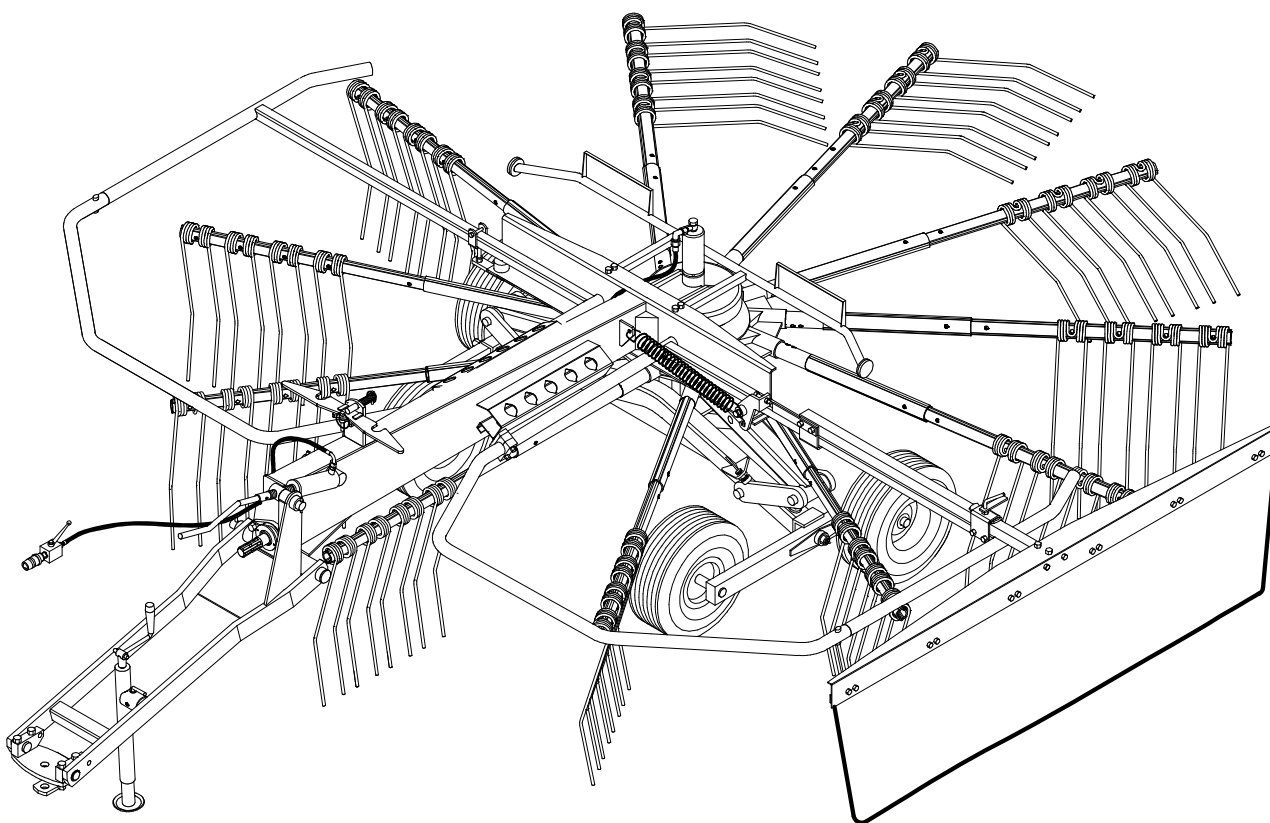


AGRICULTURAL MACHINERY

sitrex®
Spa

***USE AND MAINTENANCE
SPARE PARTS LIST***



SR 420/11 H
ROTARY RAKES
HYDRAULIC LIFT
Pull type

Warranty

On delivery, check that the machine has not been damaged during transport and that all the attachments are present. Claims must be made in writing to the agent within 8 days of receipt.

The manufacturer warrants new machinery at the time of delivery to the original purchaser to be free from defects in material and workmanship if properly set up and operated in accordance with this Operator's Manual.

The manufacturer undertakes to repair or replace free of charge any defective part which should be returned by the purchaser (freight prepaid) and found to be defective by inspection authorized by the manufacturer during the warranty period.

This warranty will be valid for 12 (twelve) months from the delivery of goods to the original purchaser .

In case the customer is not in a position to return the defective part to the manufacturer , the manufacturer cannot be held responsible for any cost due for repair or replacement of any part of the machine , he will only supply the part(s) required for the repair and/or replacement.

The warranty is null and void when it is evident that the machine has been improperly used or however repaired without authorization.

The manufacturer undertakes no responsibility for any obligation or agreement reached by any employers, agents or dealers, which are not in compliance with the above warranty . The manufacturer cannot be held responsible for the consequent damages. This warranty substitutes any other warranty , express or implied , and any other manufacturer's obligation.

CHAPTER

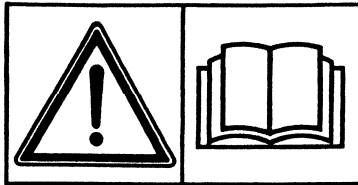
- 1) **GUIDE TO THE SIGNS**
- 2) **General summary of safety and accident-prevention instructions**
- 3) **PRODUCT IDENTIFICATION**
- 4) **DELIVERY AND ASSEMBLY**
- 5) **ADJUSTMENT, PREPARATION AND USE INTRODUCTION**
- 6) **TRANSPORT BY ROAD**
- 7) **MAINTENANCE**
- 8) **SPARE PARTS LIST**

GUIDE TO THE SIGNS AND SYMBOLS USED THIS MANUAL AND THEIR LOCATION ON THE MACHINE

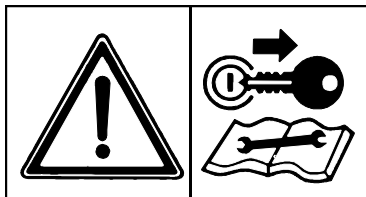
IMPORTANT

These signs and symbols give information to the operator on how to make the best use of the machine so as to prolong life, avoid damage, optimise work and, above all, to avoid injury to the operator and anyone within range of the machine.

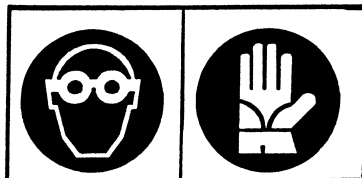
WARNING SIGNS



1) Before beginning operations, read the instruction manual carefully.

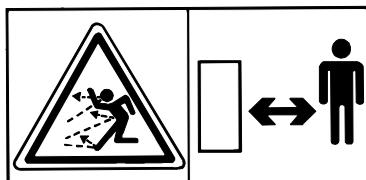


2) Before doing any maintenance or repair work, stop the machine at a suitable spot. Turn off the tractor motor, apply the brake, remove the key from the ignition and consult this manual.

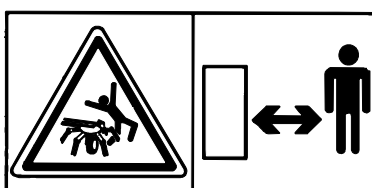


3) This is a warning to use proper accident protection when carrying out maintenance and repairs

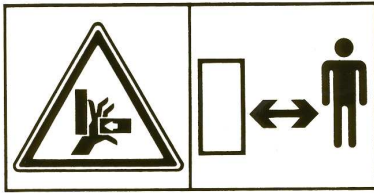
DANGER SIGNS



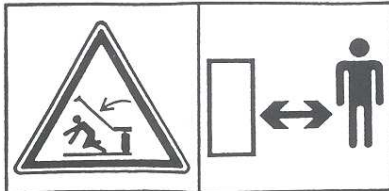
4) Risk of possible ejection of blunt objects. Keep a safe distance from the machine



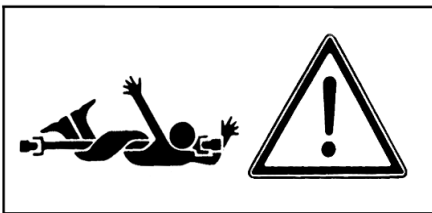
5) Indicates that anyone coming within range of the moving tine arms will be seriously injured. Keep a safe distance from the machine.



6) Indicates that there is a risk of crushing your hands. Keep your distance.



7) Indicates danger caused by accidental fall of suspended arms. Keep safe distance.



8) Indicates that it is dangerous to touch the cardan (P.T.O.) shaft. For all the other information regarding the cardan shaft, see the use and maintenance booklet specifically for the cardan shaft which, together with this manual, makes up the documentation on safety, use and maintenance of the machine.

INDICATION SIGNS

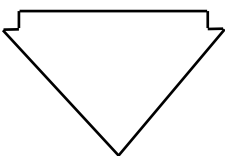


9) Indicates a greasing point .



10) Shows the direction of rotation of the power takeoff and the maximum number revolutions.

OIL LEVEL



11 Indicate a oil point.

MANUAL SIGNS.

DANGER



Indicates an impending dangerous situation which, if not avoided, will cause death or severe personal injury.

ATTENTION



Indicates a potentially dangerous situation which, if not avoided, could cause death or severe personal injury, including dangers which are present when protection is removed.

CAUTION



indicates a potentially dangerous situation which, if not avoided, can provoke less severe or minor injuries.

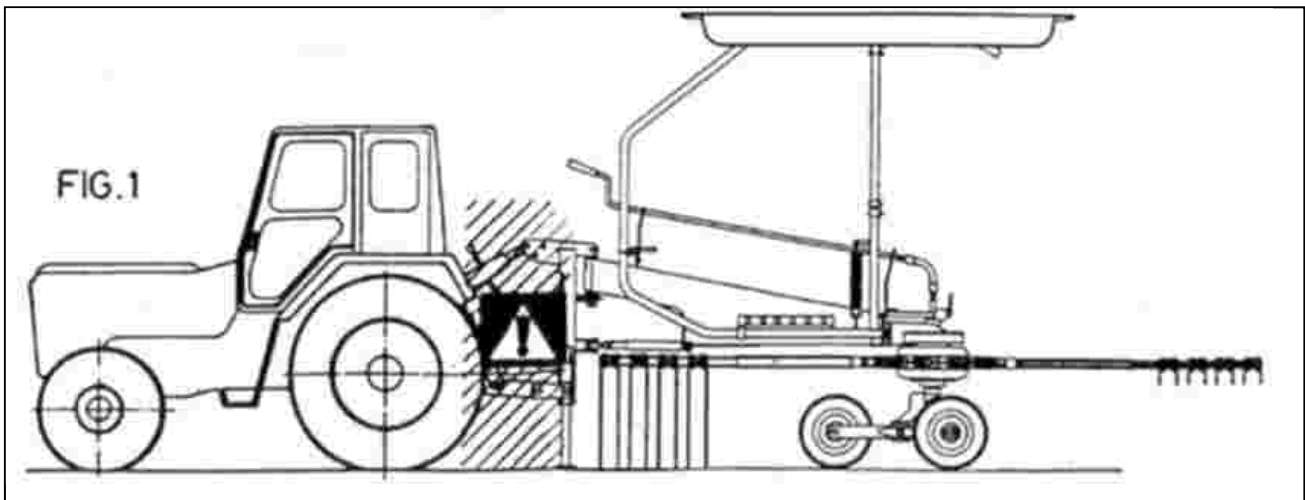
3) General Summary Of Safety And Accident-Prevention Instructions

Read all the directions carefully before using the machine. When in doubt, seek advice from the manufacturers.

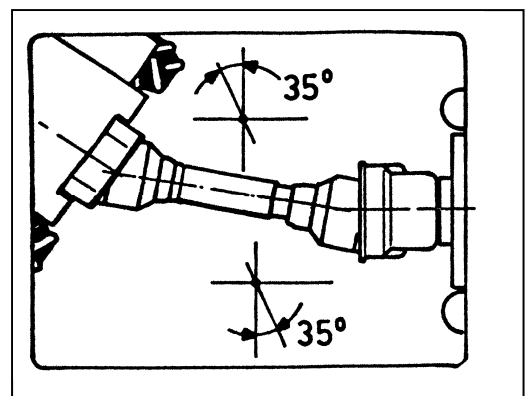
The manufacturing company declines all responsibility for non-compliance with the following safety and accident-prevention instructions.

- 1- Pay attention to the danger signs and symbols in this manual and on the machine.
- 2- Do not touch moving parts.
- 3- All work on the machine (including adjustments) must always be carried out with the tractor immobilized and the engine switched off.
- 4- On no account may persons or animals be carried on the machine.
- 5- Driving the tractor with the machine connected is absolutely forbidden to persons lacking suitable experience, or who are in poor health, or who do not have a suitable driving license.
- 6- All accident-prevention measures recommended in this manual should be scrupulously observed.
- 7- Connecting the machine to the tractor creates a different weight distribution on the axles and so it is essential to ensure that the tractor-machine combination is stable in all anticipated working conditions. It is therefore necessary to have exact instructions from the tractor manufacturers. If such instructions are not available, suitable tests should be conducted in safe conditions in order to assess stability.
- 8- Once the machine is connected, it can only be controlled through a cardan shaft complete with the required overload protection and guard secured with the appropriate small chains. Be aware of the rotational direction of the cardan shaft.
- 9- Before operating the tractor and machine, check that all transport and operational safety devices are complete and working.
- 10- When driving on public roads, you should comply with the Highway Code regulations for the country concerned.
- 11- Do not exceed the tractor axle maximum weight and the total mobile weight. Heed transport regulations.
- 12- Before starting work, familiarize yourself with the control devices and how they work.
- 13- Wear suitable clothes. Do not wear clothing which is loose or which could become entangled in rotating or moving parts.
- 14- Connect the machine to a suitably powerful tractor by using an appropriate lifting unit and in accordance with instructions.
- 15- Take maximum care when connecting and disconnecting the machine to and from the tractor.
- 16- The machine and any road transport attachments must bear the appropriate signs and symbols and have suitable protection.
- 17- Never leave the driving seat when the tractor is running.
- 18- It is extremely important to appreciate that road holding, steering and braking may be significantly affected with the machine attached.
- 19- When turning corners with the machine attached, be aware of the fact that the centrifugal force will alter due to the change in the center of gravity.
- 20- Before engaging the power takeoff check the preset revolution speed. Do not change speed from 540 rpm to 1000 rpm.
- 21- Under no circumstances should anybody stand near the machine or any moving parts. It is the duty of the operator to ensure that this requirement is respected.
- 22- Before leaving the tractor, lower the machine with the lifting unit, stop the engine, apply the parking brake and remove the ignition key from the instrument panel.

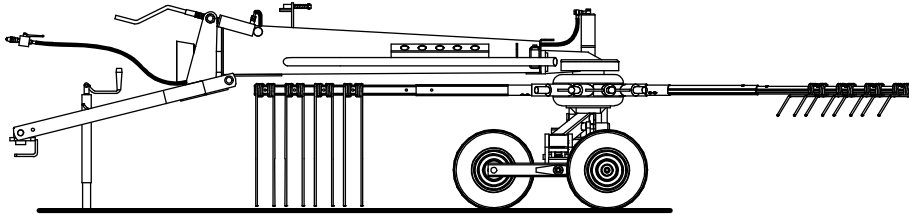
- 23- Under no circumstances should anybody go between the tractor and the machine (Fig. 1) when the engine is running and the Cardan shaft is engaged, especially without first having applied the parking brake and placed chocks against the wheels.



