

SICKLE BAR

SB 1106

SB 1107



FRONTIER
EQUIPMENT

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TO THE DEALER:

Assembly and proper installation of this product is the responsibility of the Frontier dealer. Read manual instruction and safety rules. Make sure all items on the Dealer's Pre-Delivery Check List in the Operator's Manual are completed before releasing equipment to the owner.

The dealer must complete the Warranty Registration, located on the Frontier website. **Warranty claims will be denied if the Warranty Registration has not been completed.**

TO THE OWNER:

Read this manual before operating your frontier equipment. The information presented will prepare you to do a better and a safer job. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all the adjustment and operating procedures before attempting to operate. Replacement manuals can be obtained from your selling dealer.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Observe all safety information in this manual and safety decals on the equipment.

For service, your authorized Frontier dealer has trained mechanics, genuine Frontier service parts, and the necessary tools and equipment to handle all your needs.

Use only genuine Frontier service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. Record the model number and serial number of your equipment in the spaces provided:

Model: _____ **Date of Purchase** _____

Serial Number: (see Safety Decal section for location) _____

Provide this information to your dealer to obtain correct repair parts.

Throughout this manual, the term **IMPORTANT** is used to indicate that failure to observe can cause damage to equipment. The terms **CAUTION**, **WARNING** and **DANGER** are used in conjunction with the Safety-Alert Symbol, (a triangle with an exclamation mark), to indicate the degree of hazard for items of personal safety.



This Safety-Alert Symbol indicates a hazard and means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**



Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.



WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed.



CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

IMPORTANT

Indicates that a failure to observe can cause damage to equipment.

NOTE

Indicates helpful information.

DESCRIPTION

Description of the sickle bar

This agricultural implement can only operate by means of a cardan shaft applied to the pto of an agricultural tractor equipped with lift and universal three-point hitch. Since it is movable, the mowing machine can be easily mounted on tractors with different gauges or on tracked vehicles (Fig. 1). The two-motion tooth-blade system used in mowing machines, makes possible a scissors cut which leads to a high speed operation on any crop. The original tooth-blade motion guarantees a sharp and clean cut on any type of grass, be it damp or flattened. It is thanks to the total absence of soil which this mowing system does not raise, sharp because the stems are not frayed. The sickle bar may also be used with the cutting arm tilted for working on canals, ditches and embankments (Fig. 2 and 3).



ATTENTION

The sickle bar is suitable only for the uses indicated. Any other use different from that described in these instructions could cause damage to the machine and represent a serious hazard for the user.

It is therefore advisable to strictly comply with the following instructions in order to prevent faults which could jeopardize the correct and long-lasting operation of the implement. Compliance with the instructions in this handbook is also important since **the Manufacturer declines all and every responsibility for damage to persons or property caused by negligence and failure to comply with these instructions.**

The Manufacturer shall, however, remain at the customers' disposal for immediate and thorough assistance together with anything else that may be required in order to ensure the correct operation and maximum efficiency of the implement.

The Manufacturer reserves the right to make any modifications and improvements to the implement as may be considered opportune, without being obliged to immediately inform the user.

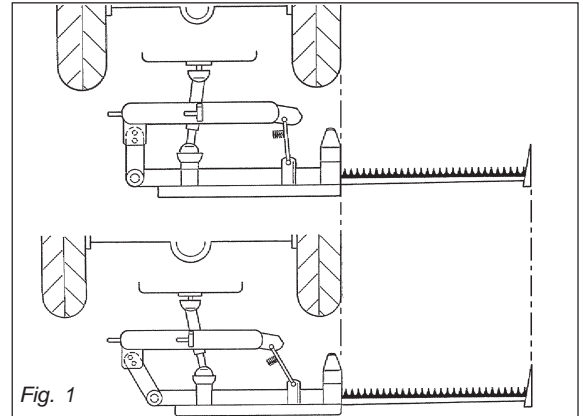


Fig. 1

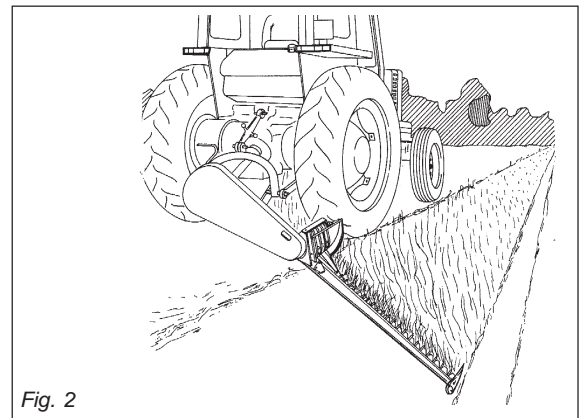


Fig. 2

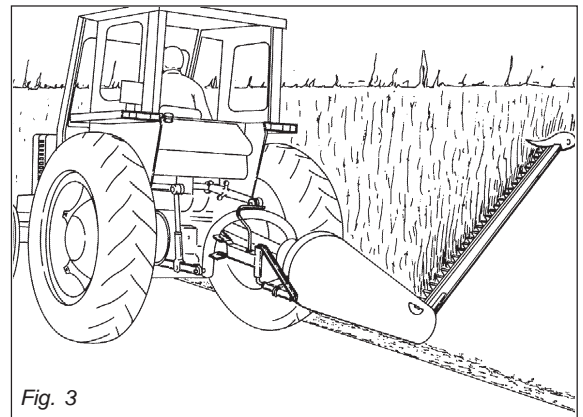


Fig. 3

DESCRIPTION

Assembly drawing

- 1 External shoe;
- 2 Mowing guide;
- 3 Cutting arm;
- 4 Upper 3rd point hitches;
- 5 Gauge varying articulation;
- 6 Chassis;
- 7 Tirant;
- 8 Lower 3rd point hitches;
- 9 Hazard bar;
- 10 Support;
- 11 Identification label;
- 12 Cover;
- 13 Protective casing for connecting-rod systems;
- 14 Support;
- 15 Hinge (pivot point);
- 16 Blade guard;
- 17 PTO.

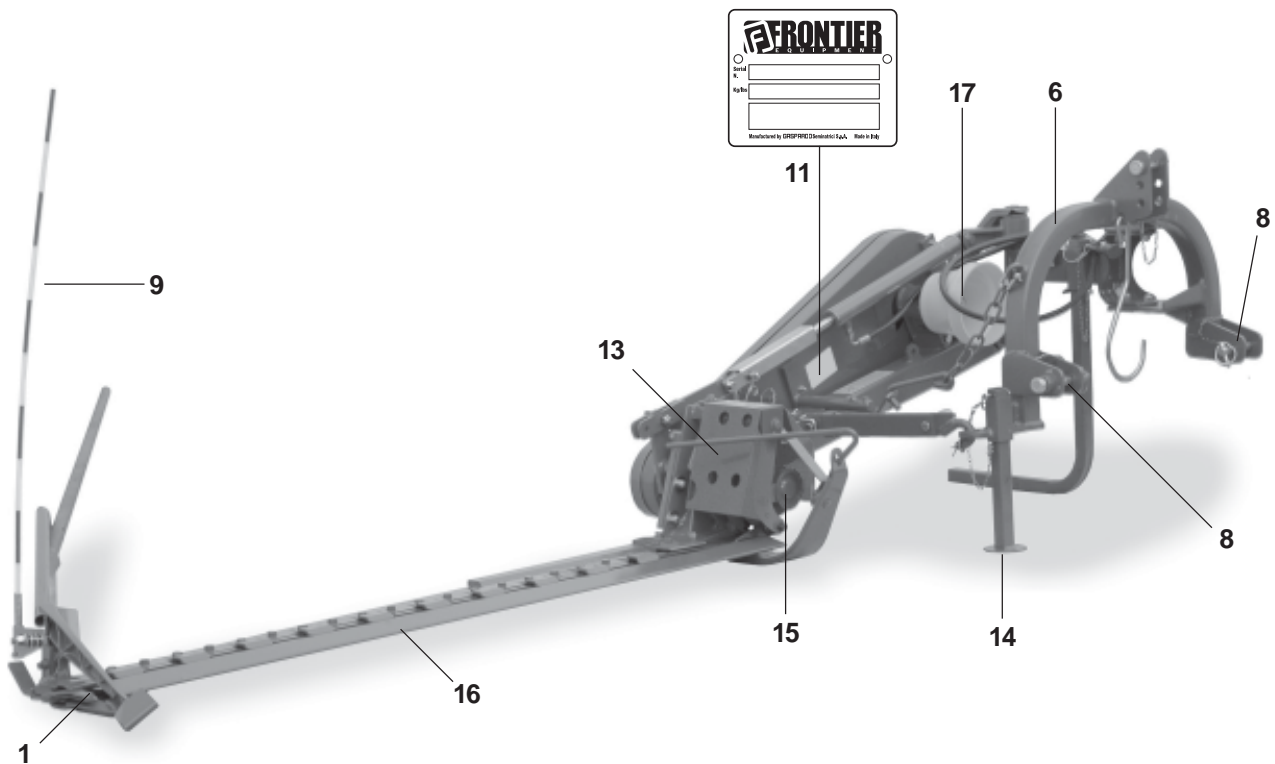
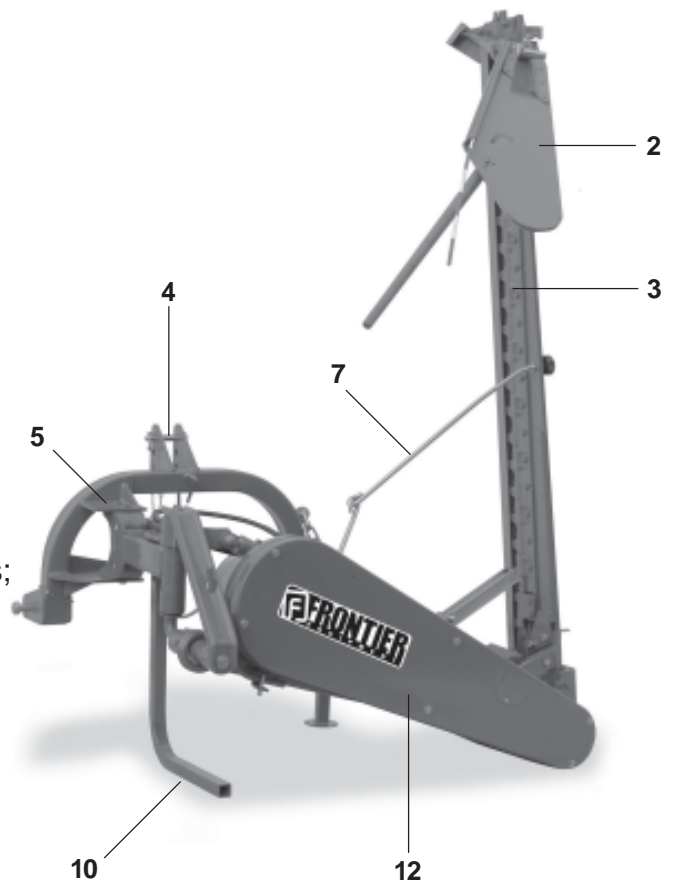
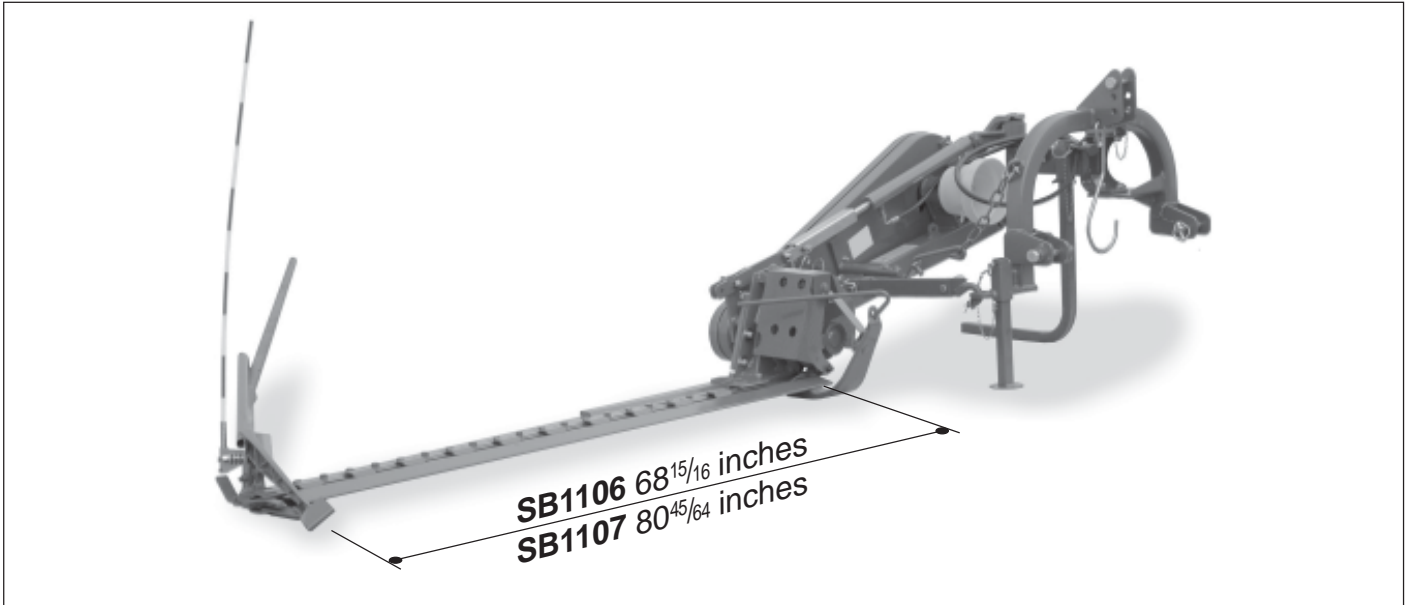


Fig. 4

TECHNICAL SPECIFICATIONS



Model	Work/width inches	Tractor HP min. - max.	Weight lbs.	Tooth number	Sections number	Side Drive	Work speed miles/h	PTO Input speed	Hitch	Acoustic power level uttered bay machine (Weighed A) L _{WA}	Continuous equivalent acoustic radiation pressure level (Weighed A) in the "worker's position" L _{PA}
SB 1106	68.9	25 - 50	456	12	24	Belts B-93	6.2 ÷ 7.5	540	Cat. "I" Cat. "II" Quick coupler	110.7 dB	91.7 dB
SB 1107	80.7	25 - 50	470	14	28	Belts B-93	6.2 ÷ 7.5	540	Cat. "I" Cat. "II" Quick coupler	110.7 dB	91.7 dB

Handling

During handling operations, use suitable personal protection device:



If the machine is handled, it must be lifted by hooking (Fig. 5) onto the appropriate holes with a suitable winch or crane of sufficient capacity. Because of the danger involved, this operation should be carried out by trained and responsible personnel. The mass of the machine is on the identification label (11 - Fig. 4).

Stretch the rope to keep the machine level.

The lifting points can be detected by finding the "hook" symbol (8 - page 9).

During handling operations make sure the implement has the required safety devices and guards.

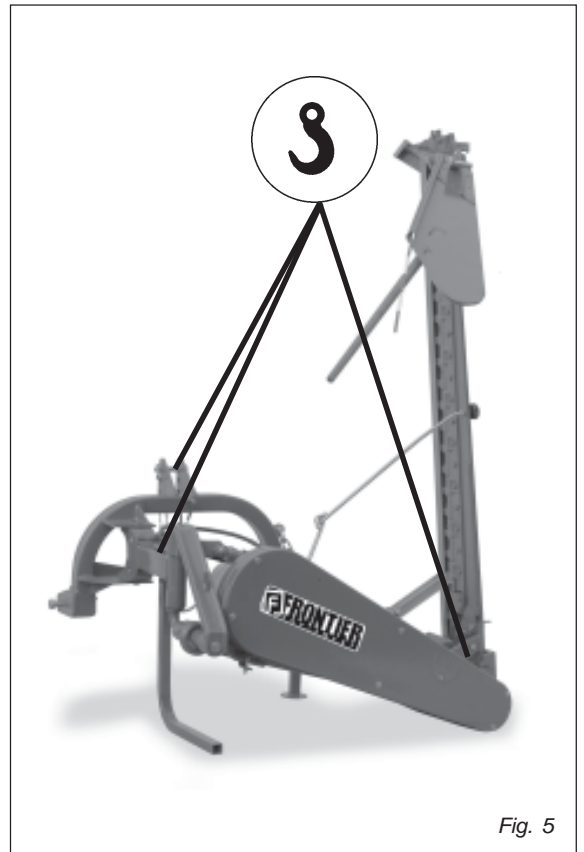


Fig. 5

SAFETY SIGNS

Safety-alert symbol

Read and recognize safety information.

Be alert to the potential for personal injury when you see this safety-alert symbol.



On your machine safety labels, the words DANGER, WARNING, and CAUTION are used with a safety symbol. DANGER identifies the most serious hazards. In this manual, the word CAUTION and this symbol call attention to safety messages.

Identification machine

Identification label

Machine safety labels

1) CAUTION: AVOID INJURY

- Read Operator's Manual
- Ballast power unit per operator's manual
- Know location and function of controls
- Keep all shields in place
- Stay clear of power driven parts
- Never carry riders
- Keep people and pets a safe distance away from machine

BEFORE DISMOUNTING OR SERVICING

- Shut off engine and remove key
- Lock brake for park
- Lower or block up machine

2) CAUTION

- 1 Keep all shields in place.
- 2 Disengage and shut off all engine and/or motor power before servicing or unclogging machine.
- 3 Keep hands, feet and clothing away from power-driven parts.

3) DANGER: CRUSHING AND PINCH POINTS

MOVING MACHINERY PARTS CAN PINCH OR CRUSH OR FALL, WHICH MAY CAUSE INJURY OR DEATH.

4) DANGER

Entanglement in rotating driveline can cause serious injury or death.
Keep all shields in place.
Avoid contact with rotating parts.

5) DANGER: KEEP AWAY - SHARP BLADES

- Do not put hands or feet near the cutterbar. Blade contact can result in serious injury.
- Stay away until all motion has stopped and the mower is securely blocked up.
- Keep fingers clear of cutterbar when folding cutterbar for transport.

6) CAUTION

Operate only with 540 rpm PTO



MACHINE SAFETY LABELS AND POSITIONS

1

! CAUTION

AVOID INJURY

- READ OPERATOR'S MANUAL
- Ballast power unit per operator's manual
- Know location and function of controls
- Keep all shields in place
- Stay clear of power driven parts
- Never carry riders
- Keep people and pets a safe distance away from machine

BEFORE DISMOUNTING OR SERVICING

- Shut off engine and remove key
- Lock brake for park
- Lower or block up machine


2

! CAUTION

1. Keep all shields in place.
2. Disengage and shut off all engine and/or motor power before servicing or unclogging machine.
3. Keep hands, feet and clothing away from power-driven parts.

3

! DANGER



CRUSHING AND PINCH POINTS
MOVING MACHINERY PARTS CAN PINCH OR CRUSH OR FALL - WHICH MAY CAUSE INJURY OR DEATH.

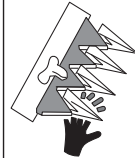
4



! DANGER

Entanglement in rotating driveline can cause serious injury or death.
Keep all shields in place.
Avoid contact with rotating parts.

5



! DANGER

KEEP AWAY SHARP BLADES

- Do not put hands or feet near the cutterbar. Blade contact can result in serious injury.
- Stay away until all motion has stopped and the mower is securely blocked up.
- Keep fingers clear of cutterbar when folding cutterbar for transport.

6


! CAUTION

Operate only with 540 rpm PTO

7



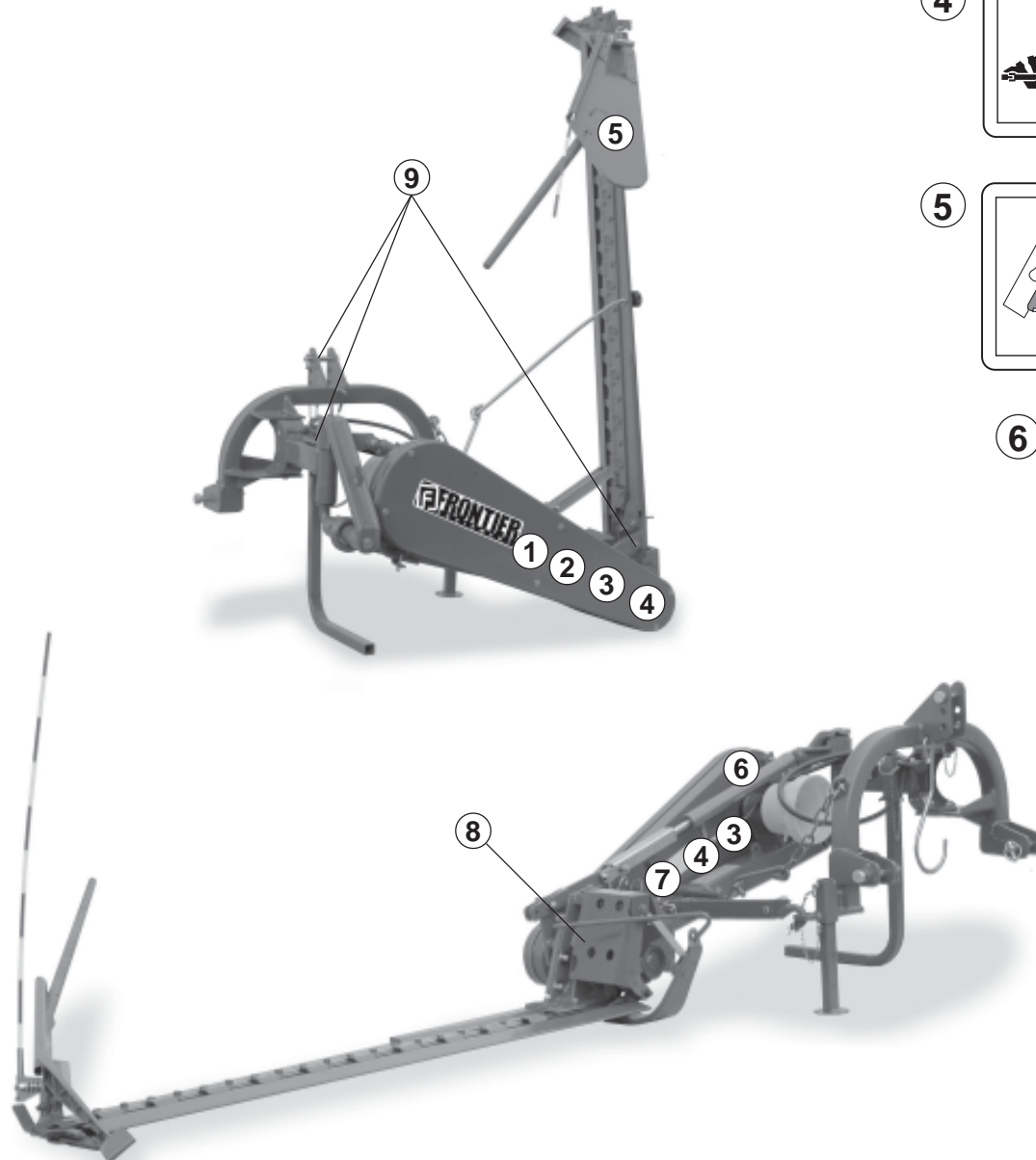

8



9



GREASE



- 7) High noise level. Use adequate acoustic protection.
- 8) Coupling point for lifting.
- 9) Greasing point.

PREPARING THE VEHICLE

Preparing the tractor



CAUTION: Avoid injury. Proper ballasting is required for safe operation of your sickle bar

IMPORTANT: Refer to the tractor operator manual for proper ballasting information and tire inflation

- A 540 rpm PTO
- Refer to the tractor operator manual for correct ballasting and tire pressure, depending on installed equipment.

