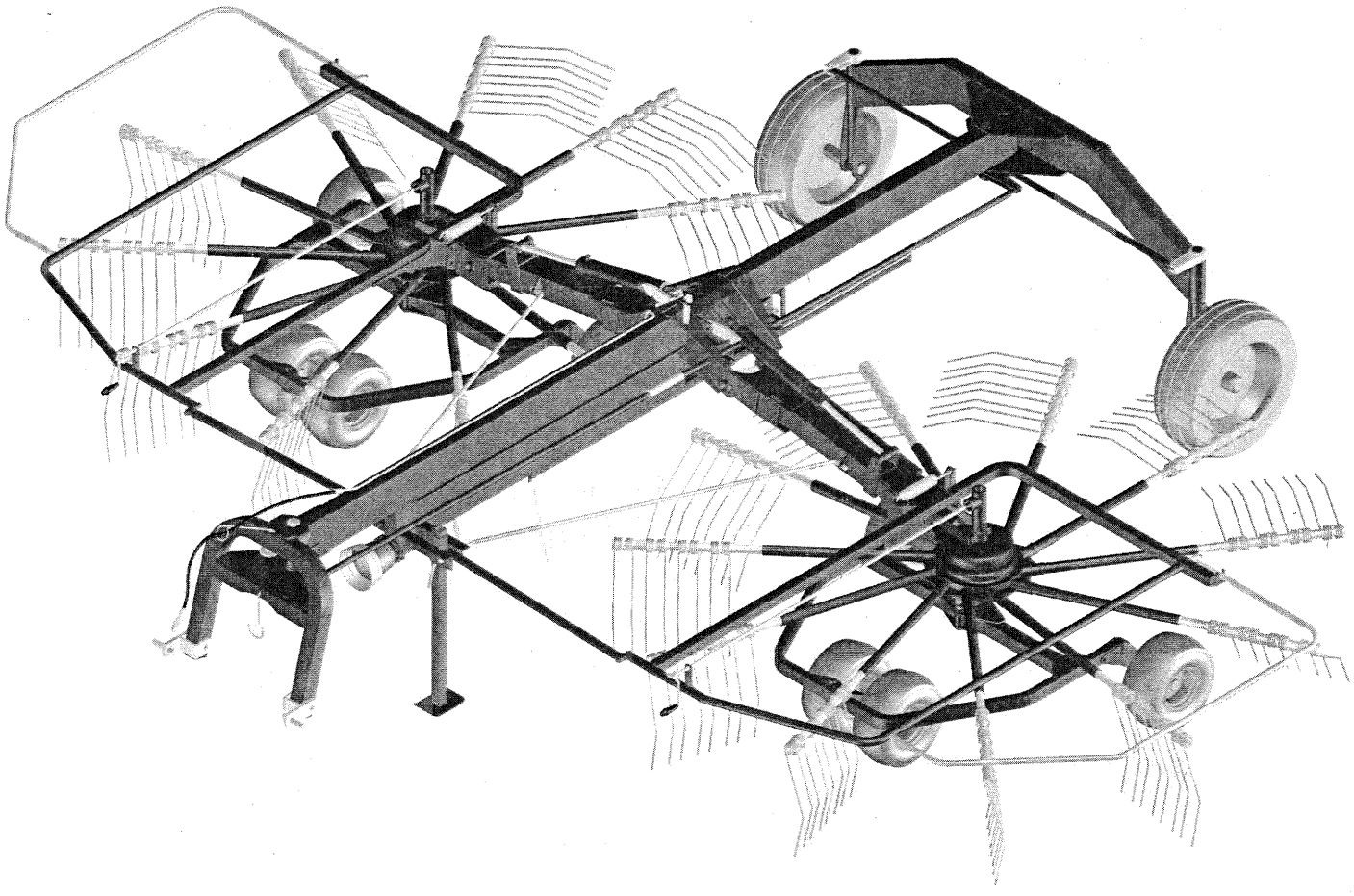
AGRICULTURAL MACHINERY

sitrex® Spa

USE AND MAINTENANCE
SPARE PARTS LIST



PROGRESS TW 7800

05-2007

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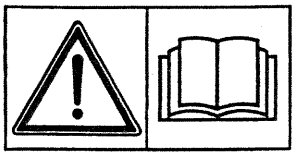


1) GENERAL INTRODUCTION - WARRANTY

INTRODUCTION

The user of the lawn mower (later referred to as the "machine") is responsible for his own safety as well as that of the people in proximity of it.
It is therefore crucial that the user has detailed information on the use and maintenance of the machine and on how to connect it correctly to a tractor.
This machine can operate only through a Cardan shaft attached to the power takeoff of an agricultural tractor equipped with a draw-bar and a hydraulic system. This manual is intended both for the operator and those responsible for maintenance. Essential instructions and procedures to follow during use and maintenance of the machine are conveyed through drawings and text.
The user is responsible for ensuring that the machine is connected to the tractor and is operated in compliance with current legal provisions.
The machine must only be operated and maintained by persons who have read this manual. The manual should always be kept to hand. It is particularly important to read ACCIDENT-PREVENTION INSTRUCTIONS on general safety instructions.
These instructions must always be heeded.
If you are in any doubt, contact the Assistance Center or your nearest dealer.

WARRANTEE

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 repaired 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.

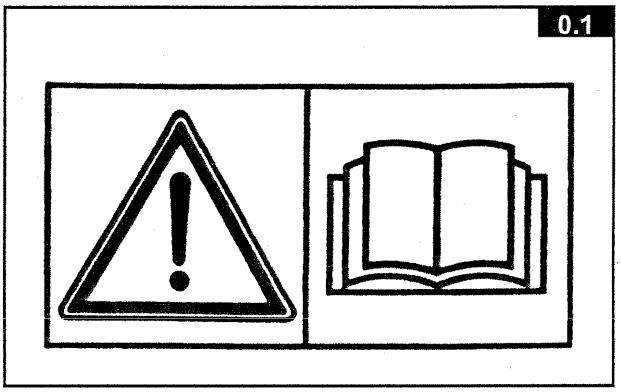
2) GUIDE TO THE SIGNS AND SYMBOLS AND THEIR LOCATION ON THE MACHINE

SIGNS AND SYMBOLS

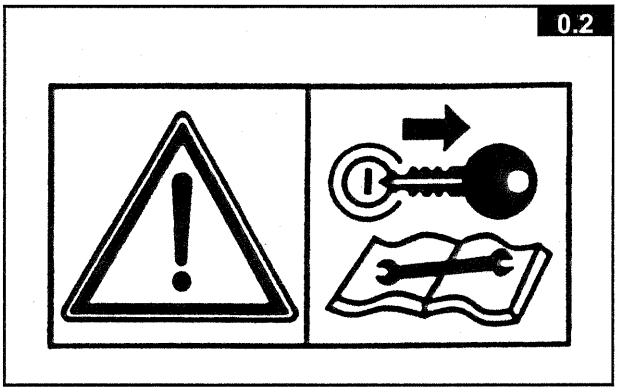
These signs and symbols give information to the operator on how to make the best use of the machine so as to prolong life, avoid damage, optimize work and, above all, to avoid injury to the operator and anyone within range of the machine.

WARNING SIGNS

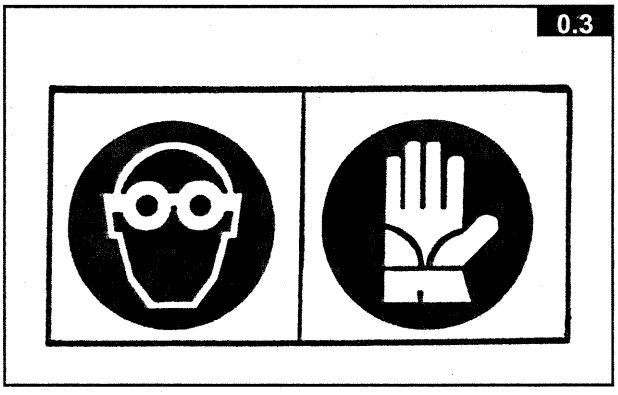
1. Before beginning operations, read the instruction manual carefully.



2. Prior to any maintenance work, adjustments or repairs, stop the machine, set it on the ground, turn off tractor and apply parking brake. Remove key from ignition and consult the instructions and maintenance manual.



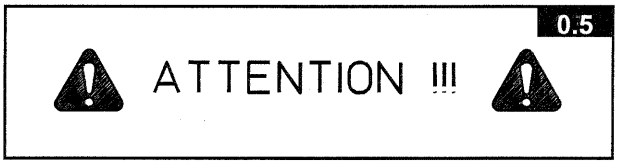
3. This is a warning to use proper accident protection when carrying out maintenance and repairs



DANGER SIGNS

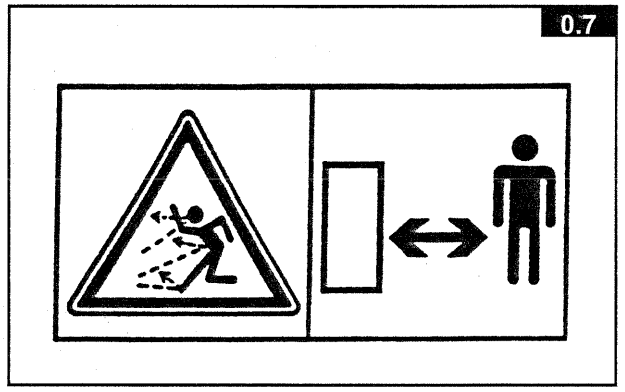
4. Indicates an impending dangerous situation which, if not avoided, will cause death or severe personal injury.

5. This indicates a potential danger which, if not avoided, could cause serious personal injury. It also indicates danger when removing protective guards.

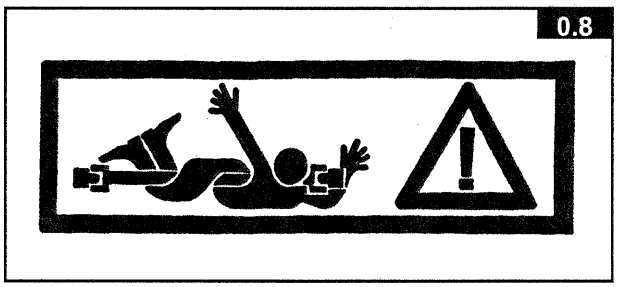


6. Indicates a potentially dangerous situation which, if not avoided, could cause less severe or minor injuries.

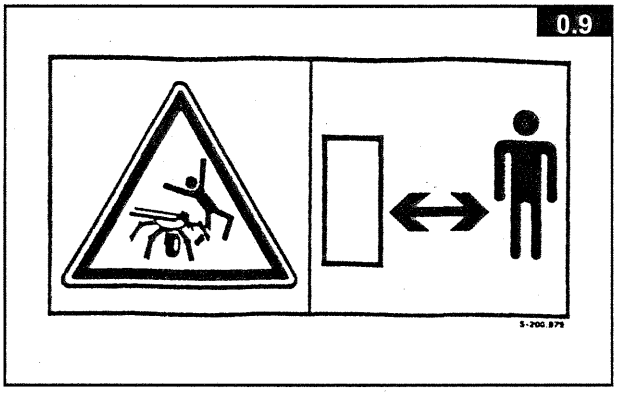
7. Risk of possible ejection of blunt objects. Keep a safe distance from the machine.



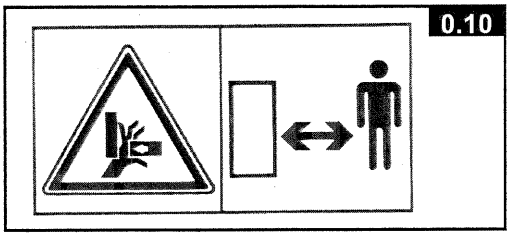
8. Indicates that it is dangerous to touch the Cardan shaft. For all other information regarding the Cardan shaft, see the use-and-maintenance booklet specifically for the Cardan shaft which, together with this manual, makes up the documentation on safety, use and maintenance of the machine.



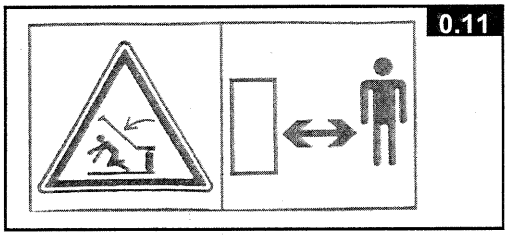
9. Indicates that anyone coming within range of the moving tine arms will be seriously injured. Keep a safe distance from the machine.



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

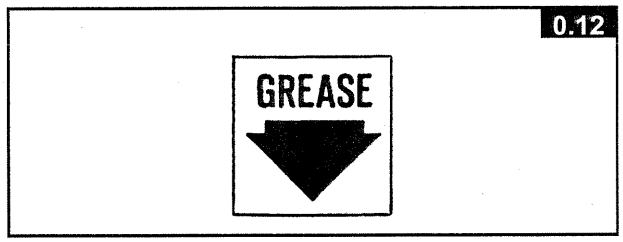


11. Indicates danger caused by accidental fall of suspended arms. Keep safe distance

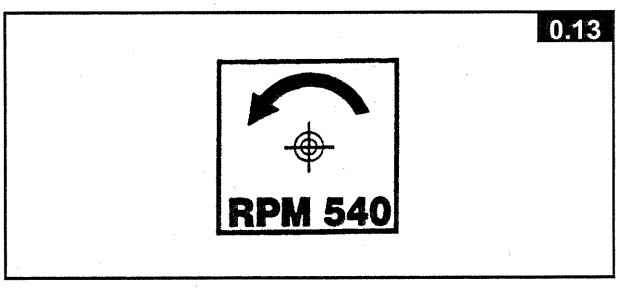


INDICATION SIGNS

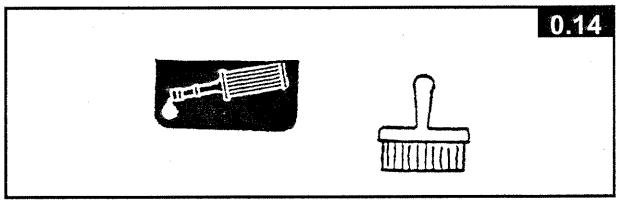
12. Indicates a greasing point.



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

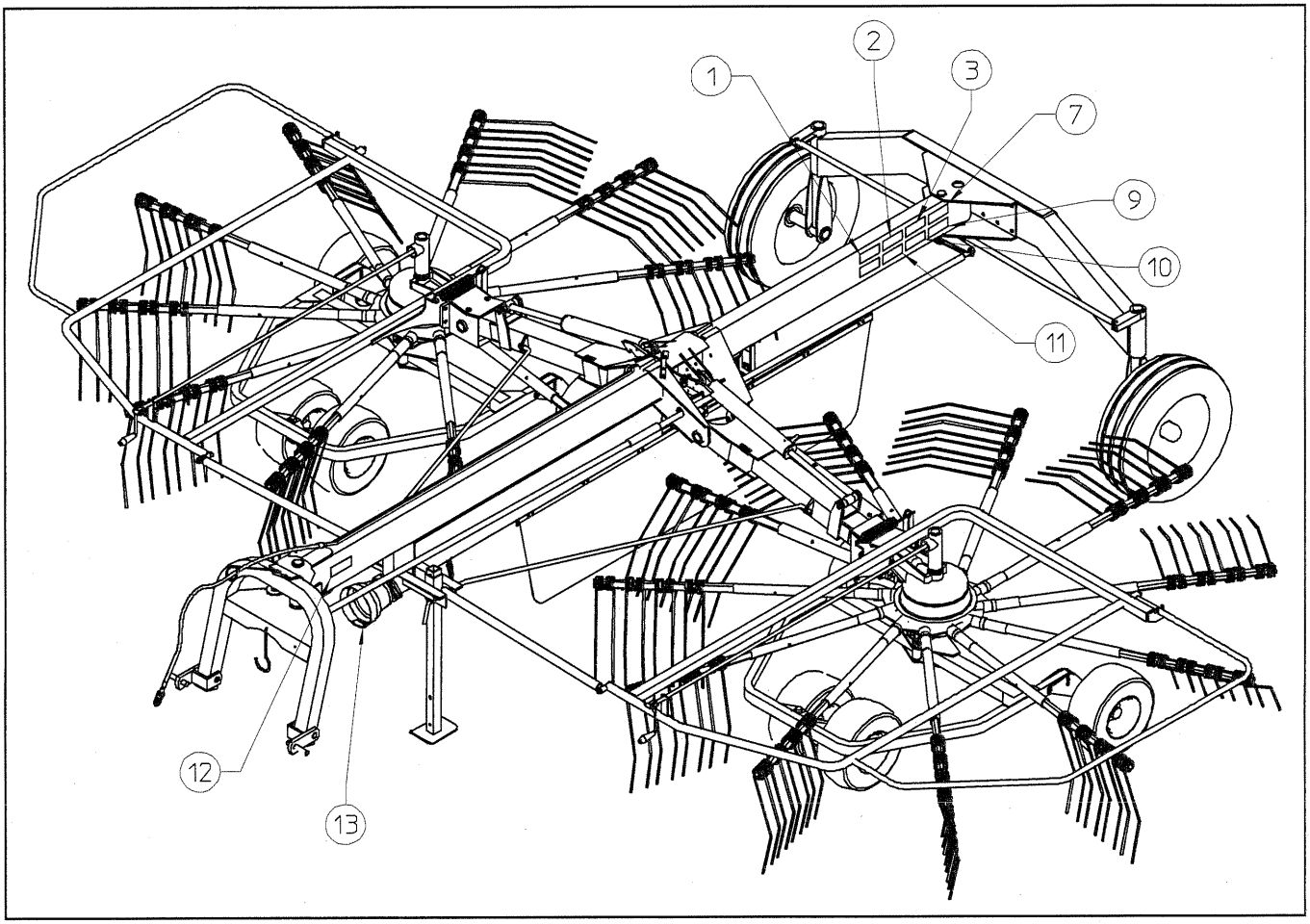


14. Shows suitable tools for maintenance and cleaning (grease pump, brush).



NOTE: All the signs and symbols so far shown appear in the manual. Some of these are also on the machine: for their location, the diagram on next page.

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
7) SEE DRAWING 7 P.5
9) SEE DRAWING 9 P.5
10) SEE DRAWING 10 P.6
11) SEE DRAWING 11 P.6
13) SEE DRAWING 12 P.6
12) IDENTIFICATION PLATE

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.

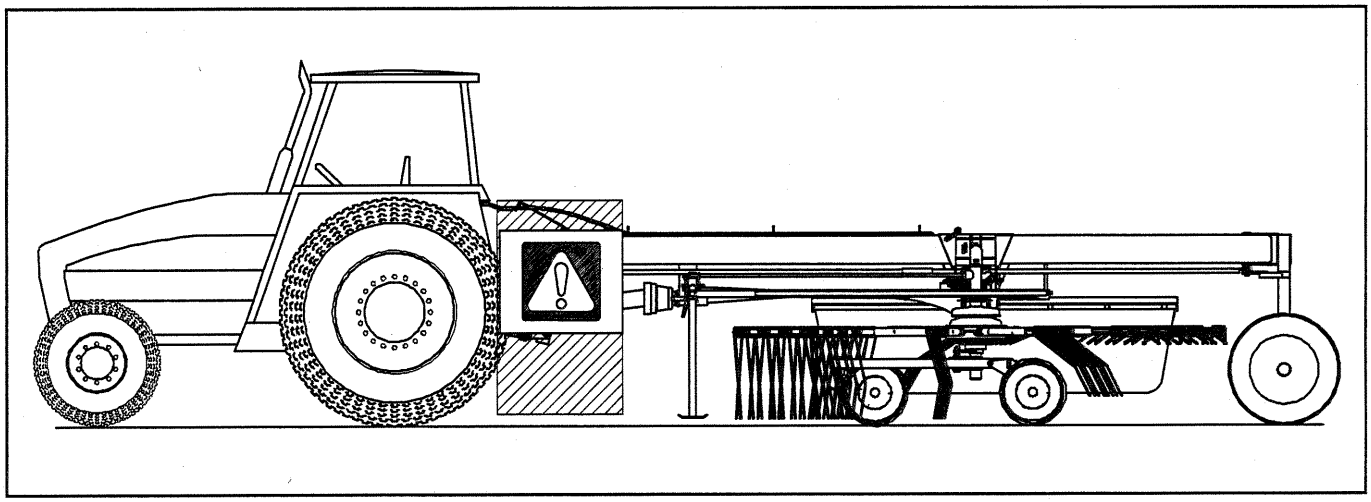
18-It is extremely important to appreciate that road holding, steering and braking may be significantly affected with the machine attached.

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. 3.1) 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° Fig. 3.2) 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.

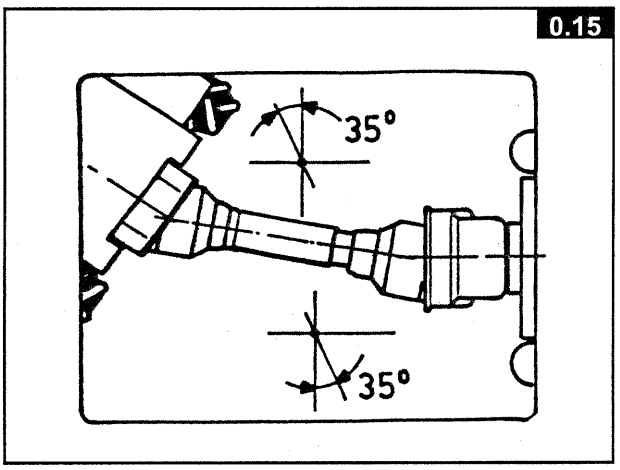
41-When carrying out maintenance work or replacing the blades, raise the machine and rest on adequate supports.

42-Use the quantities of grease and oil advised.

