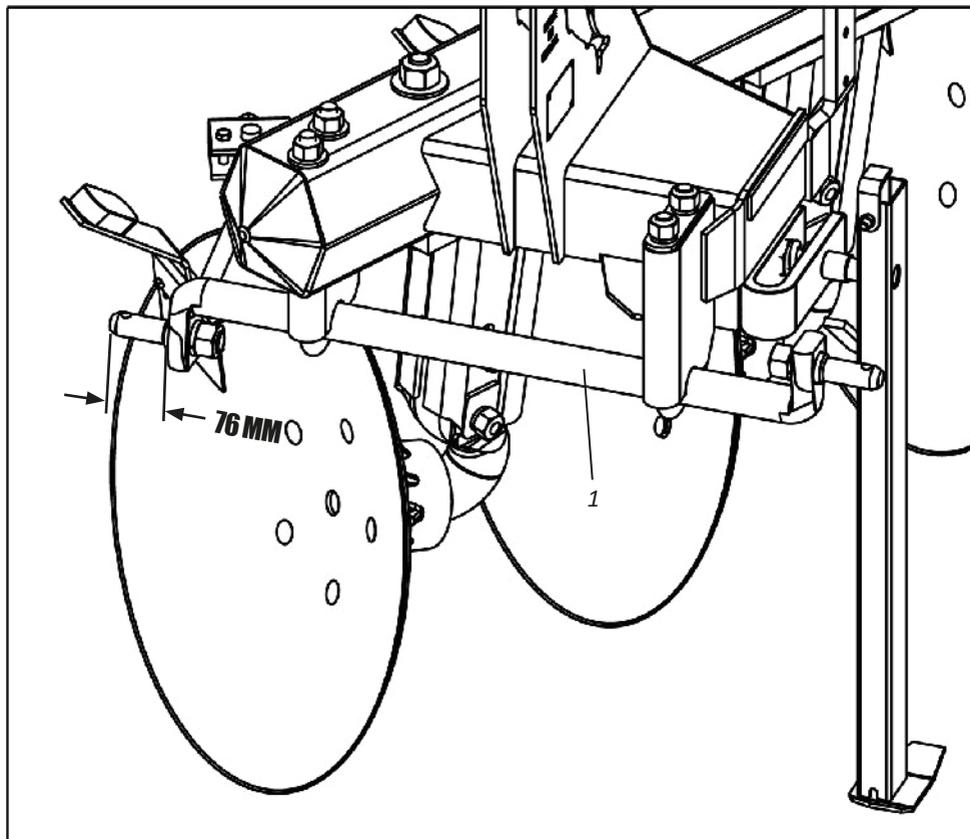
Repeat this adjustment for the other cleaners (1).

▪ Adjustments

• Adjustment of crank - AF

The **AF/AFL** has a crank (1) that should be placed 76 mm to the right side of the plow with the tip facing down.

The crank (1) is eccentric, turning it provides bigger or smaller cutting angle.



! **ATTENTION**

Observe that the right side of the crank (1), the tip should face down and the left side should face up.

! **IMPORTANT**

The indication of the right and left sides are executed by observing the plow from the back.

▪ Adjustments

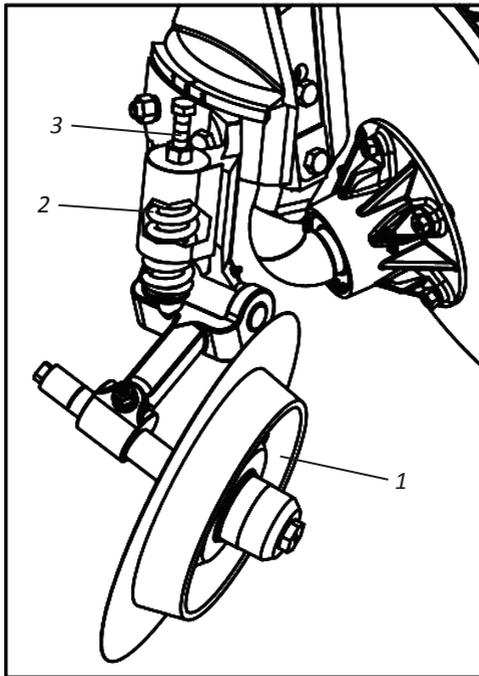
• Adjustment of spring pressure - AF/AFL

The guide wheel (1) has spring (2) that can have its pressure adjusted according to the type of soil to be worked. To adjust the pressure of the spring (2), proceed as follows:

01 - Tighten the bolt (3) putting more pressure in the spring (2).