Park vehicle safety

- Stop vehicle on a level surface, not on a slope.
- Disengage PTO.
- Engage the park brake.
- STOP the engine.
- Remove the key.
- Before you leave the operator's seat, wait for engine and all moving parts to STOP.

Stay clear of rotating drivelines

Entanglement in rotating driveline can cause serious injury or death:

- Wear close fitting clothing.
- STOP the engine and be sure PTO driveline is stopped before getting near it.

Installing sickle bar on tractor

The sickle bar can be hitched to I, II or quick coupler category tractor equipped with a universal three-point coupling.



DANGER

Application of any implement to a tractor is a very dangerous operation and must only be carried out with the utmost care in compliance with the instructions.

The correct tractor/sickle bar position is established by setting the implement at such a distance from the tractor that the universal coupling remains 2-4 inches from its maximum closing position. Now proceed in the following way:

1. Back tractor into position and align draft links (A, Fig. 6) with draft link brackets on sickle bar.



CAUTION: Before you work around hitch:

- STOP engine.
- LOCK park brake.
- FIRMLY block mower on horizontal surface.

2. Connect the upper third-point and correctly regulate by adjusting the top link (B, Fig. 7). Place plate (C, Fig. 7) at the left side of the hitch integral with the same pin. Lock in place with the snap-in split pins (D, Fig. 8).

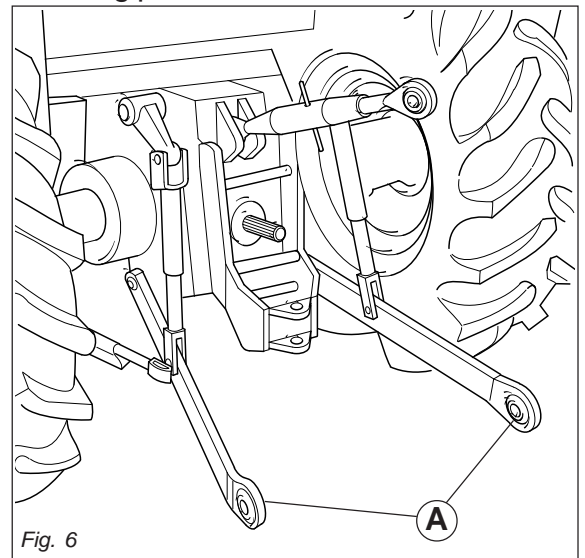


Fig. 6

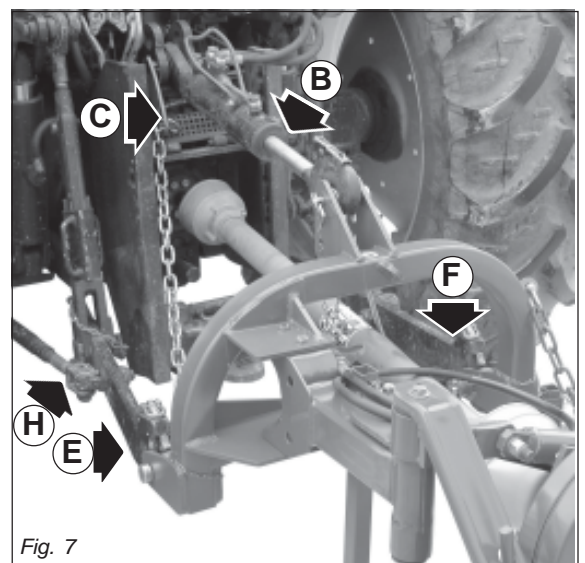
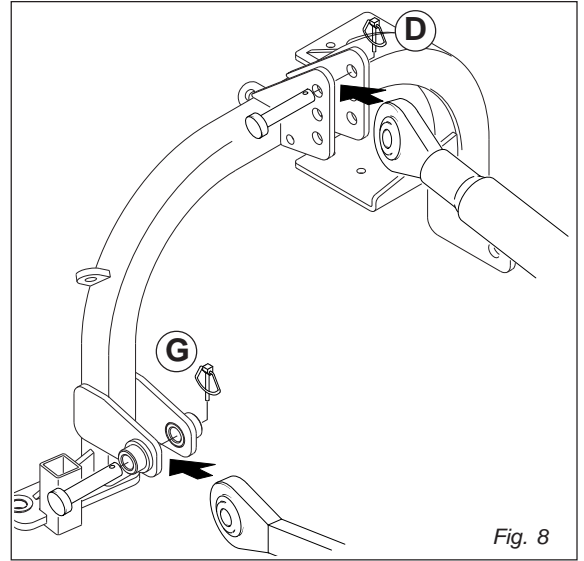


Fig. 7

INSTALLING

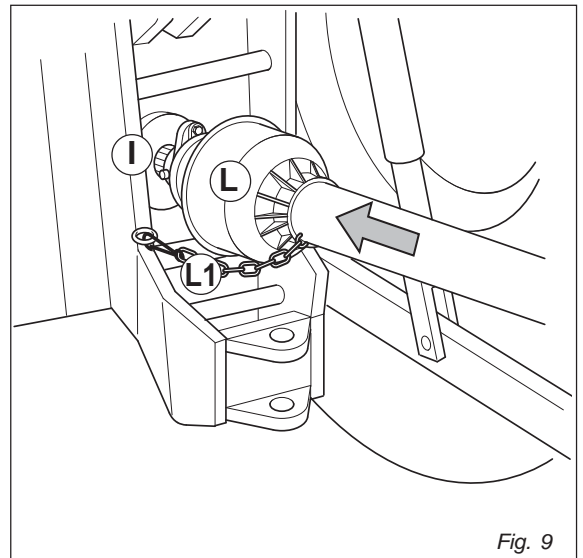
- Hook the oscillating arms of the tractor to pins (E and F, Fig. 7). Lock in place with the snap-in split pins (G Fig. 8).
- Lock the lift links using the relative chains (H, Fig. 7) and couplings parallel to the tractor. This operation must be carried out to prevent the machine from moving in a horizontal direction.



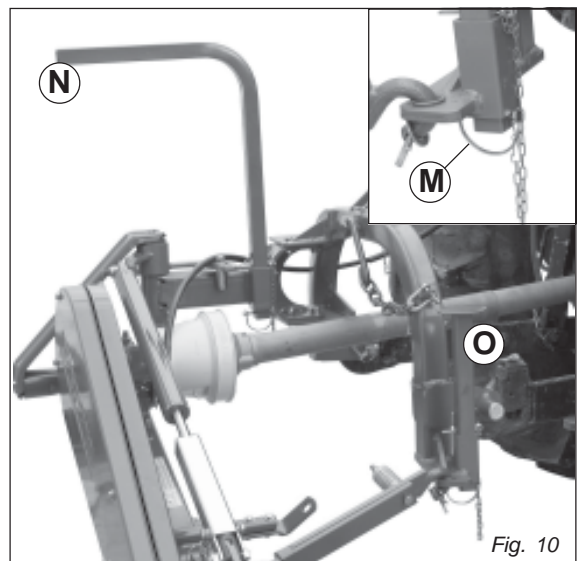
- Install PTO shaft to tractor (Fig. 9).

IMPORTANT: Sickle bar MUST BE level front to rear.

Make sure PTO shaft is locked on the tractor PTO prior to engagement (I). Check that the guard (L) is free to turn and fix it with the relative latch (L1).



- Remove the guard over the cutters (16, Fig. 4) and remove the tirant (7, Fig.4).
- Lift-up sickle bar.
- Remove spring locking pin (M, Fig. 10) from parking stand.
- Remove support (N and O, Fig. 10) and remount them, upside-down in their seat.
- Fasten with spring locking pin (M, Fig. 10).



INSTALLING

PTO shaft adaption

The PTO shaft, supplied with the machine, is of standard length. Therefore it might be necessary to adapt the PTO shaft. Consult your dealer for the eventual adaptation.



CAUTION

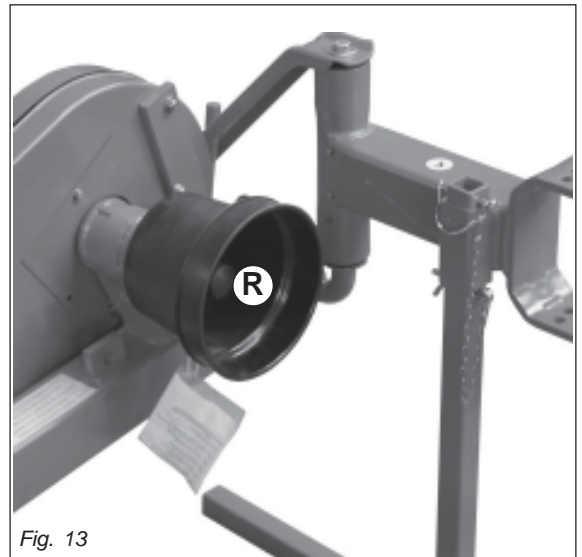
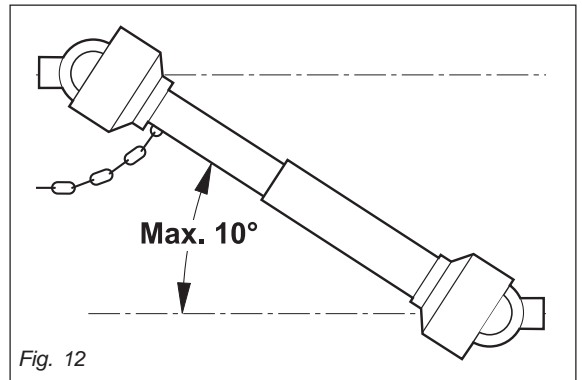
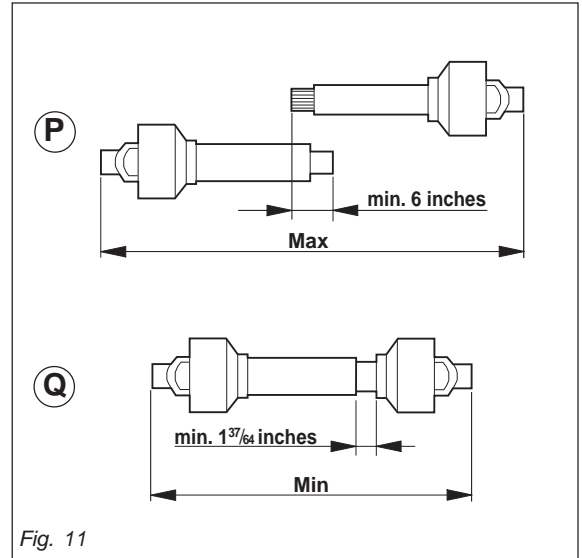
- When the PTO shaft is fully extended, the two tubes must overlap by at least 6 inches (P Fig. 11). When fully inserted, the minimum play must be $1\frac{37}{64}$ inches (Q Fig.11).
- If the implement is used on another tractor, always check the above and that the guards completely cover the rotating parts of the PTO shaft.



ATTENTION

Comply with the manufacturer's instructions when transporting the mowing machine.

- The equipment installed can only be controlled by means of the PTO shaft complete with the necessary overload safety (i.e. clutch) devices and guards fastened with the appropriate chain.
- Only the PTO shaft supplied by the Manufacturer must be used.
- The engine must not be running when installing and removing the PTO shaft.
- Care must be taken regarding the safety and correct assembly of the PTO shaft.
- Use the chain provided to stop the PTO shaft from rotating.
- Always check carefully that the PTO shaft guard is always in position, both during transportation and operation.
- Frequently and set intervals check the PTO shaft guard, it must always be in excellent condition.
- Before engaging the PTO, check that the set rpm corresponds to that indicated by the sticker on the equipment.
- Before inserting the PTO, make sure that there are no people or animals nearby and that the rpm selected corresponds to that permitted. Never exceed the maximum admissible speed.
- Watch out for the rotating universal joint.
- Do not insert the PTO with the engine off or synchronized with the wheels.
- Always disconnect the PTO when the cardan shaft is at too wide an angle (never more than 10° , Fig. 12) and when it is not being used.
- Only clean and grease the PTO shaft when the power take-off is disconnected, the engine is off, the hand brake pulled and the key removed.
- When not in use, place the PTO shaft on the support provided for it.
- After having dismantled the PTO, place the protective cover on the PTO shaft (R, Fig. 13).



INSTALLING

Stability of sickle bar and tractor during transport

When a sickle bar is coupled to a tractor, so becoming an integral part of it for the purposes of road travel, the stability of the sickle bar-tractor complex may change and cause driving or operating difficulties (rearing up or side-slipping of the tractor). The condition of equilibrium can be restored by placing a sufficient number of ballasts on the front of the tractor so that the weights on the two tractor axles are distributed sufficiently evenly. To work in safety the instructions given in the highway code should be followed; these prescribe that at least 20% of the weight of the tractor alone should be borne by the front axle and that the weight on the arms of the hoist should not be more than 30% of the weight of the tractor itself. These factors are summarized in the following formulas:

$$Z > (M \times s) - (0.2 \times T \times i) \\ (d+i)$$

The amount of ballast that should be applied according to the formula is the minimum required for circulation on the road. If for reasons of tractor performance or to improve the set-up of the sickle bar during operation it is thought necessary to raise these values, please refer to the registration document of the tractor to check its limits. When the formula for calculating the ballast gives a negative result it will not be necessary to add any weight. In any case, as long as the limits of the tractor are respected, a suitable quantity of weights may be applied in order to ensure greater stability during travel. The symbols have the following meanings:

M	Kg	Mass weighing on arms off hoist with full load (Technical data table)
T	Kg	Mass of tractor
Z	Kg	Total mass of ballast
i	m	Tractor wheelbase, that is, the horizontal distance between the tractor axles
d	m	Horizontal distance between the centre of gravity of the ballast and the front axle of the tractor
s	m	Horizontal distance between the centre of gravity of the operating machine and the back axle of the tractor

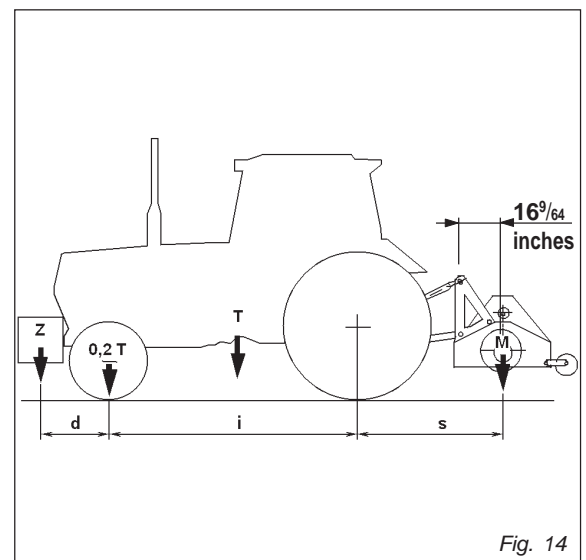


Fig. 14

(please see Fig. 14 for reference):

INSTALLING

Quick Coupler (optional)

- 1) Install hitch Quick Coupler (S, Fig. 15) on the tractor (see tractor operator manual).
- 2) Parking the sickle bar on a flat and compact ground supported by the relative supports. Then slowly move the tractor back until the Quick Coupler (S) is in range with the point hitches (T and U, Fig. 15).

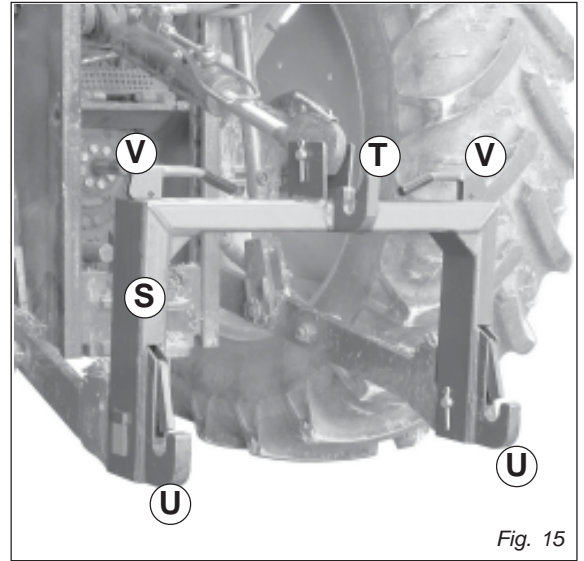


Fig. 15

- 3) Raise the Quick Coupler (S, Fig. 15) and make sure that sickle bar hitch is in the right position (Z, Fig. 16).

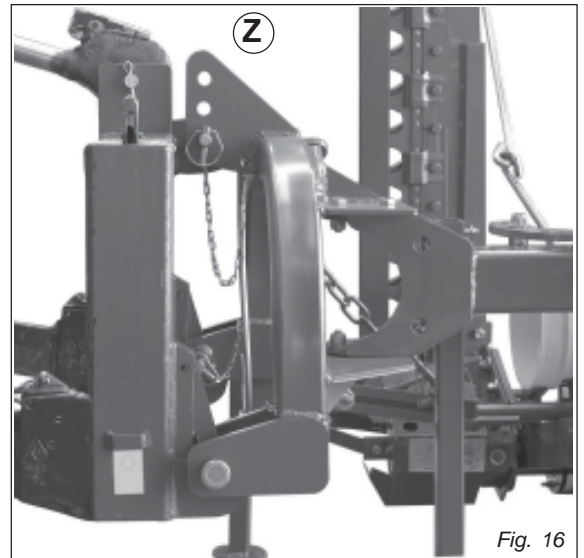


Fig. 16



CAUTION: Before you work around hitch:

- STOP engine.
- LOCK park brake.
- FIRMLY block mower on horizontal surface.

Park vehicle safely

- Stop vehicle on a level surface, not on a slope.
- Disengage PTO.
- Engage the park brake.
- STOP the engine.
- Remove the key.
- Before you leave the operator's seat, wait for engine and all moving parts to STOP.

Stay clear of rotating drivelines

Entanglement in rotating driveline can cause serious injury or death:

- Wear close fitting clothing.
- STOP the engine and be sure PTO driveline is stopped before getting near it.



REMOVING

Removing sickle bar

The sickle bar must be set-up on flat and compact ground, supported by the relative supports (A and B, Fig. 17).

1. Raise sickle bar.
2. Put parking stand (A and B, Fig. 17) in the DOWN position: install spring locking pin in order to secure parking stand (C, Fig. 17).
3. Lower sickle bar to the ground.



CAUTION: Before you work around hitch:

- STOP engine.
- LOCK park brake.
- FIRMLY block mower on horizontal surface.

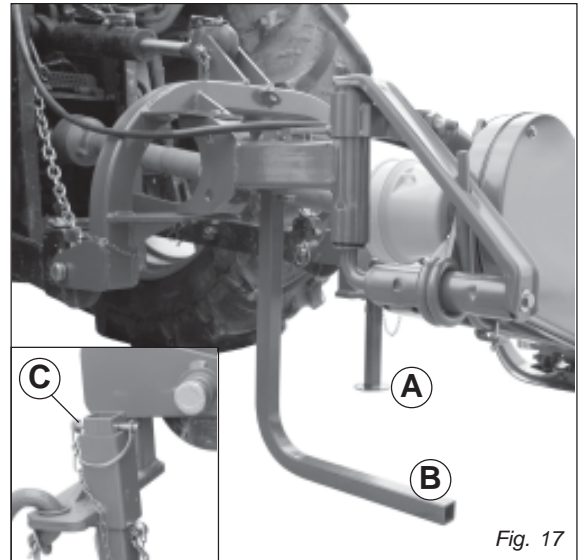


Fig. 17

4. Unhook the PTO shaft (, Fig. 18) from the tractor and put in on the special hook.
5. Remove quik-lock pin (D, Fig. 19) and pin (E, Fig. 19) from center link (F, Fig. 19).

NOTE: Put quik-lock pins and pins back into brackets on sickle bar for storage.

6. Remove draft links (J, Fig. 19) from draft link brackets (G, Fig. 19) by removing quiklock pins (H, Fig. 19) and pins (I, Fig. 19).

NOTE: Put quik-lock pins and pins back into brackets on sickle bar for storage.

7. Drive tractor forward slowly.

Removing sickle bar with Quick Coupler

1. Raise sickle bar.
2. Put parking stand (A and B, Fig. 17) in the DOWN position: install spring locking pin in order to secure parking stand (C, Fig. 17).
3. Lower sickle bar to the ground.
4. Raise the two Quick Coupler levers (V, Fig. 15) to unloch sickle bar (Quick Coupler Figure, page 14).
5. Lower Quick Coupler till further free the sickle bar.

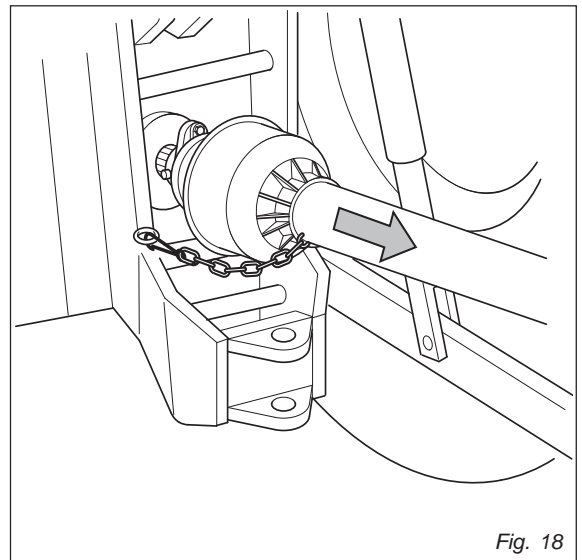


Fig. 18

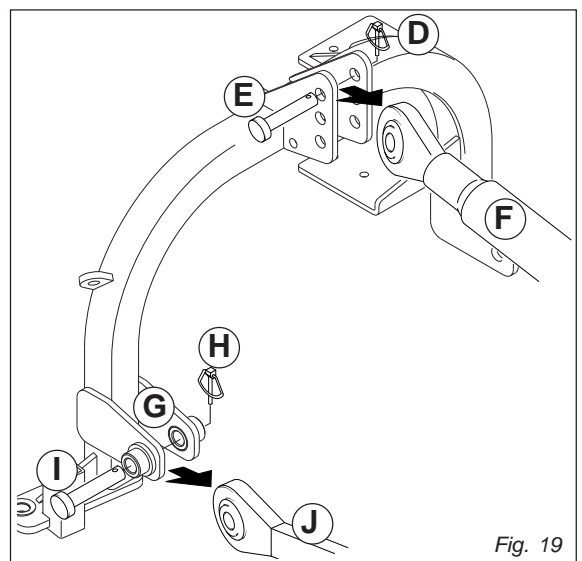


Fig. 19

OPERATING

Operate safely

Carefully read all the instructions before using the machine; if in doubt, contact the technicians of the Manufacturer's dealer. The manufacturer declines all responsibility for the non-observance of the safety and accident prevention regulations described below.