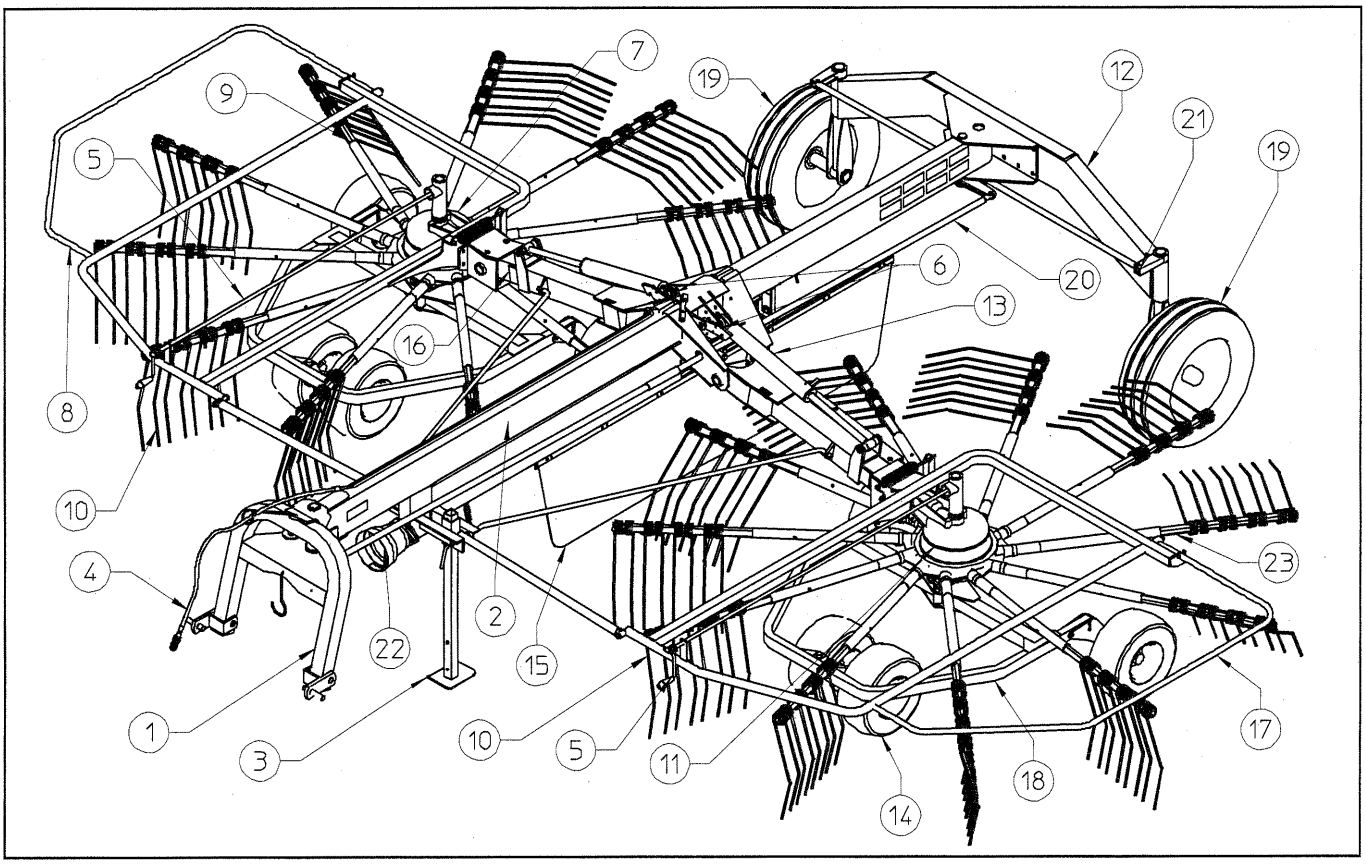
43-Spare parts must meet the requirements as defined by the manufacturer. Use only original spare parts.

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.



4) PRODUCT IDENTIFICATION



MAIN PARTS	
1) BRACKET	12) AXLE
2) DRAWBAR	13) CYLINDER
3) PARKING STAND	14) TYRE ASSY
4) HYDRAULIC KIT	15) SWATHING DEFLECTO
5) CRANK	16) TELESCOPING ARM
6) HOOK	17) L.H. GUARD
7) R.H. GEARBOX	18) WHEEL SUPPORT
8) R.H. GUARD	19) TYRE ASSY
9) R.H. TINE ARM	20) TIE ROD
10) TINE	21) TIE ROD
11) L.H. GEARBOX	22) SHAFT
IDENTIFICATION PLATE	23) L.H. TINE ARM

AGRICULTURAL MACHINERY
sitrex® s.r.l.
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TEL.075-8540021 FAX 075-8540523
SERIE N°
MADE IN ITALY

PM TRACTOR	RPM ROTORS	POWER REQUIRED	WHEEL TYPE	OPERATING WIDTH	TRANSPORT WIDTH	WEIGHT
MAX 540	55	HP 55	16X6.50-8	6.8 – 7.6 Mt	2.85 Mt	KG 1880
		KW 40	10.0/75-15.3	22'4'' – 25'	9'4''	LBS 4140

5) DELIVERY AND ASSEMBLY

Checking the machine on delivery

All parts are carefully checked before dispacth 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

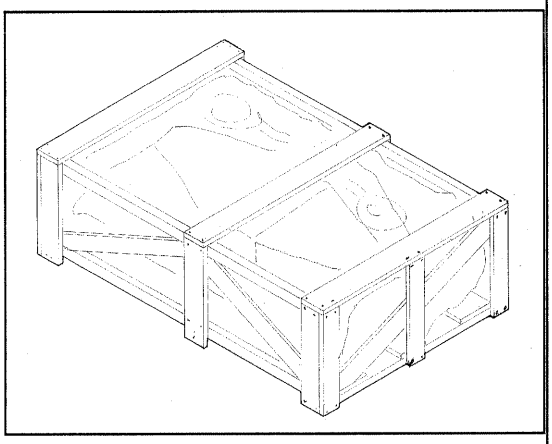
DANGER !!!

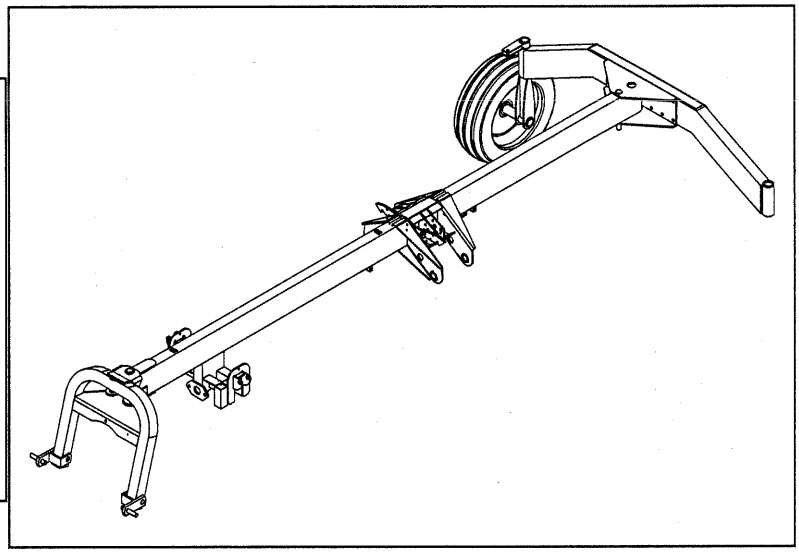
Lift the machine using a forklift truck, crane or other suitable equipment of sufficient capacity after first checking the weight of the configurations in the table given below.

Check the stability and positioning of the load on the forklift truck forks or crane hook.

eep 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.





	WEIGT / PACKING		WEIGHT
KG	1200	800	
LBS	2650	1770	

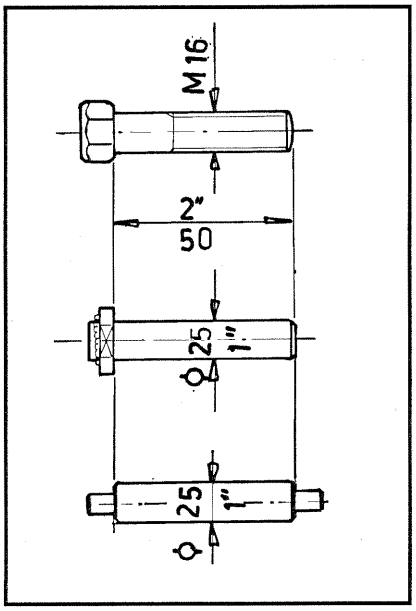
NOTE: 1) The packing consists mainly of wood which should be disposed of according to the laws in force in the country where the machine is used. The plastic film should also be disposed of according to the laws in force in the country where the machine is used.

2) When storing, it is permissable to stack 2-3 crates on top of each othe. Make sure that they are perfectly aligned certically.

3) In the event of further transport, ensure that the machine iwhen on the transporting vehicle.

ASSEMBLY

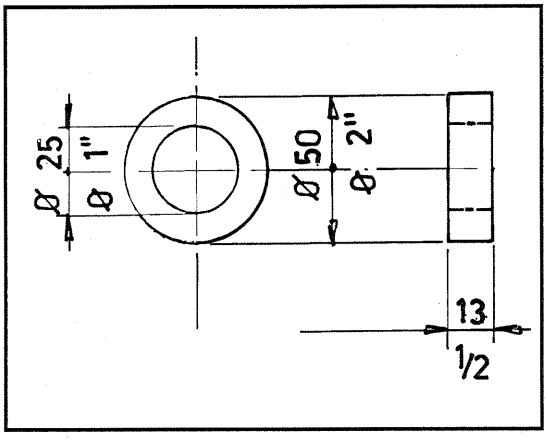
DANGER !!!



Technical notes

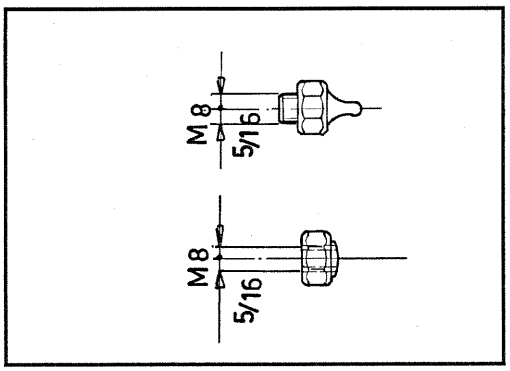
We will provide a few examples to make it easier to choose which of the various accessories to use for each step of assembly. An approximate equivalent of the metric measurements is given in inches.

Example: a pin with a 25 mm (1") diameter and a screw with an M 16 (5/8") diameter, both 50 mm (2") long, will be listed as:
D 25 x 50 (D 1" x 2") and M 16 x 50 (D 5/8" x 2").



2) SHIMS, SPACERS, BUSHINGS AND WASHERS

Example: a shim, spacer, bushing or washer with an inside diameter of 25 mm (1"), outside diameter of 50 mm (2") and thickness or length of 13 mm (1/2") will be listed as:
D 25 - 50 x 13 (D 1" - 2" x 1/2").



3) NUTS, GREASE NIPPLES

Example: a nut or grease nipple having a thread of M 8 (5/6") will be listed as:
M 8 (5/16")

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. The machine is shipped partially assembled. To complete the assembly, tools and hoisting apparatus are required.

Assembly sequence:

Fig.5 The assembly (1) composed of the two-point arch, drawbar and rear crosspiece must be placed on supports so that the rear wheel brackets (2) and the front parking stand (3) can be assembled. To mount the wheel bracket, use the bushing with the lever (4), and for the stand use the locking pin (5).
Screw (8) M 16 x 50 and nut (9) M 16
Nut (10) M16x1.5
Spring pin (11) d. 12 x 70 (d 1/2" x 2"3/4) and d. 7 x 70 (d ¼ x 2"3/4)
Shim (12) d 50 – 70 x5
The machine can now be placed on the ground.

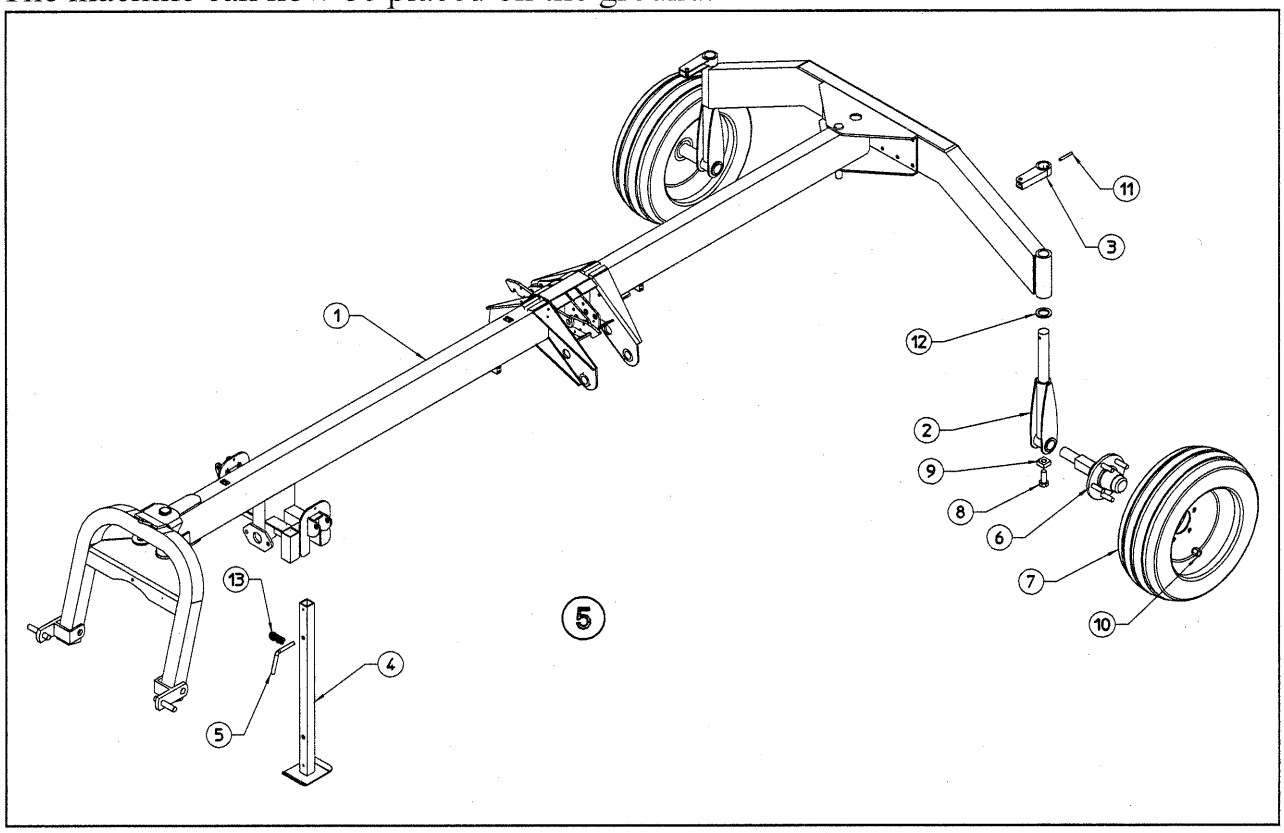


Fig.6 Assemble the steering linkage rods (1) and the rear steering transmission support (2). The rods (3) are correctly adjusted. However, to check them, place the hitch arch (4) so that it is perfectly perpendicular to the drawbar (5), and in this position the wheels should be parallel to the direction of the drawbar.

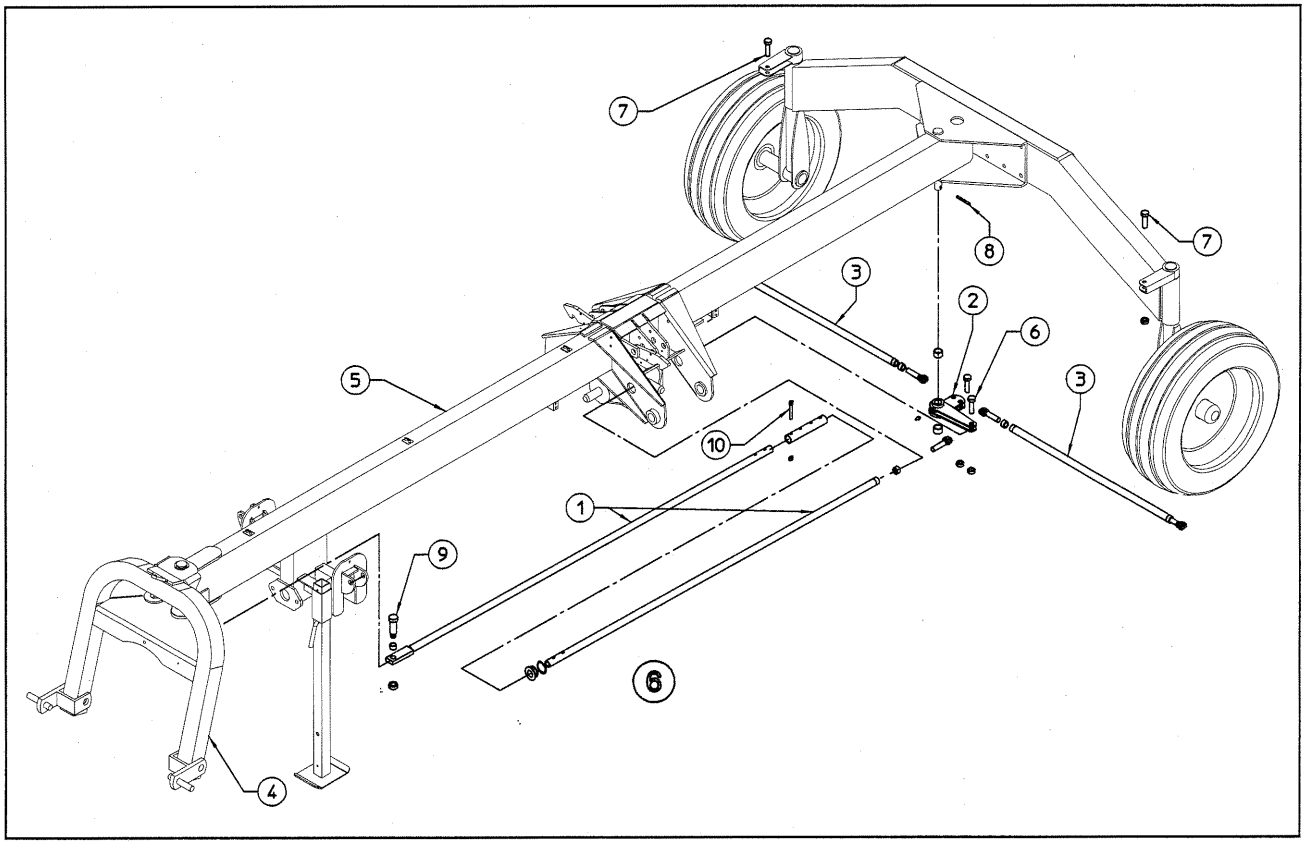


Fig.7 Assemble the central rubber screen support brackets (1) and the screen (2) with the lifting rod (3). The lifting rod must then be connected to the rotor arm, which will control lifting for transport.
Assemble the accessories in the central area: cable supports and hose (7), cardan support (8), pulley bracket cable (9) and universal joint casing (10)