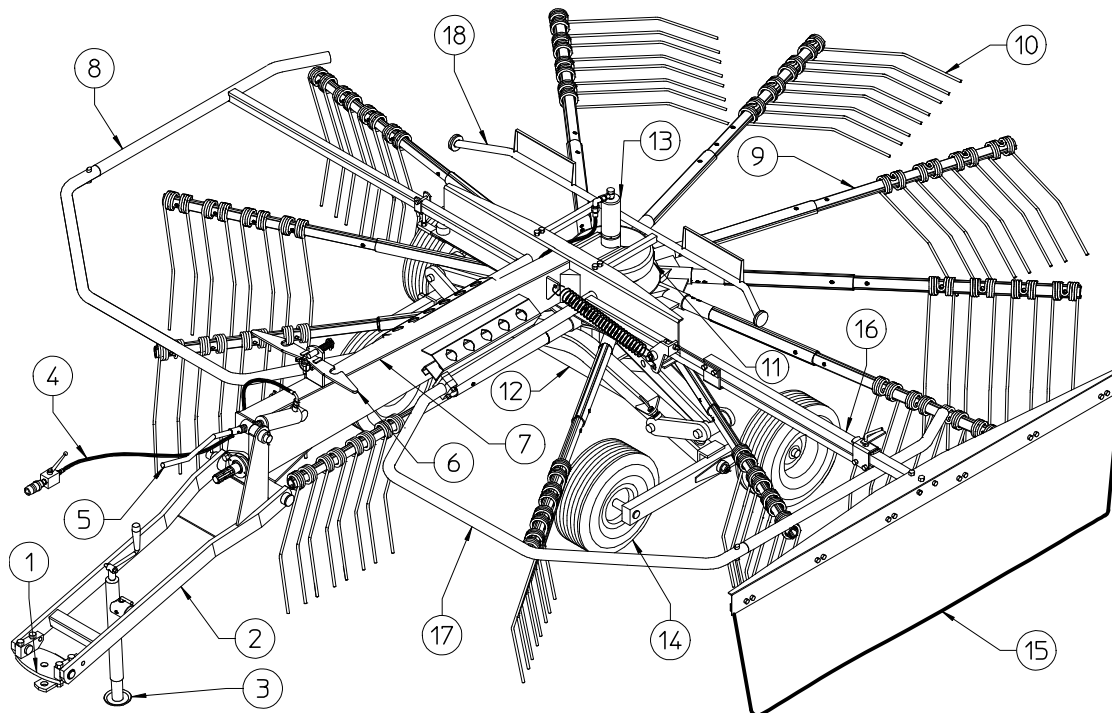
- 24- Before connecting or disconnecting the machine to or from the 3-point linkage, put the lifting unit lever into the locked position.
- 25- The connection pins on the machine must match the connection sockets on the lifting unit.
- 26- During transport, secure the lateral lifting arms with the appropriate chains and tighteners.
- 27- When the machine is raised during road transport, put the tractor's hydraulic lifter lever into the locked position.
- 28- Only use the Cardan shaft provided by the manufacturer and, in case of replacement, substitute it with one having the same characteristics.
- 29- Regularly check all protection on the Cardan shaft. This should always be in excellent condition and securely fixed.
- 30- It is important to ensure that the protection on the Cardan shaft is complete.
- 31- Connection and disconnection of the Cardan shaft must be carried out with the engine switched off.
- 32- Pay particular attention to the correct connection and safety of the Cardan shaft and the power takeoffs on the machine and the tractor.
- 33- Prevent the cardan shaft protection from rotating using the chains supplied.
- 34- Before engaging the power takeoff, make sure that there are no people or animals in the vicinity and that the selected engine speed corresponds to that permitted. Never go above the maximum permitted.
- 35- Do not engage the power takeoff when the engine is not running.
- 36- Always disengage the power takeoff when the Cardan shaft is at too wide an angle (it should never be more than 35° see fig) and when it is not in use.
- 37- Only clean and grease the Cardan shaft when the power takeoff is disengaged, the engine is off, the parking brake is applied and the ignition key is removed.
- 38- On disconnecting the Cardan shaft, replace the protective hood on the power takeoff shaft.
- 39- Prolonged use of the machine can cause the drive boxes to become hot. To avoid any risk of getting burnt, avoid touching these areas both during use and some time afterwards.
- 40- Periodically check screws and nuts for tightness and grip. Tighten if necessary.



- 41- When carrying out maintenance work or replacing the blades, raise the machine and rest on adequate supports.
- 42- Use the quantities of grease and oil advised.
- 43- Spare parts must meet the requirements as defined by the manufacturer. Use only original spare parts.
- 44- Safety decals must always be clearly visible. They must be kept clean and replaced if they become too illegible (they can be ordered from the agent if necessary).
- 45- The instruction booklet must be available for the lifetime of the machine.

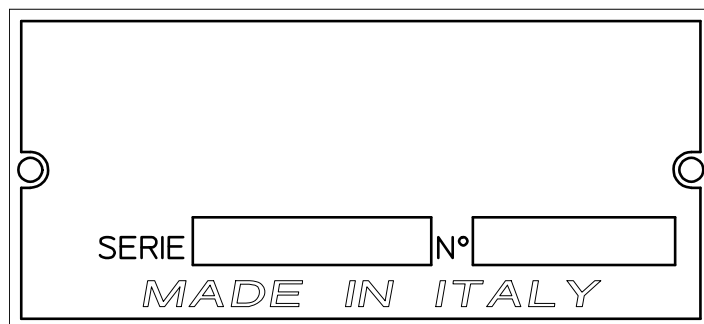


PRODUCT IDENTIFICATION



MAIN PARTS

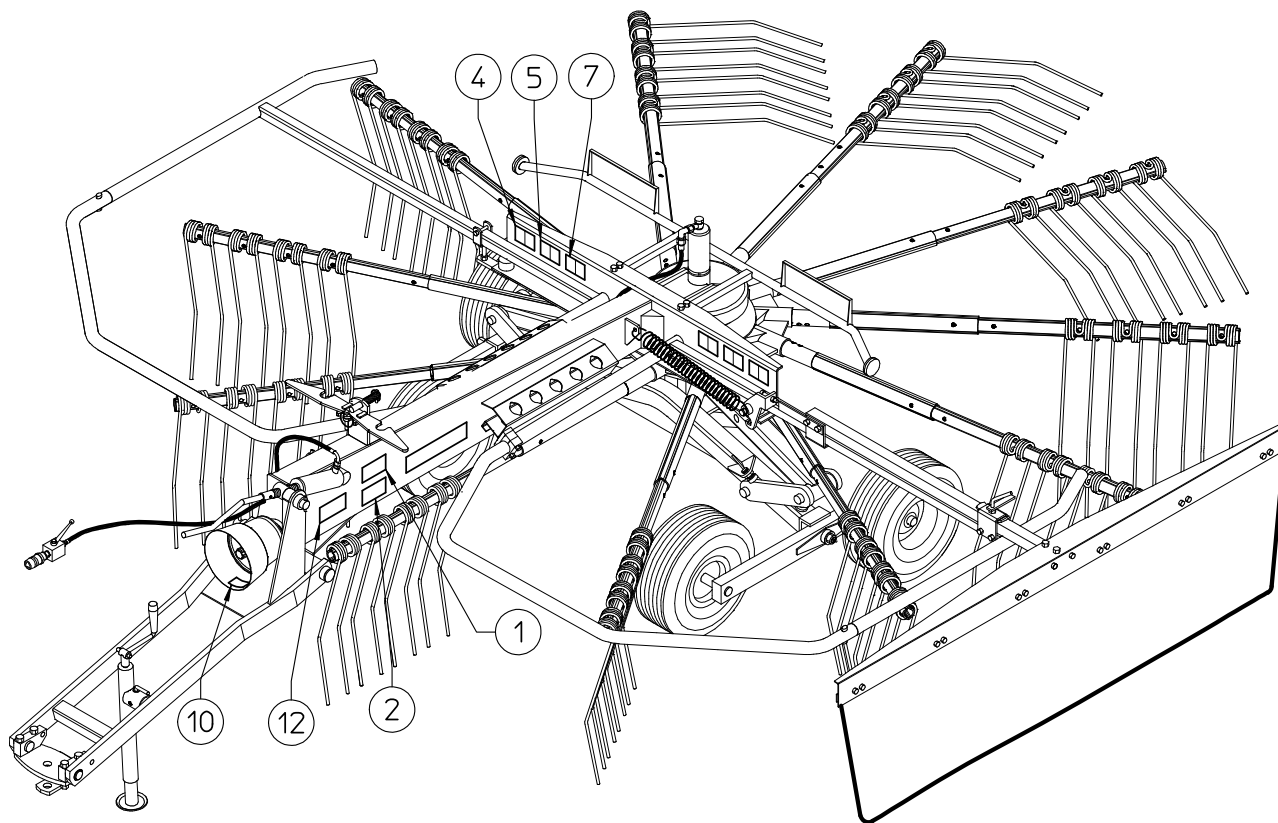
- 1) BRACKET
- 2) DRAWBAR
- 3) PARKING STAND
- 4) HYDRAULIC KIT
- 5) CRANK
- 6) RATCHET
- 7) FRAME
- 8) R.H. GUARD
- 9) TINE ARM
- 10) TINE
- 11) GEARBOX
- 12) AXLE
- 13) CYLINDER
- 14) TYRE ASSY
- 15) SWATHING DEFLECTOR
- 16) TELESCOPING TUBE
- 17) L.H. GUARD
- 18) LIGHTING BRACKET



IDENTIFICATION PLATE

RPM TRACTOR	RPM ROTORS	POWER REQUIRED	WHEEL TYPE	OPERATING WIDTH	TRANSPORT WIDTH	WEIGHT
MAX 540	55	HP 40	18X8.50	4,2Mt	2100	KG 700
		KW 29	8PLY	165"	83"	LBS 1550

LOCATION OF SIGNS AND SYMBOLS ON THE MACHINE



- 1) SEE DRAWING 1 P.4
- 2) SEE DRAWING 2 P.4
- 3) SEE DRAWING 3 P.4
- 4) SEE DRAWING 4 P.5
- 5) SEE DRAWING 5 P.5
- 6) SEE DRAWING 6 P.5
- 7) SEE DRAWING 7 P.5
- 8) SEE DRAWING 8 P.5
- 9) SEE DRAWING 9 P.6
- 10) SEE DRAWING 10 P.6
- 11) SEE DRAWING 11 P.6
- 12) IDENTIFICATION PLATE

CHAPTER 4

DELIVERY AND ASSEMBLY

Checking the machine on delivery

All parts are carefully checked before dispatch or delivery.

On receiving the machine, ensure that it has not been damaged during transport. If damage has occurred, contact the dealer concerned.

Details of packing are given below.

UNPACKING THE MACHINE

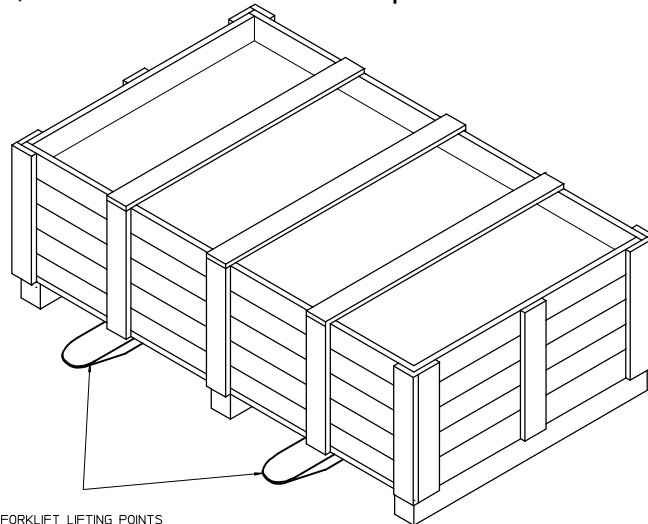


DANGER !!!



Lift the machine using a forklift truck, crane or other suitable equipment of sufficient capacity after first checking the weight of the configurations in the table given below. Check the stability and positioning of the load on the forklift truck forks or crane hook. Keep the load as low as possible during movement for maximum stability and to ensure that the operator has maximum visibility.

If a forklift truck is used, ensure that the forks are positioned as wide apart as possible.



FORKLIFT LIFTING POINTS

	WEIGHT PACKING	WEIGHT
KG	765	
LBS	1700	

- NOTE: 1) The packing consists mainly of wood which should be disposed of according to the laws in force in the country where the machine is used. The plastic film should also be disposed of according to the laws in force in the country where the machine is used.
- 2) When storing, it is permissible to stack 2-3 crates on top of each other. Make sure that they are perfectly aligned vertically.
- 3) In the event of further transport, ensure that the machine is on the transporting vehicle.

ASSEMBLY



DANGER !!!



Assembly is highly dangerous and must be carried out in strict accordance with the following instructions. We recommend that assembly be performed by qualified personnel. We also recommend that assembly be carried out in a flat, open area with no people (particularly children) nearby who could be severely injured if they were to touch or move any parts of the machine.

Assembly sequence:

Attach the arms (2) to the housing (1), placing them over the pins (3). Fasten the arms by inserting spring pins (4) into holes (A), and then insert the inside spring pins (5).

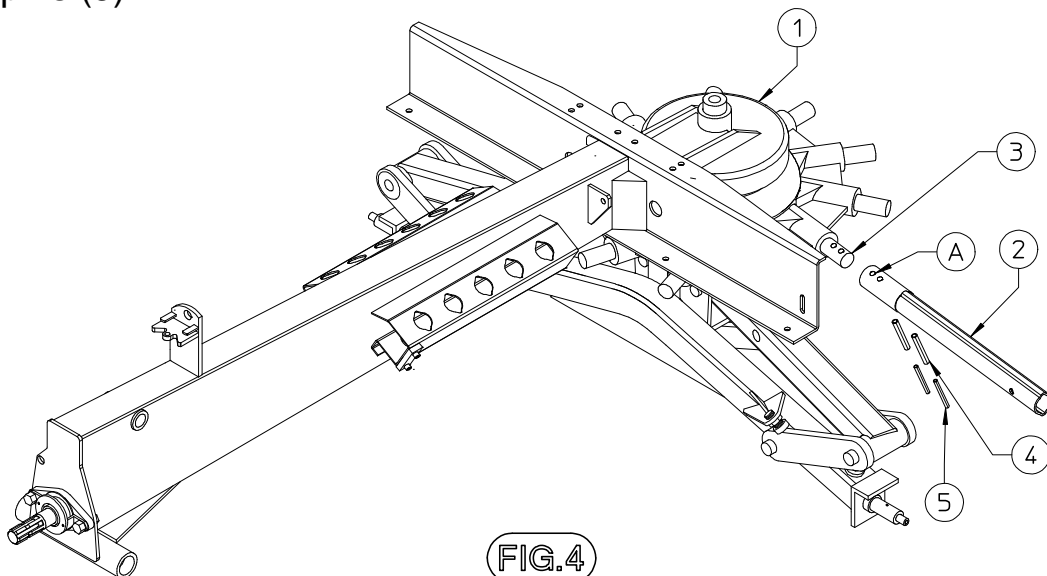


FIG.4

Attach the cylinder-adjustment assembly (2) to the drawbar (1), fastening with the spring pin

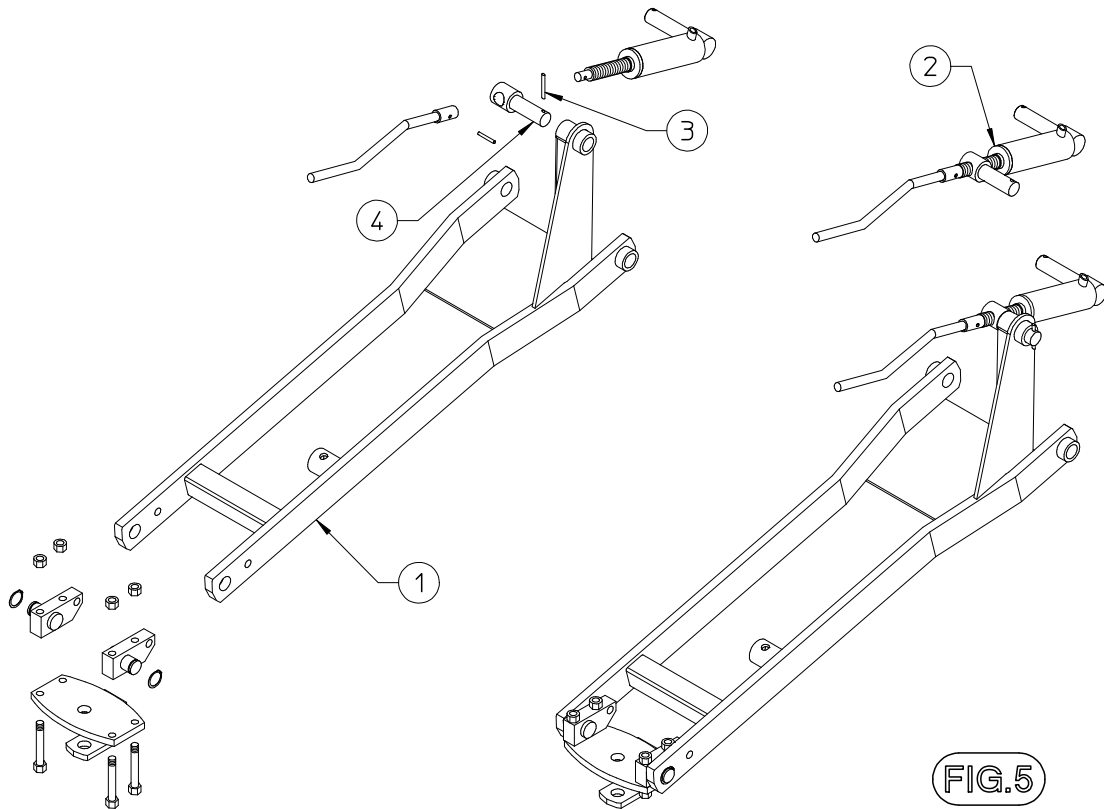


FIG.5

Rest the main frame (2) on stands and then insert the wear bushings (5). Insert pin (3) into hole (A) and fasten with the spring pin (42). Position the drawbar (1) so that pin (6) can be inserted, and fasten pin (6) with the spring pin (7).

