



# Operator's Manual



**LANCER  
EVOLUTION**

**25.000**

**32.000**



Congratulations!

Congratulations, you have purchased a product which is a successful result of more than two decades of experience in distributors.

The Lancer Evolution 25.000 and 32.000 meets your agronomic needs with high performance, economy, ease of operation, and excellent distribution of granulated fertilizers.

Precision in dosage and uniformity of application are essential factors to have greater productivity and profitability in the field. With this in mind, the Lancer Evolution line was developed with a removable stainless steel structure.

All equipment developed by Jan is exhaustively field-tested, in order to meet your requirements. Therefore, this Manual is another effort on our part to ensure your satisfaction with the product, allowing you to enjoy, in a practical and efficient way all the benefits that the Lancer offers.

In addition, this manual provides instructions for the correct preventive maintenance and conservation of the equipment, as well as instructions on how to proceed when Technical Assistance is required.

Before operating the Lancer for the first time, carefully read all safety recommendations.

Our efforts do not stop there, as we have a Technical Assistance Department always ready to assist you: see chapter 9.

Contact us whenever necessary.

IMPLEMENTOS AGRÍCOLAS JAN S/A

**NOTE:**

- *Due to its policy of ongoing product improvement, Jan reserves the right to make changes and improvements without this implying any obligation regarding previously manufactured products. Therefore, the content of this manual is updated until the date it was printed, and may suffer changes without prior notice.*
- *The purpose of this manual is to provide instructions covering the implement/machine in its entirety, with accessories and variations. Therefore, it assumes no responsibility regarding the configuration of the implement just acquired; that is, some items described in this manual may not be present on your implement/machine.*
- *Some illustrations may show details slightly different from those found on your implement/machine, as they were obtained from prototype machines, without this affecting the understanding of the instructions.*
- *Some pictures shown in this Manual were obtained by removing the guards and shields from the implement/machine in order to make identification easier. However, do not operate your Lancer without such protections.*
- *Work while respecting nature: do not dispose of waste, oils, filters, batteries, fuels and other contaminants in the environment. These practices harm your health, your family's health and even future generations. Send used products for proper recycling. The environment will thank you.*



|                                                                      |           |
|----------------------------------------------------------------------|-----------|
| <b>1 - Introduction .....</b>                                        | <b>3</b>  |
| <b>2 - Safety and Environment .....</b>                              | <b>7</b>  |
| 2.1 - Warning Symbols used in this manual.....                       | 7         |
| 2.2 - Lancer safety decals.....                                      | 8         |
| 2.3 - Safety features on the implement.....                          | 11        |
| 2.4 - Recommended Personal Protective Equipment (PPE) .....          | 12        |
| 2.5 - General safety and implement preservation .....                | 12        |
| 2.6 - Operating Safety .....                                         | 14        |
| 2.7 - Implement transport and movement.....                          | 19        |
| 2.8 - Safety during maintenance .....                                | 23        |
| 2.9 - Definition of responsibilities .....                           | 25        |
| 2.10 - Emergency procedures .....                                    | 27        |
| <b>3 - Know Your Lancer.....</b>                                     | <b>28</b> |
| 3.1 - Intended Application of the Lancer .....                       | 28        |
| 3.2 - Left-hand / right-hand convention.....                         | 28        |
| 3.3 - Lancer Identification (Serial Number) .....                    | 29        |
| 3.4 - Available versions .....                                       | 29        |
| 3.5 - Identification of components.....                              | 30        |
| 3.6 - Technical Specifications .....                                 | 34        |
| 3.7 - Dimensions .....                                               | 34        |
| 3.8 - Hydraulic System .....                                         | 36        |
| 3.9 - Electrical system.....                                         | 38        |
| 3.10 - Optional accessories and configurations.....                  | 41        |
| 3.11 - Loose items supplied with the Lancer.....                     | 43        |
| 3.12 - Estimated service life and decommissioning .....              | 44        |
| <b>4 - Lancer Assembly .....</b>                                     | <b>45</b> |
| 4.1 - Front axle assembly .....                                      | 45        |
| 4.2 - Header assembly.....                                           | 46        |
| 4.3 - Rear axle assembly.....                                        | 47        |
| 4.4 - Hub and wheel assembly .....                                   | 47        |
| 4.5 - Driveline installation .....                                   | 48        |
| 4.6 - Distribution disc assembly.....                                | 49        |
| 4.7 - Distribution disc guard assembly.....                          | 49        |
| 4.8 - Easy tarp kit assembly .....                                   | 50        |
| <b>5 - Attaching the Lancer to the tractor and preparation .....</b> | <b>51</b> |
| 5.1 - Attaching the Lancer to the drawbar .....                      | 51        |
| 5.2 - Driveline assembly, adjustments, and working angle .....       | 53        |
| 5.3 - Hydraulic pump installation.....                               | 54        |
| 5.4 - Electrical connection .....                                    | 57        |

|                                                             |            |
|-------------------------------------------------------------|------------|
| <b>6 - Lancer settings in operation .....</b>               | <b>58</b>  |
| 6.1 - Operation Instructions .....                          | 58         |
| 6.2 - Tractor speed .....                                   | 58         |
| 6.3 - Replacing the funnel assembly .....                   | 59         |
| 6.4 - Using the dispersing curtain and divider .....        | 61         |
| 6.5 - Conveyor belt speed .....                             | 61         |
| 6.6 - Metering gate control.....                            | 62         |
| 6.7 - Product application metering test.....                | 62         |
| 6.8 - Distribution discs fins.....                          | 68         |
| 6.9 - Adjusting the product drop point onto the discs ..... | 71         |
| 6.10 - Disc speed .....                                     | 72         |
| 6.11 - Controlling the distribution width .....             | 72         |
| 6.12 - Distribution profile uniformity control.....         | 74         |
| 6.13 - Product application tables .....                     | 77         |
| 6.14 - Use of the Easy tarp system (optional) .....         | 93         |
| <b>7 - Maintenance instructions .....</b>                   | <b>95</b>  |
| 7.1 - Periodical maintenance chart.....                     | 95         |
| 7.2 - Grease lubrication (daily) .....                      | 97         |
| 7.3 - Gearbox lubrication.....                              | 99         |
| 7.4 - Hydraulic System Maintenance .....                    | 101        |
| 7.5 - Conveyor tension adjustment and maintenance .....     | 104        |
| 7.6 - Transmission chain maintenance.....                   | 114        |
| 7.7 - Tire inflation .....                                  | 115        |
| 7.8 - Wheel hub maintenance.....                            | 115        |
| 7.9 - Toe-In adjustment.....                                | 117        |
| 7.10 - Removal and installation of the wheels .....         | 118        |
| 7.11 - Lancer cleaning and preservation .....               | 119        |
| 7.12 - Suggested spare parts for stock.....                 | 121        |
| <b>8 - Troubleshooting and possible solutions .....</b>     | <b>123</b> |
| <b>9 - Technical assistance .....</b>                       | <b>125</b> |
| 9.1 - Spare parts.....                                      | 125        |
| 9.2 - Jan Warranty Terms.....                               | 126        |

Although we know that safety is, above all, a matter of awareness and common sense, this manual presents a series of precautions to be taken when using the Lancer Evolution.

Remember: all equipment has operating capacities and limitations. For your safety, do not exceed them.

Please note that it is not possible to list here all risk situations involved in the assembly, operation and maintenance of the equipment and, as previously stated common sense must be used.

**NOTE:**

*Apart from the safety recommendations contained in this manual, review the recommendations contained in your tractor's Manual.*

**2.1 - Warning Symbols used in this manual.****NOTE:**

*This symbol here with the word "NOTE" indicate special interest points to maintenance or operation instructions. Failure to follow these recommendations may result in reduced performance, decreased service life or minor damage to the equipment and indirect risks to your safety, as well as voiding the factory warranty.*

**IMPORTANT:**

*The symbol shown next to it and the word "IMPORTANT" are used to highlight special instructions and/or procedures that, if not followed, may result in premature equipment wear and risk of minor to moderate personal injury, in addition to voiding the factory warranty.*

**ATTENTION!**

*The symbol beside it and the word "ATTENTION" identify instructions that, if not observed, represent a risk of accidents with serious bodily injury and even death, as well as severe damage, total loss of the equipment and loss of the factory warranty.*

### 2.2 - Lancer safety decals

The Lancer has decals containing the main safety precautions related to the use of the equipment.

Always keep the decals in good condition. In case of damage or repainting of the Lancer, you can purchase new decals as a replacement part: just ask for the code in the lower right corner of the stickers.



Code: 74031122 - Do not approach the driveshaft with the machine in operation.



Code: 74031121 - Stay away from the distribution area.



Code: 74031002 - Vane angular position.



Code: 200000000826 - Stainless steel care.



Code: 74011012 - Grease daily.



Code: 74074074 - Oil change.



Code: 74074076 - Relieve hydraulic system pressure.



Code: 74031123 - Conveyor belt tensioning.



Code: 74094004 - Bolt retightening.



Code: 74094005 - Request the instruction manual.



Code: 74141066 - Periodically inspect the internal filters.

**Area maior** - Produtos em pó.  
Ex.: Calcareo, gesso.  
**Larger area** - Powder products.  
Ex.: Limestone, plaster.  
**Area menor** - Produtos em pó.  
Ex.: Calcareo, gesso.

**Area maior** - Produtos granulados e sementes.  
Ex.: Urea, sementes.  
**Smaller area** - Granulated products and seeds.  
Ex.: Urea, seeds.  
**Area menor** - Productos granulados y semillas.  
Ex.: Urea, arena.

**ATENÇÃO  
ATTENTION  
ATENCIÓN**

**FUNIS DE DEPOSIÇÃO**  
- A uniformidade do perfil de distribuição depende do modelo de funil usado no Lancer. Confira se o modelo de funil está de acordo com o tipo de produtos distribuídos.

**DEPOSITION FUNNELS**  
- The uniformity of the spreading depends on the model of the funnel used in the Lancer. Check if the model of the funnel is suitable to the type of products to be spread.

**EMBUDOS DE DEPOSICIÓN**  
- La uniformidad del perfil de distribución depende del modelo de embudo empleado en el Lancer. Compruebe si el modelo de embudo está de acuerdo al tipo de producto que será distribuido.

200000001105

Code: 74031004 - Deposition funnels.

OLEO • OIL • ACEITE  
**ISO VG 68**

**ATENÇÃO  
ATTENTION  
ATENCIÓN**

Verifique periodicamente o nível de óleo hidráulico

Periodically check the hydraulic oil level

Verifique periódicamente el nivel de aceite hidráulico

74141117

Code: 74141117 - Periodically check the hydraulic oil level.



Code: 200000003974 - Metering gate scale.

**RELAÇÃO DE TRANSMISSÃO  
TRANSMISSION RATIO  
RELACIÓN DE TRANSMISIÓN**

| Produto<br>Product<br>Producto                                     | Rotação do motor hidráulico (1) (rpm)<br>Hydraulic motor rotation (1) (rpm)<br>Rotación del motor hidráulico (1) (rpm) | Rotação do eixo redutor (2) (rpm)<br>Reducer shaft rotation (2) (rpm)<br>Rotación del eje reductor (2) (rpm) | Rotação do eixo da esteira (3) (rpm)<br>Conveyor shaft rotation (3) (rpm)<br>Rotación del eje de la estera (3) (rpm) |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Calcareo / Limestone / Calcareo<br>Gesso / Plaster / Yeso          | 388 (máx)                                                                                                              | 388 (máx)                                                                                                    | 9,7 (máx)                                                                                                            |
| Fertilizante granulado/<br>Granular fertilizer/<br>Abono granulado |                                                                                                                        |                                                                                                              |                                                                                                                      |

200000000317

Code: 200000000317 - Transmission ratio.

**ABERTO  
OPEN - ABIERTO**

**FECHADO  
CLOSE - CERRADO**

**ATENÇÃO  
ATTENTION  
ATENCIÓN**

**POSIÇÃO ABERTO:** Manter os registros sempre nesta posição.

**POSIÇÃO FECHADO:** Somente quando o sistema hidráulico necessitar de manutenção. Verifique o manual de instrução.

**OPEN POSITION:** Keep the ball valves always in this position.

**CLOSE POSITION:** Only when the hydraulic system requires maintenance. Check instructions manual.

**POSICIÓN ABIERTO:** Mantener los registros siempre en esta posición.

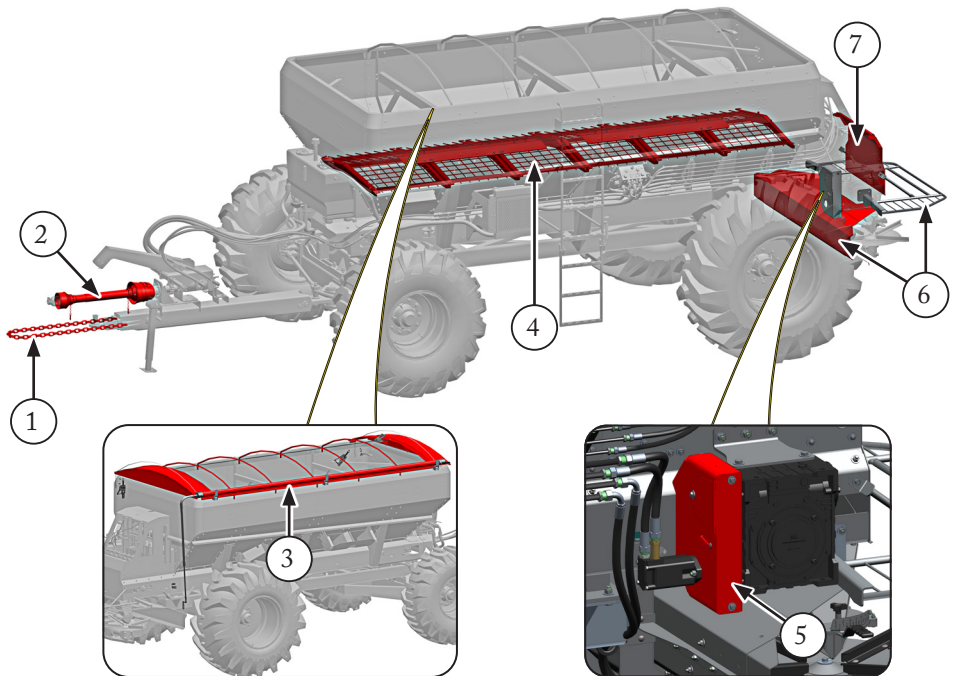
**POSICIÓN CERRADO:** Solamente cuando el sistema hidráulico necesitar de manutención. Consulte el manual de instrucción.

74031328

Code: 74031328 - Open and closed valve position.

### 2.3 - Safety features on the implement

The implement has several safety items, such as guards and decals (see item 2.2). The correct use of these items is essential for operating the Lancer.



1. Safety chain: prevents complete separation between the tractor and implement in the event of accidental disengagement of the drawbar pin.
2. Cardan shaft shield
3. EasyTarp Kit.
4. Hopper grid: protects the product discharge area against the entry of foreign objects and even people or animals.
5. Transmission guards.
6. Distribution disc guards.
7. Metering system protective cover.



#### **ATTENTION!**

*Take the necessary precautions to prevent the cover (7) from falling due to external forces, such as wind. Risk of serious injury.*



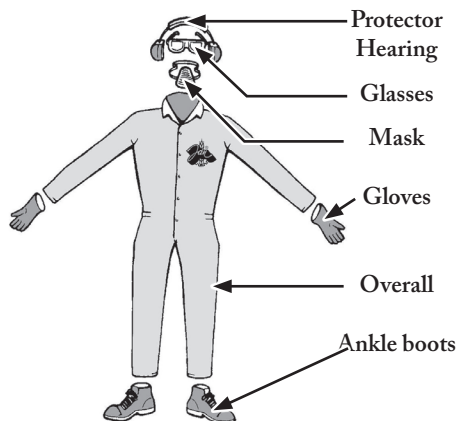
## 2.4 - Recommended Personal Protective Equipment (PPE)

All personnel involved in operation and/or maintenance must use the PPE recommended alongside:



### NOTE:

*Additional personal protective equipment may be required or necessary depending on the specific application of the equipment.*



## 2.5 - General safety and implement preservation

Jan values the safety of those who use its products.

This manual provides essential instructions that must be read and carefully understood. It is the responsibility of the equipment owner to be familiar with the operating procedures and the risks associated with its use.



*Read this manual carefully!*

*Failure to read this manual may result in serious accidents.*



*This implement has moving parts! Approaching or interfering with them may cause serious injuries and even limb amputation or death!*



*People and animals must maintain a minimum distance of 60 meters from the distribution discs when the Lancer is in operation.*

- In addition to the safety guidelines presented in this document, also follow the instructions in your tractor manual.
- Make sure the tractor has adequate capacity to operate the Lancer; refer to the requirements in Technical Specifications, item 3.6.
- Never use the equipment if you notice any sign of structural, hydraulic, or transmission failure.



- In case of any doubt or suspicion, immediately stop the operation and inform the responsible person or contact Jan After-Sales Service: see Chapter 9.
- Personnel in training may only operate or assist in the use of the implement when properly supervised and instructed by qualified and experienced professionals.
- This manual must remain accessible and be known by all personnel involved in the operation.
- Use the PPE indicated in item 2.4.
- Avoid loose clothing and keep long hair tied back.
- Remove accessories such as watches, earrings, rings, chains, and similar items when working with the implement.
- Do not operate the implement if you are tired, under stress, or under the influence of alcohol, drugs, or certain medications.
- Do not smoke while operating or remaining near the implement.
- Turn off the tractor engine before performing any adjustment, maintenance, or other intervention on the Lancer.
- Make sure you are fully familiar with the equipment's operating and maintenance procedures. Before first use, present this manual and instruct the operators.
- Never allow unauthorized persons to operate the Lancer or the tractor.
- Keep children and bystanders away during operation, maneuvering, or coupling of the implement.
- Do not allow people to remain on, around, or inside the Lancer. This is only permitted with the equipment stopped, the engine turned off, and all measures taken to prevent falls and accidents.
- Always keep the implement in good working condition.
- Before starting movement, ensure there are no people, animals, objects, or obstacles in the path.
- Follow all instructions contained on the safety decals affixed to the implement.
- Perform proper cleaning of the implement.

## 2.6 - Operating Safety

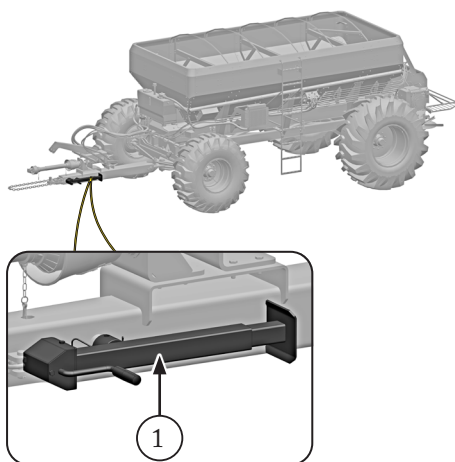


### IMPORTANT:

*Prevent obstacles and the risk of accidents: always disengage the Lancer on flat, level ground and chock the wheels with suitable chocks to ensure complete immobilization of the wheels.*

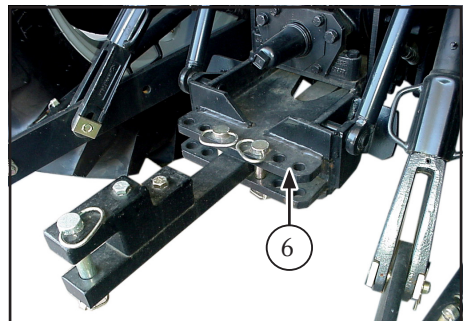
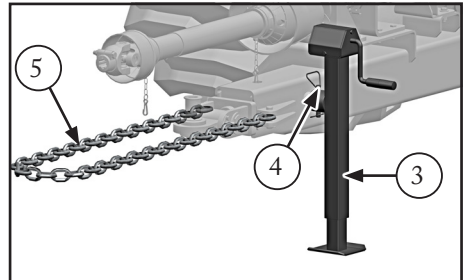
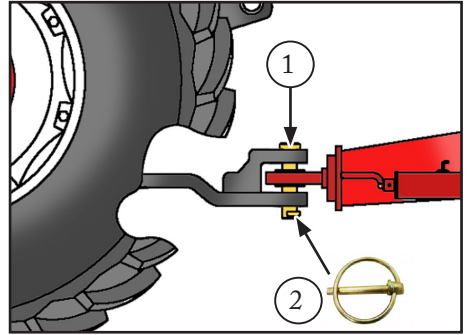
### A) General precautions

- Only load and unload the Lancer with the implement attached to the tractor.
- Operate the implement only with all protective components properly installed.
- Do not transport people during operation or travel.
- When making sharp turns, disengage the power take-off (PTO) and make sure the tractor's rear tires do not interfere with the Lancer header.
- When operating the implement, keep the jack (1) off the ground.
- Only allow people involved in the operation to approach the equipment.
- Ensure that the wheel fastening nuts are always properly tightened.
- When working, especially on sloped terrain, exercise extra caution to maintain stability and control of the tractor and implement, using appropriate speeds for each situation.



### B) Precautions when attaching and detaching the Lancer

- Make sure that the tractor drawbar is sized for the size and weight of the loaded Lancer: a drawbar that is too thin and long may not withstand the forces between the implement and the tractor.
- Use a suitable hitch pin (1) and always install a locking device (2).
- Perform maneuvers with the tractor at low speed and do not allow people to approach the implement or remain between the tractor and the equipment.
- Always disengage the Lancer on flat, level ground. Besides facilitating the procedure, it also makes the engagement safer and easier.
- Before disengaging, make sure the Lancer will remain stationary. When in doubt, use appropriate wedges to chock the wheels.
- Use the jack (3) correctly, always installing the locking pin (4) and a safety cotter pin in the jack in both positions: parking and transport.
- When attaching the Lancer to the tractor, always connect the safety chain (5) to a structural point, such as the drawbar support (6).
- Do not move the tractor with the jack lowered (storage position).



### C) Tank and ladder

To open and close the ladder:

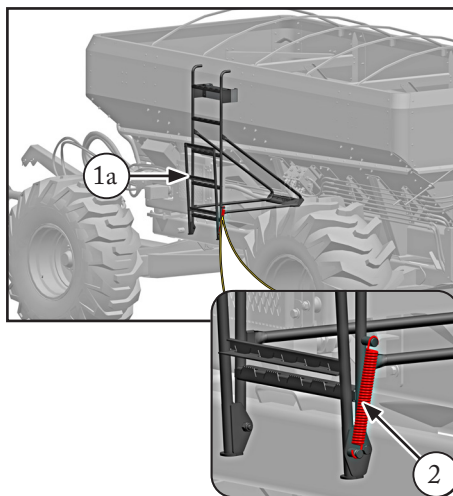
- To close the ladder, fold the retractable ladder assembly (1a) upward. The spring (2) keeps the assembly fixed.
  - To open the ladder, pull the retractable assembly (1a) downward: the assembly has stops that lock the ladder in place.
- Always hold on with both hands on the ladder (1) and use the appropriate PPE.



#### **IMPORTANT:**

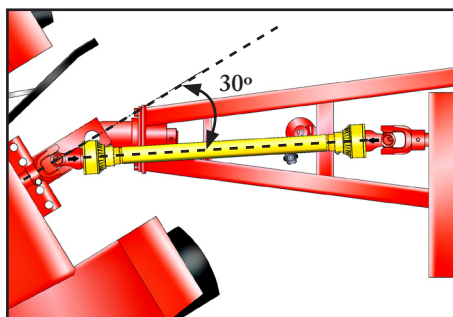
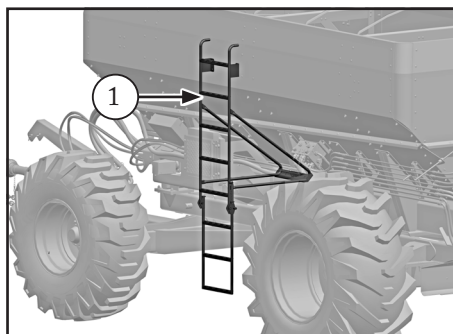
*The interior of the hopper is smooth and may cause slipping and injuries.*

- Always disengage the tractor PTO before entering the hopper.



### D) Power Take-off (PTO) and rotating components

- When making sharp turns, turn off the power take-off and make sure the rear tires of the tractor do not interfere with the header of the Lancer.
- Never approach the PTO shaft or moving components.
- Do not wear loose hair and/or loose clothing when operating equipment.
- Only connect the driveline to the PTO shaft with the engine shut off.
- When attaching the driveshaft for the first time, check whether its length is adequate: see item 5.2.
- Don't start or shut off the engine with the power take-off (PTO) engaged.
- Never exceed a 30° angle of the driveline during operation.



### E) Lancer-to-tractor relationship:

- Read the tractor manual safety rules regarding all precautions related to the tractor.
- Especially when working on slopes, take all necessary precautions to maintain tractor stability and directional control, such as:
  1. Only tow the loaded Lancer with a properly sized tractor. A very light tractor or one with insufficient power can lose control.
  2. Use the correct ballast for the tractor front and rear axles.
  3. Always lock the brake pedals together using the connecting lock (1).
  4. Maintain a speed suitable for the conditions of each situation. When traveling downhill, always use the same gear that would be used when traveling uphill.
  5. Do not drive the tractor laterally across slopes; instead, travel perpendicular to the slope, that is, drive the tractor uphill or downhill, not sideways.

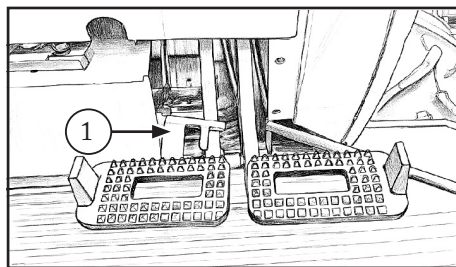
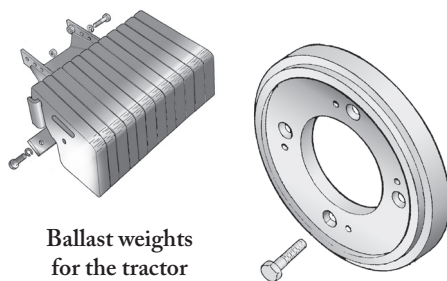


Image for reference only

### F) Safety around power lines

- When traveling or operating near power lines, always observe the clearance between the equipment and the power line cables. Also check the lateral distance from poles, towers, and guy wires.
- High-voltage lines require additional clearance to ensure safe operation.
- If there is any doubt regarding safe distances, consult the local power utility or the appropriate authorities.

- Before passing under electrical cables, check for any raised or extended components on the equipment.
- Retract or lower any raised parts before continuing movement.
- Never park the equipment under or near power lines.
- When encountering a downed cable, do not approach and prevent others from doing so.
- Immediately notify the power utility company responsible for the electrical network.

### Guidelines

In case of contact with energized cables, strictly follow the instructions below:

- Stop the equipment immediately and shut off the engine.
  - Assess whether it is possible to leave the equipment without touching the wires.
  - If it is not safe, remain on the equipment and request assistance.
  - Do not touch the downed cable or any metal component in contact with the power line.
- 
- Do not allow people to approach.
  - Only power company technicians or firefighters are authorized to perform rescue or equipment release procedures.
  - If you have a phone, contact third parties, the power utility, and/or the fire department.
  - If you do not have a phone, remain at the operator's station until help arrives.

In the event of a tractor fire or any situation that makes it impossible to remain at the operator's station, follow the procedure below:

To exit the equipment safely:



**ATTENTION!**

*Never touch the ground and the equipment at the same time. This simultaneous contact causes an electric shock through the body that is usually fatal!*

- The only safe way to leave the equipment is by jumping away:
  - Jump away with both feet together, to the side opposite the point where the equipment is in contact with the power line.
  - After landing, move away without separating your feet (shuffle with “bunny steps”) until reaching a safe distance.
- Only allow utility company crews and/or the Fire Department to approach.

## **2.7 - Implement transport and movement**

### **A) Travel on public roads**



**ATTENTION!**

*The movement of the implement coupled to the tractor must not be carried out on public roads and highways. This practice must be restricted to within properties and rural areas.*

- Consult the traffic authority regarding the regulations in force in your region and the possible permission to travel with the Lancer and tractor on certain stretches of road.
- Request guidance, authorization, and procedures in writing.
- In locations and situations where movement is authorized, follow precautions such as:
  - Only duly qualified operators may drive the tractor, meeting the requirements of the license category.
  - On level roads, do not exceed the speed of:  
20 km/h with the hopper loaded.  
30 km/h with the hopper empty.



- On uneven roads, reduce speed enough to ensure safety.
- Be informed about the mandatory safety devices, such as the SMV decal (1), lights and lamps, turn signals (flashers), among others.
- The SMV decal is installed at the rear of the Lancer. The tractor must also have its own SMV emblem.
- Keep the brake pedals (2) coupled by the locking latch (3), ensuring uniform braking on both wheels. Before accessing the road, check that the brakes, headlights, lamps, and turn signals are working properly.
- Always drive the tractor on the appropriate side of the road.
- Turn on the hazard warning lights.
- Keep the headlights on, even during the day.

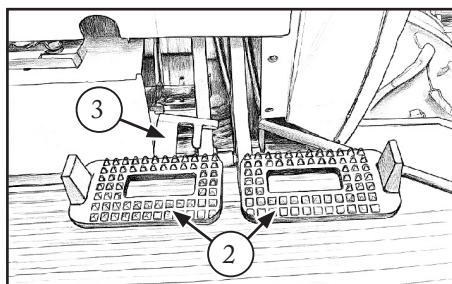
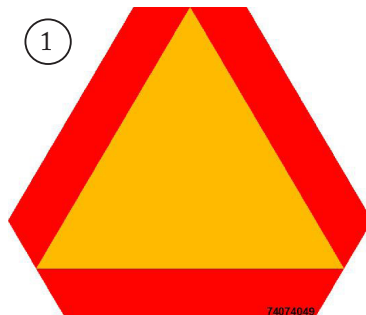


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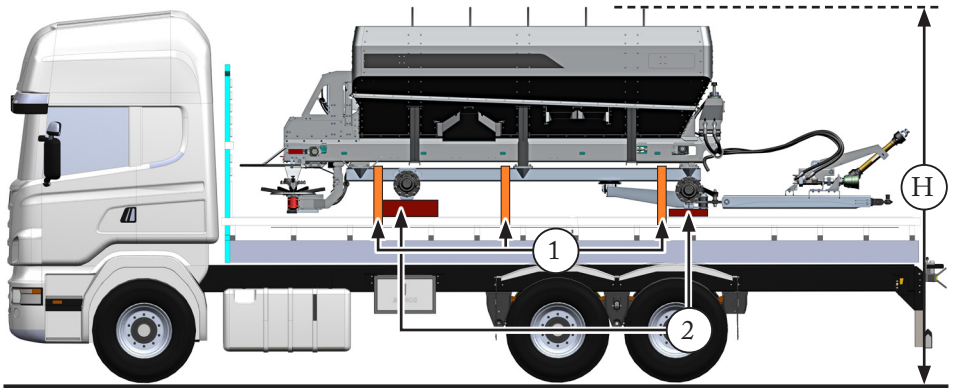
### B) Transport by truck

- For transporting the Lancer over long distances or on public roads, transportation by truck is recommended, as this is the safest method. Even so, this procedure must comply with the requirements established by current traffic legislation.
- The hopper must be empty.
- To transport the Lancer Evolution on a flatbed truck, the wheels must be removed.
- When using a flatbed truck, there is no need to remove the wheels.





- Transport must be carried out exclusively by professionals qualified for this type of operation and using a truck properly sized for the load.

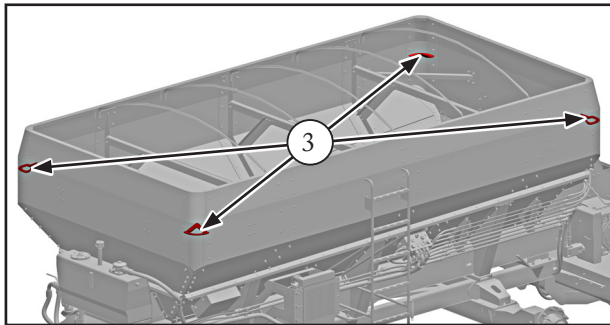


- The implement must be loaded onto the truck by lifting it using the lifting lugs (3) located at the four corners inside the hopper.

