



sarchiatrice m21-2



Istruzioni per l'uso e manutenzione - Parti di ricambio
Operating and maintenance - Spare parts
Utilisation et entretien - Pièces de rechange
Betriebs- und Wartungsanleitung - Ersatzteile Katalog
Instrucciones de empleo y mantenimiento - Repuestos

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Dati riportati nella targhetta di identificazione della macchina. *Data shown on the machine identification plate.*
Données figurant sur la plaque d'identification de la machine. *Datos expuestos en la placa de identificación de la máquina.* Daten, die auf dem Typenschild Ihrer Maschine stehen

Modello della macchina:
Model:
 Modèle de la machine:
Modelo de la máquina:
 Modell der Maschine:

Officina autorizzata dalla Ditta BREVIGLIERI Spa a cui rivolgersi per eventuali interventi di assistenza. *Technical assistance centre authorised by BREVIGLIERI Spa to be contacted for all technical assistance needs.* Atelier de réparation agréé par BREVIGLIERI Spa. *Taller autorizado por la empresa BREVIGLIERI Spaa contactar para eventuales intervenciones de asistencia.* Vertragswerkstätte der Firma BREVIGLIERI Spa, die für die Ausführung der Servicearbeiten zuständig ist

Numero di matricola:
Serial number:
 Numéro de matricule:
Número de matrícula:
 Seriennummer:



Concessionario di zona: *Dealer; Concessionnaire; Concesionario de zona;*
 Bezirks-Vertragshändler:

Anno di costruzione:
Year of fabrication:
 Année de fabrication:
Año de fabricación:
 Baujahr:

Data di consegna della macchina:
Date of delivery:
 Date de livraison de la machine:
Fecha de entrega de la máquina:
 Auslieferdatum der Maschine:

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 breviglieri macchine agricole		
MODELLO	(A)	VERSIONE (B)
MATRICOLA	(C)	MASSA Kg (D) ANNO (E)

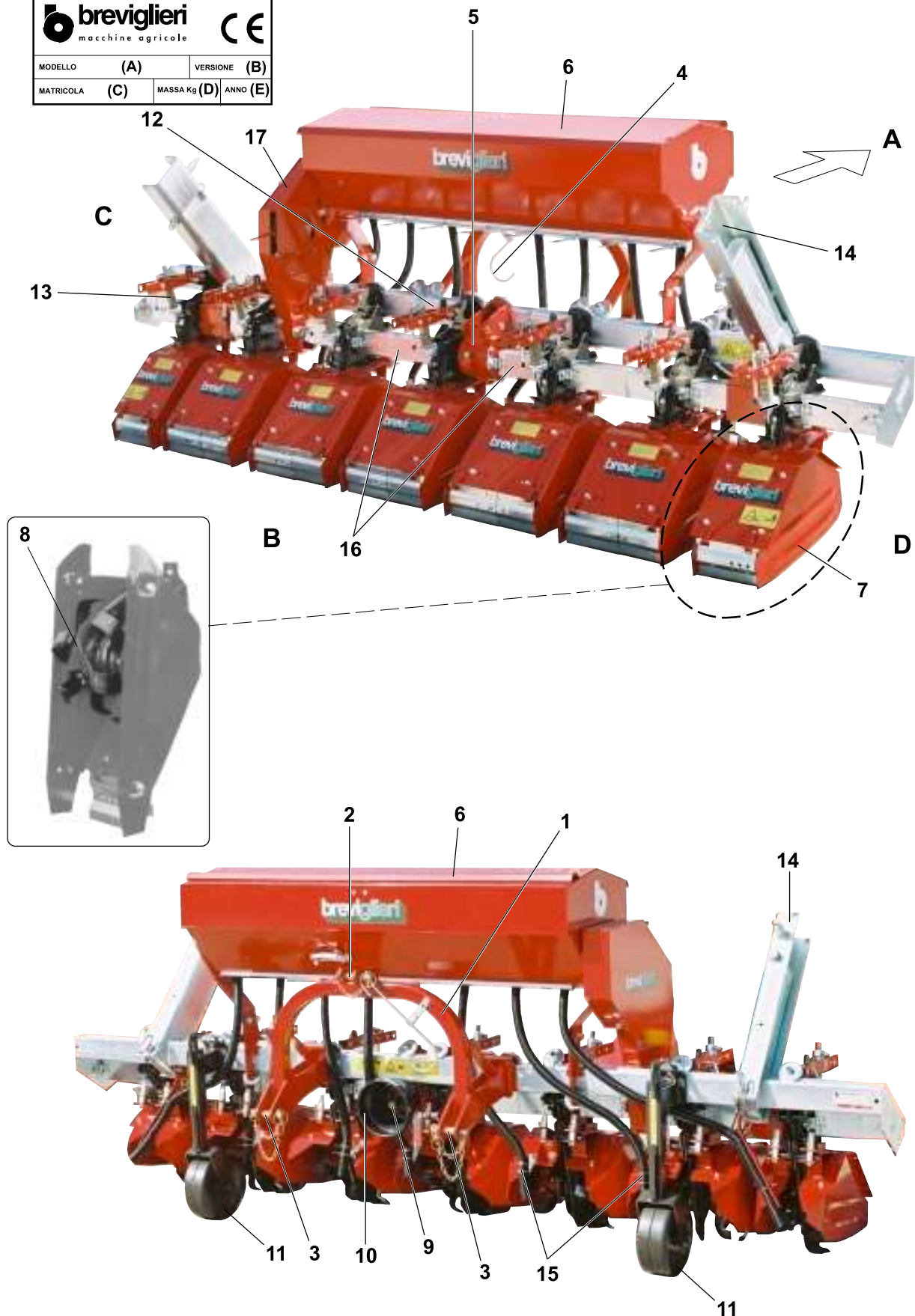
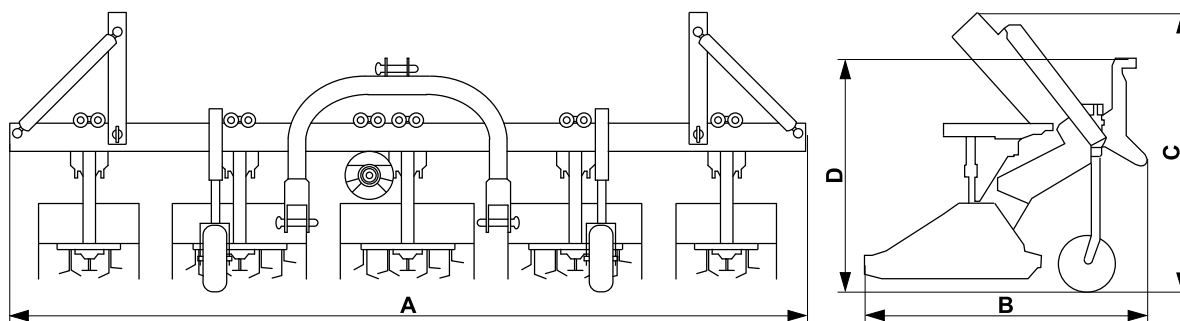


Fig. 1



Mod.	A	B	C	D
telaio m21-2 165 fisso	165	100	-	100
telaio m21-2 230 fisso	230	100	-	100
telaio m21-2 280 fisso	280	100	-	100
telaio m21-2 330 fisso	330	100	-	100
telaio m21-2 440 fisso	440	100	-	100
telaio m21-2 310 pieghevole	310	100	115	100
telaio m21-2 440 pieghevole	440	100	115	100

NB: Con lo spandiconcime, l'altezza massima della macchina è di 130 cm.

NB: The maximum height of the machine is 130 cm with the fertilizer spreader.

NB: Avec le fertiliseur, la hauteur maximum de la machine est de 130 cm.

NB: Die max. Höhe der Maschine mit Düngerstreuer beträgt 130 cm.

NB: Con la abonadora, la altura máxima de la máquina es de 130 cm.