02 - Loosen the bolt (3) putting less pressure in the spring (2).

TYPE OF SOIL	RECOMMENDATION	REASON
Light and loose soils.	Should be worked with greater pressure in the spring.	For the plow to support part of its weight, otherwise the plow will penetrate too much.
Hard soils.	Should be worked with lesser pressure in the spring.	For the plow to have greater transfer of weight to the discs, increasing their penetration.



! IMPORTANT

This adjustment providing greater or lesser pressure in the spring, should be performed on the field before starting the works, observing the type of soil to be worked in order to obtain a better plow performance.

▪ Operations

• Operating recommendations

The preparation of **AF/AFL** and the tractor will allow you to save time in addition to a better result in field work. The following suggestions may be helpful to you.

GENERAL RECOMMENDATIONS

- 01** - Adjust the tractor according to the contents of the instruction manual, always using the front and rear weights to stabilize the equipment.
- 02** - Couple the tractor always in a low gear and very carefully.
- 03** - When using **AF/AFL**, it is important to check the coupling system and transverse leveling to make sure that the discs will have the same depth of penetration in the ground.
- 04** - After hitching and leveling, the next adjustments will be made directly in the field of work, analyzing the terrain in its texture, humidity and the types of operations to be done with **AF/AFL**.
- 05** - On the tractor, choose a gear that allows you to maintain a certain power reserve, guaranteeing power against unforeseen efforts.
- 06** - After the first day of work with the **AF/AFL**, retighten all bolts and nuts, check the conditions of the pins and latches. Then, perform a general tightening on all bolts and nuts every 10 hours of work.
- 07** - When performing any maintenance on **AF/AFL**, you should lower it to the ground and turn off the engine.
- 08** - **AF/AFL** has several settings, however, only local conditions can determine the best regulation of them.

If in doubt, never operate or handle **AF/AFL**, consult your After Sales service.
Telephone: 0800-152577 / E-mail: posvenda@baldan.com.br

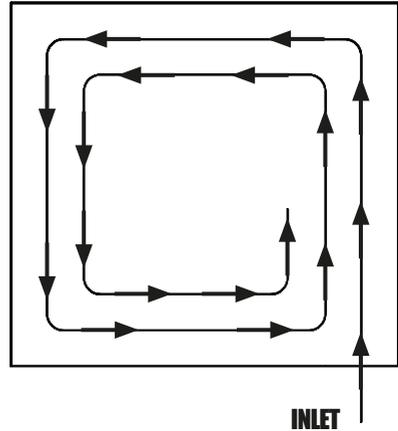
▀ Operations

• Plowing system - Part I

Independent of the shape of the land, the plows are basically performed in two ways:

PLOWING ON FIELDS FROM OUTSIDE TO INSIDE

In this plowing system, a small furrow is formed at the end of plowing, which should be finished by the plow itself, for later leveling with the harrows.



PLOWING ON FIELDS FROM INSIDE TO OUTSIDE

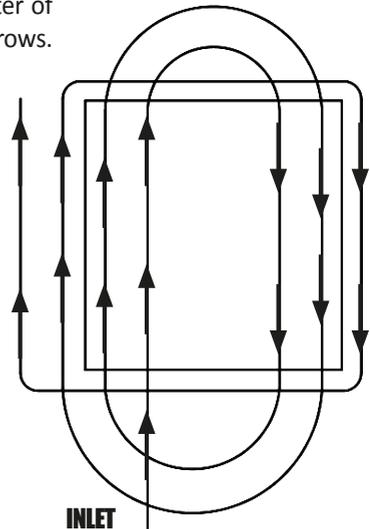
In this plowing system, a ridge is formed at the center of the land that should also be lowered with the use of harrows.

ATTENTION

Before starting the operations with the AF/AFL, completely revise it, retightening all bolts, nuts and especially the discs.

IMPORTANT

Each plowing changes the way the soil is worked, that is, if plowing from outside to inside is executed, the opposite should be performed in the next plantation in order to avoid the formation of irregularities on the surface.