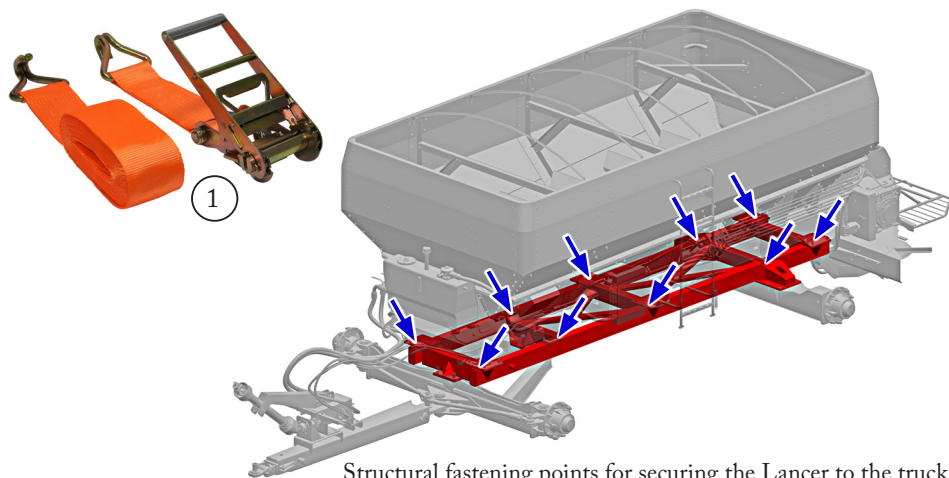


### **IMPORTANT:**

*Do not use forklifts or cranes to move the Lancer.*



- Use wooden chocks (2) at the ends of the front and rear axles.
- Check the permitted height limit (H), measured at the highest point of the Lancer.
- When passing under overpasses, observe the indicated clearance height.



Structural fastening points for securing the Lancer to the truck

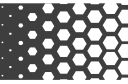
- Make sure that no component or section of the implement remains loose on the truck bed.
- Keep the hydraulic hoses properly coiled and secured to prevent them from coming loose and posing risks to other vehicles or people on the road.
- Exercise extra caution when passing near trees, power lines, etc.
- The implement must be positioned and secured on the truck bed or trailer without any lateral overhang.



### **IMPORTANT:**

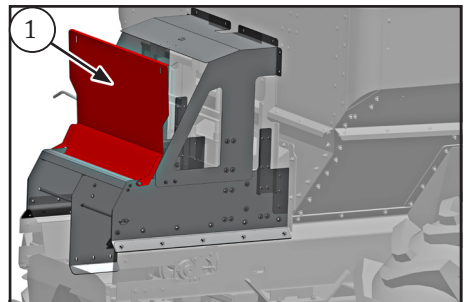
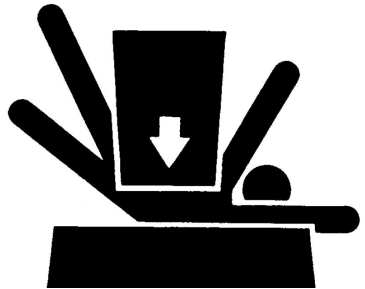
*The implement must only be secured to structural points and never to moving components and/or other components with no structural function, otherwise serious damage may occur.*

- The implement must be secured with straps (1) or wire ropes (on both sides of the equipment), anchored to structural points, as shown in the figures:
- Each strap or wire rope (1) must have a load capacity of at least twice the total weight of the Lancer and must be equipped with a ratchet to ensure complete security during transport.



## 2.8 - Safety during maintenance

- If the tractor is attached to the Lancer, always turn off the engine before performing any maintenance or adjustment. Engage a low gear, apply the parking brake, and remove the ignition key.
- Position the equipment on a flat, level, and firm surface, ensuring proper support to carry out the work.
- Clean both the operating area and the implement beforehand.
- The presence of oils, grease, or other residues may cause slips and falls.
- Take precautions when handling oils and grease, as these products contain carcinogenic chemical components. If contact with eyes or ingestion occurs, seek medical attention immediately.
- When removing one or more wheels, never leave the implement supported only by the jack; use sturdy, stable jack stands under the structure or axle.
- Never remain under loads suspended by a jack or lifting equipment.
- Place removed components or assemblies on appropriate workbenches or jack stands that are properly sized, stable, and supported on solid surfaces.
- Fully open the cover (1) and secure it to prevent external forces (such as wind) from causing the cover to fall. Risk of serious injury.



### Take proper fire prevention precautions, such as:

- Keep a fire extinguisher always available in the work area.
- Keep the implement and the environment clean, free of oil, grease, straw, or any other flammable material.
- Do not smoke while performing the activities.
- If lighting is insufficient, never use an open flame to illuminate the area, as there is a high risk of fire.
- If access to high sections of the implement is required, use suitable ladders or scaffolding, with appropriate load capacity, properly leveled and firmly supported.
- Never loosen hydraulic connections in pressurized systems: the oil jet may penetrate the skin and cause injuries, irritation, or serious infections. In case of an accident, seek medical assistance immediately.
- Before applying grease to the grease fittings or removing drain, level, or oil fill plugs, clean the area beforehand to prevent dirt from entering.
- Do not start the tractor in an enclosed environment without ensuring proper ventilation through open doors and windows, as exhaust gases may cause intoxication, fainting, and even death.



## **2.9 - Definition of responsibilities**

According to NR-31 - Regulatory Standard for Occupational Safety and Health in Agriculture, Livestock, Forestry, Forest Harvesting and Aquaculture, in addition to the powers and obligations assigned to the Labor Inspection Secretariat (SIT), both the operator and the owner have responsibilities regarding safety in the use of machines.

Some of the provisions of NR-31 are presented below:

### **A) Responsibilities of Jan Implementos Agrícolas S/A**

- Ensure that our customers are fully satisfied with the products and services we offer.
- Provide all necessary information so that the customer can maximize the performance and durability of the Jan product.
- Provide the first owner with all essential guidance for the proper operation of the equipment, either digitally or in person. In this presentation, various information is conveyed, including demonstrations of procedures involving all parts of the implement, as well as details on operation, maintenance, warranty conditions, and other relevant aspects.



#### **ATTENTION!**

*Jan Company is not responsible for consequences arising from:*

- *Modifications to the original characteristics of the implement, as well as the installation of accessories not approved by Jan.*
- *Damage to the implement or risks to the operator's physical integrity resulting from lack of knowledge, failure to follow safety instructions, lack of skill, or negligence.*
- *Operation or movement in areas with excessive slope, whether lateral or longitudinal, or on terrain that does not provide adequate traction or support.*

### **B) Responsibilities of the owner and/or operator**

- The owner, whether the operator or not, is responsible for instructing and training themselves and any person directly or indirectly involved in the use and maintenance of the implement.
- Comply with and enforce all recommendations provided in the instruction manuals.
- Keep this manual in an easily accessible location for anyone who needs to consult it.
- Maintain the implement and the instruction manuals in good condition.
- Ensure adequate working conditions, hygiene, and comfort, as well as identify and assess risks to workers' safety and health.
- Provide the necessary Personal Protective Equipment (PPE) and require its use.
- Seek information on hygiene, safety, and occupational health practices.
- Encourage and implement continuous improvements in the work environment and working conditions.
- Instruct all individuals involved in the use of the implement regarding environmental care, risks, and requirements established by current labor and environmental legislation.
- Adopt and comply with standards related to safe work practices.

### **C) Recommended requirements for the operator**

- Skills: driving and operating agricultural equipment.
- Capabilities: operation and maintenance.
- Recommended training: training for operation and maintenance of agricultural machinery.
- To operate agricultural equipment on public roads, consult the traffic legislation in force in your region regarding authorization for this practice and, if permitted, verify all prerequisites and conditions, such as license category, specific permits, among others.

### **D) Environmental responsibilities**

- Any implement component, as well as fluids and other materials, , must be properly disposed of when replaced, in accordance with the applicable legislation in your region and the respective manufacturers' guidelines.
- Preserve the environment by avoiding contamination of soil, air, and water.  
To do so, properly dispose of contaminated parts and other items replaced due to wear or damage.
- If recycling cannot be carried out immediately, waste must be stored in appropriate locations until collection.

### **When replacing parts and oils**

- Store oil in closed containers, in a dry, ventilated area and out of reach of children or animals.
- As soon as possible, deliver the material to fuel stations or companies specialized in collection and recycling.
- Store the removed parts, such as chains and hoses, in boxes and send them to appropriate collection points.

## **2.10 - Emergency procedures**

Situations considered as emergencies include:

- Fire.
- Implement rollover.
- Contact with power lines: for this circumstance, proceed as indicated in item 2.6 - H.

Whenever any situation occurs that puts at risk the safety of those involved in the operation, in the equipment, or even the possibility of such risk:

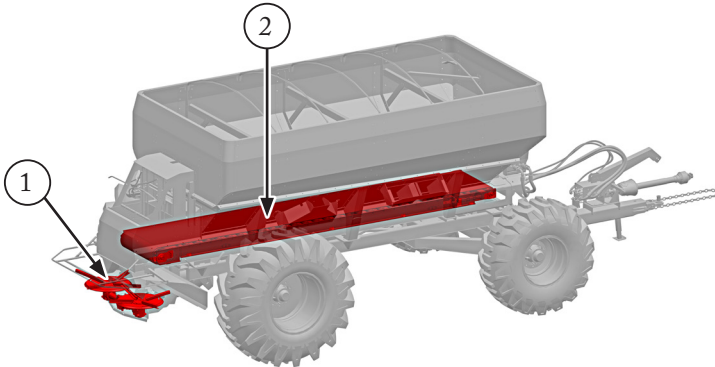
- Completely stop the operation, also shutting off the PTO (Power Take-Off) and the tractor.
- Remain calm and move away from the area, if possible.
- In the event of injury, provide first aid.
- Before calling emergency services, avoid crowding and gather information about the victim and the incident.
- Call emergency services, such as firefighters or hospitals.
- The person involved must receive medical evaluation, even if they appear to be physically well.

After the emergency condition and before resuming operation, eliminate the cause of the problem as quickly as possible.

## 3.1 - Intended Application of the Lancer

The Lancer Evolution spreader is designed for the precise distribution of fertilizers, seeds, wet or dry limestone, and gypsum.

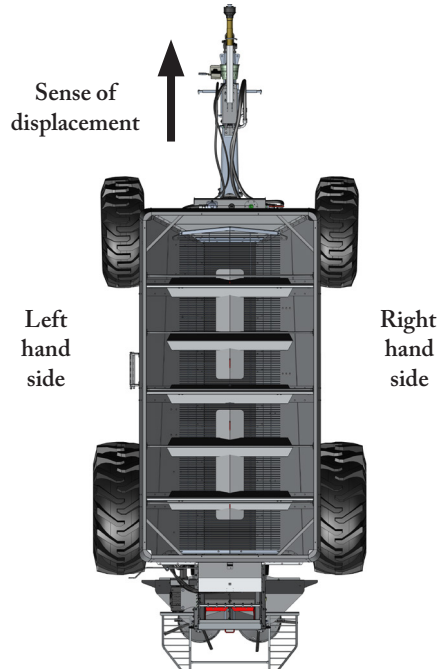
The fertilizer is transferred by gravity to the rubber conveyor belt (2), which carries it to the distribution discs (1).



## 3.2 - Left-hand / right-hand convention

The definition of the left-hand and right-hand sides is based on the viewpoint of a person looking at the implement from the rear and/or seated in the tractor operator's seat.

This convention is followed throughout the manual when describing procedures and locating Lancer components.

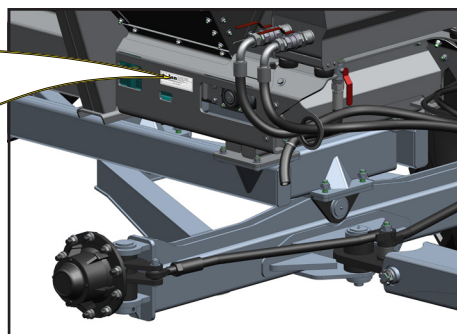




### 3.3 - Lancer Identification (Serial Number)

The Lancer Evolution is identified by a serial number, which allows accurate records to be maintained of any modifications made to the components and design characteristics of the equipment.

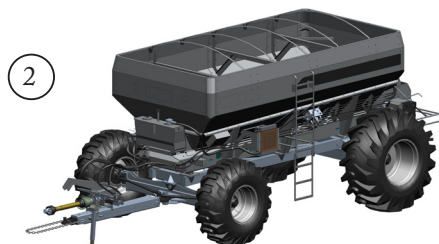
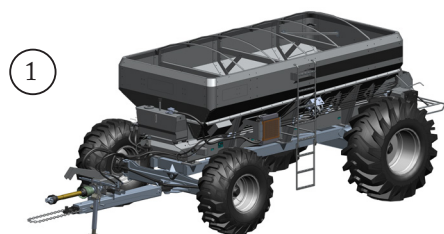
The serial number (1) is stamped on a nameplate attached to the RH side of the implement, near the conveyor tension adjustment on Lancer Evolution models.



### 3.4 - Available versions

In order to offer an option for every need, JAN offers the Lancer Evolution line with variations in structure and capacity:

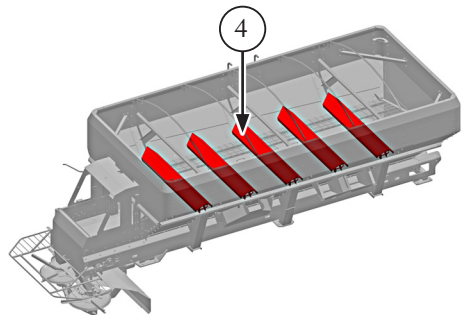
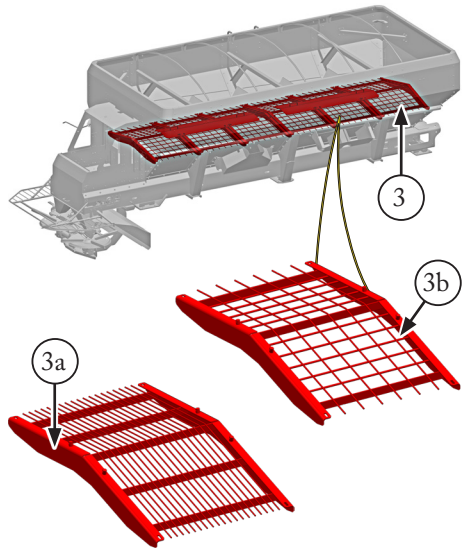
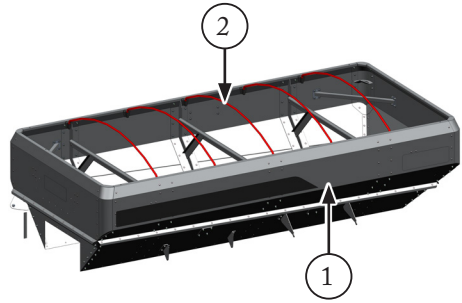
1. Lancer Evolution 25.000 with removable stainless steel panels.
2. Lancer Evolution 32.000 with removable stainless steel panels.



## 3.5 - Identification of components

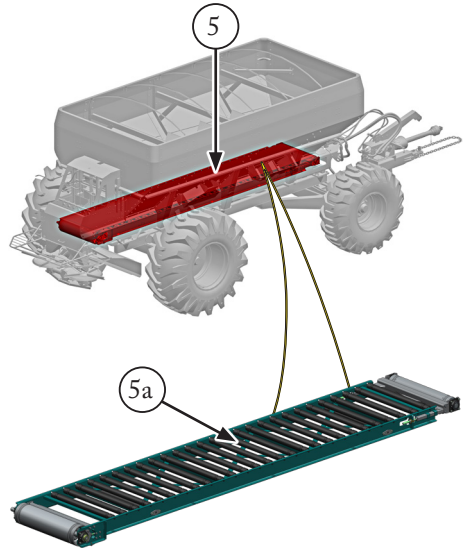
### Container

- Hopper (1): volumetric capacity and load capacity vary according to model and application. See technical specifications, item 3.6.
  - Tarp support bows (2): 5 units arranged along the top of the hopper (1).
  - Protection grids (3): optional, available in two models according to the product to be distributed:
- 3a. Application of granulated fertilizers (smaller mesh): protects against impurities and promotes product breakdown.
  - 3b. Limestone application (larger mesh): protects against impurities.
- Conveyor protective deflectors (4): prevent excessive product pressure and assist in breaking up compacted product over the conveyor during distribution, ensuring better distribution and increasing the service life of the conveyor and the Lancer transmission system.



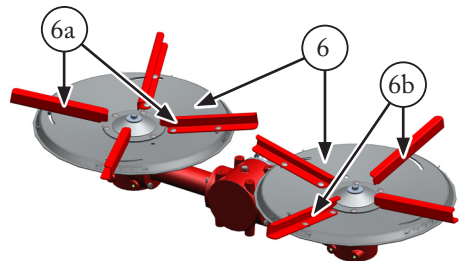
#### “Cassette” - type conveyor

- The conveyor (5) provides a continuous and optimized flow during distribution and metering, even at low application rates.
- Consists of a reinforced structure and Tecnil rollers (5a) fitted into the chassis, and a rubber conveyor with guides.
- “Extra abrasion” rubber conveyor, made of nylon plies with a factory-vulcanized splice and side guides to assist with centering and prevent misalignment during operation.



#### Distribution discs

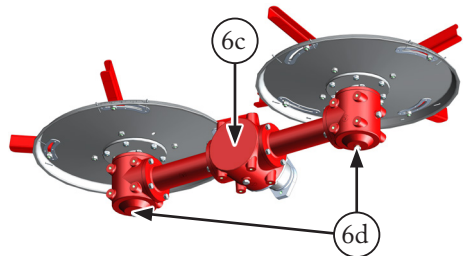
- Two stainless steel distribution discs (6), with four vanes per disc.
- For the distribution of granulated fertilizers: two short vanes (6a) and two long vanes (6b) on each disc, arranged alternately.
- For distribution of powder products: four short vanes (6a) on each disc.



#### **NOTE:**

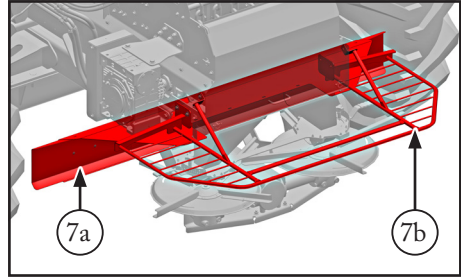
*The vanes are not interchangeable between the discs. Each disc has its own set of vanes.*

- The vanes (6a and 6b) have 5 angular adjustment positions, adapting the Lancer to a wide range of fertilizers.
- The final drive of the discs is provided by the central gearbox (6c) and side gearboxes (6d), forming a sealed, oil-lubricated assembly. See item 7.5 for lubrication instructions.



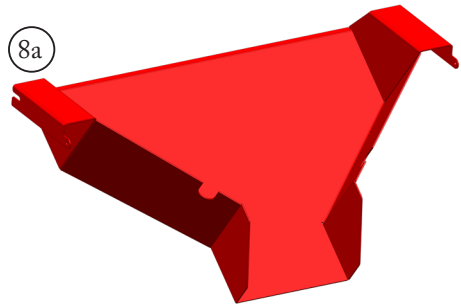
## Disc guards

The guards (7a and 7b) provide safer operation for the operator and protection for the implement.

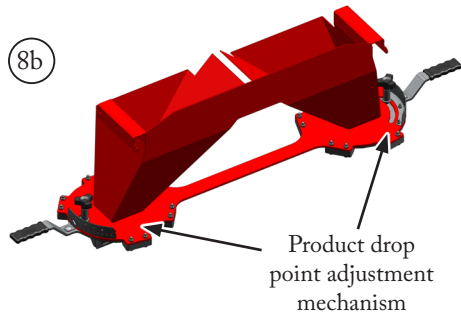


## Deposition funnels and flow rate test

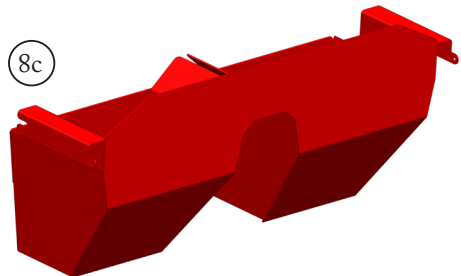
- The funnels drive the product from the conveyor (5) to the center of the spreader discs, improving the uniformity and reach of the distribution.
- When carrying out flow tests, these funnels drive the product for collection and weighing.
- The Lancer Evolution leaves the factory with the following types of funnel (one mounted on the Lancer and the others mounted on the side of the hopper):



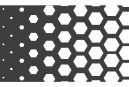
8a. Collector funnel: used to test the flow rate of the distribution system.



8b. Granulate deposition funnel: standard funnel, used for specific applications of products such as fertilizer. Includes a product deposition adjustment system.

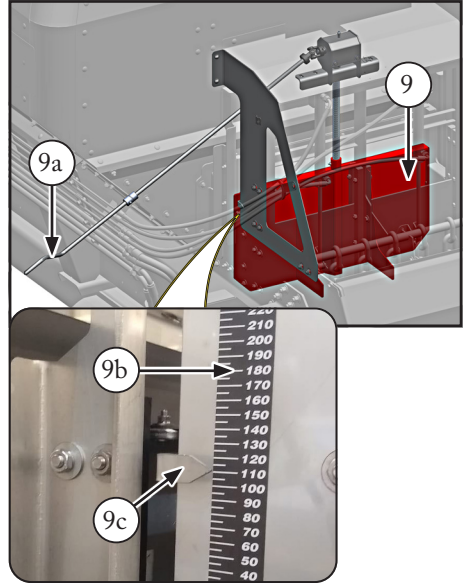


8c. Powder deposition funnel: used for specific applications of products such as limestone.

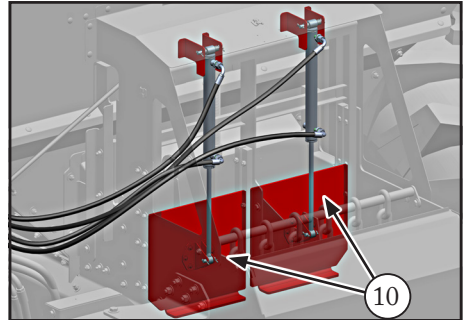


### Gates

- The metering gate (9) opening is controlled by the crank (9a), located on the side of the Lancer, and the scale (9b).
- The adjustment reference is the height of the pointer (9c) in relation to the scale (9b).



- The section cutoff gates (10) are hydraulically controlled independently, meaning that one gate can be closed while the other remains open.
- This feature is used when finishing off areas where product feed to one of the distribution discs must be interrupted.



### 3.6 - Technical Specifications

| Item / System                          | Evolution 25.000                                             | Evolution 32.000             |
|----------------------------------------|--------------------------------------------------------------|------------------------------|
| Available versions                     | Demountable stainless steel                                  |                              |
| Volumetric capacity (L)                | 12,500                                                       | 16,000                       |
| Recommended maximum load capacity (kg) | 18,750                                                       | 24,000                       |
| PTO speed (rpm)                        | 540 / 1,000                                                  |                              |
| Required power (cv)                    | 140 to 180                                                   |                              |
| Hitch system – drawbar type            | With hitch head. The drawbar must be of the Heavy Duty type. |                              |
| Empty weight approx. w/ tires (kg)     | 5,400<br>(30.5 L-32 MB39-14)                                 | 6,680<br>(30.5 L-32 MB39-14) |
| Distribution width (m)                 | Until 42                                                     |                              |

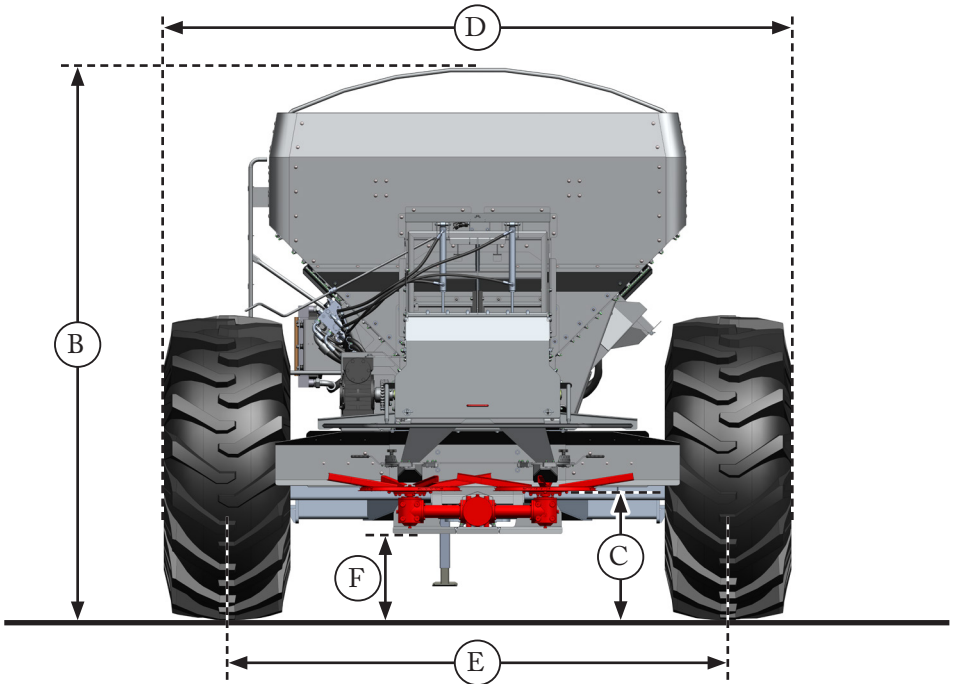
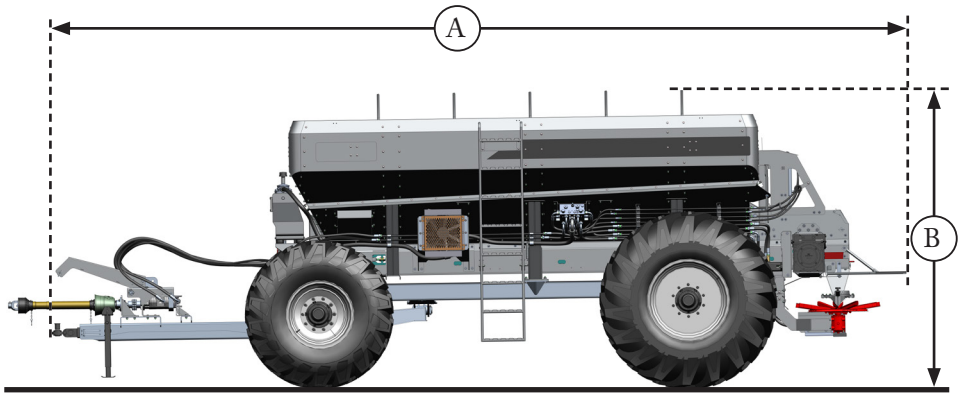
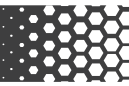
### 3.7 - Dimensions

| Item                        | Evolution 25,000 | Evolution 32,000 |
|-----------------------------|------------------|------------------|
| A. Overall length           | 9,030            |                  |
| B. Height                   | 2,960            | 3,320            |
| C. Disc height above ground | 675*             |                  |
| D. Overall width            | 3,845*           |                  |
| E. Track width              | 3,000*           |                  |
| F. Minimum ground clearance | 620*             |                  |



**NOTE:**

*\*Dimensions valid when using wheel assemblies approved by JAN for the Lancer Evolution. Refer to item 3.10 for wheel assembly specifications.*

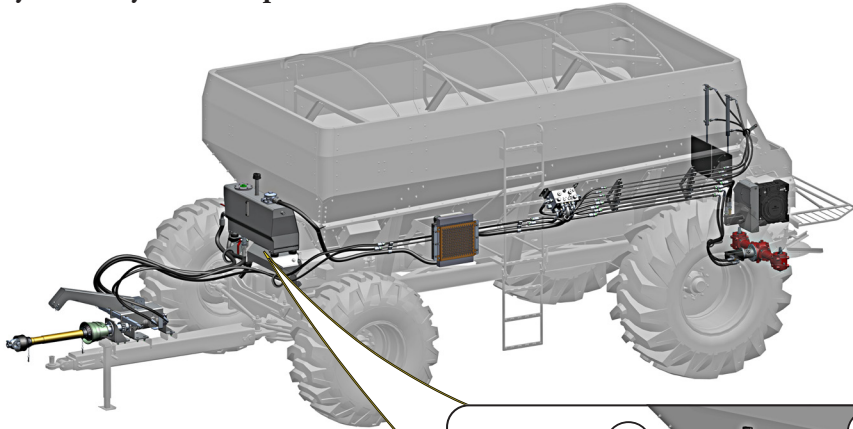




## 3.8 - Hydraulic System

On the Lancer Evolution, the conveyor, distribution discs, and section cutoff gates are hydraulically driven.

### A) Hydraulic system components



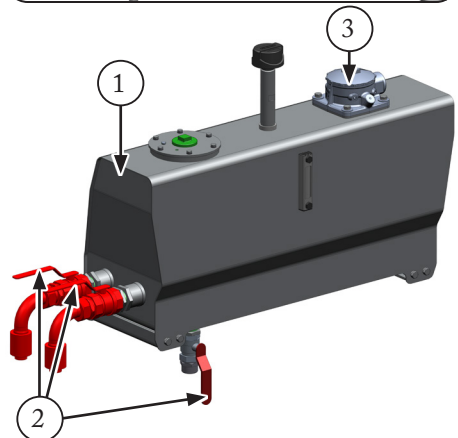
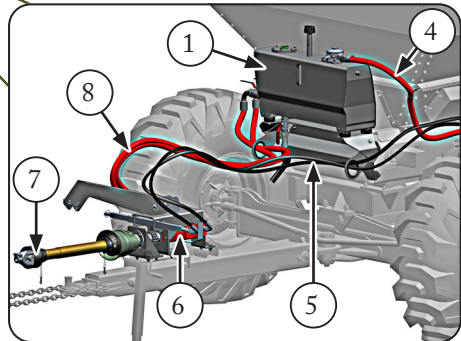
1. 115 L oil reservoir.
2. Valves:



#### **NOTE:**

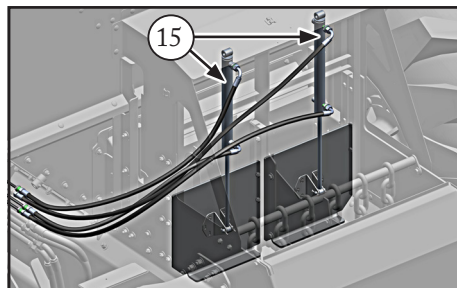
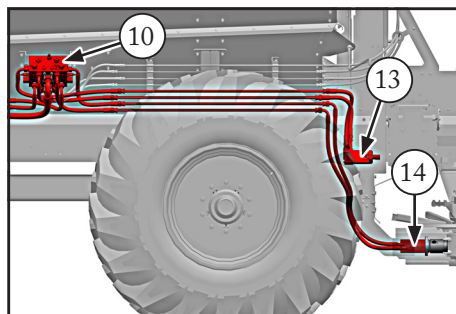
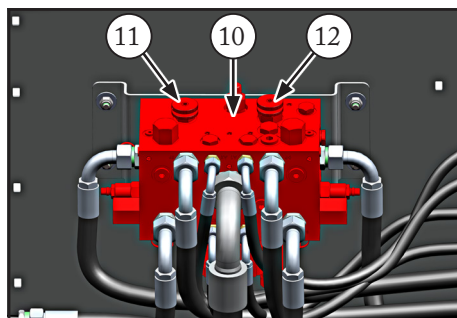
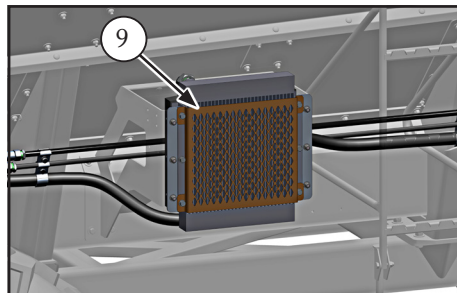
*Only perform maintenance with the shut-off valves closed.*

3. Filter.
4. Return hoses and pipes: carry the oil back to the reservoir, passing through the oil cooler (9).
5. Pressure hoses.
6. Hydraulic pump.
7. Drive shaft.
8. Suction hose.





9. Oil cooler and electric fan.
10. Control valve block for the flow and pressure of both functions.
11. Hydraulic motor speed adjustment knob (13) for the conveyor.
12. Hydraulic motor speed adjustment knob (14) for the discs.
13. Conveyor drive motor.
14. Distribution disc drive motor.
15. Section cutoff gate opening cylinders.

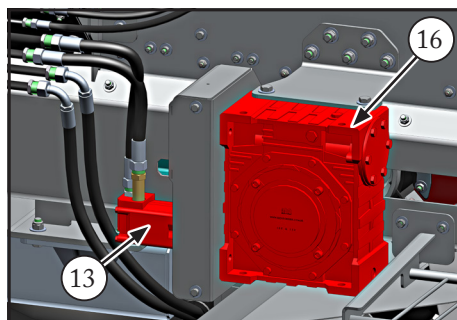


## B) Conveyor driving

From the hydraulic motor (13), power is transmitted through the gearbox and reducer (16).

The conveyor speed can be adjusted using the knob (11).

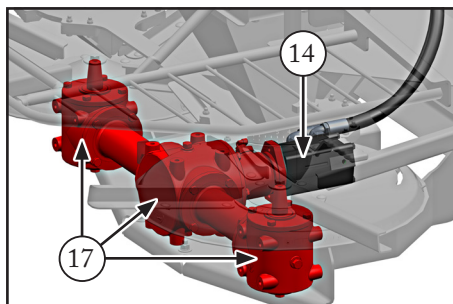
See item 6.5 for more information on conveyor speed adjustment.