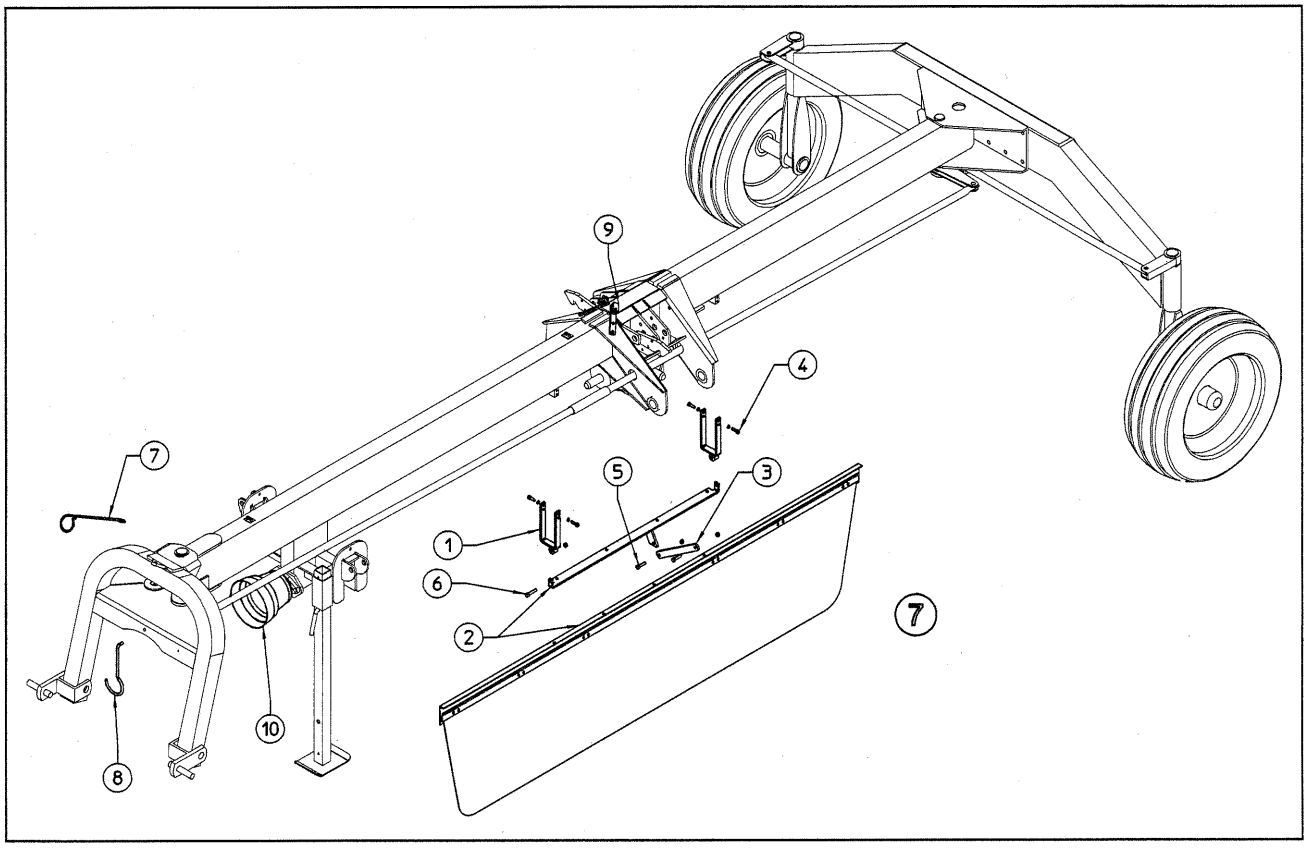
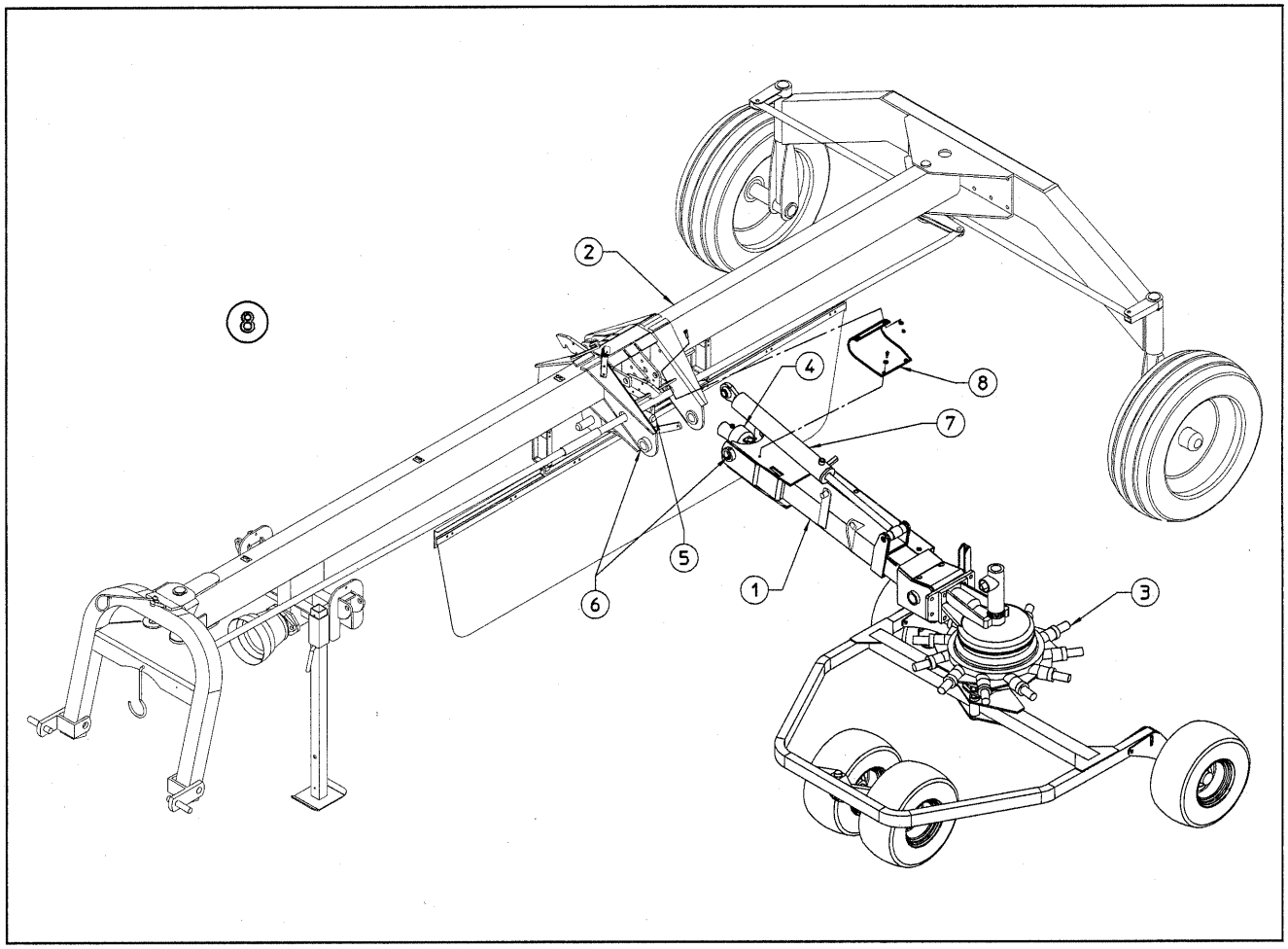


Fig.8 Assemble the side arms (1) to the drawbar (2). The drawbar is marked 1 on the left and 2 on the right (looking from the back); the rotor support arms, rotors (3), rake arm supports and rake arms are also numbered to facilitate the choosing of components to be assembled. All left side components are marked with the number 1 and all right side components with the number 2. To fasten the rotor support arms, bring them near the hinge and first insert the universal joint (4) in the shaft (5) of the central gearbox and then align the holes (6) of the arms with those in the hinge so the pins can be inserted. Place the spacers so as to limit end play. Mounting the guard (8) whit screws M8. Assemble the hydraulic cylinders (7)



Repeat the same operation on the other side

Fig. 9 Attach the removable guards (1) and the braces (2) to the hole plate (3) on the drawbar, mounting spring (8) and washer (7) fastening the braces also to the arms horizzontal position.

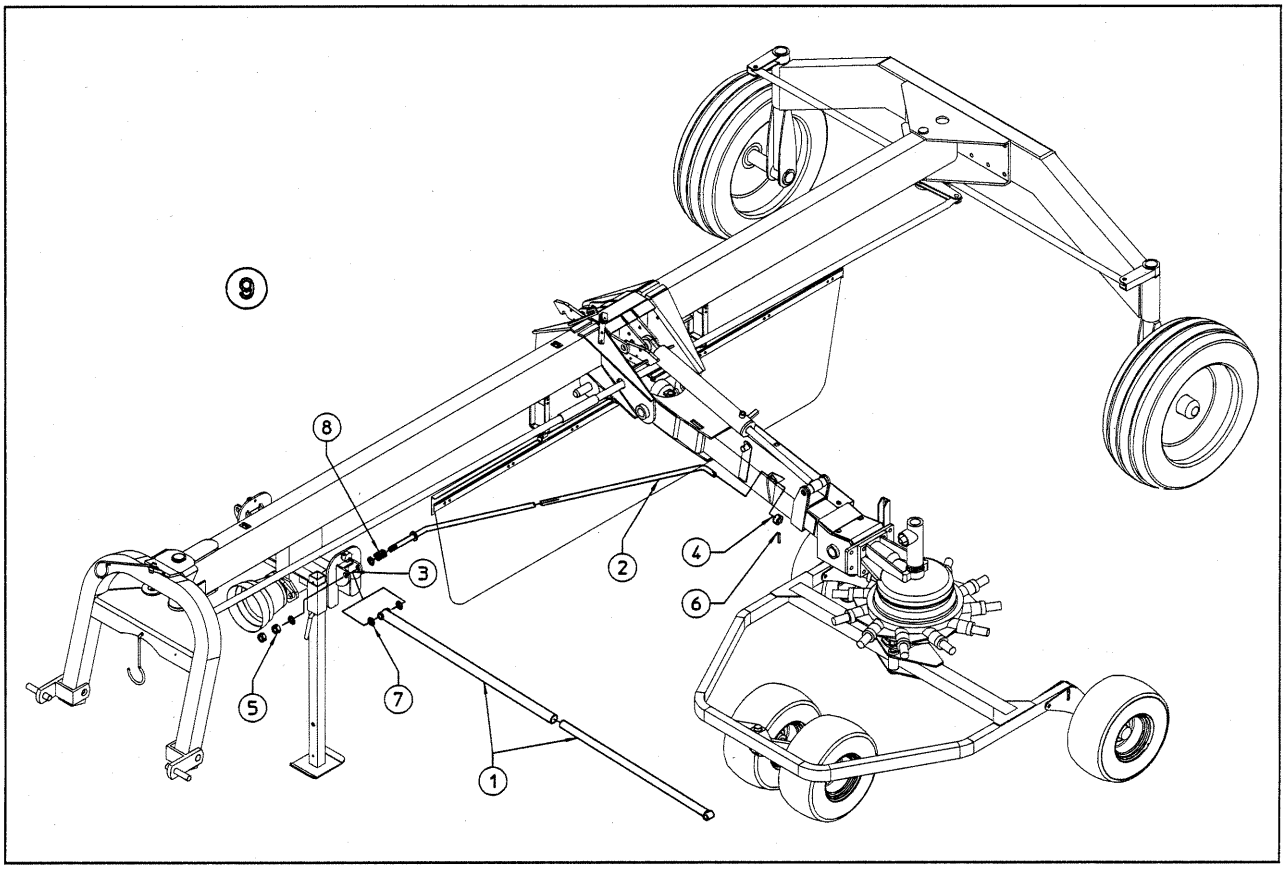
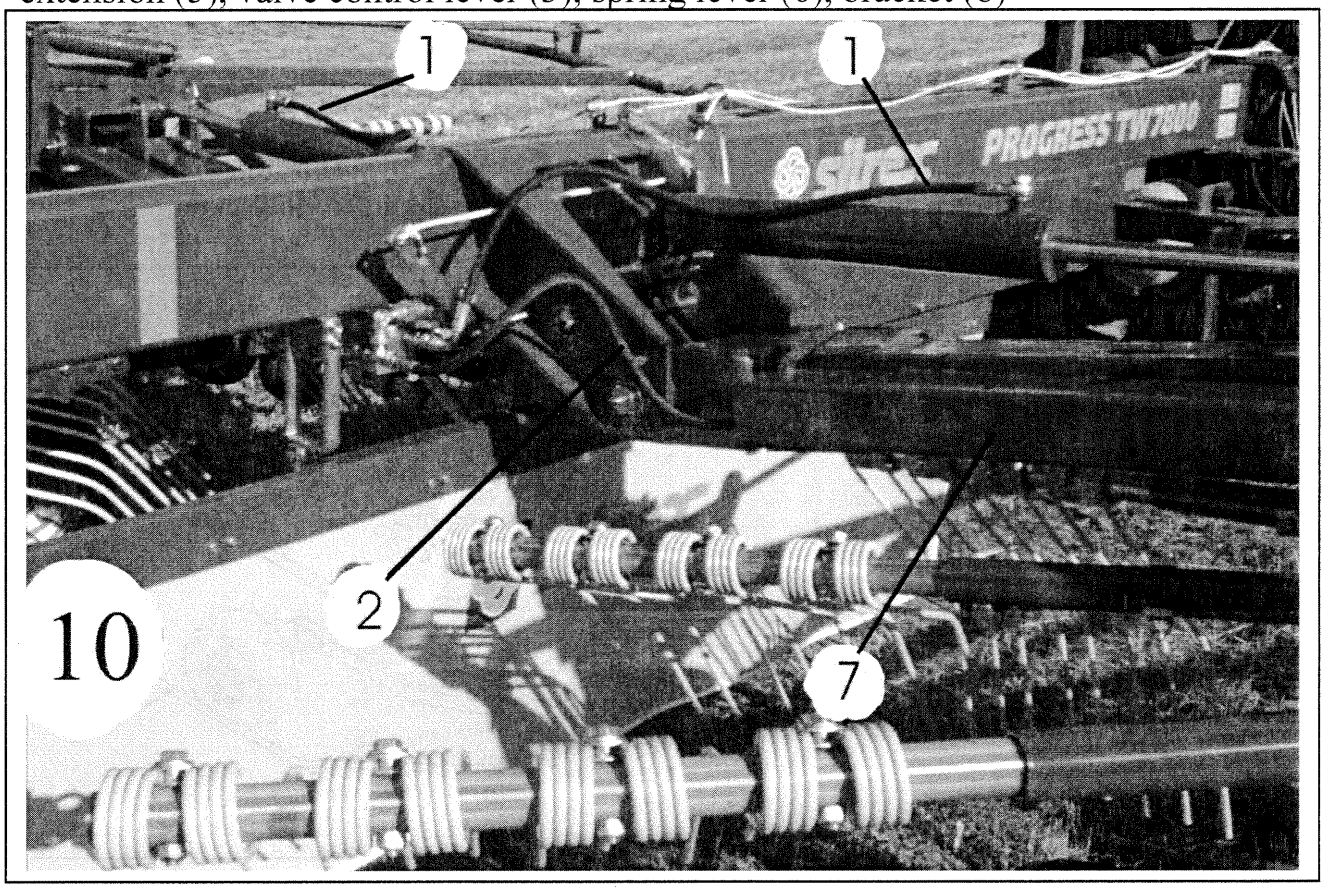


Fig.10/11 Assemble the accessories in the central area: hydraulic hoses (1for lift and 2 for extension), arm extension adjustment housing (7), flow divider (4), valve extension (5), valve control lever (3), spring lever (6), bracket (8)



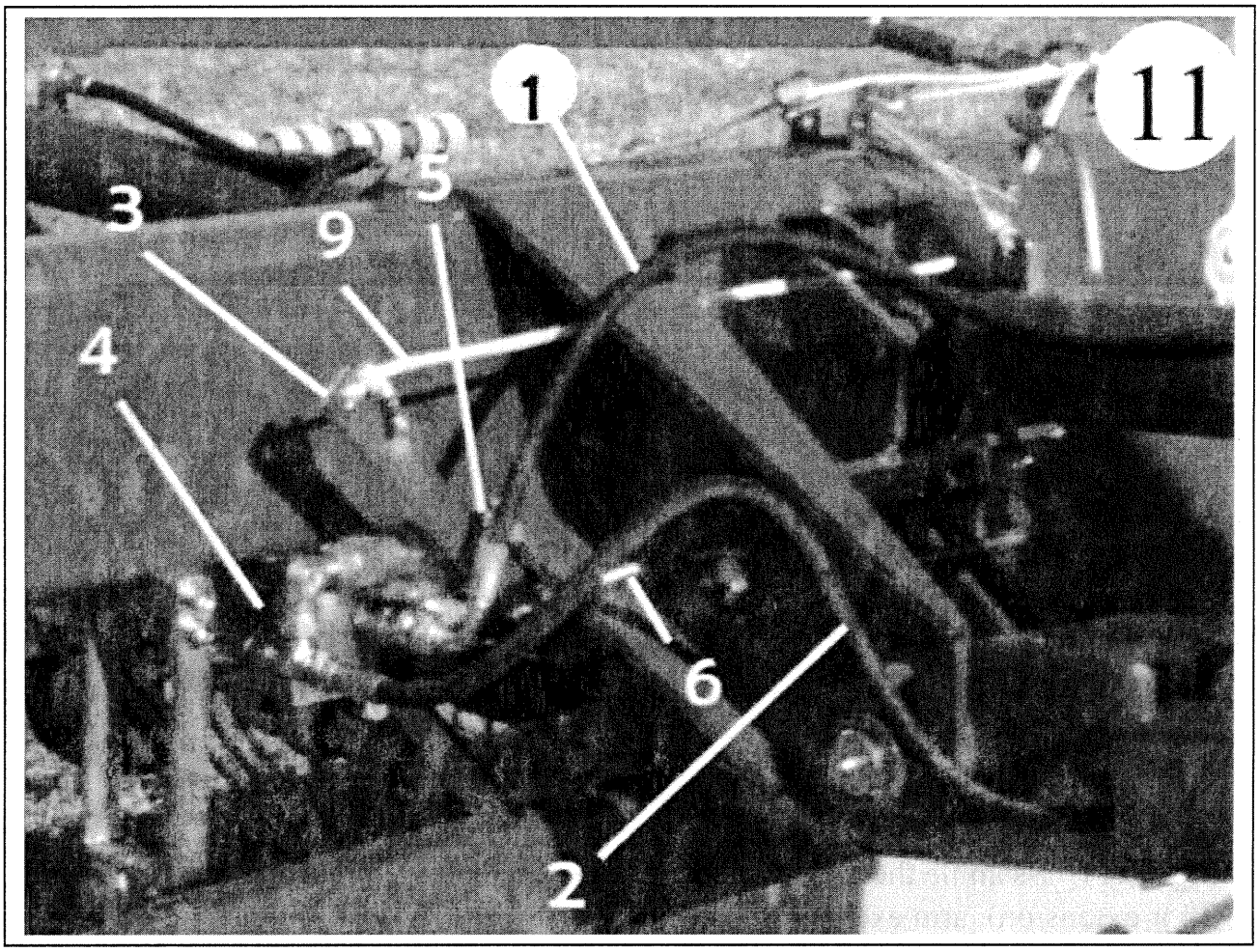
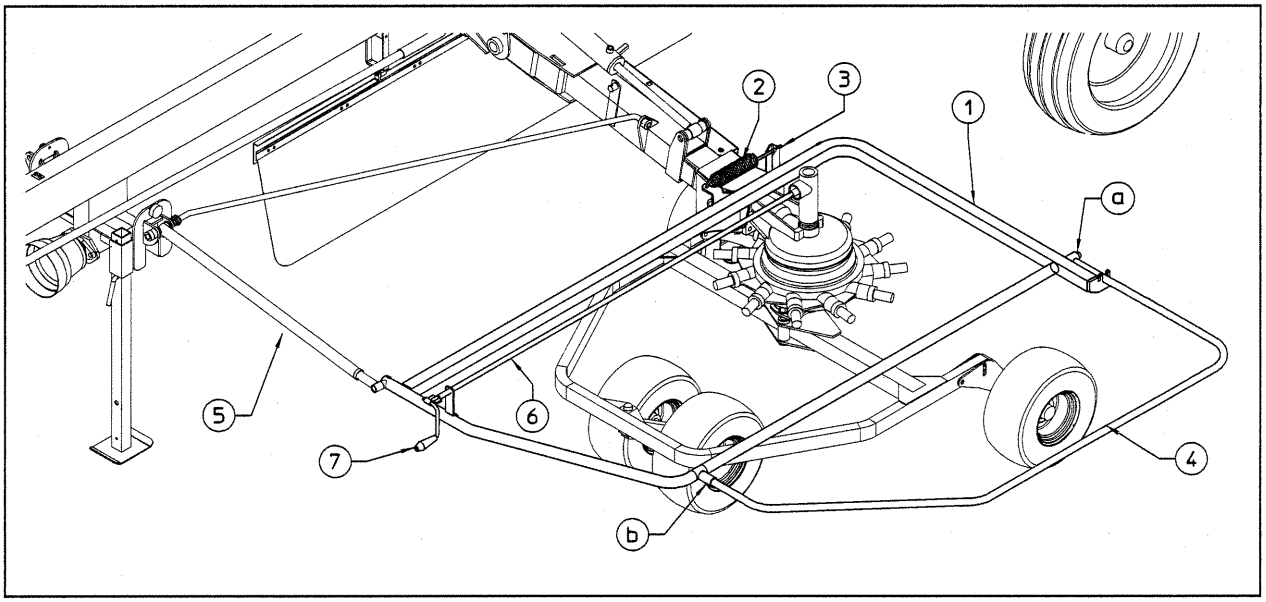
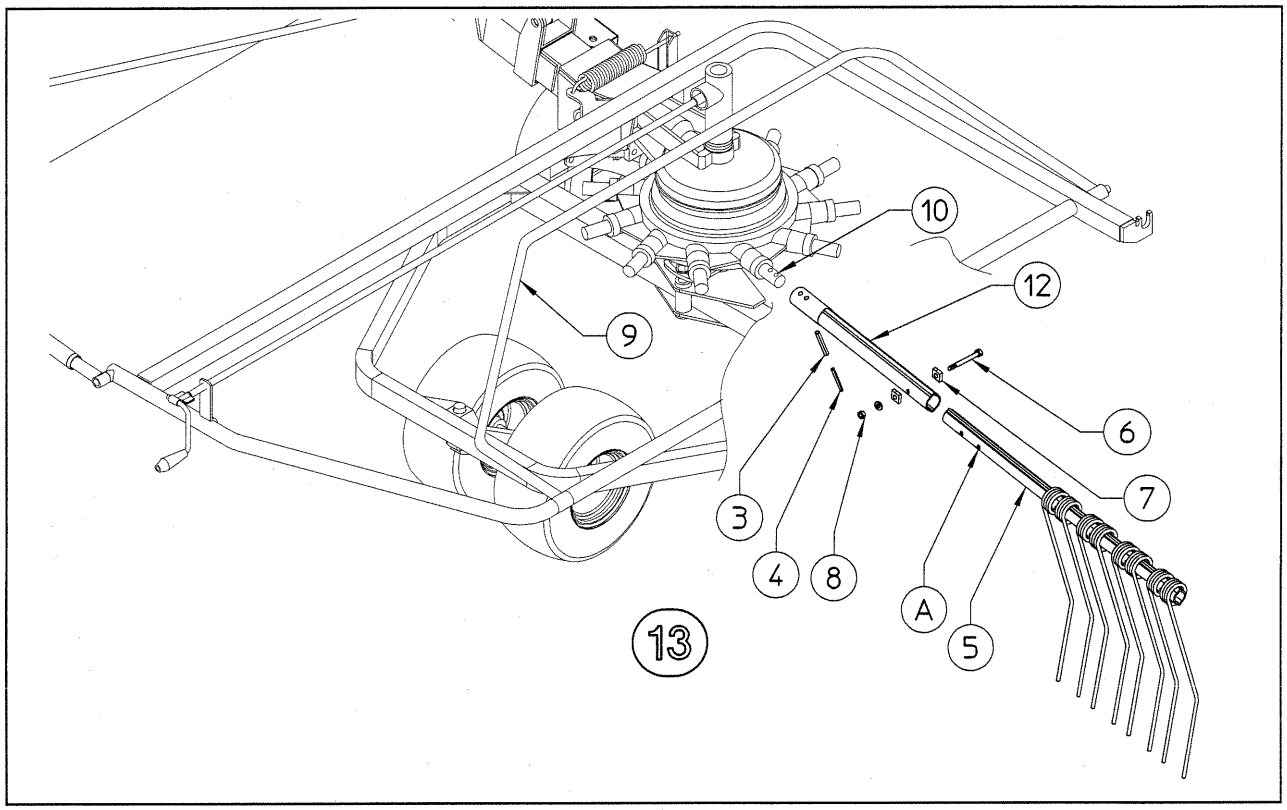