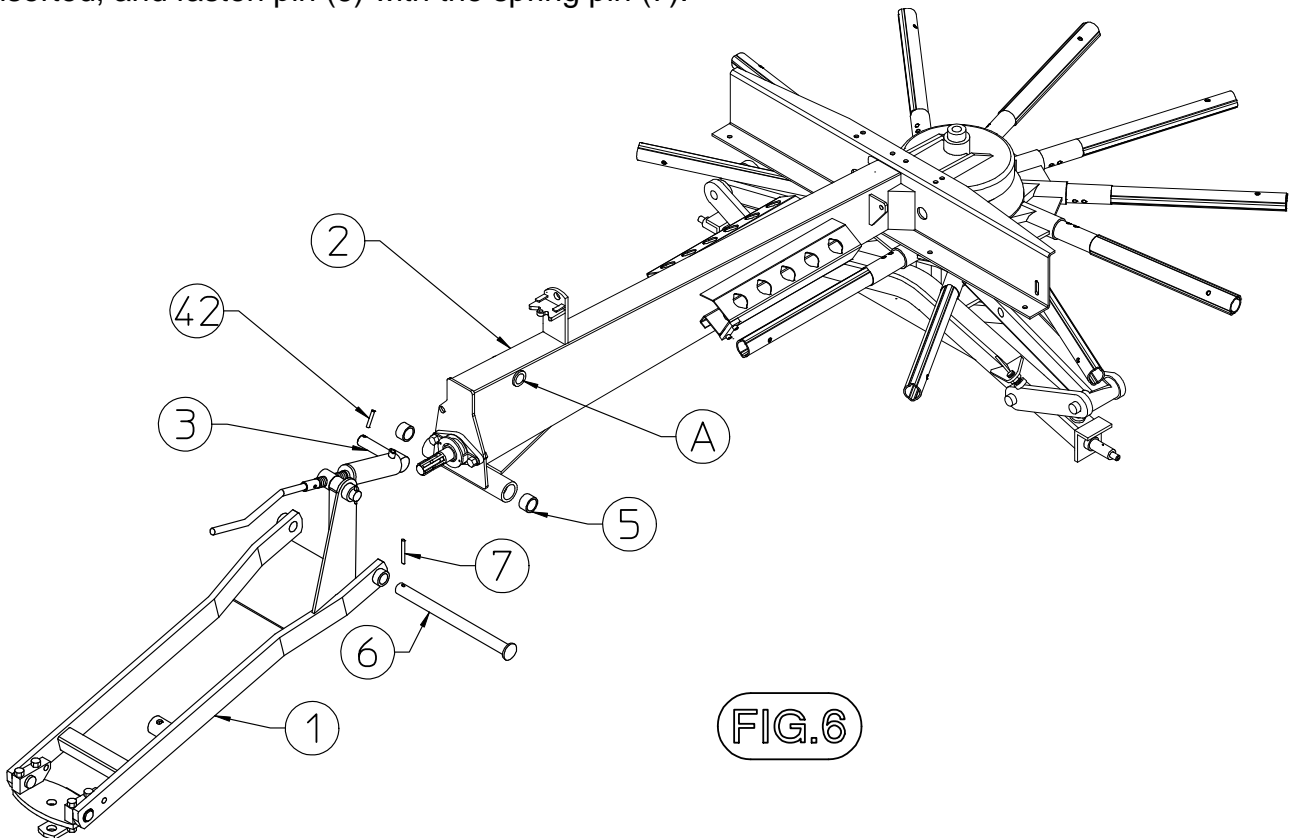


FIG.6

Attach grease nipples (17) to the axle (2). Next check to see that the wear bushings are in place on the wheel tandems (5), and mount the tandems on the axles, inserting spacers (3) and (6), in order to limit play (the longer part of the wheel tandem should face the tractor), and fasten with the washer (7) and nut (8). Mount wheels (10) on the tandem pins, first placing the large guard (9) and then the small guard (11), the washer (12) and

tighten with the nut (13). Mount the parking stand (14) to the mount on the drawbar (1), and fasten with pin (15) and clip (16). The machine can now be placed on the ground.

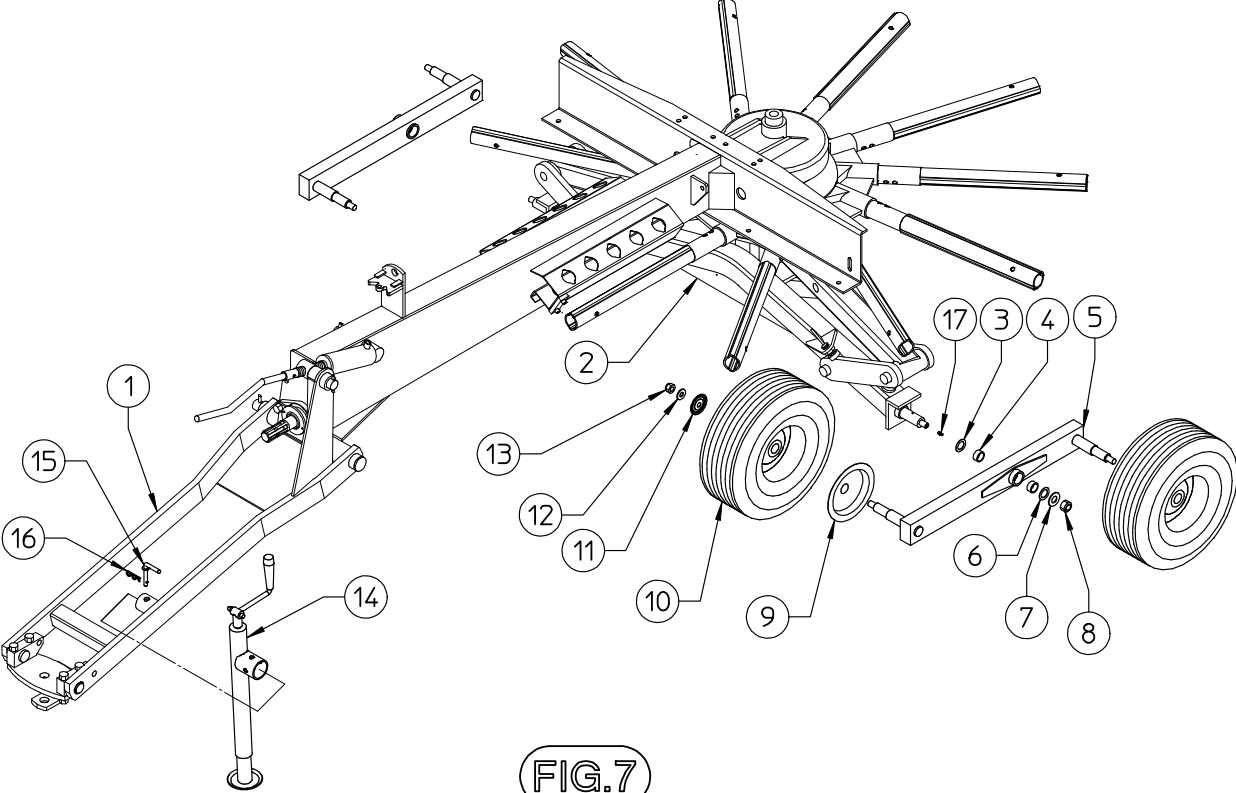


FIG.7

HYDRAULIC SYSTEM ASSEMBLY

Remove the guard on the central screw of the housing (1), then screw on the cylinder (6), without touching the ring (2) or the lower toothed washer (4). When the cylinder is tight, bend one of the tabs of the upper toothed washer (5) on the milled part of the cylinder so as to fasten it. Loosen screw (7) and turn the curve (8) towards the tractor hitch, then tighten screw (7) and nut (18). While doing this operation, the barrel of the cylinder could be loosened from the head ring, so check at the end of the operation to make sure that it is tight. Attach the hydraulic line (9), which can be recognized by the inner gasket on the curve (8), passing it through hole (A). Next attach the T connector (10) with lines (11) and (14), and fasten the lines into the working position using the three line clamps (13), without pulling the lines tight; in the area where the main frame is joined to the drawbar, the line must make an arch, so as to allow movement between the two parts. Check carefully to make sure that the opening of the tilt adjustment cylinder does not pull on line (14). If it does, lengthen the loose section between the two line clamps (13) that hold the lines in this area. The short line (11) feeds the tilt adjustment cylinder and is attached by means of the nipple (12) and washer (17). Attach the tap (15) and quick-release coupling (16) to the end of line (14).

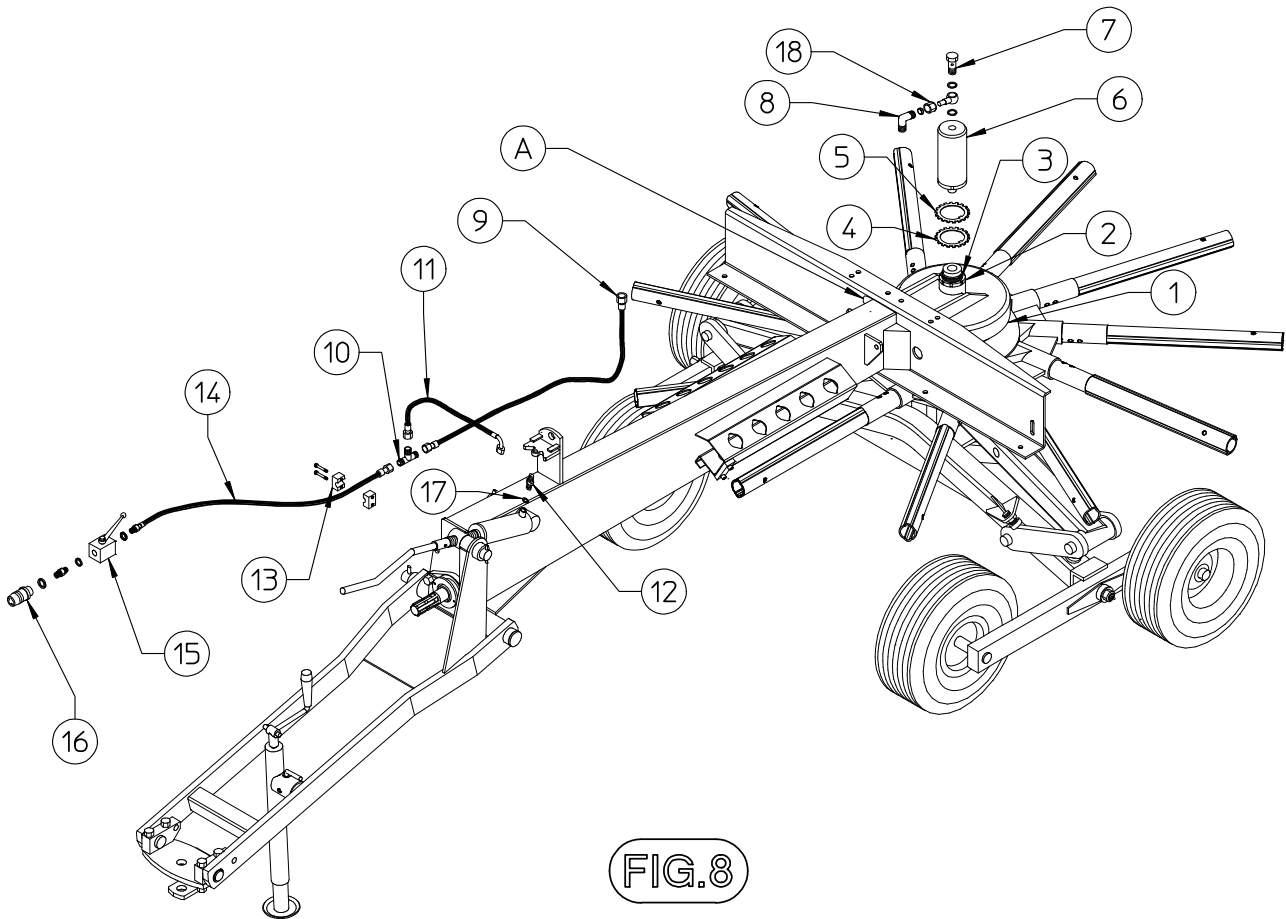


FIG. 8

Mount the safety hook (2) by inserting it into hole (A), and then place the spring (4) and washer (5) over the pin, fastening in place with pin (6). Insert safety pin (7) in hole (B).

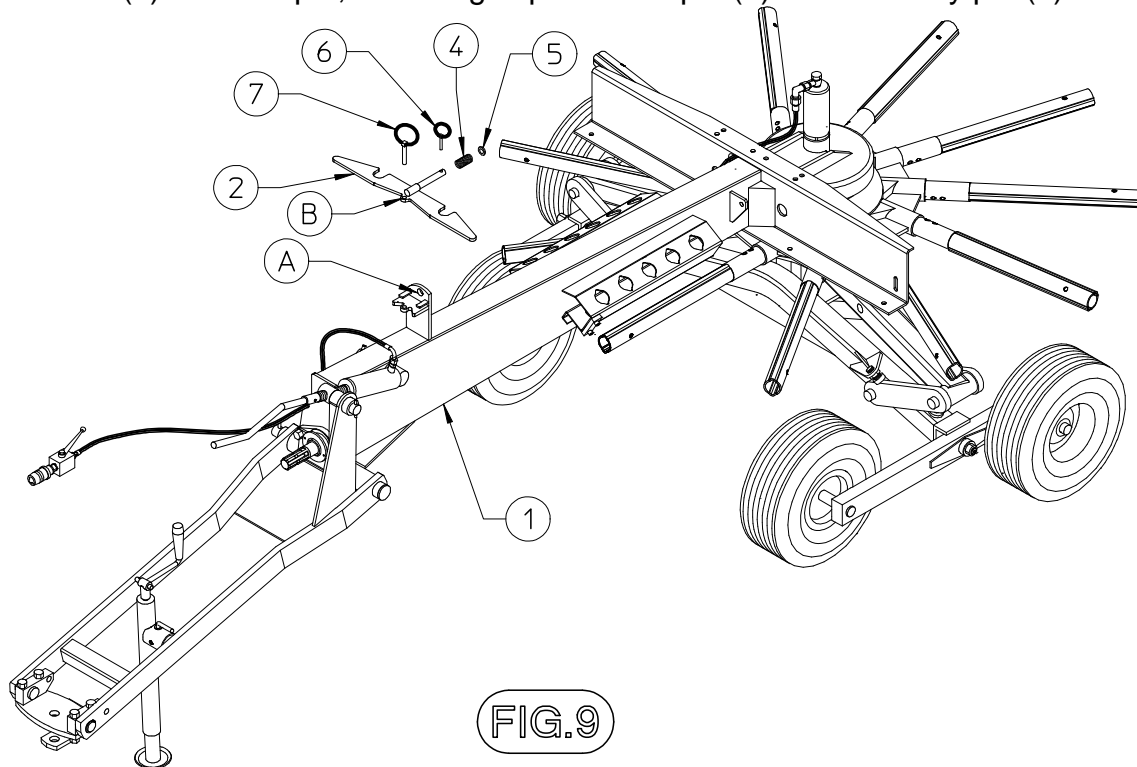


FIG.9

ATTENTION: Mount the high rubber pad (7) to the right outside hole with nuts (6), taking also the plate (8); in the other holes the low rubber pads (5), in the left outside hole fasten also clamp (2) with screw (3) and washer (4). Mount protection frame (11) to the left support (10) using screws (12) and nuts (13), then insert the assembly into the hole as shown in the illustration, fastening the protection frame with pin (17) and clamp (14), and attach cap (20) to the end of the protection frame. Mount bracket (9) to the plate (8) and then mount protection frame (16) to the right support (15) and insert the assembly into the hole, following the same procedure used for the left side of the machine.

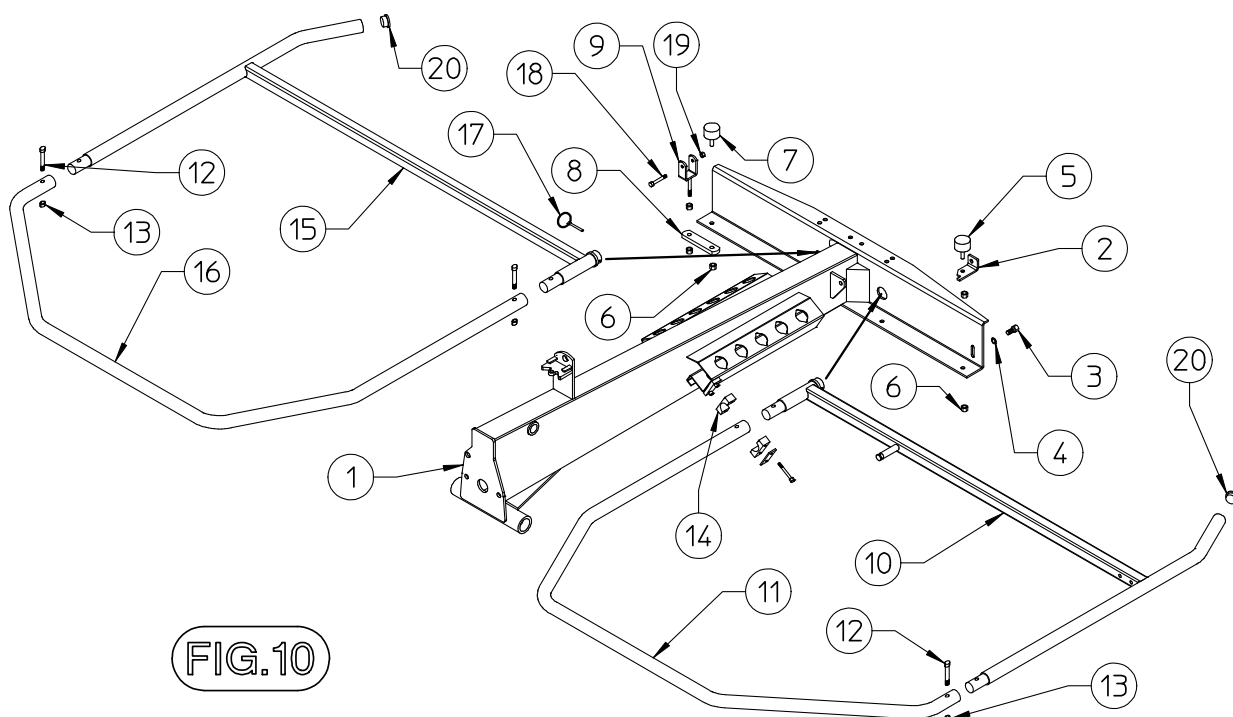


FIG.10

Mount safety hook (1) on to the pin (A) welded on to the frame, mount on safety hook the screw (2) and nut (3). Mount spring (4) to help suspension between the pin and the plate welded on the drawbar (see following diagram).
Adjust screws (M10 x 60 fully threaded) so that the safety hook turns partially and is positioned vertically when the protection frame is horizontal.