General norms

- 1) Pay close attention to the danger signs in this manual and on the sickle bar.
- 2) The labels with the instructions attached to the machine give abbreviated advice for avoiding accidents.
- 3) Carefully observe, with the help of the instructions, the safety and accident prevention regulations.
- 4) Avoid touching moving parts in any way whatsoever.
- 5) Any work on and adjustment to the machine must always be done with the engine switched off and the tractor blocked.
- 6) People or animals must not, under any circumstances, be transported on the equipment.
- 7) It is strictly prohibited to drive the tractor, or allow it to be driven with the equipment attached by persons not in possession of a driver's license, an expert or in poor conditions of health.
- 8) Before starting the tractor and the equipment, check that all safety devices for transport and operation are in perfect working order.
- 9) Before starting up the equipment, check the area surrounding the machine to ensure that there are no people, especially children or pets, nearby, and ensure that you have excellent visibility.
- 10) Use suitable clothing. Avoid loose clothing or garments with parts that could in any way get caught in the rotating or moving parts of the machine.
- 11) Before starting work, familiarize yourself with the control devices and their functions.
- 12) Only start working with the equipment if all the protective devices are in perfect condition, installed and in the safe position.
- 13) It is absolutely prohibited to stand within the machine's radius of action where there are moving parts.
- 14) It is absolutely forbidden to use the equipment without the guards.
- 15) Before leaving the tractor, lower the implement coupled to the lift unit, stop the engine, engage the hand brake, remove the ignition key from the control panel, cover the cutters and outer skid with the relative guards. Raise the mowing bar (transport protection) according with the instructions given in this handbook.
- 16) The driver's seat must never be left when the tractor engine is running.
- 17) Before operating the mowing machine, check that the support struts (A and B, Fig. 17 page 15) have been removed from underneath the implement. Make sure that the sickle bar has been correctly mounted and adjusted. Check that the machine is in perfect order and that all components subject to wear and deterioration are efficient.
- 18) Before releasing the equipment from the third point attachment, put the hoist command lever into the locked position and lower the support feet.
- 19) Only operate during daylight or with proper artificial light.
- 20) All operations must be carried out by expert personnel, equipped with protective gloves, in a clean and dust-free environment.
- 21) Do not climb onto the machine while it is running, even if it is stationary.
- 22) Before approaching the mowing bar, disengage the pto, switch off the tractor, engage the parking brake and check that the cutters are at a complete standstill.
- 23) The coupled implement may only be controlled through the PTO shaft complete with the necessary safety devices for overloads and with the guards fixed with the relative latch.
- 24) During maintenance and work operations, make sure that no other person goes near the tractor and the implement and accidentally works the controls with the risk of causing injury to persons and damage to property.
- 25) As a precaution, always set adequate supports under the implement during assembly, servicing, cleaning or assembly work with the mowing bar raised.

OPERATING

- 26) DO NOT wear radio or music headphones while operating the machine. Safe operation requires your full attention.
- 27) DO NOT operate the tractor and sickle bar when you are tired or ill.

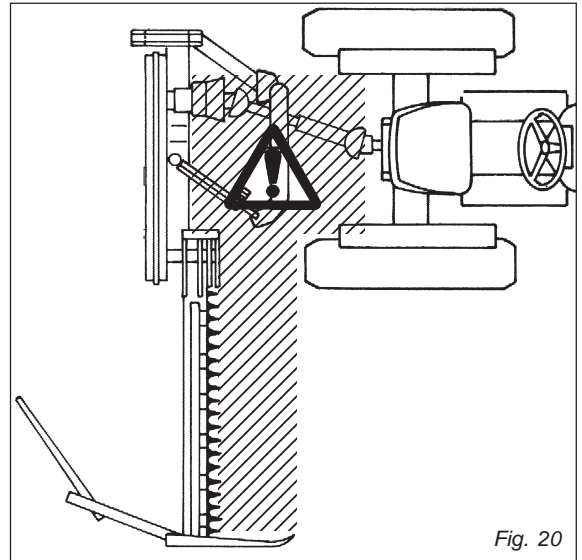
Tractor hitch

- 1) Hook the equipment to a suitable, sufficiently-powered tractor by means of the appropriate device (lifter), in conformity with applicable standards.
- 2) The class of the equipment attachment pins must be the same as that of the lifter attachment.
- 3) Take care when working within the range of the lifting arms as this is a very dangerous area.
- 4) Be very careful when hooking and unhooking the equipment.



- 5) It is absolutely forbidden to stand between the tractor and linkage for acting the lifting controls from the outside (Fig. 20).

- 6) It is absolutely forbidden to stand in the space between the tractor and the equipment (Fig. 20) with the engine running.
- 7) The attaching of additional equipment onto the tractor brings about a different distribution of weight on the axles. Check the compatibility of the tractor performance with the weight that the mower transfers onto the three-point linkage. If in doubt consult the tractor Manufacturer.
- 8) Comply with the maximum admissible weight for the axle, the total mobile weight, transport regulations and the highway code.



Wear appropriate clothing

- Wear close fitting clothing and safety equipment appropriate for the job.
- Loud noise can cause impairment or loss of hearing, wear a suitable protective device such as earplugs.



Stay clear of rotating drivelines

Entanglement in rotating driveline can cause serious injury or death:

- Wear close fitting clothing
- Stop the engine and be sure PTO shaft is stopped before getting near it.



CAUTION: Before you work around hitch:

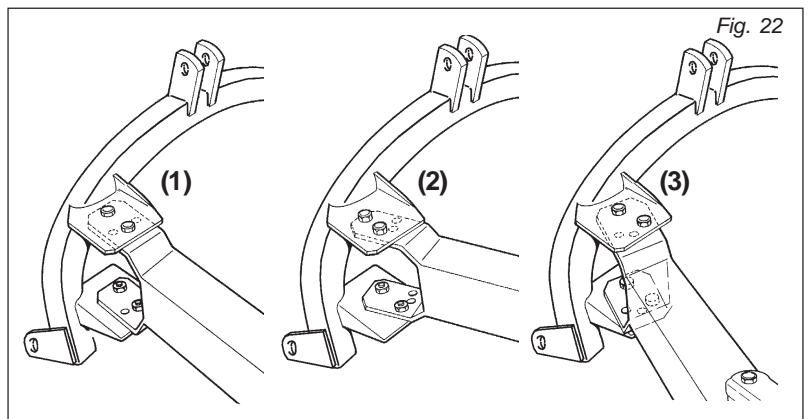
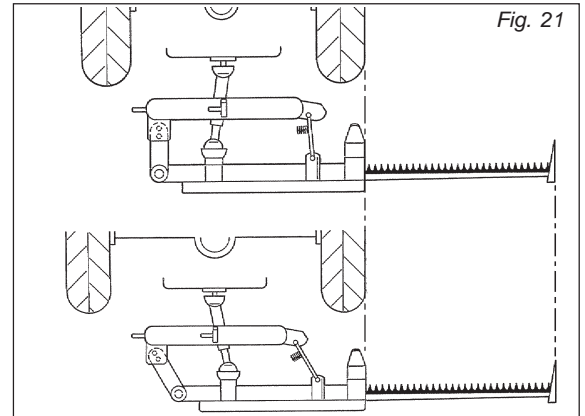
- STOP engine.
- LOCK park brake.
- FIRMLY block mower on horizontal surface.

OPERATING

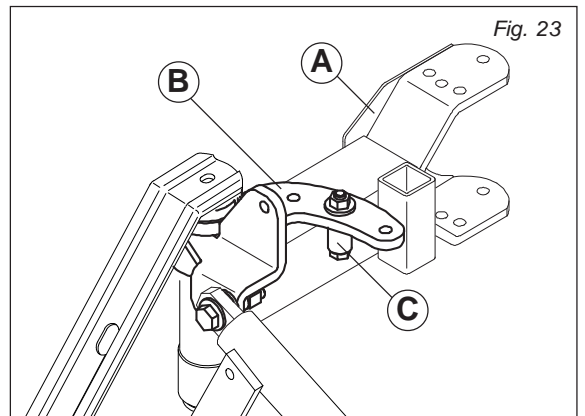
Adapting the sickle bar

To ensure optimum use, the sickle bar must completely project from the tractor (Fig. 21); three situations are shown in the Figure 22:

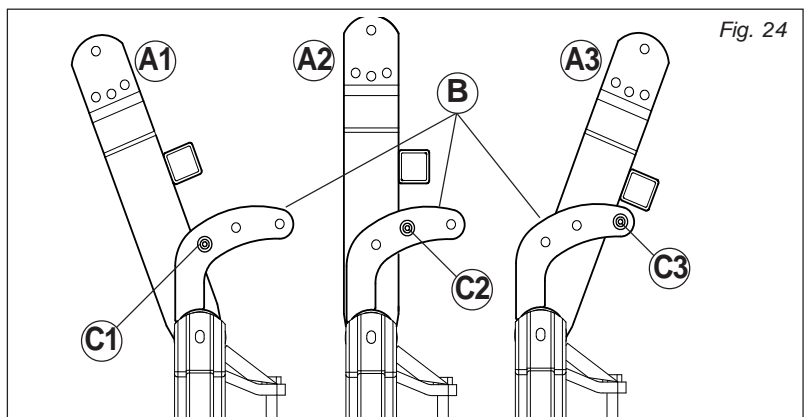
- 1) hitching to a tractor normally used for mowing jobs;
- 2) hitching to a large tractor;
- 3) hitching to a small tractor or to certain types of tracked vehicle.



When the frame joint is moved (A, Fig. 23), the position of the stop bushing (C, Fig. 23) of the cylinder linkage must consequently be changed, according to the cases shown in figures 23 and 24.



Connections between frame joint and stop bushing for the movement of the mowing bar.



OPERATING

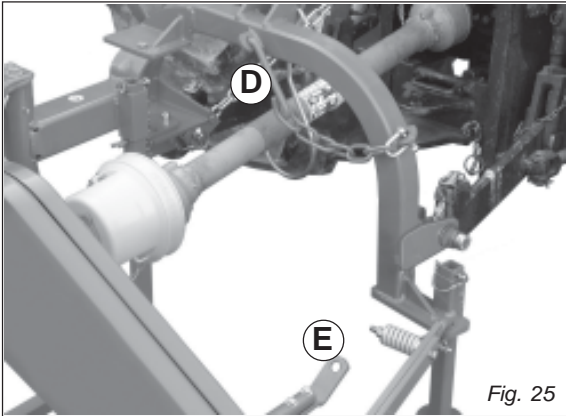


Fig. 25

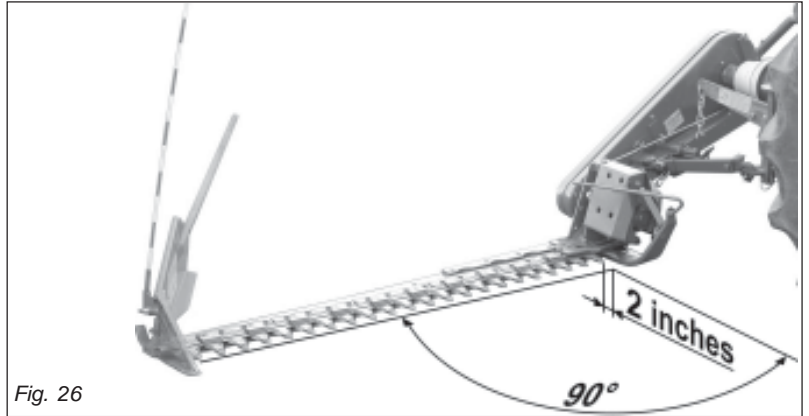
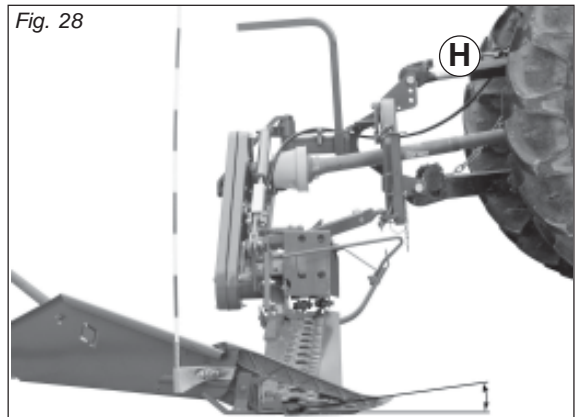
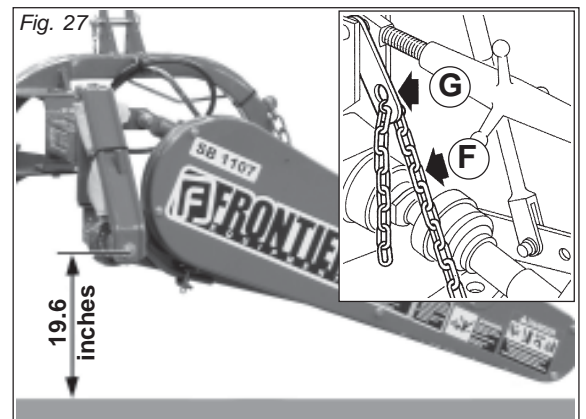


Fig. 26

Adjustment

- Remove safety hook (D, Fig. 25), required only for transportation, and fit it back in the slot positioned above the chassis. Reduce to the minimum length in order to hook it in (E, Fig. 25) with the sickle bar to lower.
- Fit the sickle bar by adjusting the tractor tie-rods so that, when the sickle bar attachment is fitted to the three points on the tractor, the external tip of the cutting arm is approximately 2 inches forward with respect to the arm base (Fig. 26).
- Using chain (F, Fig. 27), adjust the height of the sickle bar attachment with respect to the tractor. Attach the appropriate link to the special plate hole (G, Fig. 27). Adjust the height of the mower on the basis of the height shown in Figure 27. Mark the link used so that the same position may be used each time the sickle bar is fitted to the tractor.
- Adjust inclination of the cutting arm teeth using tie rod (H, Fig. 28).



- Adjust the cutting height (Fig. 29) by moving the mowing bar on the holes of the inner mowing bar support (I), and, turning the nut of the outer mowing bar support (J), bring it level with the ground.

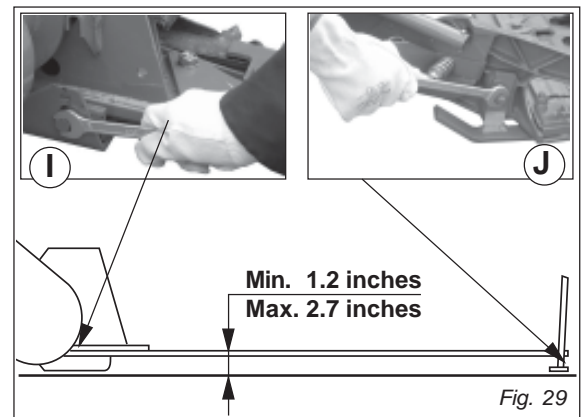


Fig. 29

OPERATING

Mowing

- Remove the supports (L and M, Fig. 30) and remount them, upside-down in their seat. Install spring locking pin in order to secure parking stand (N).
- Remove tie rod from the cutting arm.

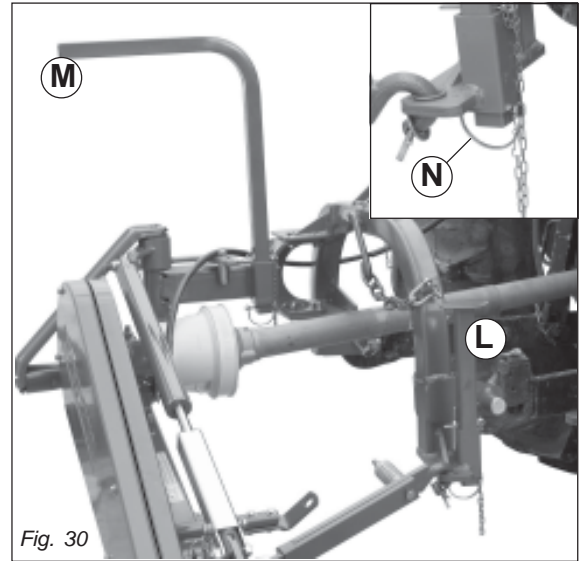


Fig. 30

- The sickle bar is fitted with a safety device for protection against obstacles. If this device is tripped by impact with an obstacle, stop the tractor without raising the cutting arm. Check that the cardan shaft has not become separated, if so, reassemble it. **Position the safety tie rod parallel to the ground, and reverse the tractor until the safety tie rod hooks up again.** If the tie rod releases easily, adjust spring (O, Fig. 31) using nut (P, Fig. 31) which should be tightened half turn at a time.

For successful mowing and to avoid jamming, we advise you to:

- **Set and maintain the power take-off at a constant rate of 540 rpm to ensure correct blade frequency;**
- Compatibly with the soil conditions and the type of grass, maintain a steady work speed: no slower than 5 mph to favor the discharging of the mown grass and no faster than 6.2 mph to avoid breaking or damaging the machine's structure.
- If the grass is tangled or flattened, keep the cutting bar grazing the ground.

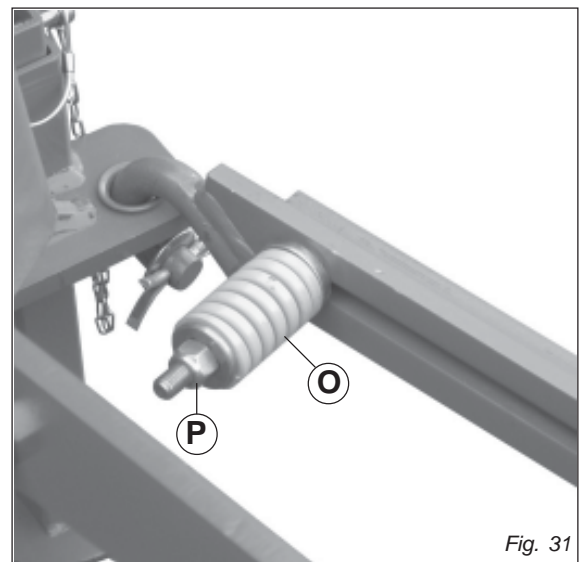


Fig. 31

Hazard bar

The hazard bar has been included with the equipment of the machine for safety reasons, to indicate the space occupied by the mower at work. For working, position the hazard bar in position (Q1, Fig. 32) and lock it in place with the screw (R). For transport put it in position (Q2).

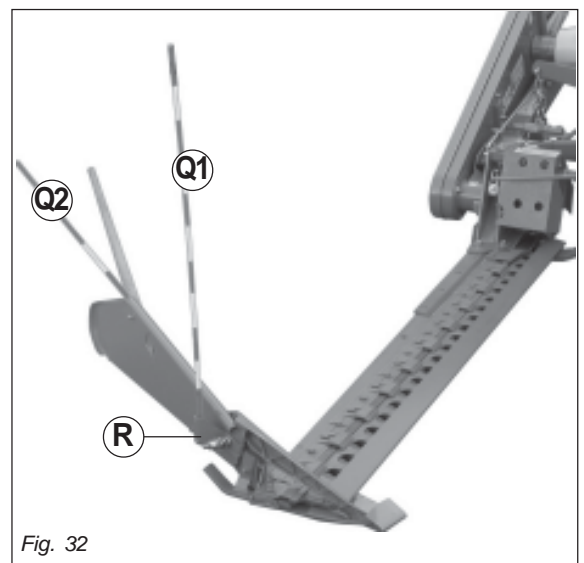


Fig. 32

OPERATING



ATTENTION

If the blades becomes jammed, it is advisable to operate carefully wearing suitable personal protection. All the maintenance, adjustments and work preparation operations, must be carried out with the tractor strictly switched off and properly stationary, with the ignition key turned off and the sickle bar on the ground.



CAUTION

- Always raise the implement in order to reverse or change direction.
- The cutting arm should not be raised abruptly in order to avoid damaging the cutting blades.
- Power take-off must not exceed 540 r.p.m.
- Never run the engine at maximum power while mowing.
- In order to prevent breakages or damage, the speed of the tractor must never exceed 6.2 mph when the implement is working.



DANGER

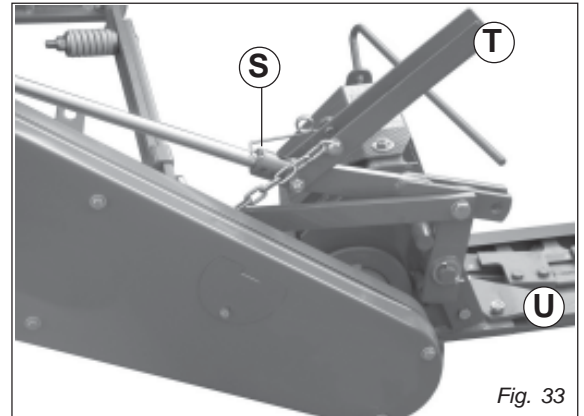
The mowing machine has sharp cutting blades. Always make sure that there are no persons, domestic animals, electrical cables, pipes and so forth, within the field of action of the implement.

OPERATING

Using the lifting device

Once you have positioned the equipment, prepare it for mowing:

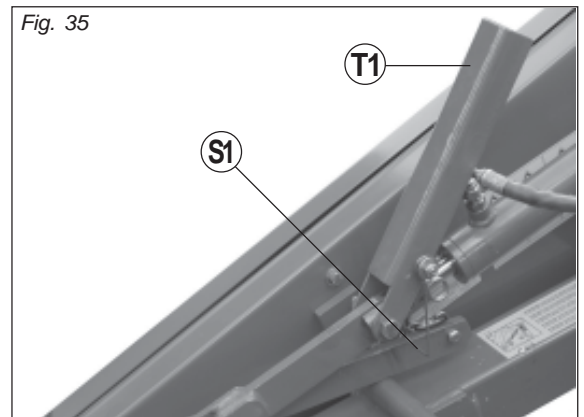
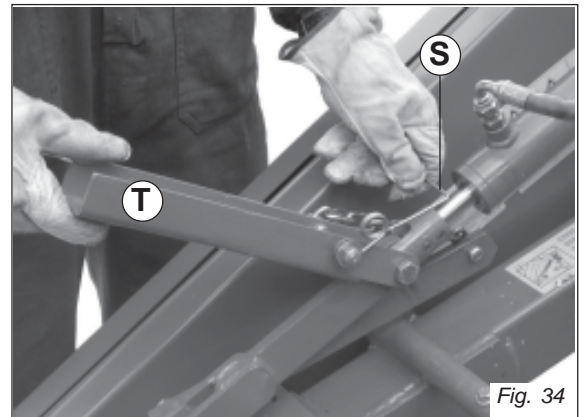
- release the blade tie rod;
- remove the support prop;
- remove the blade protection.



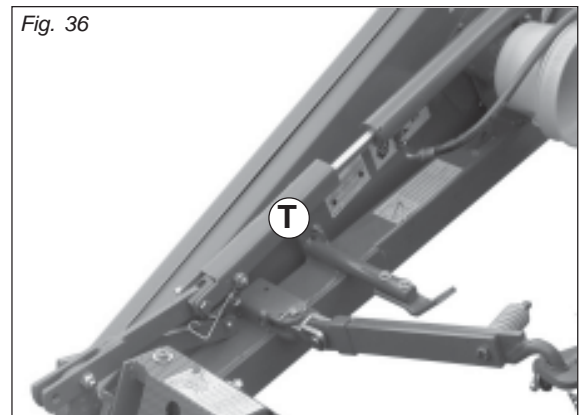
Operation of lifting device

To operate the device, put the spring (S, Fig. 34) in position (S1, Fig.35) (under the cylinder rod), so that the cylinder bracket (T, Fig. 34) is released forwards towards position (T1, Fig. 35).

Climb into the tractor and operate the hydraulic distributor to lower the blade (C, Fig. 33) into the mowing position.



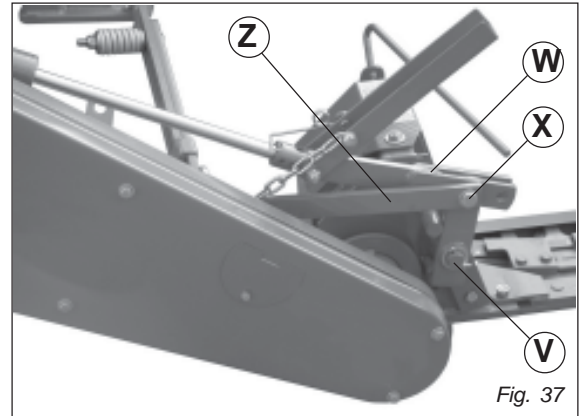
CAUTION: While working regularly check that the bracket (T) is still resting along the cylinder rod (Fig. 36).