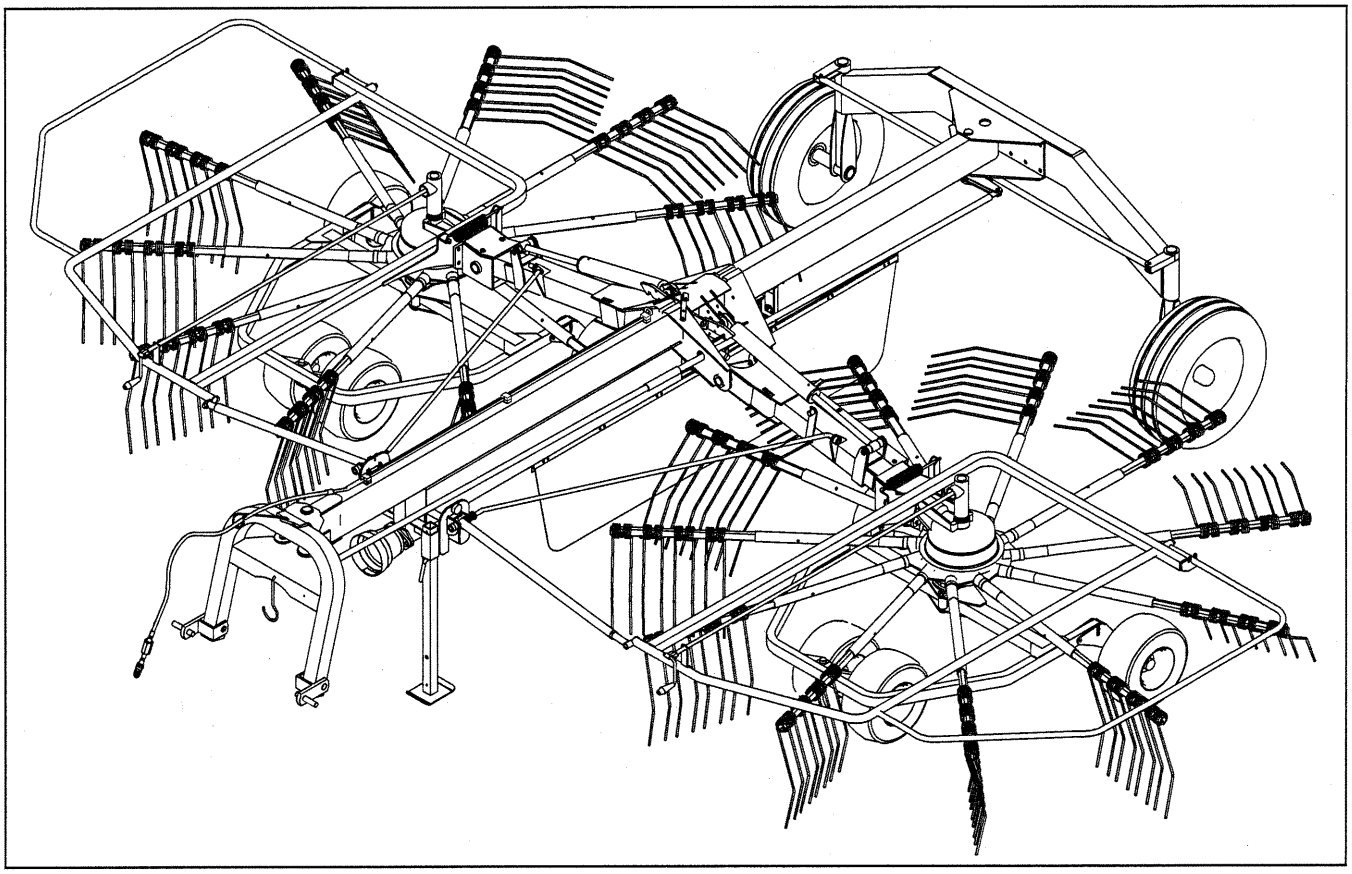
Fig.12 Assemble the fixed right and left (1) guards to the rotor plate and hook the balancing spring (2) by means of the threaded rod (3). Adjust the tension on the spring according to the work in the field, so that the rotor does not exert a big load. Attach the folding guard (4) to the fixed guard, inserting it in the pin (a) at back and in the coupling bushing (b) in front, turn the movable guards toward the center. Connect the front removable (5) guards to the fixed guard. Assemble the working height adjustment rod (6-7) and the adjustment crank.

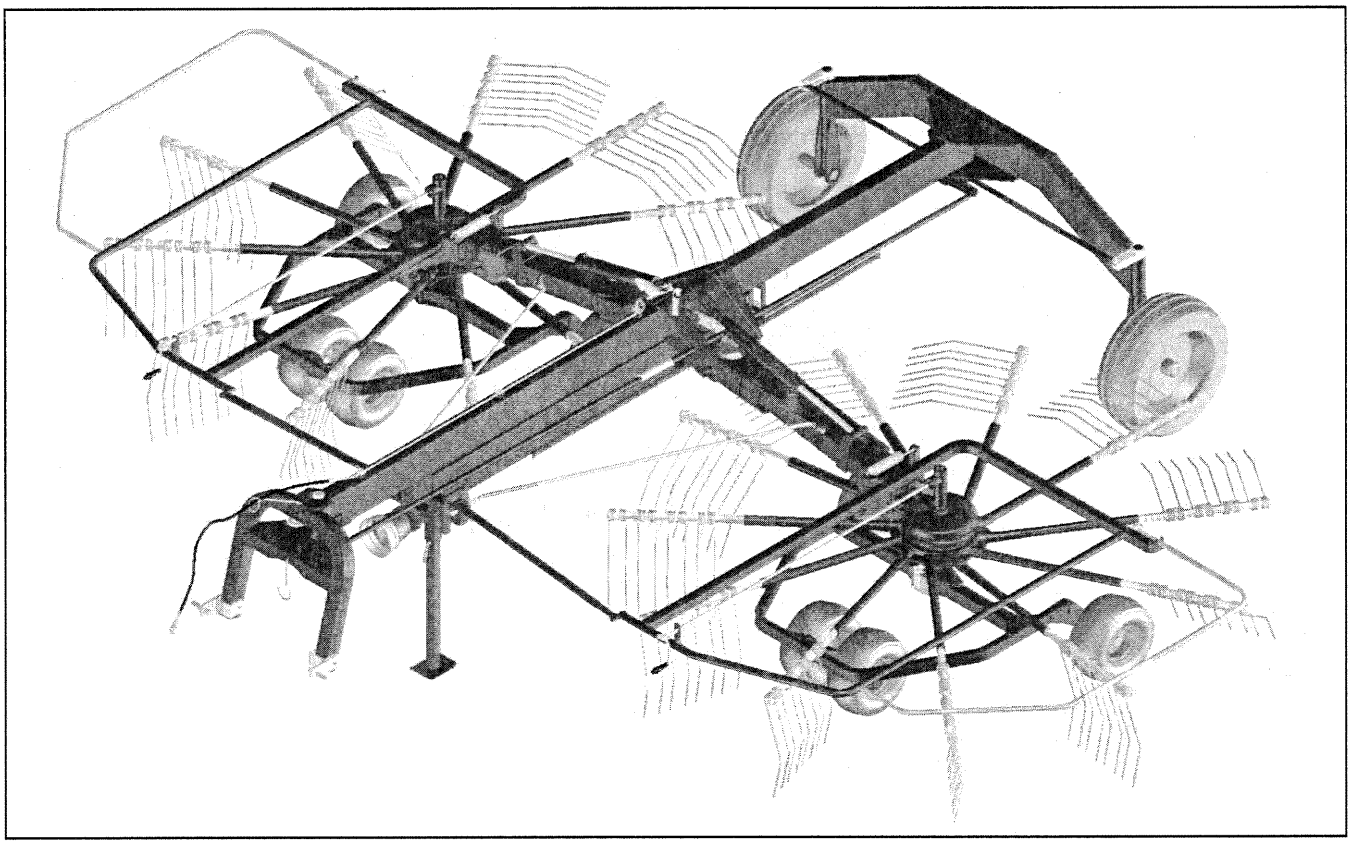


Mount the grease nipple on all pin.
Fig.13 Assemble the rake arm supports (12) and the rake arms (5) to the rotors (10), fastening the rake arms in the largest hole (A) using the screws supplied (6). Before assembling the rake arms, raise the protection (9). All left side components are marked with the number 2 and all right side components with the number 1.



11) The assembly is completed and the machine should look like that in the following illustration.





6) ADJUSTMENT, PREPARATION AND USE INTRODUCTION

 DANGER !!! 

Connection to the tractor is higly 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, gerbox oil, brake fluid and cooling water levels as well as the tyre pressures.
Refer to the tractor operator's manual.

CONNECTION TO THE TRACTOR

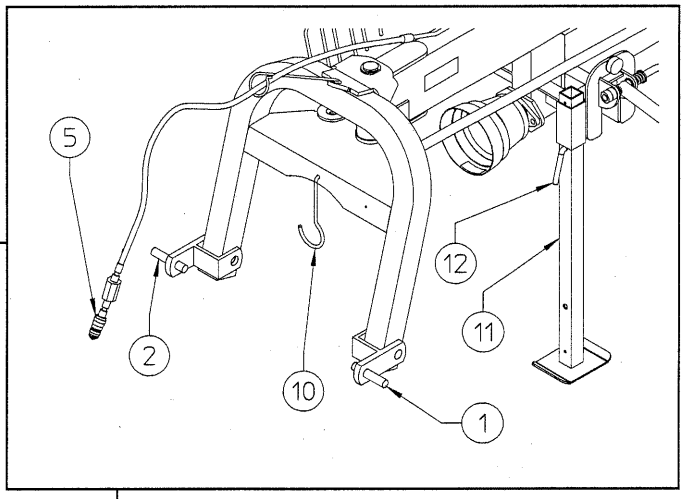
Hitch the machine to the tractor at the two lower points (1 and 2) on the third point arch (3), inserting the safety pins (4). The tractor arms must then be locked to prevent lateral movements (8).
Once the machine is hitched, raise it slightly using the tractor hoist and then loosen the parking stand (11) and remove pin (12), and lock in the up position insert pin (12) to hold it in the resting position.

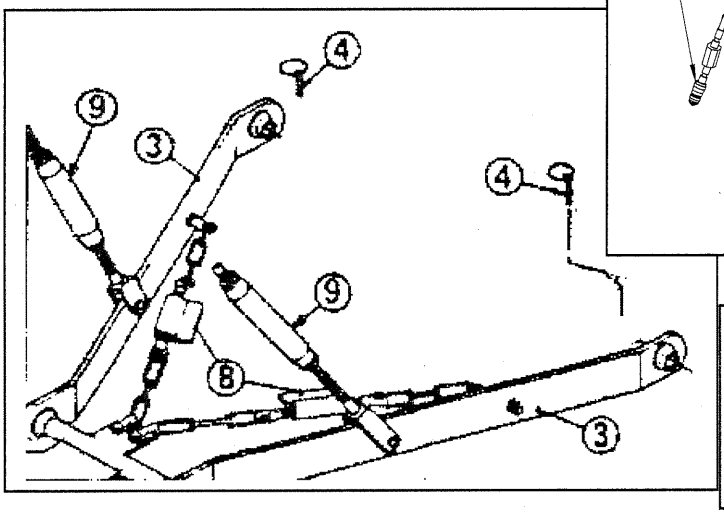
Couple the cardan shaft, checking to make sure that it is the right length. Read the chapter regarding the cardan shaft farther ahead in this document.
Once this procedure is completed, insert the quick-release coupling (5) into the tractor socket.
After completing these operations for the first time, test the functioning of the hydraulic devices. Danger: make sure no one is near the machine. Try to raise the rotors, and when in the up position open and close the valve (3/5 picture 11) with the rope to test the extending of the rake arms. Attention: at first there will be some irregularities in the functioning of the hydraulic system, due to the presence of air in the hoses and cylinders. Once the air is out of the system, it will work properly.

The rotor lifting system is completed by a flow divider (4 picture 11) that ensures that the two rotors will lift simultaneously even when the machine is on a slope.
Attention: to prevent risks of tipping over, avoid raising the rotor support arms when the machine is on land with an excessively steep slope.

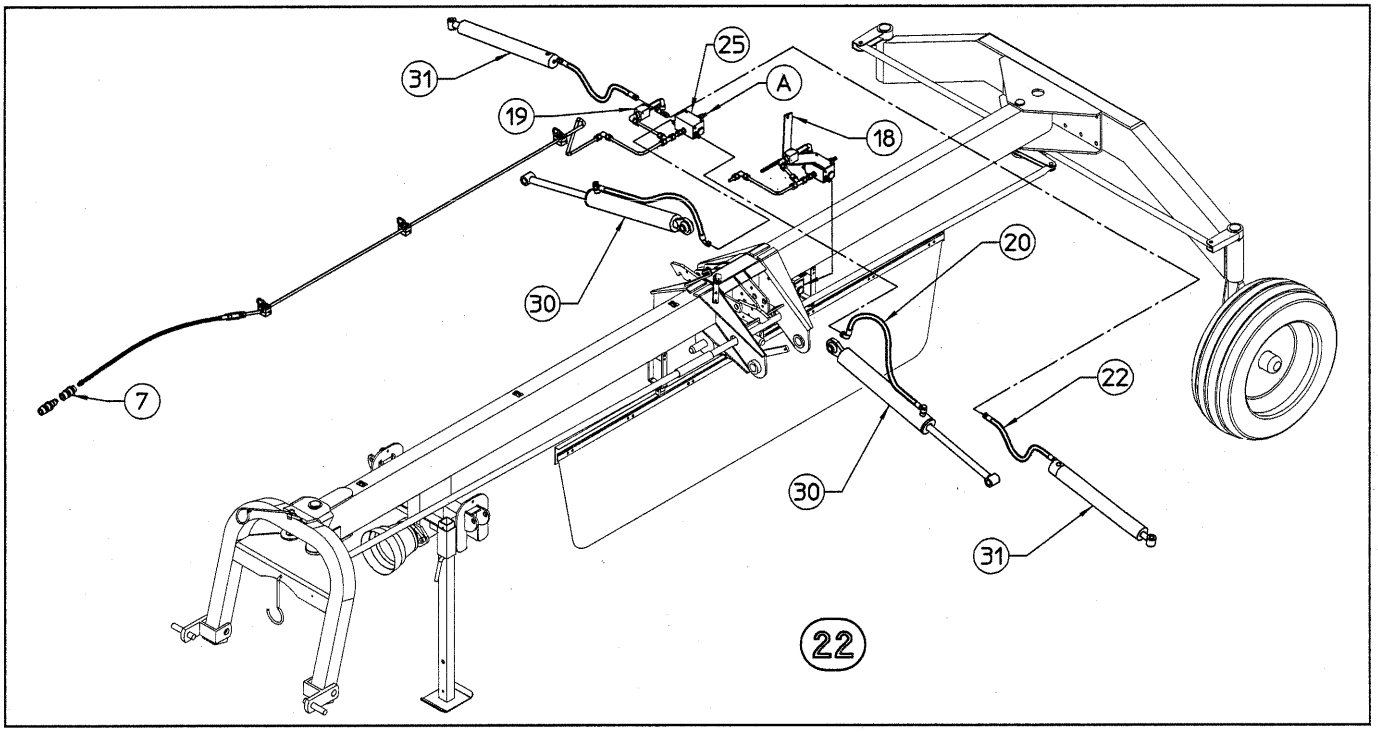
When transporting the machine, the rotors must be raised and along with the safety hooks, the coupling plate must also be attached. To decrease machine height during transport it is possible to detach the outside rake arms and place them on the bracket (8 picture 10) attached to the rear crosspiece.

Danger: NEVER operate the power take-off when the rotors are raised.
Danger: Proceed cautiously when moving on hilly land with the rotors raised – danger of tipping over.





In order to obtain even hoisting , set valve 25 by acting on screw A.
While to obtain lowering at controlled speed act on flow – regulator 7



CONNECTING THE CARDAN SHAFT

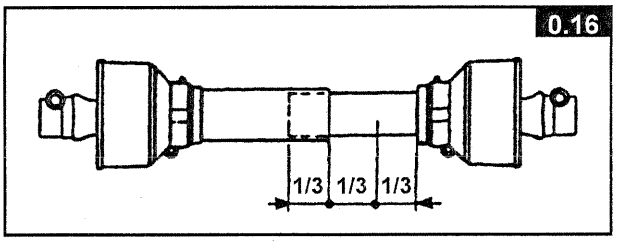
DANGER !!!

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.

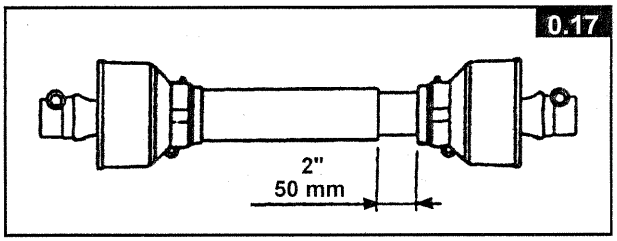
DANGER !!!

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.

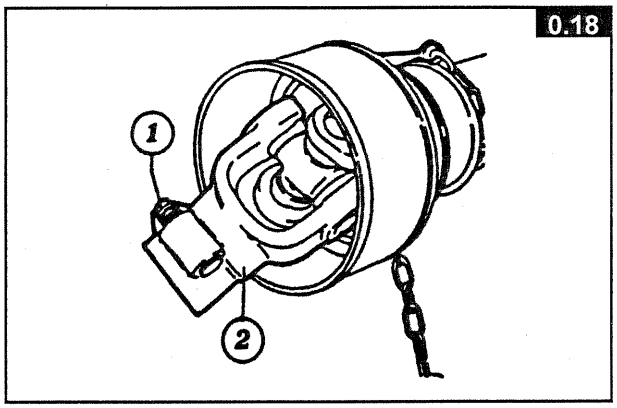
During both transport and use, avoid conditions where the Cardan transmission shaft is extended to the maximum. In all working conditions, the telescopic tubes must overlap by at least 1/3 of their length (Fig.6.3).



Conversely, when the Cardan shaft is contracted to the maximum, there should still be a gap of approximately 50 mm (2") (Fig.6.4).



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) (Fig.6.5) 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

Stopping and storing the machine

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.

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.

Position the rotary rake on solid, level ground.

Put the parking stand down and lock in place with the pin.

Lower the machine to the ground.

Disconnect the hydraulic hose and set it on the support. Set the cables on the support also.

Disconnect the cardan shaft from the tractor and set it on its support.

Disconnect the lower arms of the tractor.

Drive the tractor away from the machine.

Check carefully to make sure the machine is stable.

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

ADJUSTMENT OF THE FORAGE RAKE

⚠ CAUTION !!! ⚠

Before starting work, familiarize yourself with the following general instructions:

Before using the machine ensure that all safety precautions are taken.

Check that all safety protection and guards are in place and working.

Inspect the work site in order to familiarize yourself with the terrain.

Do not start the tractor before being properly seated in the driving position.

Do not start the machine if it is damaged (or even if you only suspect it is damaged) and inform your nearest dealer of the problem and ask for assistance.

Do not allow yourself to become distracted when working: give your full attention to the job in hand.

Maintain constant control over the tractor and ensure that you know how to stop quickly and switch off the engine.

Caution when working on inclines. It is better to work from the bottom to the top of an incline (or from the top to the bottom), rather than across an incline where there is a risk of overturning. Check and heed the instructions supplied by the tractor manufacturer, especially those concerning the maximum incline on which it is possible to work.

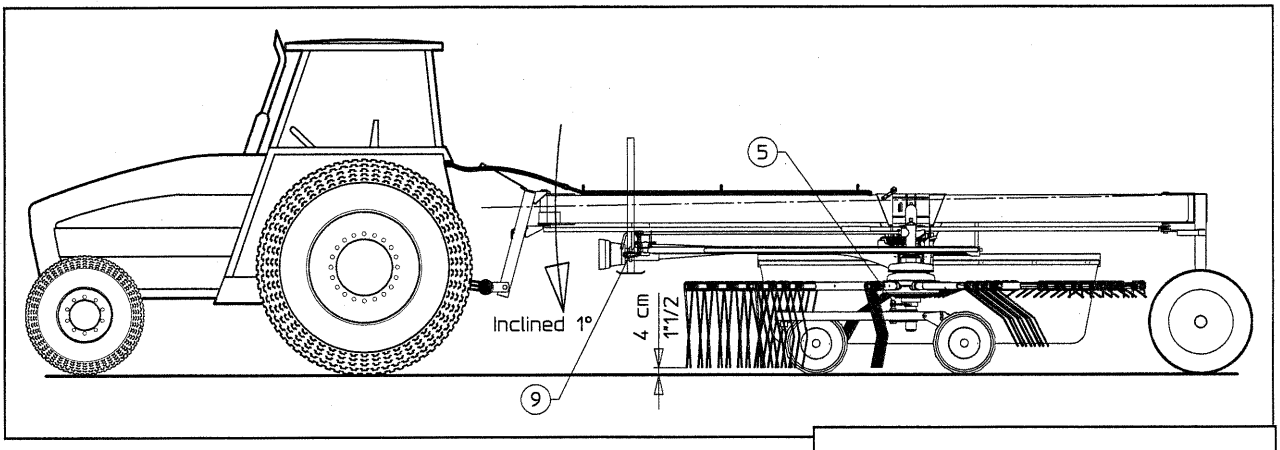
It is advisable to reduce speed when working and maneuvering on inclines and only to change speed and direction gradually. Do not make sudden stops or starts.