Fig. 2

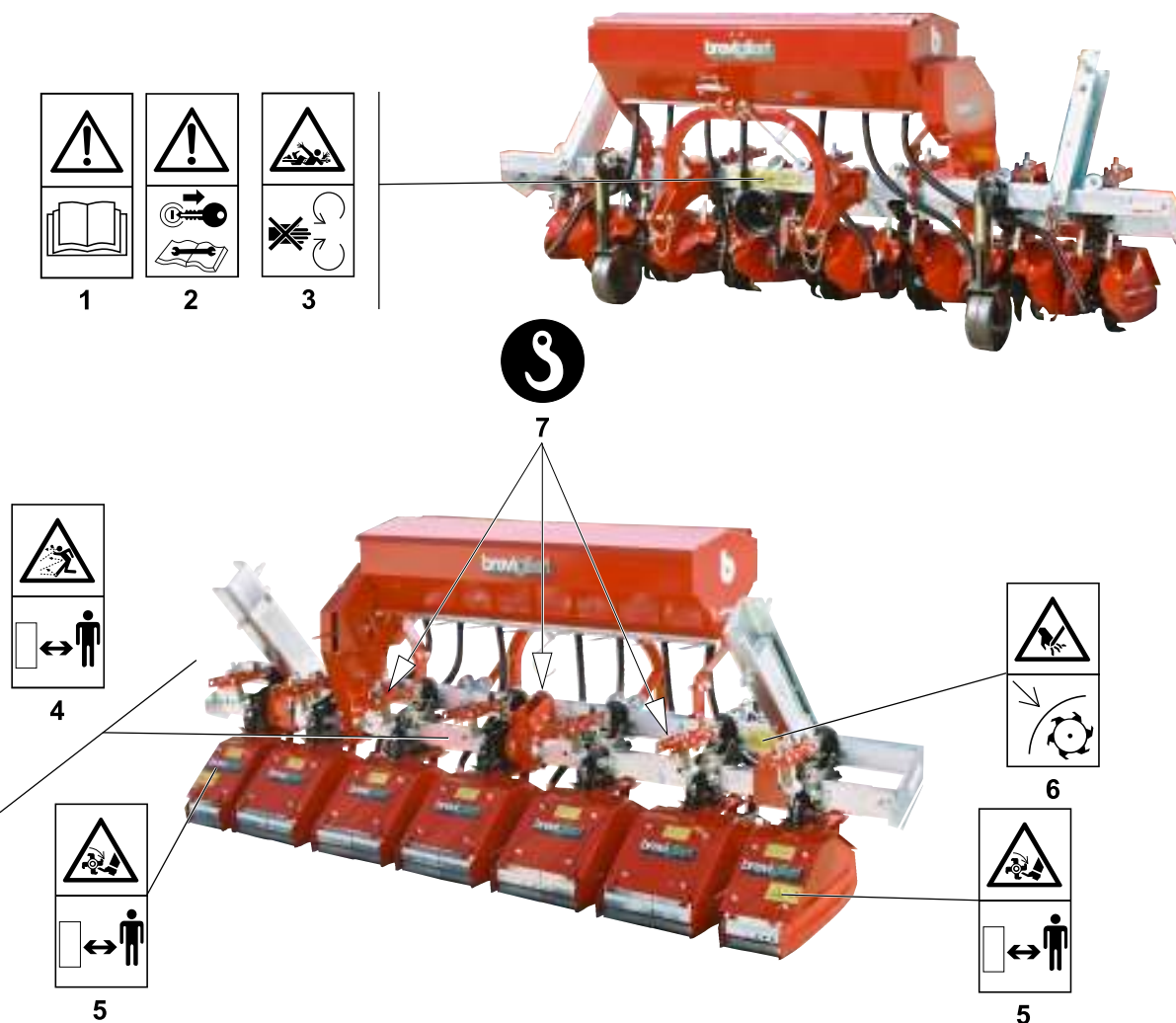


Fig. 3

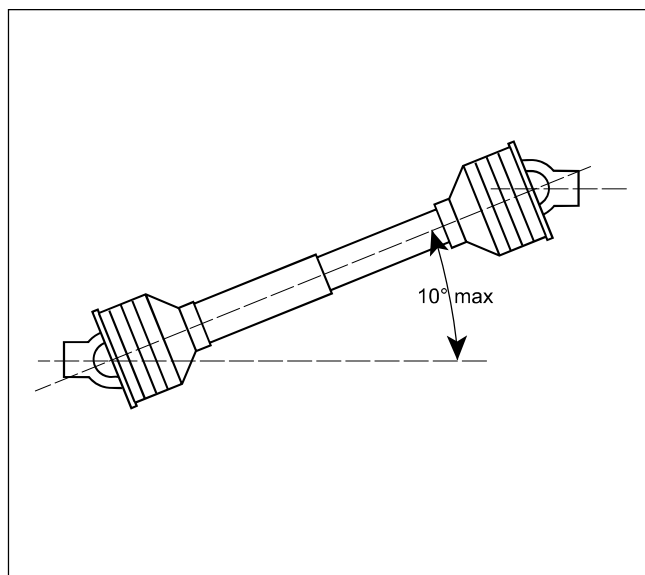


Fig. 4

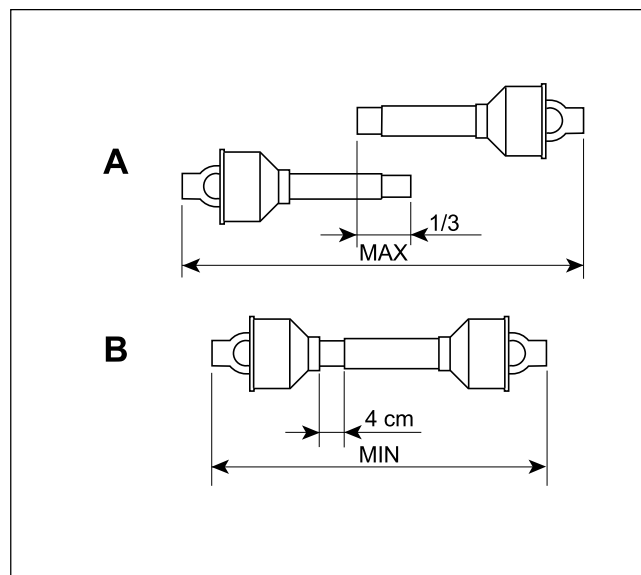


Fig. 5

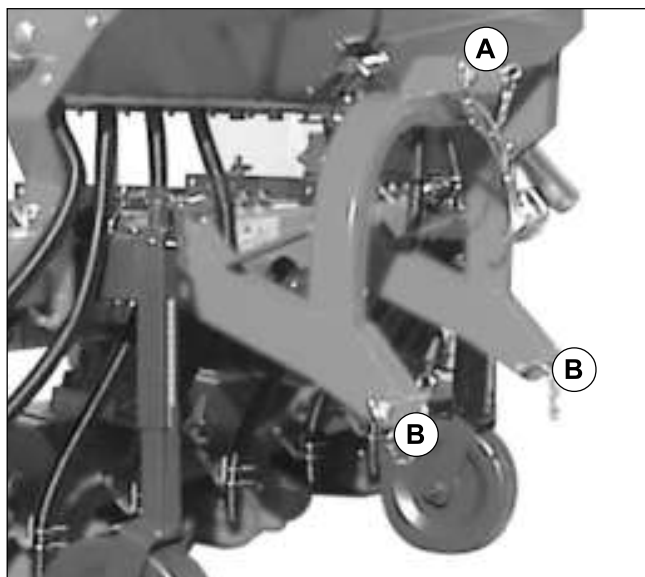


Fig. 6

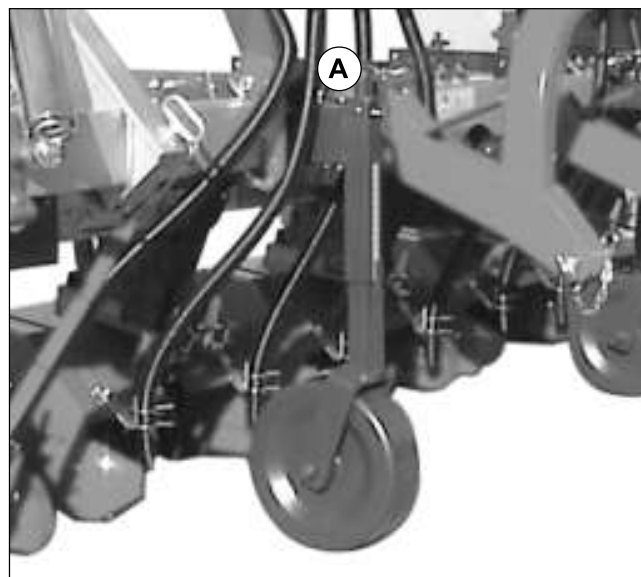


Fig. 7

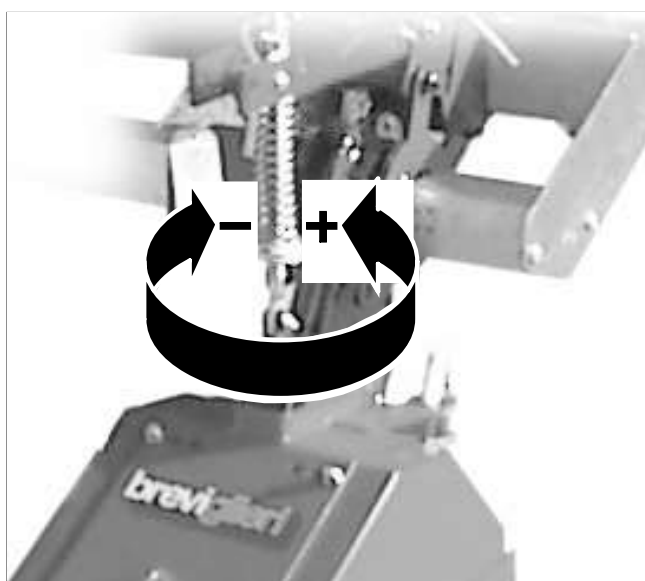


Fig. 8

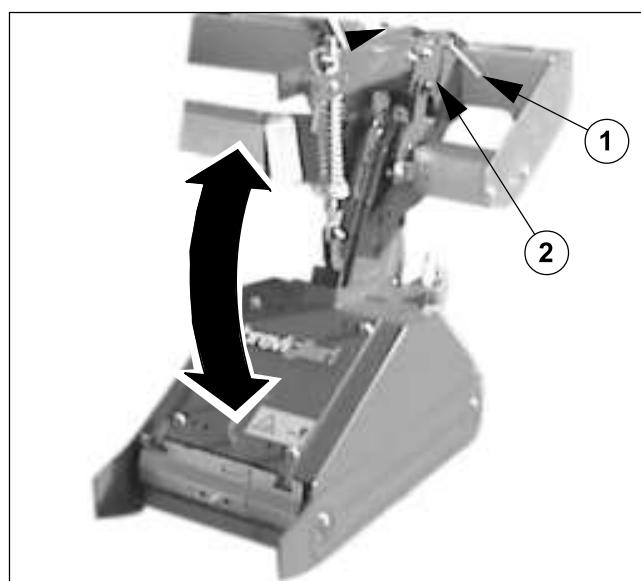


Fig. 9

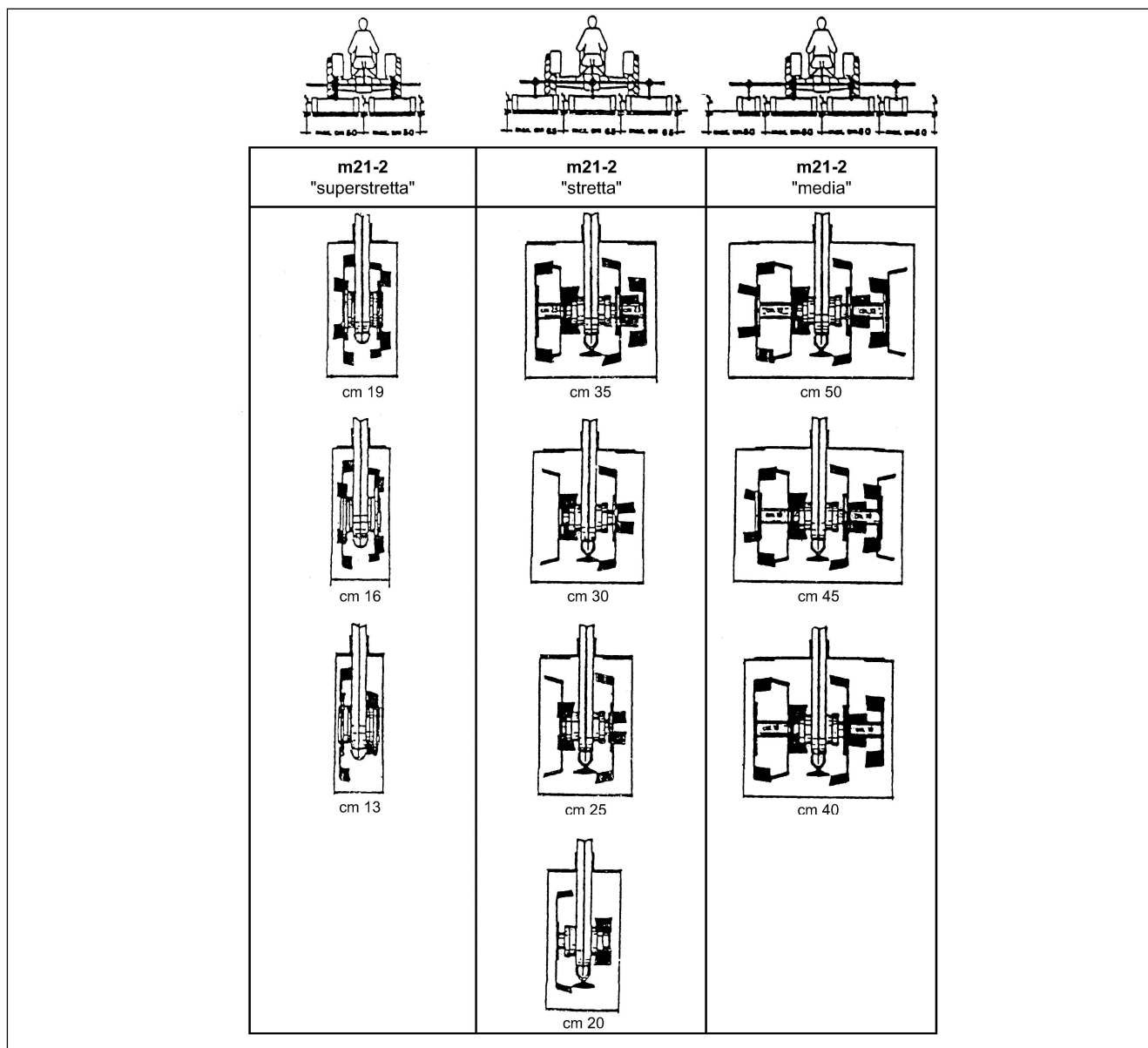


Fig. 10

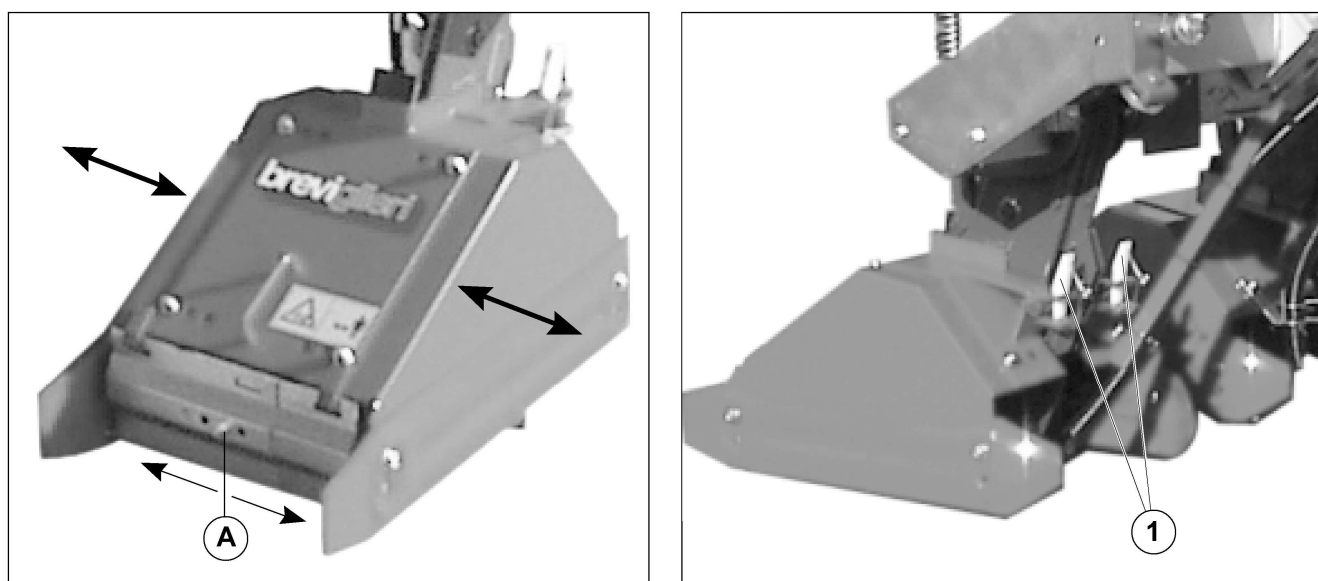


Fig. 12

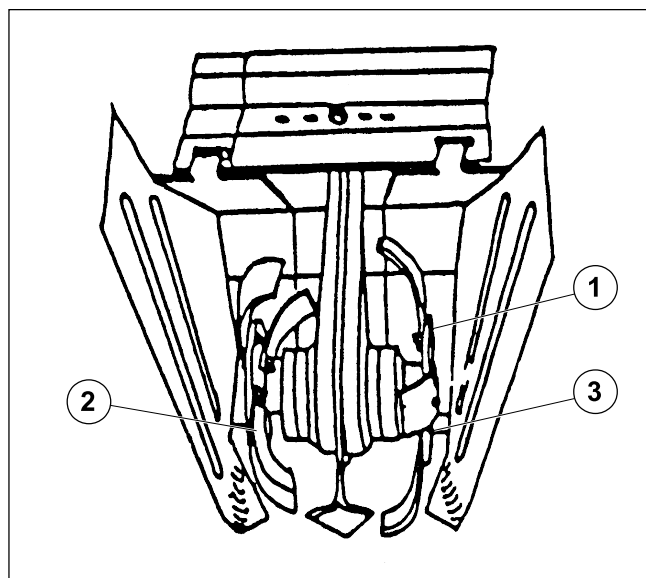


Fig. 13

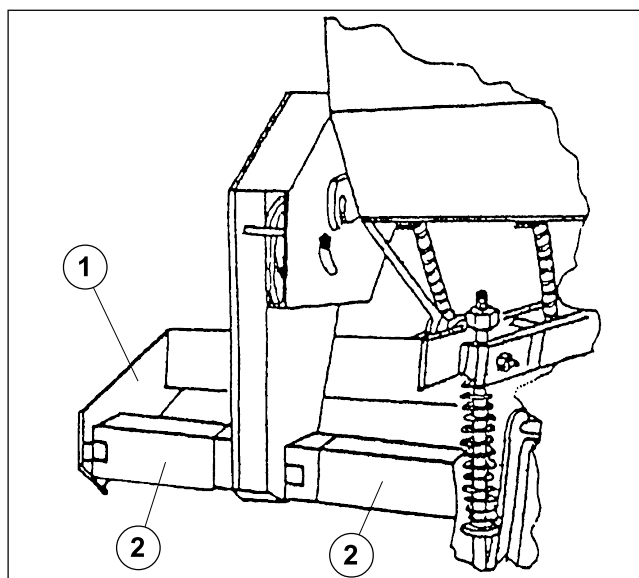


Fig. 14

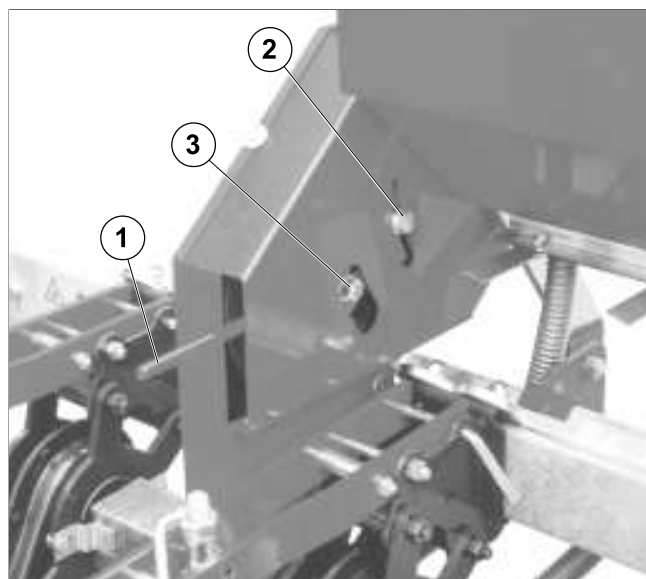


Fig. 15

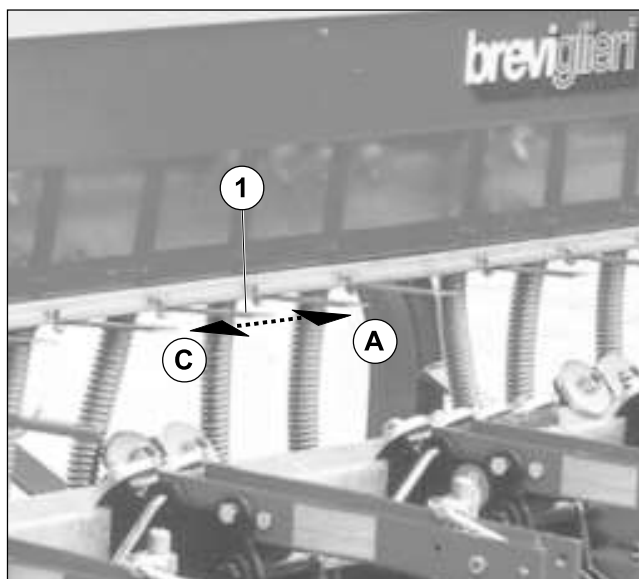


Fig. 16

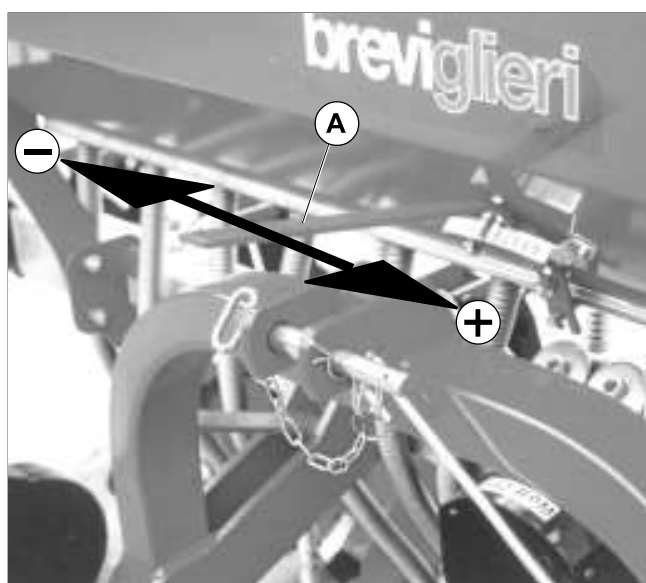


Fig. 17

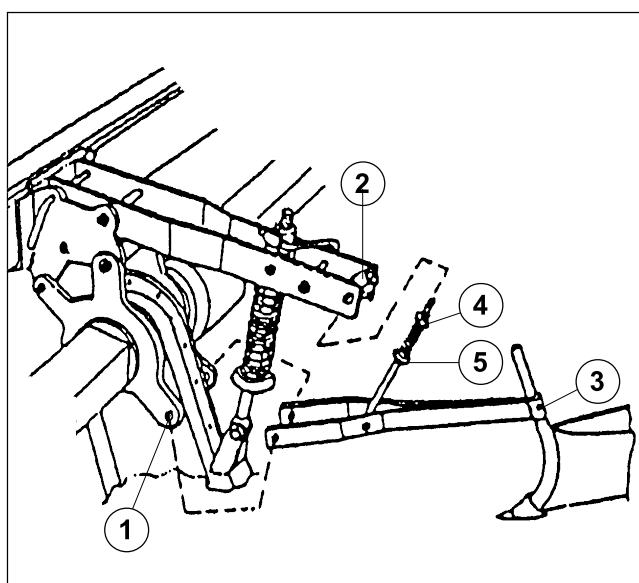


Fig. 18

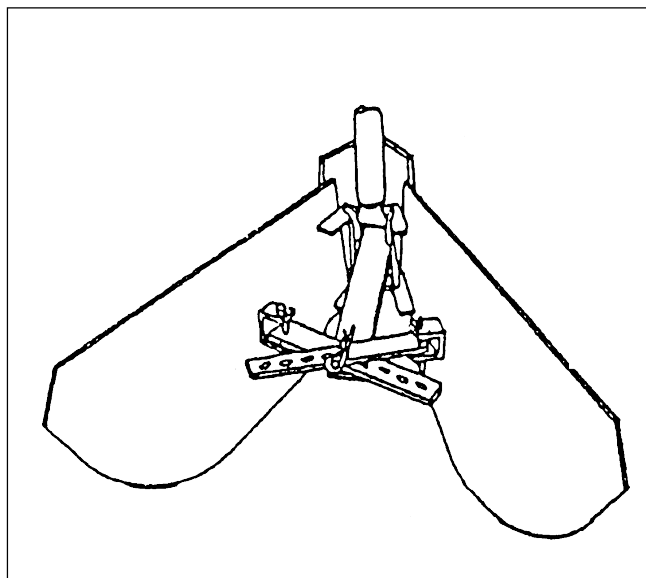


Fig. 19

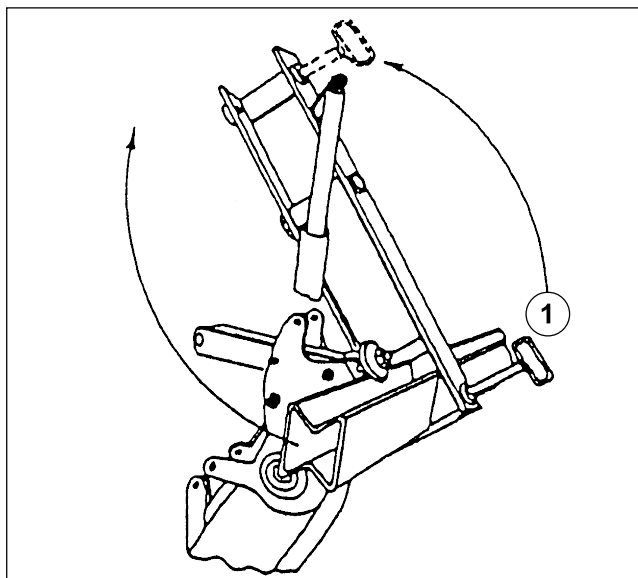


Fig. 20

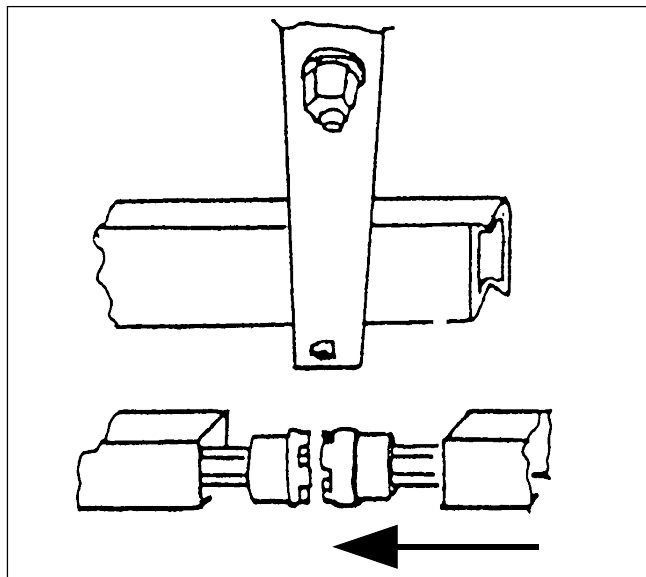


Fig. 21

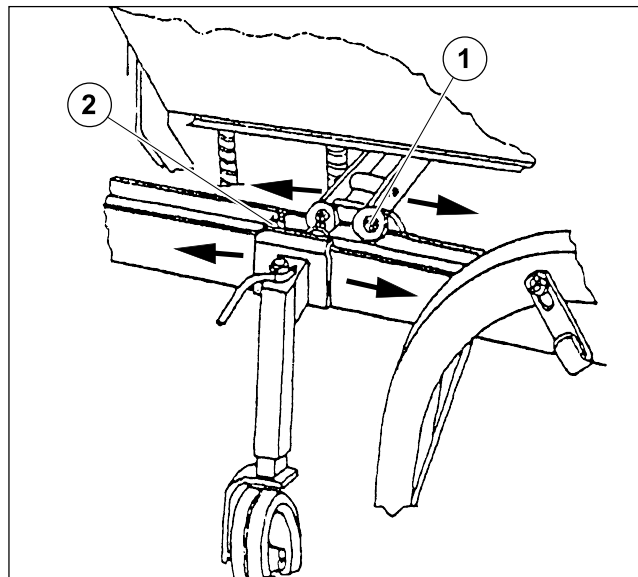