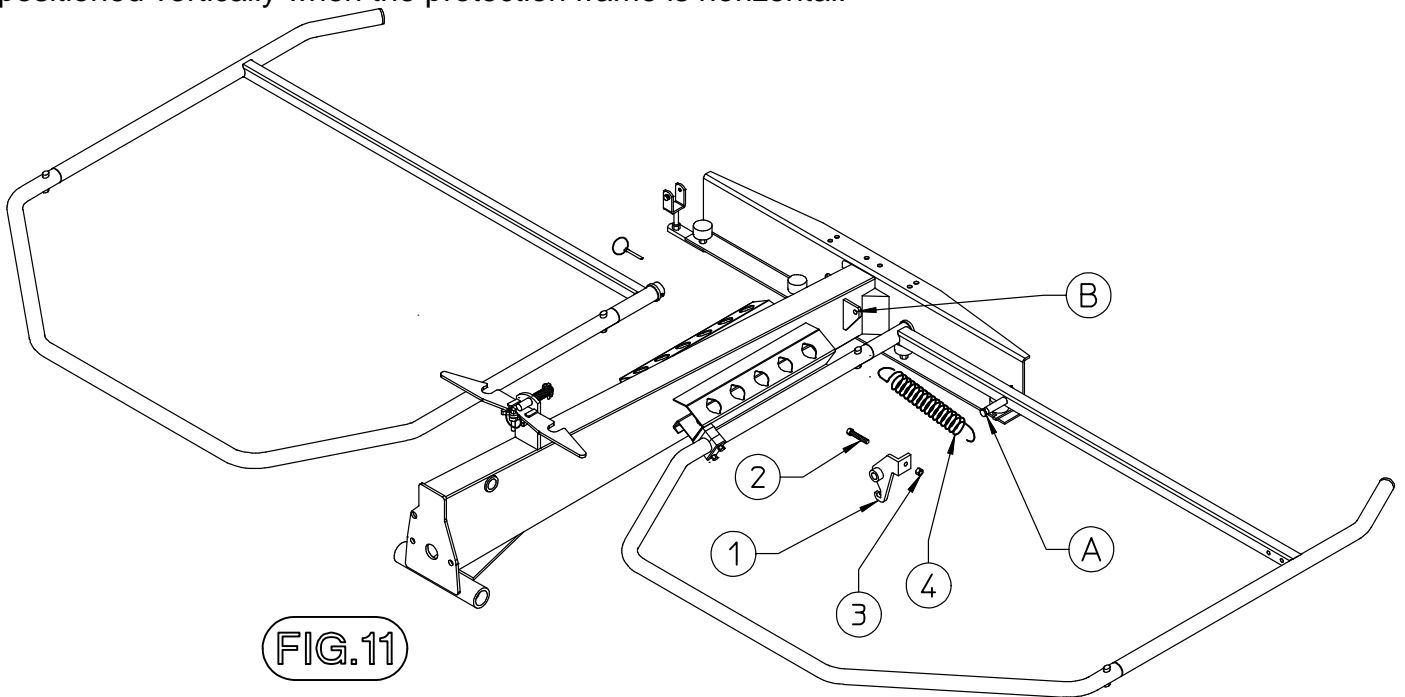


FIG.11

Use brackets (22), screws (18) and (15) and nut (10) to mount plate carrier extension (19) on to the left-hand protection frame. Also mount plate (14) on the outside of the internal bracket, whereas plate (24) must be mounted on the inside of the external bracket. In order to fasten the extension tighten screw (20) and lock (21). Use screws (8) to mount signal frame (6) on to the frame (1).

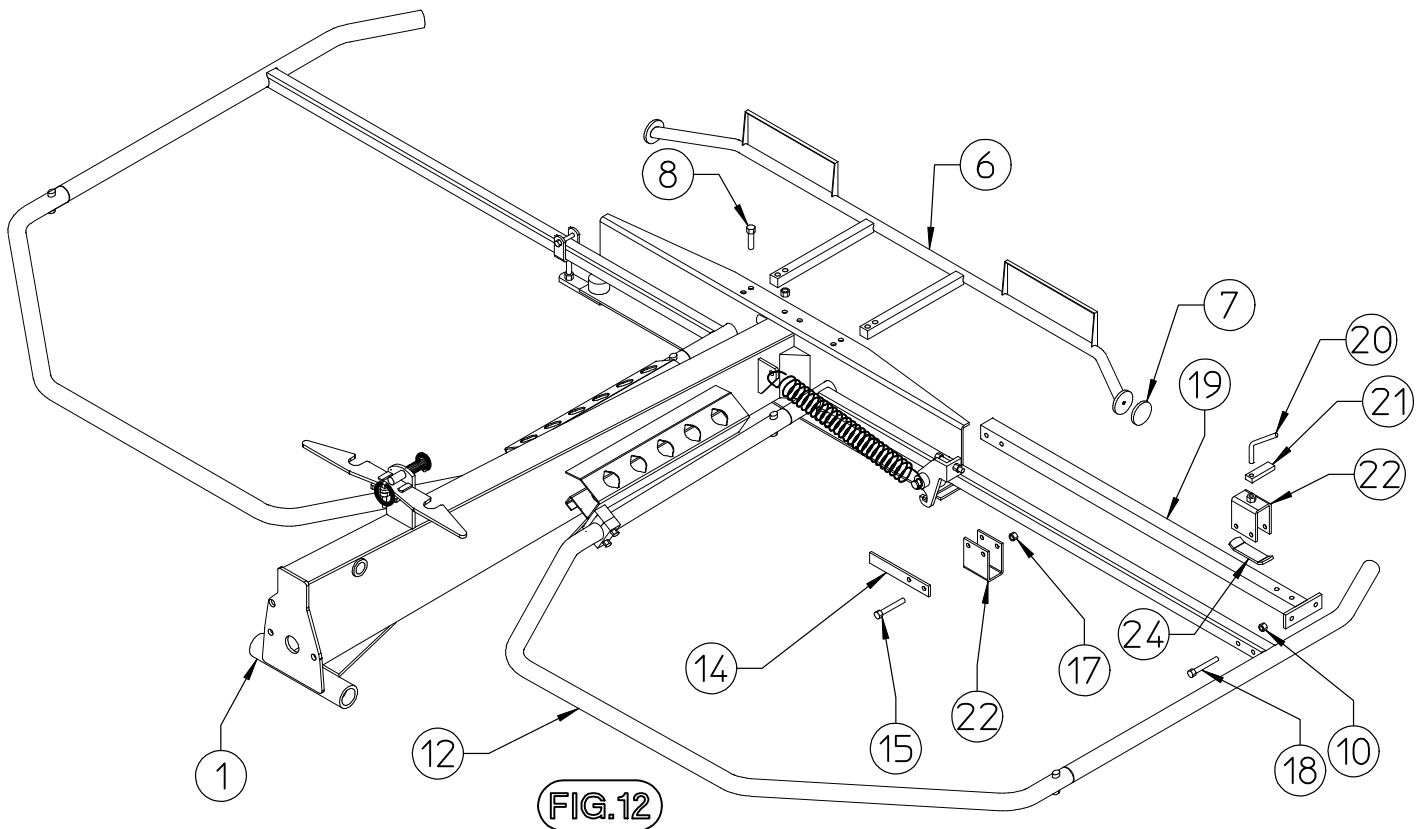


FIG.12

In order to mount swathing deflector (29) insert the slanting metal tabs (30) into the external slots and the straight tabs into the central slots, and then rest the swathing deflector on the inside of side frame (27) and place plate (28) on the outside; use screws (32) and nuts (33) to fasten everything into place. Now use screws (23) and (26) to mount this group on plate carrier extension (19).

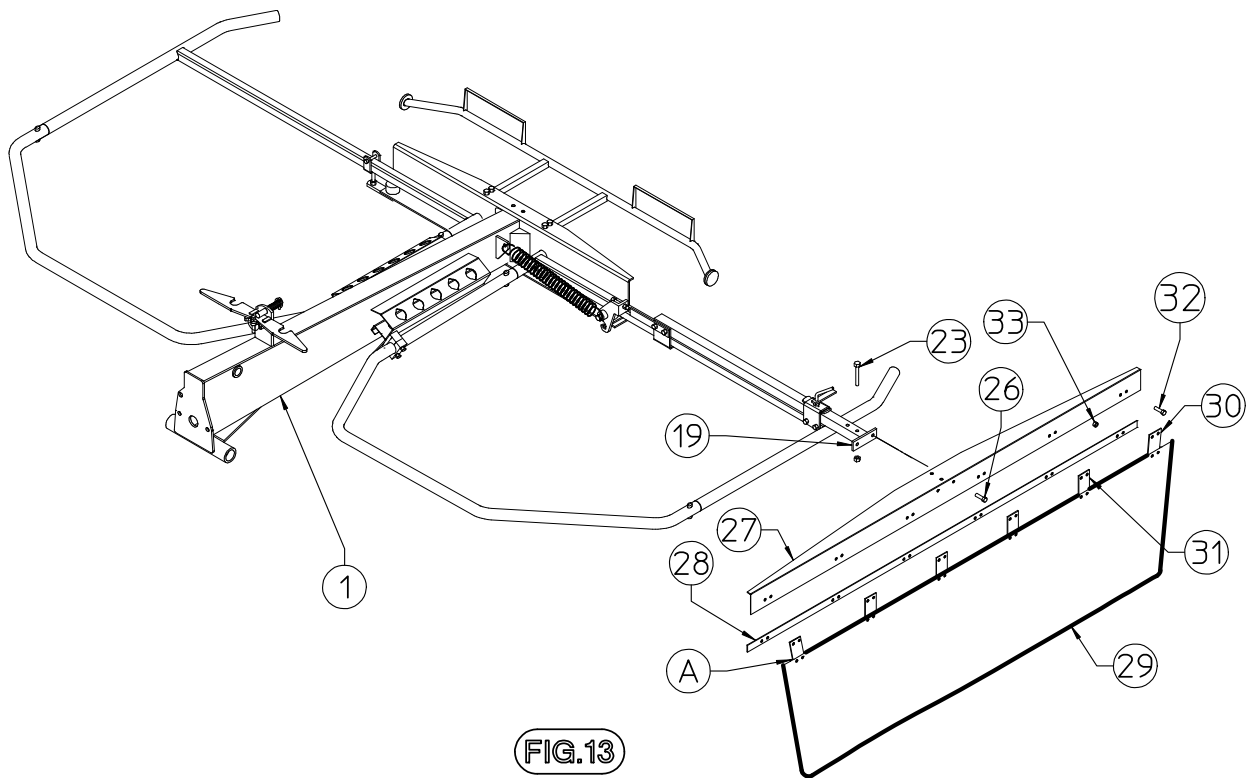


FIG.13

Attach the universal joint casing (2) to mount (10) using screws (3), nuts (4) and washers (5).

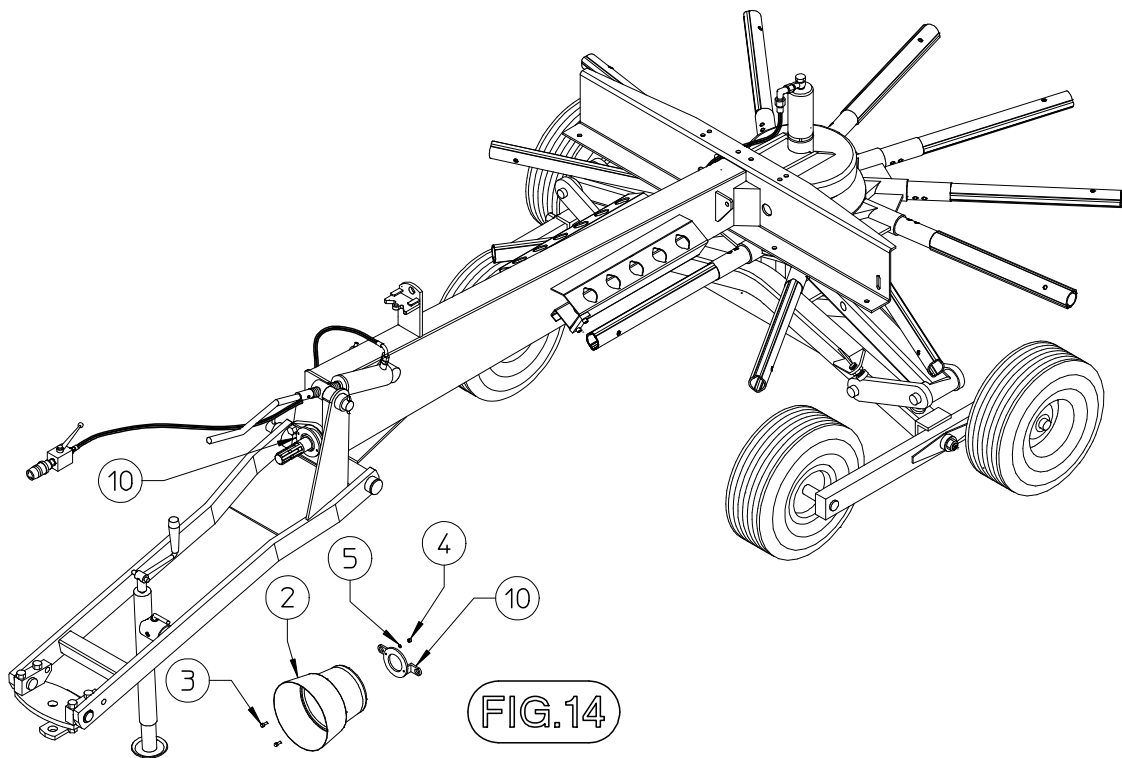
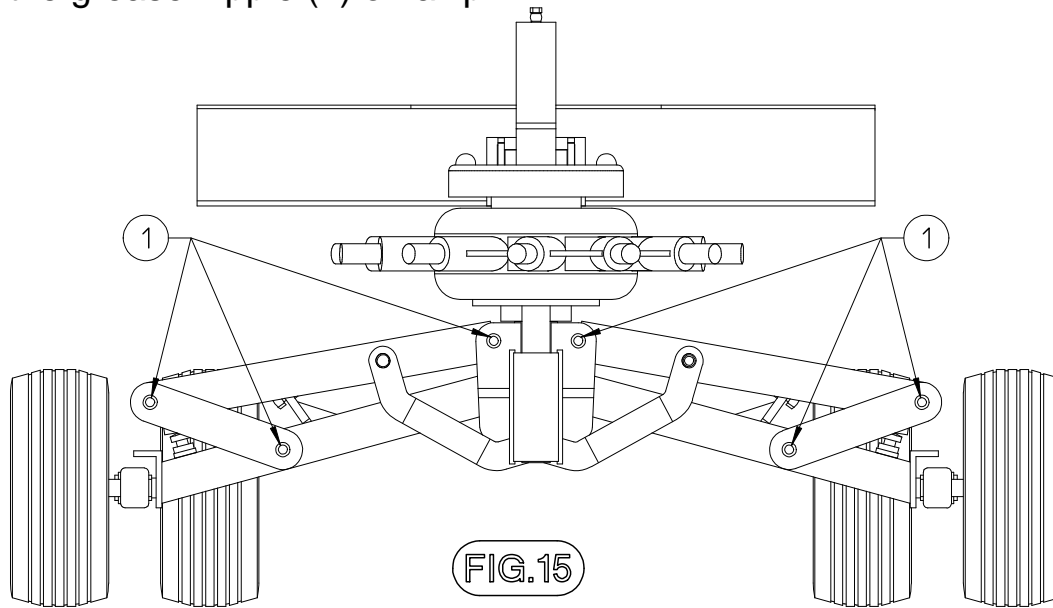
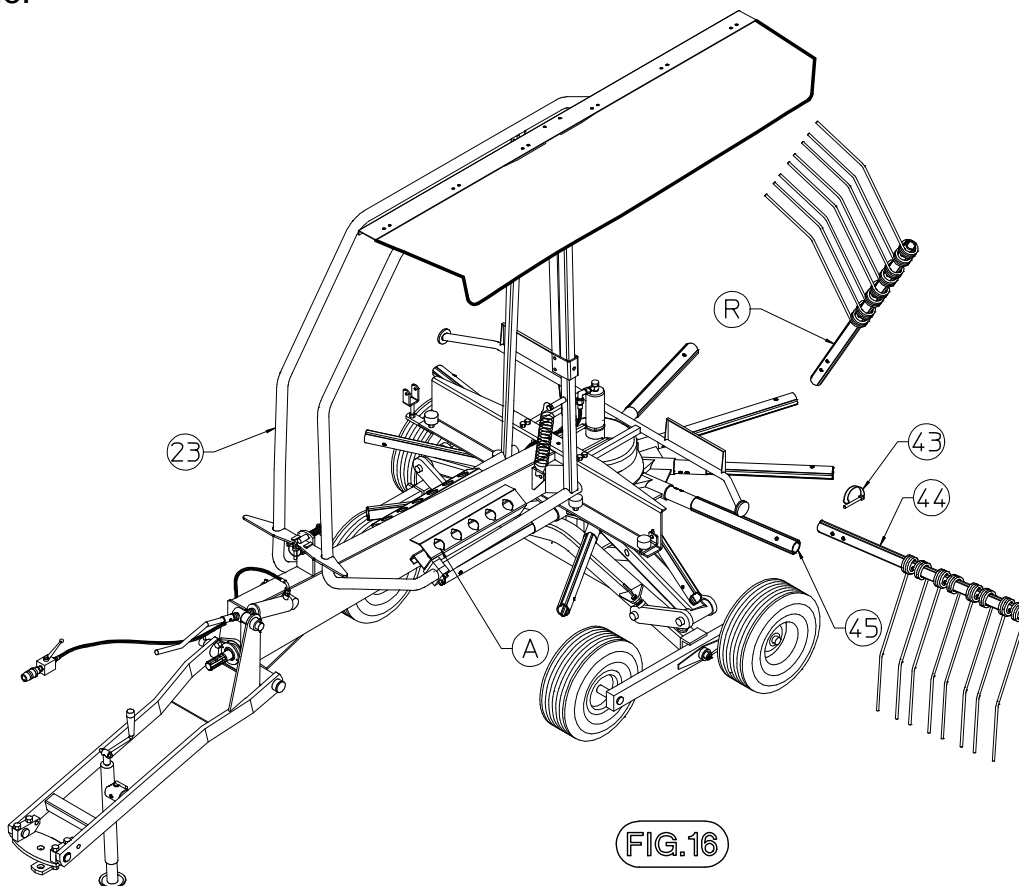


FIG.14

Mount the grease nipple (1) on all pin.