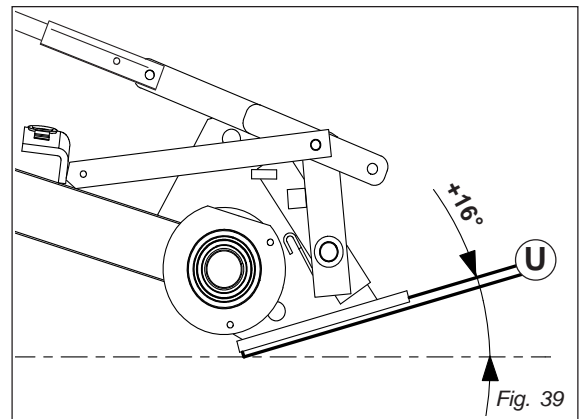
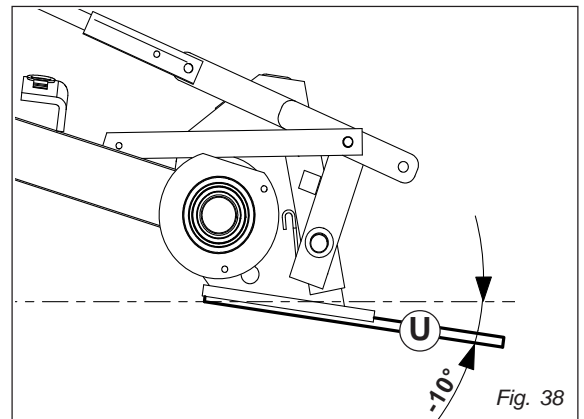
OPERATING

Mowing on flat ground (or ground with small depressions)

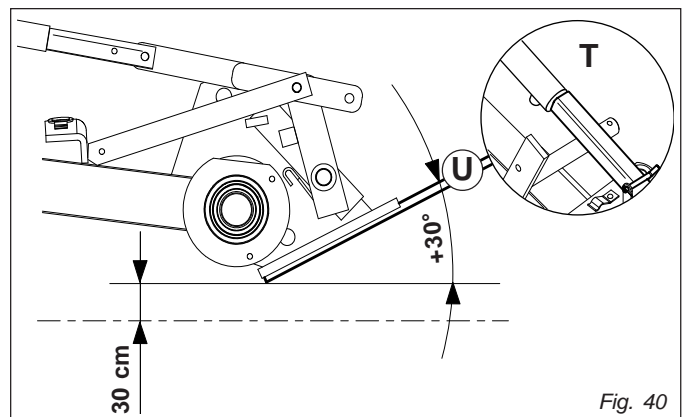
For mowing on flat ground, couple the lever (V) with tie rod (W) and the rod (Z) in position (X) of Figure 37. Lastly insert the lifting device as described in the previous paragraph.



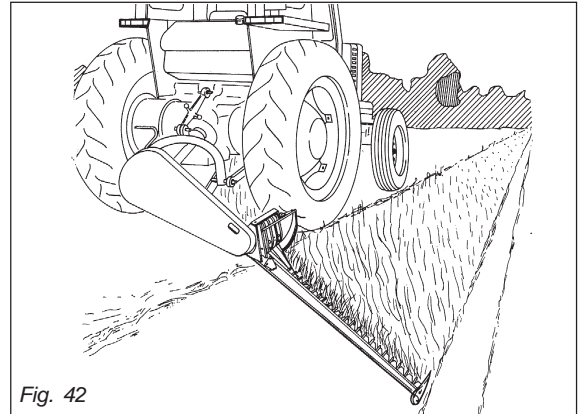
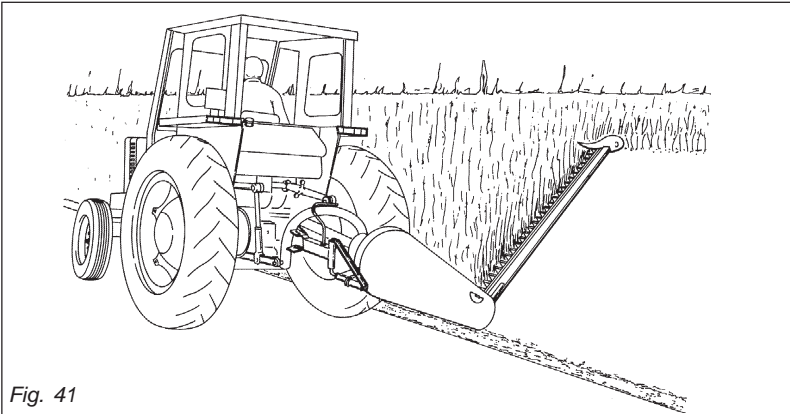
With the rapid lifting device engaged, the bar (U, Fig. 38) has a negative inclination of -10° and a positive one of $+16^\circ$ (Fig. 39) with respect to the horizontal plane during mowing. This system has been devised for mowing quickly and safely on flat ground or ground with small depressions.



The operation of the lifting device up to the stop of the bracket on the cylinder (T, Fig. 40) allows the equipment to be raised by approx. 12 inches from the ground and, at the same time, an inclination of the blade (U, Fig. 40) of $+30^\circ$, so that the end of field maneuvers can be carried out.



OPERATING



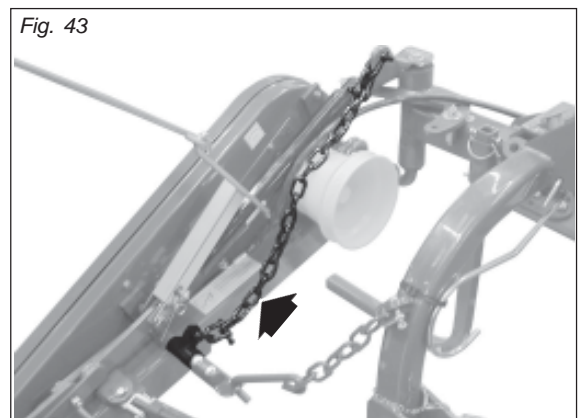
Mowing on sloping ground

Figures 41 and 42 show various types of mowing on sloping ground (banks, canals, etc.).

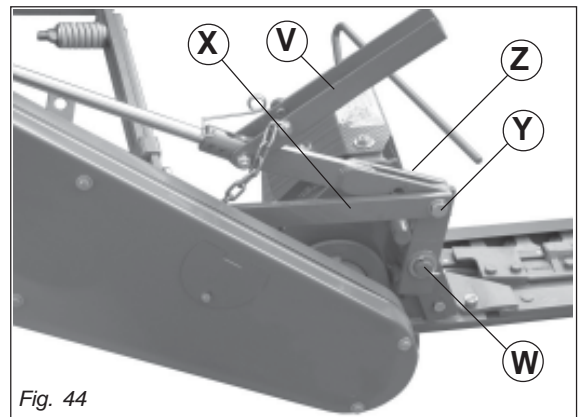


CAUTION: For mowing on surfaces that are not parallel to the tractor plane, we recommend removing the moving guide from the outer mowing bar support.

To mount pulling of Figure 43 in order to improve the excursion and use of the sickle bar.



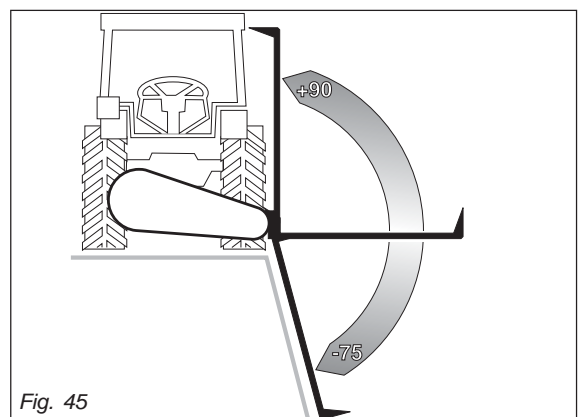
For mowing on sloping ground, disable the lifting device (V) as shown in Figure 44 and couple the lever (W, Fig. 44) with tie rod (Z, Fig. 44) and the rod (X, Fig. 44) in position (Y, Fig. 44) as shown in Figure 44.



In this way the bar can be adjusted with the hydraulic cylinder to mow at different angles: from -75° to $+90^{\circ}$ with respect to the horizontal plane formed by the tractor (Fig. 45).

IMPORTANT:

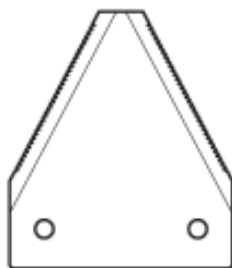
The sickle bar can operate in each position between -75° to $+90^{\circ}$.



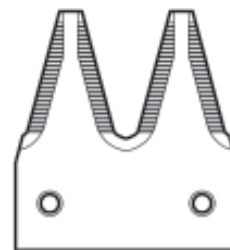
OPERATING

Table approximate for choice of the cutting bar

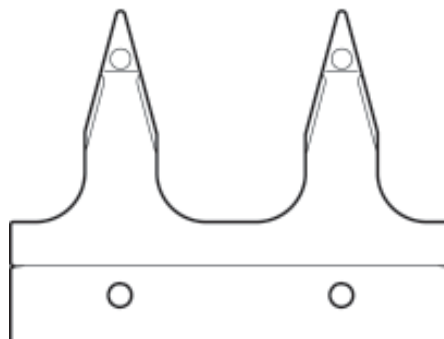
TYPE OF THE GROUND		TYPE OF THE FORAGE			
		Dry and lignificated (gramineae)	Humid, packed and low (cat coat)	Humid and packed (Lucerne-Clover)	Big and high (forage of the sorghum, corn)
Level	Normal	DSS - SD/SN	DSS - SD	DSS - SN	DSS - SN
	Stny field	DSS - SD/SN	DSS - SD	DSS - SN	DSS - SN
Hill	Normal	DSS - SD/SN	DSS - SD	DSS - SN	DSS - SN
	Stny field	DSS - SD/SN	DSS - SD	DSS - SN	DSS - SN
Mountain	Normal	DSS - SD/SN	DSS - SD	DSS - SN	DSS - SN
	Stny field	DSS - SD/SN	DSS - SD	DSS - SN	DSS - SN



Normal Section (SN)



Self sharpening double section (SD)



Replaceable Normal tooth (DSS)

SERVICE MACHINE SAFETY

Practice safe maintenance

- Understand service procedure before doing work. Keep area clean and dry.
- Never lubricate, service, or adjust machine while it is moving. Keep safety devices in place and in working condition. Keep hardware tight.
- To prevent from getting caught, keep hands, feet, clothing, jewelry, and long hair away from any moving parts.
- Before servicing machine, lower it to the ground. Disengage all power and stop the vehicle engine. Lock vehicle park brake and remove the key.
- Securely support any machine elements that must be raised for maintenance.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.
- Unauthorized modifications to the machine may impair its function and safety.



Wear appropriate clothing

- Wear close fitting clothing and safety equipment appropriate for the job.
- Loud noise can cause impairment or loss of hearing, wear a suitable protective device such as earplugs.
- Do not wear radio or music headphones while servicing the machine. Safe servicing requires your full attention.



Stay clear of rotating PTO shaft

Entanglement in rotating driveline can cause serious injury or death:

- Stop the engine and be sure PTO shaft is stopped before getting near it.



Maintenance

Various servicing operations are listed in the following paragraphs. Lower running costs and longer machine life depend on constant and methodical compliance with these operations.

During work and maintenance operations, use suitable personal protective gear:



CAUTION

- The given frequencies are indicative and refer to normal conditions of use. They may therefore be subject to variations in relation to the type of service, a more or less dusty environment, seasonal factors, etc.
- In the case of heavy-duty conditions, the maintenance operations should obviously be more frequent.
- Before injecting grease into the lubricators, the greasing points must be thoroughly cleaned to prevent mud, dust or foreign bodies from mixing with the lubricant, thus reducing lubricating effect.

SERVICE MACHINE SAFETY



ATTENTION

It is absolutely essential to disengage the tractor pto, lower the mowing machine, switch off the tractor, ensure that this is at a complete standstill and remove the key before servicing, adjusting or preparing the implement for work. All assembly operations must be carried out on a work bench.

- Always keep oils and greases well away from children's reach.
- Always thoroughly read the warnings and precautions indicated on the containers.
- Avoid contact with the skin.
- Always thoroughly and fully wash after use.
- The utilized oils should be treated in compliance with the current laws in force.

- Do not proceed with maintenance and cleaning if the power take-off has not been disconnected first, the engine power off, the hand brake pulled and the tractor blocked with a wooden block or stone of the right size under the wheels.
- Periodically check that the bolts and nuts are tight, and if necessary tighten them again. For this it would be advisable to use a torque wrench, respecting the values of 52 Nm for M10 bolts, resistance class 8.8, and 143 Nm for M14 bolts resistance class 8.8 (Table 1: **Bolts tightening torques**).
- During assembling, maintenance, cleaning, fitting, etc., with the mowing machine raised, place adequate supports under the equipment as a precaution.
- The spare parts must correspond to the manufacturer's specifications. **Use only original spares.**

Bolts tightening torques - settings given in Nm (lb-ft)

(Table 1)

Fine pitch screws (metric)	CLASS			
	6.6	8.8	10.9	12.9
M8 x 1	15 (11)	26 (19)	36 (26.5)	44 (32.5)
M10 x 1.25	30 (22)	52 (38)	74 (54)	88 (65)
M12 x 1.25	51 (37.5)	91 (67)	127 (94)	153 (113)
M14 x 1.5	81 (60)	143 (105)	201 (148)	241 (178)
M16 x 1.5	120 (88)	214 (158)	301 (222)	361 (266)
M18 x 1.5	173 (127)	308 (227)	433 (319)	520 (384)
M20 x 1.5	242 (178)	431 (318)	606 (447)	727 (536)
M22 x 1.5	321 (237)	571 (421)	803 (592)	964 (711)
M24 x 2	411 (303)	731 (539)	1028 (758)	1234 (910)
M27 x 2	601 (443)	1070 (790)	1504 (1110)	1806 (1333)
M30 x 2	832 (614)	1480 (1090)	2081 (1535)	2498 (1843)

SERVICE

Lubrication



- WARNING:**
- Firmly block sickle bar on horizontal surface.
 - Always keep oils and greases well away from children's reach.
 - Always thoroughly read the warnings and precautions indicated on the containers. Avoid contact with the skin.
 - Always thoroughly and fully wash after use. The utilized oils should be treated in compliance with the current anti-pollution laws.

Routine maintenance

- During the first working hours, check that the screws are tight (Fig. 56).

Every 8 work hours

- Grease points (A and B, Fig. 46).
- Grease the PTO shaft and its telescoping parts.
- Adjust belt tension periodically by adjusting nut (A, Fig. 47). Check tension via the viewing panel on the belt guard. Belt slack must not exceed 1 inch. It is essential to close the inspection hatch with the relative lid after the belts have been examined.

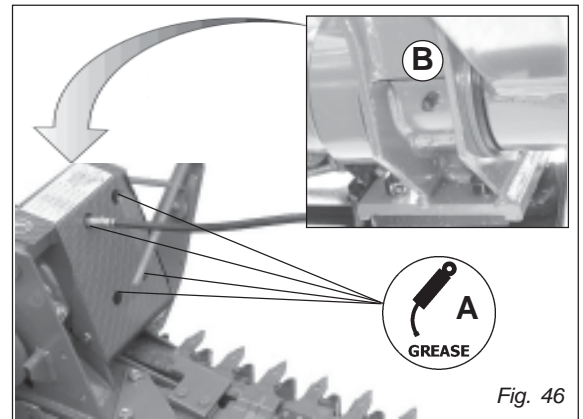


Fig. 46

Every 50 work hours

- Check the tightness of the connecting rod bolts regularly (Fig. 48).
- Checking the clearance tolerance

Periodically (6 months)

- Grease point (A and B, Fig. 46).

After each mowing job

- Clean and oil the mowing bar blades according to the instructions in the chapter entitled: "Cleaning and oiling the cutters".

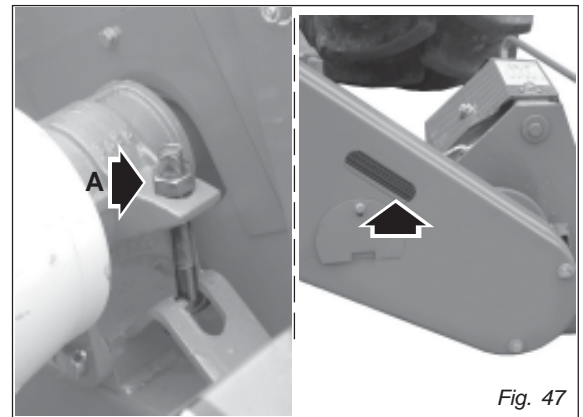


Fig. 47

Lubricants

- It is advisable to use **SAE 85W/140 OIL** or equivalent for the reduction unit (or gear box) and side transmission.
- It is advisable to use **GR MU EP 2 GREASE** or equivalent for all greasing points.

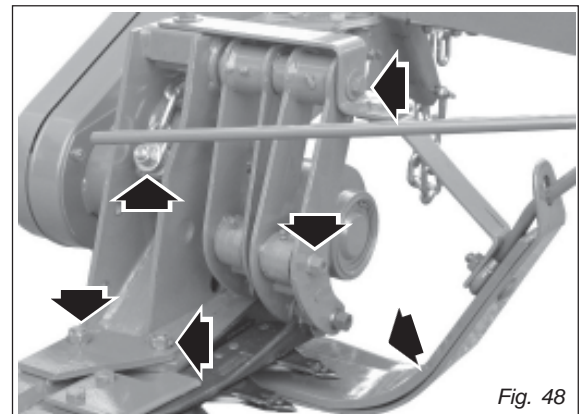


Fig. 48

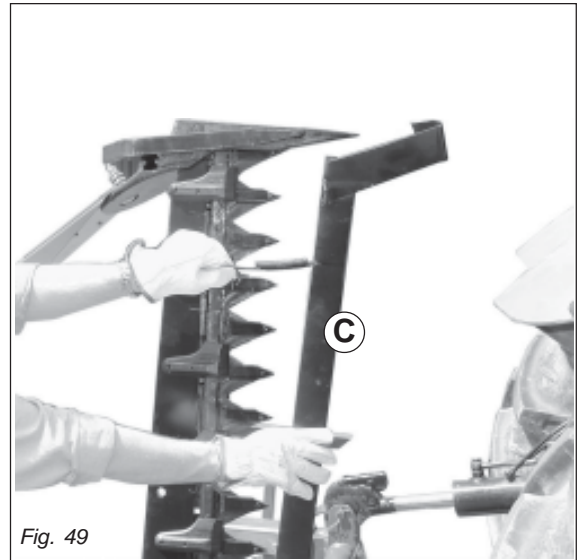
SERVICE

Cleaning and oiling the cutters

DANGER

Mowing bar cleaning and oiling are very dangerous operations. Always comply with the following instructions:

- Switch off the tractor, remove the starter key and disengage the pto;
- Brake the tractor and make sure it is unable to move;
- Lift the implement by means of the lift links in a flat place where it cannot slip;
- Operate the mowing bar, checking that there are no persons or animals in the vicinity;
- **Wash the mowing bar with a jet of pressurized water, standing at least 5 feet away from the implement;**
- Check the condition of the cutters;
- **When the mowing bar is dry, oil the cutters with very viscous oil;**
- Operate the mowing bar for a few seconds, checking that there are no persons or animals in the vicinity;
- Switch off the tractor, remove the starter key and disengage the pto;
- Fit the guards over the cutters and outer skid (C Fig. 49)



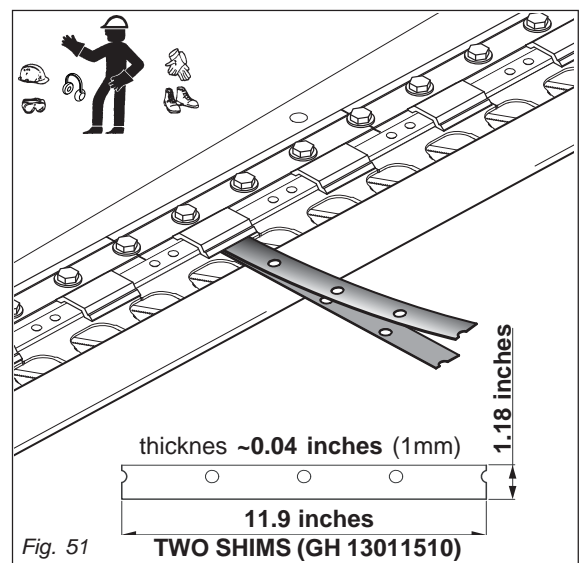
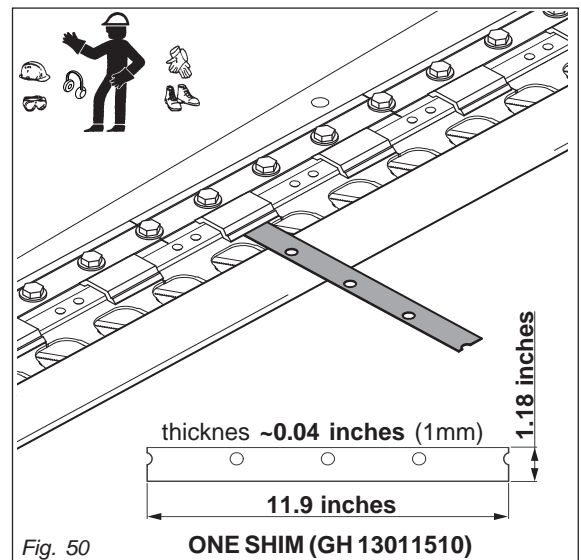
Checking the clearance tolerance



ATTENTION

It is absolutely essential to disengage the tractor pto, lower the mowing machine, switch off the tractor, ensure that this is at a complete standstill and remove the key before servicing, adjusting the implement for work. All assembly operations must be carried out on a work bench.

Every 50 hours of operation, the clearance between the tooth and upper blade guide must be checked. Too much clearance allows material to enter the cutting blade, leading to the possible breakage of the various parts of the cutting blade, as well as compromising cutting quality. Too little clearance creates excessive sliding friction on the blade as it slides, leading to the possible breaking of the tooth holding bar, the blade head or parts of the hinge. The check is to run between the tooth and the upper blade guide. The optimal clearance is determined by the passing of a shim (Fig. 50). If a shim cannot pass between the tooth and upper blade guide, a shim must be added (Fig. 53). If, on the other hand, two coupled shim can pass (Fig. 51), a shim must be removed in order to restore optimal clearance conditions.



SERVICE

To restore the correct tolerance:

- unscrew the blade guide (Fig. 52);
- remove one or more shims (Fig. 53);
- put the blade guide back in the same position.

IMPORTANT: When replacing the teeth or the tooth-holding bar, carry out the check described above. When required, put back the shims to avoid striping or damage.

Fig. 52

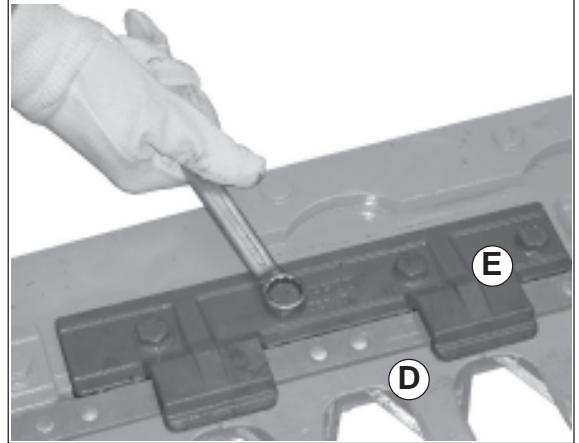
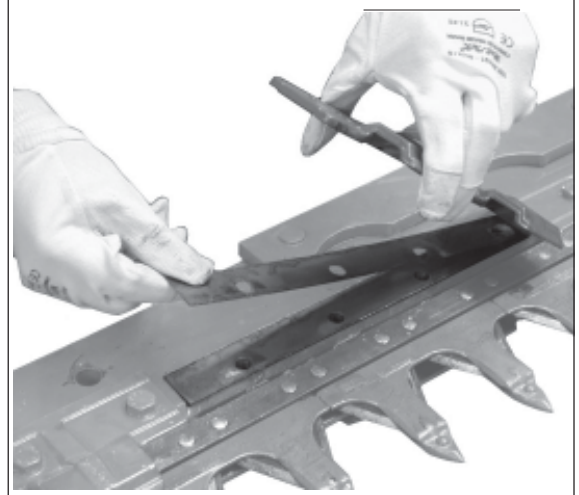


Fig. 53



Storage

It is advisable to proceed in the following way at the end of the season or if the machine is to remain inactive for a long period of time:

- Treat the implement in compliance with the instructions given in the chapter entitled: "**Cleaning and oiling the cutters**".
- Carefully check for any damaged or worn parts and replace these as necessary.
- Fully torque all screws and bolts.
- Apply a little lubricant to the unpainted parts.
- Protect the entire implement with a cover.
- Lastly, store the implement in a dry place where it cannot be tampered with by unauthorized persons; the mowing machine must be set-up on flat and compact ground, supported by the relative supports (F and G, Fig. 54).