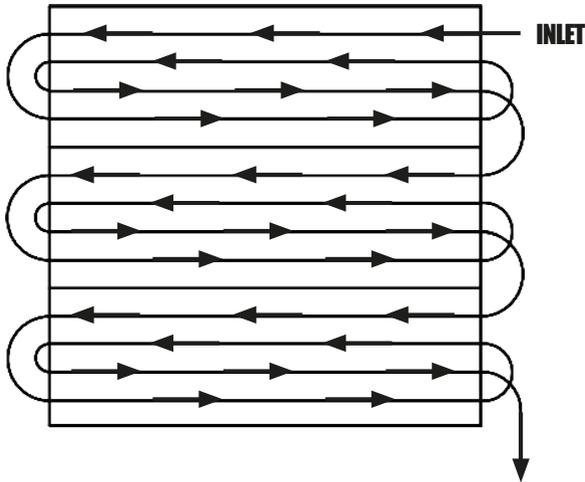


▀ Operations

- Plowing system - Part II

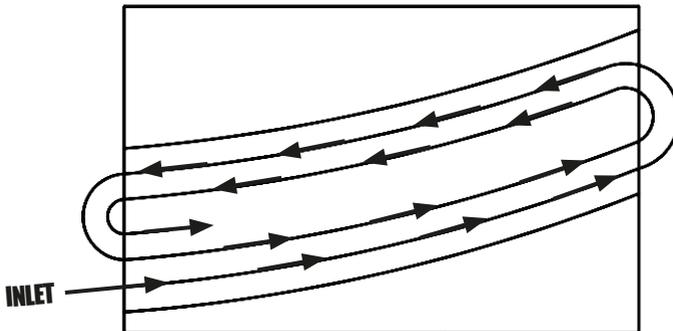
STRIP PLOWING

The land can be divided into strips, that is, plow in parts.



CONTOUR PLOWING

This contour plowing system is highly used in terraced areas where the space between two contour lines are worked separately.



! IMPORTANT

In contour plowing, the alternation of the plowing manner should also be observed. In a plantation from outside to inside and in another from inside to outside.

▪ Calculation

• Approximate hourly production

To calculate the approximate hourly output of **AF/AFL** plows, use the following formula:

$$A = \frac{L \times V \times F}{X}$$

WHERE:

A = Area to be worked

L = Working width of the plow (in meters)

V = Average speed of the tractor (in meters/hour)

F = Production factor: 0,90

X = Value of the hectare: 10.000 m² (value varies by region)

Example: An **AF/AFL** 04 discs, how many Ha it will produce in one hour of work at an average speed of 7 km / h.

A = ?

$$A = \frac{1,20 \times 7.000 \times 0,90}{10.000} = 0,76 \text{ Ha/h}$$

L = 1,20 m

V = 7.000 m/h

F = 0,90

X = 10.000 m² (Calculated in hectare)

Model	Nr of Discs	Working Width (mm)	Average Speed (m/h)	Production Factor	Approximate Production in Hectares Hour
AF	2	600	7.000	0,90	0,38
AF/AFL	3	900	7.000	0,90	0,57
AF/AFL	4	1200	7.000	0,90	0,76
AF/AFL	5	1500	7.000	0,90	0,95

The formula for calculating the approximate production refers to the calculation of areas to be worked or worked by **AF/AFL**. If you want to know the time that will be spent to work an area of a known value, just divide the value of this area by the daily output of **AF/AFL**.

Example: What time "X" will it take for a **4 discs AF / AFL** to produce 35 hectares, at an average speed of 7km / h?

$$X = \frac{35 \text{ Ha}}{0,76 \text{ Ha/h}} = 46 \text{ hours approximately to work 35 hectares.}$$



The hourly production of the **AF/AFL** plow can vary due to factors that change the work pace (wetness and hardness of the soil, declivity of the land, inadequate adjustments and working speed).

▪ Maintenance

AF/AFL is designed to provide you with maximum performance over terrain conditions. Experience has shown that periodic maintenance of certain parts of the **AF/AFL** is the best way to help you avoid problems, so we suggest verification.



ATTENTION

Constantly check the nuts and bolts, retighten if necessary. General retention of the plow must be carried out every 8 working hours.

• Lubrification

Lubrification is indispensable for a good performance and greater durability of **AF/AFL** moving parts, contributing to the maintenance cost savings.

Before starting the operation, carefully lubricate all grease cups, always observing the lubrication intervals in the following pages. Make sure of the lubricant quality regarding its efficiency and purity, avoiding products contaminated by water, dust and other agents.