Fig. 22

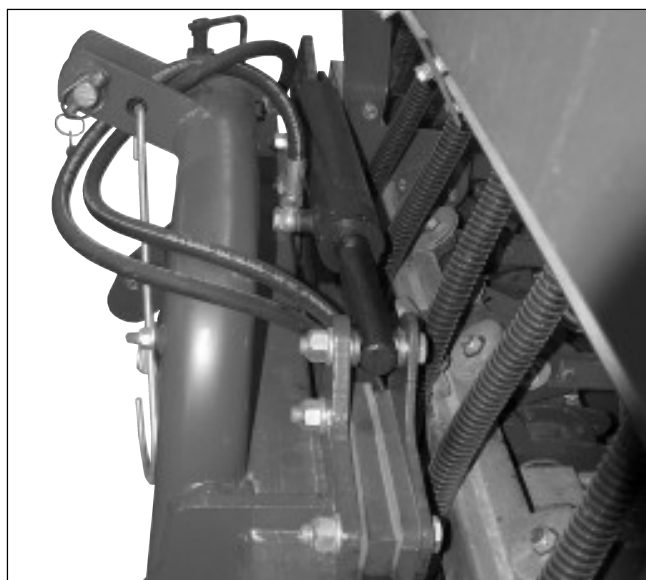


Fig. 23

ENGLISH

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SECTION 1

Description and Main features

1.1 INTRODUCTION

This manual contains the instructions and everything else considered necessary for describing how to correctly use and normally service “**interrow tiller m21-2**” (also called “machine” in the following text) manufactured by **BREVIGLIERI SpA** of Nogara (VR) Italy, also called Manufacturer in the following text.

The information and indications do not give a full description of the various components or a detailed illustration of how they operate. However, the user will find everything he normally requires in order to safely use the machine and keep it in a serviceable condition.

Failure to comply with the indications given in this manual, negligence during work, incorrect use of the machine and unauthorized modifications to the same may void the warranty supplied by the Manufacturer.