Careful compliance with these instructions will be all to the advantage of the user who will be sure to use an implement in perfect conditions when work begins again.

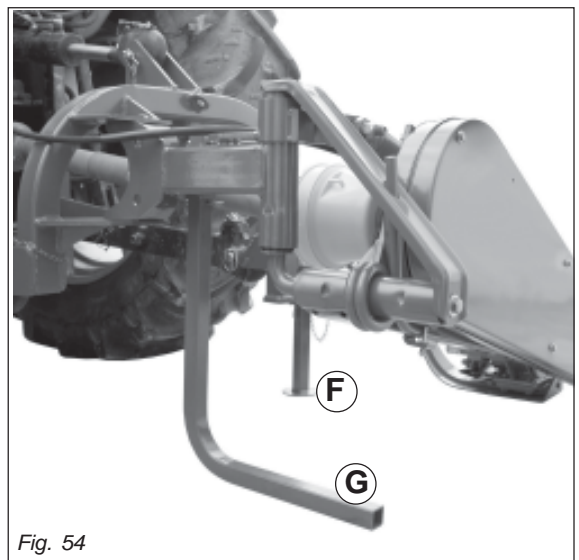


Fig. 54

SERVICE

Extra maintenance

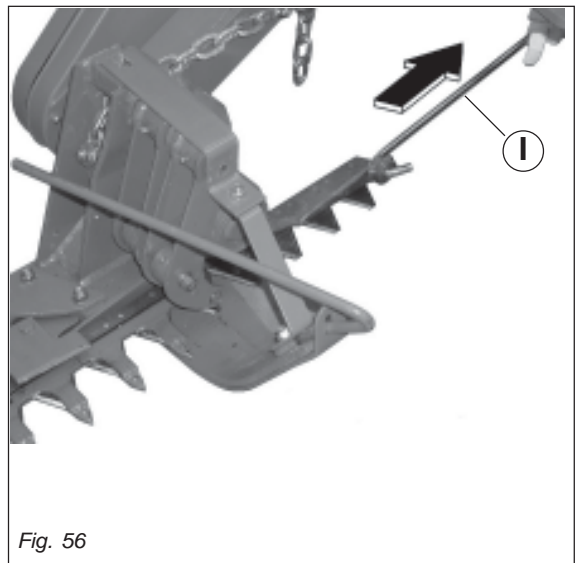
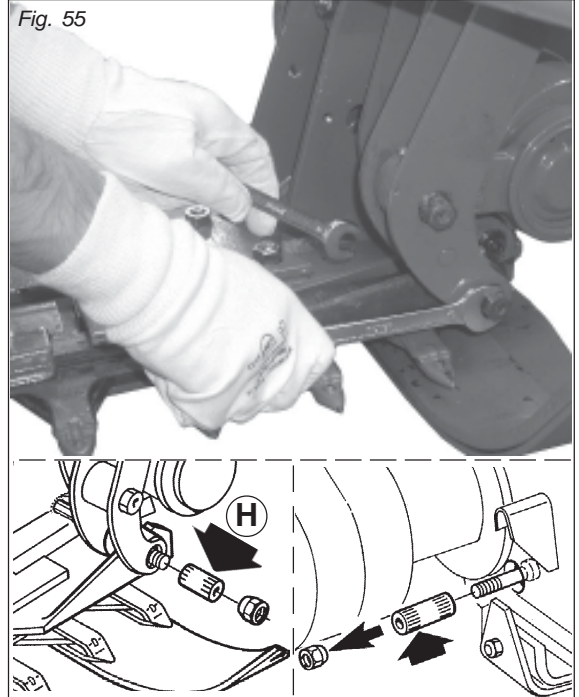


ATTENTION

It is absolutely essential to disengage the tractor pto, lower the mowing machine, switch off the tractor, ensure that this is at a complete standstill and remove the key before servicing, adjusting the implement for work. All assembly operations must be carried out on a work bench.

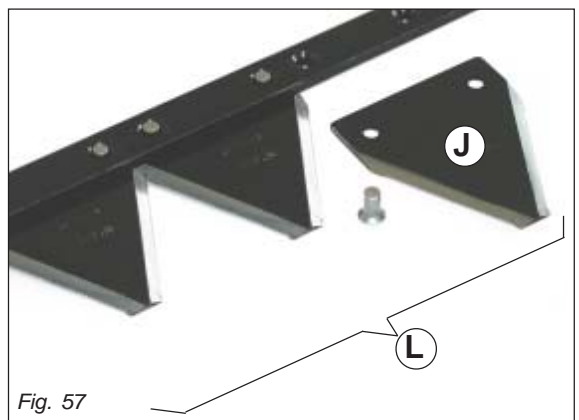
Replacement of section-holding bar (L fig. 57)

- With the implement resting on the ground, open the mowing bar.
- Remove the expansion pin (H, Fig. 55) and pull out the section-holding bar (Fig. 56) with the hooking tie rod (I Fig. 56).
- Insert the new section-holding bar and lock it in place with the expansion pin. Lubricate the cutters with very viscous oil during the assembly phase.



Replacement of sections (J fig. 57)

- With the implement resting on the ground, open the cutter bar.
- Remove the expansion pin (H, Fig. 55) and slide out the section-holding bar (Fig. 56).
- Remove the damaged section using a pin punch (7 Fig. 4 on page 6).
- Rivet a new section with the rivets provided (J Fig. 57).
- Insert the section-holding bar and lock it in place with the expansion pin.



SERVICE



ATTENTION

It is absolutely essential to disengage the tractor pto, lower the mowing machine, switch off the tractor, ensure that this is at a complete standstill and remove the key before servicing, adjusting the implement for work. All assembly operations must be carried out on a work bench.

Replacement of bar holding removable tooth

- With the implement resting on the ground, raise the mowing bar and secure it with the hooking tie rod.
- Unscrew all the tooth fastening screws (Fig. 58).
- Remove all the teeth (Fig. 59).
- Remove the expansion pin and slide out the bar.
- Insert the new tooth-holding bar and lock it in place with the expansion pin.
- Reposition the teeth and fasten them with the screws.

Replacement of removable tooth

- With the implement resting on the ground, raise the mowing bar and secure it with the hooking tie rod.
- Unscrew the screws of the tooth to be replaced (Fig. 58).
- Slide out the tooth (Fig. 59), put in the new one and lock it in place with the screws. For this it would be advisable to use a torque wrench, respecting the values of 30 Nm.

Replacement of belts

- Unscrew the screws (A Fig. 60) and remove the protective casing.
- Loosen the belt tensioner completely (B, Fig. 60).
- Replace the worn belts with new ones.
- Put these at the optimum tension using the belt tensioner. Belt play should not exceed 1 inch.
- Put the protective casing back in position and fix it in place with the screws (A, Fig. 60).

Replacement of pulleys

Notes for replacement of pulleys, if necessary.

- Unscrew the screws (M, Fig. 60) and remove the protective casing.
- Loosen the belt tensioner completely (N, Fig. 60).
- Remove the belts.

To replace the driving pulley (O, Fig. 61), turn it counterclockwise; viceversa, turn the driven pulley (P, Fig. 61) clockwise.



Fig. 58



Fig. 59

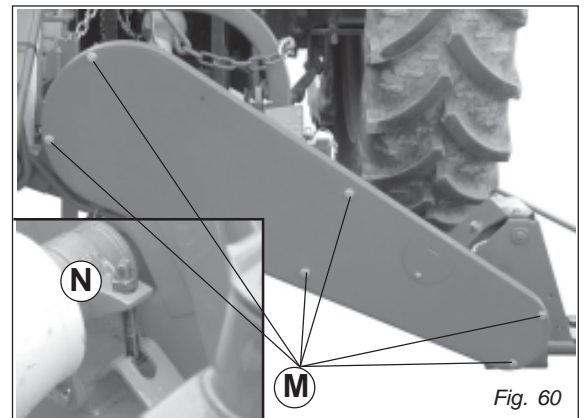


Fig. 60

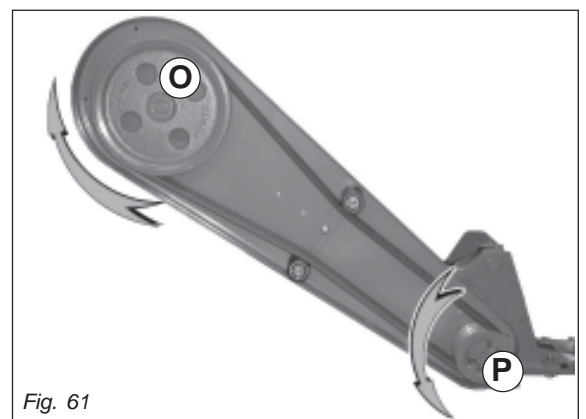


Fig. 61

DEMOLITION AND DISPOSAL

Demolition and disposal

This operation is to be carried out by the customer.

Before demolishing the machine, you are advised to carefully check its physical condition and ascertain whether there are any parts of the structure that may be susceptible to structural collapse or breakage during demolition.

The customer should operate in compliance with the environment protection laws in force in his/her country.



CAUTION

The machine demolition operations should be carried out by skilled personnel only, equipped with suitable protective clothing (safety footwear and gloves) and auxiliary tools and equipment. All the disassembly operations for demolition should be carried out with the machine stopped and detached from the tractor.

Before demolishing the machine, you are advised to render harmless all the parts that may be a source of danger and therefore:

- scrap the structure using specialized firms,
- remove any electrical apparatus according to the laws in force,
- collect oils and greases separately, to be disposed of through specialized firms, in accordance with the regulations of the country in which the machine was used.

When the machine is demolished the identification label must be destroyed together with this manual.

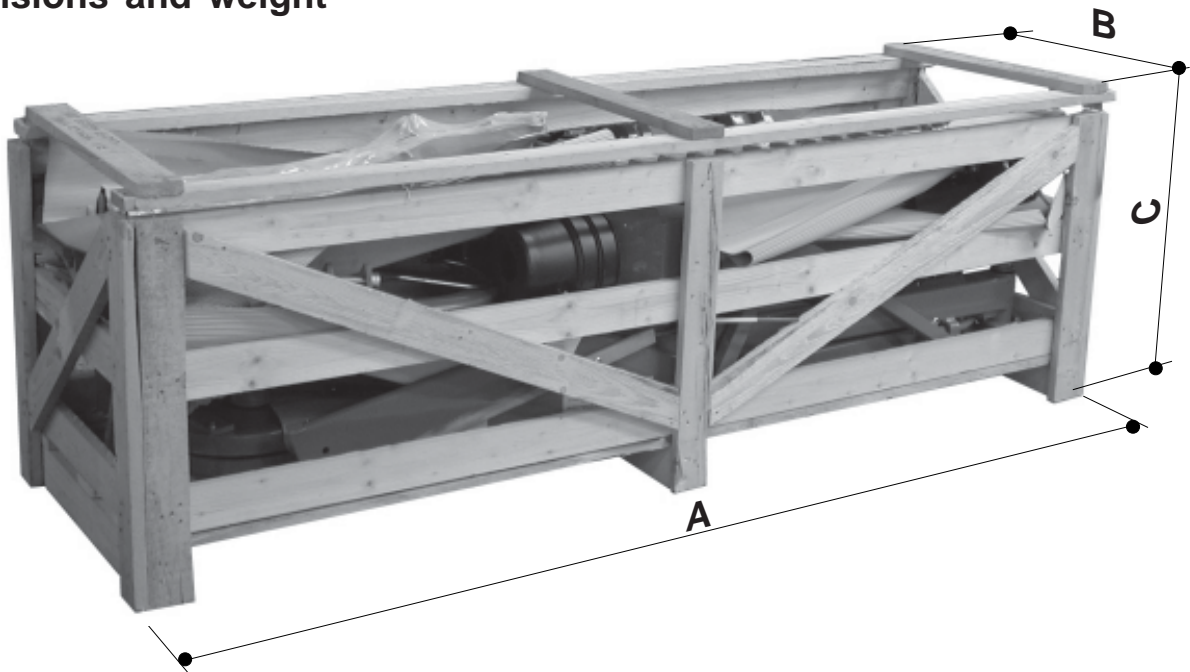
ASSEMBLY


Foreword

This chapter describes the phases involved in assembling a crated mower. When handling and assembling the unit, and subsequently during use and maintenance, always use suitable personal protection devices (A): always wear suitable clothing and the indicated protections. See the operating manual supplied with the unit for indication of the symbols used in this manual. When handling the unit, lift it by hooking up the special attachments and using a suitable hoist or crane rated for the weight of the unit. This operation is quite dangerous and must only be performed by prepared, responsible personnel. The machine weight is indicated on the identification label. The hook-up points are identified by the "hook" symbol (B). When moving the unit, make certain that all protections and safety devices are in place.



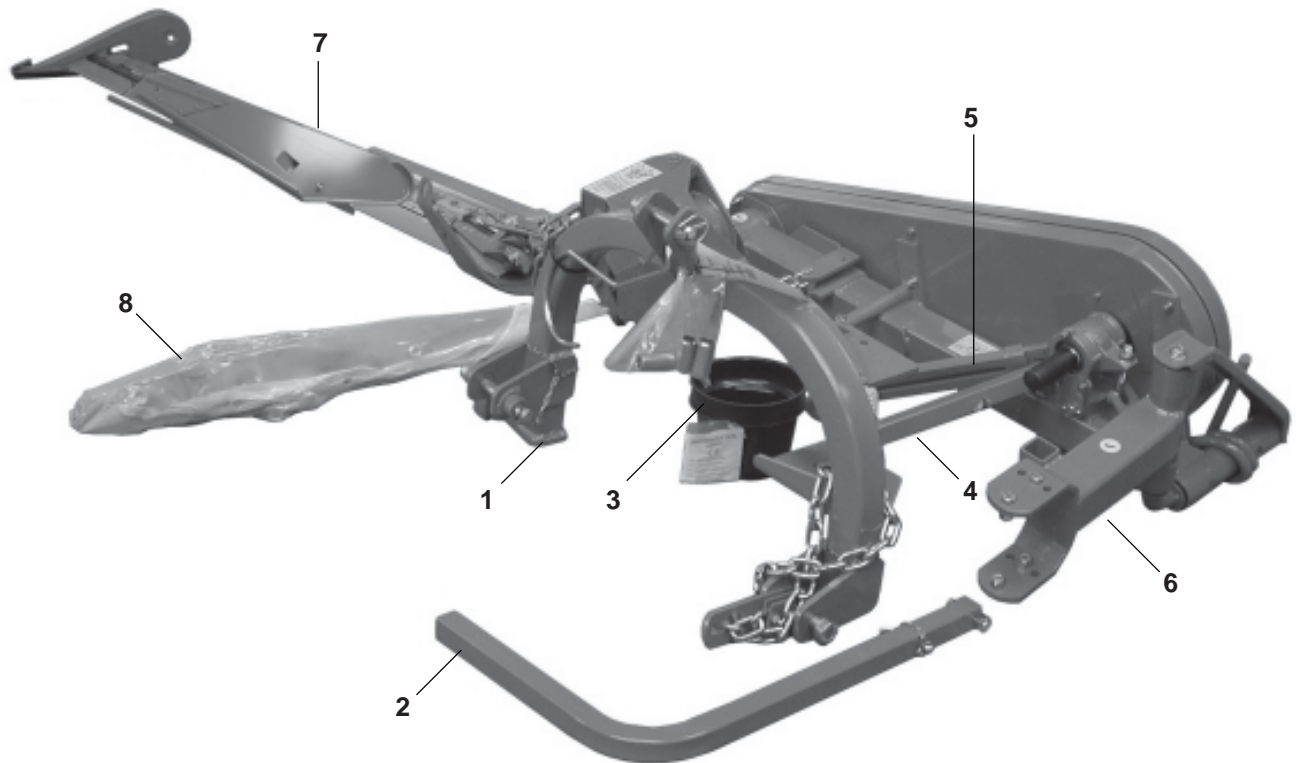
Dimensions and weight



TYPE TYPE	A (mm - inch)	B (mm - inch)	C (mm - inch)	 (kg - lb)
SB 1106 (X2)	2340 - 92	700 - 27.5	740 - 29	520 - 1144
SB 1107 (X2)	2340 - 92	700 - 27.5	740 - 29	560 - 1232

ASSEMBLY

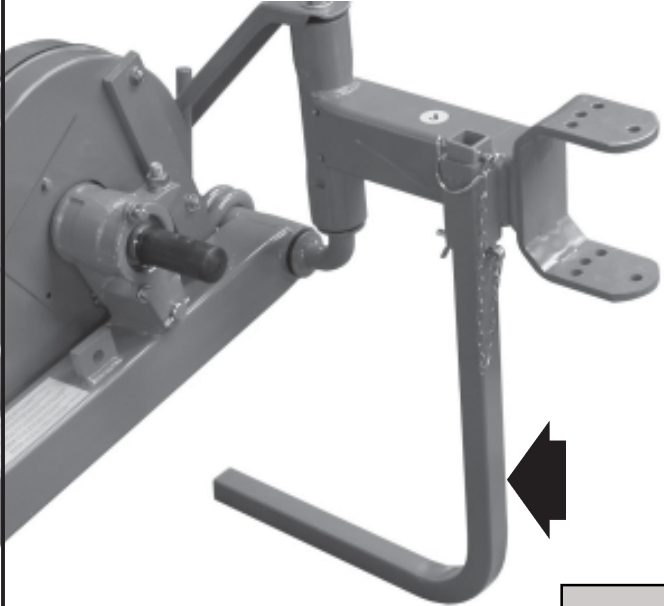
Sickle bar components



- 1) THIRD POINT LINKAGE FRAME.
- 2) SUPPORT.
- 3) POWER PTO PLATE.
- 4) FRONT PLATE.
- 5) TRIP TIE-ROD.
- 6) REAR FRAME.
- 7) BLADE HOLDER.
- 8) HYDRAULIC LIFTING SYSTEM