## C) Disks drive

The discs are driven by the hydraulic motor (14). The motor is coupled to the transmission system with the boxes (17).

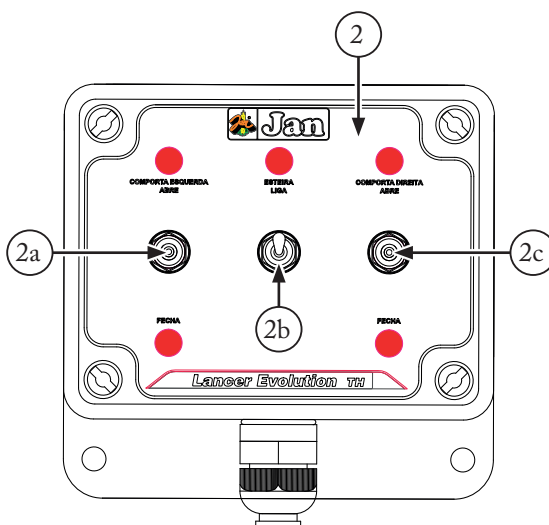
Disc speed can be controlled using the knob (12). See item 6.10.



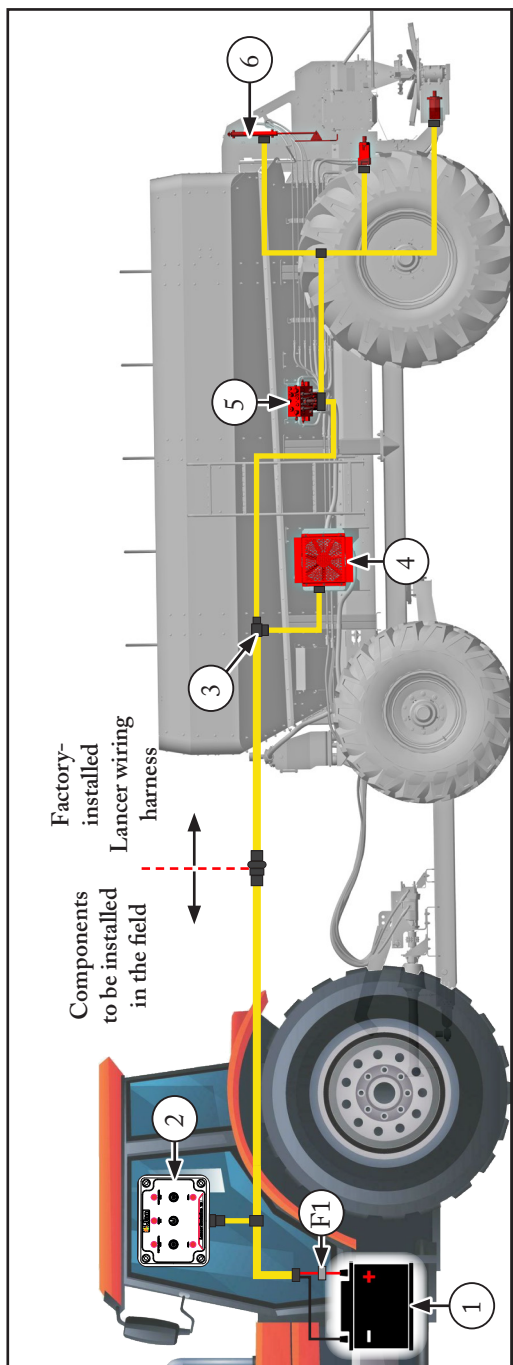
## 3.9 - Electrical system

### Description

- The electrical system is powered by the tractor battery (1). A 10 A protective fuse (F1) is located between the battery (1) and the control box (2).
- Control switches on the control box (2):
  - 2a. Opening and closing the LH gate.
  - 2b. Conveyor drive.
  - 2c. Opening and closing the RH gate.
- The gates (2a and 2c) are controlled in the same way for both gates:
  - Up: Opens;
  - Down: Closes.
- To activate the conveyor, move the conveyor drive switch (2b) upward.



## Tractor x Lancer electrical connections

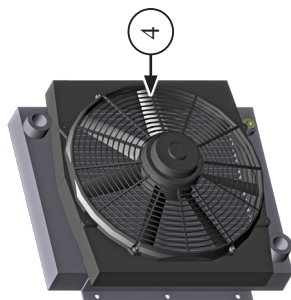


### Resin-sealed splice (3)

The resin-sealed splice (3) is a permanent connection between conductors of the Lancer wiring harness and provides electrical insulation and protection against moisture, dust, vibration, and chemicals, ensuring greater durability of the electrical system.

### Electric fan (4)

The electric fan system (4) automatically activates the heat exchanger fan when the hydraulic oil temperature rises, helping dissipate heat and maintain proper hydraulic system operating conditions. Depending on the electrical kit configuration, the system may include a level sensor and temperature alarm.



## Electrical system

The implement may be equipped with Hexagon or ISOBUS Hexagon electrical systems.

The main difference between them is that the Hexagon system uses a display and a GPS antenna installed on the tractor to manage operations.

Both systems have a distribution disc speed sensor and a conveyor speed sensor on their respective motors, allowing these components to be monitored during operation.

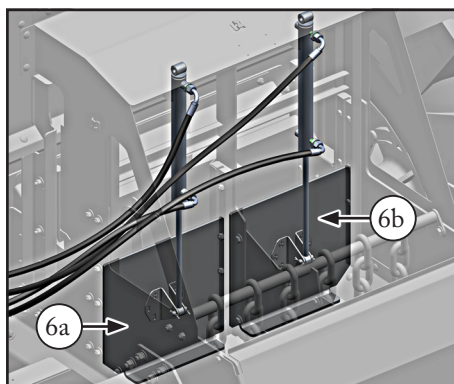
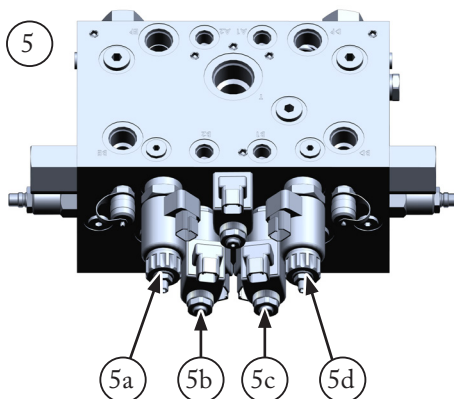


GPS Antenna and Display - Images for reference only

## Valve block electrical connections

The valve block (5) receives the electrical commands sent by the control box and controls the operation of the implement's hydraulic components. Its electrical connections are:

- 5a. Conveyor drive valve.
- 5b. Right-hand gate opening and closing valves (6b).
- 5c. Left-hand gate opening and closing valves (6a).
- 5d. Distribution disc drive valve.



Through these connections, the operator can control the main product distribution and feeding functions from the control box (2).



### 3.10 - Optional accessories and configurations

#### A) Wheel and tire options and specifications

| Tire kit                                       | 25,000 | 32,000 |
|------------------------------------------------|--------|--------|
| Tire: 23.1-26 MB 39 (14 ply) / Wheel: DW 20-26 | X      | X      |
| Tire: 30.5-32 MB 39 (14 ply) / Wheel: DW 27-32 | X      | X      |

#### Tire and wheel specification tables

| Tire 23.1-26 MB 39 (14 ply) |               |                       |                        |
|-----------------------------|---------------|-----------------------|------------------------|
| Width (mm)                  | Diameter (mm) | Nominal capacity (kg) | Maximum pressure (psi) |
| 608                         | Ø 1,570       | 3,950                 | 28                     |

| Tire 30.5-32 MB 39 (14 ply) |               |                       |                        |
|-----------------------------|---------------|-----------------------|------------------------|
| Width (mm)                  | Diameter (mm) | Nominal capacity (kg) | Maximum pressure (psi) |
| 775                         | Ø 1,874       | 8,500                 | 22                     |

| Wheel / rim: DW 16-34 - Wheel / rim: DW 20-26 |                            |                                             |
|-----------------------------------------------|----------------------------|---------------------------------------------|
| Center hole diameter (mm)                     | Number of bolts and gauges | Bolt circle diameter and hole diameter (mm) |
| Ø 221                                         | 8 / M22                    | Ø 275 / Ø 24                                |

| Wheel / rim: DW 27-32     |                            |                                             |
|---------------------------|----------------------------|---------------------------------------------|
| Center hole diameter (mm) | Number of bolts and gauges | Bolt circle diameter and hole diameter (mm) |
| Ø 282                     | 10 / M22                   | Ø 335 / Ø 24                                |



**B) Miscellaneous accessories for the Lancer Evolution 25.000 - 32.000:****NOTE:**

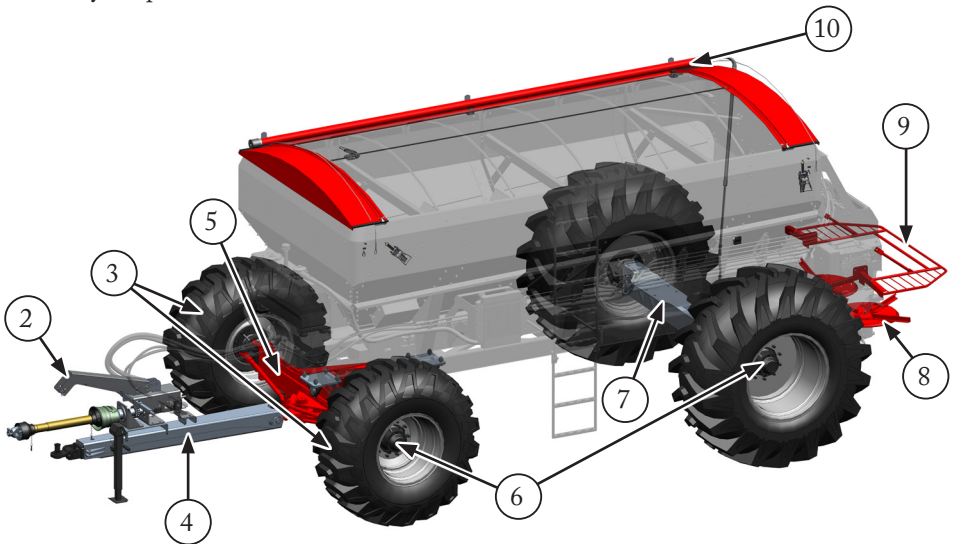
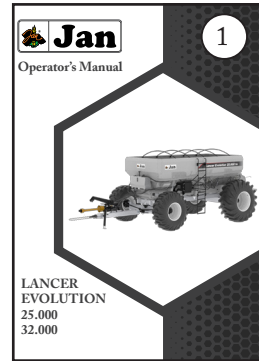
*The items below are for reference only.*

*For each Lancer Evolution model and version, the optional items have a specific code. Consult your Distributor or Jan's Sales Department.*

- 1,000 rpm pump support kit.
- 540 rpm pump support kit.
- LMX 25 fertilizer grid kit.
- Stainless steel fertilizer grid kit.
- LMX 25 limestone grid kit.
- Easy tarp cover kit.
- JAN jack.
- Driveshaft kit.
- Triple Gate Kit.
- Single gate kit.
- Electrical kit with oil cooler.
- Electrical kit with oil cooler, alarm, and level sensor.
- Hexagon ISOBUS electrical kit.
- Hexagon electrical kit.

## 3.11 - Loose items supplied with the Lancer

1. Operator's manual.
2. Driveshaft support.
3. Tires and rims.
4. Hitch.
5. Front axle.
6. Hubs.
7. Rear axle.
8. Distribution discs.
9. Distribution disc guard.
10. Easy Tarp Kit.



### 3.12 - Estimated service life and decommissioning

The service life of the implement cannot be precisely determined and is affected by several factors, such as:

- The care applied during use, maintenance, and preservation over the years.
- Operating conditions: number of hours worked per season and load intensity.
- Properties of the transported product.
- Working conditions.

#### Guidelines for disposal of the implement at the end of its service life (decommissioning)

- When the implement reaches the end of its service life and is taken out of operation, it is recommended to drain the oil.
- Most of the implement components are recyclable.
- Disassembly and recycling procedures must be carried out by qualified professionals, following instructions in accordance with the applicable legislation in your region or country.







### **ATTENTION!**

- *Perform assembly on a flat, firm, and level surface.*
- *Use appropriate lifting devices capable of safely supporting the weight of the components.*
- *Never stand under suspended parts.*
- *Do not improvise!*

### 4.1 - Front axle assembly

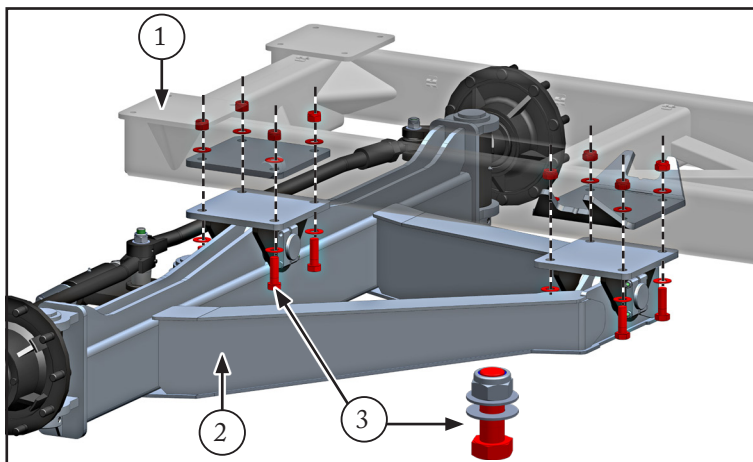
- Raise the chassis (1) to the required height using a hydraulic jack.



### **IMPORTANT:**

*Properly support the Lancer chassis; never work under a structure supported only by the jack.*

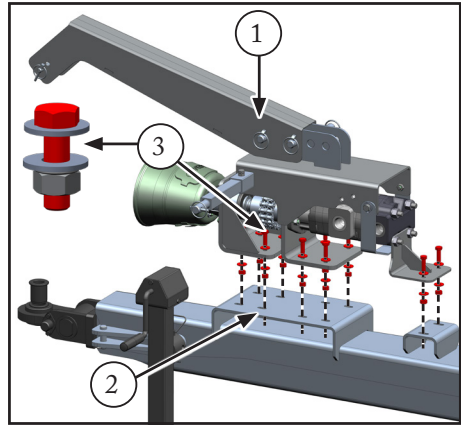
- Position the axle (2) and secure it to the chassis (1) using 8 fastening assemblies (3).



### 4.2 - Header assembly

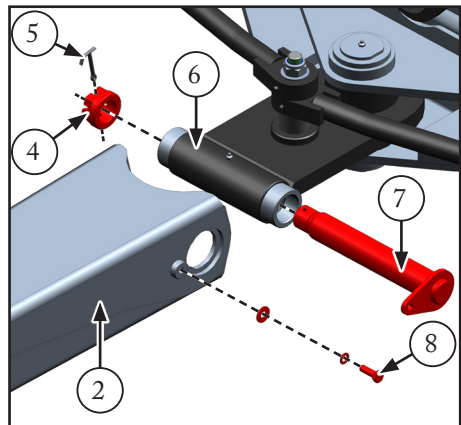
To assemble the driveline support:

- a) Position the driveline support (1) aligned with the holes in the hitch (2).
- b) Insert and tighten the items (3).



To assemble the hitch to the front axle:

- a) Chock the implement to prevent movement during assembly.
- b) Align the hitch (2) with the bushing (6) of the implement frame.
- c) Insert the pin (7) into the bushing (6).
- d) On the threaded end of the pin (7), install the castle nut (4) and insert the cotter pin (5).
- e) On the other end, secure the pin (7) to the hitch (2) with bolts and washers (8).



### 4.3 - Rear axle assembly

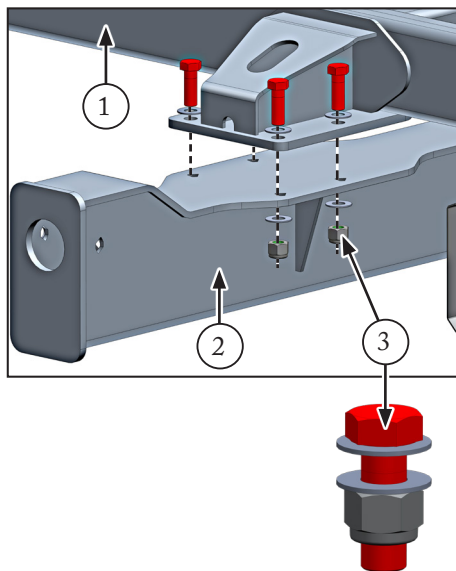
- a) For added safety, engage the header to the tractor's drawbar. See item 4.2 for more information on header assembly.
- b) Raise the chassis (1) to the required height using a hydraulic jack.



#### **IMPORTANT:**

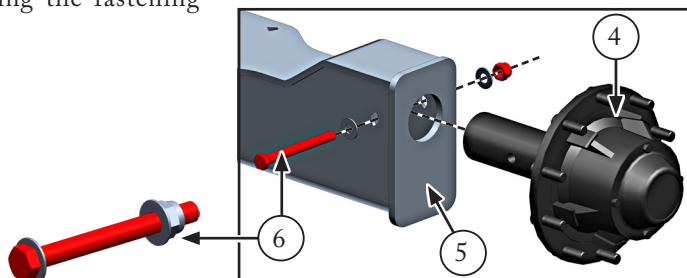
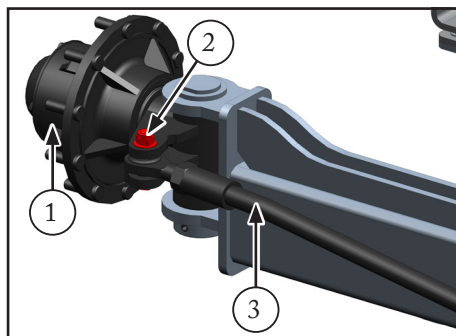
*Properly support the Lancer chassis; never work under a structure supported only by the jack.*

- c) Position the axle (2) and secure it to the chassis (1) using 4 fastening assemblies (3) on both sides of the axle.



### 4.4 - Hub and wheel assembly

- a) Connect the front hub (1) to the steering bar (3) using the nut and washer (2).
- b) Secure the rear hubs (4) to the axle (5) on both sides using the fastening assembly (6).



- c) Raise the Lancer axle (5) enough to allow installation of the wheel assembly.



### IMPORTANT:

*For safety, keep the hitch connected to the tractor drawbar and use two jacks operated simultaneously. See section 7.10 for more information about wheel assembly installation.*

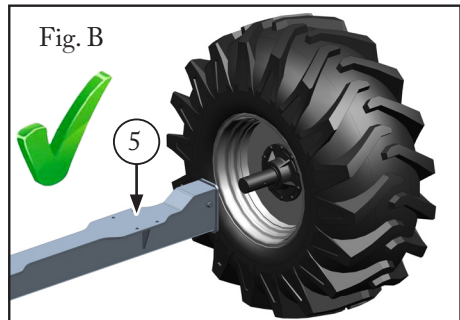
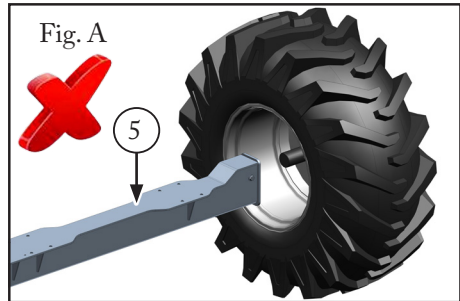
- d) Install the wheel assembly in the correct position:
- Fig. A: incorrect.
  - Fig. B: correct (the side with the greater rim offset must face outward).



### NOTE:

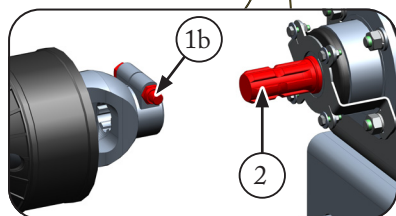
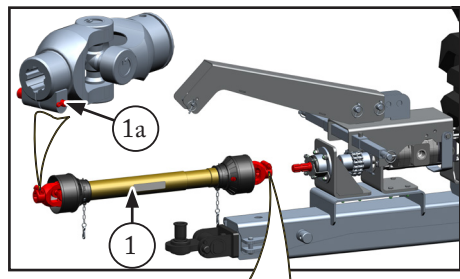
*See the recommended tire configurations in item 3.10.*

- e) Adjust the front wheel toe-in: see item 7.9.



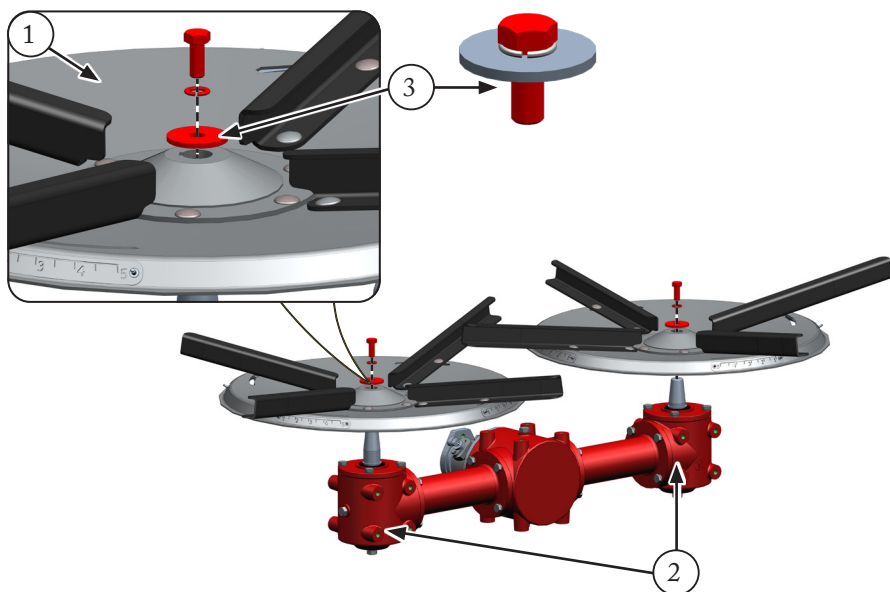
## 4.5 - Driveline installation

- a) Connect the driveline (1) to the intermediate shaft (2):
- The end with the quick coupling, pin, and cotter pin (1a) must face forward.
  - Remove the bolt and nut (1b), fit the driveshaft onto the shaft (2), and reinstall items (1b).



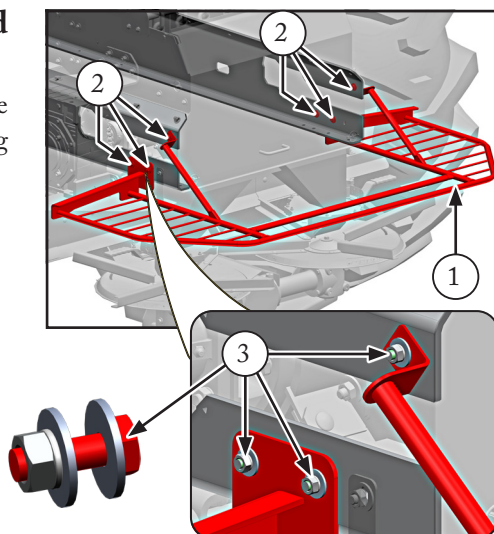
### 4.6 - Distribution disc assembly

- a) Position the discs (1) and secure them to the transmission gearbox cones (2), at the rear of the Lancer, using the fastening set (3).



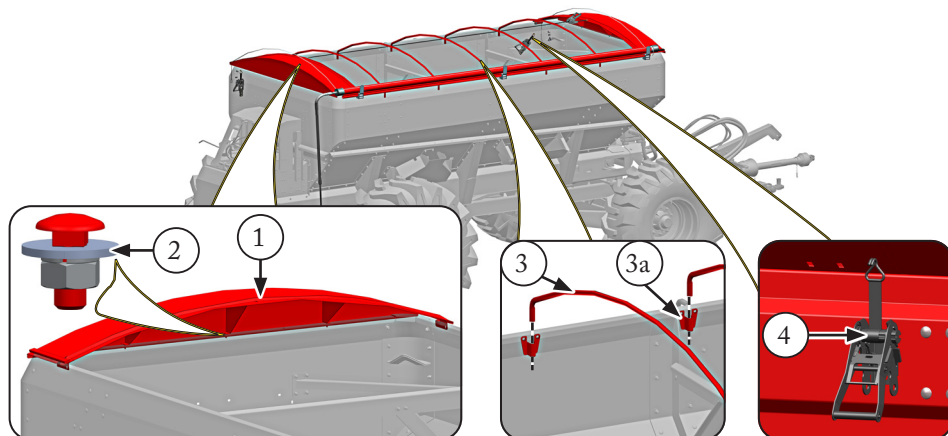
### 4.7 - Distribution disc guard assembly

- a) Secure the protection grid (1) at the indicated points (2) using the fastening set (3).

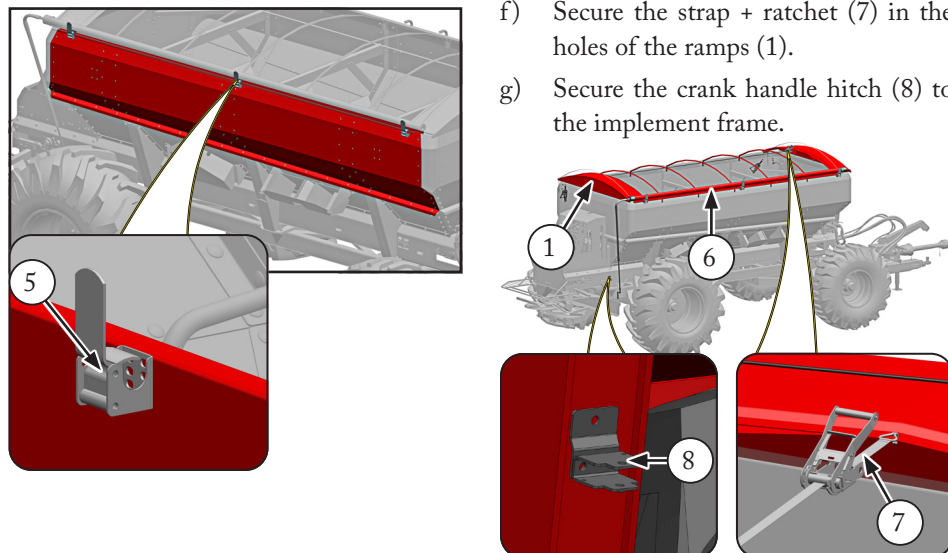


### 4.8 - Easy tarp kit assembly

- a) Secure the ramps (1) using fastening sets (2).
  - b) Position the tarp bows (3) on the supports (3a), which are already supplied assembled.
  - c) Secure the ratchet buckles (4) on the right-hand side of the hopper.
- See item 3.2 for identification of the equipment sides.



- d) Secure the 4 tarp supports (5) to the upper right-hand side plate of the hopper.
- e) Position the tarp + telescopic shaft assembly (6) over the left-hand side, supported by the brackets (5).
- f) Secure the strap + ratchet (7) in the holes of the ramps (1).
- g) Secure the crank handle hitch (8) to the implement frame.



### 5.1 - Attaching the Lancer to the drawbar

#### A) Preliminary operations

After attaching the Lancer and before putting it into operation, it is always recommended to check:

- Check whether the hopper is clean and free of materials such as bags, rags, stones, wood, etc. Keep the hopper grid installed to prevent unnecessary material buildup.
- Whether lubrication has been performed at all recommended points: see items 7.2 and 7.3.
- Whether all bolts and nuts are properly tightened and all components secured properly.
- Whether the oil level in the gearboxes and reducer is correct: see item 7.3.
- Whether the tires are inflated to the recommended pressure: see item 7.7.
- Check whether the conveyor tension is correct: see item 7.4.
- Whether the driveshaft coupling ends are installed in the correct position.

#### B) Attaching the Lancer

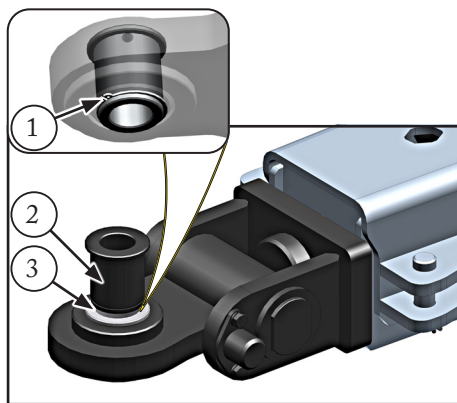
##### Selection of the hitch terminal bushing (if necessary):

Depending on the diameter of the hitch pin used on the tractor drawbar, install one of the bushings (2 or 3), with different inside diameters, supplied with the Lancer, in the header end:

- Bushing (2): Ø33 mm.
- Bushing (3): Ø41 mm.

To replace the bushing:

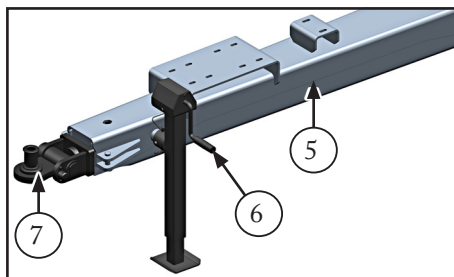
- Remove the retaining ring (1) and remove the bushing.
- Install the other bushing and secure it with the retaining ring (1).





### Lancer hitching

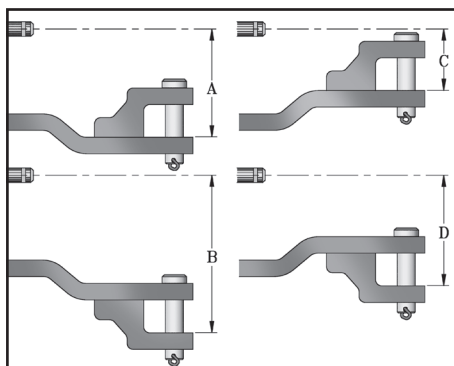
- Drive the tractor so that the drawbar approaches the hitch (5), in alignment.
- Turn the jack handle (6) until the hitch terminal (7) is at the same height as the drawbar (4).



- Check the longitudinal leveling of the hitch: ideally, it should be as parallel as possible to the ground, observing it from the side.

If necessary, change the height of the tractor drawbar (4): refer to the respective manual, if necessary.

- Complete the tractor approach and have an assistant install the pin (8), with a locking clip (9).
- Place the jack in the transport position.

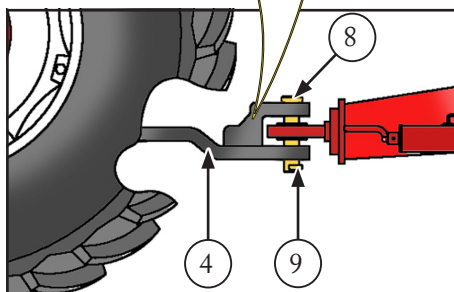


To do this, remove the pin (10), rotate the stand jack to the horizontal position, and reinstall the pin (10).

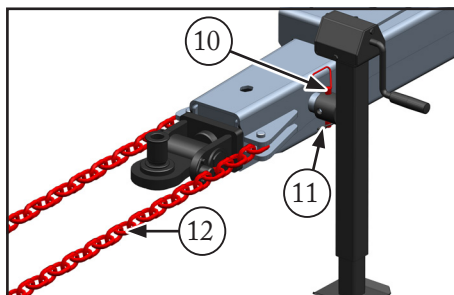


### NOTE:

*In both jack positions (transport and rest), always install pin (10) and the safety cotter pin (11).*



- Connect the implement safety chain (12) to the structural chain attachment point on the tractor.



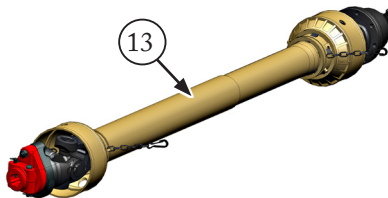


- g) Connect the driveshaft (13) to the power take-off shaft: see item 5.2.



**NOTE:**

*About the correct use of the PTO, follow the recommendations in your tractor's manual.*



### C) Detaching the Lancer

Proceed in the reverse order of hitching, paying attention to the following points:

- Detach the Lancer on flat, level, and firm ground. Chock the wheels securely to ensure that the Lancer will not move after detaching.
- Lower the jack to the rest position and lock it as described.