The Manufacturer therefore declines all and every liability for damage due to negligence and failure to comply with the instructions in this manual.

If repairs or overhauls of a complex nature are required, contact an authorized assistance center with specialized personnel or the actual Manufacturer who is at your complete disposal for prompt and accurate technical assistance and anything else that can ensure you get the best and most efficient performance from the machine.

This manual must be kept in a safe place, ready to hand for consultation throughout the entire life of the machine.

1.2 WARRANTY

The Manufacturer guarantees new products for a period of 12 (twelve) months from the date of purchase. Check when purchasing, to make sure that the machine is complete and in a perfect condition.

Complaints should be presented in writing within 8 (eight) days after the machine is received.

The warranty merely covers the repair or replacement, free of charge, of those parts which, after thorough examination by the Manufacturer's technical staff, are recognized as being defective (with the exclusion of tines).

Expenses concerning replacement of lubricants, transport costs, customs duties and VAT remain at the purchaser's charge in any case.

Replacement or repair of parts under guarantee shall in no case extend the warranty terms.

The Manufacturer does not accept returned goods without prior written authorization.

The purchaser shall only be able to exercise his rights in relation to the warranty when he has complied with the conditions governing warranty performance, as indicated in the supply contract.

1.2.1 WARRANTY EXCLUSIONS

(Besides the circumstances indicated in the supply contract) **the warranty becomes void:**

- When the damage can be ascribed to insufficient maintenance.
- When, following repairs made by the user without the Manufacturer's consent or owing to the installation of spurious spare parts, the machine has been subjected to changes and the damage is ascribable to these changes.
- When the machine has been hitched to tractors whose power rating exceeds the value given in the “Technical Specifications” table in this manual.
- When the user has failed to comply with the instructions in this manual.

Damage deriving from negligence, carelessness, bad and improper use of the machine or incorrect manoeuvres by the operator are also excluded from the warranty. Removal of the safety devices with which the machine is equipped shall automatically void the warranty and relieve the Manufacturer from all liability in merit.

The warranty also becomes void if spurious spare parts are used. Even when covered by the warranty, the machine must be returned Carriage Free.

1.3 DESCRIPTION OF THE MACHINE AND USE

Interrow tiller m21-2 bears "CE" marking, in compliance with the European Union standards described in directive 98/37/EC and successive modifications, and as indicated in the declaration of conformity with which each machine is supplied.

1.3.1 DESCRIPTION

The machine consists of a main framework of various widths made of shaped metal plate, with the central mounting frame with three-point hitch connected in the front part and with 2 to 12 tilling tools in the rear part.

The two ends of the main framework can be folding to allow the machine to be transported on the roads.

The tilling tools can be of different widths, i.e. ultra-narrow, narrow and medium.

The machine allows a 44 cm ground clearance under the transmission bar.

The power required to operate the machine is transmitted by the tractor via a driveline (with CE marking) which meshes centrally with the gearbox/final drive assembly (5 Fig. 1), and from thence to the tilling tools by means of a drive shaft.

KEY to Fig. 1

- A Front part
- B Rear part
- C Left side
- D Right side

- 1 Three-point hitch linkage
- 2 Upper 3-point hitch
- 3 Lower 3-point hitch
- 4 Driveline support
- 5 Gearbox/final drive unit
- 6 Fertilizer spreader
- 7 Protection
- 8 Rotor with tilling blades
- 9 Power take-off
- 10 Driveline shield
- 11 Wheels to adjust the work depth
- 12 Identification plate
- 13 Pressure springs
- 14 Side extensions (folding frame)
- 15 Hose pipes for discharging fertilizer
- 16 Upper transmission with guard
- 17 Fertilizer spreader transmission

1.3.2 USE

Interrow tiller m21-2 has been designed for use in agriculture only, for breaking up and working the soil.

One single operator seated on the tractor is able to carry out the various tillage operations.

Any other use of the machine differing from the explanations given in this manual relieves for Manufacturer from all and every liability for deriving damage to persons, animals or property.

1.4 IDENTIFICATION

Each machine is provided with an identification plate (12 Fig. 1) with the following data:

- Manufacturer's name and address;
- «CE» marking;
- A) Machine model;
- B) Machine version;
- C) Serial number;
- D) Weight (in Kg);
- E) Year of manufacture.

The data on the identification plate of the machine should be copied into the last page of this manual and must always be stated when spare parts and/or assistance are required.

Standard machine supply includes:

- Operation and maintenance manual for the machine;
- «CE» declaration of conformity.

1.5 NOISE LEVEL

The sound level has been measured in compliance with current standards, with the following results:

- Acoustic pressure LpAm (A)	dB	81.8
- Acoustic power LwA (A)	dB	98.6

1.6 TECHNICAL SPECIFICATIONS

FRAME

Model	HP	Kg	Macchine width	
			work	dimension
frame m21-2 165 fix	15-30	100	165	165
frame m21-2 230 fix	20-35	110	230	230
frame m21-2 280 fix	25-40	120	280	280
frame m21-2 330 fix	30-40	130	330	330
frame m21-2 440 fix	35-40	140	440	440
frame m21-2 310 folding	30-40	155	310	250
frame m21-2 440 folding	35-40	170	440	320

ELEMENT

Model	Kg	Work width	Blades	
			nr	w.depth
element m21-2 ultra-narrow	31	13-19	8	5-10
element m21-2 narrow	37	20-35	12	5-10
element m21-2 medium	42	40-50	16	5-10

The distance between rows must be specified to order so as to determine the frame width.

SECTION 2

General safety notes

2.1 SAFETY NOTES

The user must inform his personnel about the risks deriving from accidents, about the safety devices installed to safeguard the operator and about the general accident-preventing regulations established by the Directives and by the laws in force in the country where the machine is used.

It is therefore essential for operators to carefully read this manual, particularly the safety notes, and to pay great attention to operations which could be particularly hazardous.

The Manufacturer declines all and every liability for failure to comply with the safety and prevention regulations given in this manual.



Pay attention to this symbol when it appears in the manual. It indicates a possible danger situation.

There are three danger levels:

DANGER: This is the maximum level danger signal and warns that unless the described operations are carried out correctly, they will **cause** serious injuries, death or long term health hazards.

WARNING: The «WARNING» signal warns that unless the described operations are carried out correctly, they **could cause** serious injuries, death or long term health hazards.

CAUTION: This sign warns that unless the described operations are carried out correctly, they **could cause** damage to the machine and/or persons.

2.2 SAFETY DECALS

The machine has been designed and built in compliance with all possible safety standards able to safeguard those who work with it. Despite this, there may still be residue hazards which are signalled on the machine by decals.

These decals (pictograms) described in Fig. 3, are affixed to the machine and indicate the various situations of insecurity and danger in a brief form.

Keep the decals clean and immediately replace them if they detach or become damaged.

Consult Fig. 3, carefully read the following descriptions and memorize the meanings of the safety decals.

- 1) Carefully read the instruction manual **before beginning work**.
- 2) **Before proceeding with maintenance operations**. Stop the machine and read the instruction manual.
- 3) **Danger of being caught up by the driveline**. Keep well away from the driveline when the tractor engine is on. Fix the guards in place with the relative chains.
- 4) **Sharp objects thrown up by the machine could represent a danger hazard**. Keep at a safety distance.
- 5) **Danger of lower limbs being cut off**. Keep at a safety distance from the machine when it operates.
- 6) **Danger of upper limbs being cut off**. Do not remove the guards and keep well away from moving parts when the machine is operating.
- 7) **Hitching points** to lift the machine.

2.3 SAFETY AND ACCIDENT PREVENTING RULES

Carefully read the safety and accident-prevention rules before using the machine. Consult the Manufacturer if in doubt. The Manufacturer declines all and every liability for failure to comply with the safety and accident-prevention rules described below.

- Do not touch moving parts.
- Adjustments or work on the machine must only be carried out when the tractor engine is off and the tractor blocked.
- It is absolutely forbidden to transport persons or animals on the steering hoe.
- It is absolutely forbidden to operate the tractor or have it operated with the machine hitched by persons who are not in possession of an adequate driving license, by inexperienced persons or by those whose psycho-physical conditions of health are not good.
- Comply with all the accident prevention measures recommended and described in this manual.
- When a machine is hitched to a tractor, the weights will be distributed differently on the axles. It is therefore advisable to add ballast at the front of the tractor in order to balance the weight on the axles.
- When hitched to the tractor, the machine can only be operated with the driveline complete with shields fixed by their chains. keep well away from the spinning driveline.
- Before starting the tractor and machine, make sure that all the safety devices for transportation and use are in perfect conditions.
- Comply with the Highway Code regulations in force in your country when travelling on public roads.
- Do not exceed the maximum tolerated weight on the tractor axle.
- Become familiar with the controls and their functions before beginning work.
- Wear suitable clothing. Do not wear loose or flapping garments, scarves, necklaces or ties which could become caught up in moving parts. Wear protective garments such as goggles, gloves and protective footwear if required in the country where the machine is used or when working on particular stony ground.
- The machine must be hitched to a tractor with an adequate power rating.
- Pay the utmost attention when hitching and unhitching the machine to and from the tractor.
- Any accessories used for transportation purposes must be equipped with adequate signs and guards.
- Never ever leave the driver's seat whilst the tractor is operating.
- When driving round bends with and without the machine, take care of the centrifugal force exercised when the center of gravity is in a different position, particular when driving round bends.
- Check the rpm rate before inserting the driveline. Do not switch the 540 rpm rate with the 1000 rpm one.
- It is absolutely forbidden to linger within the range of action of the machine when this is operating.
- Before you get off the tractor, lower the machine hitched to the power lift unit, stop the tractor engine, engage the parking brake and remove the ignition key from the control panel.
- It is absolutely forbidden to get between the tractor and machine while the engine is running and the driveline engaged.
- Move the power lift control lever to the locked position before you hitch or unhitch the machine to or from the three-point linkage.
- The class of the machine's coupling pins must correspond to that of the power lift hitch.
- Take great care when you work near the lift links. This is a very dangerous area.

- It is absolutely forbidden to get between the tractor and the steerage hoe hitch in order to manoeuvre the lifting control from the outside.
- Fix the side lifting links with the relative chains and idlers during the transport phase.
- Set the control lever of the tractor's hydraulic lifting control in the locked position when driving on the roads with the machine raised.
- Only use the driveline recommended by the Manufacturer.
- Periodically check the driveline shield. It must always be in an optimum condition and firmly fixed.
- Pay the utmost attention to the driveline guard, both during transport and work.
- The driveline must always be mounted and demounted when the tractor engine is off.
- Make sure that the driveline is mounted on the tractor and machine PTO in the correct way.
- Prevent the shields from turning by means of the relative chains and always read the operation and maintenance manual supplied with the driveline.
- Make sure that there are no bystanders or animals in the vicinity before you engage the PTO.
- Do not engage the PTO when the engine is off.
- Disengage the PTO when the driveline is at an excessively wide angle (never more than 10 degrees, Fig. 4) and when it is not used.
- Only clean and grease the driveline when the PTO is disengaged, the engine off, the parking brake engaged and the ignition key removed from the tractor's ignition switch.
- Rest the driveline on its stand (4 Fig. 1) when not used.
- Lengthy use of the machine could lead to the gearbox/final drive housing (5 Fig. 1) and parts of the hydraulic circuit becoming heated. To avoid burns, do not touch these parts during or immediately after use.
- Do not carry out servicing or cleaning operations unless the PTO has been disengaged and the tractor engine turned off.
- Periodically check to make sure that the nuts and bolts are well torqued. Tighten them if necessary.
- Place adequate supports under the machine as a precaution when servicing or replacing the tines/blades with the machine raised.
- Before working on the cutting tools, detach the PTO, turn off the tractor engine, engage the parking brake and make sure that the tines are at a standstill.
- Use the recommended oils.
- Spare parts must comply with the requirements established by the Manufacturer. Only use genuine spare parts.
- The safety decals must always be clearly visible. They must be kept clean and replaced if they become illegible (new ones can be obtained from the Manufacturer).
- The instruction manual must be kept throughout the life of the machine.
- If the country in which the machine is used has noise prevention laws, adapt to these provisions by using the appropriate protections. The measured noise levels are given in section "1.5 Noise level".
- Comply with the laws in force in the country where the machine is used when it comes to using and disposing of the products used to clean and service the machine. Also comply with the instructions given by the manufacturer of such products.
- Comply with the anti-pollution laws in force in the country of use if the machine must be scrapped.

SECTION 3

Transportation and handling

3.1 TRANSPORTATION AND HANDLING

CAUTION

If the machine, hitched to the tractor, must circulate on the public roads, comply with the Highway Code regulations in force in the country in which the machine itself is used.

The machine must be raised at least 40 cm from the ground for road transport. If the machine must be transported over a long distance, it can be loaded on a truck or railway car.

In this case, consult "1.6 Technical specifications" for the weight and dimensions.

This will allow you to make sure that the machine can pass through tunnels or low constructions without difficulty.

To lift the machine from the ground to the loading platform, use a crane with an adequate carrying capacity and hook up the machine from the relative lifting points indicated on the machine (8 Fig. 3).