• Table of greases and equivalents

Manufacturer	Types of grease recommended
Petrobrás	Lubrax GMA-2
Atlantic	Litholine MP 2
Ipiranga	Ipiflex 2
Castrol	LM 2
Mobil	Grease MP
Texaco	Marfak 2
Shell	Alvania EP 2
Esso	Multi H
Bardahl	Maxlub APG-2EP
Valvoline	Palladium MP-2
Petronas	Tutela Jota MP 2 EP
	Tutela Alfa 2K
	Tutela KP 2K

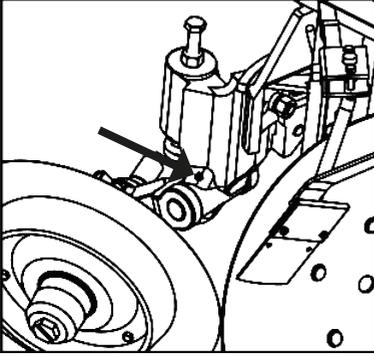


ATTENTION

If there are equivalent manufacturers and/or brands that are not listed in the table, consult the manufacturer's technical manual.

▪ Maintenance

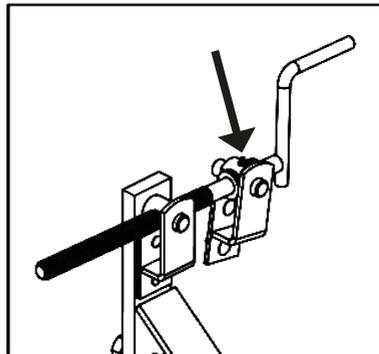
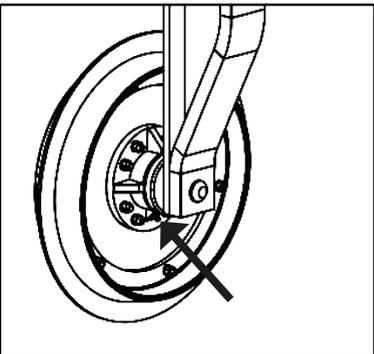
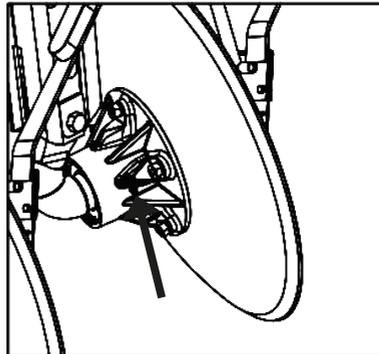
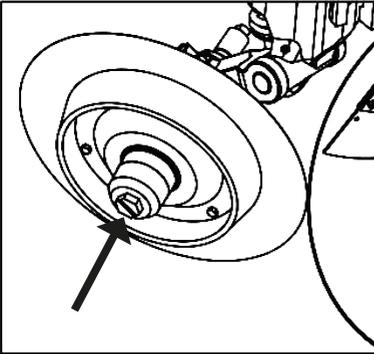
- Lubrication every 10 hours of work



ATTENTION

When lubricating AF/AFL, do not exceed the amount of new grease. Put an enough amount.

- Lubrication every 50 hours of work



▪ Maintenance

• Operational Maintenance

PROBLEMS	SOLUTIONS
The plow has difficulty penetrating.	Decrease the guide wheel spring pressure (Page 38).
	Put the disks to work more standing (Page 33).
	Lower plowing speed also facilitates the penetration of discs.
Tendency to leave the groove.	Adjust the guide wheel angle (Page 35) to get the best traction line.
	Increase the pressure slightly on the guide wheel spring (Page 38).
	The first disk must be penetrating beyond the others. Give the third point arm longer (Page 28).
	Make sure the AF / AFL is centered with the tractor (Page 27).
The earth's law is thrown far away.	Decrease tractor speed.
Embedding the vegetation between the discs.	The horizontal angle should be set to position 2 (Page 32).
	Adjust the wipers to get further away or remove them if convenient.
The first disc cuts less than the others (The tractor's direction tends to pull to the left).	Check recommended gauge distances (Page 27).
	Position the front wheel closer to the groove wall, but do not lean against it.
	Check the leveling of the AF/AFL and use the arm of the third point and the lower right arm for any corrections (Page 28).
	Note the angle of the guide wheel.
The first disc cuts more than the others (The tractor's direction tends to pull to the right).	Check recommended gauge distances (Page 27).
	Position the front wheel furthest from the groove wall.
	Make sure the AF/AFL is leveled correctly.
	Note the angle of the guide wheel.