Do not work on wet or slippery grass or terrain, or anywhere where grip is poor. If this is unavoidable, work at a slow speed so as to ensure operator safety.

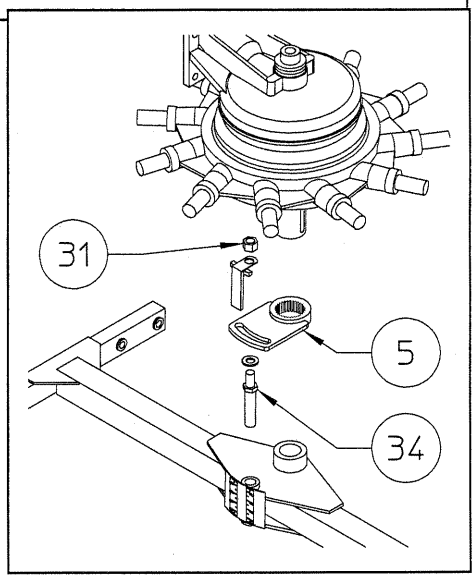
Always switch off the tractor engine, apply the parking brake and remove the ignition key whenever you have to attend to the machine to make adjustments or to remove grass and other objects which might be entangled in the machine.

Before leaving the tractor, disengage the power takeoff, lower the machine until its wheels are on the ground and put the hydraulic directional control lever into the locked position.
Never go near the rotors until they have completely stopped moving.
Never attempt to make adjustments to the machine while it is running. Always stop the machine before carrying out any such work. Do not oil the machine when it is running or is connected to the power takeoff.
Do not use the control levers as handholds since they can move and do not give a secure grip. Furthermore, any involuntary movement of a control lever can cause unintentional movement of the tractor or machine.

Working in the field
When in the field, lower the rotors before starting to work, making sure that there are no persons or obstacles near the machine. To lower the rotors, first remove the coupling plate, then use the cylinders to raise and pull the safety hook cables. At this point, release the distributor lever so that the rotors will lower. With the rotors lowered, check the clearance between the tines and the ground, adjusting it using the adjustment crank (7) . When in operation, the machine drawbar (2) must be horizontal or inclined slightly (1°) toward the tractor. The tines (1) must pass 4 cm (1"1/2) from the ground. However, the adjustment of ground clearance should be done so as to obtain the desired results, and thus may be specific for the type of swath you want.

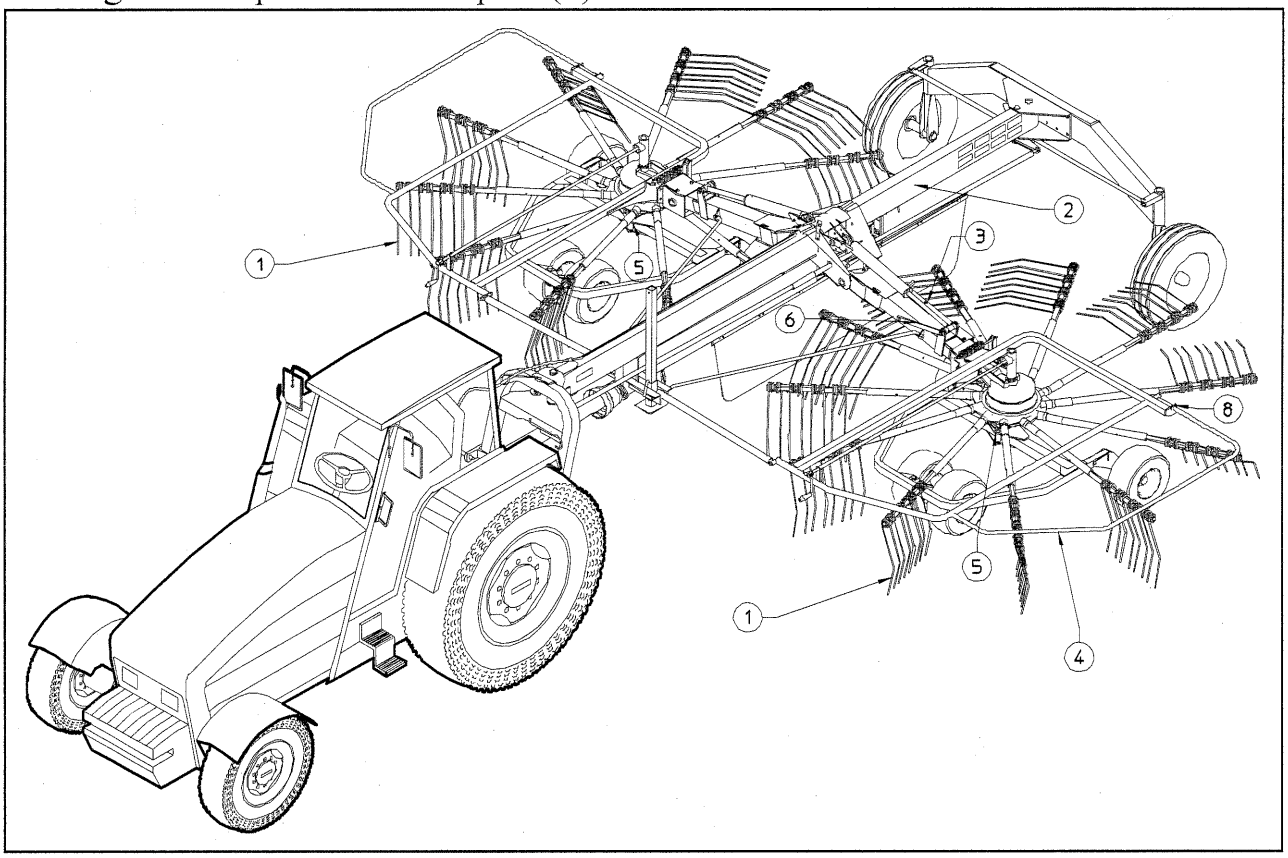


The rotors are equipped with an adjustable cam (5) for raising the tines. To make adjustments, loosen the nut (31/34) on the slot underneath the rotor and move the lever right or left. A higher adjustment can be obtained by having the whole lever skip one tooth from the lower rotor shaft.



To adjust the working width the rotors must be raised. In the up position, put the hydraulic system lever in the neutral position and then get down from

the tractor and insert the square pin into the desired hole in the extension adjustment housing (3). The hole that is not aligned allows maximum opening, while the aligned holes are for intermediate settings. The minimum working width is instead obtained with the rake arms fully retracted. Once the pin is inserted, get back on the tractor and activate the rotor lifting, and then open the valve with the cable to send oil under pressure to the extension cylinders. When the rake arms are extended, release the cable, and at this point the rotors can be lowered (pulling also the hook release cables).
After lowering the rotors, set the tractor system to the neutral position.
Get down from the tractor and turn the movable guards (4) toward the outside, locking them in place with the pins (8).



Check that there are no persons or obstacles near the machine and engage the power take-off with the tractor idling, checking that the machine is working properly.
Work at a speed based on the forage and ground conditions.
Before making sharp turns, stop rotor rotation and raise the rotors. Danger: do not start rotor rotation with the rotors raised.
Depending on raking results, make any further adjustments to the tine height, rotor orientation and rotor opening.
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.

7) TRANSPORT BY ROAD

⚠ ATTENTION !!! ⚠

After the machine has been attached to the tractor as previously described and before transporting it to or from fields or any other workplace, the following instructions should be heeded:
Before setting off with the machine attached to the tractor, check the local road transport regulations. During transport keep the machine fully raised with the power takeoff disengaged and the lifting unit immobilized.
Check that all guards, safety protection and locking split pins are in place, functioning and correctly fitted.
Ensure that nobody leans against, or climbs on to, the machine during transport. The machine is an agricultural machine ***NOT designed for transporting persons or goods***. Consult the tractor maintenance and-use manual where necessary. Maintain constant control over the vehicle and ensure that you know how to stop the tractor quickly and switch off the engine.
When on a public road, observe all Highway Code regulations. Drive near the edge of the road and try not to obstruct traffic.
Do not park the tractor and/or the machine where it might obstruct, or be a danger to, any public right of way. Avoid going onto a public road if the tractor or machine is very dirty - you could leave a trail of soil, grass and other matter which could dirty the road and obstruct normal traffic.

Preparation for transport

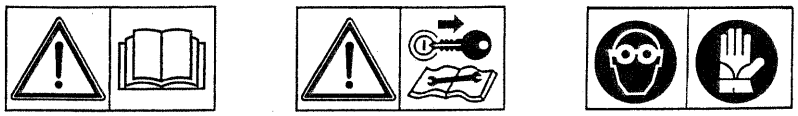
The machine may be transported for short distances after having raised it with the hydraulic system. When transporting for longer distances, close the tap (6). This operation must be done regardless of distance when transporting on public roads.
During transport it may be necessary to have the machine occupy less space.
Remove tine carrier arms 44 from their slots and take out lock screws 43, insert the arms into the special slots on rear 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.

The machine is equipped with steerable wheels. Pay attention to how the machine reacts to the steering mechanism. Any problems in maneuvering the machine may originate from improper adjustment of the steering linkage. When moving the

machine check carefully to make sure that the projecting parts of the machine do not interfere with persons or obstacles.

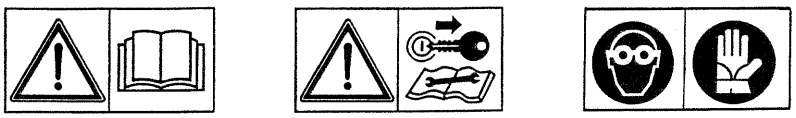
8) MAINTENANCE



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 deterrents.
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.

REPAIR INSTRUCTIONS



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.

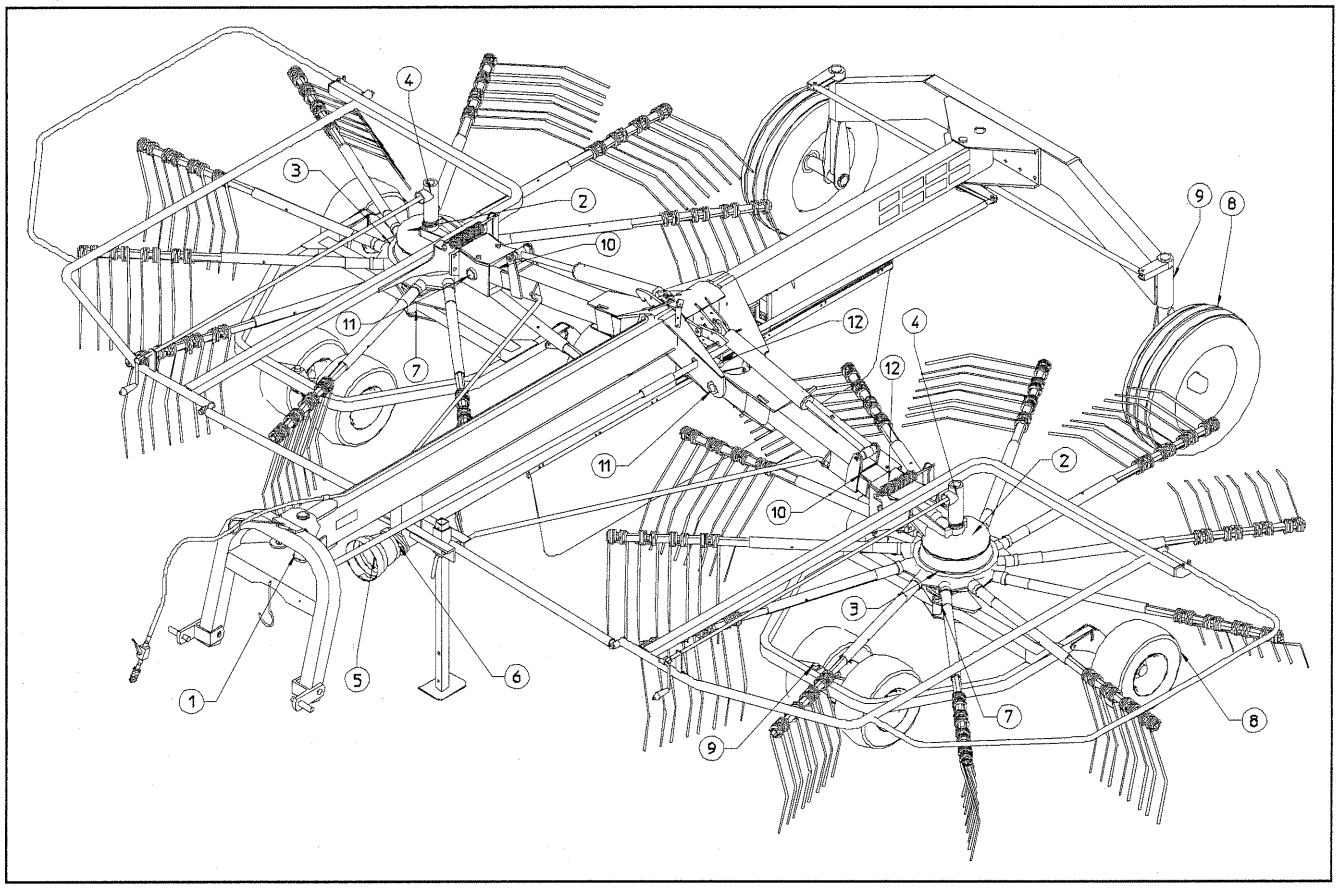
LAYING UP FOR EXTENDED PERIODS

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

a) Clean the machine following instructions and allow it to dry.
b) Check it carefully and replace any damaged or worn parts.
c) Thoroughly tighten all screws and bolts.
d) 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	1	Pin	Greasing	16	Grease	
2	2	Gearbox	Greasing	8	Grease	
3	2	Gearbox	Oil level	50	Oil SAE90EP	
4	2	Gearbox	Greasing	20	Grease	
5	1	Power takeoff shaft	Cleaning Greasing	A	Additives Grease	
6	1	Bearing	Greasing	20	Grease	
7	2	Pin	Cleaning Greasing	20	Additives Grease	
8	8+2	Tyres	Check pressure	B	Compressor	
9	2	Axle	Greasing	20	Grease	
10	2	Sliding	Cleaning Greasing	B	Grease	
11	8	Pin	Greasing	8	Grease	
12	4	Cardan	Greasing	8	Grease	
	2	Cardan shaft	Greasing	8	Grease	

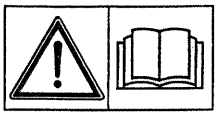
General checking of bolts, security pins and split pins to be carried out initially after the first 8 hours of use. Subsequently every 50 hours and whenever the machine is laid up for extended periods.

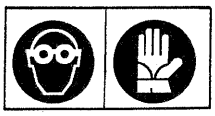
A = Each time the Cardan shaft is disconnected and Whenever the machine is stopped, we recommended that you clean the power takeoff shaft and replace the protective cover.

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

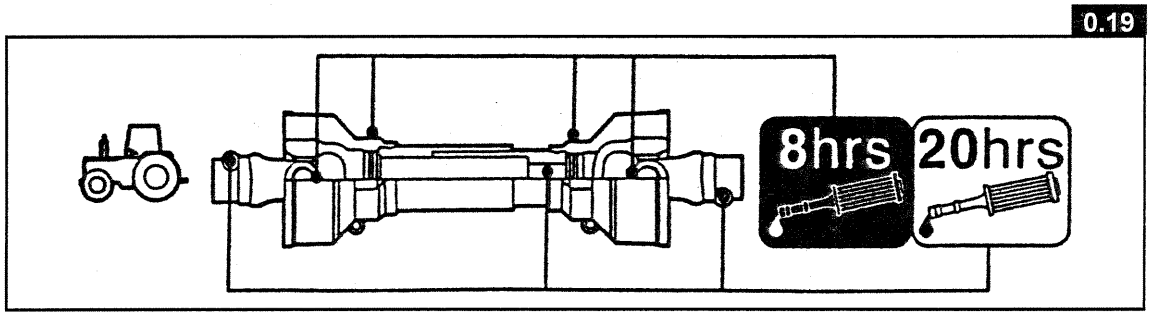
Additives of a type permitted by anti-pollution regulations.

CARDAN SHAFT MAINTENANCE





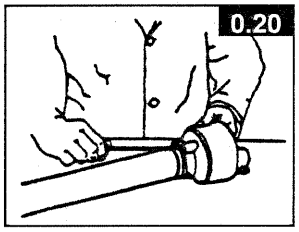
More detailed information may be found in the Cardan shaft manual, which, together with this manual, forms an essential part of the accident-prevention documentation. It is your responsibility to read and comply with this documentation.
If information given in this manual conflicts with that given in the Cardan shaft manual, you should follow the instructions given by the Cardan shaft manufacturer.



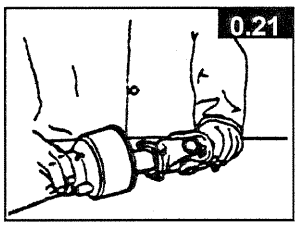
MAINTENANCE OF SLIDING PARTS

DISMANTLING

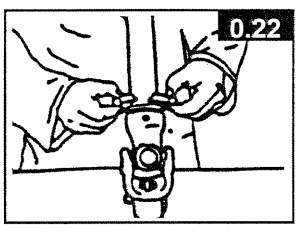
Turn the two eccentric pins on the ferrule until the protective cone comes free.



Withdraw the shaft protective guard.

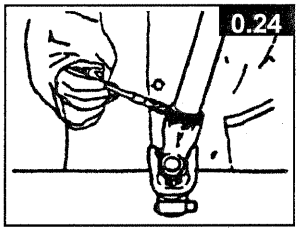


Cheek the condition of the ferrule and all protective parts.

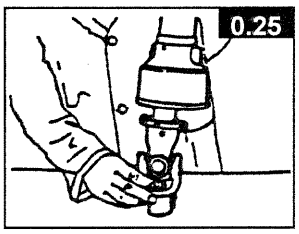


ASSEMBLY

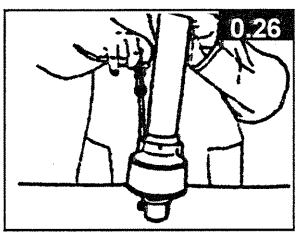
Lubricate the supporting ferrule seating.



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 affetcing 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.

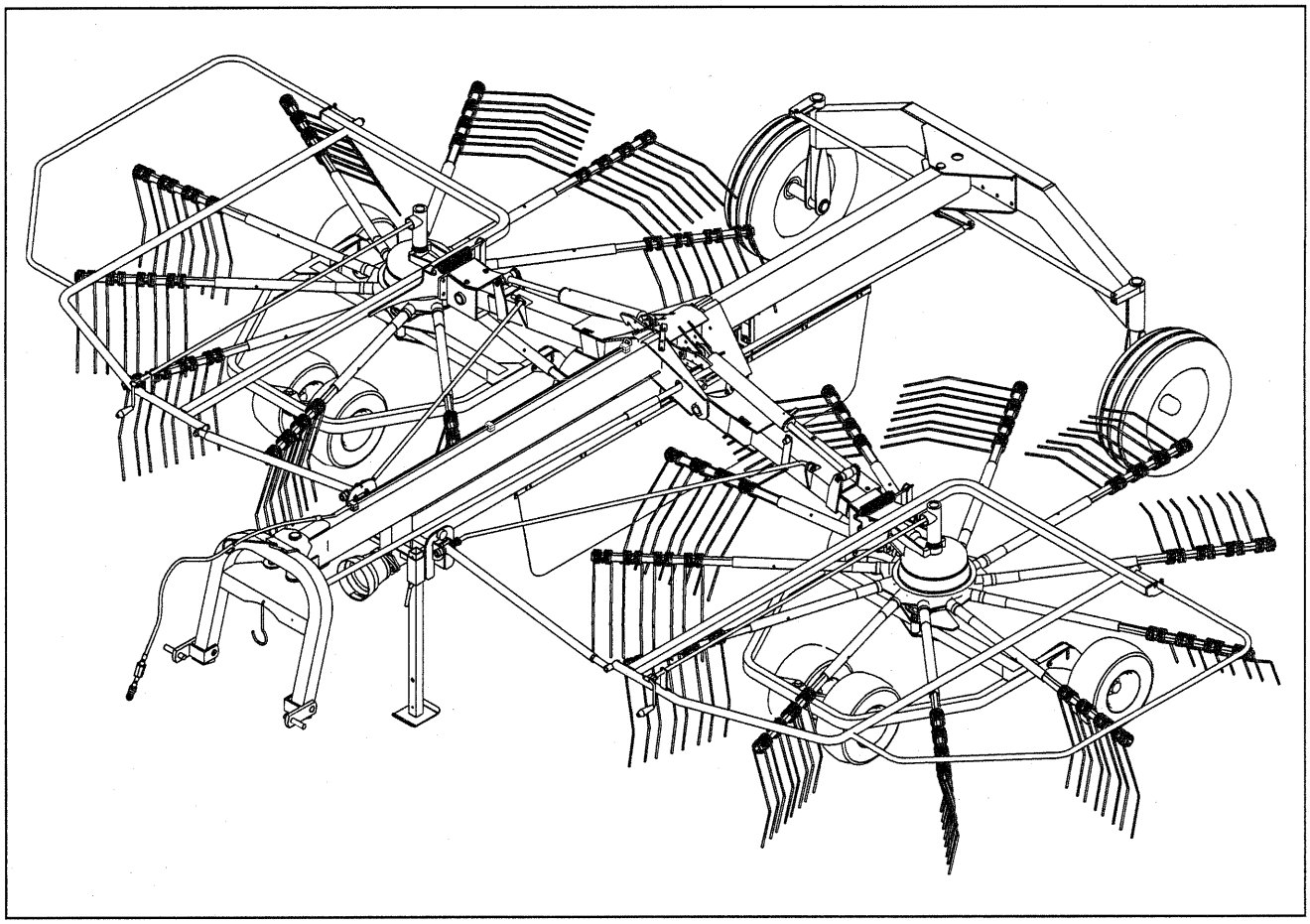
There is very small amount of residual grease which must be disposed of according to the regulations in force in the country concerned.