### 5.2 - Driveline assembly, adjustments, and working angle

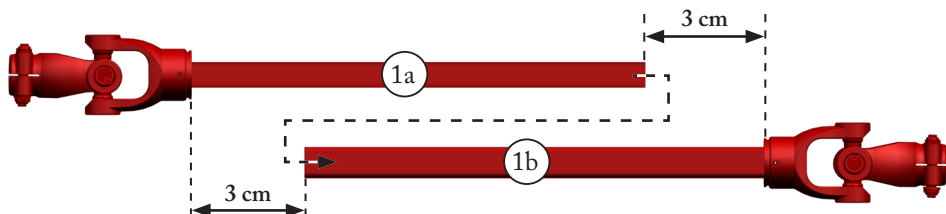
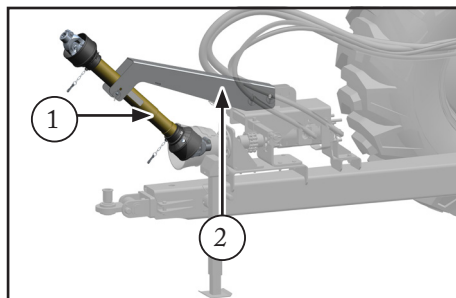


**NOTE:**

*When disconnecting the driveline (1), always secure it on the support (2).*

When attaching the Lancer to a specific tractor for the first time, check that the driveshaft is not excessively long:

- Attach the Lancer to the tractor.
- Separate the driveshaft sections: the front, shaft (1a) and the rear, tubular (1b).



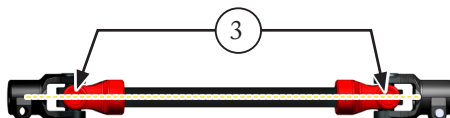
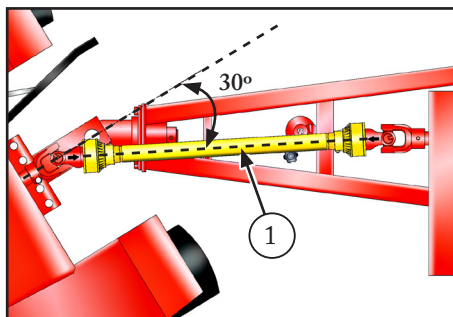
- Connect the front section (1a) to the PTO shaft; the rear section (1b) must remain connected to the Lancer.

- d) Place the driveshaft sections side by side, as shown in the figure on the previous page.
- e) Check that there is a minimum clearance of **3 cm** at each end; if the clearance is less than **3 cm**, mark the tube (1a) and the shaft (1b) at the points where they must be cut.
- f) Cut the tube (1a) and shaft (1b) to the same length.
- g) Using a file, remove burrs resulting from the cuts and lubricate the parts with grease.



### NOTES:

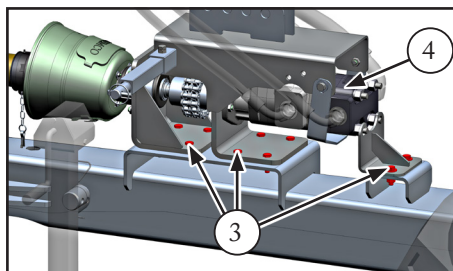
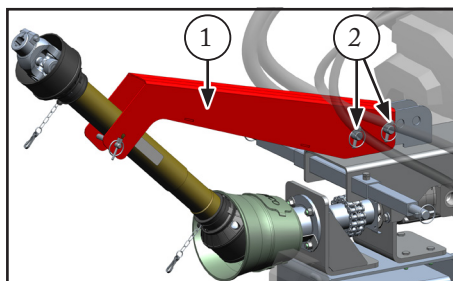
- *The driveline must not operate at an angle greater than 30°.*
- *On square-profile tube and shaft drivelines, the yokes (3) must be assembled aligned.*



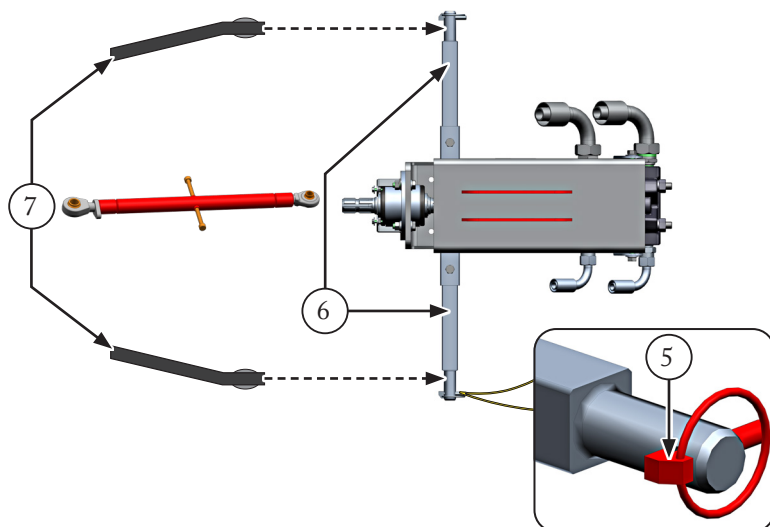
## 5.3 - Hydraulic pump installation

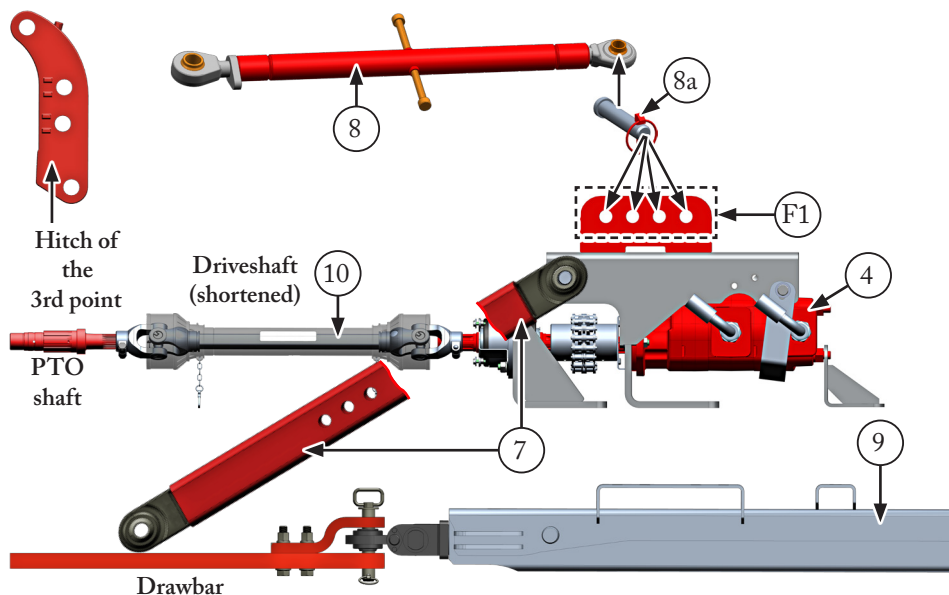
As an alternative installation method, the hydraulic pump can be attached to the lift arms of the hydraulic system. To do this, proceed according to the following steps:

- a) Remove the driveshaft support (1) by removing the pins with cotter pins (2).
- b) Remove the 10 fastening assemblies (3) to release the pump (4).



- c) Mount the pump (4) on the tractor lower lift arms:
  - Remove the pins with cotter pins (5) from the ends of the bar (6).
  - Connect the lower lift arms (7) to the ends of the bar.
  - Reinstall the pins with cotter pins (5) at the ends of the bar (6).
- d) Adjust the lift system side stabilizers to center the pump in relation to the tractor and PTO shaft.





- e) Install the tractor upper link (8), making adjustments as necessary:
- Raise the lower lift arms (7).
  - Connect the link (8) to the tractor 3-point hitch. Then, select hole (F1) on the pump support to connect the rear end of the upper link (8) using the pin with cotter pin (8a).
  - Adjust the length of the link (8) by turning its respective threaded adjuster until the pump is horizontally aligned.



### **IMPORTANT:**

*The adjustments mentioned in the topics above (1, 2 and 3) must meet the following requirements:*

- The pump (4) must be level (horizontally aligned).
- There must be no risk of the pump (4) interfering with the hitch header (9).
- The driveshaft U-joints (10) must not operate at an angle greater than 30°.

- f) Adjust the length of the driveshaft (10): see item 5.2 for more information.

### 5.4 - Electrical connection

The hydraulic system of the Lancer has a cooler with an electric fan.

The fan is powered from the tractor battery.

When attaching the Lancer to the tractor for the first time, it is necessary to install the outlet, as described below:

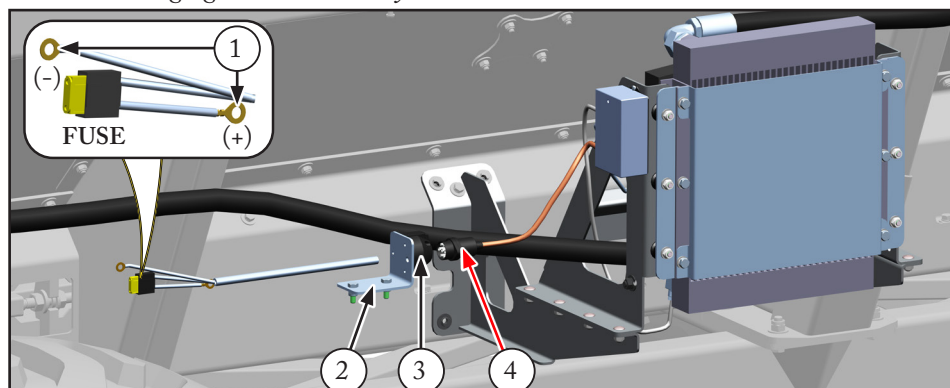
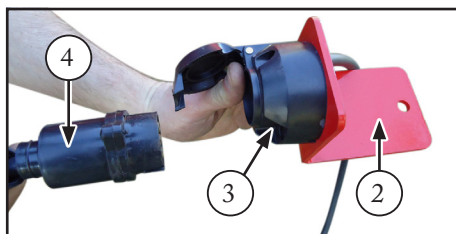
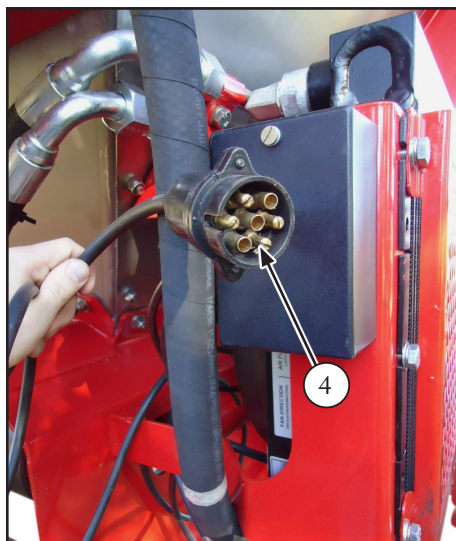
- Fasten the support (2) at a convenient point on the tractor, allowing the reach of the incoming and outgoing cables from the outlet (3).
- Connect the terminals (1) to the battery:  
(+): connect to the positive cable.  
(-): connect to the negative cable.  
FUSE: 40 A fuse.
- To connect the Lancer to the tractor, simply connect the plug (4) to the socket (3) on the tractor.



#### **NOTE:**

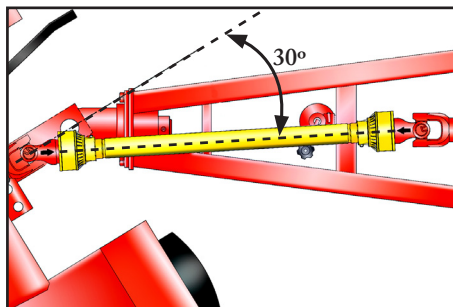
*Properly secure the cable between the Lancer and the tractor to prevent damage to the cable.*

*Disconnect the plug (4) when operation is complete to prevent discharging the tractor battery.*



### 6.1 - Operation Instructions

- Always keep the tractor aligned with the Lancer so that the driveshaft angle does not exceed 30°.
- Engage the PTO only during Lancer operation; therefore, always disengage it during maneuvers and travel.



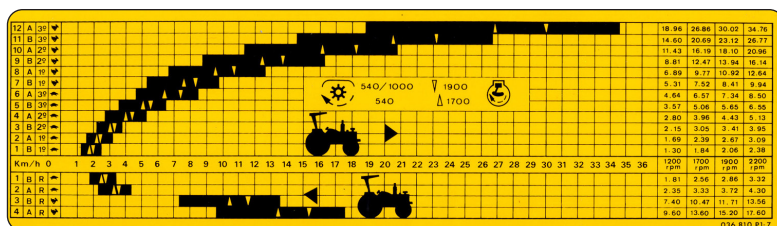
### 6.2 - Tractor speed

The correct tractor travel speed is one of the factors that most influences the product application rate, that is, kilograms per hectare (kg/ha).

Tractors normally do not have a speedometer, but they do have a tachometer. The engine speed must be such that the power take-off speed is 540 or 1,000 rpm (depending on the hydraulic pump used on the Lancer).

Knowing the engine speed, determine the tractor speed from a decal containing a table with a graphical scale indicating the speed at various engine speeds for each gear.

If this information is not available, refer to the tractor manual.



As an example, see the table below, considering that the PTO delivers 540 rpm with the engine at 1,800 rpm.

In the 1,800 rev/min line, see the speed developed (km/h) for each gear.

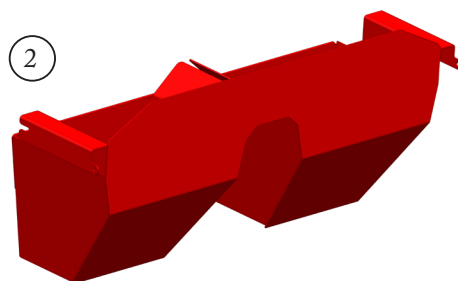
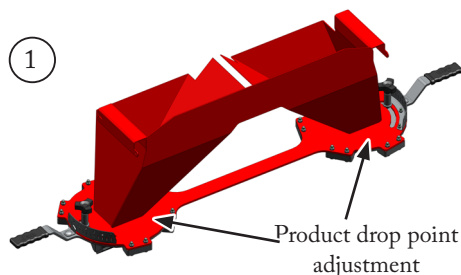
Select a gear that provides the speed that is as close as possible to the desired one.

| Gear Speed (rpm) | Tractor speed (km/h) |                 |                 |                 |                 |                 |                 |                 |
|------------------|----------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                  | 1 <sup>st</sup>      | 2 <sup>nd</sup> | 3 <sup>th</sup> | 4 <sup>th</sup> | 5 <sup>th</sup> | 6 <sup>th</sup> | 7 <sup>th</sup> | 8 <sup>th</sup> |
| 1,400            | 1.6                  | 2.4             | 4.4             | 5.3             | 6.6             | 9.7             | 17.8            | 21.9            |
| 1,800            | 2.1                  | 3.1             | 5.6             | 6.9             | 8.5             | 12.5            | 22.9            | 28.1            |
| 2,100            | 2.5                  | 3.7             | 6.8             | 8.4             | 10.4            | 15.3            | 28.0            | 34.4            |

Table valid as an example only

### 6.3 - Replacing the funnel assembly

- For adjustment of the product drop point onto the discs, see item 6.9.
- There are two models of funnels:
  - Product discharge funnel for granular products, such as NPK fertilizers and similar products.
  - Deposition funnel for powder products, such as limestone, gypsum, and others.





### Procedure



#### **ATTENTION!**

The Lancer must be stopped and the tractor engine must be turned off, with the ignition key removed.

- Remove the locks (3).
- Raise the cover (4), tilting it fully forward.



#### **ATTENTION!**

Take the necessary precautions to prevent the cover (4) from falling due to external forces, such as wind. Risk of serious injury.

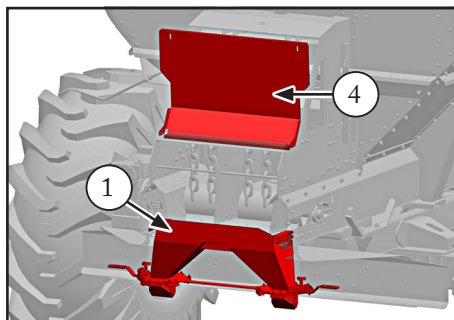
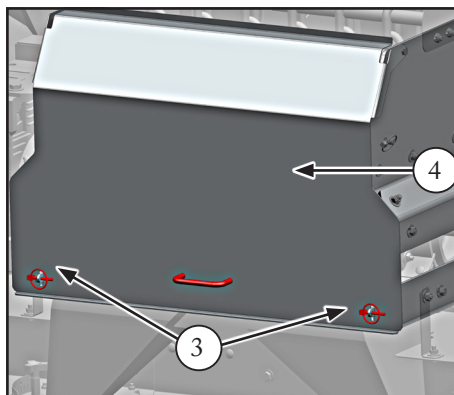
- Move the funnel (1 or 2) rearward until it disengages, then remove it from the Lancer. Ask another person for assistance.



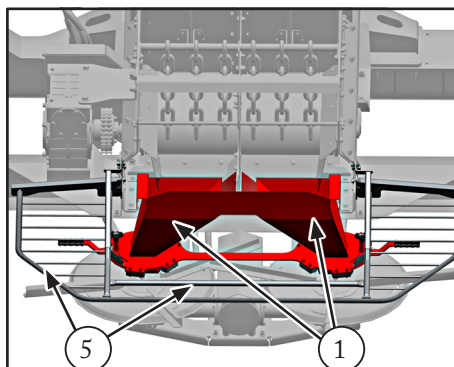
#### **NOTE:**

- It is not necessary to remove the protection hoop (5): simply take precautions to avoid damaging it.
- For the granular product discharge funnel (1), remove the complete assembly (funnel + product drop adjustment system).

- Follow the procedure in reverse order to install the other funnel.
- Close the cover (4) and secure the assembly with the latches (3).



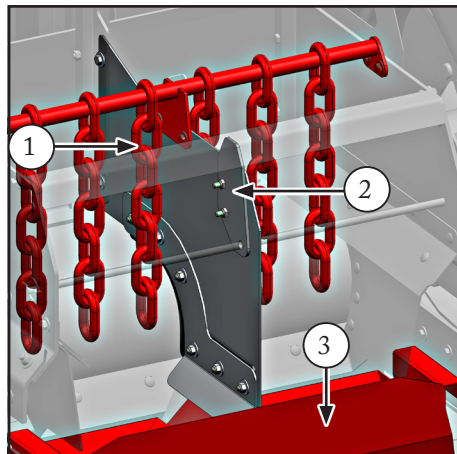
The images show the funnel (1) for granular products. However, the procedure for the powder funnel (2) is identical.





### 6.4 - Using the dispersing curtain and divider

- Use the disperser curtain (1) when it uses the funnel for powdered products. This curtain aids in the uncompacting the product to be distributed.
- Use the divider (2) when using the funnel (3) for applying granulated products.
- The purpose of the divider is to equalize the amount of product directed to the deposition funnel.



### 6.5 - Conveyor belt speed

The conveyor speed affects the product dose. The conveyor speed should be altered in relation to the product dose and physical characteristics in order to obtain a correct and homogeneous feed from the distribution discs.

Overspeeding makes the product build up at the rear of the bin, and the product may spill out.

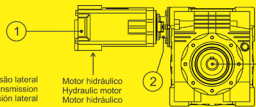
A very low speed may result in insufficient feeding of the discs, affecting the application rate.

On the LH side there is a decal (1) containing transmission ratio information. However, on the Lancer Evolution, conveyor speed is adjusted hydraulically at the control: release the lock (2) and turn the knob (3) until the desired speed is obtained. Then retighten the lock (2).

**1**

**RELAÇÃO DE TRANSMISSÃO  
TRANSMISSION RATIO  
RELACION DE TRANSMISIÓN**

| Produto<br>Product<br>Producto                                 | Rotação do motor hidráulico (1) (rpm)<br>Hydraulic motor rotation (1) (rpm)<br>Rotación del motor hidráulico (1) (rpm) | Rotação do eixo redutor (2) (rpm)<br>Reducer shaft rotation (2) (rpm)<br>Rotación del eje reductor (2) (rpm) | Rotação do eixo da esteira (3) (rpm)<br>Conveyor shaft rotation (3) (rpm)<br>Rotación del eje de la estera (3) (rpm) |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Calcedão / Limestone / Calcaneo                                |                                                                                                                        |                                                                                                              |                                                                                                                      |
| Gesso / Plaster / Yeso                                         |                                                                                                                        |                                                                                                              |                                                                                                                      |
| Fertilizante granulado / Granular fertilizer / Abono granulado | 388 (máx)                                                                                                              | 388 (máx)                                                                                                    | 9,7 (máx)                                                                                                            |

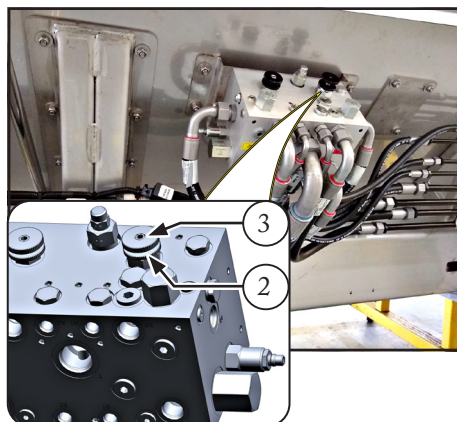


Transmissão lateral / Side transmission / Transmisión lateral

Motor hidráulico / Hydraulic motor / Motor hidráulico

Redutor / Reducer / Reductor

2000000000017

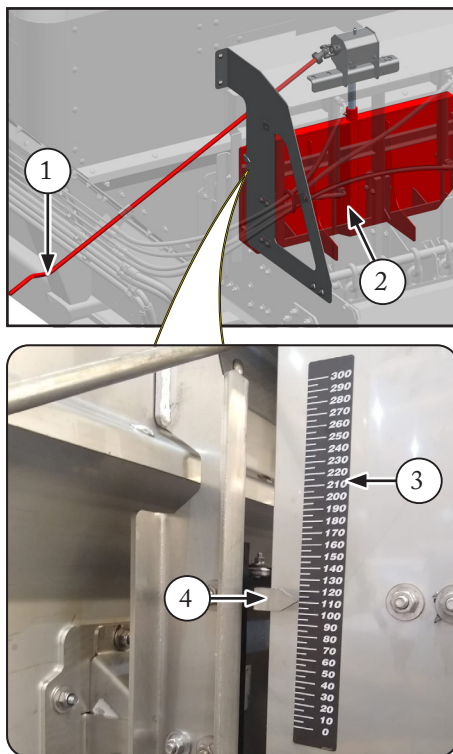


## 6.6 - Metering gate control

Using the crank (1) and the dosing gate (2), regulate the product flow deposited by the conveyor on the application discs, thus determining the application rate (kg / ha).

The adjustment reference is the scale number (3) that is aligned with a pointer (4) on the gate (2).

The opening in the scale (3) is provided in the left column of the application chart.



## 6.7 - Product application metering test

Considering that the particle size and specific weight of the products to be applied do not always match those used in the tests performed to prepare the application charts, two methods for checking the adjustment are presented:

- A) Test for product flow in kg / min: amount of product collected (in kg), using a funnel.
- B) Test for the dosage of the product in kg / ha: in this case we use as a parameter the displacement (in meters) of the Lancer, to apply a certain amount of product (in kg).



### A) Product flow rate test in kg/min

To describe the procedure for checking the flow rate adjustment, Table I - NPK Granulated Fertilizer will be used as an example, with the following data:

- Product to be applied: NPK granulated fertilizer.
- Amount required per hectare (application rate): 444 kg/ha;
- Tractor speed: 10 km/h.
- Working width: 32 meters.
- Opening at scale: "50" (flow of 170,1 kg/min).

| Calculation formula   |   |                       |   |                             |   |                                                |
|-----------------------|---|-----------------------|---|-----------------------------|---|------------------------------------------------|
| Flow rate<br>(kg/min) | = | 0.00167<br>(constant) | X | Application rate<br>(kg/ha) | X | Speed of tractor (km/h) X Working width<br>(m) |

### Description:

- Flow (kg / min): obtained in the calculation and also provided in the dosage charts; is the reference for this test.
  - Application rate (in kg/ha\*): defined by the operator based on the agronomic recommendation.
  - Tractor speed: defined by the operator; the application charts contain several columns for different speeds.
  - Working width: provided in the application charts for each product and metering gate opening.
- f) Based on the data from the previous page, apply the formula:  
 Flow rate (kg/min) = 0.00167 x 444 kg/ha\* x 10 km/h x 32 m  
 Flow rate (kg/min) = 237.3 kg/min.

- \* *If you do not find the exact application rate value in the application chart, use the closest available value in the column corresponding to that speed.*
- The flow rate is provided in the second column of the application rate charts.
- If the flow rate obtained in the calculation is far from the value calculated to meet the application rate, change the metering gate opening. In the example, we obtained 237.3 kg/min in the calculation.
- Moving down the second column of the application rate chart (example below), we can see that the value closest to **237.3** is **229.5**. From this point, move along the same row to the first column. In this case, the metering gate opening must be changed to "70" to achieve the desired application rate (as calculated using the formula).

**Table I: NPK Granulated Fertilizer**

Specific weight: 967 kg/m<sup>3</sup> / Vane position: 1

| Opening at scale                              | Flow rate (kg/min) | Tractor speed (km/h) |     |     |     |     |     |     | Effective width (m) |
|-----------------------------------------------|--------------------|----------------------|-----|-----|-----|-----|-----|-----|---------------------|
|                                               |                    | 6                    | 7   | 8   | 9   | 10  | 11  | 12  |                     |
| 0                                             | 33.9               | 106                  | 91  |     |     |     |     |     | 32                  |
| 10                                            | 57.6               | 180                  | 154 | 135 | 120 | 108 |     |     |                     |
| 20                                            | 85.7               | 268                  | 230 | 201 | 179 | 161 | 146 | 134 |                     |
| 30                                            | 112.5              | 352                  | 301 | 264 | 234 | 211 | 192 | 176 |                     |
| 40                                            | 137.7              | 430                  | 369 | 323 | 287 | 258 | 235 | 215 |                     |
| 50                                            | 170.1              | 531                  | 456 | 399 | 354 | 319 | 290 | 266 |                     |
| 60                                            | 201.5              | 560                  | 480 | 420 | 373 | 336 | 305 | 280 |                     |
| 70                                            | 229.5              |                      |     | 478 | 425 | 383 | 348 | 319 |                     |
| 80                                            | 266.5              |                      |     |     | 493 | 444 | 404 | 370 |                     |
| 90                                            | 285.2              |                      |     |     | 528 | 475 | 432 | 396 |                     |
| 100                                           | 319.0              |                      |     |     |     | 532 | 483 | 443 |                     |
| 110                                           | 348.2              |                      |     |     |     |     | 528 | 484 |                     |
| 120                                           | 376.7              |                      |     |     |     |     |     | 523 |                     |
| Application rate (kg/ha):                     |                    |                      |     |     |     |     |     |     |                     |
| Minimum: 100    Standard: 250    Maximum: 500 |                    |                      |     |     |     |     |     |     |                     |

To perform the test:



### **ATTENTION!**

**The Lancer must be completely shut down and all its components must be stationary.**

- g) Remove the funnel with the adjustable deposition system. See the funnel replacement procedure in item 6.3.
- h) Remove the application discs. To do this:
  - Remove the center bolts (1).
  - Remove the discs (2).



### **IMPORTANT:**

*When reinstalling them, place them in the same position as before.*

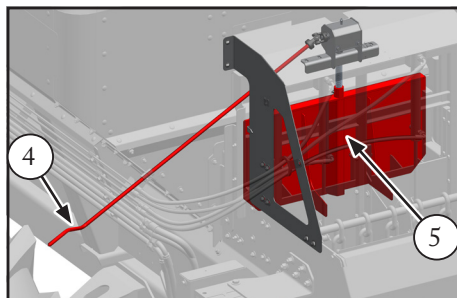
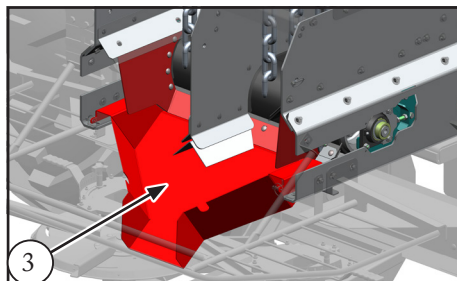
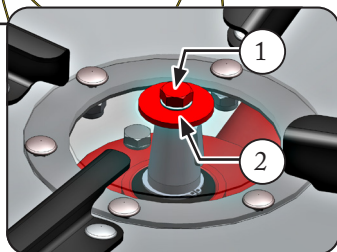
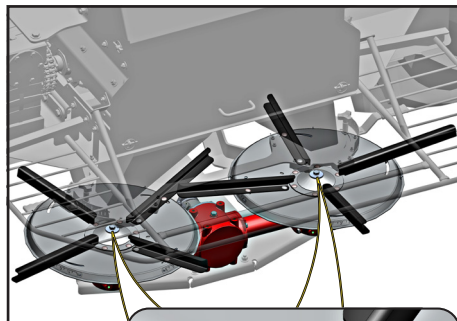
- i) Install the collector funnel (3).



### **NOTE:**

*Use bags with a capacity greater than the flow rate to collect the product discharged through the funnel during the test.*

- j) Using the crank (4), position the metering gate (5) at the specified scale opening: in this example, set it to “70”.
- k) Fill the Lancer with the product to be applied.
- l) Without moving the tractor, engage the conveyor belt, making sure to keep the PTO at its nominal and constant speed.
- m) Collect the product discharged through the collector funnel (3) installed on the Lancer.



**IMPORTANT:**

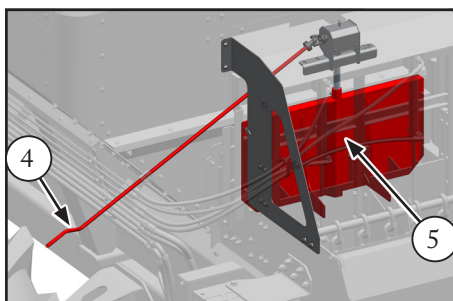
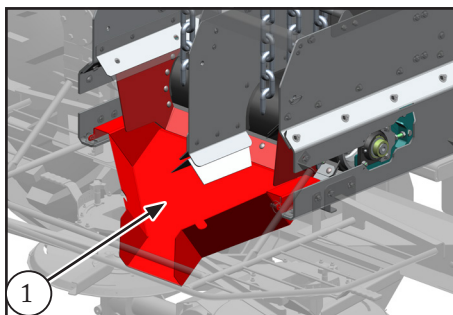
*Collect exactly for 1 minute.*

- n) Weigh the product discharged through the funnel (1), which, according to the calculation, should be as close as possible to 237.3 kg.

Adjustment:

If the application rate obtained differs significantly from the calculated value, change the opening of the application rate control gate (5).

- o) After each adjustment, repeat the test until the exact dosage is obtained.
- p) After you have the correct dosage, reinstall the deposition funnel and other components previously removed.

**B) Application rate test in kg/ha**

This test also aims to confirm the settings of the Lancer.

The parameter, in this test, is how many meters the Lancer moves to apply a certain amount of product (in kg).

Example: using the same product, table, and conditions as in the previous test - item A:

Product: NPK granulated fertilizer:

- Desired application rate: 320 kg/ha.
- Speed = 10 km/h
- Working width of 32 m\*.

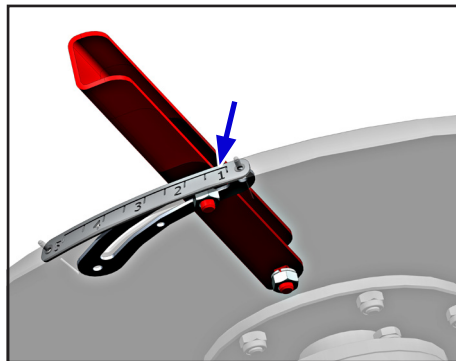
*\* If the useful width was 36 m, we would have to use chart II.*

**NOTE:**

*Use these procedures (Tests A and B) and calculations for all other products, always using the respective charts and correct data, such as application rate, tractor speed, and working width.*

Based on the working width of 32 meters, the chart to be used is TABLE I, in item 6.13, which specifies the following:

- The vane angle at position "1" on the distribution disc scale: see item 6.8 B.
- Considering an application rate of 320 kg/ha and a speed of 10 km/h;
- The closest value\* to 320 found in the 10 km/h column of Table I is 319.
- At this point (319), refer to the left-hand column to obtain the metering scale value: in this case, the value is "50".