▪ Maintenance

• Precautions

- 01** - Before each work, check the condition of all pins, screws, bearings and disks. Where necessary, retighten them.
- 02** - The displacement speed should be carefully controlled according to the land's conditions.
- 03** - **AF/AFL** is used in several applications, requiring knowledge and attention during its handling.
- 04** - Only local conditions can determine the best **AF/AFL** operation method.
- 05** - When assembling or disassembling any part of **AF/AFL**, employ proper methods and tools.
- 06** - Observe the lubrication intervals carefully in the various lubrication points of **AF/AFL**.
- 07** - Always check if the parts have wears. If there is a need for replacement, always demand Baldan original parts.
- 08** - Keep the **AF/AFL** disks always sharp.



IMPORTANT

The proper and periodical maintenance are necessary to guarantee the long life of the scarifier.

• General Cleaning

- 01** - When storing the **AF/AFL**, carry out general cleaning and wash it. Check if the paint is not worn, otherwise apply a general coat of paint, apply pro-tection oil and completely lubricate the **AF/AFL**.
- 02** - Completely lubricate the plow. Check all the moving parts of the **AF/AFL** for wear or looseness and perform the necessary adjustments or replacement of the parts, leaving the plow ready for the next operation.
- 03** - After all the maintenance cares, keep your **AF/AFL** on a flat surface, in a sheltered and dry location away from animals and children. We recommend washing the **AF/AFL** at the start of the works.
Avoid: - That the disks come into direct contact with the ground.
- 04** - Replace all adhesives, especially those about warnings, that are damaged or missing. Make everyone aware of the importance and risks of accidents when instructions are not followed.
- 05** - We recommend to wash the **AF/AFL** with water only on the beginning of works.



ATTENTION

Do not use chemical products to wash **AF/AFL**, is may damage its painting.

▪ Maintenance

• Plow Conservation - Part I

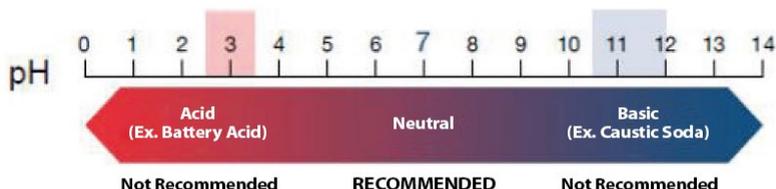
To extend the service life and appearance of **AF/AFL** longer, follow the instructions below:

- 01** - Wash and clean all **AF/AFL** components during and at the end of the work season working.
- 02** - Use neutral products to clean **AF/AFL** following the safety and handling guidelines provided by the manufacturer.
- 03** - Always carry out maintenance during the periods indicated in this manual.

• Plow Conservation - Part II

The practices and precautions below if adopted by the owner or operator make the difference for the conservation of **AF/AFL**.

- 01** - Be careful when performing high-pressure washing; do not direct the water jet directly into the connectors and electrical components. Isolate all electrical components;
- 02** - Use somente água e detergente NEUTRO (pH igual a 7);
- 03** - Apply the product, following the manufacturer's instructions strictly, on the wet surface and in the correct sequence, respecting the time of application and washing;
- 04** - Stains and dirt not removed with the products should be removed with the aid of a sponge.
- 05** - Rinse the machine with clean water to remove any chemical residues.
- 06** - Do not use: - Detergents with a basic active ingredient (pH less than 7) can damage/ stain the painting of the plow.
- **Detergents with acid active ingredient (pH less than 7), act as stripper/remover of zinc coating (the protection of parts against oxidation).**



- 07** - Allow the machine to dry in the shade so that it does not accumulate water in its components. A very fast drying can cause stains on your paint.

▪ Maintenance

• Conservation of plow - Part III

- 08** - After drying, lubricate all chains and greases according to the recommendations in the operator's manual.
- 09** - Spray all the machine, especially the zinc parts, with protective oil, following the manufacturer's application guidelines. The protective also prevents dirt from adhering to the machine, facilitating subsequent washings.
- 10** - Observe curing time (absorption) and application intervals as recommended by the manufacturer.