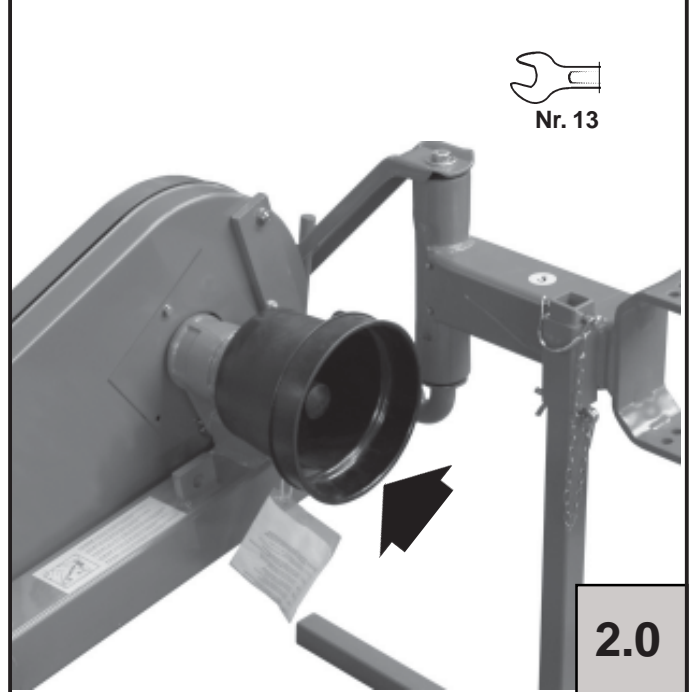
ASSEMBLY

Install the support on the third point linkage frame



1.0

Install the plate on the power take-off



Nr. 13

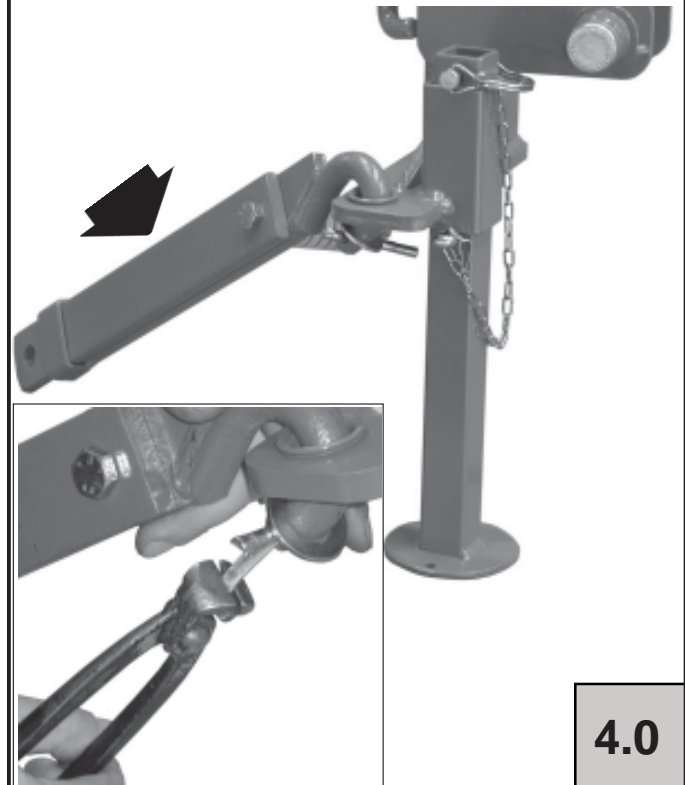
2.0

Install the support on the third point linkage frame



3.0

Install the trip tie-rod on the third point linkage frame



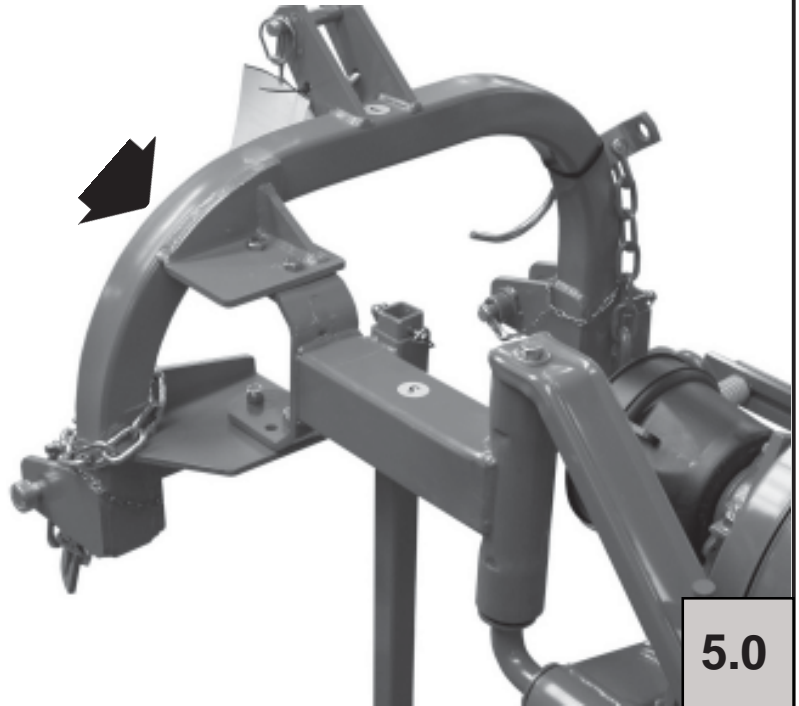
4.0

ASSEMBLY

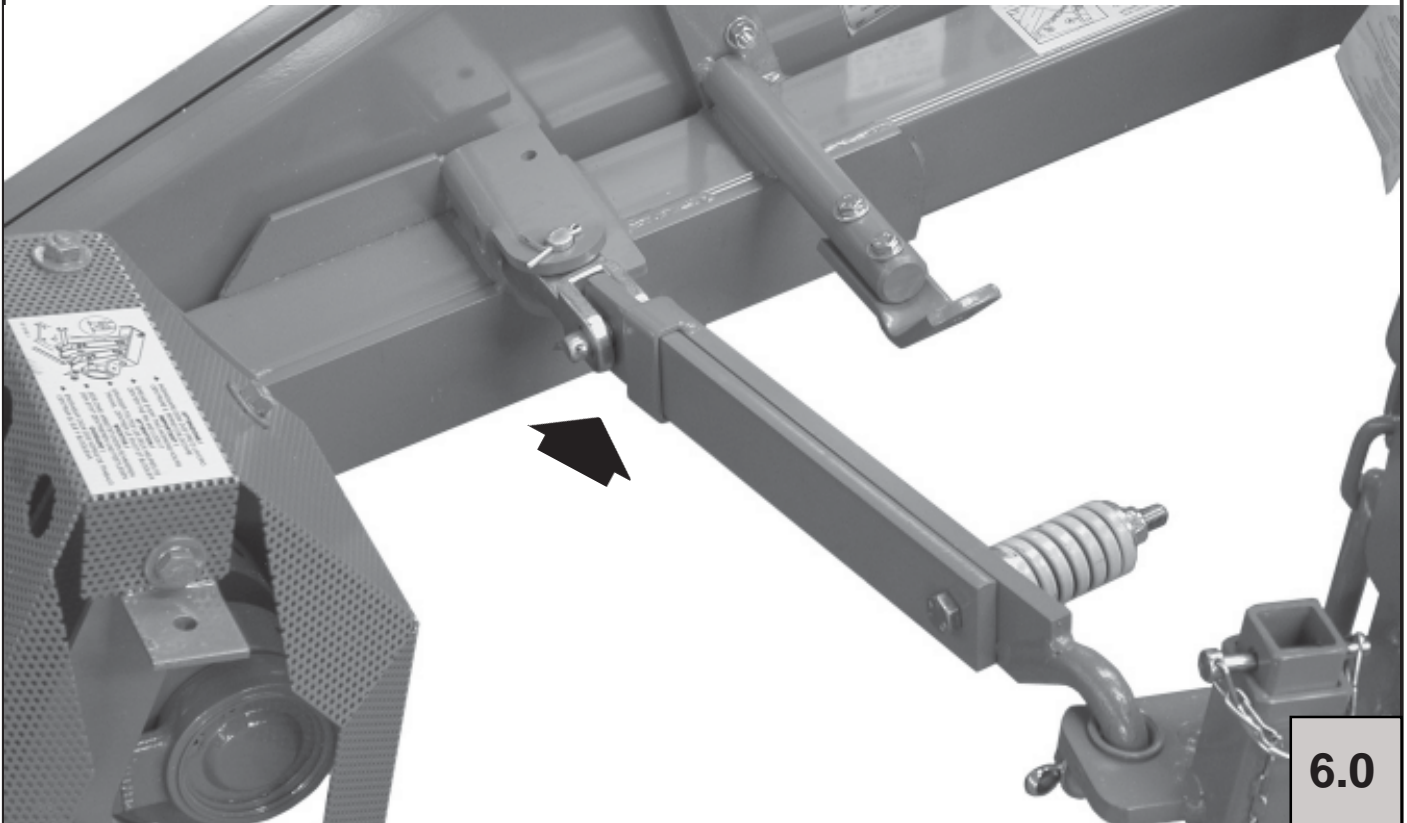
Secure the third point linkage frame to the rear frame



Two skilled people are required to perform this operation. (weight more than 55 lb - 25 kg)



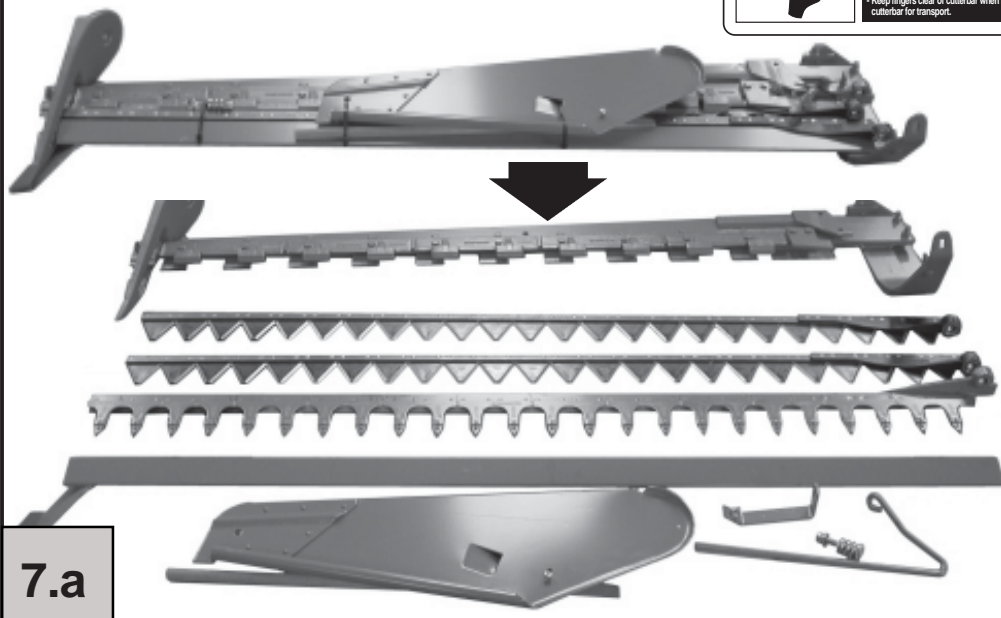
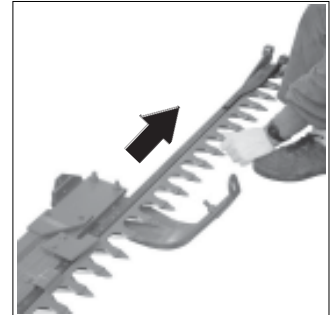
Connect the trip tie-rod to the rear frame



ASSEMBLY

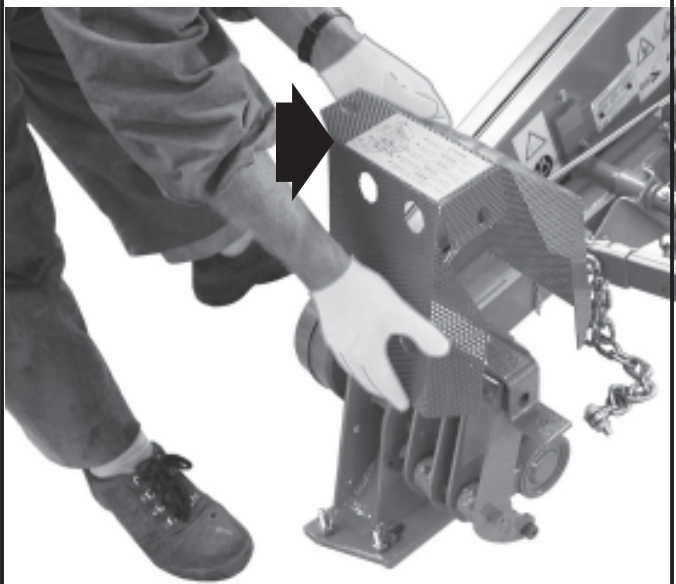
Blade holder

Remove the protection and the supplementary blade. Withdraw the blades from the blade holder



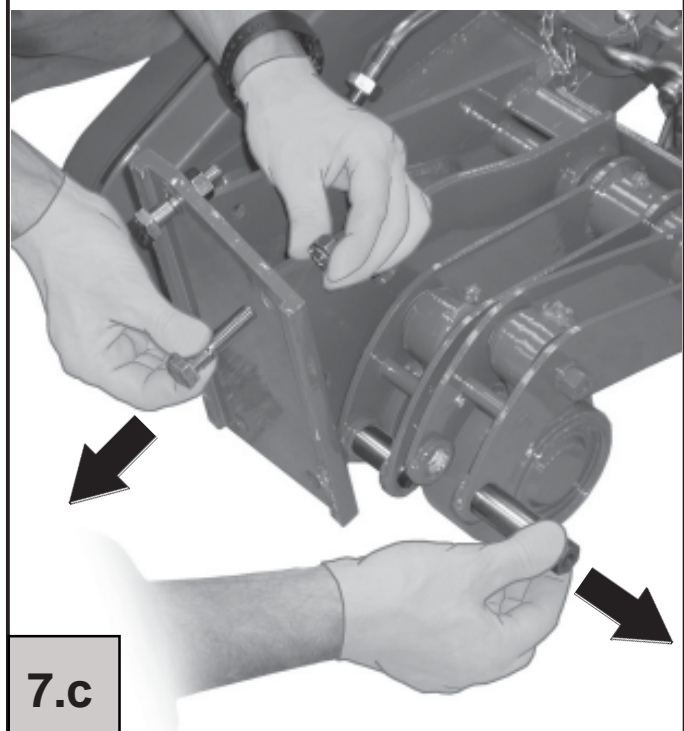
7.a

Remove the protection from the connecting rod system



7.b

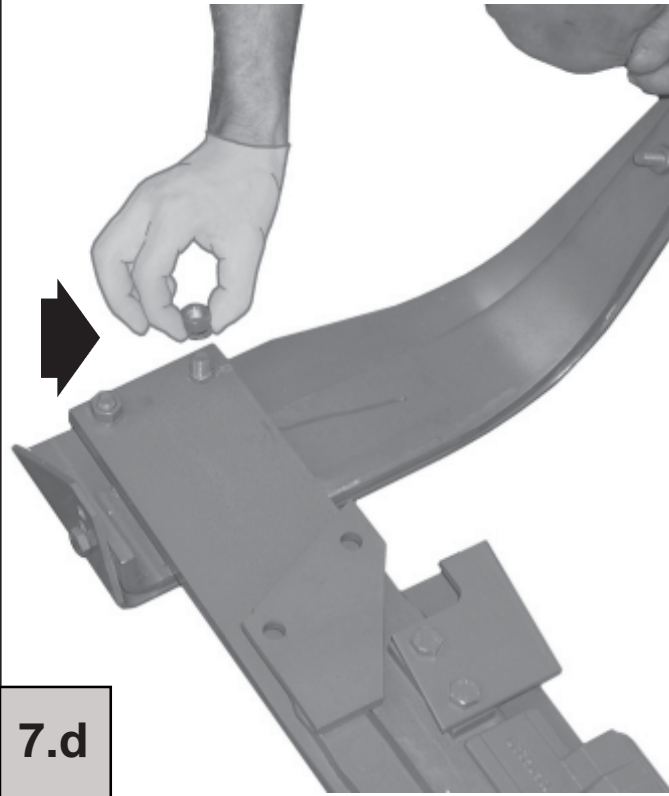
Remove the blade holder expansion pins and securing screws



7.c

ASSEMBLY

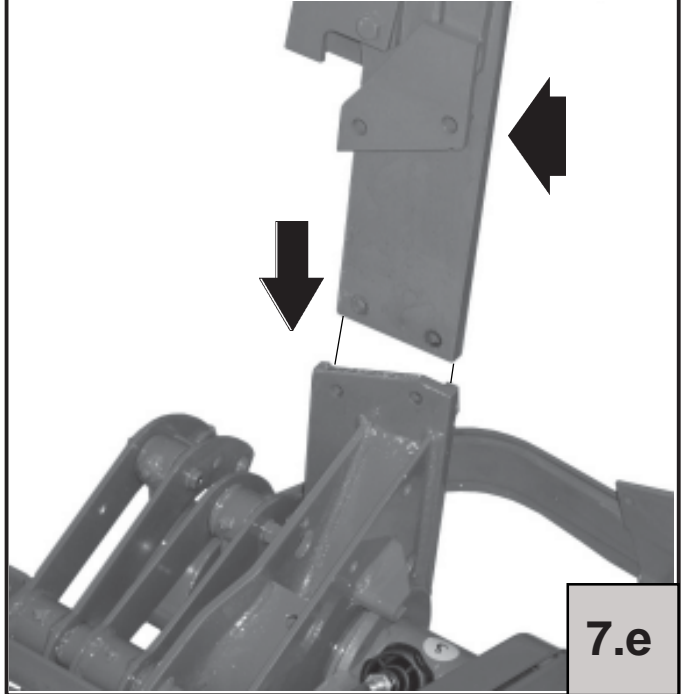
Remove the blade holder nuts and washers



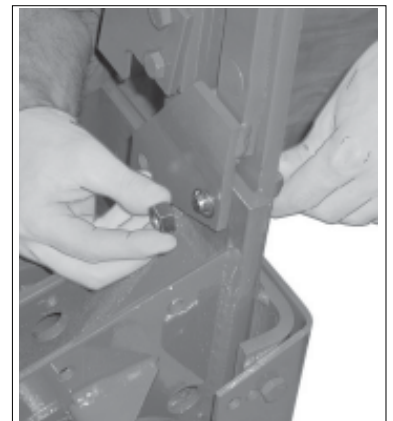
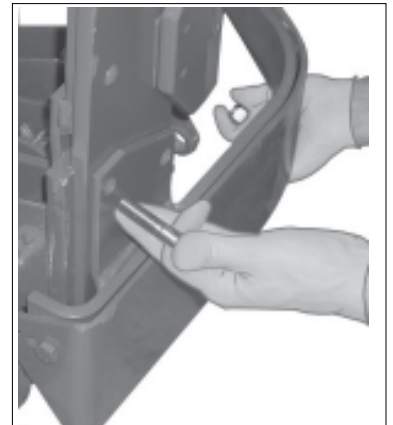
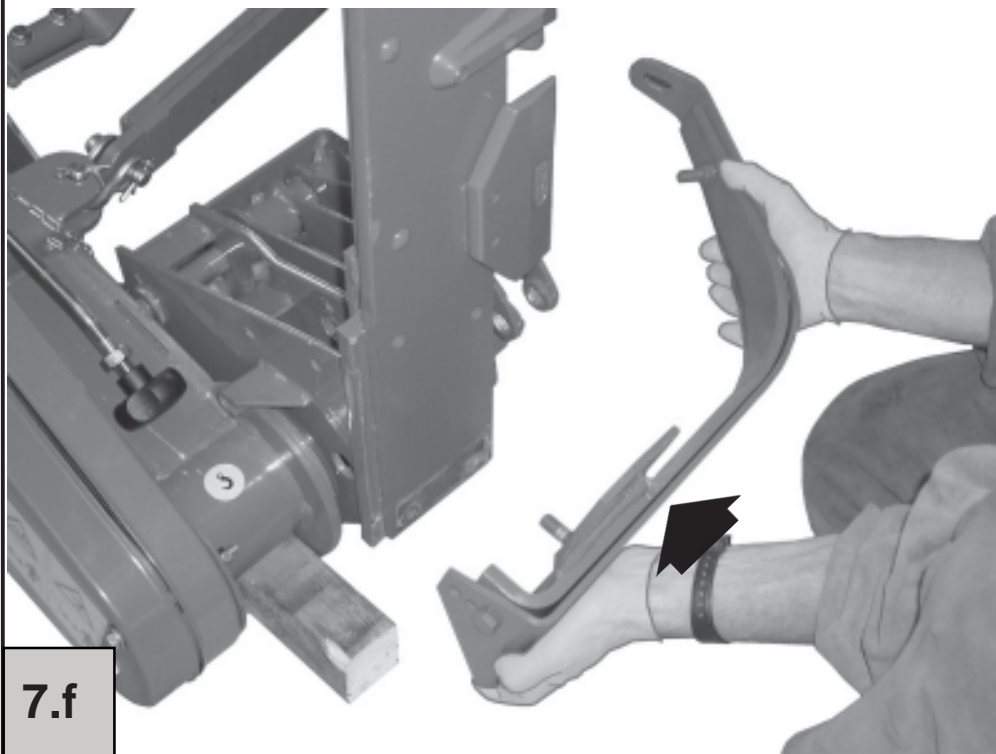
Insert the blade holder vertically into the hinge guide



Two skilled people are required to perform this operation. (weight more than 55 lb - 25 Kg)

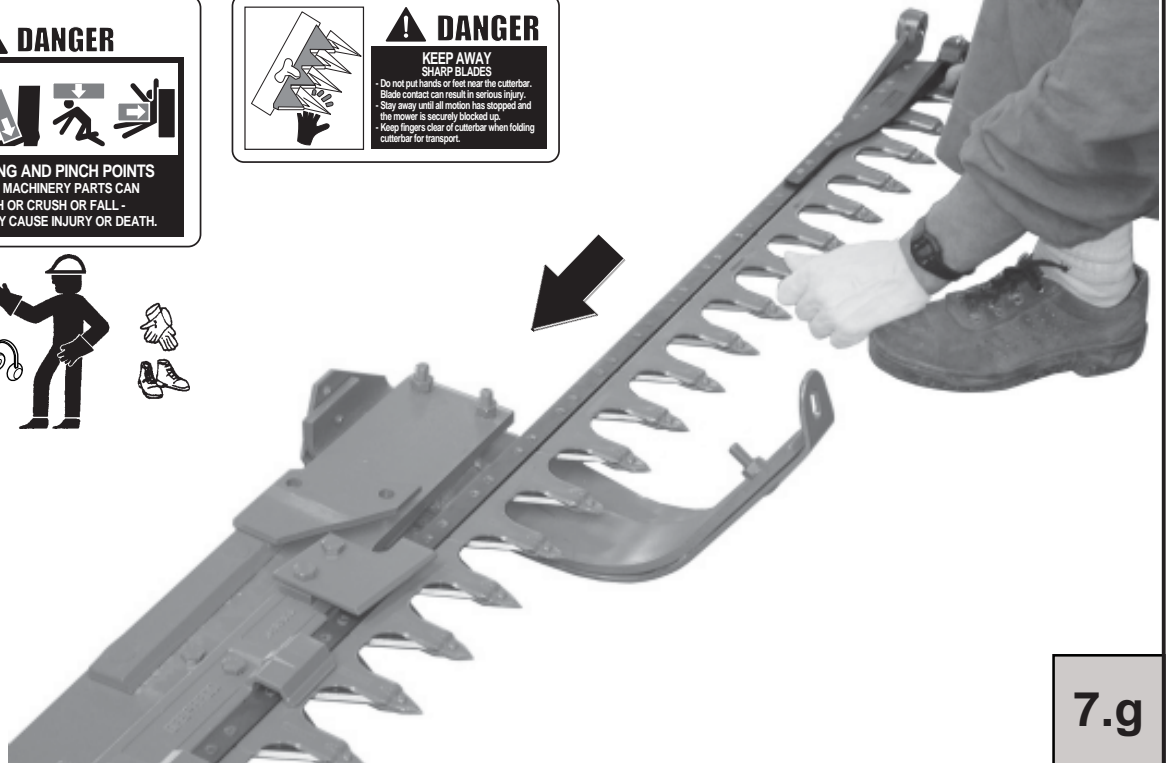


Insert the internal slide on the blade holder and secure it with the supplied screws, nuts and washers



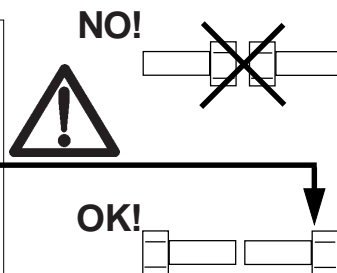
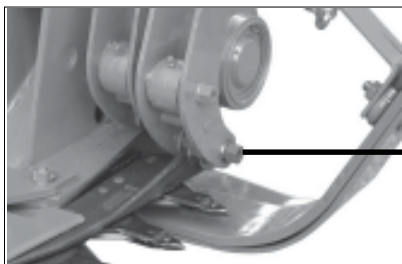
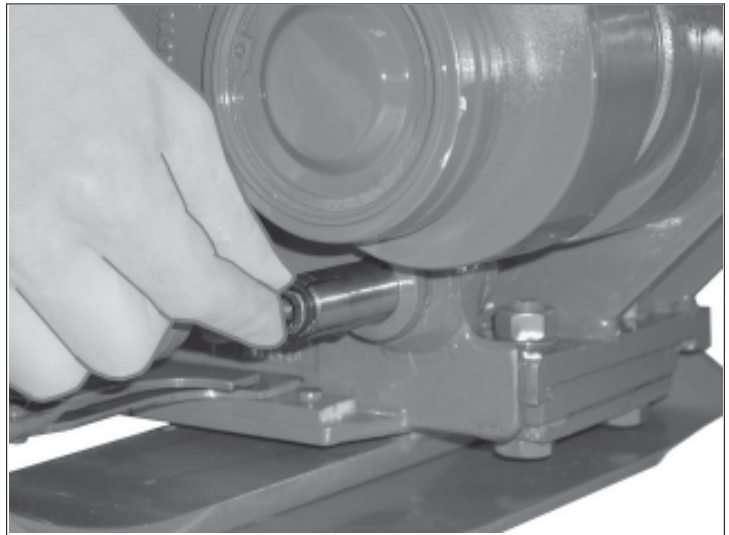
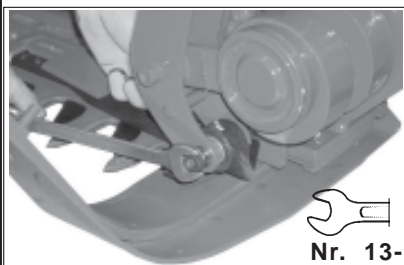
ASSEMBLY

Reinstall the blade-tooth and blade-coupling section on the blade holder



7.g

Center the blade head with the hinge forks and insert the well lubricated expansion pins



7.h

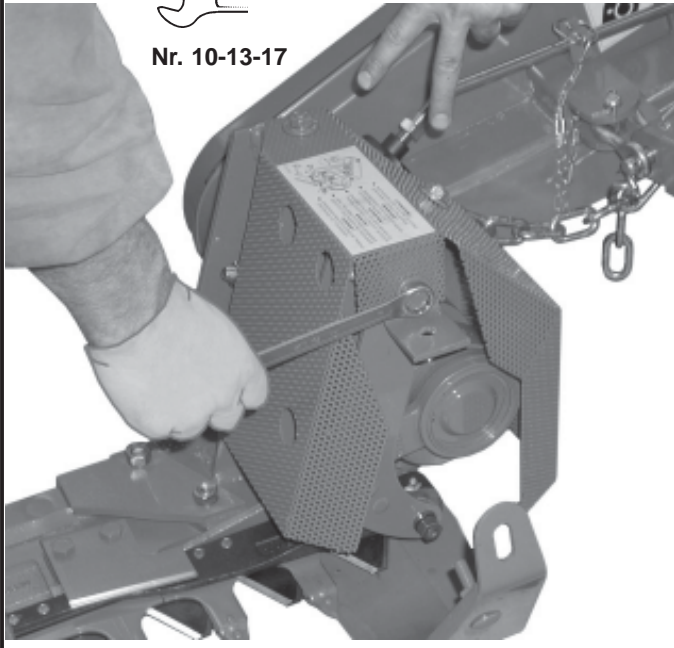
ASSEMBLY

7.i

Reinstall the protection on the connecting rod



Nr. 10-13-17

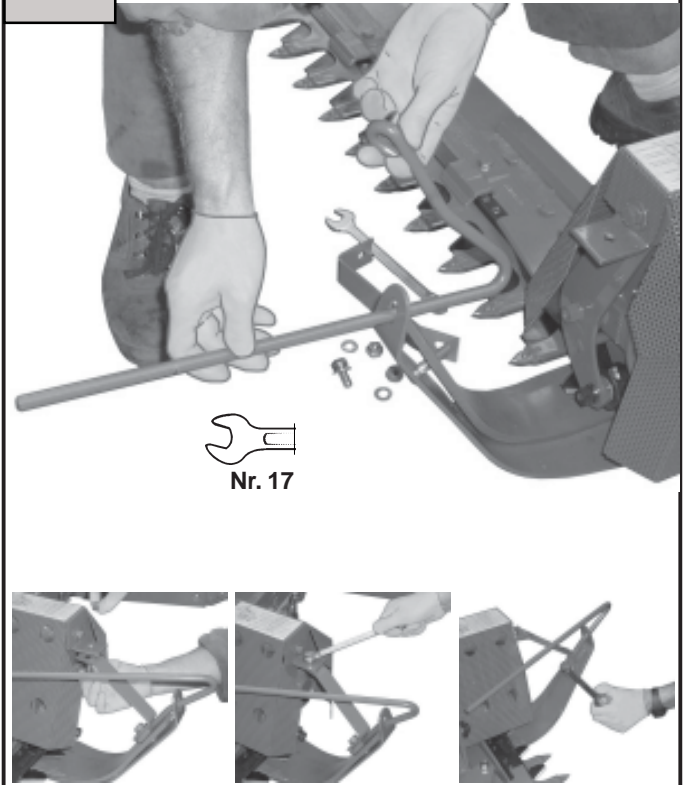


7.l

Install the grass guard bar



Nr. 17



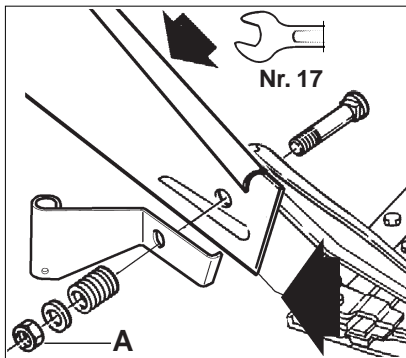
Install the moving guide and hazard bar



Do not tighten securing nut (A) on the moving guide completely: allow for proper movement of the guide.