**\*NOTE:**

*If the exact desired application rate is not available in the table, select the closest value in the column corresponding to the selected speed.*

**Formula:**

|                                 |   |                                                              |   |                           |
|---------------------------------|---|--------------------------------------------------------------|---|---------------------------|
| Distance covered =<br>in meters | = | Amount of product in kg<br>installed on the Lancer Evolution | x | 10.000                    |
|                                 |   | Desired application rate<br>(in kg/ha)                       | x | Useful width<br>in meters |

**To perform the test:**

- Put 100 kg of granulated NPK fertilizer in the Lancer tank..
- Substitute the data into the formula above, obtaining:

$$\text{Distance covered} = \frac{100 \text{ kg} \times 10,000}{320 \text{ kg/ha} \times 32 \text{ m}}$$

$$\text{Distance covered} = 97.65 \text{ m}$$



Conclusion: The Lancer must empty the product placed in the hopper upon completing 97.65 meters at a speed of 10 km/h. In this case, begin the application. However:

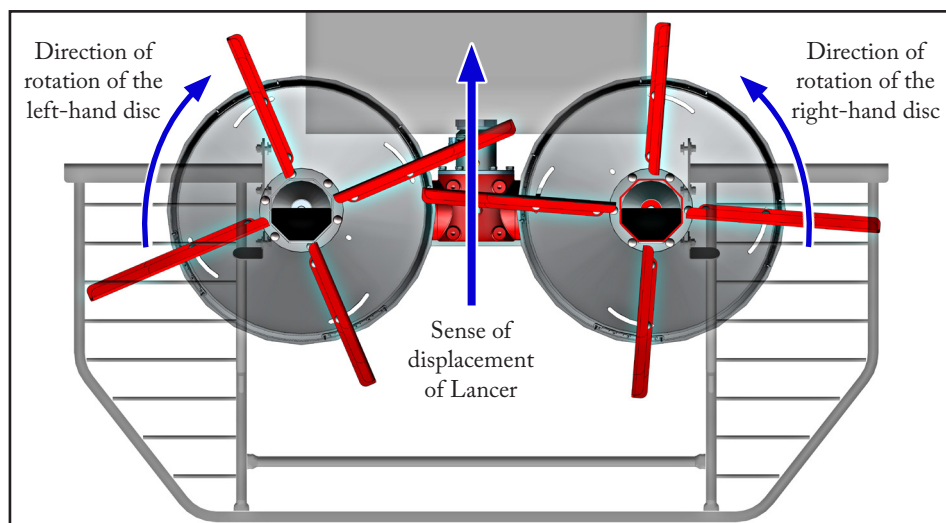
- If the Lancer empties before traveling the calculated distance (97.65 m), reduce the metering gate setting and repeat the test.
- If the Lancer empties after traveling the calculated distance (97.65 m), increase the metering gate setting and repeat the test.
- Repeat the tests until setting the desired dosage.



### NOTE:

*A larger amount of product may be used in the Lancer (more than 100 kg), resulting in greater test accuracy. In this case, change the value of 100 kg in the formula to the weight of the product used in the test.*

## 6.8 - Distribution discs fins



### A) Vane replacement

The application charts indicate how the vanes must be installed for each type of product distributed.

The Lancer is supplied with a set of vanes that allows the following mounting configurations:



- Four short vanes (1) on both discs: recommended for powder products: limestone, gypsum, and similar products.
- Two short vanes (1) and two long vanes (2) on each disc. In this case, the vanes must be arranged alternately: short - long - short - long. Use this configuration for granular products: NPK fertilizer and similar products.
- The vanes are not interchangeable between the RH and LH discs. To ensure correct installation, observe:
  - The concave side (X) of the vanes must face the direction of rotation.
  - The recessed side (Y) for fitting the disc hub must face inward (toward the center of the disc).



### NOTE:

*Correct installation of the vanes and angle adjustment (see the following item) affect the uniformity of the transverse distribution profile.*

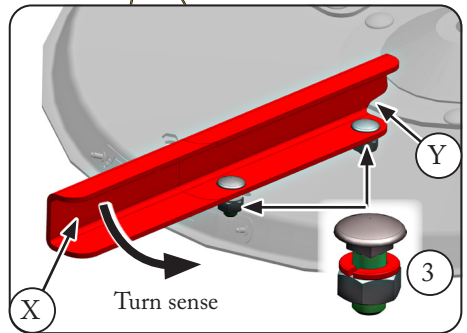
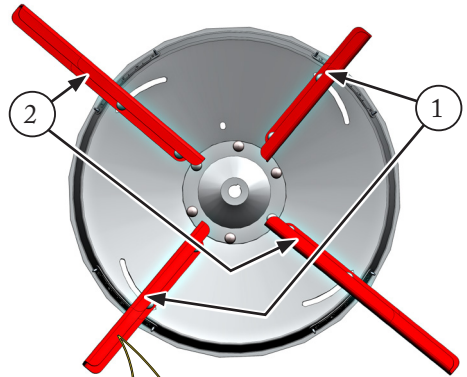
### Procedure:



### ATTENTION!

*The Lancer must be off and with all components stopped.*

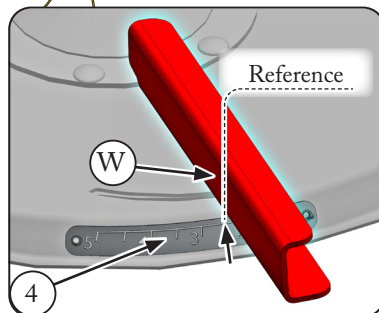
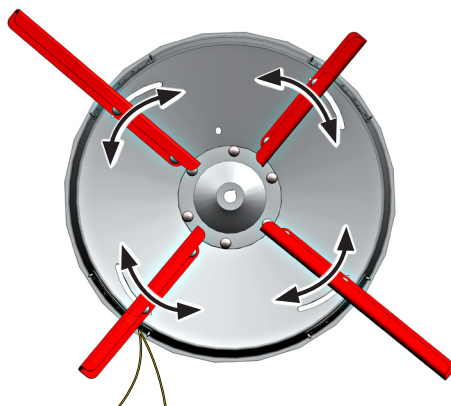
Remove the fastening items (3) and replace the desired vanes.



3. Vane fasteners (1 and 2):  
Carriage bolt: installed on the vane.  
Lock washer and nut: installed underneath the disc.

### B) Fin angle position

- This adjustment also affects the uniformity of the product's transverse distribution profile.
- All vanes can be continuously adjusted along the scales (4).
- The scales (4) have numbers from "1 to 5" to serve as a reference for the application rate charts and also to ensure that all vanes are adjusted to the same angle.
- The positions indicated in the specific charts for each product refer to these numbers on the adjustment scales.



### Procedure:



#### **ATTENTION!**

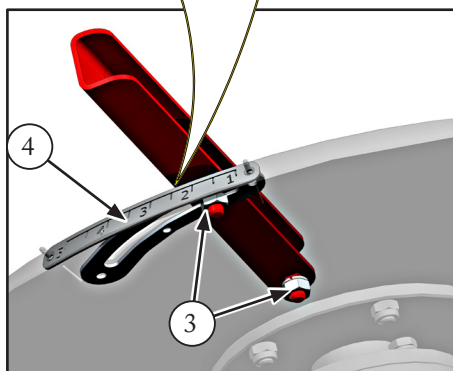
*The Lancer must be stopped and the tractor engine must be switched off, with the starter key removed.*



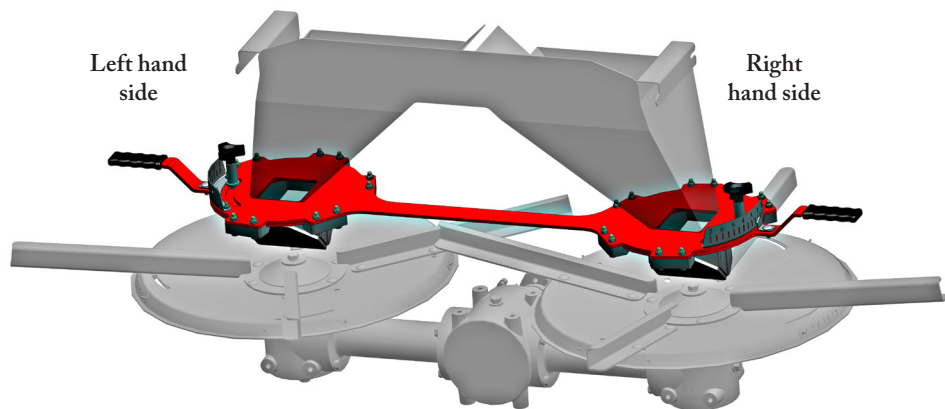
#### **NOTE:**

- *All vanes must be set to the same angle (same value on scale 4).*
- *\*Use the flat face (W) of the vanes in relation to the scales (4) as the reference.*

- Loosen (do not remove) the nut from the bolts (3).
- Position the vanes according to the specified number in relation\* to the scale (4): see Note above.
- Retighten the bolt nuts (3).



## 6.9 - Adjusting the product drop point onto the discs



### NOTE:

*Product drop point adjustment is exclusive to the granular product deposition funnel.*

In addition to disc speed, the product drop point in relation to the discs affects distribution uniformity and must be adjusted according to the distribution width and type of product.

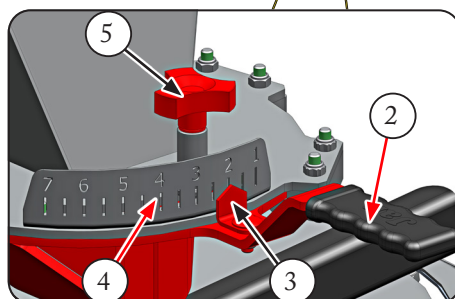
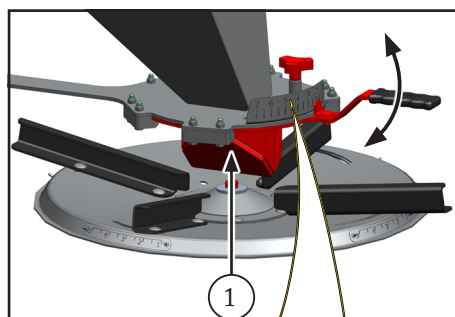
The **deposition point** consists of the position of the outlet (1) in relation to the disc.

Make the adjustment using the levers (2), using the pointer (3) in relation to the value on the scales (4) as a reference.



### IMPORTANT:

*The RH and LH adjustment levers (2) must be positioned at the same value on the scales (4).*



- a) Loosen the knob (5).
- b) Move the lever (2) to the defined position on the scale (4).
- c) Retighten the knob (5).
- d) Repeat the same procedure on the assembly on the opposite side.

### 6.10 - Disc speed

The discs are driven by the Lancer Evolution hydraulic system, whose pump is driven by the tractor power take-off (PTO).

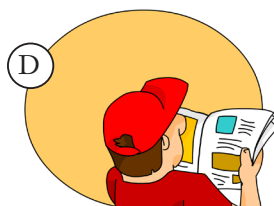
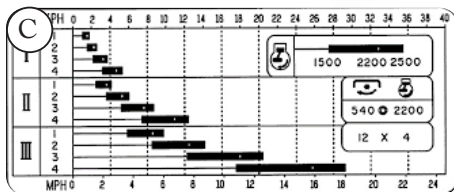
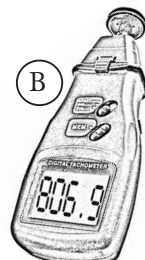
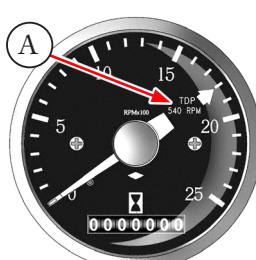
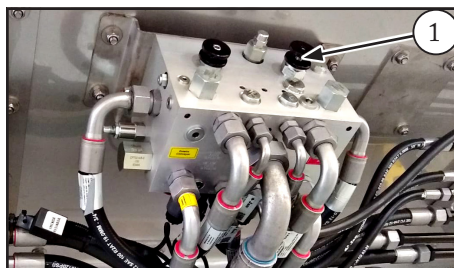
The distribution discs must rotate between 820 and 860 rpm.

This variation is obtained by adjusting the hydraulic control flow rate using the knob (1).

The Lancer hydraulic pump may be supplied in 540 or 1,000 rpm versions (according to order).

To determine the engine speed required to obtain 540 or 1,000 rpm at the PTO, there are four possibilities:

- Check for a possible indication on the tractor tachometer.
- Use a tachometer.
- A speed scale decal on the tractor.
- Refer to your tractor manual if you still have any questions.



### 6.11 - Controlling the distribution width

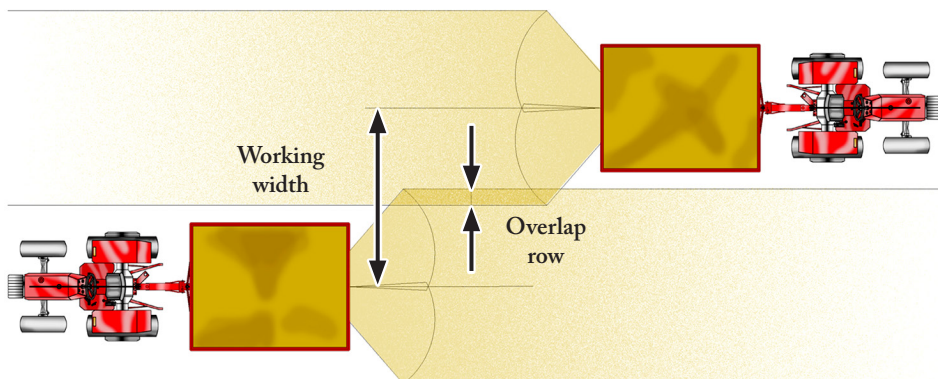
#### A) Overlapping of passes

For a perfect and even distribution it's convenient to recover the passage that is right before. This way the distribution deficiency that happens at the ends of the traverse profile is compensated.



### NOTE:

*The effective width in the tables consist of the distance between one passage course and the other, as shown below.*

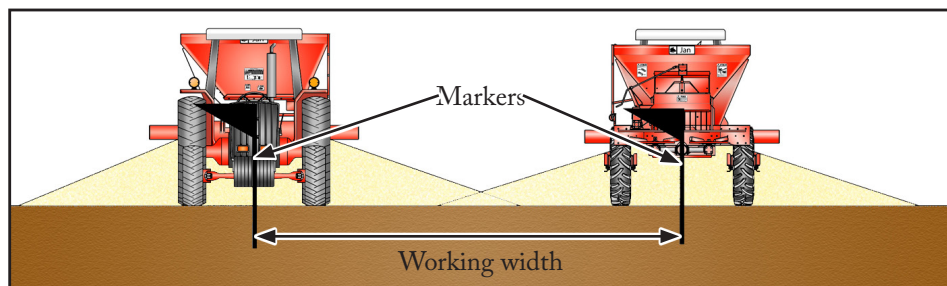


It is fundamental that the distribution width is maintained constant and exact, in order to provide a profile of uniform distribution in the application rate.

There are two ways to perform this control: using markers or GPS control.

### B) Use of markers (stakes)

The lateral spacing between markers must be equal to the working width.



### C) With GPS control

JAN offers an optional GPS-controlled system (Global Positioning System) that, through a light-bar display, assists the operator with directional control to maintain the precise distribution width with maximum convenience and high performance, while also eliminating the need for auxiliary personnel during operation.

This electronic system can be combined with distribution rate control (fix or variable) Kg/ha.

- The control of fixed application rate varies the product flow according of the tractor's speed variation, in other words, it maintains the application rate constant and uniform (fixed).
- The control of variable rate provides specific application rates in each place of the field, with base in yield maps elaborated during the crop, in the concept of Precision Agriculture.

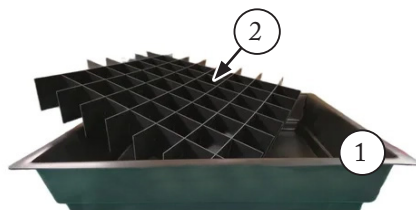
### 6.12 - Distribution profile uniformity control

#### A) Calibration kit



#### NOTE:

*The kit is not supplied with the Lancer and must be purchased separately.*



The calibration kit contains:

1. Trays: eight units. A larger quantity may be purchased upon request.
2. Collection grids: eight units.
3. Precision scale.
4. 50-meter tape measure.



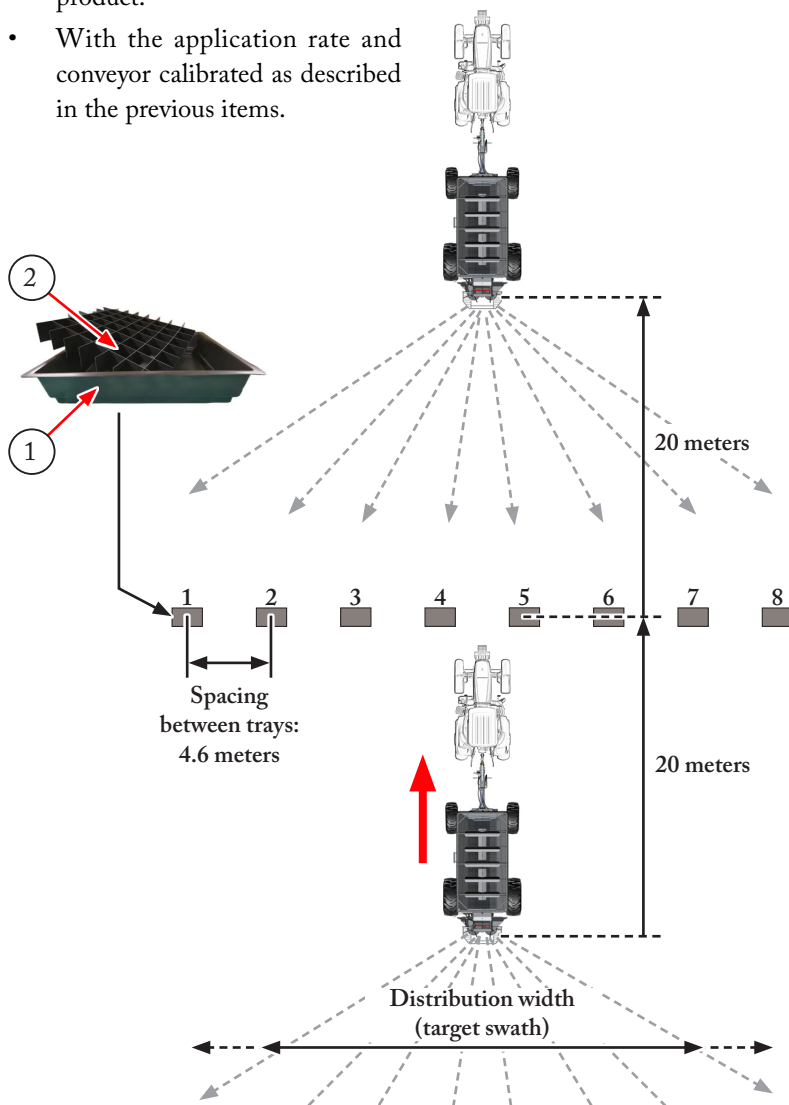
#### B) Transverse distribution profile uniformity test

The tray test allows the uniformity of application across the desired distribution width to be evaluated, that is, the uniformity of the transverse profile.

See the procedure below for performing the test, using a distribution width of 32 meters:

- a) Position the eight trays (1) with collection grids (2) in a straight line on the ground, with a spacing of  $32 / 7 = 4.6$  m (460 cm).
- b) Identify each tray for subsequent position reference.

- c) Position the Lancer:
  - 20 meters before the line of trays.
  - Perpendicular to the line of trays.
  - Aligned with the gap between trays 4 and 5.
  - With the hopper filled with product.
  - With the application rate and conveyor calibrated as described in the previous items.
- d) Start distribution and drive the Lancer in a straight line, crossing the line of trays. Make sure that the conveyor speed and disc speed have stabilized.
- e) Stop and shut down the equipment 20 meters after passing the trays.





- f) Using the scale (item 3 of the kit), weigh the product collected in each tray in the order in which they are arranged on the ground (1 to 8).

Based on the amount of product collected in each tray (in grams), prepare a graph to visualize distribution uniformity, for example:

| Trays<br>/<br>Weight (grams) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|------------------------------|---|---|---|---|---|---|---|---|
| 160                          |   |   |   |   |   |   |   |   |
| 140                          |   |   |   |   |   |   |   |   |
| 120                          |   |   |   |   |   |   |   |   |
| 100                          |   |   |   |   |   |   |   |   |
| 80                           |   |   |   |   |   |   |   |   |
| 60                           |   |   |   |   |   |   |   |   |
| 40                           |   |   |   |   |   |   |   |   |
| 20                           |   |   |   |   |   |   |   |   |

### Evaluation of the transverse profile and methods for correction, if necessary

- We will see that the amount of product distributed is greater in the central trays 4 and 5, gradually decreasing toward the ends of the application swath.
- Compare the prepared chart with the ideal profile (desired and/or recommended according to agronomic guidance).
- If there is a significant difference between the obtained profile and the ideal profile, make one or both of the following adjustments:
  - Product drop point onto the discs: see item 6.9.
  - Disc speed: see item 6.10.
  - Correct use of the combination of short and/or long vanes: see item 6.8 A.
  - Distribution disc vane angle: see item 6.8 - B.

After achieving the ideal profile, the equipment is ready to begin product application.



### 6.13 - Product application tables

The amount of product to be applied per area unit (application rate in kg/ha) depends on:

- Tractor travel speed: see item 6.2.
- Conveyor speed: see item 6.5.
- Opening on the flow control gate scale: see item 6.6.
- Disc speed: see item 6.10.
- Particle size and specific weight of the product.
- Working distribution width: see item 6.11.

Below specific tables for a wide range of products are presented, where we have:

- The specific weight of the product, in kg/m<sup>3</sup>.
- Vane position: positions 1 to 5 according to the disc scale.
- The opening in the grade of the output gate: 0 to 300.
- Flow rate in kg/min: information used for the flow rate test using the collector funnel.
- Tractor speed in km/h.
- Working width in meters.
- The central table provides the resulting application rates (kg/ha) for the parameters listed above.
- Reference application rates (kg/ha): minimum, standard, and maximum.



**NOTE:**

*The charts were prepared with the distribution discs at the standard speed of 828 rpm.*

*The values are a reference, depending on the differences in the physical characteristics of the products. Due to the different physical characteristics of the products, there may be discrepancies in the application rates and working widths.*

**Table I: NPK Granulated Fertilizer**Specific weight: 967 kg/m<sup>3</sup>

Vane position: 1

| Opening at scale                              | Flow rate (kg/min) | Tractor speed (km/h) |     |     |     |     |     |     | Effective width (m) |
|-----------------------------------------------|--------------------|----------------------|-----|-----|-----|-----|-----|-----|---------------------|
|                                               |                    | 6                    | 7   | 8   | 9   | 10  | 11  | 12  |                     |
| 0                                             | 33.9               | 106                  | 91  |     |     |     |     |     | 32                  |
| 10                                            | 57.6               | 180                  | 154 | 135 | 120 | 108 |     |     |                     |
| 20                                            | 85.7               | 268                  | 230 | 201 | 179 | 161 | 146 | 134 |                     |
| 30                                            | 112.5              | 352                  | 301 | 264 | 234 | 211 | 192 | 176 |                     |
| 40                                            | 137.7              | 430                  | 369 | 323 | 287 | 258 | 235 | 215 |                     |
| 50                                            | 170.1              | 531                  | 456 | 399 | 354 | 319 | 290 | 266 |                     |
| 60                                            | 201.5              | 560                  | 480 | 420 | 373 | 336 | 305 | 280 |                     |
| 70                                            | 229.5              |                      |     | 478 | 425 | 383 | 348 | 319 |                     |
| 80                                            | 266.5              |                      |     |     | 493 | 444 | 404 | 370 |                     |
| 90                                            | 285.2              |                      |     |     | 528 | 475 | 432 | 396 |                     |
| 100                                           | 319.0              |                      |     |     |     | 532 | 483 | 443 |                     |
| 110                                           | 348.2              |                      |     |     |     |     | 528 | 484 |                     |
| 120                                           | 376.7              |                      |     |     |     |     |     | 523 |                     |
| Application rate (kg/ha):                     |                    |                      |     |     |     |     |     |     |                     |
| Minimum: 100    Standard: 250    Maximum: 500 |                    |                      |     |     |     |     |     |     |                     |



**Table II: NPK Granulated Fertilizer**

Specific weight: 967 kg/m<sup>3</sup>

Vane position: 3

| Opening at scale                              | Flow rate (kg/min) | Tractor speed (km/h) |     |     |     |     |     |     | Effective width (m) |
|-----------------------------------------------|--------------------|----------------------|-----|-----|-----|-----|-----|-----|---------------------|
|                                               |                    | 6                    | 7   | 8   | 9   | 10  | 11  | 12  |                     |
| 40                                            | 192.0              | 533                  | 457 | 400 | 355 | 320 |     |     | 36                  |
| 50                                            | 217.3              | 604                  | 517 | 453 | 402 | 362 | 329 | 302 |                     |
| 60                                            | 249.0              |                      | 593 | 519 | 461 | 415 | 377 | 346 |                     |
| 70                                            | 283.7              |                      |     | 591 | 525 | 473 | 430 | 394 |                     |
| 80                                            | 314.9              |                      |     |     | 583 | 525 | 477 | 437 |                     |
| 90                                            | 349.2              |                      |     |     |     | 582 | 529 | 485 |                     |
| 100                                           | 380.5              |                      |     |     |     |     | 576 | 528 |                     |
| 110                                           | 414.9              |                      |     |     |     |     |     | 576 |                     |
| Application rate (kg/ha):                     |                    |                      |     |     |     |     |     |     |                     |
| Minimum: 100    Standard: 250    Maximum: 500 |                    |                      |     |     |     |     |     |     |                     |

**Table III: NPK Fertilizer Mix**Specific weight: 1,103 kg/m<sup>3</sup>

Vane position: 3

| Opening at scale                              | Flow rate (kg/min) | Tractor speed (km/h) |     |     |     |     |     |     | Effective width (m) |
|-----------------------------------------------|--------------------|----------------------|-----|-----|-----|-----|-----|-----|---------------------|
|                                               |                    | 6                    | 7   | 8   | 9   | 10  | 11  | 12  |                     |
| 0                                             | 51.6               | 152                  | 130 | 114 | 101 |     |     |     | 34                  |
| 5                                             | 62.6               | 184                  | 158 | 138 | 123 | 111 | 100 |     |                     |
| 10                                            | 83.6               | 246                  | 211 | 184 | 164 | 148 | 134 | 123 |                     |
| 20                                            | 114.9              | 338                  | 290 | 253 | 225 | 203 | 184 | 169 |                     |
| 30                                            | 153.4              | 451                  | 387 | 338 | 301 | 271 | 246 | 226 |                     |
| 40                                            | 195.1              |                      |     | 430 | 383 | 344 | 313 | 287 |                     |
| 50                                            | 238.0              |                      |     | 496 | 441 | 397 | 361 | 331 | 36                  |
| 60                                            | 274.4              |                      |     |     | 508 | 457 | 416 | 381 |                     |
| 70                                            | 314.2              |                      |     |     |     | 524 | 476 | 436 |                     |
| 80                                            | 352.0              |                      |     |     |     |     | 533 | 489 |                     |
| 90                                            | 391.6              |                      |     |     |     |     |     | 544 |                     |
| Application rate (kg/ha):                     |                    |                      |     |     |     |     |     |     |                     |
| Minimum: 100    Standard: 250    Maximum: 500 |                    |                      |     |     |     |     |     |     |                     |

**Table IV: NPK Fertilizer Mix**

Specific weight: 1,103 kg/m<sup>3</sup>

Vane position: 2

| Opening at scale                              | Flow rate (kg/min) | Tractor speed (km/h) |     |     |     |     |     |     | Effective width (m) |
|-----------------------------------------------|--------------------|----------------------|-----|-----|-----|-----|-----|-----|---------------------|
|                                               |                    | 6                    | 7   | 8   | 9   | 10  | 11  | 12  |                     |
| 0                                             | 22.9               | 71                   | 61  |     |     |     |     |     | 32                  |
| 5                                             | 32.7               | 102                  | 88  | 77  | 68  |     |     |     |                     |
| 10                                            | 34.8               | 109                  | 93  | 81  | 72  | 65  |     |     |                     |
| 20                                            | 51.6               | 161                  | 138 | 121 | 108 | 97  | 88  |     |                     |
| 30                                            | 71.0               | 222                  | 190 | 166 | 148 | 133 | 121 | 111 |                     |
| 40                                            | 89.3               | 279                  | 239 | 209 | 186 | 167 | 152 | 140 |                     |
| 50                                            | 104.3              | 326                  | 280 | 245 | 217 | 196 | 178 | 163 |                     |
| 60                                            | 126.6              | 396                  | 339 | 297 | 264 | 237 | 216 | 198 |                     |
| 70                                            | 129.0              |                      | 346 | 302 | 269 | 242 | 220 | 202 |                     |
| 80                                            | 155.3              |                      | 416 | 364 | 324 | 291 | 265 | 243 |                     |
| 90                                            | 181.6              |                      |     | 426 | 378 | 341 | 310 | 284 |                     |
| Application rate (kg/ha):                     |                    |                      |     |     |     |     |     |     |                     |
| Minimum: 100    Standard: 250    Maximum: 500 |                    |                      |     |     |     |     |     |     |                     |

**Table V: Triple Superphosphate Fertilizer**Specific weight: 1,003 kg/m<sup>3</sup>

Vane position: 3

| Opening at scale                              | Flow rate (kg/min) | Tractor speed (km/h) |     |     |     |     |     |     | Effective width (m) |
|-----------------------------------------------|--------------------|----------------------|-----|-----|-----|-----|-----|-----|---------------------|
|                                               |                    | 6                    | 7   | 8   | 9   | 10  | 11  | 12  |                     |
| 0                                             | 24.8               | 69                   |     |     |     |     |     |     | 36                  |
| 5                                             | 52.8               | 147                  | 126 | 110 | 98  |     |     |     |                     |
| 10                                            | 77.6               | 216                  | 185 | 162 | 144 | 129 | 118 | 108 |                     |
| 20                                            | 104.9              | 291                  | 250 | 218 | 194 | 175 | 159 | 146 |                     |
| 30                                            | 148.0              | 411                  | 352 | 308 | 274 | 247 | 224 | 206 |                     |
| 40                                            | 179.8              | 499                  | 428 | 375 | 333 | 300 | 272 | 250 |                     |
| 50                                            | 213.4              | 593                  | 508 | 445 | 395 | 356 | 323 | 296 |                     |
| 60                                            | 263.6              |                      | 628 | 549 | 488 | 439 | 399 | 366 |                     |
| 70                                            | 300.7              |                      |     | 626 | 557 | 501 | 456 | 418 |                     |
| 80                                            | 336.3              |                      |     |     | 623 | 560 | 509 | 467 |                     |
| 90                                            | 368.6              |                      |     |     |     | 614 | 558 | 512 |                     |
| 100                                           | 412.4              |                      |     |     |     |     | 625 | 573 |                     |
| Application rate (kg/ha):                     |                    |                      |     |     |     |     |     |     |                     |
| Minimum: 100    Standard: 250    Maximum: 500 |                    |                      |     |     |     |     |     |     |                     |

**Table VI: NPK Fertilizer Mix**

Specific weight: 1,003 kg/m<sup>3</sup>

Vane position: 1

| Opening at scale                              | Flow rate (kg/min) | Tractor speed (km/h) |     |     |     |     |     |     | Effective width (m) |
|-----------------------------------------------|--------------------|----------------------|-----|-----|-----|-----|-----|-----|---------------------|
|                                               |                    | 6                    | 7   | 8   | 9   | 10  | 11  | 12  |                     |
| 10                                            | 26.2               | 82                   | 70  |     |     |     |     |     | 32                  |
| 20                                            | 49.2               | 154                  | 132 | 115 | 103 | 92  | 84  |     |                     |
| 30                                            | 67.4               | 211                  | 180 | 158 | 140 | 126 | 115 | 105 |                     |
| 40                                            | 82.6               | 258                  | 221 | 194 | 172 | 155 | 141 | 129 |                     |
| 50                                            | 98.9               | 309                  | 265 | 232 | 206 | 185 | 169 | 155 |                     |
| 60                                            | 114.0              | 356                  | 305 | 267 | 237 | 214 | 194 | 178 |                     |
| 70                                            | 133.3              | 417                  | 357 | 312 | 278 | 250 | 227 | 208 |                     |
| 80                                            | 151.9              |                      | 407 | 356 | 317 | 285 | 259 | 237 |                     |
| Application rate (kg/ha):                     |                    |                      |     |     |     |     |     |     |                     |
| Minimum: 100    Standard: 250    Maximum: 500 |                    |                      |     |     |     |     |     |     |                     |

**Table VII: Single Superphosphate Fertilizer**Specific weight: 1,248 kg/m<sup>3</sup>

Vane position: 2

| Opening at scale                              | Flow rate (kg/min) | Tractor speed (km/h) |     |     |     |     |     |     | Effective width (m) |
|-----------------------------------------------|--------------------|----------------------|-----|-----|-----|-----|-----|-----|---------------------|
|                                               |                    | 6                    | 7   | 8   | 9   | 10  | 11  | 12  |                     |
| 0                                             | 51.7               | 144                  |     |     |     |     |     |     | 36                  |
| 5                                             | 86.2               | 240                  | 205 | 180 |     |     |     |     |                     |
| 10                                            | 109.2              | 303                  | 260 | 227 | 202 |     |     |     |                     |
| 20                                            | 151.5              | 421                  | 361 | 316 | 281 | 253 | 230 | 210 |                     |
| 30                                            | 194.6              | 541                  | 463 | 406 | 360 | 324 | 295 | 270 |                     |
| 40                                            | 229.6              | 638                  | 547 | 478 | 425 | 383 | 348 | 319 |                     |
| 50                                            | 285.6              | 793                  | 680 | 595 | 529 | 476 | 433 | 397 |                     |
| 60                                            | 333.0              |                      | 793 | 694 | 617 | 555 | 505 | 463 |                     |
| 70                                            | 364.3              |                      |     | 759 | 675 | 607 | 552 | 506 |                     |
| 80                                            | 418.2              |                      |     |     | 774 | 697 | 634 | 581 |                     |
| 90                                            | 467.0              |                      |     |     |     | 778 | 708 | 649 |                     |
| 100                                           | 524.4              |                      |     |     |     |     | 795 | 728 |                     |
| 110                                           | 561.8              |                      |     |     |     |     |     | 780 |                     |
| Application rate (kg/ha):                     |                    |                      |     |     |     |     |     |     |                     |
| Minimum: 200    Standard: 500    Maximum: 700 |                    |                      |     |     |     |     |     |     |                     |