Loading with a crane. Make sure that the carrying capacity of the crane is fit to lift the weight of the machine.

The connecting points for lifting are clearly visible and are marked by stickers, see Fig. 3.

Lift the machine with the utmost care and move it slowly without jolting on to the truck or railway car.



DANGER

The lifting and transporting operations can be very dangerous unless they are carried out with the greatest care: have all persons not directly involved in the lifting operations move well clear of the lifting area. Clear and delimit the zone to which the machine is to be transferred. Make sure that the available lifting means are fit for the purpose. Do not touch hanging loads and always keep at a safety distance from them. When transported, the loads must not be lifted more than 20 centimeters from the ground. Also make sure that the zone in which the operations take place is uncluttered and that there is a sufficient "escape route", i.e. a clear and safe zone to which the operators can quickly move if the load should fall.



CAUTION

The surface on to which the machine is to be loaded must be perfectly horizontal, to prevent the load from shifting.

Once the machine has been moved on to the truck or wagon, make sure that it remains locked in position.

Fix the machine firmly to the surface on which it rests by means of the pre-engineered points marked with the "hook" decal (8 Fig. 3), using well tightened ropes or chains suited to its weight and able to prevent it from moving in any way.

After having transported the machine to the desired site and before removing the elements that hold it in place, make sure that its position is unable to be of danger.

Now remove the ropes and unload the machine from the means of transport in the same way as it was loaded.

**WARNING**

The machine has been designed to work and be transported during the daytime. If it must work or be transported at night, the operator must have the lighting system installed (not supplied with the machine).

Consider the machine with the folding frame and with the fertilizer spreader which, if raised, could hide the rear tractor lights.

SECTION 4

Operation

4.1 BEFORE USE

**WARNING**

Before he sets the machine at work, the operator must have read and understood all parts of this manual and particularly "Section 2" about safety.

Before beginning work, make sure that the machine is in order, that the lubricating oils are at the right level and that all parts subject to wear and deterioration are fully efficient.

Also make sure that the guards are correctly positioned.

**CAUTION**

Adjustments and operations required to prepare the machine for work must always be carried out with the machine off and blocked.

4.1.1 WORK POSITION

**DANGER**

THE OPERATOR MUST BE SEATED IN THE DRIVING SEAT OF THE TRACTOR WHEN THE MACHINE IS WORKING SINCE ONLY FROM THAT POSITION IS HE ABLE TO ACT CORRECTLY. BEFORE HE LEAVES THE DRIVING SEAT, THE OPERATOR MUST STOP THE MACHINE, APPLY THE PARKING BRAKE AND TURN OFF THE TRACTOR ENGINE.

4.2 HITCHING TO THE TRACTOR

**DANGER**

Hitching to the tractor could be a dangerous operation. Take great care and strictly comply with the instructions.

Before beginning to work, it is very important to make sure that there is nothing (persons, animals, etc.) in the space between the machine and tractor.

Never ever get between the two machines without having first turned off the tractor engine, engaged the parking brake and blocked the driveline.

Never ever allow other persons to approach the machine in order to check it, the driveline or the spinning tools.

Proceed in the following way to hitch the machine to the tractor in the correct way:

- Make sure that you are using a tractor whose configuration suits the machine in question.
- Make sure that there are no objects, bystanders and/or animals in the immediate vicinity of the machine and that the PTO is disengaged.
- Make sure that the machine is in a stable, horizontal position, then back up the tractor towards the machine.
- Having reached the right position, turn off the tractor engine then fit the driveline first into the PTO of the machine and then to the tractor PTO. Make sure that it is firmly locked in position.
- Move the power lift bars near and fit them into the plates. Insert the plug and lock in place with the supplied split pins (B Fig. 6). Since the power lift links of each tractor are a certain length and have a hole of a certain diameter, you must find the most suitable position for the tractor you use by inserting the pins into the relative holes according to your needs and depending on the diameter.
- Lock the power lift bars with the relative chains and idlers parallel to the tractor. This must be done to prevent the machine from swinging sideways.
- Insert the driveline and make sure that it is perfectly locked on to the tractor PTO. Check that the guard is free to turn. Fix the driveline shield with the relative chain. Remove the driveline support (4 Fig. 1) and fix it to the relative hitch on the linkage.

**DANGER**

Take the utmost care when you insert the driveline. Make sure that it is firmly locked on to the tractor PTO and on the machine.

Also comply with the indications in the instruction manual supplied with each driveline.

Make sure that the driveline shield, fixed with the relative chains, is free to turn without obstructions.

Also check the protective shields on the tractor and on the implement.

If some guard is not in perfect working order, it must be immediately replaced with a new guard. It is very important to ensure that the protective shields on both sides overlap the driveline ones by at least 5 cm.

- Connect the upper third point and adjust the top link in the correct way, making sure that the upper surface of the machine is parallel to the ground. This is very important as parallelism between the axis of the machine and that of the tractor PTO is obtained in this way.

4.3 DRIVELINE

**DANGER**

The driveline is a mechanical component. When it is operating it can be a source of danger to the physical well-being of those who work with it. Take the greatest care when carrying out operations that involve the driveline. Carefully read the instruction manual supplied with the driveline. If you have doubts about the way it operates, if it is without its shields, worn or broken, replace it with a new driveline bearing the "CE" mark.

Make sure that the driveline is ALWAYS protected by the plastic guards supplied by the manufacturer.

The guards MUST be replaced if they break or become misshapen.



DANGER

Never modify or adapt the driveline in any way. If this is necessary, contact your nearest Authorized Assistance Center.

Since the driveline spins at high speed, it is balanced during the testing phase. Any successive interventions could therefore lead to lack of balance which could then impair the functionality of the machine besides that of the actual driveline itself.

The angle at which the driveline works must be the minimum possible as this will ensure that both the driveline and machine are long-lasting.

When the driveline is fully extended, in all work conditions, the telescopic tubes must overlap to at least 1/3rd of their length (A Fig. 5).

When the driveline is fully inserted, the play must be at least 4 cm (B Fig. 5).

Contact the Manufacturer's Technical Service if this is not possible.



CAUTION

Before engaging the PTO, make sure that its rotation speed corresponds to the rate for which the machine has been designed (540 or 1000 rpm).



CAUTION

Do not allow the machine to operate unless it digs into the soil. When working, do not drive around bends with the machine in the soil. Do not work in reverse. Always raise the implement before you change direction or reverse.

During transport or whenever the machine must be lifted, remember to adjust the power lift of the tractor so that the steering hoe is not raised more than about 40 cm from the ground. Do not drive on the public roads with the machine caked with soil, grass or other materials that could dirty the road surface or hamper the traffic in any way.

Do not allow the machine to drop violently on to the ground. Lower it slowly to allow the tines to gradually penetrate into the soil otherwise all the machine components would be subjected to stress that could lead to breakages.

4.4 WORK DEPTH

The machine's work depth is established by operating the crank that controls the vertical movement of the two wheels (A Fig. 7). The crank must then be retained with the relative fork.

Max work depth 10 cm in loose soil.

4.4.1 ADHERENCE ADJUSTMENT WHEN TILLING

To adjust the tilling unit's adherence to the ground, regulate the compression of the spring by means of the relative ring nut: turn the nut towards the left to reduce the adherence or towards the right to increase it (Fig. 8).

Along with the adherence adjustment, you can also increase or reduce the extent to which the tilling unit slants in relation to the ground by means of the relative crank above the spring.

Turn towards the right to raise the rear part or towards the left to lower it.

4.5 IN WORK

Begin work with the PTO at full rate. Gradually dig the implement into the ground. Do not depress the accelerator pedal too much with the PTO engaged.

To break up the soil to the required degree, you must consider several factors, i.e.:

- the nature of the soil (medium consistency, sandy, clayey, etc.)
- the work depth
- the ground speed of the tractor
- optimum machine adjustment.

The soil is crumbled to a fine degree with a low tractor ground speed and with the tilling unit close to the ground.



CAUTION

The speed of the tractor when the machine is operation must not exceed 3-4 kph or components could be broken or damaged.



DANGER

The turning tines could throw up stones or other sharp materials as they work.

Constantly check to make sure that there are no bystanders, children or domestic animals within the range of action of the machine.

4.5.1 HOW TO WORK

Engage the power take-off and move forwards with the tractor while progressively lowering the machine.

Drive a short way then check to make sure that the work depth, the extent to which the soil is broken up and the soil levelling process are correct.

For increased adherence to the ground, adjust the compression of the spring by means of the relative ring nut.

4.5.2 USEFUL TIPS

Depth too shallow

- Check the way the tilling units are regulated.
- Advance more slowly. The tractor power could be insufficient.
- Further runs are needed if the soil is too hard.
- The tines roll over the soil instead of penetrating it: advance more slowly.

Soil broken up too much

- Increase the ground speed.

Soil not broken up enough

- Reduce the ground speed.
- Do not work in soil that is too wet.

Rotor clogged

- Soil too wet to work.
- Lift the tilling unit.
- Reduce the ground speed.
- Do not work where the grass is too tall. If necessary, remove any material that has built up at the sides of the rotor to prevent overheating.

The machine jolts over the ground or vibrates

- Foreign bodies blocked between the tines.
- Tines incorrectly mounted without the helical positioning or that penetrate into the soil with the blunt edge first.
- Worn or broken tines.
- The rotors have become warped due to striking obstructions during work.

4.6 TINES

The tines with which the machine is equipped are suitable for cultivation work in soil of normal consistency. Check the tines each day to make sure they are not worn or broken. If the tines should accidentally bend (or break) during work, they must be immediately replaced by mounting new ones in the identical position.

If several tines must be replaced, it is advisable to demount and mount one tine at a time to avoid positioning errors.

The tilling blades are propeller shaped for normal and tenacious soils;

The cutting edge of the tilling blades must always point in the direction the rotor turns.



DANGER

Tine replacement is a dangerous operation.

Proceed in the following way to replace the tines:

- Park the tractor on a flat surface with the machine hitched, then raise the machine with the power lift;
- Insert two strong bearing stands at the sides of the machine;
- Lower the machine on to the stands, turn off the tractor engine and apply the parking brake.

If the tilling blades are replaced, cleaned or widened, remove the plug from the hole (1 Fig. 9) by taking out the safety split pin. Now raise the blade using the relative handle on the casing and fit the plug and safety split pin into the hole (2 Fig. 9) in the support.



WARNING

The heads of the bolts that fix the tines must be on the side of the tines themselves while the nut and relative washer must be on the flange side.

Comply with the driving torque values given in the table below.

If tines must be replaced, make sure that the new ones are mounted in the same positions as the old.

DRIVING TORQUE VALUES

Class	6.6	8.8	10.9	12.9
M8x1	15	26	36	44
M10x1,25	30	52	74	88
M12x1,25	51	91	127	153
M14x1,5	81	143	201	241
M16x1,5	120	214	301	361
M18x1,5	173	308	433	520
M20x1,5	242	431	606	727
M22x1,5	321	571	803	964
M24x2	411	731	1028	1234



DANGER

If the tines/blades clog, it is strictly forbidden to attempt to clean the machine whilst it is operating. First disengage the PTO, stop the tractor and engage the parking brake.

Wait until all moving parts have come to a complete standstill, then proceed with the cleaning operations with the utmost care.

4.7 TILLING WIDTH ADJUSTMENT



WARNING

Always take all the possible precautions before adjusting the machine in any way. Turn off the tractor engine, disengage the power take-off and apply the parking brake.

Wear work gloves and use suitable tools in a good condition.

The interrow tiller can be supplied with different types of tilling blade: «ultra-narrow», «narrow», «medium».

Each model can be widened or narrowed to suit the type of crop. To make this adjustment, move the two ends of the casing (depending on the chosen width) to the pre-engineered position (see Table Fig. 10), and the locking mechanism of the two halves of the bands by unscrewing the bolt (A Fig. 11).

Once the casing has been adjusted, it must be removed by taking out the plastic pins (1 Fig. 12) so that work on the tilling blades can be carried out more easily.

Now unscrew the bolts (1 Fig. 13) and remove all the tilling blades (2 Fig. 13) from the flanges (3 Fig. 13). After the tilling blades have been checked for wear, fit all the bolts back in place depending on the required width, adding blades if necessary (Fig. 13, Table Fig. 10).

Re-assemble the casing by working through the previous instructions in reverse order, fully tighten the bolts and lock the plugs with the springs.

4.8 HYDRAULIC FRAME SHIFTING DEVICE (Fig. 23)

The machine can be supplied with a hydraulic device that shifts the frame to help the operator make steering manoeuvres, particularly with the wider interrow tillers, or for movements during the tilling jobs.

If this accessory is supplied after the interrow tiller has been purchased, it must be fitted by the authorized dealer or by the Manufacturer.

- Make sure that the quick connections are clean and in a perfect condition when fitting the hydraulic pipes to the tractor's valve system.

Once the machine has been unhitched from the tractor, make sure that the quick connections are protected with their plastic caps. Never allow the ends of the hydraulic pipes to drop on to the ground.

Before using the machine, always check to make sure that the pipes are in a perfect condition.



WARNING

Never ever exceed a pressure of 150 bar during work.