Before assembling the rake arms, raise the protection frames and use hook 23 to hold them up. If the machine has to be set up for work, mount detachable arms 44 on to the fixed arms 45 and fasten them with pin 43; the two holes on the detachable arms are to adjust swath width. The maximum working width is obtained by assembling the arm on the innermost hole. If the machine has to be prepared for transport or for storage, mount the detachable arms in position (R) in holes (A) on the frame.



CHAPTER 5

ADJUSTMENT, PREPARATION AND USE

INTRODUCTION



DANGER !!!



Connection to the tractor is highly dangerous. Take great care and carry out the entire operation in strict compliance with the following instruction.

Nobody should go near the area between the tractor and the machine.

Check that all warning and danger signs are in place and legible.

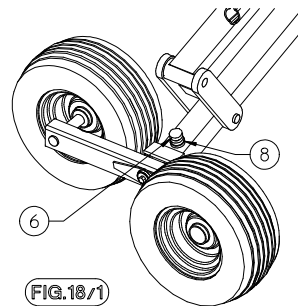
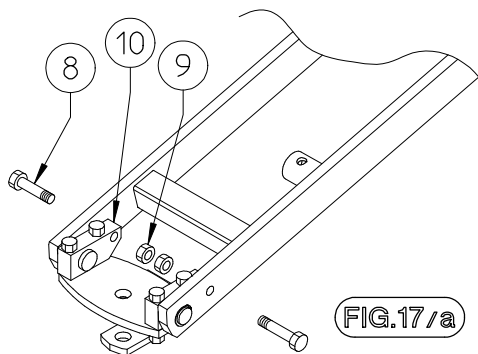
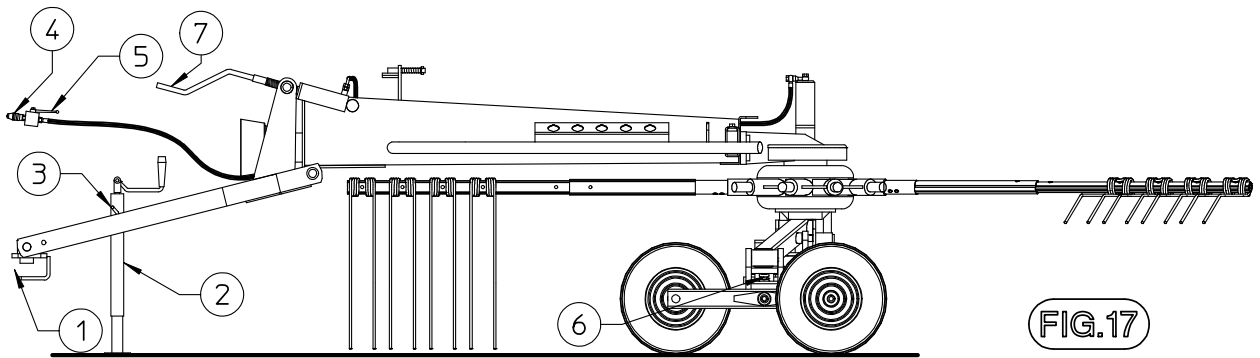
Check that the tractor is in good running order. Check the engine oil, gearbox oil, brake fluid and cooling water levels as well as the tyre pressures.

Refer to the tractor operator's manual.

CONNECTION TO THE TRACTOR

Connect the machine to the tractor, hitching it to the drawbar bar at point (1). If the two-point crosspiece is used, lock the equalizers (10) using the optional screws (8) and nuts (9). **Attention: do not use screws (8) if the machine is hitched to the drawbar.** After the machine is hitched, loosen the parking stand (2) and remove pin (3), then rotate the stand upward towards the back of the machine and insert pin (3) to hold it in the resting position.

Once this procedure is completed, insert the quick-release coupling (4) into the tractor socket and open the tap (the lever must be parallel with the line, as shown in the illustration). At this point, work carefully with the hydraulic distributor to make sure that the frame is completely lowered, then adjust the height of the tines above the ground. To change the distance between the tines and the ground, turn screws (6). By rotating the crank (7), the tilt of the machine relative to the ground is adjusted.



CONNECTING THE CARDAN SHAFT



DANGER !!!



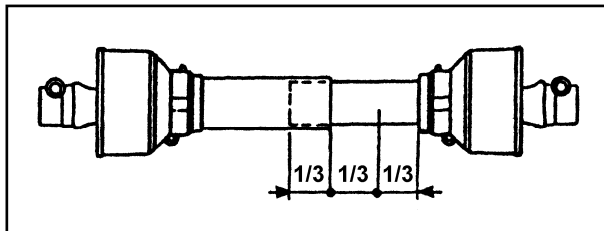
More detailed information may be found in the cardan shaft manual which, together with this manual, is an essential part of the accident-prevention documentation.

It is your responsibility to read and comply with this documentation. If information given in this manual should conflict with that given in the cardan shaft manual, you should follow the instructions given by the cardan shaft manufacturer.

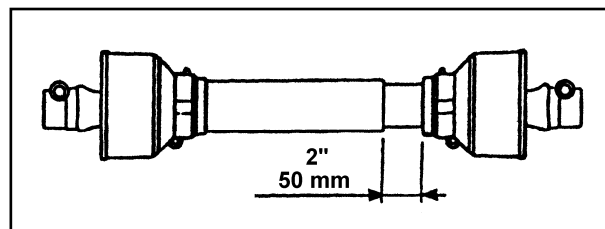
Fit the cardan shaft and check that the shaft is connected correctly both at the tractor end and at the machine end. For more details, see the descriptions on the following pages.

If a safety system is provided, this should be fitted to the machine end, not to the tractor end.

During both transport and use, avoid conditions where the cardan transmission shaft is extended to the maximum. In all working conditions, the telescopic tubes must overlap by at least 1/3 of their length).

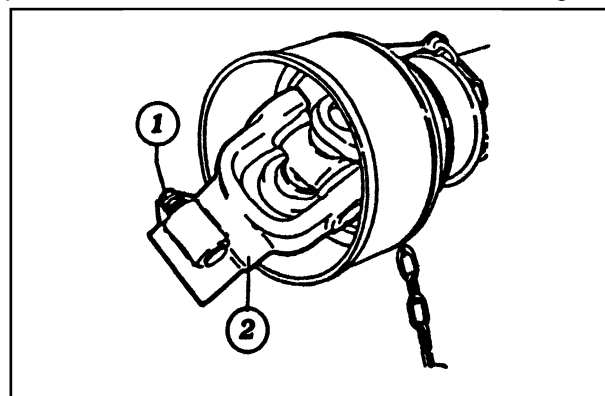


Conversely, when the cardan shaft is contracted to the maximum, there should still be a gap of approximately 50 mm (2") .



Take particular care when connecting the two cardan shaft end forks and make sure that they are fully secured. This is achieved by inserting the safety pins and bolts (1) in the special slots (2) on the power takeoff shafts on both the tractor and machine ends.

A loose shaft could come apart and cause considerable mechanical damage and serious injury to persons.



DISASSEMBLY OF THE TRACTOR

In order to park the rake, make sure that the ground beneath it is flat and is able to bear the weight of the machine.

When the rake is raised and lowered, no-one should be standing between the tractor and the machine or near the machine.

Before disconnecting the machine from the tractor, use the hydraulic system to lower the machine completely, then apply the brake and shut off the tractor. Dismount from the tractor and place the parking stand in the vertical position (pos. 2, Fig. 18). Turn the crank to raise the machine from the drawbar so that the hitch pin may be removed from the tractor. Disconnect the quick-release coupling (4). Disconnect the cardan shaft and lay it against the parking stand crank. The tractor may now be moved away.

If there are problems with space, when not in use the machine may be left in the position shown in Fig. 16.

Attention: the machine should be in the high position only when being transported.

ADJUSTMENT OF THE FORAGE RAKE

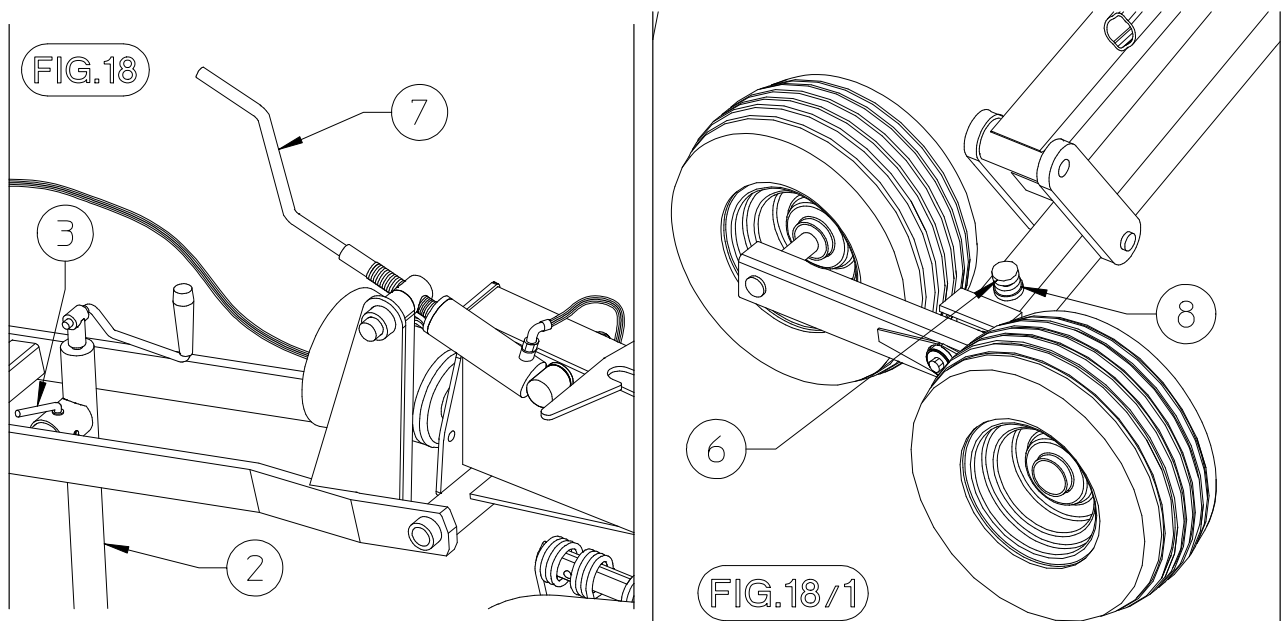
The machine has to be adjusted when it is attached to the tractor.

Adjustment of work depth

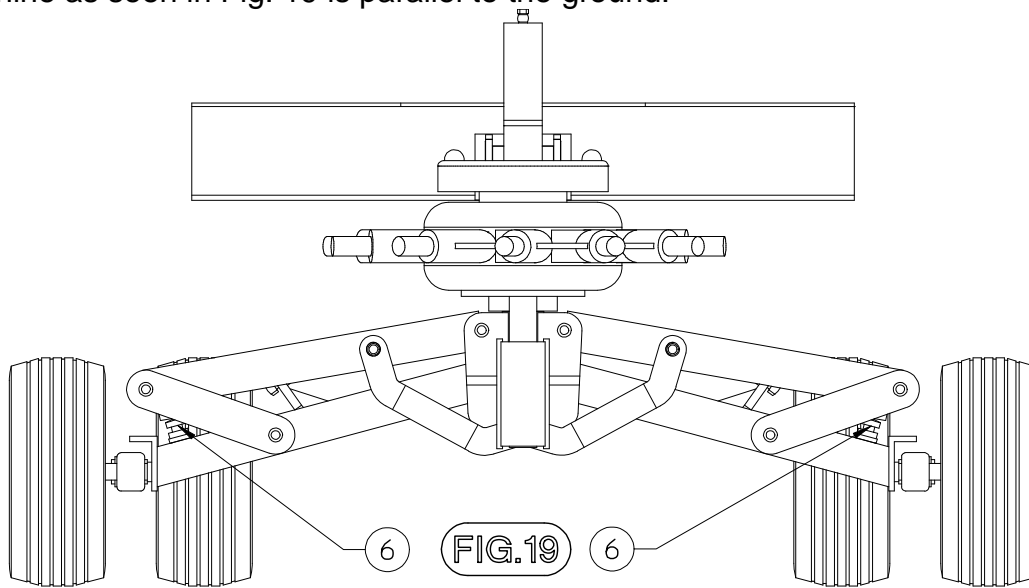
Adjustment of working height

The working height is adjusted by turning screws (6) and nut (8) and by rotating crank (7); it is advised to adjust the front tine so that it is 1 3/8" from the ground, and to keep the machine tilted slightly towards the front. The rear tine should be about 3/16" farther away from the ground.

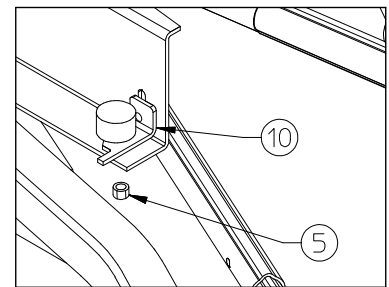
If adjustment is too high, the forage will not be completely picked up and if it is too low, the forage risks becoming dirty, the grass will be damaged and the double elastic tines will be worn down.



When the working height is being adjusted, set the screws (6) and relative nuts (8) so that the machine as seen in Fig. 19 is parallel to the ground.



After having adjusted the work height of the tine, use nuts 5 under clamp 10 to set the distance of the plate from the ground.



The distance between the swath-shaper plate and the rotor determines the size of the swath and on this depends the amount of forage. Adjustment is continuous and a large amount of forage means making a larger adjustment.

In order to carry out adjustment, loosen lock 21 and screw 20 and then move plate carrier 27 to the required position and tighten first screw 20 and then lock 21.

In the work position check that safety hook 13 fits into lock 10 in order to fasten

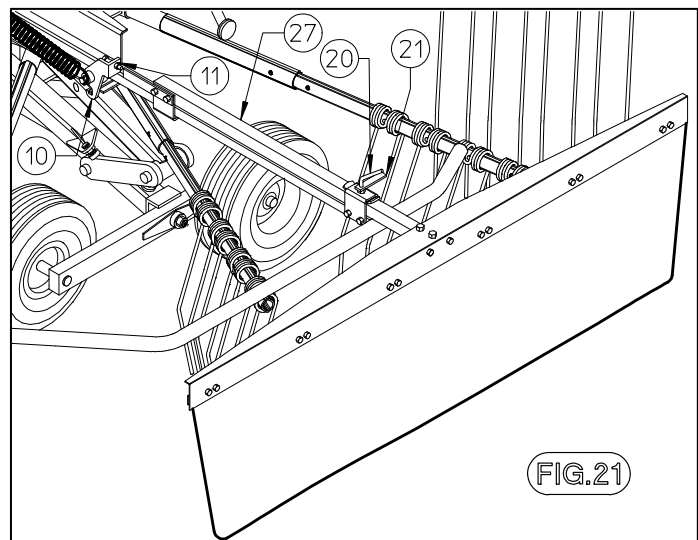
the swath-shaper plate into position.

Adjustment of gear speed and revs to work the machine

The gear speed and machine revs depend on;

- the amount of forage
- the type of ground
- the degree of dryness

The forage rake was designed for a maximum number of revs for the power take-off of 540 g/min. We advise working with a rev number of 350-450 g/min. Gear speed should be limited so that the rake works cleanly and the swath is well formed.



TRANSPORT

If the machine is used on the road, make sure it complies with traffic regulations in your country; use regulation lights and comply with the safety regulations.