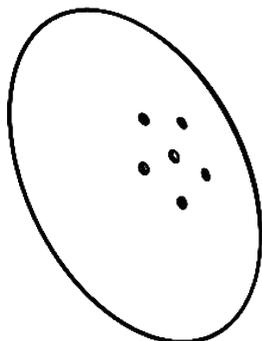
 **ATTENTION** | Do not use any other type of oil to protect the harrow (used hydraulic oil, "burnt" oil, diesel oil, castor oil, kerosene, etc.).

 **IMPORTANT** | We recommend the following protective oils:
- Bardahl: Agro protective 200 or 300
- ITWChemical: Zoxol DW - Series 4000

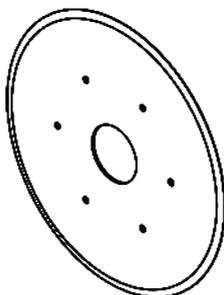
 **OBSERVATION** | Ignoring the conservation measures mentioned above may result in the loss of warranty for painted or zinc-coated components which may exhibit oxidation (rust).

▪ Optional**• Optional accessories**

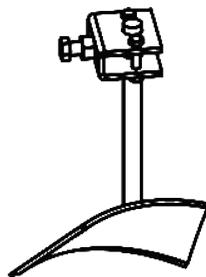
The AF/AFL has optional accessories that can be acquired according to the need of work.



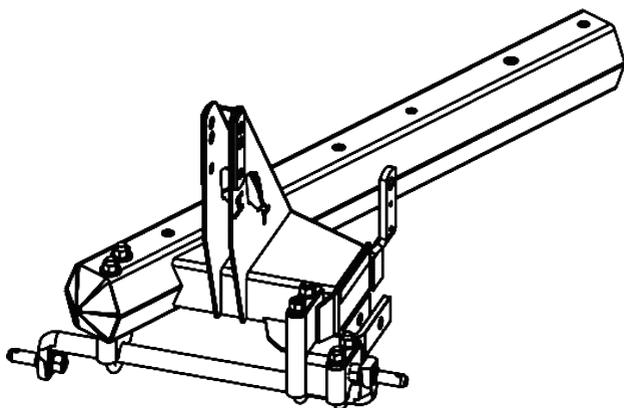
**DISC FLAT OR TRIMMED
26", 28", 30"
AF/AFL**



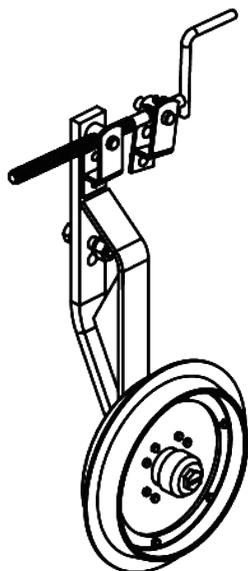
**PLANE FLAT DISC 20", 22"
GUIDE WHEEL
AF/AFL**



**CLEANER FOR
EXPORT
AF/AFL**



**FULL FRAME
FOR EXPORT
AF 03 DISCS**



**DEPTH WHEEL WITH CRANK
AF/AFL**

▪ Identification

• Identification plate

To see the parts catalog or to request technical assistance from Baldan, always inform model (01), serial number (02) and date of manufacture (03), which is on your **AF/AFL** nameplate.



ATTENTION

The drawings in this Instruction Manual are merely illustrative.

CONTACT

In case of doubts, never operate or handle your equipment without referring to Post-Sales.
 Telephone: 0800-152577
 e-mail: posvenda@baldan.com.br

PUBLICATIONS

Code: 60550201553 | CPT: AFL01918



▪ Identification**• Product Identification**

Please make the correct identification of the data below, to always have information about the service life of your equipment.

Owner: _____

Dealer: _____

Property: _____

City: _____

State: _____

Certificate of Warranty no.: _____

Implement: _____

Serial No: _____

Purchase Date: _____

Invoice: _____

BALDAN IMPLEMENTOS AGRÍCOLAS S/A ensures the dealer normal performance of the implement for a period of six (6) months as of the delivery date on the retail invoice to the first final consumer. During this period, **BALDAN** undertakes to repair defects in material and/or of manufacture of its liability, including labor, freight and other expenses of the dealer's liability.