4.9 FERTILIZER SPREADER

BREVIGLIERI interrow tillers can be equipped with a hopper type fertilizer spreader of various sizes (1 m with a 110 l. capacity, 1.5 m with a 165 l. capacity, 2 m with a 220 l. capacity), depending on the type of machine and number of tilling units. This spreader allows the plants to be treated locally with fertilizer by dosing this latter as required during the tilling operation.



APPLICATION

Always take all the possible precautions before working on the machine in any way. Turn off the tractor engine, disengage the power take-off and apply the parking brake. Wear work gloves and use suitable tools in a good condition.

Comply with the following instructions to fit the fertilizer spreader to the interrow tiller:

- Remove the protective casing from the drive shaft (2 Fig. 14).
- Remove the terminal guard from the frame (1 Fig. 14).
(these two operations must only be carried out on the left-hand side of the interrow tiller).
- In the version with the folding frame, keep the two folding parts up, then remove the protective casings from the hexagonal drive shaft and take out the transmission half-coupling (this operation must only be carried out on the left-hand side of the interrow tiller).
- Position the fertilizer spreader on the frame, center it along the length and lock it in place with the relative bolts.
- Insert the pulley into the drive shaft and lock it in place. Make sure that it is aligned with the fixed one on the fertilizer spreader.
- Insert the driving belt and tighten it by means of the relative bolts (see Fig. 15). Pull upwards with the lever (1 Fig. 15) to tighten the main belt, then lock the bolt (2 Fig. 15). To tighten the second belt, first loosen the bolt (3 Fig. 15) then tighten the belt by hand.
The belt is tightened correctly when it gives about 5 mm.
- Assemble the external half-casing of the pulleys.
- Assemble the drive shaft guards.
- Fit the protective ends back on the ends of the frame.
- Assemble the hose pipes on the hopper outlets and fix them in place with the relative clamps. Lock them in the lower part to the fixed supports on the casing of the tilling units.

How to adjust the amount of fertilizer.

There is a lever that opens or shuts the fertilizing point under each hopper outlet (1 Fig. 16).

Use the lever above the third-point hitch (A Fig. 17) to adjust the quantity of fertilizer.

The graduated scale allows the operator to establish the right opening degree for each type of fertilizer.

4.10 COULTER



WARNING

Always take all the possible precautions before working on the machine in any way. Turn off the tractor engine, disengage the power take-off and apply the parking brake. Wear work gloves and use suitable tools in a good condition.

This accessory can be supplied separately. It earths up the roots of the plants automatically during the tilling operation.

It is fitted into the relative hole (1 Fig. 18) in the casing of the tilling unit, after which the rod of the spring should be inserted into the relative housing (2 Fig. 18).

The depth of the accessory must be adjusted by raising or lowering it on its support (3 Fig. 18) after the tilling depth has been regulated.

Coulter slant adjustment

Using the nut (4 Fig. 18) above the spring, the coulter can be slanted in relation to the ground (Fig. 18).

Tighten the nut to raise the rear, loosen it to lower the rear part. Once the slant has been adjusted, increase or reduce the adherence to the ground depending on the conformation of this latter, using the ring nut (5 Fig. 18) under the spring.

Turn the nut towards the right to increase the adherence or towards the left to reduce it.

To adjust the ridging height, open the two parts of the coulter to a greater or lesser degree by removing the safety pin and moving the levers to the required hole (Fig. 19), depending on the width of the actual crop.

4.11 FOLDING FRAME

The two ends of the frame in models wider than 3 m are folding so as to narrow the actual frame itself to 2.55 m and thereby facilitate road circulation.

Comply with the following instructions to lower the ends:

- Remove the safety pin (1 Fig. 20) with the relative split pin.
- Pull the end towards the ground, taking care not to put the hands under the cross-member, then insert the plug and insert the safety pin.
- Connect the drive shaft coupling and lock it in place (see Fig. 21).

4.12 INTER-ROW ADJUSTMENT



WARNING

Always take all the possible precautions before working on the machine in any way. Turn off the tractor engine, disengage the power take-off and apply the parking brake. Wear work gloves and use suitable tools in a good condition.

To adjust the working width, loosen the brackets (1 Fig. 22) that lock the tilling blades and move them along the frame. Remember that the three-point hitch must be as central as possible in relation to the frame.

Once the tilling blades have been adjusted, position the bearing wheels by loosening the relative locking mechanisms (2 Fig. 22) and allowing them to slide along the frame.

4.13 STOPPING THE MACHINE

At the end of the job, the operator must:

- Disengage the tractor PTO.
 - Lower the machine to the ground by means of the power lift.
 - Stop the tractor and engage the parking brake.
 - Make sure that all parts of the machine are at a standstill.
- Only after the above mentioned operations have been carried out may the operator leave the tractor unattended.

4.13.1 PARKING

- At the end of the job, the machine must be parked on a flat, suitable surface.
- Stop the tractor and apply the parking brake.
- With the tractor stopped and all components at a complete standstill, remove the driveline from the PTO of the tractor.
- Unhitched the machine from the tractor.

**WARNING**

The place in which the machine is parked must be:

- Dry.
- Sheltered from adverse weather conditions.
- Guarded or locked up to prevent children or unauthorized persons from freely accessing the machine.

**CAUTION**

If the machine is to remain idle for a long period of time, lubricate the parts subject to wear and store the machine in a dry, sheltered place, covered with a plastic sheet.

This will ensure that the machine is in the ideal condition when required again.

SECTION 5

Maintenance

5.1 ROUTINE MAINTENANCE

The various routine maintenance operations are described below. Remember that lower running costs and longer machine life depend on continual compliance with these instructions.

**WARNING**

Before proceeding with any operation, make sure that the machine is parked on a flat surface. Prevent it from moving by placing chocks under the wheels.

Servicing, adjusting and the operations required to prepare the machine for work must be carried out with the tractor and the driveline detached from the machine.

The servicing frequencies indicated in this manual are indicative and refer to normal conditions of use. They may therefore vary depending on the type of service, whether the environment is dirty or not, seasonal factors, etc. The servicing operations must obviously be carried out more frequently in heavier duty service conditions.

**CAUTION**

- Before injecting lubricating grease into the grease nipples, carefully clean these latter to prevent mud, dust or foreign bodies from mixing with the grease as this would reduce or even annul its lubricating effects.
Injection into the greasing points of a large quantity of grease at high pressure can damage the bearing protection. This operation must therefore be carried out with the greatest care.
- Lubricate and grease all the required points, including the chains.
- Use oil of the recommended type for topping up and changes.

**DANGER**

Keep all lubricants well away from children's reach.

Carefully read the warnings and precautions on the lubricant containers.

The operator should thoroughly wash himself after using lubricants.

Dispose of used oil in compliance with the anti-pollution laws.

5.2 LUBRICATION

Lubrication of any machine with parts that turn and/or rub together is a vitally important task for the life and functionality of the actual machine itself. Lubrication must therefore be carried out systematically and at the required intervals. The frequencies given refer to machine use in a normal environment. If this machine is used in heavier duty conditions, it must naturally be lubricated more frequently.

5.2.1 RECOMMENDED LUBRICANTS

- For the final drive unit (or gearbox) and for the side transmission chains, it is advisable to: **AGIP ROTRA MP SAE 85W/140 OIL** or an equivalent type complying with API-GL5/MIL-L-2105C specifications.
- For all greasing points, the Manufacturer recommends: **AGIP GR MU EP 2** grease or an equivalent type.

When servicing the driveline, strictly comply with the instructions given by the driveline Manufacturer, in the specific operation and maintenance manual with which each driveline is equipped.

5.2.2 AFTER THE FIRST 8 HOURS SERVICE

Each new machine must be checked after the first 8 hours service, proceed in the following way:

- Check the general condition of the machine.
- After having checked the tines for wear, fully tighten the bolts that fix the tines in place.
- Check to make sure that all the bolts on the machine are tight.

5.2.3 EVERY 20 HOURS SERVICE

- Check to make sure that the tine bolts are tight.
- Grease the driveline.

5.2.4 EVERY 100 HOURS SERVICE

- Check the level of the oil in the final drive housing. Top up the level if necessary.
- Check the level of the oil in the tilling units. Top up the level if necessary. The level is correct when oil spills from the fill plug hole.

5.2.5 EVERY 500 HOURS SERVICE

- Change the oil in the final drive housing after every 500 hours service or at least once a year.
- Check to make sure that the driveline clutch is fully efficient. Have the clutch overhauled and the plates replaced by a specialized workshop if necessary.

5.3 PREPARING FOR STORAGE

Proceed with the following operations at the end of the season or if the machine is to remain idle for a long period of time:

- Wash all fertilizers and chemical products from the machine and dry it.
- Carefully check the machine and replace any damaged or worn parts.
- Fully tighten all the screws and bolts, particularly the ones that fix the tines.
- Thoroughly grease the machine and then cover it with a tarpaulin and store it in a dry place.

If these operations are carried out with care, it will be all to the user's advantage as the machine will be in optimum conditions when needed again.

If the machine must be dismantled, comply with the anti-pollution laws in force. Old lubricants must and the various components must be disposed of according to their different structures.

5.4 SPARE PARTS

All the parts forming the machine can be ordered from the Manufacturer, specifying:

- The machine model.
- The serial number of the machine.
- The year of manufacture.
- The serial number of the required part (indicated in the spare parts catalogue), a description of the part and the required quantity.
- The means of transport. If this is not specified, the Manufacturer will dedicate diligent care to the service but shall not be liable for delays in shipment due to causes of force majeure. the shipping costs are always at the consignee's charge. The goods travel at the purchaser's risk and peril even when sold carriage paid.

Remember that the Manufacturer is always at your disposal for any assistance and/or spare parts you may required.