Specifications TW 7800

Transport width	m / feet	2.85 / 9'-4"
Height during transport position	m / feet	3.5 – 4 / 11' 6" – 13' 2"
Working width	m / feet	6.80 - 7.60 / 22'-4" - 25'
Hay width	m / feet	1.15 - 1.95 / 3'-9" - 6'-5"
Weight	kg / lbs	1880 / 4140
Rotor		2
Number of arms		11 x 2
Number of double tines for arm		4
Number of revs during working		350-450 R.P.M.
Tyres		10.0/75-15.3 – 16x6.5-8
Power required	kW / CV	40 / 55
Lower arm hitches		IIcat

SPARE PARTS LIST

PROGRESS TW 7800



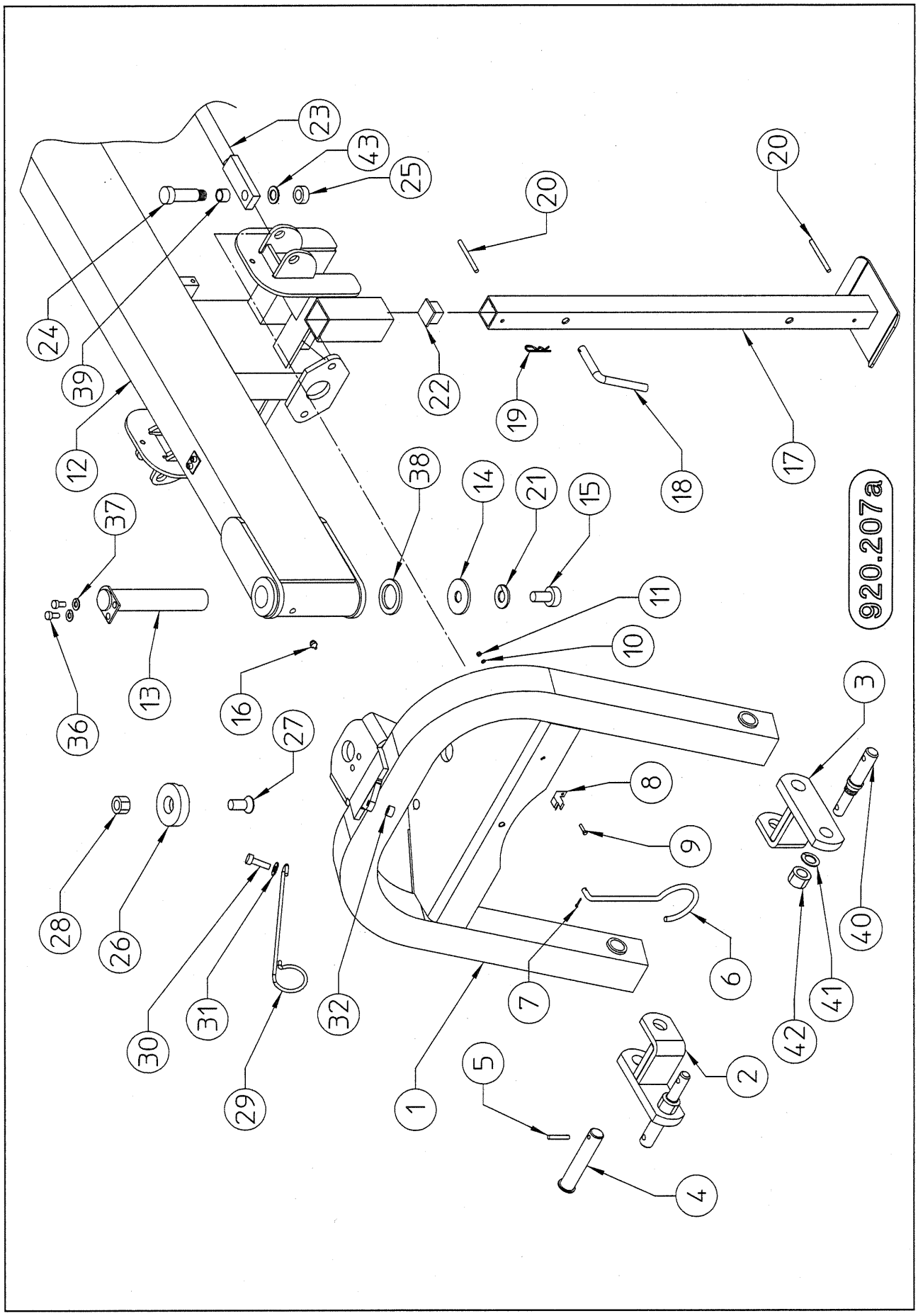

920.207a

TABLE NO. 920.207				
PROGRESS TW 7800				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
1	1	220.866	2PT HITCH	
2	1	220.684	R.H. LOWER LINK	
3	1	220.683	L.H. LOWER LINK	
4	2	210.483/a	PIN	
5	2	600.027	SPRING PIN	
6	1	200.991	CARDAN SUPPORT	
7	1	600.841	SPRING PIN	
8	1	200.992	CLIP	
9	1	620.280	SCREW M4x20	
10	1	600.839	WASHER	
11	1	600.836	NUT	
12	1	220.869/a	DRAWBAR	
13	1	220.867	PIN	
14	1	230.030	WASHER D.17/56 sp.6	
15	1	610.940	SCREW M16x30	
16	1	600.034	GREASE NIPPLE	
17	1	220.872	JACK STAND	
18	1	220.971	PIN	
19	1	600.308	SPLIT PIN	
20	2	600.447	SPRING PIN D.8 X70	
21	1	600.180	WASHER D.17	
22				
23	1	220.875	PIPE	
24	1	220.874	PIN	
25	1	600.080	NUT M16	
26	2	220.873	BUSH	
27	2	620.279	SCREW M20X45	
28	2	600.717	NUT M20	
29	1	220.868	SUPPORT	
30	1	600.641	SCREW M10x35	
31	1	620.250	WASHER D.11	
32	1	600.029	NUT M10	
33				
34				
35				
36	2	610.674	SCREW M10x16	
37	2	600.024	WASHER R.E. 11	
38	1	230.029	WASHER D,45/55 sp.1,5	
39	1	620.320	BUSH	
40	2	210.813	PIN	
41	2	600.246	WASHER	
42	2	600.244	NUT	
43	1	600.031	WASHER D.17	

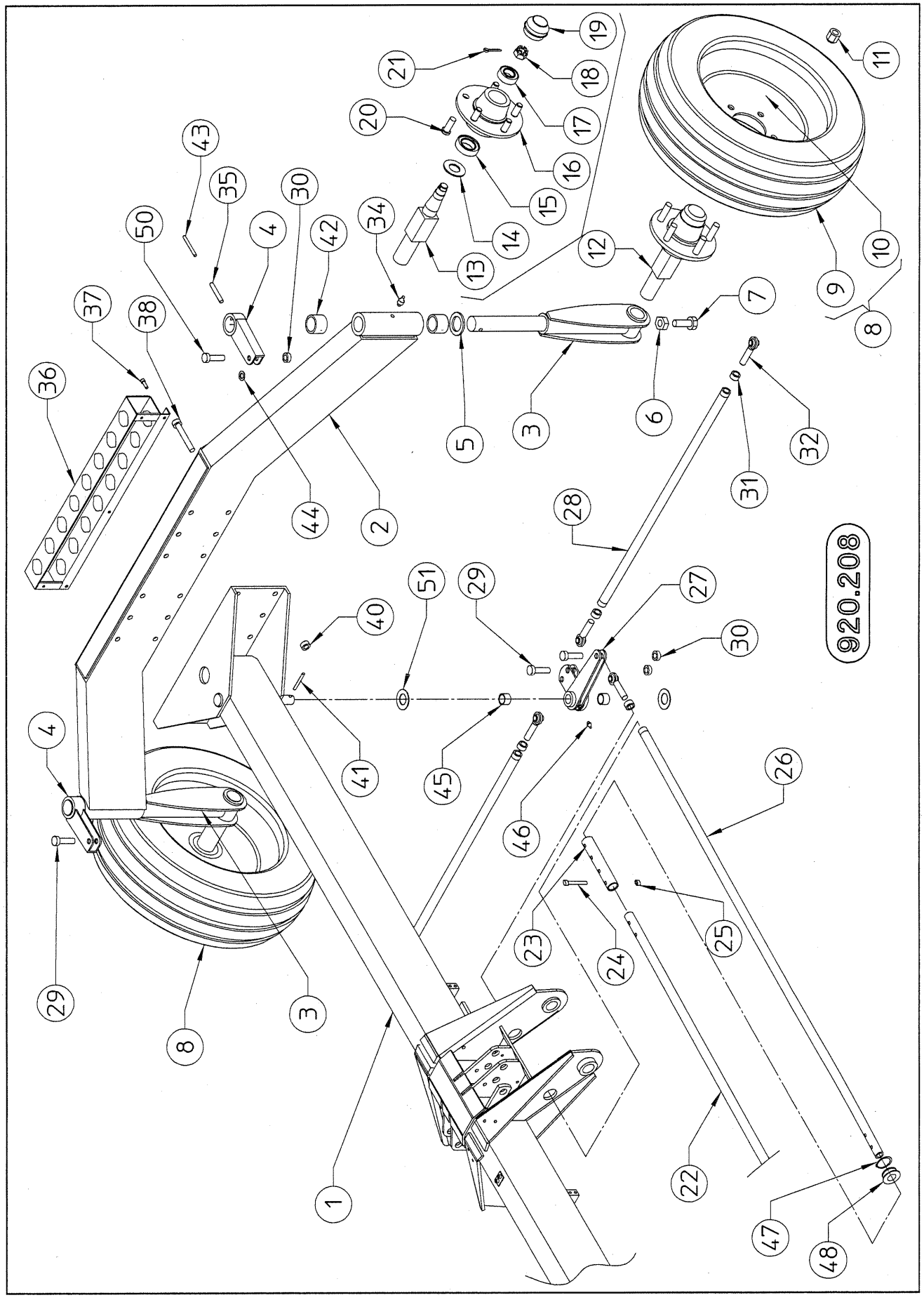

920.208

TABLE NO. 920.208				
PROGRESS TW 7800				
1	1	220.869/a	DRAWBAR	
2	1	220.870	CROSSPIECE	
3	2	220.871	WHEEL SUPPORT	
4	2	220.880	BRACKET	
5	2	230.028	WASHER	
6	2	600.084	NUT M16	
7	2	600.176	SCREW M16x50	
8	2	620.264	WHEEL ASSY	
9		620.298	TIRE	
10		620.299	RIM	
11	12	620.300	NUT M18x1,5	
12	2	220.881	HUB ASSY	
13			PIN	
14			DUST COVER	
15			BEARING	
16			HUB WITH SCREWS	
17			BEARING	
18			CASTLE NUT	
19			CAP	
20			SCREW	
21			SPLIT PIN	
22	1	220.875	PIPE	
23	1	220.877	BUSH	
24	4	600.374	SCREW M 8 x 50	
25	4	600.076	NUT M 8	
26	1	220.876	PIPE	
27	1	220.878	SUPPORT	
28	2	220.879	TIEROD	
29	3	600.176	SCREW M16x50	
30	5	600.080	NUT M16	
31	5	600.082	NUT M16	
32	5	620.259	BALL JOINT ENDS	
33				
34	2	600.034	GREASE NIPPLE	
35	2	600.655	SPRING PIN D.12x70	
36	1	220.929	SUPPORT	
37	5	600.061	SCREW M8 x 16	
38	12	600.392	SCREW M16 x120	
39	2	600.587	WASHER D 30/56-4	
40	12	600.080	NUT M16	
41	1	600.586	SPRING PIN D.10x60	
42	4	200.199	BUSH	
43	2	620.658	SPRING PIN D.6x70	
44	2	600.031	WASHER D.17	
45	2	600.808	BUSH	
46	1	600.124	GREASE NIPPLE M6	
47	1	620.368	SNAP RING D.48	
48	1	220.954	BUSH	
49				
50	2	600.174	SCREW M16x55	(CODICE X 60)
51	2	200.273	SHIM	

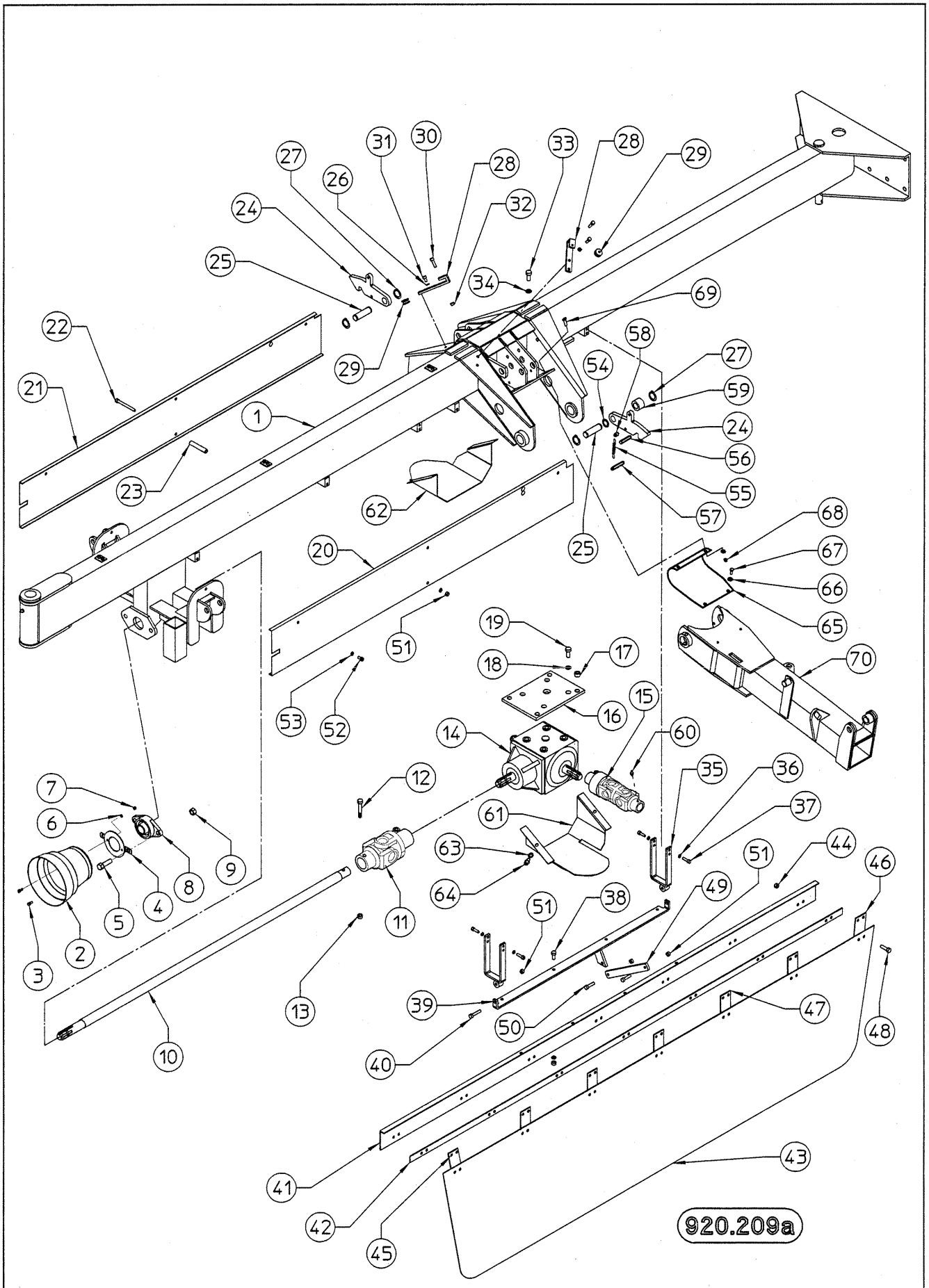

920.209a

TABLE NO. 920.209				
PROGRESS TW 7800				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
1	1	220.869/a	DRAWBAR	
2	1	620.260	HOOD	
3	2	600.236	SCREW	
4	1	210.675	SUPPORT	
5	2	610.167	SCREW	
6	2	600.412	WASHER	
7	2	600.532	NUT	
8	1	610.285	BEARING	
9	2	600.080	NUT	
10	1	220.882	SHAFT	
11	1	620.261	JOINT	
12	1	620.362	SCREW M12x80	
13	1	600.077	NUT M12	
14	1	620.257	GEARBOX	
15	2	620.262	JOINT	
16	1	220.885/a	PLATE	
17	4	220.955	SPACER	
18	4	600.018	WASHER D.13	
19	4	600.616	SCREW M12x35	
20	1	220.884	COVER	
21	1	220.883	COVER	
22	1	600.206	SCREW M10x120	
23	1	220.973	SPACER	
24	2	220.911	HOOK	
25	2	220.912	PIN	
26	4	600.229	WASHER D.9	
27	4	600.316	SNAP RING E25	
28	2	220.913	PULLEY BRACKET	
29	2	100.720	PULLEY	
30	2	600.871	SCREW M6x40	
31	4	600.223	SCREW M8x20	
32	2	600.472	NUT M6	
33	4	600.035	SCREW M16x40	
34	4	600.180	WASHER D.17	
35	2	220.906	BRACKET	
36	8	600.024	WASHER D.11	
37	8	610.821	SCREW TCEI M10X25	
38	4	600.006	SCREW M10x25	
39	1	220.907	SUPPORT	
40	2	600.402	SCREW M10x50	
41	1	220.908	SWATHING SUPPORT	
42	1	220.909	CLAMPING STRAP	
43	1	220.910	SWATHING DEFLECTOR	
44	14	600.076	NUT M8	
45	1	220.948	CLAMPING STRAP	
46	1	220.948	CLAMPING STRAP	
47	5	220.947	CLAMPING STRAP	
48	14	600.223	SCREW M8x20	
49	1	220.939	TIEROD	
50	2	600.350	SCREW M10 x40	

TABLE NO. 920.209				
PROGRESS TW 7800				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
51	9	600.029	NUT M10	
52	6	610.674	SCREW M10x16	
53	7	600.322	WASHER D.11	
54	2	200.664	SHIM 25X1	
55	2	220.123	SPRING	
56	2	220.914	PIN	
57	2	220.949	PIN SCREW	
58	2	220.950	PIN SCREW	
59	2	100.045	SPACER	
60	2		GREASE NIPPLE	
61	1	230.007	GUARD	
62	1	230.006	GUARD	
63	4	600.115	WASHER D.8,5	
64	4	600.061	SCREW M10x16	
65	2	230.224	GUARD	
66	8	610.185	WASHER D.9X24X2	
67	4	600.061	SCREW M,8x16	
68	4	600.076	NUT M 8	
69	4	600.702	SCREW M.8x25	
70	1	220.886/a	SUPPORT	