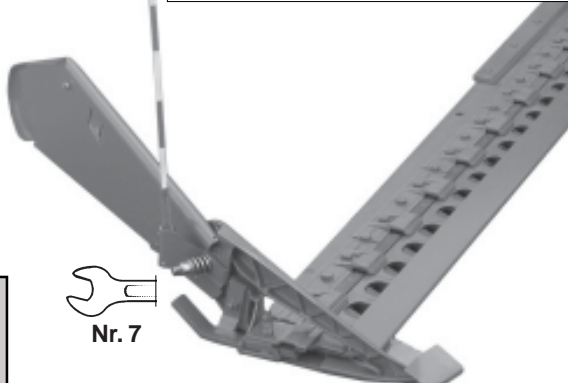
Nr. 17



7.m



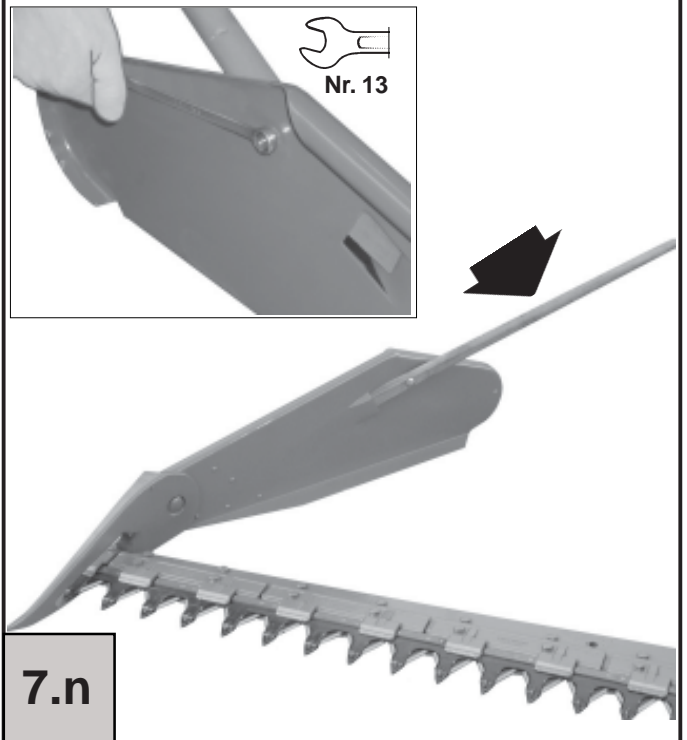
Nr. 7



Secure the stay on the moving guide



Nr. 13



7.n

TRANSPORT ON ROAD

Transport on road

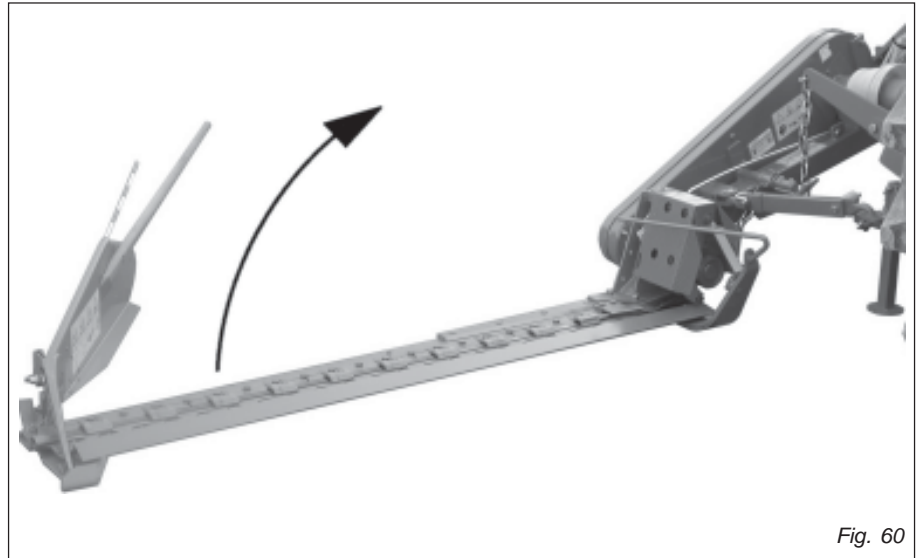


Fig. 60

For transport, adjust and fix the chains of the side lifting arms of the tractor; lift the mowing bar (Fig. 60); secure it with the hooking tie rod (A, Fig. 61); slide in the safety hook (B, Fig. 61); cover the cutting blades and the outer mowing bar support with the guards provided (Fig. 62); lift the implement; put the hydraulic lifting command lever in the locked position.

Transport on Road

- When driving on public roads, be sure to follow the highway code of the country involved.
- Any transport accessories must be provided with suitable signs and guards.
- It is very important to remember that road holding capacity as well as direction and braking capacity can be influenced, sometimes considerably, by equipment being either carried or towed.
- When negotiating curves, be aware of the variation in centrifugal force exerted in a position other than that of the center of gravity, with and without the equipment in tow. Also pay greater attention on sloping roads or ground.
- For displacements beyond the work area, the equipment must be placed in the transportation position.
- When the dimensions of carried or partially-carried equipment conceal the tractor's signalling and lighting devices, these must also be installed on the equipment itself, in conformity with regulations of the highway code of the country involved. When in operation make sure that the lighting system is in perfect working order.

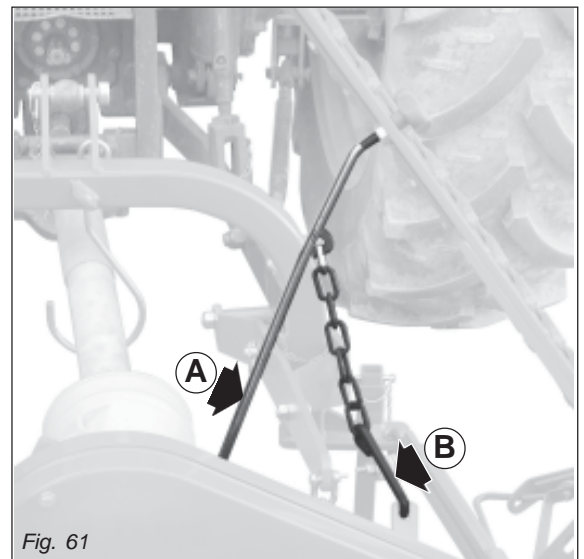


Fig. 61

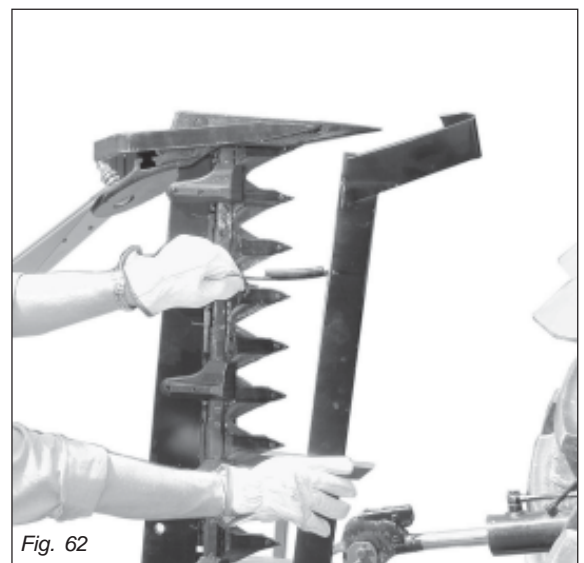


Fig. 62

SPARE PARTS

Spare parts

Orders must be transmitted through our area dealers and should always include the following indications:

- **Type, model and serial number of the machine.** These data are punched on the data plate with which every implement is equipped.
- **Code number of the required spare part.** This will be found in the spare parts catalogue.
- **Description of the part and required quantity.**
- **Means of dispatch.** If this item is not indicated, the Manufacturer, while dedicating particular care to this service, shall not be held responsible for delays in delivery caused by cases of force majeure. Transport expenses shall always be at the consignee's charge. The goods travel at the purchaser's risk and peril even when sold ex destination.

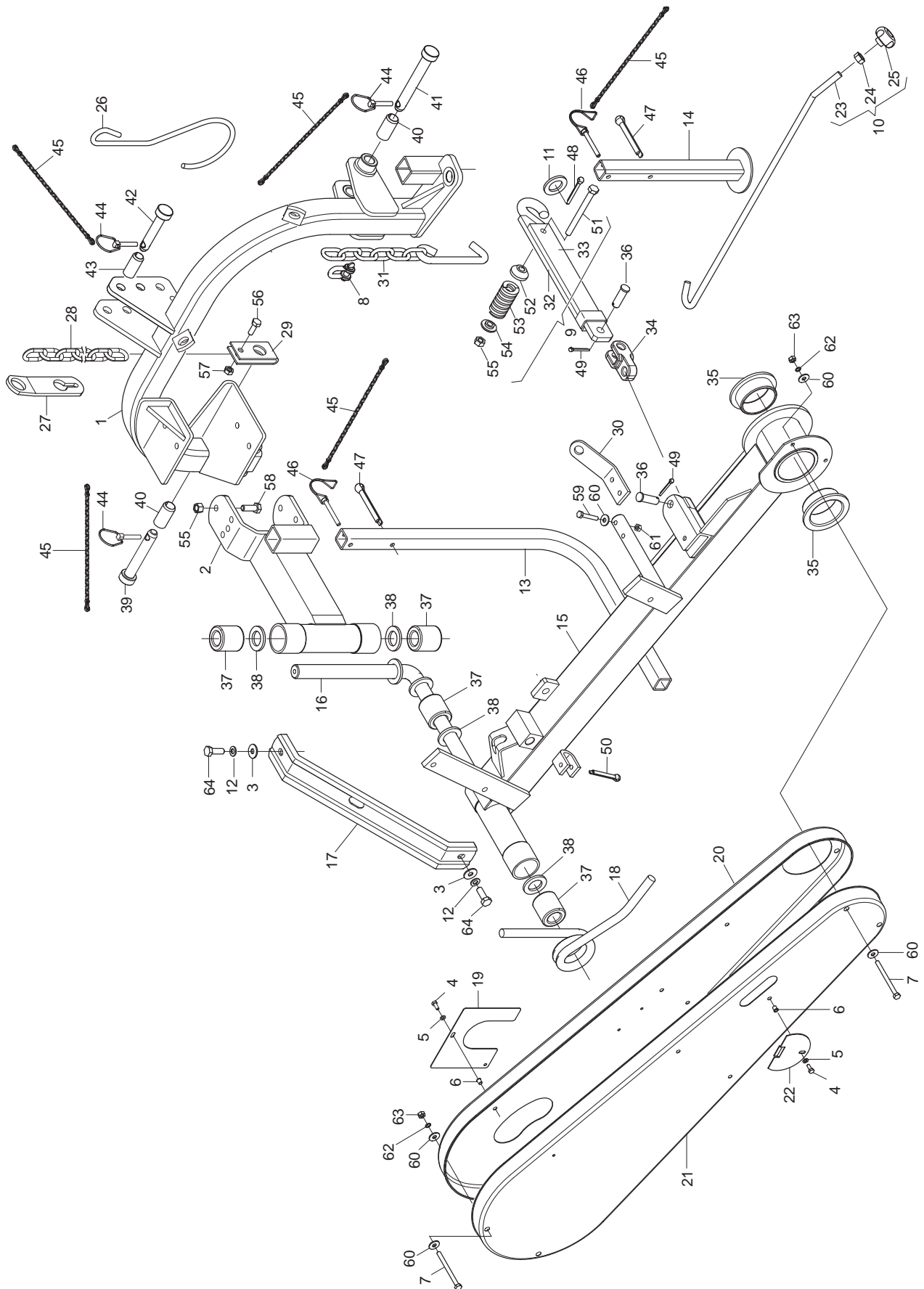
NOTE: The terms Right or Left indicated in the descriptions refer to the implement when viewed from the rear side.

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Cutting blade	Tav. 951/53	pag. 50
Hydraulic lifting system	Tav. 951/63	pag. 52

SPARE PARTS

TAV. GH951/13



SPARE PARTS

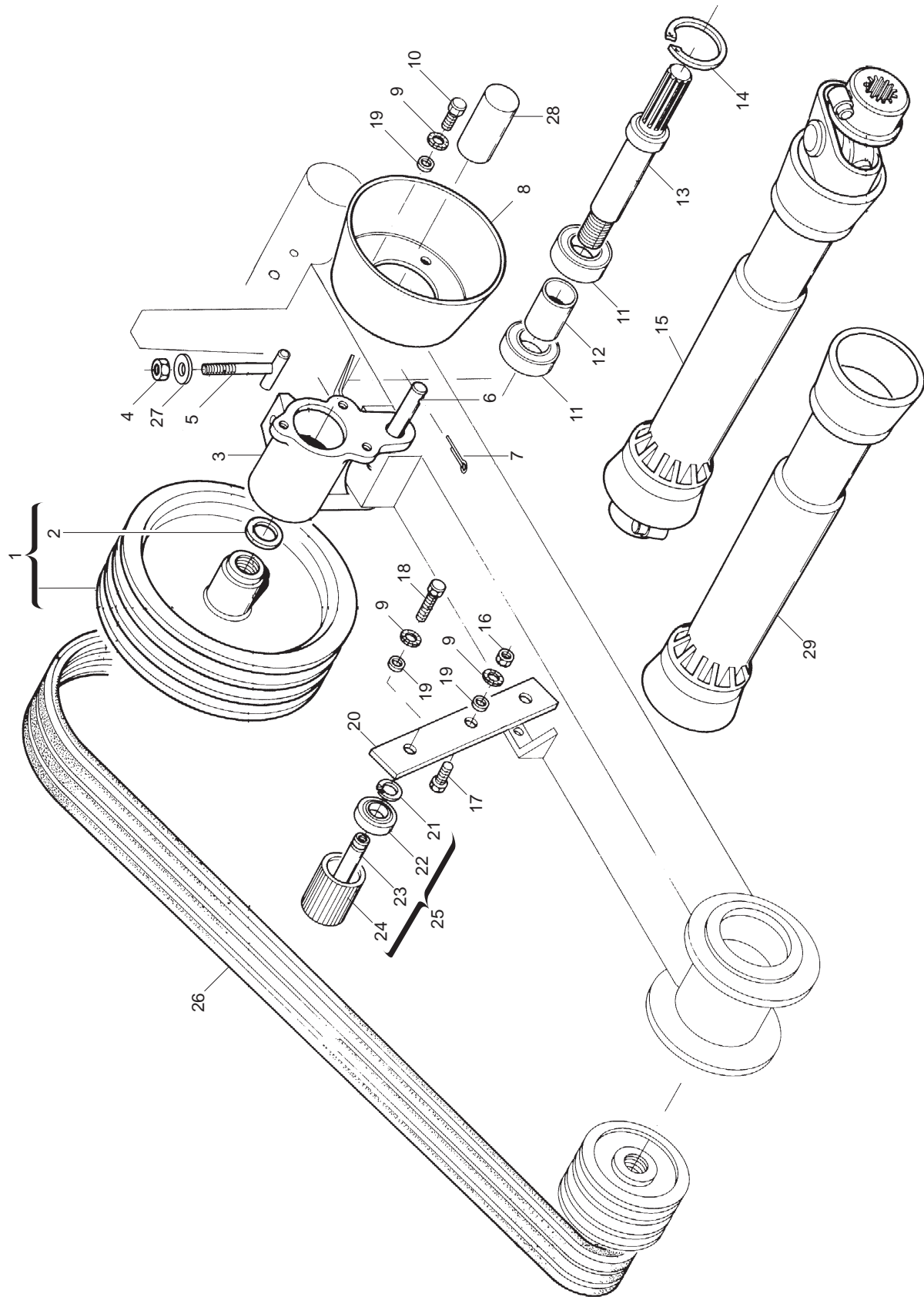
TAV. GH951/13

FRAME

Pos.	p/n	Description	Pos.	p/n	Description
1	GH12217591	FBR FRAME	38	GH20970067	WASHER 54X5X32
2	GH12217821	JOINT	39	GHF20100047	PIN
3	GH20970035	WASHER 32X4X13	40	GH21010042	BUSHING 1.-2. POINT
4	GHF01020403	BOLT M 6X16	41	GHF20100115	GASPARDO PIN 22X144 ZN
5	GHF01410037	PLANE WASHER D.6	42	GHF20100035	PIN
6	GHF02250680	THREADED INSERT M6X13 ZN	43	GH12217660	THIRD POINT BUSH
7	GHF01020092	BOLT 8 X110 5737 8.G GALVANIZ.	44	GHF02200507	SNAP PIN D 9 B/83
8	GHF02250667	CLEVIS- 3/8- GALVANISED- ART.	45	GH13812311	CHAIN WITH SPRING CATCH
9	GH12217691	TRIP TIE-ROD	46	GHF02200562	SPLIT PIN D.8X70 ZB
10	GH21120211	CUTTER BAR TIE ROD FB/S	47	GHF02200272	SPLIT PIN 10 X60 1336 GALVAN.
11	GHF01410124	PLANE WASHER D20 UNI 6592 ZN	48	GHF02200259	SPLIT PIN 8 X45 1336
12	GHF01430071	WASHER D12 DIN 6798 D.INT.ZN	49	GHF02200195	SPLIT PIN 4 X25 1336 GALVAN.
13	GH12217810	PROP TUBE	50	GHF02200260	SPLIT PIN 8 X60 1336 GALVAN.
14	GH12217650	FRONT PROP	51	GHF01020176	BOLT M 12X130
15	GH12217800	HINGE BEARING ARM	52	GH21120301	CONE DISCONNECT FB940
16	GH21030010	ARM ARTICULATION	53	GHF02400013	SPRING G 38X75 SPECIAL SPRINGS
17	GH21120212	JOINT ELEMENT FB/S	54	GH22310047	REAR ARM BUSHING DP
18	GH21120319	HINGE ARM SPRING FB940	55	GHF01230058	SELF LOCKING NUT M12X1,25
19	GH12236470	DRIVENAXLE PULLY PROTECTION	56	GHF01020476	BOLT M 10X30
20	GH21120215	INNERPROTECTION CASE FB/S	57	GHF01220033	NUT M10X 1,5 D980 8 ZB
21	GH21120216	OUTERPROTECTION CASE FB/S	58	GHF01020512	SCREW M 12X35
22	GH21120217	INSPECTION OPENING COVER-GUARD	59	GHF01020072	BOLT M 8X1,25X50 U5737 8.8 ZG
23	GH12216400	TIE ROD	60	GH20970140	WASHER 20X2X8,5
24	GHF01200306	NUT M14X2	61	GHF01230034	SELF LOCKING NUT M8X1,25
25	GHF06220011	6-LOBE HANDWHEEL M14	62	GHF01430059	WASHER D8 DIN 6798 D.INT.ZN
26	GHF20120400	SHAFT HOOK	63	GHF01200244	NUT M8
27	GH21030007	TRACTOR COUPLING PLATE	64	GHF01020510	BOLT M 12X30
28	GH21030035	CHAIN L.900			
29	GH21030034	FRAME COUPLING			
30	GH21120308	SAFETY HOOK COUPLING			
31	GH12217710	SAFETY CHAIN HOOK			
32	GH12217680	SLIDING ROD			
33	GH12217761	SNAP TIE ROD GUIDE			
34	GH12217950	FORK FOR TRIP TIE-ROD			
35	GH66248064	HINGE ARM BUSHING FB.			
36	GHF20100504	U BOLT PIN D.16X45			
37	GH21030027	RUBBER BLOCKS			