Preparation for transport

The machine may be transported for short distances after having raised it with the hydraulic system. When transporting for longer distances, close the tap (5). This operation must be done regardless of distance when transporting on public roads. When lifting the machine, make sure that the outside arms (1) move all the way until they touch the stops (2).

During transport or storage it may be necessary to have the machine occupy less space. To do this, follow the procedure given below (see Fig. 16).

Loosen the swath-shaper plate carrier and reinsert it until the safety hook is released, then tighten the lock screw once again.

Turn the protection frames facing upwards one at a time and use hook 23 to fasten them, insert safety clamp 24 into the special slot.

Remove tine carrier arms 44 from their slots and take out lock clamps 43, insert the arms into the special slots on side frame 1; the arms should be inserted with the tines facing into the machine. Clamps 43 should be placed into the holes on the rotor arms.

By detaching the arms and lifting up the protection frames, it is possible to have a narrower width if necessary for transport; the machine itself does not require these operations.

Remember to open the tap and lower the machine after transport operations are completed.

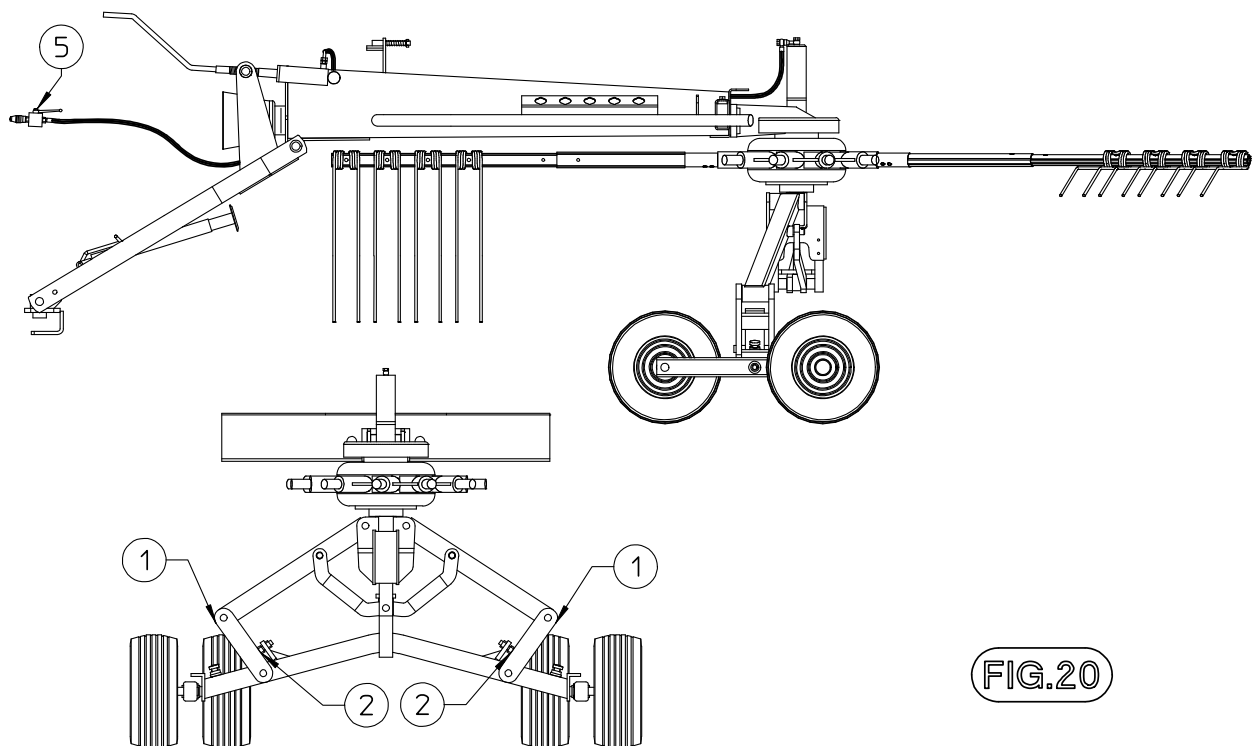
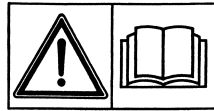


FIG.20

MAINTENANCE DIRECTIONS



 DANGER !!! 

All cleaning, lubrication and maintenance operations must be carried out with the machine disconnected from the tractor. In an emergency with the machine still connected to the tractor, switch off the engine, apply the parking brake, disengage the power takeoff and remove the ignition key from the instrument panel.

Regular, correct maintenance and proper operation are the basic prerequisites for the long-term efficiency and safe operation of the machine.

Pay special attention to all instructions given on signs located on the machine.

All maintenance should be carried out in an area having the proper equipment readily available and in good condition. This area must always be kept clean and dry and must, have enough surrounding space to facilitate operations.

Any work must be carried out by trained personnel. Contact the dealer nearest to you.

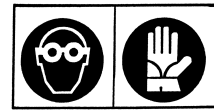
Respect the warnings and procedures for maintenance and technical assistance given in this manual.

Do not use petrol, solvents or other flammable liquids as detergents.

Use commercial non-flammable and non-toxic solvents, authorized by competent bodies.

Do not use compressed air or water at high pressure to clean the machine. If this is unavoidable, then wear goggles with side protection and limit the pressure as much as possible. When the work is finished, and with the machine disconnected from the tractor, inspect and check the machine completely.

GENERAL INSTRUCTIONS FOR REPAIR WORK



 DANGER !!! 

Any repair work must be carried out with the machine at rest and disconnected from the tractor.

Do not carry out welding without authorization and instructions from the manufacturers. Disconnect the machine from the tractor before any welding work in order not to damage the battery.

Always use a protective mask, goggles and gloves when welding, sanding or grinding or when using a hammer or drill.

Always work on the machine out of doors. If you have to operate the machine when connected to the tractor in an enclosed area (for example when testing after repair and/or maintenance), ensure that there is sufficient ventilation so as to prevent noxious exhaust gases accumulating.

In order to acquire the necessary control and to operate in safety, practise various manoeuvres by simulating those required in the workplace with the help of an experienced person.

If you activate the machine while it is raised from the ground, make sure there is nobody standing nearby or in a dangerous position.

LAYING UP FOR EXTENDED PERIODS

At the end of the season, or when an extended period of inactivity is envisaged, it is advisable to:

Clean the machine following instructions and allow it to dry.

Check it carefully and replace any damaged or worn parts.

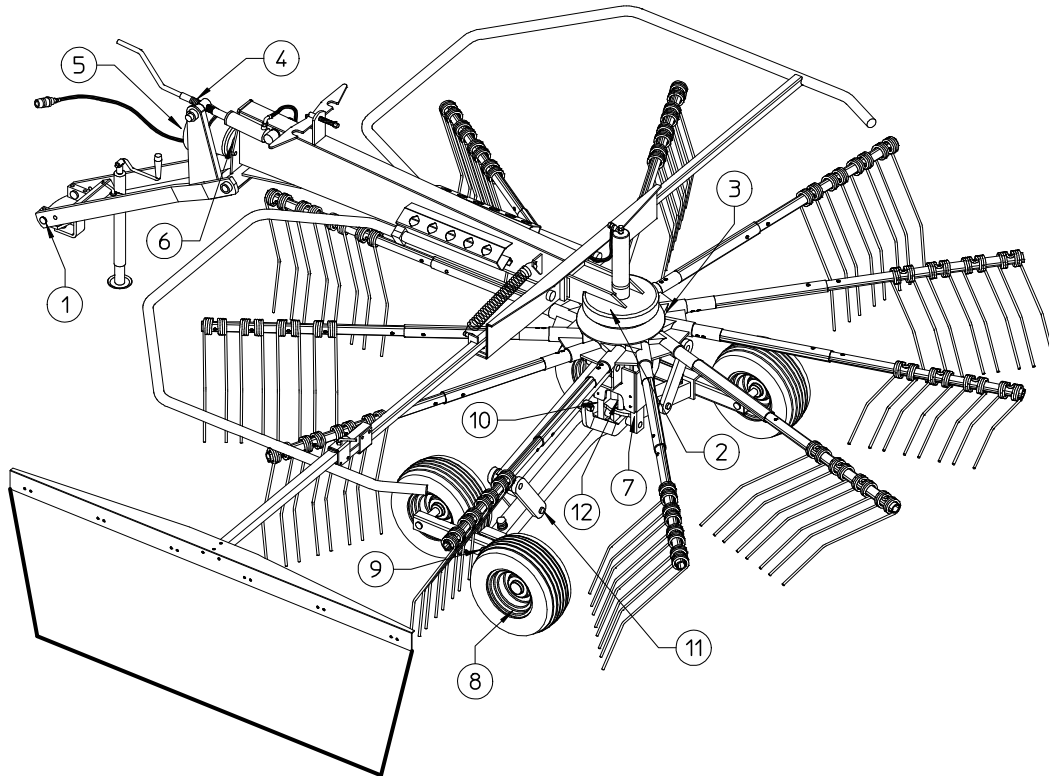
Thoroughly tighten all screws and bolts.

Grease the machine thoroughly and then cover it completely and lay it up in a dry place.

It is to the user's advantage to carry out these operations carefully. In this way, he will have a machine in perfect condition when work is restarted.

On recommencing work, repeat all the proper checks so as to be certain of working in conditions of maximum safety.

MAINTENANCE POINTS



Number	Q.ty	Description	Operation	Every hours	Product to be used	Notes
1	2	Equalizer	Greasing	16	Grease	
2	1	Gearbox	Greasing	8	Grease	
3	1	Gearbox	Oil level	50	Oil SAE90EP	
4	1	Screw	Greasing	20	Grease	
5	1	Power takeoff shaft	Cleaning Greasing	A	Additives Grease	
6	1	Bearing	Greasing	20	Grease	
7	4	Sliding	Cleaning Greasing	B	Additives Grease	
8	4	Tyres	Check pressure	B	Compressor	
9	2	Axle tandem	Greasing	20	Grease	
10	1	Sliding	Cleaning Greasing	B	Grease	
11	6	Pin	Greasing	8	Grease	
12	1	Rod (210.680)	Greasing	8	Grease	
	2	Cardan shaft	Greasing	8	Grease	

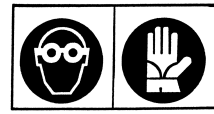
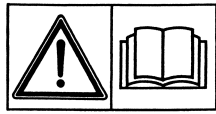
General checking of bolts, security pins and split pins to be carried out initially after the first 8 hours of use. Subsequently every 50 hours and whenever the machine is laid up for extended periods.

A = Each time the Cardan shaft is disconnected and Whenever the machine is stopped, we recommended that you clean the power takeoff shaft and replace the protective cover.

B = Each time the machine is connected to the tractor.

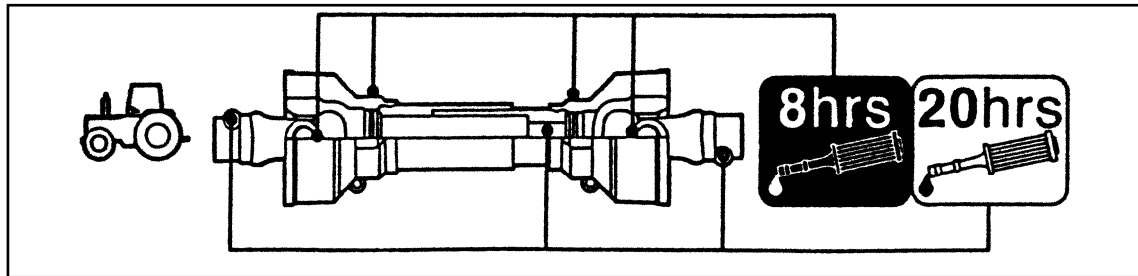
Additives of a type permitted by anti-pollution regulations.

CARDAN SHAFT MAINTENANCE



More detailed information may be found in the Cardan shaft manual, which, together with this manual, forms an essential part of the accident-prevention documentation. It is your responsibility to read and comply with this documentation.

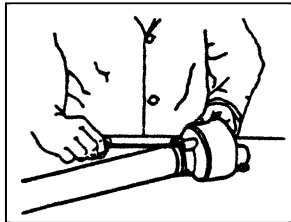
If information given in this manual conflicts with that given in the Cardan shaft manual, you should follow the instructions given by the Cardan shaft manufacturer.



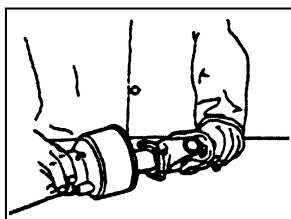
MAINTENANCE OF SLIDING PARTS

DISMANTLING

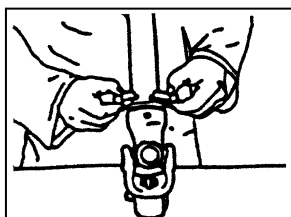
Turn the two eccentric pins on the ferrule until the protective cone comes free.



Withdraw the shaft protective guard.

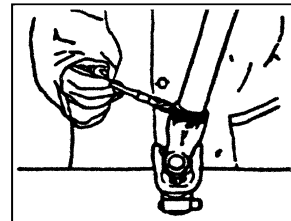


Check the condition of the ferrule and all protective parts.

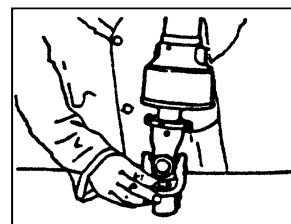


ASSEMBLY

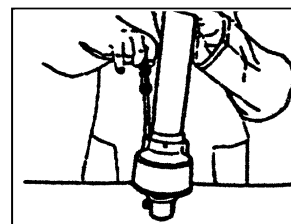
Lubricate the supporting ferrule seating.



Refit the supporting ferrule.



Reattach the protective guard to the Cardan shaft by turning the eccentric pins on the supporting ferrule.



NOISE AND VIBRATION

Noise affecting the tractor driver (from the machine only) is less than 70dB.

Vibration from the machine affecting the upper body and limbs of the driver is insignificant and is lower than the values given in Point 3.6.3 of Enclosure 1 of the Machine Directives (89/392/EEC, 91/386/EEC)

THE FOLLOWING SHOULD BE NOTED IF THE MACHINE IS SCRAPPED

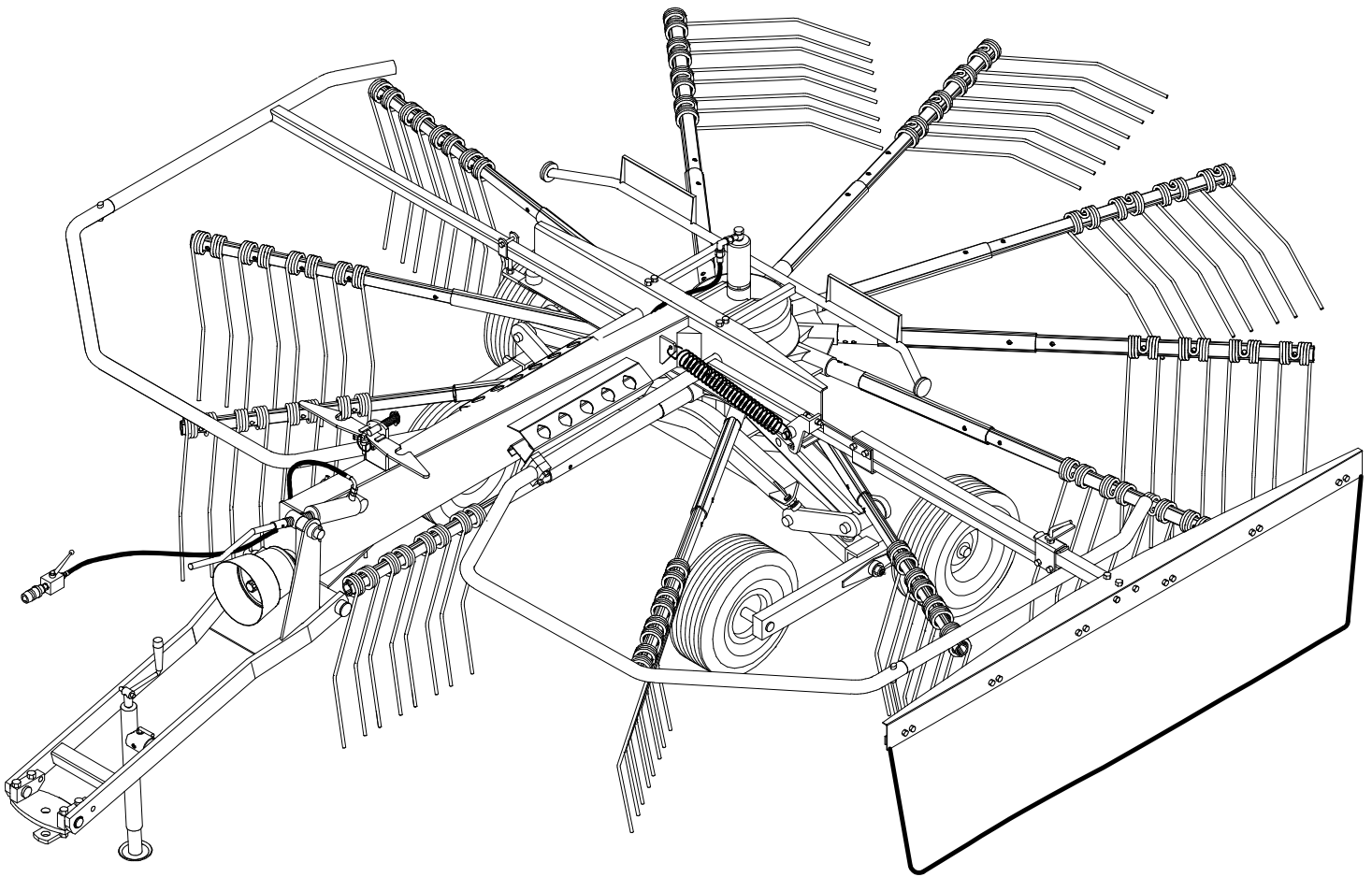
The machine consists mainly of ferrous material which must be disposed of according to the regulations in force in the country concerned.