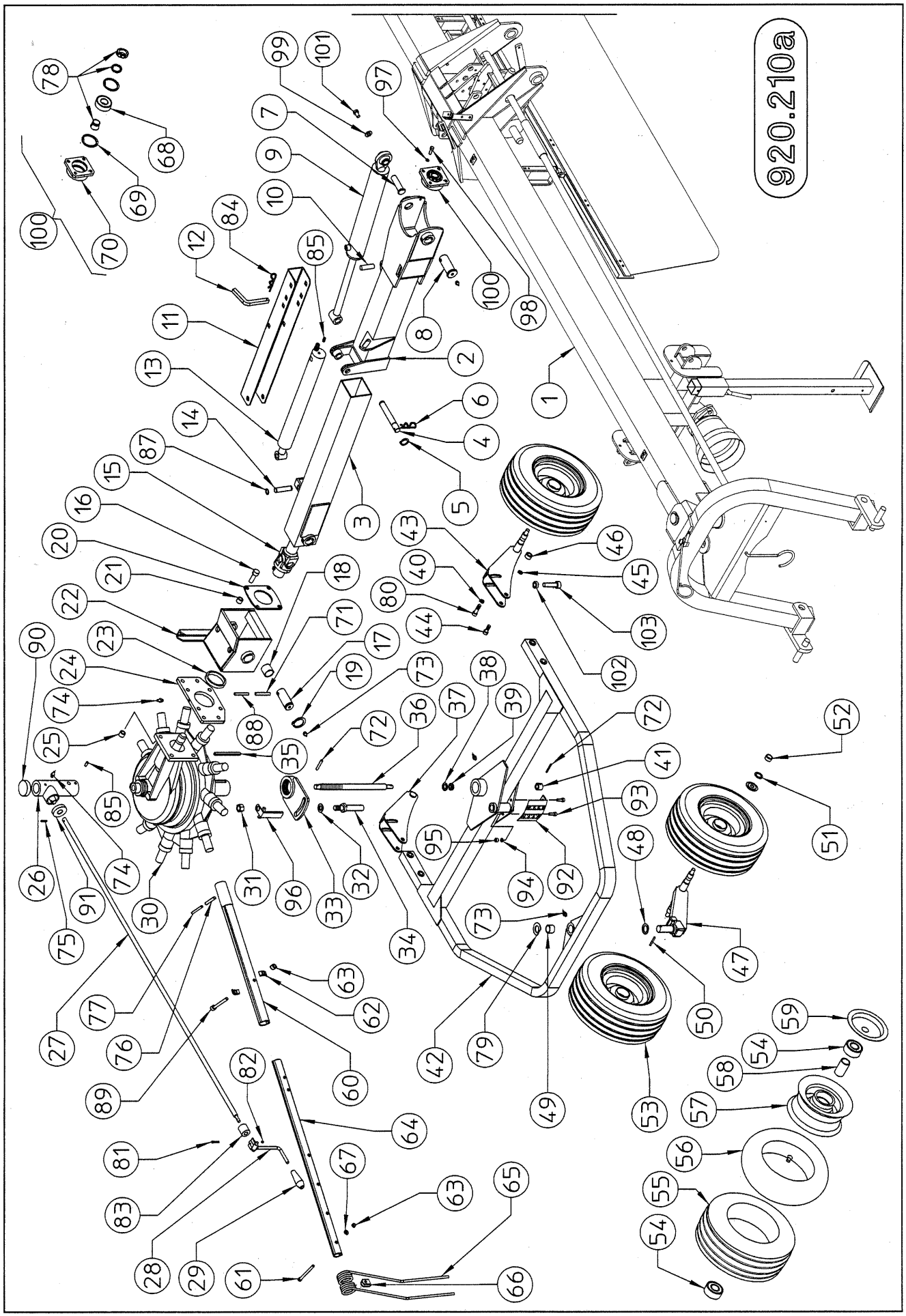

920.210a

TABLE NO. 920.210a				
PROGRESS TW 7800				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
1	1	220.869/a	DRAWBAR	
2	1	220.887/a	SUPPORT	
3	1	220.880/a	TUBE	
4	1	220.895	PIN	
5	2	600.316	SNAP RING D.25	
6	1	600.308	SPLIT PIN	
7	1	230.156	PIN	
8	2	220.892	PIN	
9	1	220.899	CYLINDER	
10	1	220.896	PIN	
11	1	220.898	U-COVER	
12	1	220.904	PIN	
13	1	220.900	CYLINDER	
14	1	220.897	PIN	
15	1	230.223	CARDAN SHAFT	
	1	220.902	HALF OUT CARDAN SHAFT	
	1	230.166	HALF IN CARDAN SHAFT	
16	4	620.369	SCREW M16x70	
17	2	220.893	PIN	
18	4	620.276	BUSH	
19	4	600.588	SNAP RING D.40	
20	1	220.891	PLATE	
21	4	220.960	BUSH	
22	1	220.889/a	SUPPORT	
23	1	220.957	BUSH	
24	1	220.941	PLATE	
25	4	600.080	NUT M16	
26	1	220.920	GEARBOX	
27	1	220.919	CRANK ROD	
28	1	500.178	CRANK	
29	1	505.004	HANDLE	
30	1	620.190	GEARBOX 9.792.323.20	
31	1	600.717	NUT M20	
32	1	600.632	WASHER D 21	
33	1	220.928	PLATE	
34	1	220.940/a	PIN	
35	2	620.277	LATCH	
36	1	220.921	SCREW	
37	1	220.927	SUPPORT	
38	1	220.951	WASHER	
39	1	610.791	BEARING 51203	
40	6	600.031	WASHER D,17	
41	1	220.922	BUSH	
42	1	220.924	ROTOR AXLE	
43	1	220.926	SUPPORT	
44	2	610.187	SCREW M16x80	
45	2	600.180	WASHER D,17	
46	4	600.080	NUT M.16	
47	1	220.925	SUPPORT	
48	1	200.419	SHIM	
49	2	610.147	BUSH	

TABLE NO. 920.210a				
PROGRESS TW 7800				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
50	1	600.539	SPRING PIN D.6x45	
51	4	600.031	WASHER	
52	4	600.629	NUT	
53	4	610.272	TYRE ASSY	
54		600.602	BEARING	
55		610.275	TYRE	
56		610.274	TUBE	
57		610.273	RIM	
58		200.415	SPACER	
59		210.596	DUST COVER, INNER	
60	11	220.933	PROFILE TUBE	
61	44	600.210	SCREW M12x70	
62	22	220.938	WASHER	
63	55	600.077	NUT M12	
64	11	220.937	TINE ARM	
65	44	210.495	TINE	
66	44	200.349/a	TINE LOCK, FLEXIBLE	
67	44	500.012	WASHER D.13/28-3,5	
68	2	620.506	BEARING 2207-2RS	
69	2	600.332	SNAP RING D.72	
70	2	225,356/a	SUPPORT	
71	4	600.655	SPRING PIN D.12x70	
72	2	600.601	SPRING PIN D. 8x36	
73	4	600.034	GREASE NIPPLE M8	
74	2	600.124	GREASE NIPPLE M6	
75	2	610.502	SPRING PIN D.8x26	
76	22	610.417	SPRING PIN D.12x50	
77	22	610.419	SPRING PIN D.7x50	
78	1	620.507	ADAPTER SLEEVES	
79	1	230.033	SHIM	
80	2	610.872	SCREW M16x90	
81	1	600.871	SCREW M6x40	
82	1	600.472	NUT M6	
83	1	230.027	BUSH	
84	1	600.308	SPLIT PIN	
85	2	620.363	SCREW M10x12	
86				
87	2	600.600	SNAP RING E20	
88	4	620.658	SPRING PIN D.6X70	
89	11	600.390	SCREW M12x80	
90	2	230.031	PLUG D.69	
91	2	230.032	PLUG D.63	
92	1	230.153	GRADUATED SCALE	
93	2	600.702	SCREW M8x25	
94	2	600.115	WASHER D.9	
95	2	600.076	NUT M8	
96	1	230.152	INDICATOR	
97	4	600.024	WASHER D. 10,5	
98	4	600.148	SCREW M10x30	
99	1	600.092	WASHER D.12/36	
100	1	230.222	SUPPORT	
101	1	600.770	SCREW M12x20	
102	2	600.009	NUT M14	
103	2	620.114	SCREW M14x70	

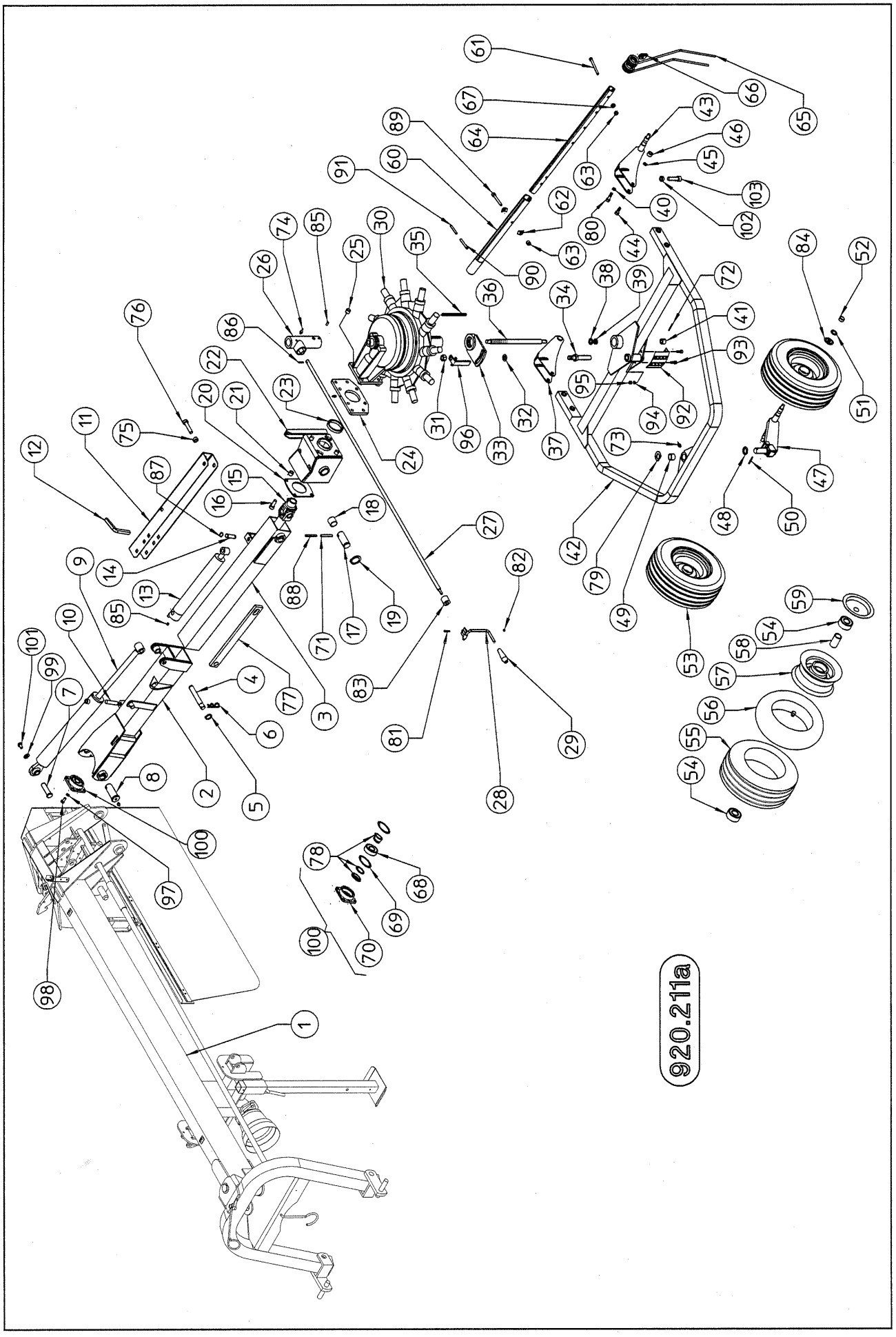

920.211a

TABLE NO. 920.211a				
PROGRESS TW 7800				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
1	1	220.869/a	DRAWBAR	
2	1	220.886/a	SUPPORT	
3	1	220.888/a	TUBE	
4	1	220.895	PIN	
5	2	600.316	SNAP RING D.25	
6	1	600.308	SPLIT PIN	
7	1	230.156	PIN	
8	2	220.892	PIN	
9	1	220.899	CYLINDER	
10	1	220.896	PIN	
11	1	220.898	U-COVER	
12	1	220.904	PIN	
13	1	220.900	CYLINDER	
14	1	220.897	PIN	
15	1	230.223	CARDAN SHAFT	
	1	220.902	HALF OUT CARDAN SHAFT	
	1	230.166	HALF IN CARDAN SHAFT	
16	4	620.369	SCREW M16x70	
17	2	220.893	PIN	
18	4	620.276	BUSH	
19	4	600.588	SNAP RING D.40	
20	1	220.891	PLATE	
21	4	220.960	BUSH	
22	1	220.890/a	SUPPORT	
23	1	220.957	BUSH	
24	1	220.941	PLATE	
25	4	600.080	NUT M16	
26	1	220.920	GEARBOX	
27	1	220.919	CRANK ROD	
28	1	500.178	CRANK	
29	1	505.004	HANDLE	
30	1	620.191	GEARBOX 9.792.324.20	
31	1	600.717	NUT M20	
32	1	600.632	WASHER D 21	
33	1	220.928	PLATE	
34	1	220.940/a	PIN	
35	1	620.277	LATCH	
36	1	220.921	SCREW	
37	1	220.927	SUPPORT	
38	1	220.951	WASHER	
39	1	610.791	BEARING 51203	
40	4	600.031	WASHER D,17	
41	1	220.922	BUSH	
42	1	220.924	ROTOR AXLE	
43	1	220.926	SUPPORT	
44	4	610.187	SCREW M16x80	
45	2	600.180	WASHER D,17	
46	4	600.080	NUT M.16	
47	1	220.925	SUPPORT	
48	1	200.419	SHIM	
49	2	610.147	BUSH	

TABLE NO. 920.211a				
PROGRESS TW 7800				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
50	1	600.539	SPRING PIN D.6x45	
51	4	600.031	WASHER	
52	4	600.629	NUT	
53	4	610.272	TYRE ASSY	
54		600.602	BEARING	
55		610.275	TYRE	
56		610.274	TUBE	
57		610.273	RIM	
58		200.415	SPACER	
59		210.596	DUST COVER, INNER	
60	11	220.934	PROFILE TUBE	
61	44	600.210	SCREW M12x70	
62	22	220.938	WASHER	
63	55	600.077	NUT M12	
64	11	220.937	TINE ARM	
65	44	210.495	TINE	
66	44	200.349/a	TINE LOCK, FLEXIBLE	
67	44	500.012	WASHER D.13/28-3,5	
68	2	620.506	BEARING 2207-2RS	
69	1	600.332	SNAP RING D.72	
70	1	225.356/a	SUPPORT	
71	4	600.655	SPRING PIN D.12x70	
72	2	600.601	SPRING PIN D,6x36	
73	4	600.034	GREASE NIPPLE M8	
74	2	600.124	GREASE NIPPLE M6	
75	1	600.008	NUT M12	
76	1	600.564	SCREW M12x60	
77	1	220.918	PLATE	
78	1	620.507	ADAPTER SLEEVES	
79	1	230.033	SHIM	
80	2	610.872	SCREW M 16 x90	
81	1	600.871	SCREW M 6x40	
82	1	600.472	NUT M6	
83	1	230.027	BUSH	
84	4	200.416	DUST COVER, INNER	
85	2	620.363	SCREW M10x12	
86	2	610.502	SPRING PIN D.8x26	
87	2	600.600	SNAP RING D.20	
88	4	620.658	SPRING PIN D.6x70	
89	11	600.390	SCREW M12x80	
90	22	610.417	SPRING PIN D.12x50	
91	22	610.419	SPRING PIN D.7x50	
92	1	230.153	GRADUATED SCALE	
93	2	600.702	SCREW M8x25	
94	2	600.115	WASHER D.9	
95	2	600.076	NUT M8	
96	1	230.152	INDICATOR	
97	4	600.024	WASHER D. 10,5	
98	4	600.148	SCREW M10x30	
99	1	600.092	WASHER D. 12/36	
100	1	230.222	SUPPORT	
101	1	600.770	SCREW M12x20	
102	2	600.009	NUT M14	
103	2	620.114	SCREW M14x70	

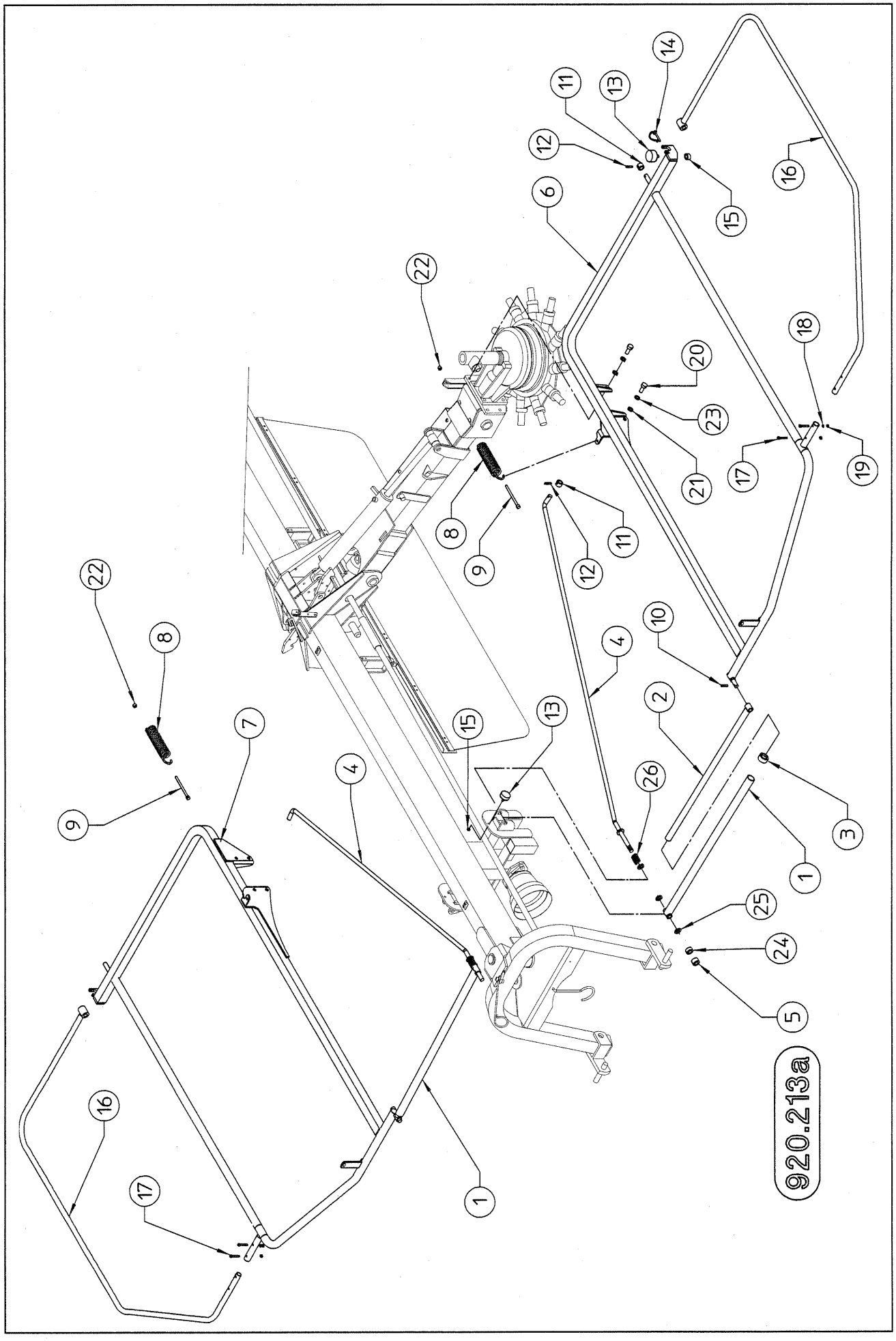

920.213a

TABLE NO. 920.213a				
PROGRESS TW 7800				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
1	2	220.942/a	TUBE	
2	2	220.943	TUBE	
3	2	230.270	BUSH	
4	2	220.901/a	TIEROD	
5	2	600.257	NUT M20	
6	1	220.945	SUPPORT	
7	1	220.944	SUPPORT	
8	2	230.013	SPRING	
9	2	220.976	SCREW	
10	2	610.502	SPRING PIN D.8X26	
11	4	220.905	BUSH	
12	4	600.601	SPRING PIN D.8X36	
13	4	610.331	RUBBER PAD	
14	2	610.186	PIN D.8x70	
15	4	600.029	NUT M10	
16	2	220.946	GUARD	
17	4	600.551	SCREW M8x45	
18	4	600.115	WASHER D.9	
19	4	600.076	NUT M.8	
20	8	610.940	SCREW M16X30	
21	8	600.180	WASHER D.17	
22	4	600.010	NUT M10	
23	8	600.180	WASHER R.E.17	
24	2	620.206	NUT M20	
25	6	600.632	WASHER D.21	
26	2	200.044	SPRING	