In the warranty period, request and replacement of eventual defective parts shall be made to the dealer of the area, who will submit the faulty piece for **BALDAN** analysis. When this procedure is not possible and the resolving capacity of the dealer is exhausted, the dealer will request the support of **BALDAN Technical Assistance** through a specific form distributed to dealers. After analyzing the replaced items by Baldan Technical Assistance, and concluding that it is not a warranty, then the dealer will be responsible for the costs related to the replacement; as well as material expenses, travel including accommodation and meals, accessories, lubricant used and other expenses arising from the call out to Technical Assistance, and Baldan company is authorized to carry the respective invoice in the name of the resale. Any repair carried in the product within the dealer warranty deadline will only be authorized by **BALDAN** upon previous budget presentation describing parts and work to be performed.

The product is excluded from this term if it is repaired or modified by representatives not belonging to the **BALDAN** dealer network, as well as the application of non-genuine parts or components to the user's product. This warranty is void where it is found that the defect or damage is caused by improper use of the product, failure to follow instructions or inexperience of the operator.

It is agreed that this warranty does not cover tires, polyethylene tanks, cardan, hydraulic components, etc., which are equipment guaranteed by their manufacturers. Manufacturing and/or material defects, object of this warranty term, will not constitute, under any circumstances, grounds for termination of a purchase agreement, or for indemnification of any nature.

BALDAN reserves the right to change and/or perfect the technical characteristics of its products, without previous notice, and without obligation to proceed in the same way with the products previously manufactured.

▪ Inspection and Delivery Certificate

SERVICE BEFORE DELIVERY: This implement was carefully prepared by the sale organization, with all its parts inspected according to the manufacturing prescriptions.

DELIVERY SERVICE: The user was informed about the current warranty terms and instructed on the usage maintenance precautions.

I confirm that the user has been informed about the current warranty terms and instructed on the usage maintenance precautions.

Implement: _____ Serial Number: _____

Date: _____ Tax Number: _____

Dealer: _____

Telephone: _____ CEP: _____

City: _____ State: _____

Owner: _____

Telephone: _____

Address: _____ Number: _____

City: _____ State: _____

E-mail: _____

Sale date: _____

Signature / Dealer Stamp _____

▪ Inspection and Delivery Certificate

SERVICE BEFORE DELIVERY: This implement was carefully prepared by the sale organization, with all its parts inspected according to the manufacturing prescriptions.

DELIVERY SERVICE: The user was informed about the current warranty terms and instructed on the usage maintenance precautions.

I confirm that the user has been informed about the current warranty terms and instructed on the usage maintenance precautions.

Implement: _____ Serial Number: _____

Date: _____ Tax Number: _____

Dealer: _____

Telephone: _____ CEP: _____

City: _____ State: _____

Owner: _____

Telephone: _____

Address: _____ Number: _____

City: _____ State: _____

E-mail: _____

Sale date: _____

Signature / Dealer Stamp _____

▪ Inspection and Delivery Certificate

SERVICE BEFORE DELIVERY: This implement was carefully prepared by the sale organization, with all its parts inspected according to the manufacturing prescriptions.

DELIVERY SERVICE: The user was informed about the current warranty terms and instructed on the usage maintenance precautions.

I confirm that the user has been informed about the current warranty terms and instructed on the usage maintenance precautions.

Implement: _____ Serial Number: _____

Date: _____ Tax Number: _____

Dealer: _____

Telephone: _____ CEP: _____

City: _____ State: _____

Owner: _____

Telephone: _____

Address: _____ Number: _____

City: _____ State: _____

E-mail: _____

Sale date: _____

Signature / Dealer Stamp _____

3rd copy - Manufacturer (Please send completed within 15 days).

1.74.05.0059-5

AC MATÃO
ECT/DR/SP

RESPONSE CARD

NO STAMPING IS REQUIRED

THE STAMP WILL BE PAID BY:



BALDAN

BALDAN IMPLEMENTOS AGRÍCOLAS S/A.

Av. Baldan, 1500 | Nova Matão | CEP: 15993-900 | Matão-SP | Brasil

Tel: (16) 3221-6500 | Fax: (16) 3382-6500

www.baldan.com.br | email: sac@baldan.com.br

Export: Tel: +55 (16) 3221-6500 | Fax: +55 (16) 3382-4212 | 3382-2480

email: export@baldan.com.br



Avenida Baldan, 1500
Nova Matão
15.993-900
Matão/SP - Brasil
sac@baldan.com.br
export@baldan.com.br

+55 16 3221 6500
baldan.com.br