**Table VIII: Single Superphosphate Fertilizer**

Specific weight: 1,248 kg/m<sup>3</sup>

Vane position: 4

| Opening at scale                              | Flow rate (kg/min) | Tractor speed (km/h) |     |     |     |     |     |     | Effective width (m) |
|-----------------------------------------------|--------------------|----------------------|-----|-----|-----|-----|-----|-----|---------------------|
|                                               |                    | 6                    | 7   | 8   | 9   | 10  | 11  | 12  |                     |
| 0                                             | 51.7               | 129                  |     |     |     |     |     |     | 40                  |
| 5                                             | 86.2               | 216                  | 185 |     |     |     |     |     |                     |
| 10                                            | 109.2              | 273                  | 234 | 205 | 182 |     |     |     |                     |
| 20                                            | 151.5              | 379                  | 325 | 284 | 253 | 227 | 207 |     |                     |
| 30                                            | 194.6              | 487                  | 417 | 365 | 324 | 292 | 265 | 243 |                     |
| 40                                            | 229.6              | 574                  | 492 | 430 | 383 | 344 | 313 | 287 |                     |
| 50                                            | 285.6              | 714                  | 612 | 536 | 476 | 428 | 389 | 357 |                     |
| 60                                            | 333.0              |                      | 714 | 624 | 555 | 500 | 454 | 416 |                     |
| 70                                            | 364.3              |                      | 781 | 683 | 607 | 546 | 497 | 455 |                     |
| 80                                            | 418.2              |                      |     | 784 | 697 | 627 | 570 | 523 |                     |
| 90                                            | 467.0              |                      |     |     | 778 | 701 | 637 | 584 |                     |
| 100                                           | 524.4              |                      |     |     |     | 787 | 715 | 656 |                     |
| 110                                           | 561.8              |                      |     |     |     |     | 766 | 702 |                     |
| Application rate (kg/ha):                     |                    |                      |     |     |     |     |     |     |                     |
| Minimum: 200    Standard: 500    Maximum: 700 |                    |                      |     |     |     |     |     |     |                     |

**Table IX: Urea**Specific weight: 727 kg/m<sup>3</sup>

Vane position: 1

| Opening at scale                             | Flow rate (kg/min) | Tractor speed (km/h) |     |     |     |     |     |     | Effective width (m) |
|----------------------------------------------|--------------------|----------------------|-----|-----|-----|-----|-----|-----|---------------------|
|                                              |                    | 6                    | 7   | 8   | 9   | 10  | 11  | 12  |                     |
| 5                                            | 16.5               | 46                   | 39  | 34  | 31  |     |     |     | 36                  |
| 10                                           | 24.1               | 67                   | 57  | 50  | 45  | 40  | 36  | 33  |                     |
| 20                                           | 35.8               | 100                  | 85  | 75  | 66  | 60  | 54  | 50  |                     |
| 30                                           | 48.7               | 135                  | 116 | 102 | 90  | 81  | 74  | 68  |                     |
| 40                                           | 60.5               | 168                  | 144 | 126 | 112 | 101 | 92  | 84  |                     |
| 50                                           | 71.0               | 197                  | 169 | 148 | 131 | 118 | 108 | 99  |                     |
| 60                                           | 83.9               | 233                  | 200 | 175 | 155 | 140 | 127 | 116 |                     |
| 70                                           | 97.5               | 271                  | 232 | 203 | 180 | 162 | 148 | 135 |                     |
| 80                                           | 108.9              |                      |     | 227 | 202 | 182 | 165 | 151 |                     |
| 90                                           | 123.3              |                      |     |     | 250 | 205 | 187 | 171 |                     |
| 100                                          | 134.7              |                      |     |     |     | 225 | 204 | 187 |                     |
| 110                                          | 146.2              |                      |     |     |     |     | 222 | 203 |                     |
| 120                                          | 160.5              |                      |     |     |     |     |     | 223 |                     |
| Application rate (kg/ha):                    |                    |                      |     |     |     |     |     |     |                     |
| Minimum: 50    Standard: 100    Maximum: 300 |                    |                      |     |     |     |     |     |     |                     |

**Table X: Wet Limestone**

Specific weight: 1,334 kg/m<sup>3</sup>

Vane position: 3

| Opening at scale                                        | Flow rate (kg/min) | Tractor speed (km/h) |       |       |       |       |       |       | Effective width (m) |
|---------------------------------------------------------|--------------------|----------------------|-------|-------|-------|-------|-------|-------|---------------------|
|                                                         |                    | 6                    | 7     | 8     | 9     | 10    | 11    | 12    |                     |
| 20                                                      | 140.7              | 1,005                | 861   | 753   |       |       |       |       | 14                  |
| 30                                                      | 190.8              | 1,363                | 1,168 | 1,022 | 908   | 818   |       |       |                     |
| 40                                                      | 245.7              | 1,755                | 1,504 | 1,316 | 1,170 | 1,053 | 957   | 878   |                     |
| 50                                                      | 300.7              | 2,148                | 1,841 | 1,611 | 1,432 | 1,289 | 1,172 | 1,074 |                     |
| 60                                                      | 336.3              | 2,402                | 2,059 | 1,801 | 1,601 | 1,441 | 1,310 | 1,201 |                     |
| 70                                                      | 398.7              | 2,848                | 2,441 | 2,136 | 1,898 | 1,709 | 1,553 | 1,424 |                     |
| 80                                                      | 461.2              | 3,295                | 2,824 | 2,471 | 2,196 | 1,977 | 1,797 | 1,647 |                     |
| 90                                                      | 501.8              | 3,584                | 3,072 | 2,688 | 2,390 | 2,151 | 1,955 | 1,792 |                     |
| 100                                                     | 564.7              | 4,034                | 3,457 | 3,025 | 2,689 | 2,420 | 2,200 | 2,017 |                     |
| 110                                                     | 617.7              | 4,412                | 3,782 | 3,309 | 2,942 | 2,647 | 2,407 | 2,206 |                     |
| 120                                                     | 670.8              |                      | 4,107 | 3,593 | 3,194 | 2,875 | 2,613 | 2,396 |                     |
| Application rate (kg/ha):                               |                    |                      |       |       |       |       |       |       |                     |
| Minimum: 1,000      Standard: 2,000      Maximum: 5,000 |                    |                      |       |       |       |       |       |       |                     |

**Table XI: Wet Limestone**Specific weight: 1,334 kg/m<sup>3</sup>

Vane position: 3

| Opening at scale                                        | Flow rate (kg/min) | Tractor speed (km/h) |       |       |       |       |       |       | Effective width (m) |
|---------------------------------------------------------|--------------------|----------------------|-------|-------|-------|-------|-------|-------|---------------------|
|                                                         |                    | 6                    | 7     | 8     | 9     | 10    | 11    | 12    |                     |
| 40                                                      | 363.4              | 2,596                | 2,225 | 1,947 | 1,731 |       |       |       | 14                  |
| 50                                                      | 450.1              | 3,215                | 2,756 | 2,411 | 2,144 | 1,929 | 1,754 |       |                     |
| 60                                                      | 543.0              | 3,879                | 3,324 | 2,909 | 2,586 | 2,327 | 2,116 | 1,939 |                     |
| 70                                                      | 606.9              | 4,335                | 3,716 | 3,251 | 2,890 | 2,601 | 2,364 | 2,167 |                     |
| 80                                                      | 682.8              | 4,877                | 4,181 | 3,658 | 3,252 | 2,926 | 2,660 | 2,439 |                     |
| 90                                                      | 741.5              | 5,296                | 4,540 | 3,972 | 3,531 | 3,178 | 2,889 | 2,648 |                     |
| 100                                                     | 808.3              |                      | 4,949 | 4,330 | 3,849 | 3,464 | 3,149 | 2,887 |                     |
| 110                                                     | 958.2              |                      |       | 5,133 | 4,563 | 4,107 | 3,733 | 3,422 |                     |
| 120                                                     | 1,032.4            |                      |       |       | 4,916 | 4,424 | 4,022 | 3,687 |                     |
| 130                                                     | 1,106.5            |                      |       |       | 5,269 | 4,742 | 4,311 | 3,952 |                     |
| Application rate (kg/ha):                               |                    |                      |       |       |       |       |       |       |                     |
| Minimum: 1,000      Standard: 2,000      Maximum: 5,000 |                    |                      |       |       |       |       |       |       |                     |

**Table XII: Dry Limestone**

 Specific weight: 1,354 kg/m<sup>3</sup>

Vane position: 3

| Opening at scale                                        | Flow rate (kg/min) | Tractor speed (km/h) |       |       |       |       |       |       | Effective width (m) |
|---------------------------------------------------------|--------------------|----------------------|-------|-------|-------|-------|-------|-------|---------------------|
|                                                         |                    | 6                    | 7     | 8     | 9     | 10    | 11    | 12    |                     |
| 10                                                      | 131.8              | 1,098                | 941   | 823   | 732   | 659   |       |       | 12                  |
| 20                                                      | 225.9              | 1,882                | 1,613 | 1,412 | 1,255 | 1,129 | 1,027 | 941   |                     |
| 30                                                      | 332.6              | 2,772                | 2,376 | 2,079 | 1,848 | 1,663 | 1,512 | 1,386 |                     |
| 40                                                      | 410.7              | 3,422                | 2,933 | 2,567 | 2,281 | 2,053 | 1,867 | 1,711 |                     |
| 50                                                      | 484.8              | 4,040                | 3,463 | 3,030 | 2,693 | 2,424 | 2,204 | 2,020 |                     |
| 60                                                      | 602.3              | 5,019                | 4,302 | 3,764 | 3,346 | 3,012 | 2,738 | 2,510 |                     |
| 70                                                      | 649.4              | 5,412                | 4,639 | 4,059 | 3,608 | 3,247 | 2,952 | 2,706 |                     |
| 80                                                      | 794.0              | 6,616                | 5,671 | 4,962 | 4,411 | 3,970 | 3,609 | 3,308 |                     |
| 90                                                      | 824.3              |                      | 5,888 | 5,152 | 4,579 | 4,121 | 3,747 | 3,435 |                     |
| Application rate (kg/ha):                               |                    |                      |       |       |       |       |       |       |                     |
| Minimum: 1,000      Standard: 2,000      Maximum: 5,000 |                    |                      |       |       |       |       |       |       |                     |

**Table XIII: Dry Limestone**Specific weight: 1,354 kg/m<sup>3</sup>

Vane position: 1

| Opening at scale                                     | Flow rate (kg/min) | Tractor speed (km/h) |       |       |       |       |       |       | Effective width (m) |
|------------------------------------------------------|--------------------|----------------------|-------|-------|-------|-------|-------|-------|---------------------|
|                                                      |                    | 6                    | 7     | 8     | 9     | 10    | 11    | 12    |                     |
| 20                                                   | 173.0              | 1,730                | 1,483 | 1,297 | 1,153 | 1,038 | 944   | 865   | 10                  |
| 30                                                   | 211.8              | 2,118                | 1,815 | 1,588 | 1,412 | 1,271 | 1,155 | 1,059 |                     |
| 40                                                   | 268.4              | 2,684                | 2,300 | 2,013 | 1,789 | 1,610 | 1,464 | 1,342 |                     |
| 50                                                   | 323.3              | 3,233                | 2,771 | 2,425 | 2,156 | 1,940 | 1,764 | 1,617 |                     |
| 60                                                   | 365.4              | 3,654                | 3,132 | 2,740 | 2,436 | 2,192 | 1,993 | 1,827 |                     |
| 70                                                   | 415.5              | 4,155                | 3,561 | 3,116 | 2,770 | 2,493 | 2,266 | 2,077 |                     |
| Application rate (kg/ha):                            |                    |                      |       |       |       |       |       |       |                     |
| Minimum: 1000      Standard: 2000      Maximum: 5000 |                    |                      |       |       |       |       |       |       |                     |

**Table XIV: Potassium chloride**

Specific weight: 1,062 kg/m<sup>3</sup>

Vane position: 2

| Opening at scale                               | Flow rate (kg/min) | Tractor speed (km/h) |     |     |     |     |     |     | Effective width (m) |
|------------------------------------------------|--------------------|----------------------|-----|-----|-----|-----|-----|-----|---------------------|
|                                                |                    | 6                    | 7   | 8   | 9   | 10  | 11  | 12  |                     |
| 0                                              | 18.9               | 63                   | 54  | 47  |     |     |     |     | 30                  |
| 5                                              | 31.3               | 104                  | 89  | 78  | 70  | 63  | 57  | 52  |                     |
| 10                                             | 39.9               | 133                  | 114 | 100 | 89  | 80  | 73  | 67  |                     |
| 20                                             | 50.2               | 167                  | 143 | 126 | 112 | 100 | 91  | 84  |                     |
| 30                                             | 69.8               | 233                  | 200 | 175 | 155 | 140 | 127 | 116 |                     |
| 40                                             | 87.4               | 291                  | 250 | 218 | 194 | 175 | 159 | 146 |                     |
| 50                                             | 104.1              | 347                  | 297 | 260 | 231 | 208 | 189 | 173 |                     |
| 60                                             | 121.1              | 404                  | 346 | 303 | 269 | 242 | 220 | 202 |                     |
| 70                                             | 135.0              | 450                  | 386 | 338 | 300 | 270 | 245 | 225 |                     |
| 80                                             | 152.0              | 507                  | 434 | 380 | 338 | 304 | 276 | 253 |                     |
| 90                                             | 169.9              |                      | 486 | 425 | 378 | 340 | 309 | 283 |                     |
| 100                                            | 185.8              |                      |     | 464 | 413 | 372 | 338 | 310 |                     |
| 110                                            | 206.4              |                      |     | 516 | 459 | 413 | 375 | 344 |                     |
| Application rate (kg/ha):                      |                    |                      |     |     |     |     |     |     |                     |
| Minimum: 50     Standard: 200     Maximum: 500 |                    |                      |     |     |     |     |     |     |                     |

**Table XV: Millet**Specific weight: 748 kg/m<sup>3</sup>

Vane position: 2

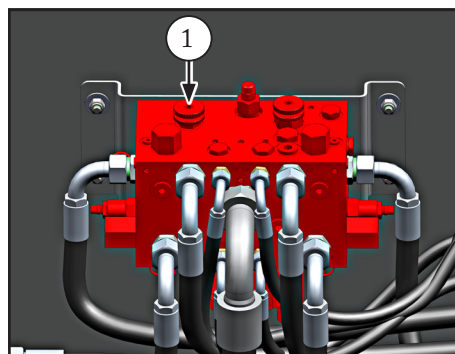
| Opening at scale                           | Flow rate (kg/min) | Tractor speed (km/h) |    |    |    |    |    |    | Effective width (m) |
|--------------------------------------------|--------------------|----------------------|----|----|----|----|----|----|---------------------|
|                                            |                    | 6                    | 7  | 8  | 9  | 10 | 11 | 12 |                     |
| 0                                          | 4.8                | 27                   | 23 | 20 | 18 | 16 | 15 | 13 | 18                  |
| 5                                          | 7.6                | 42                   | 36 | 32 | 28 | 25 | 23 | 21 |                     |
| 10                                         | 8.2                | 45                   | 39 | 34 | 30 | 27 | 25 | 23 |                     |
| 15                                         | 11.4               |                      | 54 | 48 | 42 | 38 | 35 | 32 |                     |
| 20                                         | 12.8               |                      |    | 53 | 47 | 43 | 39 | 36 |                     |
| 25                                         | 14.9               |                      |    |    | 55 | 50 | 45 | 42 |                     |
| Application rate (kg/ha):                  |                    |                      |    |    |    |    |    |    |                     |
| Minimum: 13    Standard: 25    Maximum: 50 |                    |                      |    |    |    |    |    |    |                     |

**NOTE:**

*For this chart (Millet), we use 35% of the conveyor speed and, therefore, of the Application Rate.*

**Setup:**

- With the conveyor belt stopped, make a reference mark on the belt at an easily visible point.
- Start the PTO and the conveyor.
- Speed up the engine speed for the rotation that provides 540 rpm at the PTO.
- Observe the reference mark made on the conveyor, with a chronometer record the time to a complete lap.



- If the time is less than 40 s, decrease the speed by turning the knob (1) clockwise.
- If the time is greater than 40 s, increase the speed by turning the knob (1) counterclockwise.



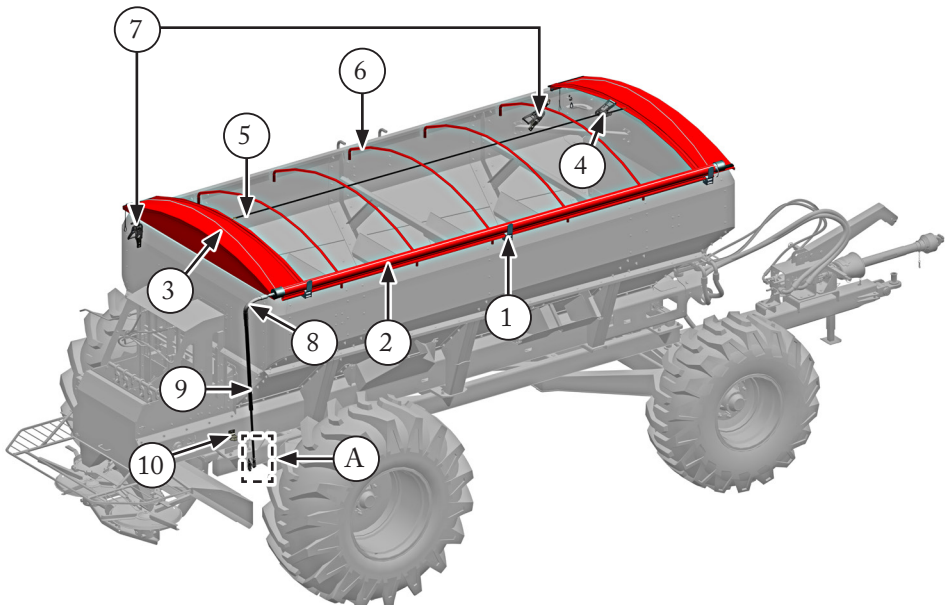
### 6.14 - Use of the Easy tarp system (optional)

*Refer to the following figure:*

- The Easy tarp system allows for quick tarping. The tarp (2) is used to cover the product hopper, protecting it from weather before and during operation, ensuring material preservation.
- In the open position, tarp (2) remains rolled over the left edge of the hopper, supported by three brackets (1).
- The transition from the open to the closed position is carried out by means of the extendable shaft (9), the elastic joint (8), and the crank (11).
- The tarp rolls and unrolls over the ramps (3) and bows (6).
- Keep the strap (5) taut using the ratchet-type tensioner (4).

#### Procedure to cover the hopper (tarping)

- Remove the crank (11) from the coupling (10) on the right-hand side by removing the pin.
- Unroll the tarp (2) by turning the crank (11) counterclockwise until the end of its travel.
- Retract the extension (9) using the crank and then secure the crank to the coupling (12) on the left-hand side by installing the pin.



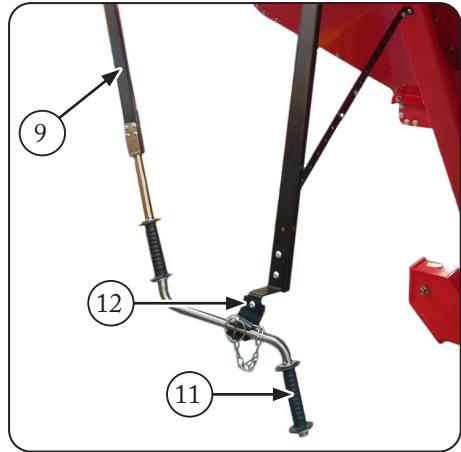
### To uncover the hopper (remove tarp)

- a) Disengage the crank (11) from the coupling (12) on the left-hand side and turn it clockwise until the rolled-up tarp rests on the supports (1) on the left-hand side.
- b) Engage the crank (11) again in the coupling (10) and install the pin.



#### **IMPORTANT:**

- *Do not walk on the tarping system.*
- *Do not travel at high speed with the hopper open (uncovered).*
- *Do not load or unload the hopper without fully uncovering it.*
- *Do not release the ratchets (7): they must keep the cables tensioned to ensure proper system operation. Adjustment is performed during system assembly.*



DETAIL A

## 7.1 - Periodical maintenance chart

| After the first 30 work hours:                                    | See item |
|-------------------------------------------------------------------|----------|
| Check the conveyor belt tension and adjust it if necessary.       | 7.5A     |
| Change the oil from the conveyor reducer and the disc gearbox     | 7.3 D    |
| Check the tightness of nuts and bolts, including wheel fasteners. | 1d -     |

| Maintenance item / Interval:<br><i>Use the tractor hour meter as a basis for tracking Lancer operating hours.</i>                           | Every 10 h or Daily | Every 50 h or weekly | Every 200 h or monthly | Every 1,000 h or annually | See item:     |
|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------|------------------------|---------------------------|---------------|
| <b>General maintenance items</b>                                                                                                            |                     |                      |                        |                           |               |
| Lubricate all grease fittings.                                                                                                              | X                   |                      |                        |                           | 7.2           |
| Clean the Lancer after each working day to prevent corrosion of the metal components that come into contact with the product.               | X                   |                      |                        |                           | 7.11          |
| Check the tightness of nuts and bolts, including wheel fasteners.                                                                           |                     | X                    |                        |                           | 7.10          |
| <b>Distribution system, conveyor, and hopper</b>                                                                                            |                     |                      |                        |                           |               |
| Clean and lubricate the threads of the product flow control gate and the conveyor tensioners                                                | X                   |                      |                        |                           | 7.2           |
| Check the conveyor belt tension and adjust it if necessary.                                                                                 |                     | X                    |                        |                           | 7.5A          |
| Perform a general inspection of the conveyor module, including removing it and checking the seals, scrapers, rollers, and other components. |                     |                      |                        | X                         | 7.5<br>C to G |
| Inspect the vanes at the end of each working day: replace them when necessary.                                                              | X                   |                      |                        |                           | 6.8A          |
| <b>Transmissions (drives)</b>                                                                                                               |                     |                      |                        |                           |               |
| Check the conveyor reducer oil level and top it up if necessary.                                                                            |                     | X                    |                        |                           | 7.3 C         |
| Check the oil level in the triple gearbox that drives the discs and top it up if necessary.                                                 |                     | X                    |                        |                           |               |
| Change the conveyor reducer oil.                                                                                                            |                     |                      |                        | X                         | 7.3 C         |
| Change the oil in the triple gearbox that drives the discs.                                                                                 |                     |                      |                        | X                         |               |
| Lubricate the conveyor reducer drive chain.                                                                                                 | X                   |                      |                        |                           | 7.3 E         |



| Maintenance item / Interval:<br><i>Use the tractor hour meter as a basis for tracking Lancer operating hours.</i>                          | Every 10 h or Daily | Every 50 h or weekly | Every 200 h or monthly | Every 1,000 h or annually | See item:      |
|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------|------------------------|---------------------------|----------------|
| Clean the conveyor reducer drive chain and adjust its slack if necessary.                                                                  |                     | X                    |                        |                           | 7.6<br>A and B |
| <b>Hydraulic System</b>                                                                                                                    |                     |                      |                        |                           |                |
| Change the hydraulic system oil.                                                                                                           | X                   |                      |                        |                           | 7.4 C          |
| Replace the breather filter incorporated into the filler cap: whenever necessary.                                                          |                     |                      |                        | X                         |                |
| Clean the heat exchanger and check the operation of the electric fan.                                                                      | X                   |                      |                        |                           | 7.4 E          |
| Change the hydraulic system oil. After draining the oil, remove and wash the suction screen filters.                                       |                     |                      |                        | X                         | 7.4 D          |
| Replace the return filter.                                                                                                                 |                     |                      |                        | X                         |                |
| Inspect hoses, connections, and components for proper fastening and leaks.                                                                 |                     | X                    |                        |                           | 1d -           |
| <b>Wheels: tires and hubs</b>                                                                                                              |                     |                      |                        |                           |                |
| Check tire inflation pressure.                                                                                                             |                     | X                    |                        |                           | 7.7            |
| Disassemble, clean, inspect and lubricate the wheel hubs.                                                                                  |                     |                      |                        | X                         | 7.8            |
| Check the front wheel toe-in and adjust it if necessary.                                                                                   |                     |                      | X                      |                           | 7.9            |
| <b>Implement preservation during inactive periods</b>                                                                                      |                     |                      |                        |                           |                |
| After the operating season, prepare the Lancer for the inactive period (off-season), according to the instructions described in item 7.11. |                     |                      |                        |                           |                |
| <b>Every 1,000 operating hours - Contact your JAN Dealer</b>                                                                               |                     |                      |                        |                           |                |
| Perform a complete inspection of the transmissions: the disc triple gearbox and the conveyor drive reducer.                                |                     |                      |                        |                           |                |
| Perform an inspection of the hydraulic components, including a pressure test.                                                              |                     |                      |                        |                           |                |
| Remove the conveyor module from the Spreader and perform a complete inspection.                                                            |                     |                      |                        |                           |                |

## 7.2 - Grease lubrication (daily)

### A) Recommended grease types

| Manufacturer | Specified product               |
|--------------|---------------------------------|
| Ipiranga     | Ipiflex 2 (Used at the factory) |
| Atlantic     | Litholine MP 2                  |
| Shell        | Retinax or Alvania EP 2         |
| Esso         | Beacon EP 2                     |
| Petrobrás    | Lubrax GMA-2                    |
| Texaco       | Multifak MP 2 or Marfak         |

### B) Identification of grease lubrication fittings



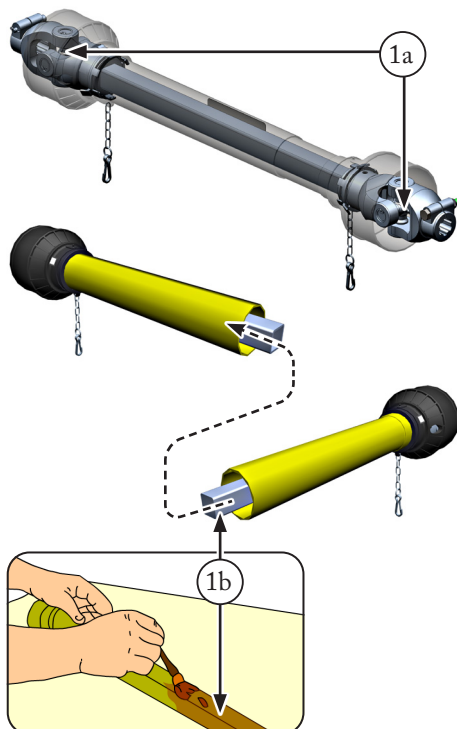
#### **IMPORTANT:**

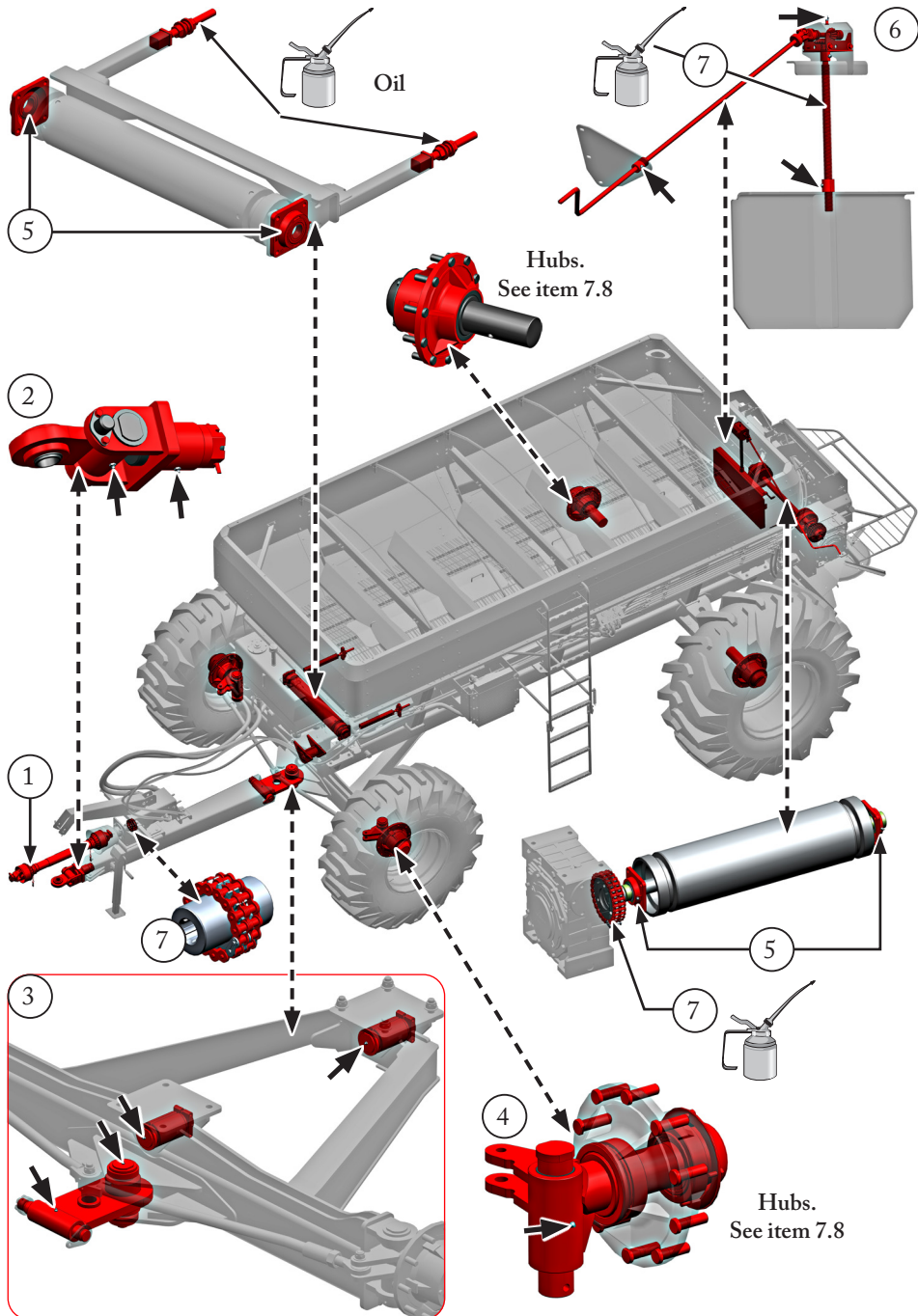
*Before applying grease, clean the grease fittings.*

1. Driveshaft: one grease fitting at each U-joint (1a). To lubricate the bar (1b), separate the driveshaft sections.

*NOTE: When assembling the driveshaft, observe the alignment between the U-joint yokes. See item 5.2.*

2. Coupling terminal: 2 fittings.
3. Hitch: 4 fittings.
4. Front wheel hub kingpin: 1 fitting in each side.
5. Front and rear conveyor roller bearings: 1 fitting in each bearing.
6. Metering gate control: 3 fittings. Lubricate the threads with oil.
7. Oil lubrication points (threads and couplings): use an oil can.



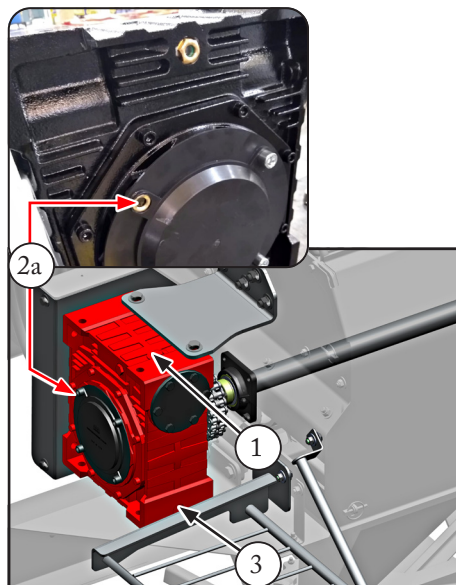


### 7.3 - Gearbox lubrication

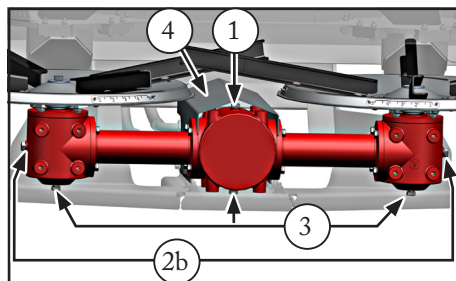
#### A) Recommended oils

Classification: SAE 140 - API GL 4

| Manufacturer | Specified products                                                                                                         |
|--------------|----------------------------------------------------------------------------------------------------------------------------|
| Ipiranga     | Ipiratur AW 68 (Used at the factory)<br>Ipirgerol SP SAE 140                                                               |
| Texaco       | Universal EP SAE 140<br>Multigear EP SAE 85W 140<br>Multigear STO SAE 85W 140<br>Multigear LS SAE 85W 140<br>Meropa EP 320 |
| Shell        | Spirax AX SAE 85W 140<br>Spirax G SAE 140<br>Spirax ST SAE 85W 140                                                         |
| Esso         | Gear Oil GX 85W 140<br>Gear Oil GX 140<br>Gear Oil GP 140                                                                  |
| Petrobrás    | Lubrax TRM-5 SAE 140<br>Lubrax GOLD 85W 140<br>Lubrax GL-5 SAE 140<br>Lubrax GL-5 SAE 85W 140                              |
| Petronas     | PAKO R320 EP                                                                                                               |



Conveyor reducer



Triple gearbox, distribution disc drive

#### B) Oil capacity

- Conveyor reducer: 6.3 liters.
- Distribution disc triple gearbox (total): 3.5 liters.