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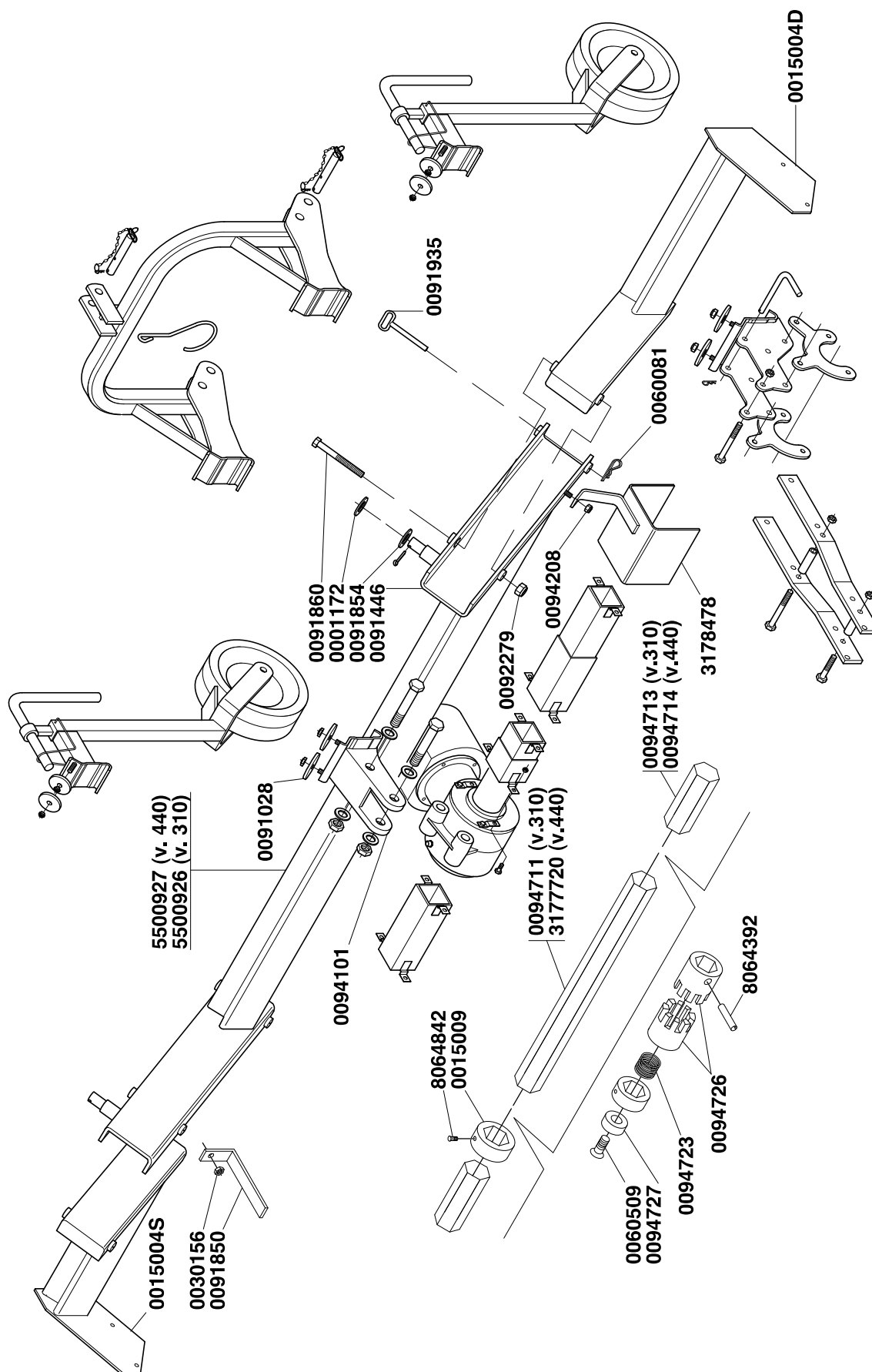
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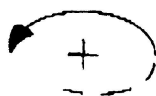
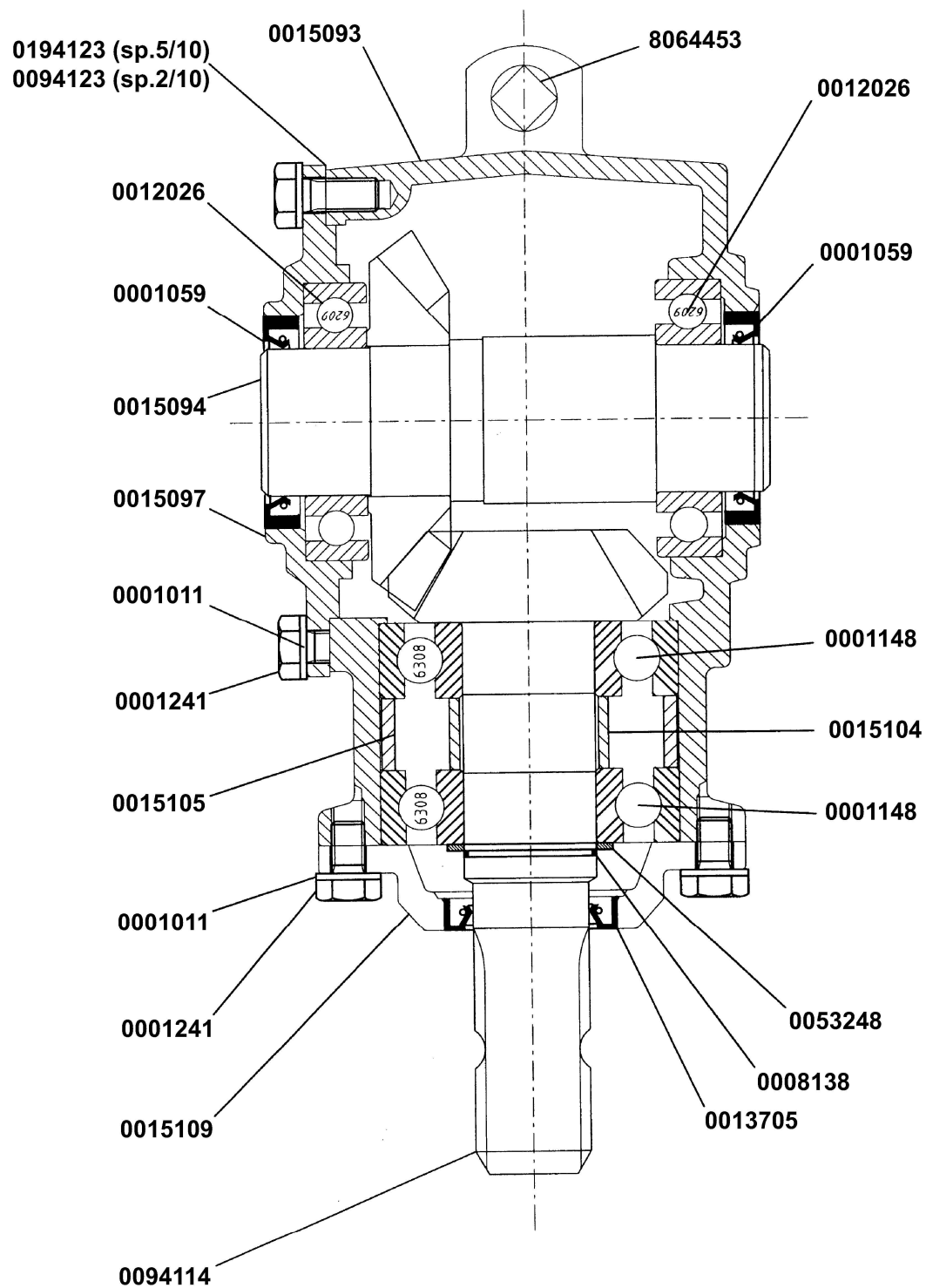
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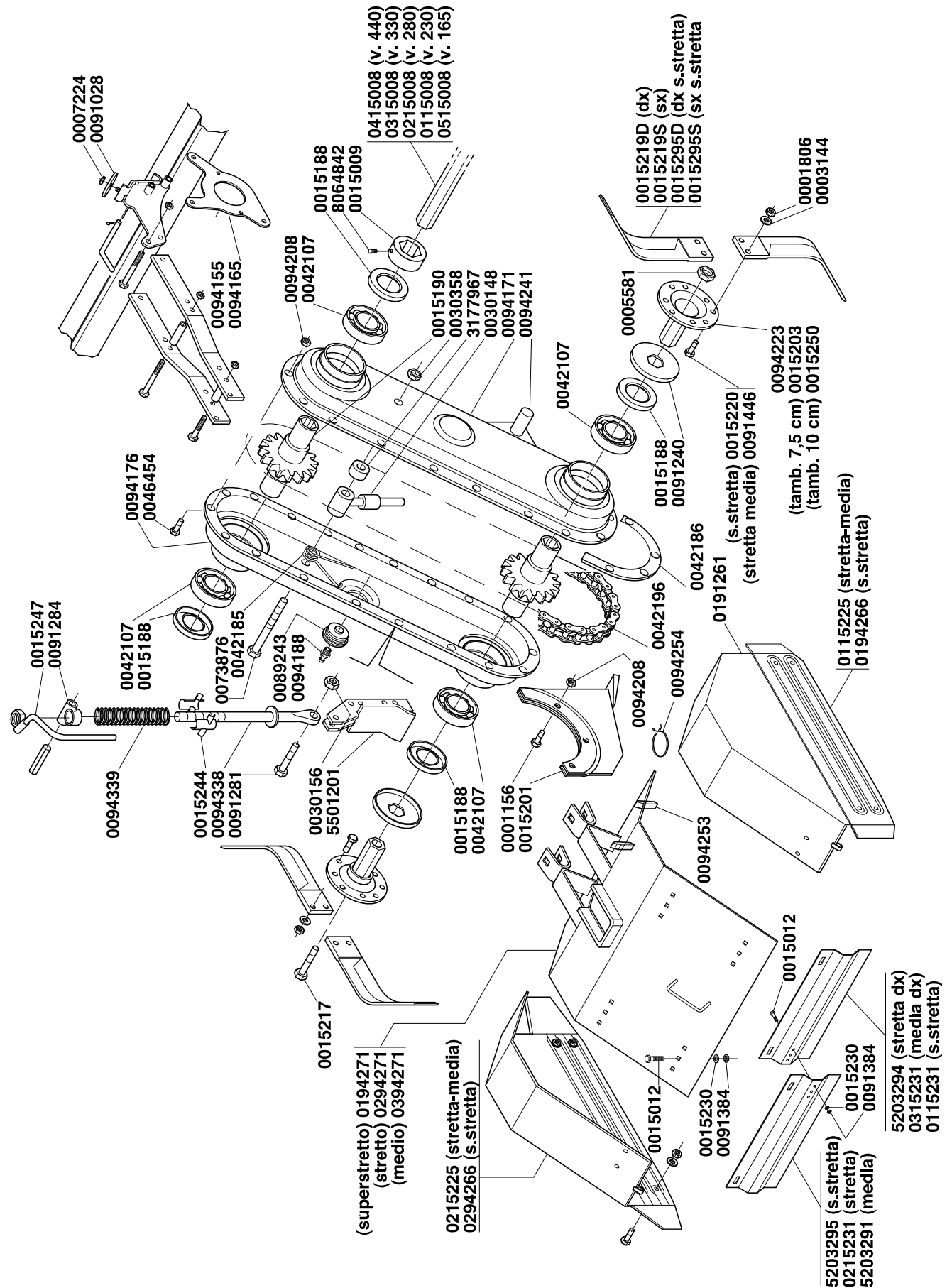
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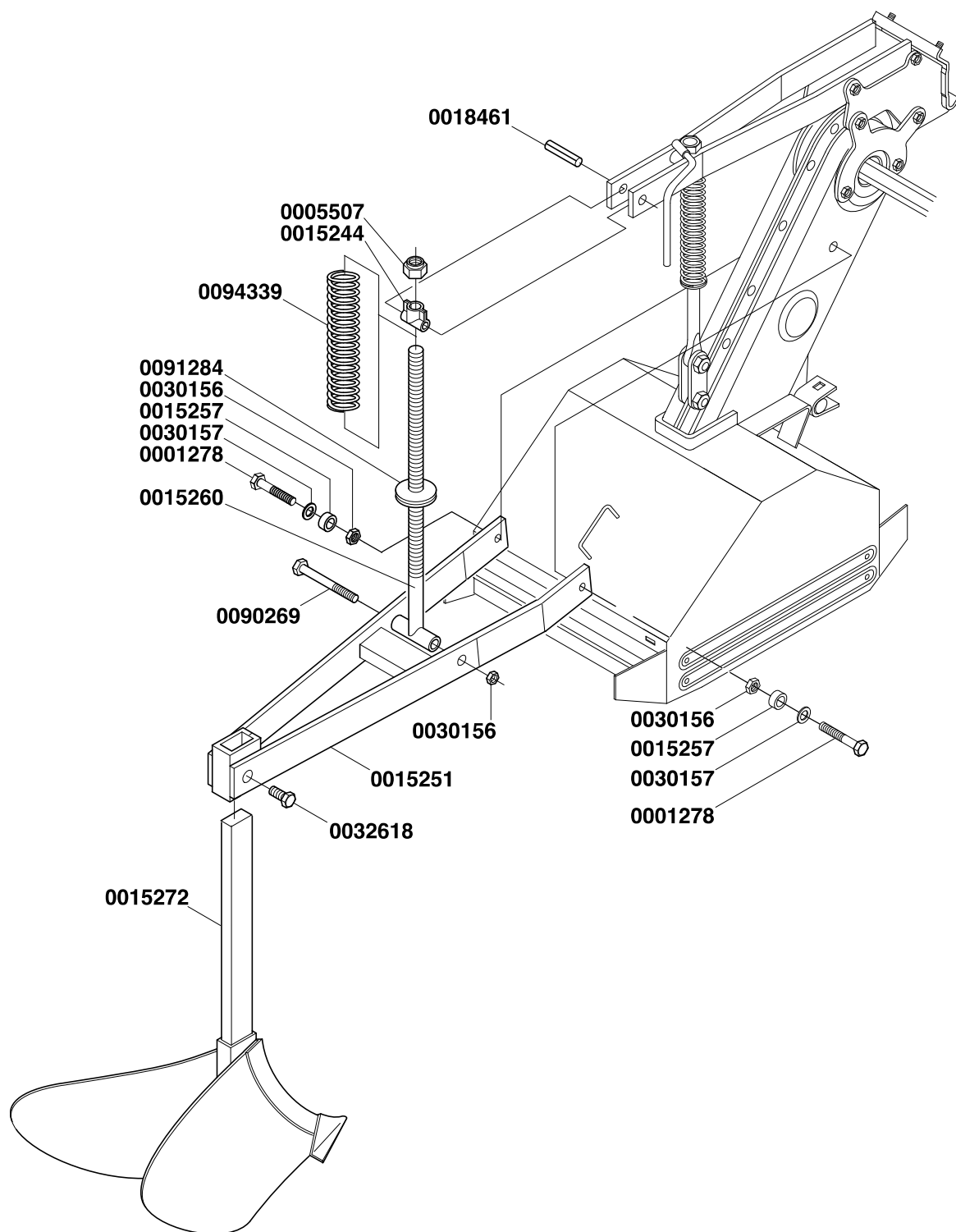
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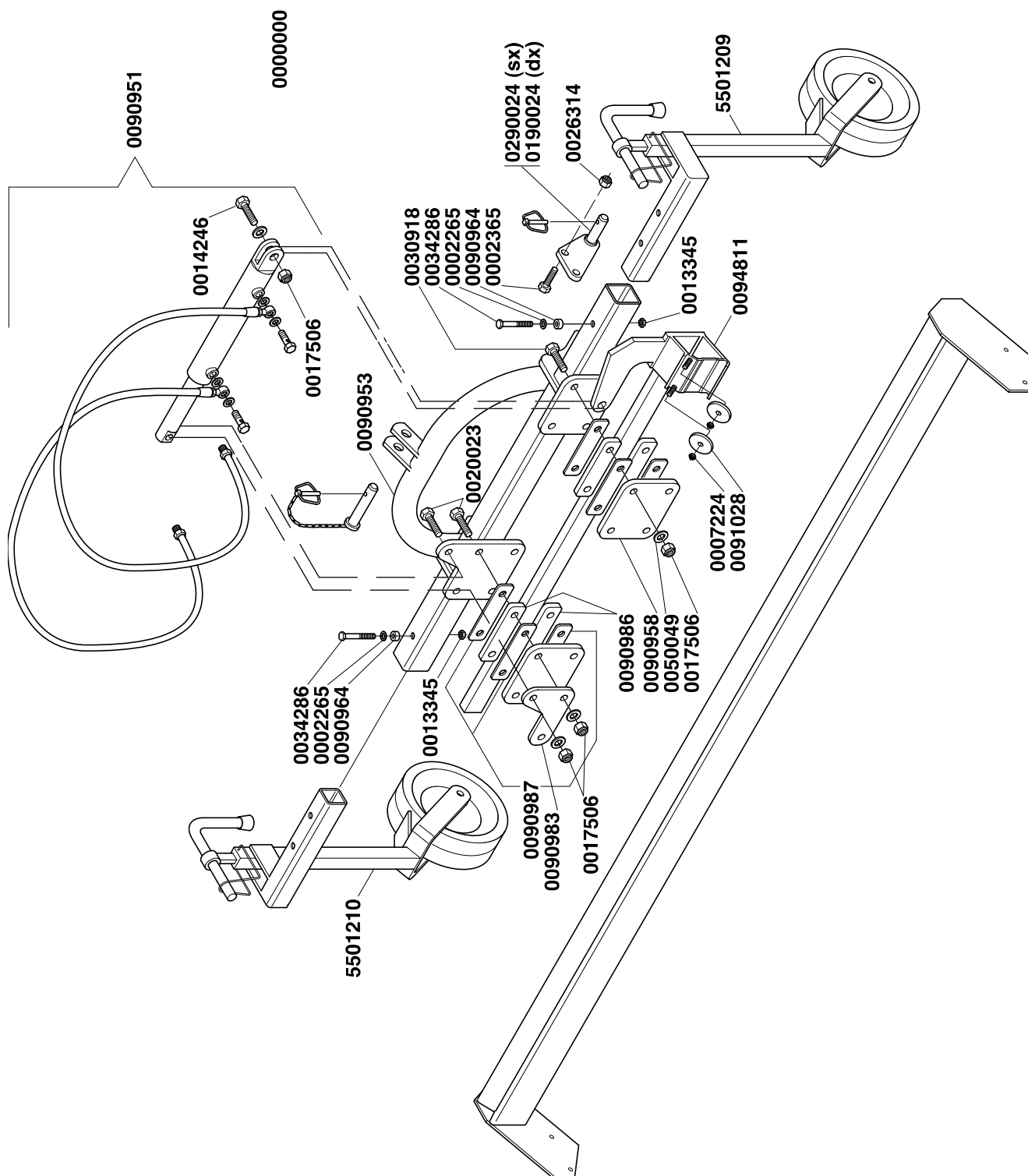
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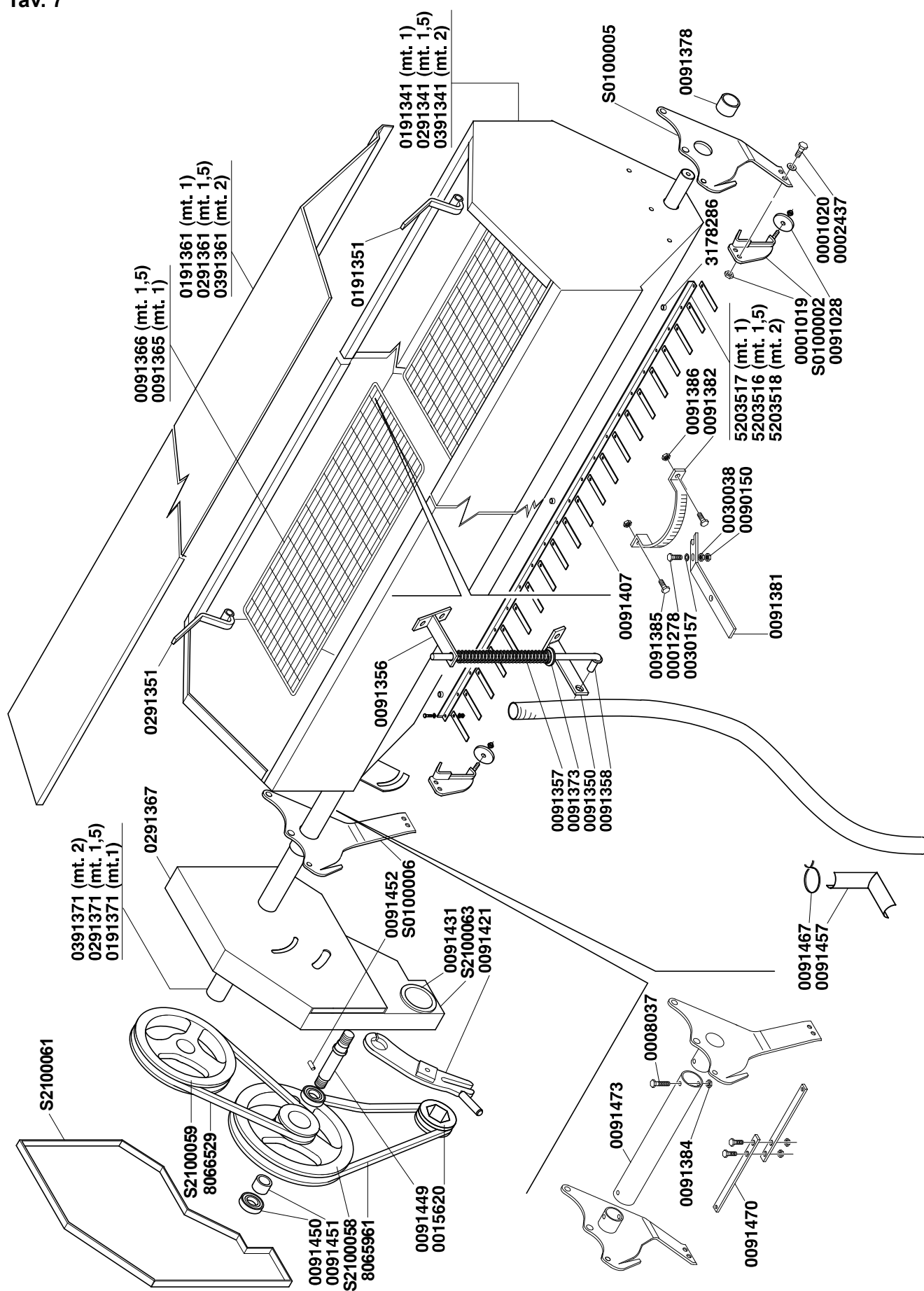