There is also a small amount of plastic which must be disposed of according to the regulations in force in the country concerned.

There is very small amount of residual grease which must be disposed of according to the regulations in force in the country concerned.

SPECIFICATIONS	420/11
Number of arms	11
Number of double tines per arm	4
Working width	4,20 / 13'-9"
Rotor diameter (raking width)	3,40 / 11'-2"
Transport width (with arms disassembled)	2,00 / 6'-7"
Transport width (with arms assembled)	3,50 / 11'-5"
Maximum height of tine from ground	0,33 / 1'-1"
Power required	30kW / 40HP
PTO driveline with overload clutch	540 RPM constant velocity overload clutch protects gearbox
Hydraulic requirement	1,000 PSI
Weight	700kg / 1550lbs
Tyres (tandem axle)	18 x 8.50 x 8

SPARE PARTS LIST



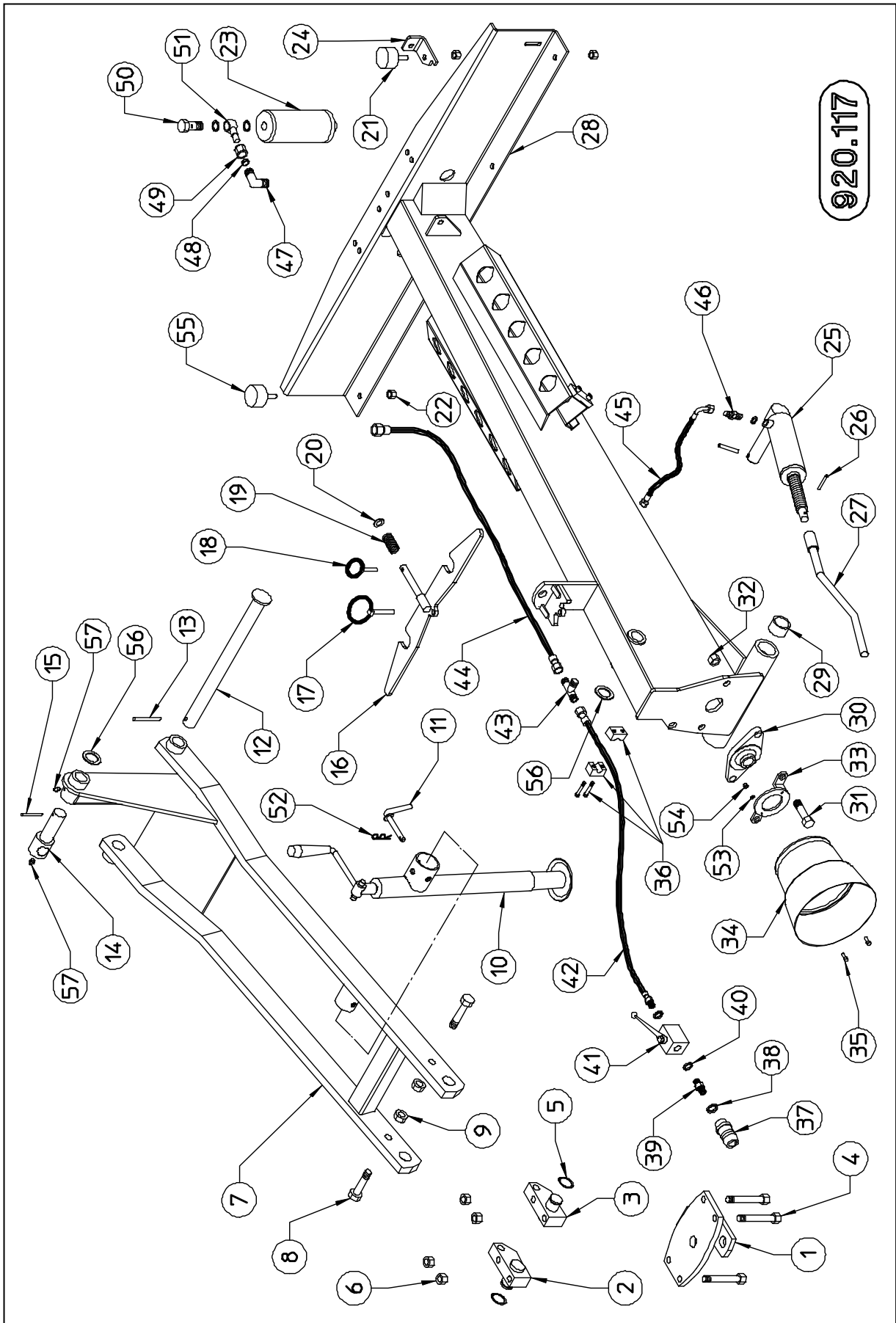
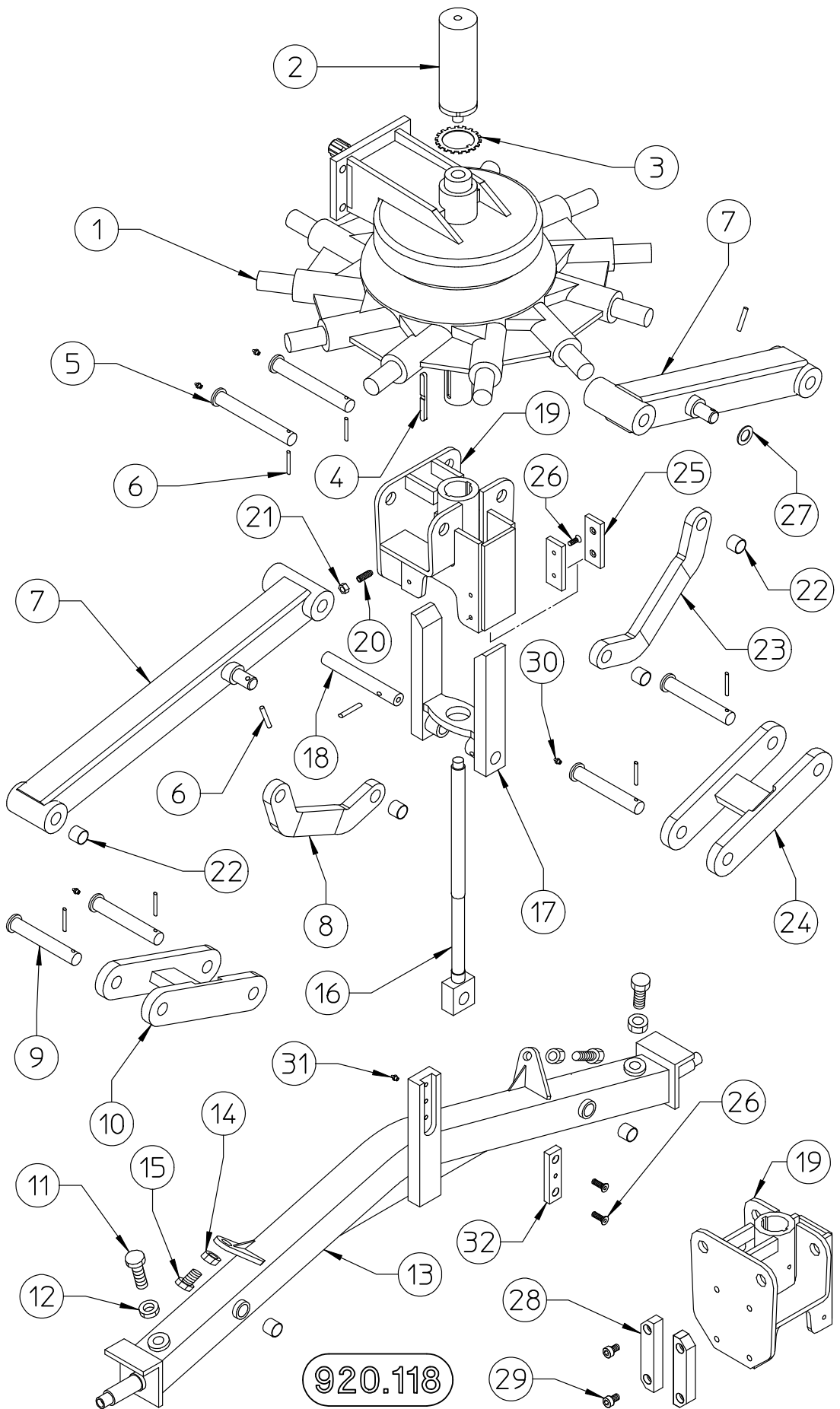
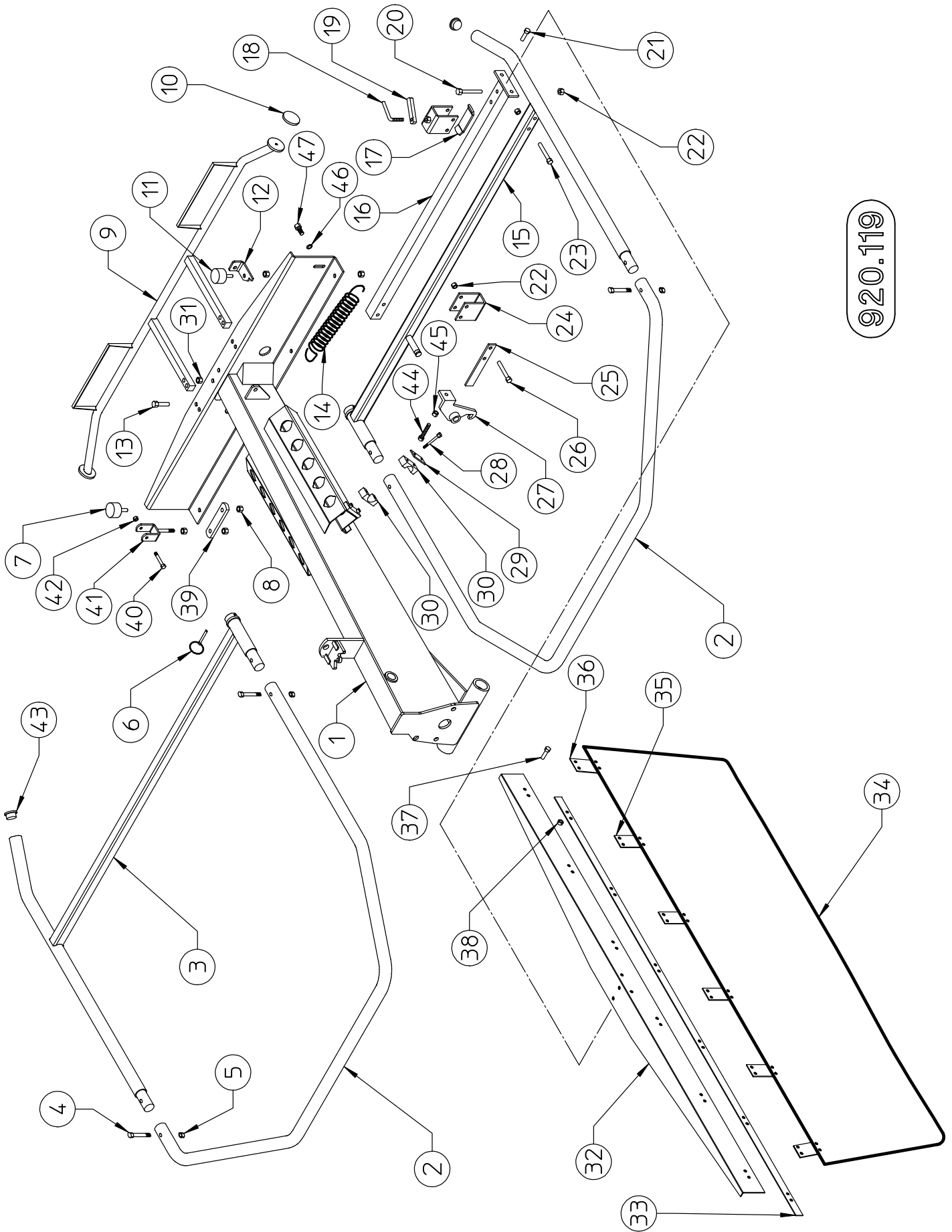


TABLE NO. 920.117				
420/11 Pull type				
ITEM	Q.ty	PART/NO	DESCRIPTION	NOTE
1	1	210.677	BRACKET	
2	1	210.719	RH EQUALIZER	
3	1	210.720	LH EQUALIZER	
4	4	600.737	SCREW	
5	2	600.611	SNAP RING	
6	4	600.075	NUT	
7	1	210.514	DRAWBAR	
8	2	600.292	SCREW	optyonal
9	2	600.080	NUT	optyonal
10	1	220.197	PARKING STAND	
11	1	200.222	PIN	
12	1	210.678	HINGE PIN	
13	1	600.027	SPRING PIN	
14	1	210.518/a	PIN	
15	2	600.539	SPRING PIN	
16	1	210.504	RATCHET	
17	1	600.017	PIN	
18	1	600.723	SPRING PIN	
19	1	210.558	SPRING	
20	1	600.031	WASHER	
21	3	610.283	RUBBER PAD	
22	8	600.008	NUT	
23	1	210.727	CYLINDER	
*	1	610.523	SET OF GASKET	
24	1	210.615	PLATE	
25	1	210.721/a	CYLINDER	
*	1	600.643	SET OF GASKET	
26	1	600.580	SPRING PIN	
27	1	210.722	CRANK	
28	1	210.513	FRAME	
29	2	210.761	BUSH	
30	1	610.285	BEARING	
31	2	610.167	SCREW	
32	2	600.080	NUT	
33	1	210.675	SUPPORT	
34	1	600.818	HOOD	
35	2	600.236	SCREW	
36	3	610.515	HOSE COLLAR	
*	*	210.726/a	HYDRAULIC KIT	
37	1	600.273	RAPID COUPLING	
38	1	600.269	COPPER WASHER	
39	1	600.416	NIPPLE	
40	5	600.039	WASHER	
41	1	610.002	VALVE	
42	1	610.494	HOSE	
43	1	600.272	FITTING	
44	1	610.492	HOSE	
45	1	610.493	HOSE	
46	1	600.270	NIPPLE	
47	1	610.512	NIPPLE	
48	1	610.513	GASKET	
49	1	610.514	NUT	
50	1	600.040	FITTING	
51	1	610.511	IRON PIPE	
52	1	600.019	SPLIT PIN	
53	2	600.412	WASHER	
54	2	600.532	NUT	
55	1	610.521	RUBBER PAD	
56	2	100.141	SHIM	
57	2	600.124	GREASE NIPPLE M6	