SPARE PARTS

TAV. GH951/21



SPARE PARTS

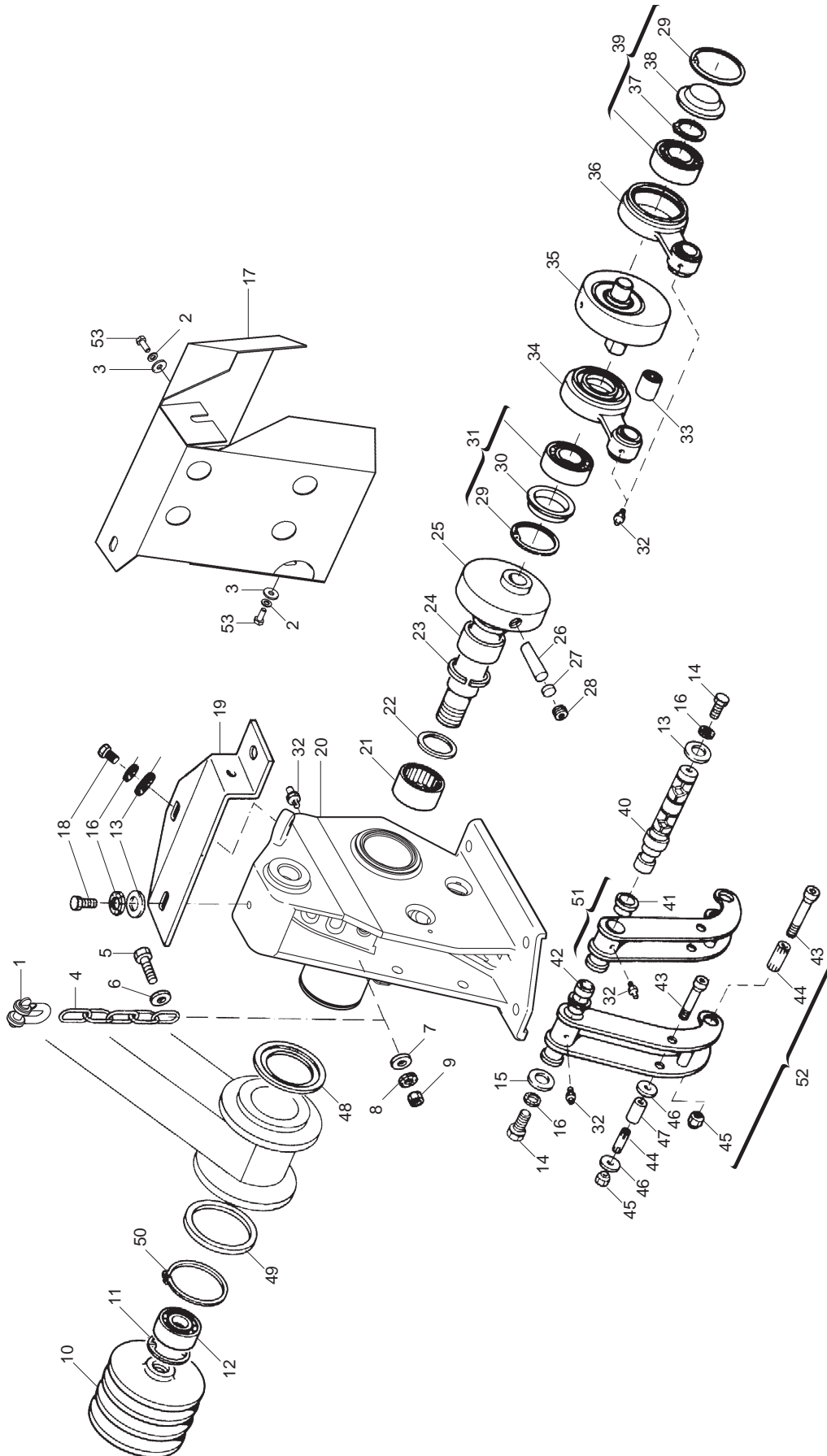
TAV. GH951/21

TRANSMISSION

Pos.	p/n	Description	Pos.	p/n	Description
1	GH21120117	3 GROOVE DRIVING PULLEY			
2	GH20970129	WASHER 48X3X30-5			
3	GH21030015	PTO SUPPORT			
4	GHF01200306	NUT 14 UNI 5588 6.8 GALVANIZED			
5	GH21120318	BELT REGISTER ASSY.			
6	GH21120013	INTERM. TRANSM. SUPP. PIN			
7	GHF02200227	SPLIT PIN 5 X30 1336 GALVAN.			
8	GH12217500	POWER TAKE-OFF PROTECTION HOUS			
9	GHF01430059	WASHER D8 DIN 6798 D.INT.ZN			
10	GHF01020432	BOLT 8X16 5739 8.G GALVANIZED			
11	GHF04010174	BEARING 6206 2RS			
12	GH21030020	SPACER			
13	GH21120152	POWER TAKE-OFF			
14	GHF02050392	SEEGER RING E. 62X 2 U7437 C70			
15	GHF08011755	UNIVERSAL JOINT B3 1000 AM			
16	GHF01200244	NUT 8 UNI 5588 6.8 GALVANIZED			
17	GHF01060043	BOLT 8 X35 5732 4.6 GALVANIZED			
18	GHF01020440	BOLT 8X25 5739 8.G GALVANIZED			
19	GH20970140	WASHER 20X2X8,5			
20	GH21120226	BELT TIGHTENER ROLLERS SUPPORT			
21	GHF02050056	SEEGER RING E. 17X 1 U7435 C70			
22	GHF04010161	BEARING 6203 2RS			
23	GH21120119	3 GROOVE P.TIGHTEN. PIN			
24	GH66248107	BELT TIGHTENER L.70			
25	GH21120121	TIGHTENER ROLLER 3G. CP			
26	GHF06010240	BELTS- B 93			
27	GHF01410088	WASHER D14 UNI 6592 GALVANIZED			
28	GHF05150471	POWER TAKE-OFF GUARD			
29	GHF08011124	SAFETY GUARD AM			

SPARE PARTS

TAV. GH951/32



SPARE PARTS

TAV. GH951/32

HINGE

Pos.	p/n	Description	Pos.	p/n	Description
1	GHF02250667	CLEVIS- 3/8- GALVANISED-ART.	37	GHF02050112	SEEGER RING 30X 1,5 U7435 C70
2	GHF01430047	WASHER D6 DIN 6798 D.INT.GALV.	38	GH21120028	PROTECTION PLUG
3	GHF01420036	FLAT WASHER 6-6X 18X2 6593 ZN	39	GH21120154	KIT- EXT. CONN. ROD BEARING FB
4	GH12210460	CHAIN D.8 L. 194	40	GH21120224	HINGE BLADE SHAFT - ASSY.
5	GHF01020514	BOLT M12X1,75X40	41	GH21120067	BRONZE BUSHING
6	GH20970007	WASHER 35X8X13	42	GH21120225	BLADES SPACER FB/S
7	GH20970035	WASHER 32X4X13	43	GH21120071	PIN FASTENING BOLT
8	GHF01430071	WASHER D12 DIN 6798 D.INT.ZN	44	GH21120069	EXPANSION PIN FB
9	GHF01200293	NUT M12	45	GH21120068	CONICAL NUT
10	GH21120118	3-GROOVE DRIVEN PULLEY	46	GH20970519	BOTTOMED WASHER 39X20-25X5X1
11	GHF02050392	SEEGER RING E. 62X 2 U7437 C70	47	GH21120137	INTERNAL RING FB
12	GHF04010171	BEARING 6206 Z	48	GH21120018	ANTERIOR WASHER
13	GHF01420060	WASHER 10,5X30	49	GH20970023	WASHER 102X2X75-2
14	GHF01020479	BOLT M 10X35	50	GHF02050642	STOP RING 75 UNI 7435-75
15	GH18701140	WASHER 11 X 35 X 5	51	GH21120070	BLADE W/ BUSHINGS
16	GHF01430023	WASHER D10 DIN 6798 D.INT.ZN	52	GH21120156	KIT- BLADE FASTENING PIN FB
17	GH12236490	CONNECTING-ROD SYSTEM GUARD	53	GHF01020403	BOLT M6X16
18	GHF01020472	BOLT 10X25 5739 8.G GALVANIZED			
19	GH21120221	BLADE SHAFT SUPPORT FB/S			
20	GH12236500	HIMGE			
21	GHF04010363	BEARING DHK 5025			
22	GHF03011069	SEALING RING DH 50X58X4			
23	GHF04010409	SHOULDER RING WR 45			
24	GHF04100131	INTERNAL IR. RING 45X50X35			
25	GH21120223	HINGE SPINDLE FB/S			
26	GH21120126	CONIC PIN FB			
27	GH21120136	PIN SPACER FB			
28	GH21120127	PIN GRUB-SCREW FB			
29	GHF02050403	SEEGER RING E. 72X2,5 U7437 C70			
30	GH66248111	DUST COVER HINGE FB			
31	GH21120153	KIT- INT. CONN. ROD BEARING FB			
32	GHF01100011	SPHERE NIPPLE M6X1/A			
33	GHF04010362	BEARING DHK 2538			
34	GH21120128	PIN HINGE CONNECTING ROD FB			
35	GH21170020	HINGE ECCENTRIC			
36	GH21170021	OUTER CONNECTING ROD			

SPARE PARTS

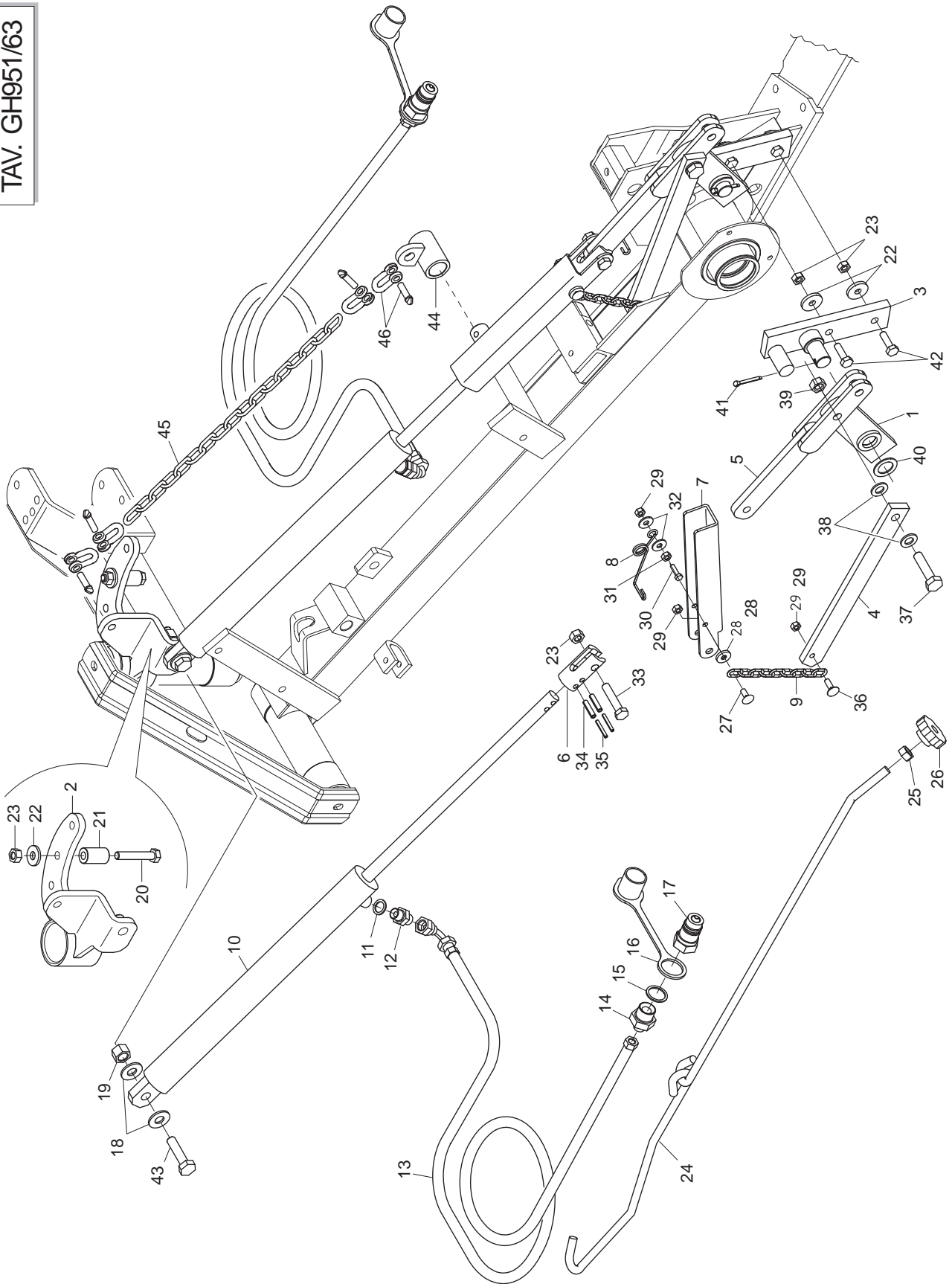
TAV. GH951/53

CUTTING BLADE (REPLACEABLE TOOTH)

Pos.	p/n	Description	Pos.	p/n	Description
1	GH21120321	INNER SLIDE SPACER	42	GHF01230058	SELF LOCKING NUT M12X1,25
2	GHF01200270	NUT M10	43	GHF01060045	BOLT 8X40 5732 4.6 GALVANIZED
3	GHF01430023	WASHER D10 DIN 6798 D.INT.ZN	44	GHF01230034	SELF LOCKING NUT M8X1,25
4	GHF01410064	WASHER 10,5X21	45	GH20800061	SWATHBOARD ROD ASSY.
5	GHF01020472	BOLT 10X25 5739 8.G GALVANIZED	46	GHF01020011	SCREW 4X35 5737 8.G ZN
6	GHF01060077	BOLT 10X45 5732 4.8 GALVANIZED	47	GH13011660	INDICATIN BAR
7	GH21120322	HINGE PROTECTION	48	GH13013190	COMPL. BLADE HEAD SECTIONS
8	GHF01020470	BOLT M 10X20	49	GH21120048	BUSHING- BLADE HEAD 28X20X24
9	GH21120323	INTERNAL RUNNER	50	GHF01100011	SPHERE NIPPLE M6X1/A
10	GH21120324	RUNNER WIDE INT. SLIDE	51	GHF02250520	PACKBLAD.MOUNT.TSC 6 X19-8 KG
11	GHF01020154	BOL. M12X1,75X 45 5737 8.8 ZB	52	GHF02250519	PACKBLAD.MOUNT.TSC 6 X13-8
12	GHF01430071	WASHER D12 DIN 6798 D.INT.ZN	53	GH21120243	CUT SECTION
13	GHF01200293	NUT M12	54	GH13013550	LOWER DOUBLE POINT SECTION
14	GHF01220033	NUT M10X 1,5 D980 8 ZB	55	GH13013540	UPPER DOUBLE POINT SECTION
15	GHF01020114	BOLT 10X50 5737 8.G GALVANIZED	56	GH13013230	COMPL. BLADE HEAD w/ REMV. TEE
16	GH21120312	UPPER INNER BLADE GUIDE	57	GH13013680	COMPL. DOUBLE-TIP SECTION BLADE R.T 7
17	GH13011600	INT. BLADE GUIDE SUPPORT	58	GH13013830	SPECIAL REMOVABLE TEETH
18	GH21120044	SHIMS- LOWER INT. GUIDE	59	GHF01010222	SCREW 8X1X12 5740 10.9
19	GH21120045	INNER LOWER BLADE GUIDE	60	GHF01460138	CONTACT ELAST. WASHER D8
20	GH13013151	LOWER DOUBLE BLADE GUIDE	61	GH65337002	TRACTION SPRING GUARD
21	GH19203311	UPPER BLADE INT. GUIDE REMOVAB	62	GHF01030501	SCREW TSQST 10X45 8.8
22	GH19203301	UPPER BLADE GUIDE REMOVABLE TI	63	GH13013120	COMPLETE SPACER
23	GH13011501	UPPER BLADE GUIDE EXT. REMOVAB	64	GH21120133	SWATHBOARD BOLT ASSY.
24	GH13011510	SHIM FOR UPPER BLADE GUIDE	65	GH21120134	SWATHBOARD - ASSY.
25	GH13011520	UPPER EXT. BLADE GUIDE SHIM	66	GH20800061	SWATHBOARD ROD ASSY.
26	GHF01020480	SCREW 10X35 5739 8.G	67	GH21120054	TEETH GUARD 6'
27	GHF01410064	WASHER 10,5X21	68	GH21120112	TEETH GUARD 7'
28	GH21120040	SHIMS MM.1 UPPER EXT. GUIDE	69	GH13013431	REMV. TOOTH-HOLDING 6'
29	GH21120039	UPPER OUT. BLADE GUIDE	70	GH13013471	REMV. TOOTH-HOLDING 7'
30	GH13013511	LOWER SINGLE BLADE GUIDE	71	GH13013340	BLADE HEAD-TOOTH-HOLDING BAR 6'
31	GH19200903	OUTER BAR SUPPORT	72	GH13013350	BLADE HEAD-TOOTH-HOLDING BAR 7'
32	GH21120038	EXT. RUNNER SLIDE	73	GH13013580	COMPL. SECTION-HOLDING BAR 6'
33	GHF01030508	BOLT T.Q. 11X30	74	GH13013590	COMPL. SECTION-HOLDING BAR 7'
34	GHF01200281	NUT 11 UNI 5588 6.8	75	GH13013300	REMV. TOOTH-HOLDING BAR 6'
35	GH13011640	INDICATION BAR	76	GH13013310	REMV. TOOTH-HOLDING BAR 7'
36	GH13011650	INDICATION BAR SUPPORT	77	GH21120246	ROD SECTIONS MT. 6'
37	GHF01230016	NORM.SELF-LOCKING NUT 4 GALVAN	78	GH21120247	ROD SECTIONS MT. 7'
38	GH21120134	SWATHBOARD - ASSY.	79	GH13013771	COMPL. SPECIAL REMV.-TOOTHED BLADE 6'
39	GHF01060105	BOLT 12X80 5732 4.6 GALVANIZED	80	GH13013781	COMPL. SPECIAL REMV.-TOOTHED BLADE 7'
40	GH65338001	ZN SWATHBOARD COMP. SPRING.	81	GH13013670	COMPL. DOUBLE-TIP SECTION BLADE R.T 6'
41	GHF01410076	PLANE WASHER D12 UNI 6592 ZN			

SPARE PARTS

TAV. GH951/63



SPARE PARTS

TAV. GH951/63

HYDRAULIC LIFTING SYSTEM

Pos.	p/n	Description	Pos.	p/n	Description
1	GH12217880	LIFTING ROD	38	GHF01410088	WAS.M14 15X 28X2,5 U6592 ZB
2	GH12218070	CYLINDER LINKAGE DEVICE	39	GHF01230072	SELF LOCKING NUT M14X1,5
3	GH12217860	LIFTING PLATE	40	GH20970070	WASHER 40X2X26
4	GH12217910	LIFTING ARTICULATION BAR	41	GHF02200228	SPLIT PIN 5 X35 1336 GALVAN.
5	GH12217900	FORK LEVER CONNECTION	42	GHF01020152	BOLT M12X1,75X 40 5737 8.8 ZB
6	GH12216820	CYLINDER COUPLING	43	GHF01020260	BOLT M16X2X70 U5737 8.8 ZG
7	GH12217920	LIFTING BAR EDGE	44	GH12218030	TIE-ROD BUSH
8	GH18903780	UPPER HOOK TORSION SPRING	45	GH12210460	CHAIN D.8 L.584
9	GH12217930	CHAIN D.5 L.194	46	GHF02250667	CLEVIS- 3/8- GALVANISED- ART.
10	GH14911000	CYLINDER D.40-D.20-380			
11	GHF03151238	1/4 COPPER WASHER			
12	GH16011690	UPRIGHT 1/4" NIPPLE WITH GRUB			
13	GH23440517	PIPE 1/4R2 C-F 1/4 L2000 HL/ID			
14	GHF03150211	NIPLE 1/4-1/2			
15	GHF03151237	1/2 COPPER WASHER			
16	GHF05150325	COVER 1/2			
17	GHF03150935	QUICK CONNECT MALE CONE 1/2 CO			
18	GH20970111	WASHER 29,8X2X16,5			
19	GHF01230084	SELF LOCKING NUT M16X1,5			
20	GHF01020166	BOLT 12X80 5737 8.G GALVANIZED			
21	GH18802150	BOSHING 12,3X25X42			
22	GH20970085	WASHER 40X4X13			
23	GHF01230058	SELF LOCKING NUT M12X1,25			
24	GH12217450	BLADE TIE ROD ZN			
25	GHF01200306	NUT M14X2			
26	GHF06220011	6-LOBE HANDWHEEL M14			
27	GHF01060040	BOLT 8 X20 5732 4.6 GALVANIZED			
28	GH20970104	WASHER 21X4X8-5			
29	GHF01220022	SELF LOCKING NUT M8X1,25 980V			
30	GHF01020441	SCREW 8 X25 5739 8.G			
31	GHF01200244	NUT M8			
32	GHF01420048	PLANE WASHER D.8			
33	GHF01020162	BOLT M12X1,75X65 U5737 8.8 ZG			
34	GHF02100141	PIN EL. 8 X36 DIN 1481			
35	GHF02100089	PIN EL. 5 X36 DIN 1481			
36	GHF01060041	BOLT 8 X25 5732 4.6 GALVANIZED			
37	GHF01020207	BOLT M 14X70			

WARRANTY



WARRANTY

FRONTIER warrants this product to be free from defect in material and workmanship. Except as otherwise set forth below, the duration of this Warranty shall be for TWELVE (12) MONTHS COMMENCING ON THE DATE OF DELIVERY OF THE PRODUCT TO THE ORIGINAL PURCHASER.

Under no circumstances will this Warranty apply in the event that the product, in the good faith opinion of FRONTIER, has been subjected to improper operation, improper maintenance, misuse, or an accident. This Warranty does not apply in the event that the product has been materially modified or repaired by someone other than FRONTIER, a FRONTIER authorized dealer or distributor, and/or a FRONTIER authorized service center. This Warranty does not cover normal wear or tear, or normal maintenance items. This Warranty also does not cover repairs made with parts other than those obtainable through FRONTIER.

This Warranty is extended solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this Warranty does not transfer to the third party purchaser in any way. There are no third party beneficiaries of this Warranty.

FRONTIER makes no warranty, express or implied, with respect to engines, batteries, tires or other parts or accessories not manufactured by FRONTIER. Warranties for these items, if any, are provided separately by their respective manufacturers.

FRONTIER' obligation under this Warranty is limited to, at FRONTIER' option, the repair or replacement, free of charge, of the product if FRONTIER, in its sole discretion, deems it to be defective or in noncompliance with this Warranty. **The product must be returned to FRONTIER S.p.A. with proof of purchase within thirty (30) days after such defect or noncompliance is discovered or should have been discovered, routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid.** FRONTIER shall complete such repair or replacement within a reasonable time after FRONTIER receives the product.

THERE ARE NO OTHER REMEDIES UNDER THIS WARRANTY. THE REMEDY OF REPAIR OR REPLACEMENT IS THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. FRONTIER MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND FRONTIER SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND/OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

FRONTIER shall not be liable for any incidental or consequential losses, damages or expenses, arising directly or indirectly from the product, whether such claim is based upon breach of contract, breach of warranty, negligence, strict liability in tort or any other legal theory. Without limiting the generality of the foregoing, FRONTIER specifically disclaims any damages relating to (i) lost profits, business, revenues or goodwill; (ii) loss of crops; (iii) loss because of delay in harvesting; (iv) any expense or loss incurred for labor, supplies, substitute machinery or rental; or (v) any other type of damage to property or economic loss.

This Warranty is subject to any existing conditions of supply which may directly affect FRONTIER' ability to obtain materials or manufacture replacement parts.

No agent, representative, dealer, distributor, serviceperson, salesperson, or employee of any company, including without limitation, FRONTIER, its authorized dealers, distributors, and service centers, is authorized to alter, modify, or enlarge this Warranty.

This Warranty is effective only if the warranty registration is returned within ten (10) days.

For warranty services contact your selling dealer.

WARRANTY



WARRANTY FOR REPLACEMENT PARTS

FRONTIER warrants this product to be free from defect in material and workmanship for a period of ninety (90) days from the date of delivery of the product to the original purchaser.

Under no circumstances will this Warranty apply in the event that the product, in the good faith opinion of FRONTIER, has been subjected to improper operation, improper maintenance, misuse, or an accident. This Warranty does not cover normal wear or tear, or normal maintenance items.

This Warranty is extended solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this Warranty does not transfer to the third party purchaser in any way. There are no third party beneficiaries of this Warranty.

FRONTIER' obligation under this Warranty is limited to, at FRONTIER' option, the repair or replacement, free of charge, of the product if FRONTIER, in its sole discretion, deems it to be defective or in noncompliance with this Warranty. **The product must be returned to FRONTIER with proof of purchase within thirty (30) days after such defect or noncompliance is discovered or should have been discovered, routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid.** FRONTIER shall complete such repair or replacement within a reasonable time after FRONTIER receives the product. **THERE ARE NO OTHER REMEDIES UNDER THIS WARRANTY THE REMEDY OF REPAIR OR REPLACEMENT IS THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY.**

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This Warranty is subject to any existing conditions of supply which may directly affect FRONTIER' ability to obtain materials or manufacture replacement parts.

No agent, representative, dealer, distributor, service person, salesperson, or employee of any company, including without limitation, FRONTIER, its authorized dealers, distributors, and service centers, is authorized to alter, modify, or enlarge this Warranty.

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