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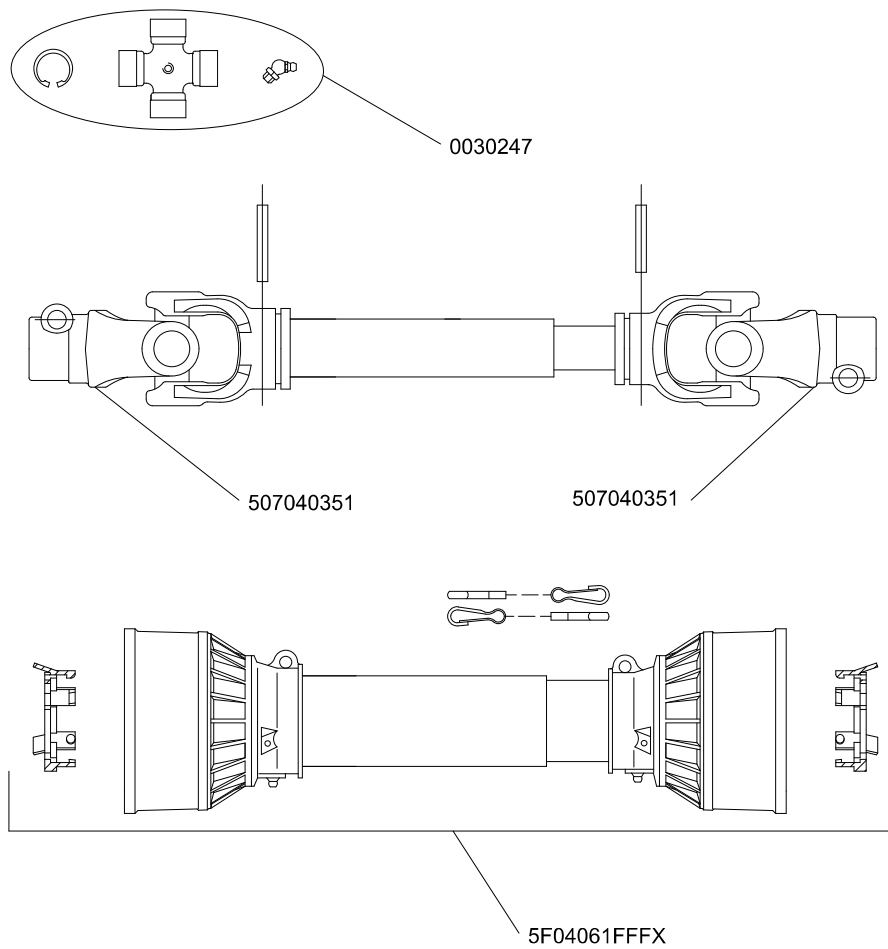
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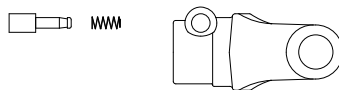
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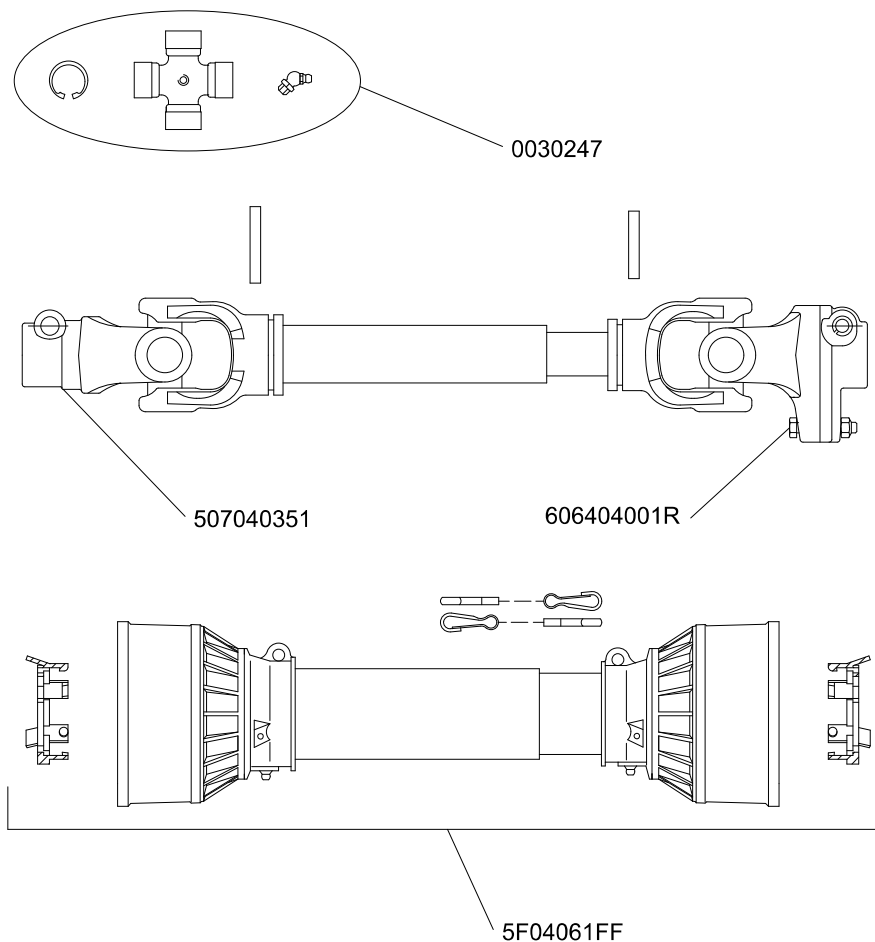
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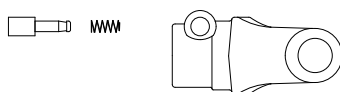
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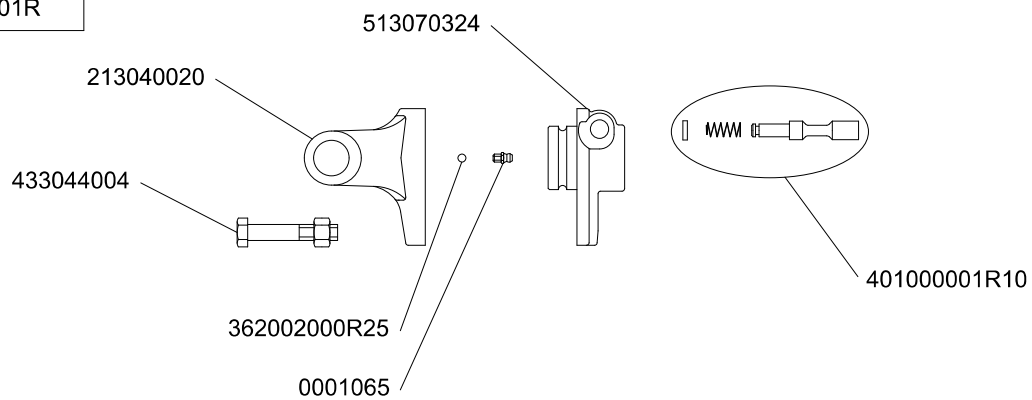
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Note:



BREVIGLIERI Spa

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