#### C) Oil level check

With the Lancer level, the oil must reach the reducer sight glass (2a) and the mounting holes for the plugs (2b) of the triple gearbox.

To top up the level, if necessary:

- Remove the filler plug (1) and add oil until the level reaches the recommended level.

#### Notes - triple gearbox:

- To remove the plug (1), it is necessary to remove the plate (4). As an option, fill the gearbox through the openings of both side plugs (2b).
- To check the level, remove both side plugs (2b).



### NOTE:

- The fill plug (1) has a breather. Keep it clean at all times.
- When topping up the oil, always use oil of the same brand and classification.

### D) Oil change

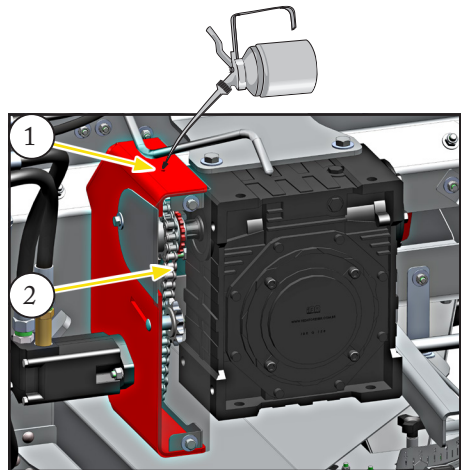
- With the Lancer level, place a collection container under the drain plug(s) (3).
- Remove the filler plug (1) and the level plug(s) (2) and drain plug(s) (3) to drain the oil.

*NOTE: On the triple gearbox, remove all three drain plugs (3).*

- After draining the oil, reinstall the drain plug(s) (3).
- Refill the gearbox with the recommended oil until the level is reached as instructed in the previous item C) Checking the oil level.
- Reinstall the removed plugs.

### E) Lubricating the conveyor reducer chain

- Lubricate the chain (2) by applying oil through the hole (1).
- Use an oil can.





## 7.4 - Hydraulic System Maintenance

### A) Hydraulic system care

Perform the operations according to the maintenance plan: see item 7.1.

#### Cleaning

Cleanliness is the most important rule in hydraulic systems.

- Do not allow contamination of the system with impurities or water.
- Keep the breather clean (1).
- When performing maintenance on the system, clean the parts thoroughly and protect the openings against dirt.

#### Valves

When starting the operation, make sure that the valves (2) are open (position shown in the figure).

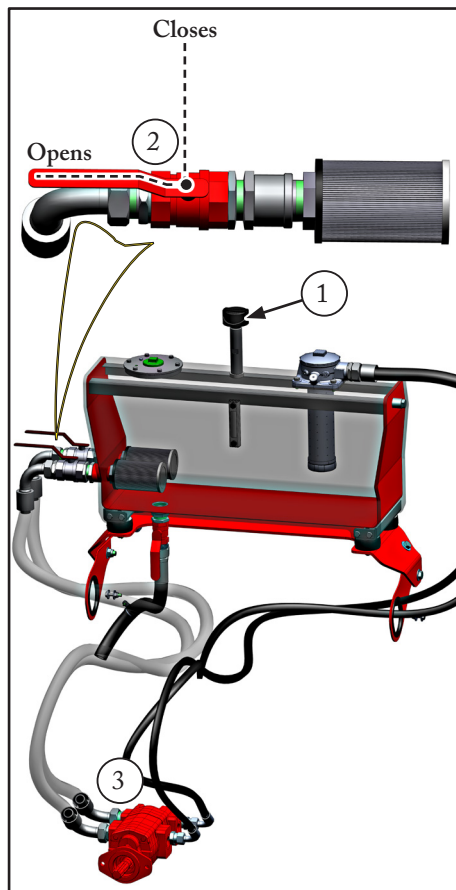


#### **IMPORTANT:**

*Operating the pumps (3) with the valves (2) closed causes irreversible damage.*

### B) Recommended oil and system capacity

- Reservoir capacity: 115 liters.
- Recommended hydraulic oil:  
ISO 68: for ambient temperatures up to 30°C.  
ISO 100: for ambient temperatures normally above 30°C.



#### **NOTE:**

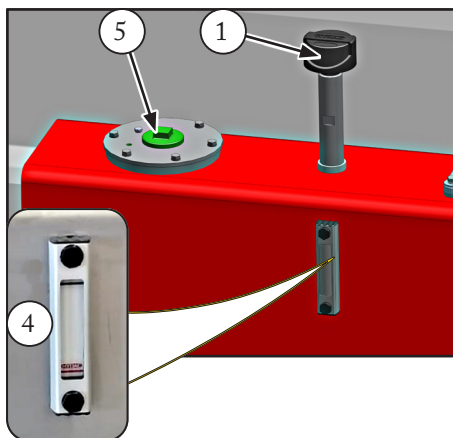
*Do not mix oils of different brands or classifications.*

### C) Oil level check

With the Lancer leveled, the oil level must reach the sight glass (4).

If necessary, remove the plug (5) and top up with the recommended oil.

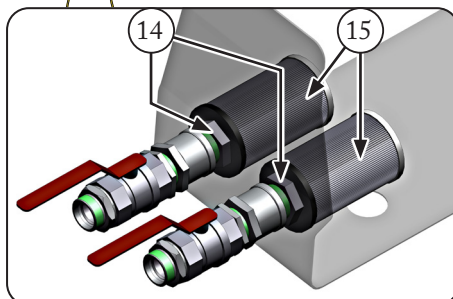
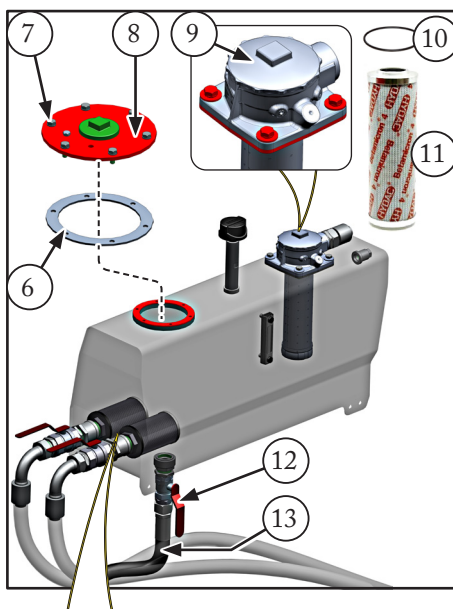
*NOTE: Always keep the breather filter (1) clean and unobstructed. We recommend replacing it when changing the oil and filter (11).*



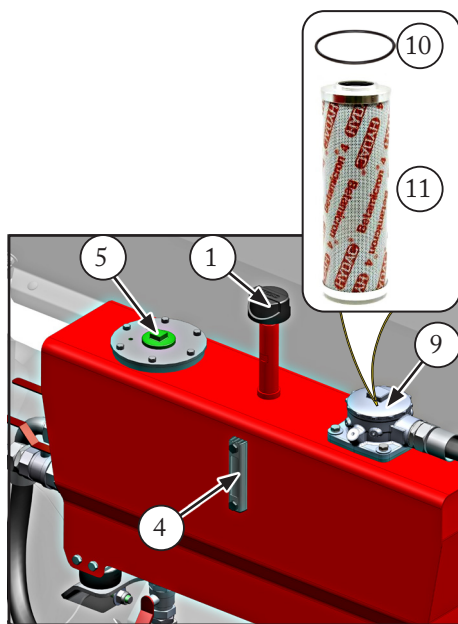
### D) Hydraulic oil change and filter maintenance

Perform the change with the oil moderately warm to obtain more complete draining. Take the used oil to authorized recycling facilities.

- Position collection containers under the hose (13).
- Open the valve (12) to drain the oil.
- Remove the bolts (7) and the cover (8).
- Through the upper opening, remove the screen filters (15). To do this, fit an open-end wrench on the hex flats (14).
- Wash the screen filters (15) with diesel fuel or kerosene and a brush. Then inspect them for damage such as deformation, holes, or saturation: replace them if necessary.
- Reinstall the screen filters and tighten them firmly.
- Inspect the gasket (6): if it is not in perfect condition, replace it.
- Reinstall the top cover (8).
- Remove the cover (9) from the return filter (11): turn the cover with an open-end wrench.



- j) Remove the filter (11) from the housing and install a new genuine filter.
- k) Inspect the O-ring seal (10) and replace it if it is not in perfect condition.
- l) Lubricate the seal (10), fit it into the cover (9) and install the cover.
- m) Remove the plug (5) and refill the reservoir with the recommended oil until the level reaches the center of the sight glass (4).
- n) Install the cap (5).



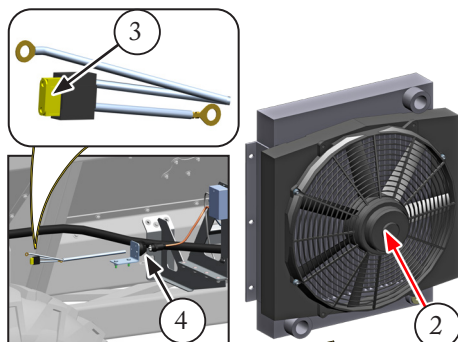
### E) Oil cooler cleaning

To prevent the oil from overheating, always keep the assembly clean and unobstructed.

Eliminate any accumulation of straw or dust, especially in the frontal protection (1).

During operation, make sure the electric fan (2) is operating.

If it is not operating, check the fuse (3): if it is blown, replace it with another fuse of the same current rating (A).



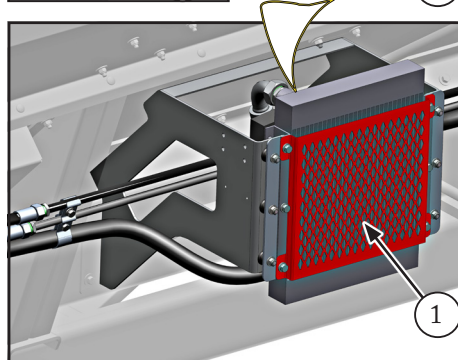
### Outlet and plug



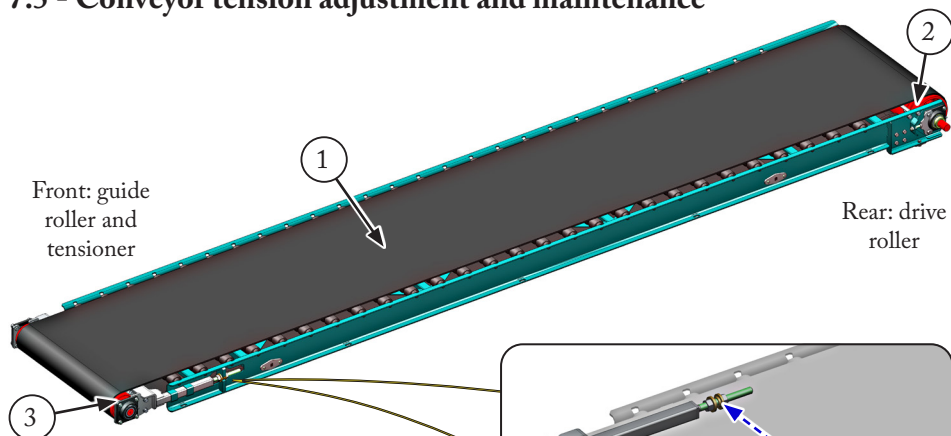
#### **IMPORTANT:**

*Leave the plug (4) connected only during operation.*

*When stopping the operation and the Lancer remains attached to the tractor, always disconnect the plug, avoiding battery a discharge.*



## 7.5 - Conveyor tension adjustment and maintenance



We recommend thoroughly washing the conveyor module.

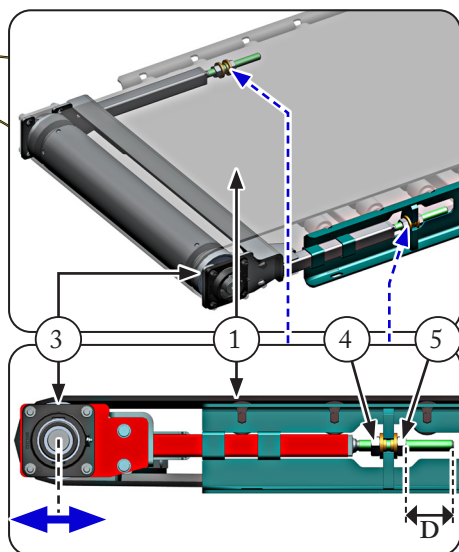
With the Lancer empty and the power take-off disengaged, perform the maintenance procedures described below:

### A) Conveyor Tightening

Cleaning and correct tension of the conveyor belt (1) are essential for its proper operation and long service life. Insufficient tension causes the conveyor belt (1) to slip on the drive roller (2), while excessive tension causes premature wear of several components.

Adjust whenever there are signs of conveyor belt slippage:

- At the front of the conveyor belt, loosen and back off the locknut (5) on both tensioners.
- Turn the adjusting nut (4), moving the roller (3) to obtain the correct conveyor belt tension.



- Make sure to make the adjustment equally on both tensioners: distance "D" must be the same on both tensioners to prevent the conveyor belt from being forced to one side.
- Retighten the locknut (5) on both tensioners.



### IMPORTANT:

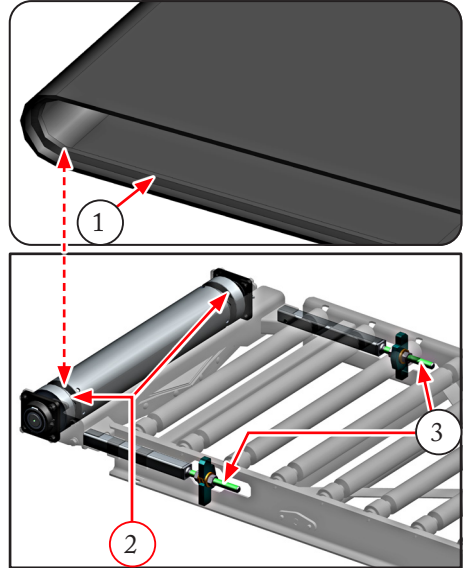
*When stretching is no longer possible, due to the end of the tensioner threads, replace the belt.*

### B) Conveyor alignment.

The conveyor belt has side guides (1) that fit into the grooves (2) of the drive and driven rollers.

This feature keeps the belt centered in relation to the rollers during operation, eliminating the need for conveyor belt alignment adjustments.

However, when adjusting conveyor belt tension, it is essential that the tensioners have the same setting, using the exposed thread length (3) as a reference.



### C) Removing the conveyor module from inside the Lancer

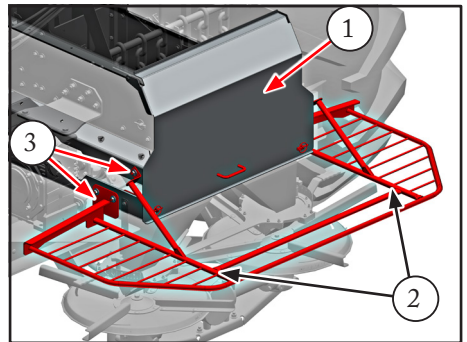


#### **ATTENTION!**

*Suitable lifting equipment is required to remove and reinstall the conveyor module.*

*Never remain under suspended components, nor allow anyone else to do so. Only perform procedures on the module when it is supported on strong, stable stands.*

- Using the tractor VCR, open the section cutoff gates. Also open the metering gate.
- Park the Lancer in a covered, flat and level area, engage the parking brake and remove the key from the ignition. Whenever the Lancer is disengaged from the tractor, chock the wheels with wooden blocks to prevent the implement from moving.



- Open the cover (1)



#### **ATTENTION!**

*Tilt the cover fully upward and forward and brace it to prevent it from accidentally falling: risk of serious injury.*

- Optional: remove the fasteners (3) on both sides and remove the protection hoop (2). If you choose not to remove the hoop (2), take care not to support the weight of the module on the hoop.



- e) Move the dispersing chains aside, supporting them on the rod (4).
- f) Remove the deflectors (5): to do so, remove the fasteners at the points indicated by the arrows in the figure beside.
- g) Remove the funnel (6).



## NOTE:

*For the granular product funnel, remove the funnel together with the product drop point adjustment system (7).*

- h) Remove the conveyor drive reducer (10):

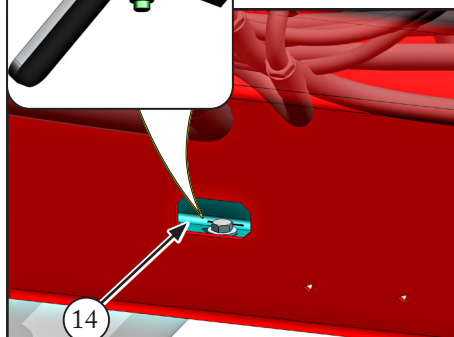
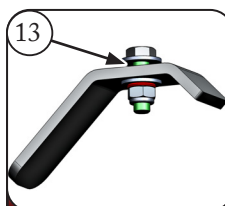
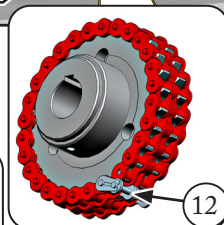
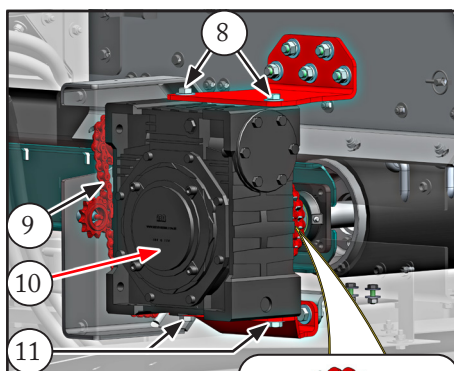
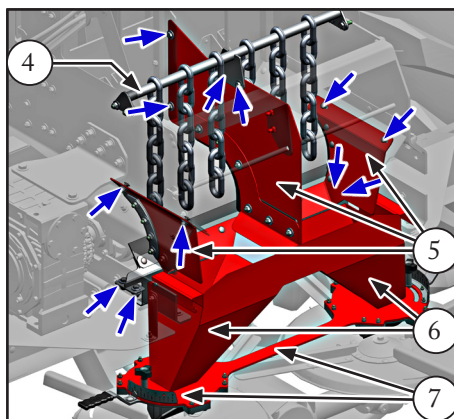


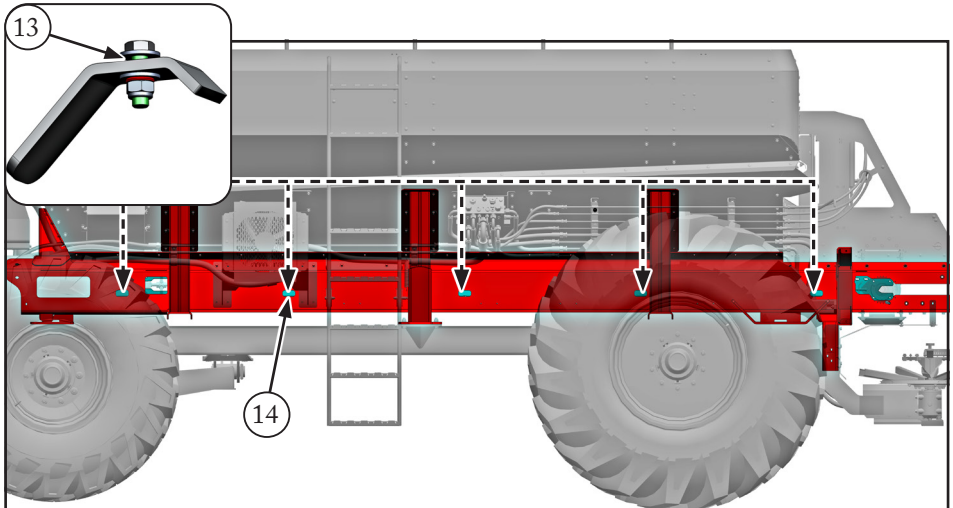
## ATTENTION!

*The reducer is heavy. Ask other people for assistance or use suitable lifting equipment.*

- Loosen the chain (9): see item 7.6.
  - Open the coupling chain by removing the connecting link (12).
  - Remove the upper (8) and lower (11) bolts and washers. The reducer will be loose: remove it from the housing using safe methods.
- i) At the five openings (14) on each side of the chassis, remove the fasteners (13): bolt + plain washer / plain washers + lock washer + self-locking nut.

See the next figure for the layout of the ten fastening points of the conveyor module to the chassis:





There are a total of ten sets (13) accessible through the five openings (14) on both sides of the Lancer chassis.

### Removing the module

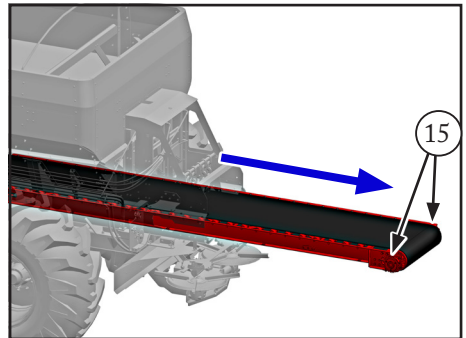
- j) With a sturdy STRAP, tie the ends to the bearings (15) as shown.



**NOTE:**

*Do not move the conveyor sideways: this could damage it.*

- k) With the aid of a tractor, slowly pull the conveyor module out of the Lancer until approximately the center of the conveyor is reached.
- l) As the module is removed, support it on stands with the required load capacity and wide support bases to ensure stability.



Direction of movement of the conveyor →



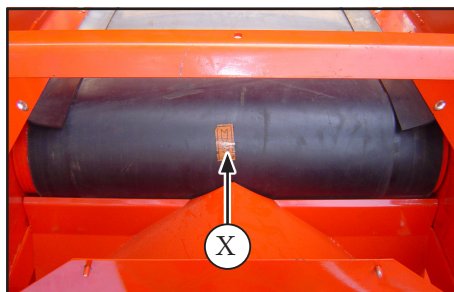
Front

Rear



### NOTE:

- With the conveyor module removed from the Lancer, perform the maintenance described below.
- To reinstall the conveyor module in the Lancer, apply a thin layer of grease under its longitudinal members, which will facilitate movement of the “cassette” assembly into the housing.
- When replacing the conveyor belt, observe decal (X), which indicates the correct direction of travel.



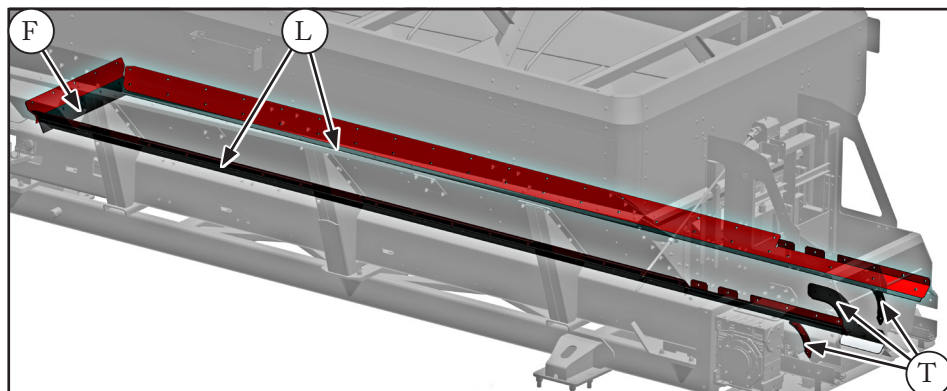
## D) Replacing the conveyor sealing sheets

The conveyor has flexible rubber sealing segments designed to prevent product from flowing back and spilling. During periodic inspections, check the condition of the sealing flaps, replacing them when necessary.

F. Front: one piece: requires removal of the module.

L. Sides: one piece on each side: requires removal of the module

T. Rear: three pieces, replaceable with the module installed

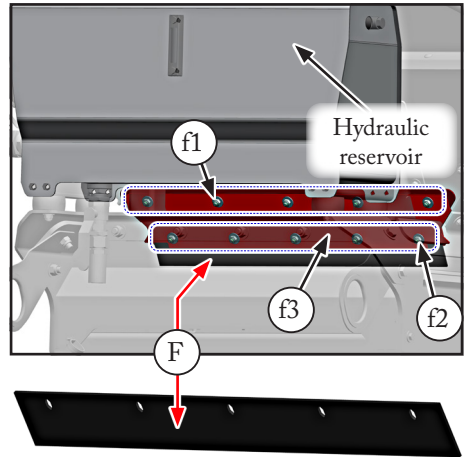




### Front seal (F)

Requires removal of the conveyor module.

- Remove the front grids from inside the hopper.
- Access the upper row of fasteners (f1) from the front of the Lancer, under the hydraulic reservoir.  
Loosen the nuts (f1): it is not necessary to remove them.
- Access the lower row of fasteners (f2) from underneath the Lancer: this is possible with the conveyor module removed.  
Remove the fasteners (f2).
- The retaining plates (f3) will become loose, allowing removal of the seal (F).
- Following the reverse order, install a new seal (F). Replace the fasteners (f1 and f2) as necessary.

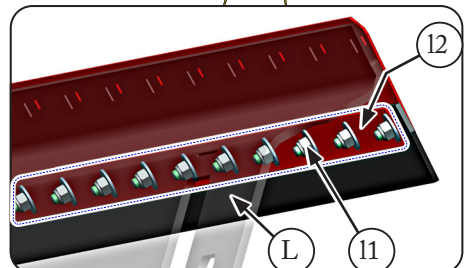
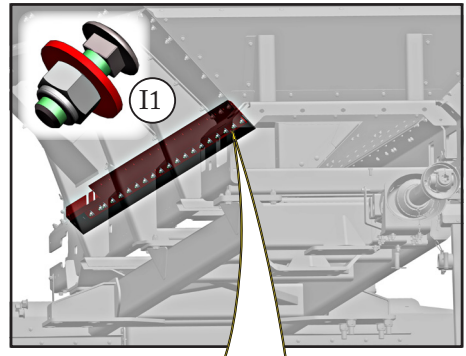


Fasteners (f1 and f2): nuts and plain washers installed from the front, outer side.

### Side seals (L)

Requires removal of the conveyor module.

- Remove the grids from inside the hopper.
- Access the row of fasteners (I1) from underneath the Lancer: this is possible with the conveyor module removed.
- Remove the fasteners (I1), the retaining plates (I2) and the seal (L).
- Following the reverse order, install a new seal (L). Replace the fasteners (I1) as necessary.
- Apply the same procedure to the seal on the opposite side: the seals are the same (same part codes).



## Rear sealing segments (T)

It is not necessary to remove the conveyor assembly.

- a) Open the rear cover, tilting it fully upward.

Observe the previous warning to prevent the cover from accidentally falling; risk of serious injury.

- b) Remove fasteners (4 and 5) and remove the protective plate (3).

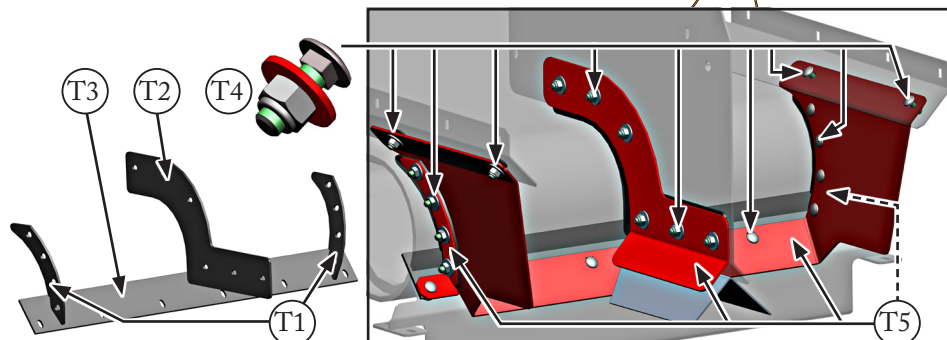
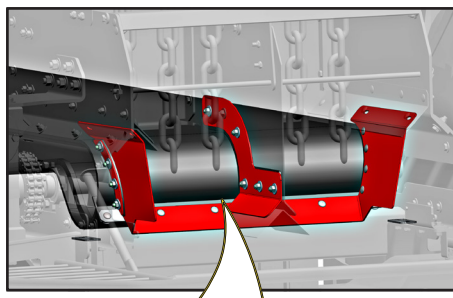
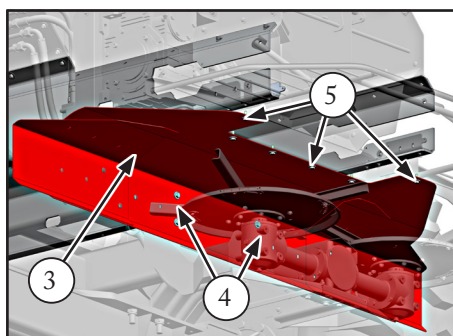
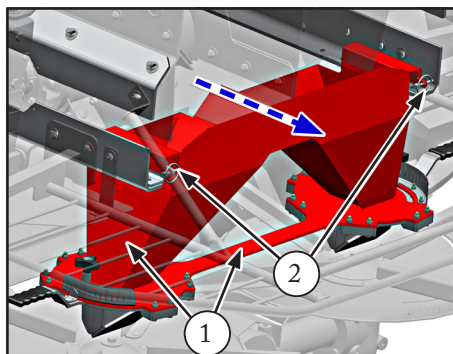
This removal is necessary to access the fasteners of the lower transverse seal (T3).

- c) Remove the fasteners (T4): they are all the same and include carriage bolt, plain washer and self-locking nut. Replace any fasteners (T4) that are not in perfect condition.

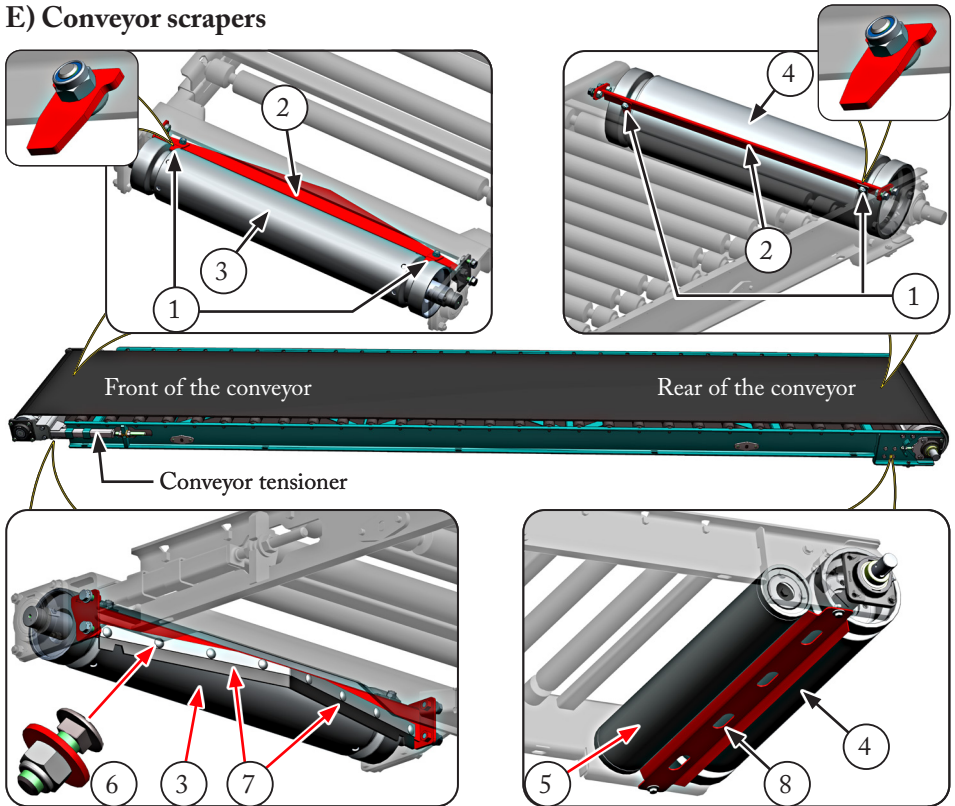
- d) Remove the retaining plates (T5), the seals (T1 and T2) and the scraper rubber (T3).