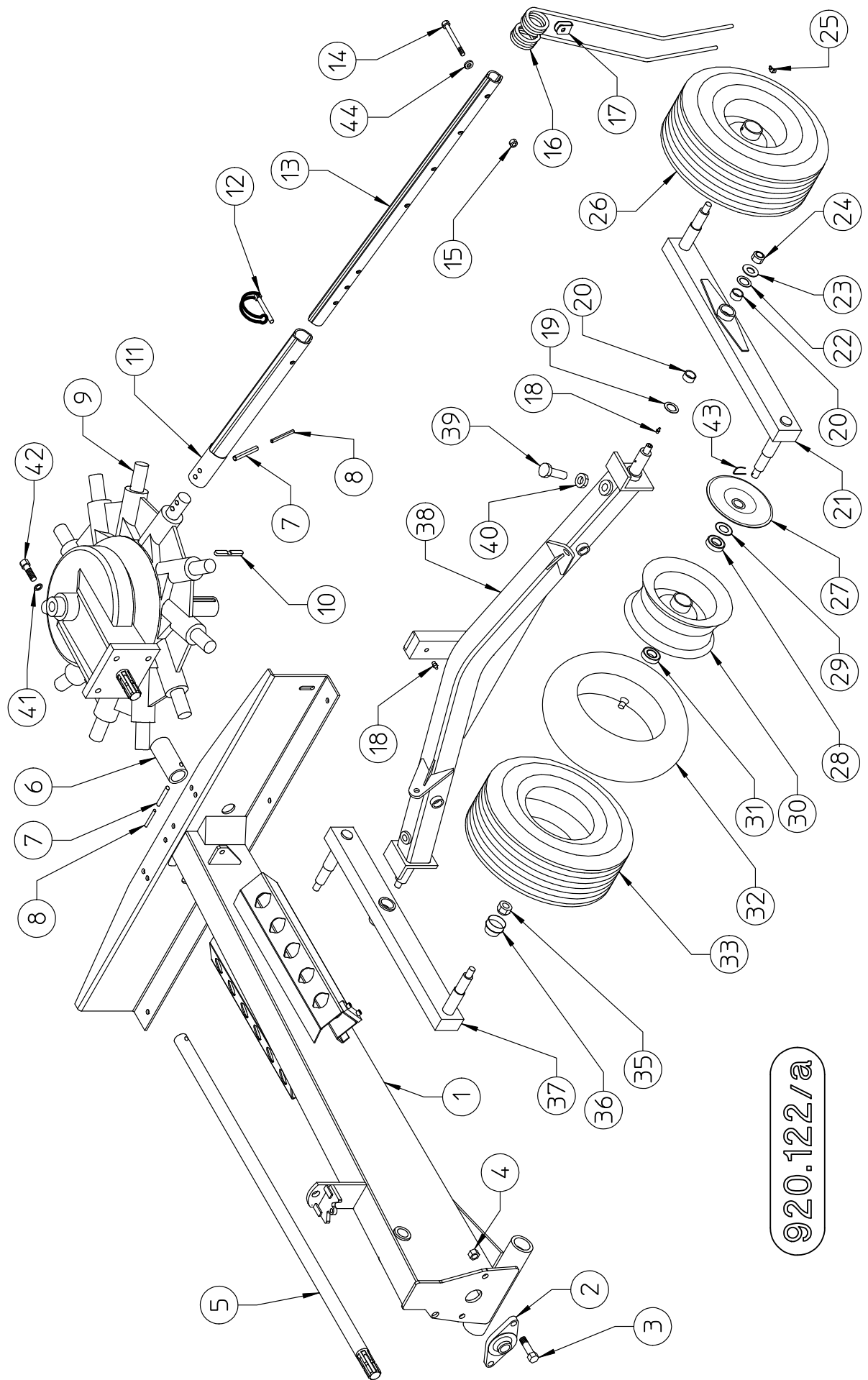
920.118

TABLE NO. 920.118				
420/11 Pull type				
ITEM	Q.ty	PART/NO	DESCRIPTION	NOTE
1	1	610.487	GEARBOX	
2	1*	210.727	CYLINDER	
3	2	8.3.8.00336	WASHER	
4	2	210.808	LATCH	
5	2	210.741	PIN	
6	9	600.108	SPRING PIN	
7	2	210.723	ARM	
8	1	210.682	TIEROD	
9	4	210.742	PIN	
10	1	210.762	LH SUPPORT	
11	2	610.497	SCREW	
12	2	620.206	NUT	
13	1	210.725/a	AXLE	
14	2	600.032	NUT	
15	2	610.167	SCREW	
16	1	210.680/a	ROD	
17	1	210.681	SUPPORT	
18	1	210.686/a	PIN	
19	1	210.679/b	SUPPORT	
20	2	610.586	SCREW	
21	2	600.772	NUT	
22	16	610.488	BUSH	
23	1	210.682	TIEROD	
24	1	210.724	RH SUPPORT	
25	4	210.729/a	SLIDING	
26	10	610.496	SCREW	
27	2	100.043	WASHER	
28	2	210.728/a	SLIDING	
29	4	610.503	SCREW	
30	7	600.034	GREASE NIPPLE	
31	1	600.124	GREASE NIPPLE	
32	1	210.939	SLIDING	



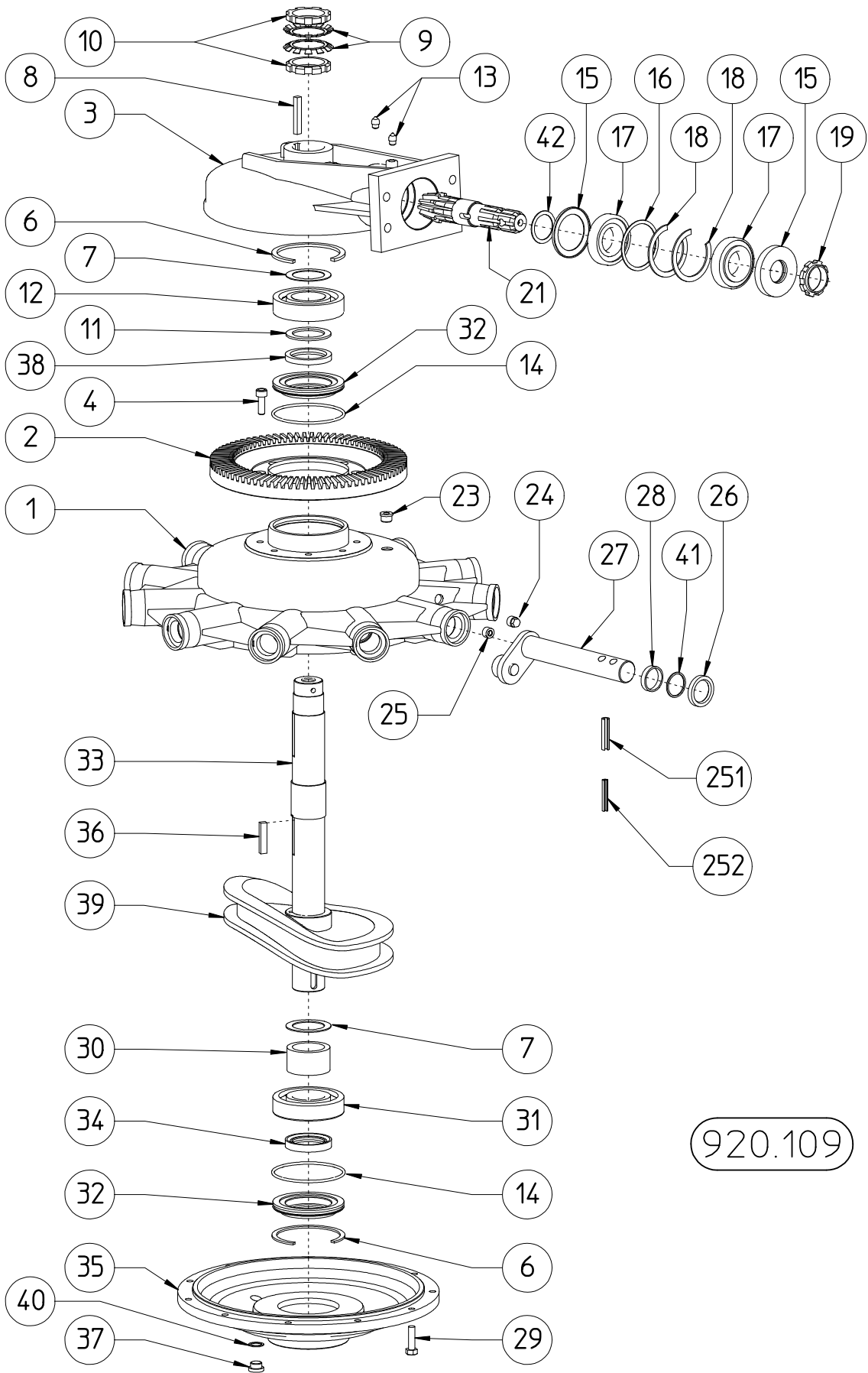
920.119

TABLE NO. 920.119				
420/11 Pull type				
ITEM	Q.ty	PART/NO	DESCRIPTION	NOTE
1	1*	210.513	FRAME	
2	2	220.623	GUARD	
3	1	220.622	RH GUARD SUPPORT	
4	4	600.437	SCREW	
5	4	600.029	NUT	
6	2	610.186	PIN	
7	1*	610.521	RUBBER PAD	
8	10*	600.008	NUT	
9	9	210.511	LIGHTING BRACKET	
10	2	610.289	REFLECTOR	
11	3*	610.283	RUBBER PAD	
12	1*	210.615	PLATE	
13	4	600.154	SCREW	
14	1	210.557	SPRING	
15	1	220.621	LH GUARD SUPPORT	
16	1	220.624	TELESCOPING TUBE	
17	1	210.512	PLATE	
18	1	210.502	PIN	
19	1	210.552	NUT	
20	2	600.437	SCREW	
21	2	600.006	SCREW	
22	8	600.029	NUT	
23	4	610.500	SCREW	
24	2	210.498	U-BRACKET	
25	1	210.553	PLATE	
26	2	600.726	SCREW	
27	1	210.554	HOOK	
28	4	610.333	SCREW	
29	2	610.491	PLATE	
30	4	610.332	HOSE COLLAR	
31	4	600.077	NUT	
32	1	210.508	SWATHING SUPPORT	
33	1	210.509	CLAMPING STRAP	
34	1	210.510	SWATHING DEFLECTOR	
35	4	210.555	CLAMPING STRAP	
36	2	210.556	CLAMPING STRAP	
37	12	600.223	SCREW	
38	12	600.076	NUT	
39	1	210.809	PLATE	
40	1	610.525	SCREW	
41	1	210.810	SUPPORT	
42	1	600.076	NUT	
43	2	610.501	PLUG	
44	1	610.499	SCREW	
45	1	600.010	NUT	
46	1	600.089	WASHER	
47	1	600.770	SCREW	



920.122/a

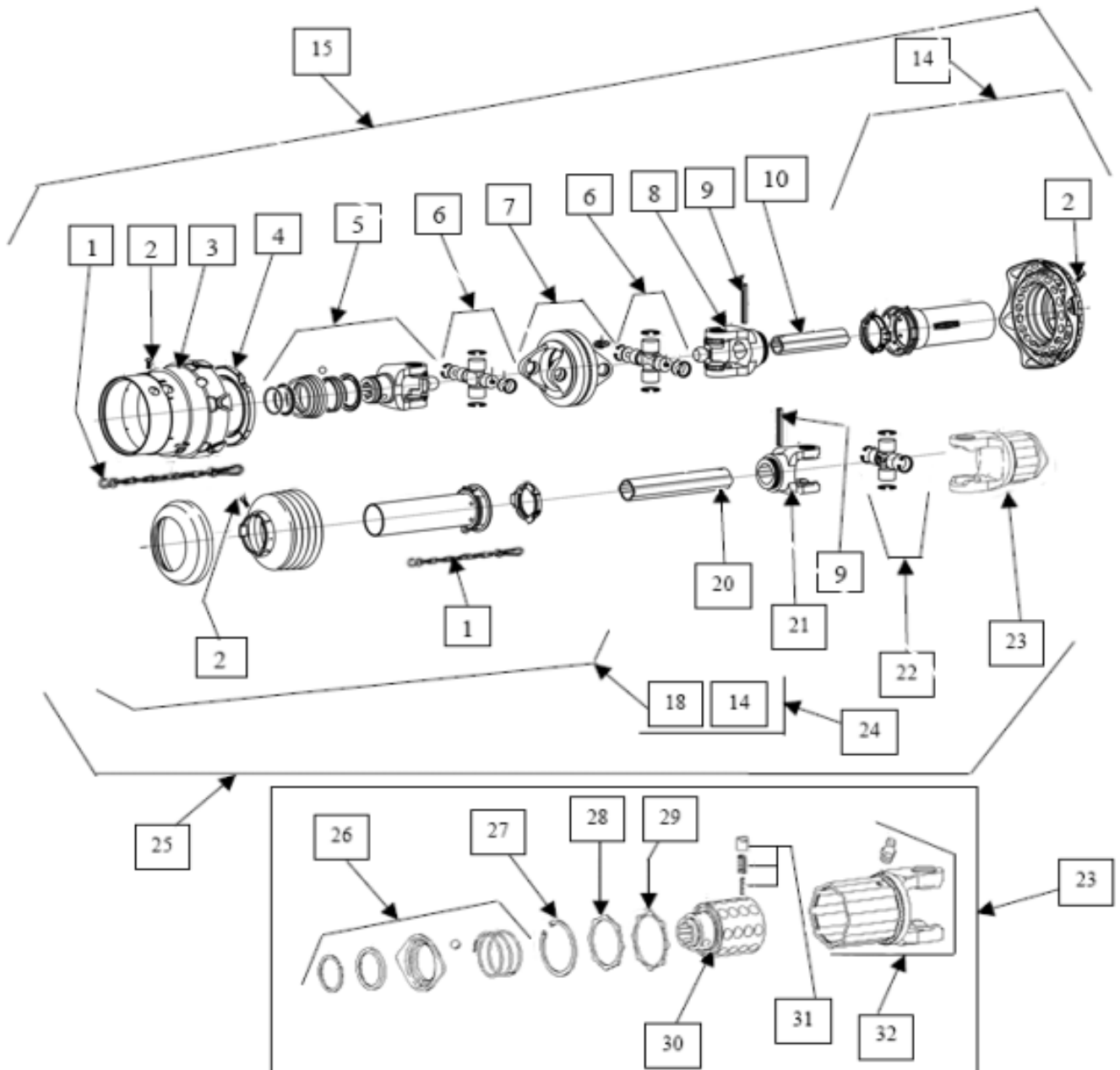
TABLE NO. 920.122/a				
420/11 Pull type				
ITEM	Q.ty	PART/NO	DESCRIPTION	NOTE
1	1*	210.513	FRAME	
2	1*	610.285	BEARING	
3	2*	610.167	SCREW	
4	2*	600.080	NUT	
5	1	210.525	SHAFT	
6	1	210.528	BUSH	
7	23	610.417	SPRING PIN	
8	23	610.419	SPRING PIN	
9	1*	610.487	GEARBOX	
10	2*	210.808	LATCH	
11	11	210.494	PROFILE TUBE	
12	11	600.842	PIN	
13	11	210.767	TINE ARM	
14	44	600.386	SCREW	
15	44	600.077	NUT	
16	44	210.495	TINE	
17	44	200.349	TINE LOCK, FLEXIBLE	
18	3	600.124	GREASE NIPPLE	
19	2	200.272	SHIM	
20	4	600.808	BUSHING	
21	1	210.941	TANDEM ARM	
22	6	200.273	SHIM	
23	2	200.165	WASHER	
24	2	600.079	NUT	
25	4	600.968	GREASE NIPPLE	
26	4	610.677	TYRE ASSY	
27	4	210.942	DUST COVER, INNER	
28	4	600.287	BEARING	
29	4	610.672	DUST COVER	
30	4*	610.683	RIM	
31	4	600.287	BEARING	
32	4*	610.527	TUBE	
33	4*	610.528	TYRE	
34				
35	4	600.288	NUT	
36	4	600.290	DUST COVER, OUTER	
37	1	210.941	TANDEM ARM	
38	1*	210.725/a	AXLE	
39	2	610.497	SCREW	
40	2	600.257	NUT	
41	4	600.180	WASHER	
42	4	600.044	SCREW	
43	4	600.291/1	PIN	
44	44	500.012	WASHER 13/28-3,5	



920.109

TABLE NO 920.109				
ITEM	PART NO	Q.ty	DESCRIPTION	NOTE
1	220.732	1	GEAR BOX	
2	220.721	1	GEAR	
3	220.722	1	CAP	
4	220.723	8	SCREW	
6	620.177	2	SNAP RING	
7	220.724	3	SHIM	
8	620.178	1	LATCH	
9	620.179	2	WASHER	
10	620.180	2	NUT	
11	220.733	1	SHIM	
12	620.127	1	BEARING	
13	620.182	2	GREASE NIPPLE	
14	620.163	2	GASKET	
15	620.140	2	DUST COVER	
16	220.726	1	SHIM	
17	620.181	2	BEARING	
18	620.148	2	SNAP RING	
19	220.727	1	REGISTER NUT	
21	220.715	1	PINION	
23	620.151	1	PLUG	
24	620.183	1	PLUG	
25	620.184	1	PLUG	
26	620.162	11	DUST COVER	
27	220.720	11	ARM	
28	220.707	11	SPACER	
29	220.731	11	SCREW	
30	220.717	1	SPACER	
31	620.185	1	BEARING	
32	220.712	2	DUST COVER SUPPORT	
33	220.713	1	SHAFT	
34	620.158	1	DUST COVER	
35	220.728	1	CAP	
36	620.178	1	LATCH	
37	620.153	1	PLUG	
38	620.157	1	DUST COVER	
39	220.711	1	CAM	
40	620.175	1	WASHER	
41	220.718	11	SHIM	
42	220.729	1	SHIM	
251	620.142	22	SPRING PIN	
252	620.144	22	SPRING PIN	

CARDAN SHAFT 620.867



CARDAN SHAFT 620.867			
ITEM	DESCRIPTION	Q.ty	PART NO
1	CHAIN	2	620.918
2	SPECIAL SCREW	12	620.919
3	GUARD	1	620.920
4	BEARING	1	620.921
5	YOKE	1	620.922
6	CROSS JOURNAL ASSEMBLY	2	620.923
7	CENTER JOINT	1	620.924
8	YOKE	1	620.925
9	SPRING PIN	2	620.926
10	CARDAN TUBE	1	630.579
14	HALF SAFETY GUARD	1	630.580
15	HALF SHAFT (WITH GUARD)	1	630.581
18	HALF SAFETY GUARD	1	630.582
20	CARDAN TUBE	1	630.583
21	YOKE	1	620.936
22	CROSS JOURNAL ASSEMBLY	1	620.937
23	TORQUE K34	1	620.938
24	SAFETY GUARD	1	630.584
25	HALF SHAFT (WITH GUARD)	1	630.585
26	BALL COLLAR KIT	1	620.941
27	SNAP RING	1	620.942
28	RETAINING RING	1	620.943
29	RETAINING RING	1	620.944
30	HUB 1 3/8" Z6	1	620.945
31	SET INCLUDING NR 8 RATCHET TOOTH	4 set	620.946
32	HUB WITH YOKE	1	620.947