- e) Install new seals with the fasteners (T4), observing the mounting positions in the figures:

- f) Reinstall the other removed components and close the rear cover.



## E) Conveyor scrapers



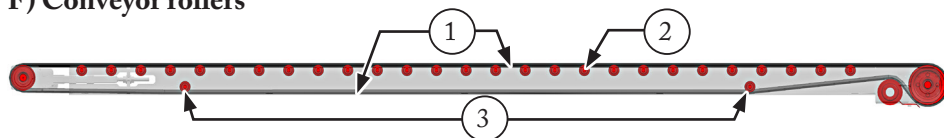
The scrapers keep the rollers and the inside of the conveyor clean.

- The scrapers (1 and 2) keep the front (3) and rear (4) rollers clean, including the roller guide grooves.
- The scraper (8) is responsible for cleaning the auxiliary roller (5), located next to the rear roller (4).
- At the front, the two rubber scraper strips (7) remove material deposited inside the conveyor to the sides.

### Maintenance and preservation:

- During routine inspections, check the condition, position, and fastening of the scrapers (1, 2 and 8). Clean them whenever necessary.
- Also check the condition and fastening of the rubber strips (7).
- Replace any items showing wear, excessive oxidation, or deformation.

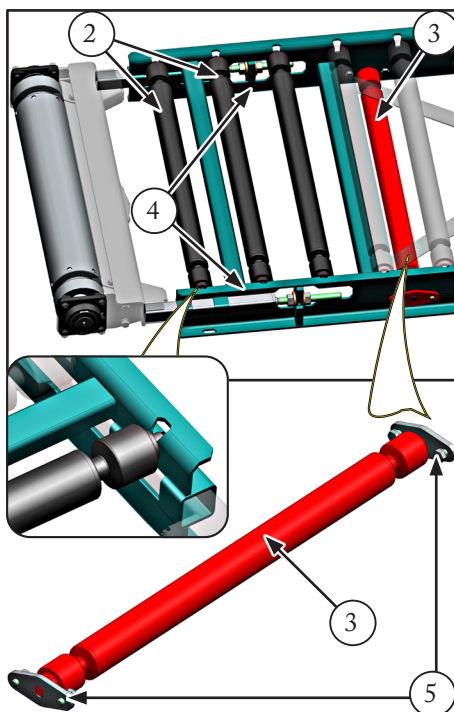
## F) Conveyor rollers



### NOTE:

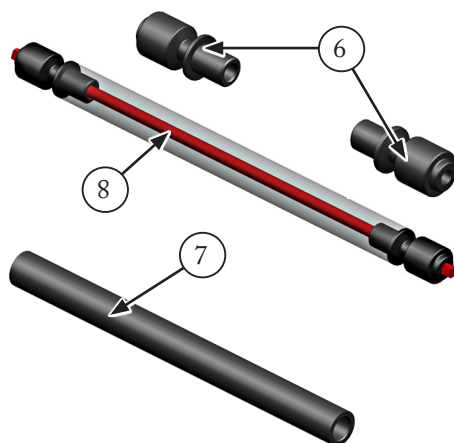
*Do not overload the Lancer with the product to be distributed. Overloading reduces the service life of the conveyor rollers.*

- The upper rollers (2) support the conveyor (1), bearing the weight of the product and are fitted into the longitudinal members (4) of the module
- The two lower rollers (3) act as guides for the conveyor (1) and are fastened with two bolts (5) on each side: remove them to release the rollers.
- To remove the rollers, it is not necessary to remove the conveyor (1): simply release its tension.



## Maintenance

- The rollers (2 and 3) must rotate smoothly and freely. Keep the rollers clean.
- After removing the rollers, remove the side rollers (6) and the inner roller (7).
- Wash and dry the shafts (8) and the (6 and 7).
- Replace any parts that are not in perfect condition.
- Assemble the rollers and install them in the module structure.



### G) Replacing the rubber conveyor belt

Replace the conveyor when it shows:

- Excessive surface wear (peeling off the rubber).
- When the tension adjustment reaches the end of the tensioners' travel (1).

#### Replacement procedure

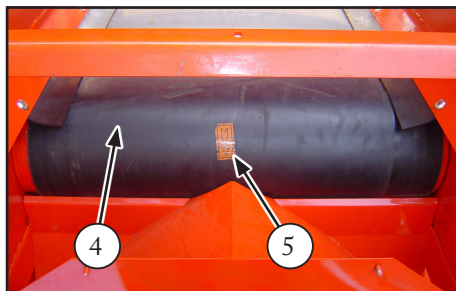
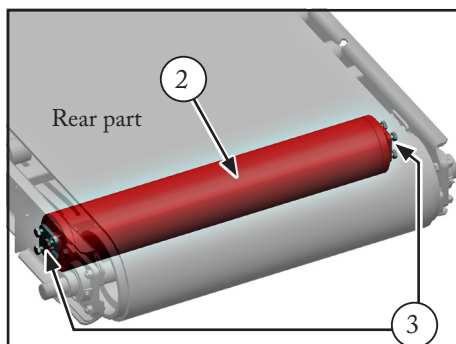
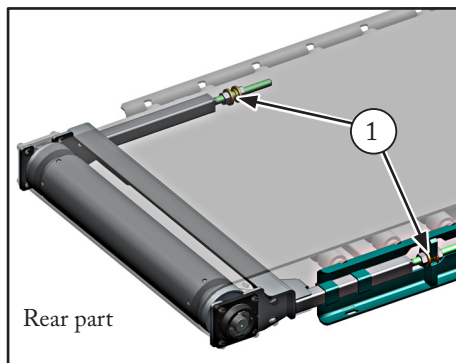
- Remove the conveyor module from inside the Lancer, as previously described.
- Release the conveyor belt tension by loosening the tensioners (1).
- Near the drive roller, remove the four bolts and washers (3) from both sides of the module and remove the auxiliary roller (2).
- Move the conveyor (4) to one side.
- Install a new conveyor, observing the correct direction.



#### **NOTE:**

*The direction of travel of the rubber conveyor belt (4) is indicated in some manner, such as by decal (5).*

- Reinstall the auxiliary roller (2).
- Adjust the conveyor belt tension: see item 7.5 - A).





## 7.6 - Transmission chain maintenance

As a result of the environment in which the transmission chain works (dust usually abrasive), it requires some simple cares that will extend chain life and ensure good operation.

### A) Cleaning and lubrication

Maintain the chain clean. Whenever necessary, wash it using a brush and kerosene or diesel fuel.

Then dry the chain with compressed air or allow it to drain naturally.

Apply SAE 90 or 140 transmission oil or aerosol-type lubricants specifically designed for chains, if available.



#### NOTE:

*Do not apply grease on the chain because it won't penetrate between the links and pins.*

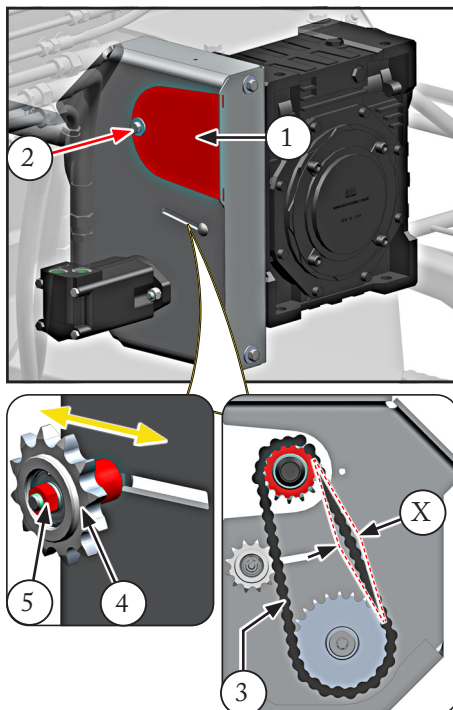
### B) Checking and adjusting chain slack

- a) Remove the protective plate (1) by removing the bolt (2).

- b) Move the chain (3) to both sides and check the total deflection measurement (X), which corresponds to the chain slack.

The slack (X) must be **7 to 12 mm**. If it is outside this range, adjust the chain:

- c) Loosen the nut (5) and move the tensioning gear (4) as necessary to obtain the correct slack in the chain (3).
- d) After obtaining the correct adjustment, retighten the nut (5).
- e) Reinstall the protective plate (1).



### 7.7 - Tire inflation

Proper tire inflation has a significant impact on their service life.

Check tire pressure with the tires cold.

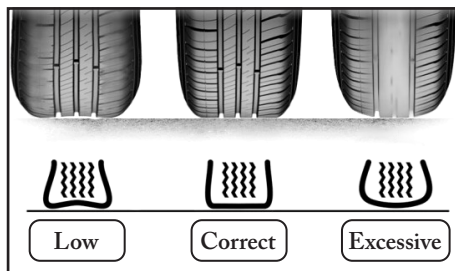
If necessary, inflate them.

The recommended pressure for each type of tire is shown in the table below, expressed in pounds per square inch (psi).



**NOTE:**

*For the tires recommended for each Lancer, see item 3.10.*



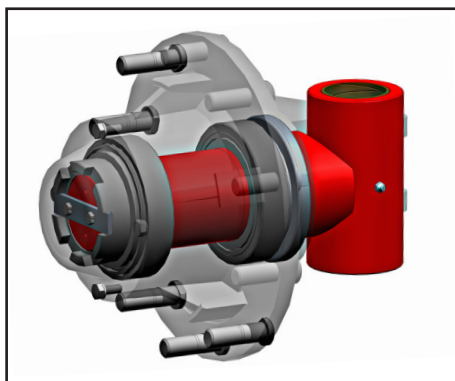
| Tire                   | Recommended pressure (pounds per square inch) |
|------------------------|-----------------------------------------------|
| 23.1-26 MB 39 (14 ply) | 24                                            |
| 30.5-32 MB 39 (14 ply) | 22                                            |

### 7.8 - Wheel hub maintenance

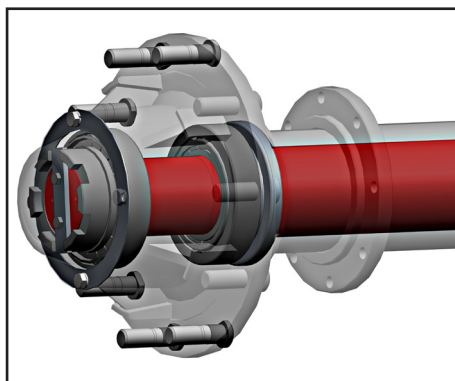
The wheel hubs must be disassembled; the parts washed in kerosene or diesel oil, inspected and reassembled; the bearing preload must be adjusted and the assembly must be lubricated.

Some front hub parts differ in shape from the rear hubs.

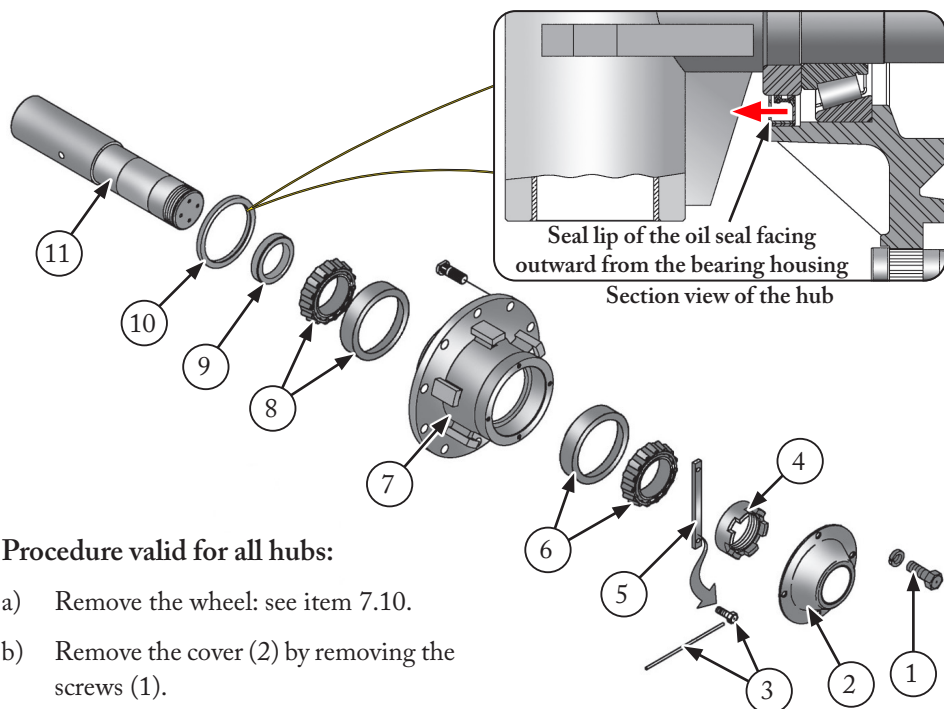
However, the procedure for both is identical:



Front hubs



Rear hubs



### Procedure valid for all hubs:

- a) Remove the wheel: see item 7.10.
- b) Remove the cover (2) by removing the screws (1).
- c) Remove the lock (5) by removing the bolts and the cotter pin (3).
- d) Remove castle nut (4).
- e) Remove the hub (7), bearings (6 and 8), and the remaining components. To do this, pull the hub (7).
- f) Wipe the parts using a brush and kerosene.
- g) Inspect the components, replacing whatever is necessary.  
Pay special attention to the retainer (10). If necessary, remove it destructively and assemble a new one.

Also check the condition of the ring (9), on which the seal (10) runs: if necessary, also replace the ring.



### IMPORTANT:

*When installing the seal (10), observe the correct side: the sealing lip must face outward from the bearing housing (see detail above).*

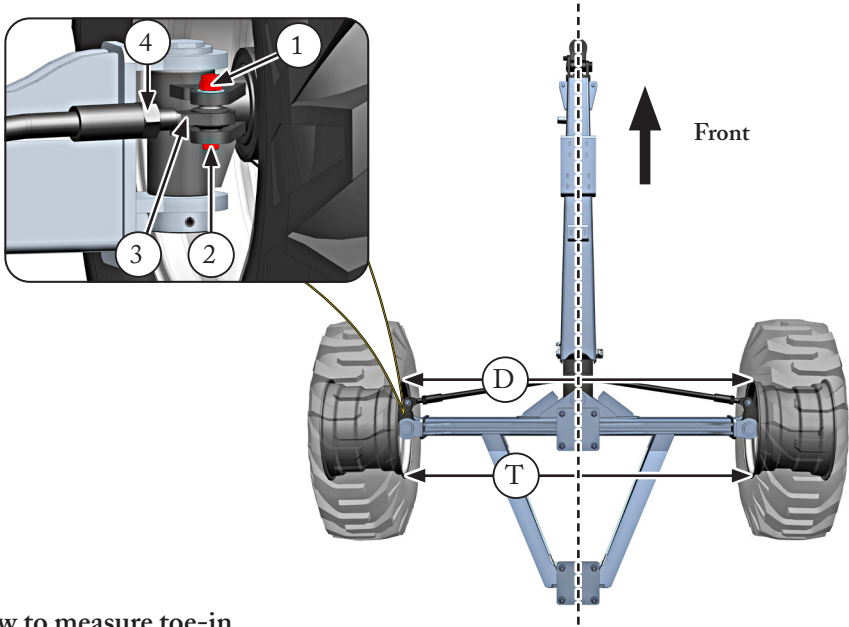
- h) Lubricate all parts with the types of grease recommended on item 7.2.
- i) Install the hub following the reverse order.
- j) Adjust the bearing preload (6 and 8): when installing the castellated nut (4), tighten it until the hub offers slight resistance to rotation.
- k) Install the lock (5) and bolts (3): lock them with wire.
- l) Repeat the procedure for the remaining hubs on the other wheels.



## 7.9 - Toe-In adjustment

Toe-in is the condition in which the wheels are closer together at the front (measurement D) than at the rear (measurement T).

Therefore, toe-in is the difference between these measurements ( $T - D$ ), in mm.



### How to measure toe-in

- Keep the hitch centered, that is, with the wheels aligned with the implement centerline.
- With a jumper wire, measure the front (D) and rear (T) distance. The measurement should be made between the rim of the rims at the height of the axles.
- Loosen the locknut (4) and turn the end (3) as needed.
- Reconnect the end (3) and check whether the toe-in is correct. If necessary, disconnect the end (3) and turn it a few more turns.

Toe-in ( $T - D$ ) must be 5 to 10 mm.

### To adjust:

- Disconnect the tie rod end (3) from the steering arm, removing the nut (1) and bolt (2).
- Once the correct adjustment has been obtained, reconnect the tie rod end with the bolt (2) and nut (1).
- Tighten the nut (1) and the locknut (4).



#### **NOTE:**

*If the toe-in is too far out of specification, make the adjustment evenly, on the steering bar on both sides of the axle.*

## 7.10 - Removal and installation of the wheels

### A) Lancer lifting



#### **ATTENTION!**

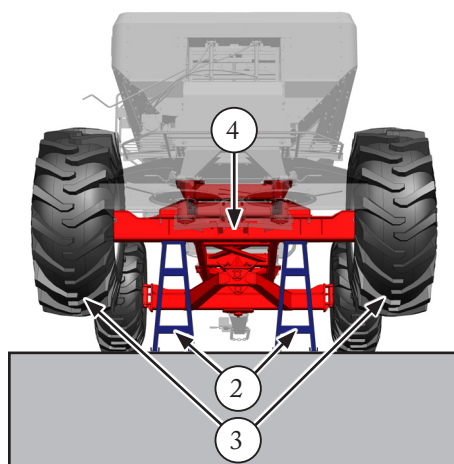
*The Lancer axles must not be lifted simultaneously!*

*Do not perform any activity with the Lancer supported only by the jack! Position jack stands (2) of the required load capacity under the chassis, at the indicated positions:*

- Perform this procedure with the Lancer on flat, level ground.
- Ensure that the Lancer is completely immobilized using one of the following methods:
  - Keep the Lancer attached to the tractor (engine off and parking brake applied).
  - Or place wooden chocks under the wheels that remain on the ground.



Image for reference only



### B) Wheel removal and installation

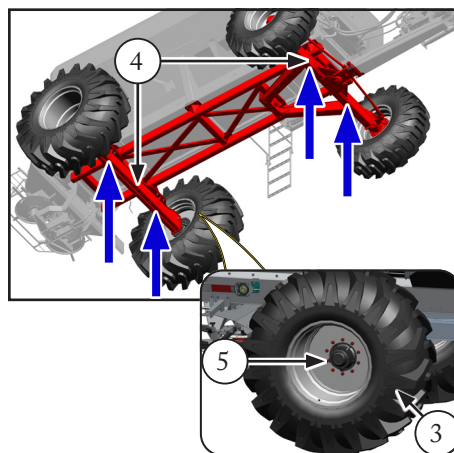
- a) Loosen the wheel nuts (5) of the wheel(s) (3) to be removed.
- b) Lift the axle with the jack (1), until the wheel(s) (3) are clear of the ground.
- c) Position stand jacks (2) under the Lancer chassis (4).



#### **NOTE:**

*To remove only one of the wheels, lift and support only the side of the axle corresponding to the wheel to be removed.*

- d) Remove the nuts (5) and the wheel(s).
- e) After reinstalling the wheel(s), raise the axle, remove the jack stands (2), lower the wheels to the ground, and perform final tightening of the nuts (5).



- f) Apply the same procedure to both axles.

## 7.11 - Lancer cleaning and preservation

Proper care of agricultural equipment that operates with corrosive chemical products depends mainly on frequent cleaning, periodic inspection and proper storage.

Neglecting these practices may result in accelerated corrosion, reduced service life, increased maintenance costs, and operational safety risks.

### A) Implement preservation guidelines

- Clean the components immediately after completing operations, especially when they have come into contact with:
1. Fertilizers based on Chloride, Nitrogen, Phosphorus, and Potassium (NPK).
  2. Micronutrients, inoculants, or chemical soil amendments.
- Use plenty of clean water, completely removing residues, deposits, and accumulated dust.
  - Avoid using harsh cleaning products, strong acids, or strong alkaline products.
  - Whenever possible, perform washing followed by drying, avoiding prolonged residual moisture.



Image for reference only

### Special attention to stainless steel



#### NOTE:

*The Lancer has a decal (shown beside) providing information on stainless steel preservation.*

*Follow the instructions indicated on the label to ensure proper cleaning, prevent corrosion, and maintain the service life of the components.*



**ATENÇÃO**  
**ATTENTION**  
**ATENCIÓN**



**CUIDADOS NA CONSERVAÇÃO E MANUTENÇÃO DO AÇO INOXIDÁVEL**  
 O aço inox possui excelente resistência à corrosão, decorrente da formação de um fino filme de óxidos e hidróxidos à base de cromo (Cr) regenerativo sobre a superfície e, portanto, exige cuidados para manter suas propriedades inalteradas.  
 Faz-se necessário a manutenção, limpeza manual, mecânica ou química com objetivo de eliminar a adesão de contaminantes, incrustações na superfície do inox preservando a sua integridade.  
 A vida útil do aço inox pode sofrer alterações devido a concentrações, composições com presença de cloratos, sais, soluções de pH ácido, umidade, temperatura do meio e estado de conservação do inox.  
 Consulte manual de instruções para maiores informações.

**CARE IN THE CONSERVATION AND MAINTENANCE OF STAINLESS STEEL**  
 Stainless steel has excellent resistance to corrosion, resulting from the formation of a thin film of regenerative chromium (Cr)-based oxides and hydroxides on the surface and, therefore, requires care to keep its properties unchanged.  
 Maintenance, manual, mechanical or chemical cleaning is necessary in order to eliminate the adhesion of contaminants and scale on the stainless steel surface, preserving its integrity.  
 The useful life of stainless steel may change due to concentrations, compositions with the presence of chlorates, salts, acidic pH solutions, humidity, temperature of the environment and the state of conservation of the stainless steel.  
 See instruction manual for more information.

**CUIDADO EN LA CONSERVACIÓN Y MANTENIMIENTO DEL ACERO INOXIDABLE**  
 El acero inoxidable tiene una excelente resistencia a la corrosión, resultante de la formación de una fina película de óxidos e hidróxidos regenerativos a base de cromo (Cr) en la superficie y, por lo tanto, requiere cuidado para mantener inalteradas sus propiedades.  
 Es necesario realizar mantenimiento, limpieza manual, mecánica o química para eliminar la adhesión de contaminantes e incrustaciones en la superficie del acero inoxidable, preservando su integridad.  
 La vida útil del acero inoxidable puede variar debido a concentraciones, composiciones con presencia de cloratos, sales, soluciones de pH ácidas, humedad, temperatura del ambiente y el estado de conservación del acero inoxidable.  
 Consulte el manual de instrucciones para obtener más información.

200000000826

Code: 200000000826 - Care for preserving and maintaining stainless steel.

### Protection of surfaces with metallic coating (galvanization)

- Avoid "white rust" (zinc oxidation caused by retained moisture) and accelerated corrosion due to chemical fertilizers.
- Remove residue from metal surfaces by washing after use to neutralize corrosive salts:
  1. After washing, dry the parts completely.

Zinc requires exposure to dry air to form a stable zinc carbonate layer; retained moisture causes white oxidation.
  2. Apply protective products to form a film that repels water and chemical residues.
- Maintenance and preservation, if the zinc layer suffers scratches or mechanical wear:
  1. Apply zinc-based protective products, in aerosol (spray), to touch up the areas where the base metal (steel) was exposed. This restores galvanic protection at the affected location.

### Proper storage

- Store the equipment in a covered, dry, and ventilated area, preferably away from environments with fertilizer dust or corrosive atmosphere.
- Avoid storing the equipment with chemical product in the hopper, even for short periods.

### Use of protective products

- Periodically apply specific products for stainless steel surface protection that preserve the passive layer of the material, avoiding oily products or waxes that may retain contaminants:
  - Inside the hopper and on metal components.
  - On stainless steel, use only compatible products that do not contaminate or attack the surface.

### B) Corrective actions

#### Removal of deposits and residues

Completely eliminate fertilizer deposits and chemical residues adhered to surfaces. On stainless steel, use:

- Plastic-bristle brushes or compatible stainless steel brushes.
- Cleaning products specifically for stainless steel, when necessary.



#### Restoration of stainless steel surfaces

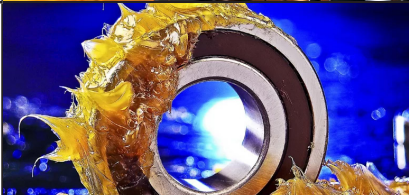
- If localized corrosion is present, clean and remove the contaminating material.
- If necessary, perform chemical passivation according to applicable standards and technical procedures.
- Replace components when corrosion compromises structural integrity or safety.

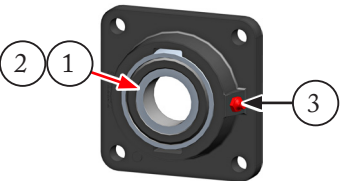
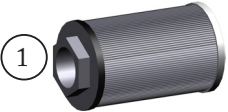
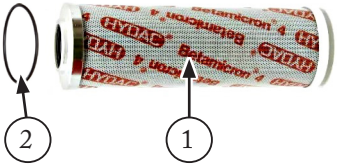
#### Periodic inspections

Establish a visual and functional inspection plan, observing:

- Critical material accumulation points.
- Welds, bolted joints, and sharp edges.
- Internal areas of hoppers.

### 7.12 - Suggested spare parts for stock

| Description and suggested quantity for stock                                              | Part code       | Identification                                                                       |
|-------------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------|
| Oil for oil lubrication points: 10 liters.<br>See item 7.3 - A) for recommended products. | Commercial item |  |
| Grease for grease lubrication points: 1kg.<br>See item 7.2 - A) for recommended products. | Commercial item |  |

| Description and suggested quantity for stock  | Part code | Identification                                                                    |
|-----------------------------------------------|-----------|-----------------------------------------------------------------------------------|
| 1. Front bearings: 2 units.                   | 68130507  |  |
| 2. Rear bearings: 2 units.                    | 68135505  |                                                                                   |
| 3. 45° grease fitting: 2 units.               | 65070404  |                                                                                   |
| 1. Hydraulic system screen filter:<br>1 unit. | 72121322  |  |
| 1. Hydraulic system return filter:<br>1 unit. | -         |  |
| 2. O-ring seal: 1 unit.                       | -         |                                                                                   |



**There is no product flow or it is not continuous. Check whether:**

1. The dosage is set and adjusted correctly.
2. There are foreign objects near the flow control gate obstructing the outlet.
3. There is "tunnel" formation over the product outlet (excessive moisture). Check whether the conveyor protective deflectors located inside the hopper are positioned at the proper height. If there are, arrange for the product to be dried before applying it.
4. It is possible to increase the opening on the flow control gate scale. If it is possible, increase the opening and select a higher speed in order not to change the application rate in kg/ha.
5. The front or side transmission chains are installed and adjusted correctly.
6. The conveyor belt or the bolts on the conveyor shaft/reducer flanges are broken.
7. The product presents clods. If so, check the product quality and/or break up the clods using screens.

**The transverse distribution profile is poorly formed. Check whether:**

1. The power take-off speed is of 540 rpm.
2. Check whether the Lancer settings are consistent with the application charts for the products to be distributed: see item 6.13.
3. The vanes have not been installed in the reverse position in relation to the direction of disc rotation: see item 6.8.
4. The correct vane and funnel models are being used (see items 6.3 and 6.8 A), as well as the correct product drop point onto the distribution discs (see item 6.9).

**Excessive vibration or strange noises can be heard. Check whether:**

1. The driveshaft U-joints show wear and excessive play, whether they have been lubricated regularly, and whether they are properly secured.
2. There is excessive deflection in the conveyor belt or transmission chains.
3. Bolts, nuts, disc fins, and other components are properly fastened.
4. There are foreign objects inside the bin.
5. The conveyor belt shaft bearings are properly fastened.
6. The driveshaft ends are misaligned: see item 5.2.



**The shear bolts on the conveyor shaft/reducer flanges break frequently. Check whether:**

1. The fuse bolts are genuine.
2. If the lodging holes and the fastening of the bolts are damaged.
3. If there are foreign objects in the bin, avoiding the conveyor displacement.
4. The conveyor belt tension is adjusted evenly (the same on both sides).

**The gearbox and reducer present excessive heating. Check whether:**

1. The oil level is correct and that the oil has been changed within the recommended interval.

**When the Lancer is moved loaded, there is lateral instability. Check whether:**

1. The tire inflation pressure is as recommended: see item 7.7.
2. The ground speed is compatible with the traffic conditions.
3. The carried load is not above the recommended volumetric capacity.
4. The wheels (rim and tire) are installed in the recommended position: see item 4.4.

**The conveyor belt shows damage on the side edges and/or on the surface in contact with the distributed product. Check whether:**

1. The conveyor belt is misaligned and shifted excessively to one side.
2. The conveyor belt is in contact with the side plate of the structure (module) or with the cylindrical rollers of the self-centering device. The belt is in contact with the lateral plate of the structure (module) or the cylindrical rollers of the self-centering device.
3. If there are foreign objects in the bin, causing friction on the conveyor.



We believe that, with the information contained in this manual, you, the user, will be able to clarify any questions regarding the Lancer Evolution.

If, however, unforeseen events occur, we recommend that you seek assistance from the nearest Dealer. If necessary, he will request aid from JAN's Technical Assistance, which will be available to solve problems as fast as possible.

Some explanations about Warranty and replacement parts are provided below.

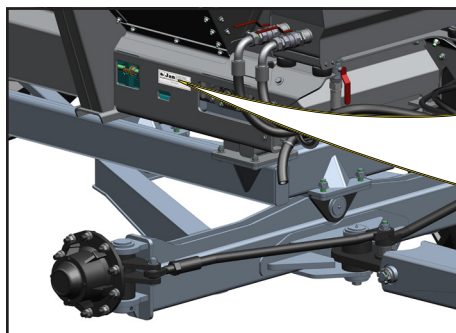
## Ways to contact Jan:

See the contact information on the back cover of the Manual.

### 9.1 - Spare parts

When replacing parts on the Lancer, use only genuine JAN parts, which are properly designed for the product to meet strength and fit requirements, so as not to impair the equipment functionality. In addition, using genuine replacement parts preserves the customer's warranty rights.

When ordering them from your dealer, always provide the Lancer manufacturing number indicated on the serial number plate (1).



|                                                                                    |            |                                                                |
|------------------------------------------------------------------------------------|------------|----------------------------------------------------------------|
|  | <b>Jan</b> | Av. Dr. Waldomiro Graeff, 557                                  |
|                                                                                    |            | Cx. Postal 54 CE P 99470-000                                   |
|                                                                                    |            | Não-Me-Toque - RS - Brasil                                     |
|                                                                                    |            | Fone: 54 3332 6500 Fax: 54 3332 1712                           |
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| <b>IMPLEMENTOS AGRÍCOLAS JAN S.A.</b>                                              |            |                                                                |
| IDENTIFICAÇÃO                                                                      |            |                                                                |
|                                                                                    |            | 1                                                              |

## 9.2 - Jan Warranty Terms

The Warranty term, expressed herein, is the Dealers' responsibility towards their Clients. It shouldn't, therefore, be used as an understanding instrument between the Client and Manufacturer.

The conditions below are basic and will be considered whenever a dealer submits to Jan's discretion a Warranty request.

1. JAN warrants this product only to the original purchaser, for a period of 6 (six) months, from the date of delivery.
2. This Warranty covers exclusively workmanship and material defects, being labor, freight and other expenses not covered by this Certificate, as they are the Dealer's responsibility.
3. Any attachments which have not been exclusively manufactured by us will not be covered by this Warranty term and their warranty claims should be sent to their respective dealers or manufacturers.
4. The Warranty will be voided when it is found that the defect or damage resulted from improper use of the equipment, failure to observe the instructions or operator inexperience.
5. The Warranty will be also void if the product is repaired or altered in a workshop or by mechanics that do not take part in our dealers network.
6. Also excluded from the Warranty are parts or components that present defects originating from the improper application of other non-genuine parts or components applied to the product by the user.
7. Products that suffer neglect of any type, to an extreme degree, such that their safety has been affected, are also excluded from the Warranty, according to the judgment of the company, whose decision, in such cases, is final.
8. Manufacturing and/or material defects covered by this Warranty shall under no circumstances constitute grounds for cancellation of the purchase and sale agreement or for compensation of any kind.

**NOTE:**

*Implementos Agrícolas Jan S.A. reserves the right to introduce changes in the designs and/or make improvements to its products without incurring any obligation to make such changes to products manufactured previously.*





## **IMPLEMENTOS AGRÍCOLAS JAN S/A**

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**Factory: Av. Dr. Waldomiro Graeff, 557 - P.O. Box 54**

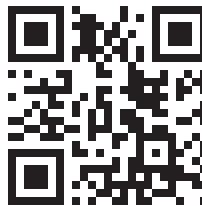
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**CNPJ: 91.495226/0001-66**

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