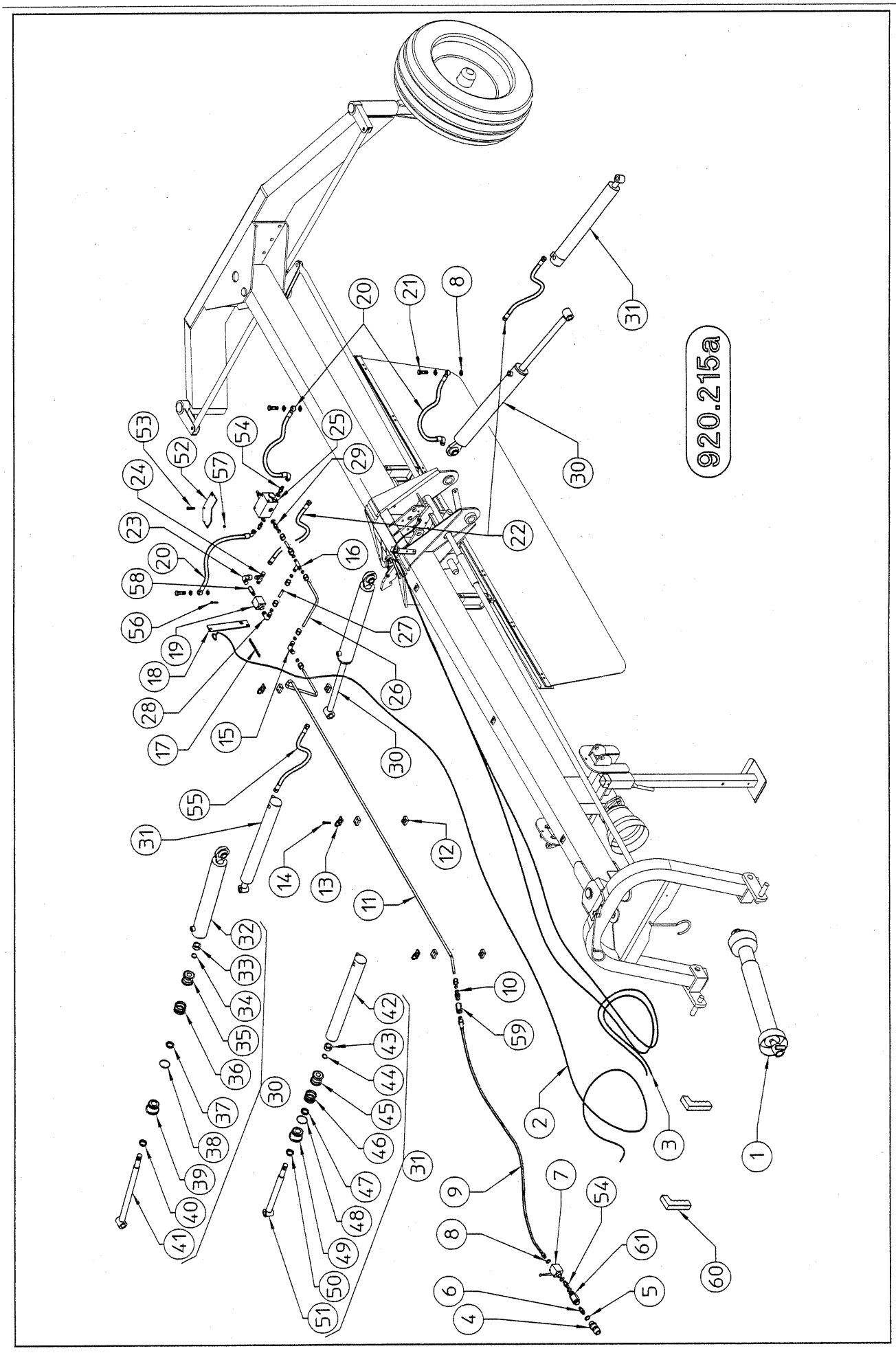

920.215a

TABLE NO. 920.215a				
PROGRESS TW 7800				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
1	1	620.263	CARDAN SHAFT	
2	1	220.977	ROPE	
3	2	220.978	ROPE	
4	1	600.273	RAPID COUPLING	
5	1	600.269	COPPER WASHER	
6	1	600.416	NIPPLE	
7	1	610.002	VALVE	
8	8	600.039	COPPER WASHER	
9	1	620.302	HOSE	
10	1	620.304	FITTING COMPLETE D.12-3/8M	
11	1	220.931	TUBE	
12	6	610.423	HOSE COLLAR	
13	3	220.915	PLATE	
14	6	610.040	SCREW TCEI M6x30	
15	1	620.307	FITTING COMPLETE 90° D.12-D.12	
16	1	620.308	FITTING COMPLETE T- D.12-D.12-D.12	
17	1	200.278	SPRING	
18	1	220.916	PLATE	
19	1	620.314	VALVE	
20	2	620.303	HOSE	
21	2	600.040	FITTING D. 3/8	
22	1	620.365	HOSE	
23	1	620.309	FITTING 90° 3/8M-3/8F	
24	1	600.272	FITTING T 3/8	
25	1	620.352	FLOW DIVIDER	
26	1	220.932	TUBE	
27	2	220.978	TUBE	
28	1	620.310	FITTING COMPLETE 90° 3/8M-D12	
29	1	620.311	FITTING COMPLETE 3/8M-D12	
30	2	220.899	CYLINDER	
31	2	220.900	CYLINDER	
32		220.979	CYLINDER BARREL	
*		610.340	SET OF GASKET	
33		600.879	NUT	
34		600.983	GASKET	
35		210.227	PISTON	
36		600.984	GASKET	
37		610.031	GASKET	
38		600.982	GASKET	
39		210.569	CYLINDER HEAD	
40		600.645	GASKET	
41		220.980	ROD	
42		220.981	CYLINDER BARREL	
		620.312	SET OF GASKET	
43		610.646	NUT M14X1,5	
44		610.029	GASKET	
45		220.668	PISTON	
46		610.028	GASKET	
47		610.436	GASKET	
48		610.090	GASKET	
49		620.313	CYLINDER HEAD	
50		610.435	GASKET	
51		220.982	ROD	
52	1	220.917	PLATE	
53	2	600.757	SCREW M8 X 30	
54	2	600.270	FITTING M3/8-M3/8	
55	1	620.305	HOSE	
56	2	620.366	SCREW M5 X 45	
57	2	620.367	NUT M5	
58	1	230.024	NIPPLES 3/8M 3/8F	
59	1	620.315	NIPPLES 3/8F 3/8F	
60	2	620.357	HANDLE	
61	2	610.144	FLOW ADJUSTER	

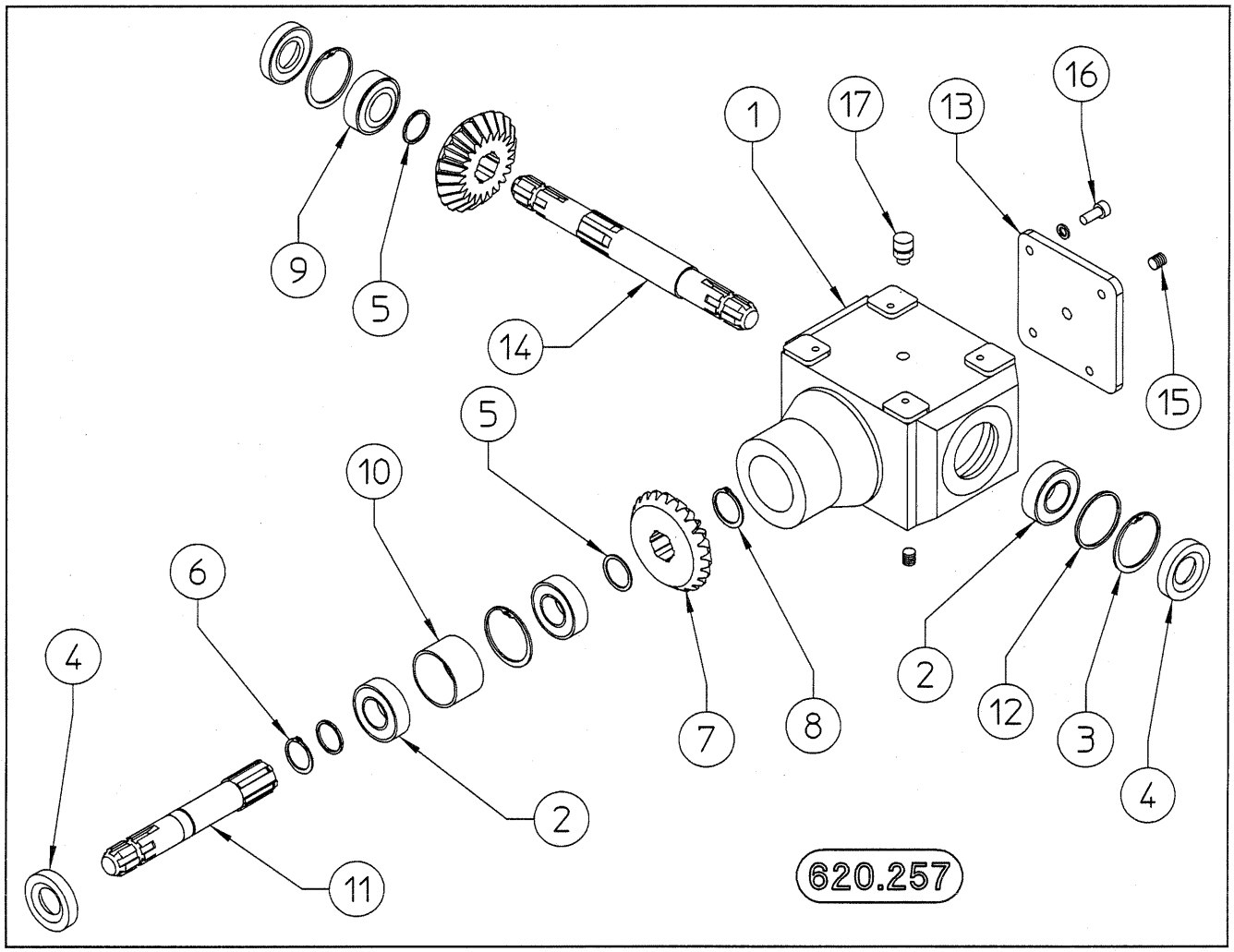


TABLE GEARBOX NO. 620.257				
PROGRESS TW 7800				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
1	1	230.036	GEARBOX	
2	2	620.202	BEARING 6207	
3	3	620.199	SNAP RING I72	
4	3	620.374	OIL RETAINER 35x72x10	
5	3	100.883	SHIM	
6	1	620.145	SNAP RING E35	
7	2	230.037	PINION	
8	1	620.375	SNAP RING E40	
9	2	620.129	BEARING 30207	
10	1	230.038	SPACER	
11	1	230.039	SHAFT	
12	1	230.040	SHIM	
13	1	230.041	COVER	
14	1	230.042	SHAFT	
15	2	620.376	OIL TAP	
16	4	620.377	SCREW M10X20	
17	1	620.152	OIL TAP	

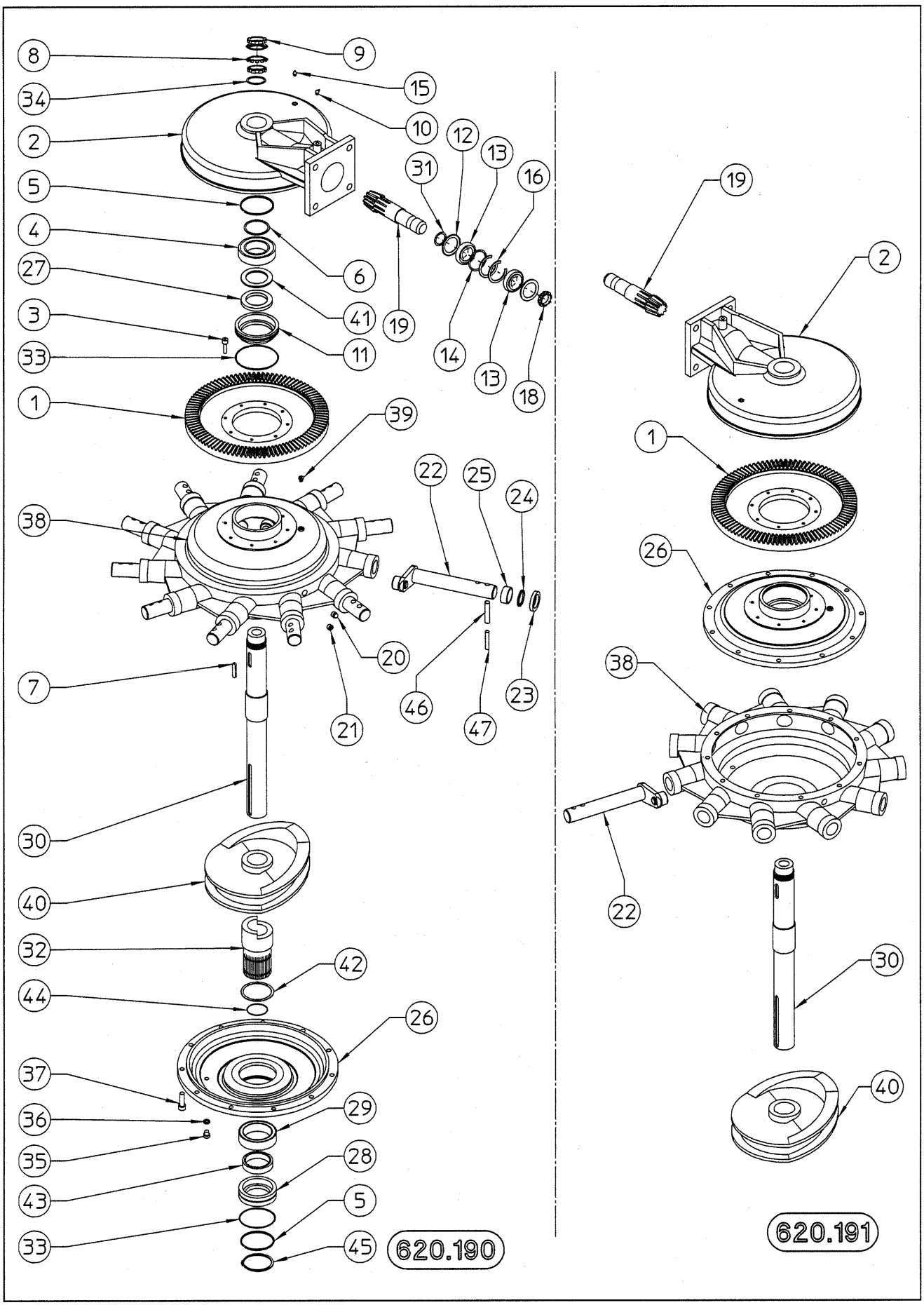

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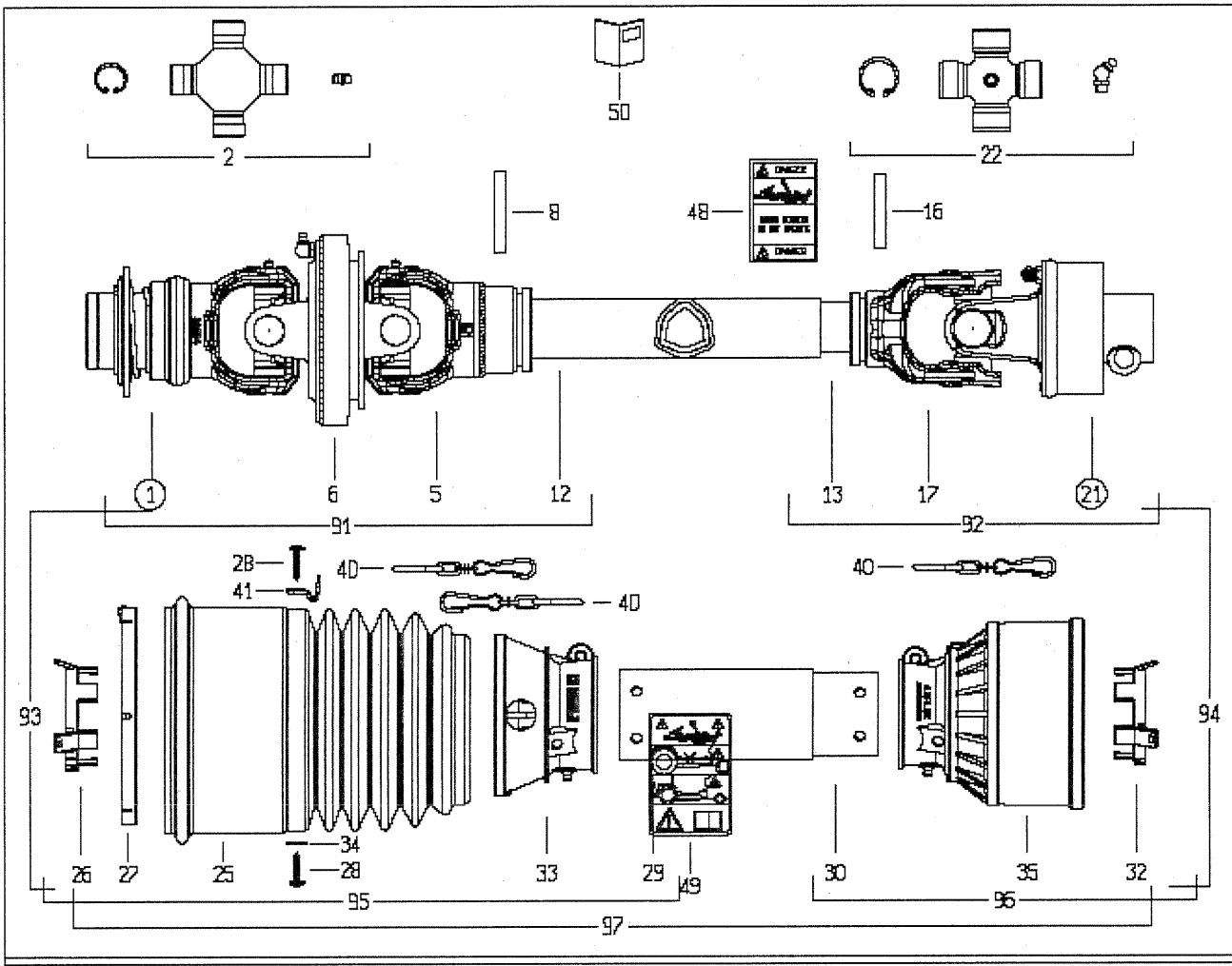
TABLE GEARBOX NO. 620.190 - 620.191				
PROGRESS TW 7800				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
1	1	220.721	CROWN WHEEL Z97 M3.75	
2	1	220.722	COVER	
3	8	220.723	BOLT M10x22 8.8	
4	1	620.127	BEARING 6310 Z	
5	2	620.177	SNAP RING 110UNI7437	
6	1	220.724	SHIM 50,3x70.3	
7	1	620.178	PARALLEL KEY B 10X8X50	
8	2	620.179	SPRING WASHER 50x74x1.25	
9	2	620.180	LOCKNUT M50X1,5 H11	
10	1	620.358	GREASE NIPPLE M10x1	
11	1	220.712	COVER	
12	2	620.140	PROTECTIVE WASHER 30208 AV	
13	2	620.181	BEARING 30208	
14	1	220.726	SHIM 79.9	
15	2	620.182	GREASE NIPPLE 45G.M10X1	
16	2	620.148	SNAP RING 80 UNI7437	
17	0,15		GREASE	
18	1	220.727	NUT M40X1.5	
19	1	220.715	PINION SHAFT Z10 M3.75	
20	1	620.183	PLUG 1/2"GAS	
21	1	620.184	PLUG 1/2"GAS	
22	11	220.720	CONNECTING ROD	
23	11	620.162	OIL SEAL 35X45X7	
24	11	220.718	SHIM 35.2x43.8x1	
25	11	220.707	SPACER	
26	1	220.728	COVER	
27	1	620.157	DOUBLE LIP SEAL 55X72X10	
28	1	230.043	COVER	
29	1	620.380	BEARING 6014	
30	1	230.044	SHAFT	
31	1	220.729	SHIM 40.3x1.0	
32	1	230.046	SLEEVE	
33	2	620.163	O-RING 101,27X2,62	
34	1		SHIM 2x57.5x0.5	
35	1	620.153	OIL DRAIN PLUG 3/8"GAS	
36	1	620.175	BOLT WASHER 17x22x1.5	
37	11	220.731	BOLT M10x30 8.8	
38	1	220.732	CASING	
39	1	620.151	PLUG 3/8"GAS	
40	1	230.045	CAMME	
41	1		SHIM 50.3x2.5	
42	1	230.047	SHIM 84.7	
43	1	620.379	OIL SEAL 70X90X10	
44	1	620.378	O-RING OR-3200	
	1	230.048	BUSH	whith 220.928
251	2	620.282	SNAP RING 70 UNI7435	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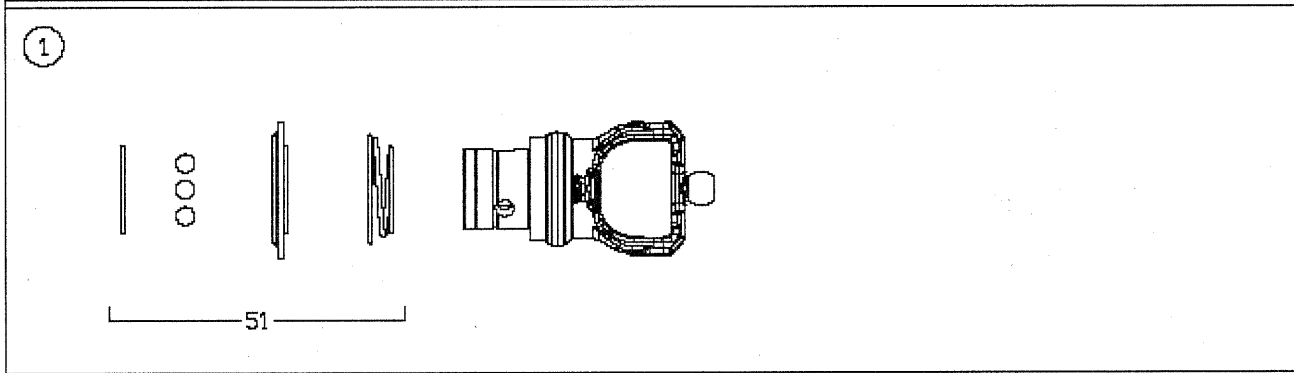
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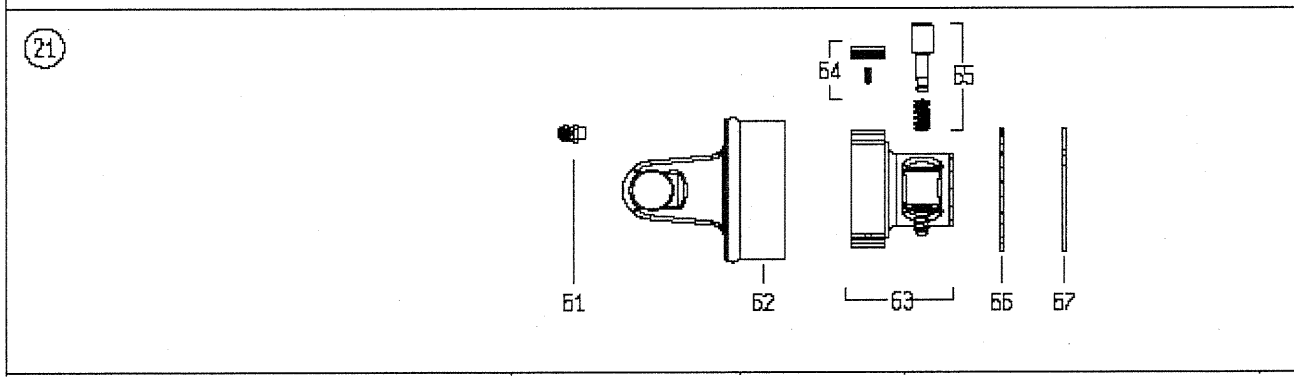
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TABLE CARDAN SHAFT NO. 620.263				
PROGRESS TW 7800				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
1	1	620.381	YOKE	
2	1	620.382	CROSS JOURNAL ASS.	
5	1	620.383	YOKE	
6	1	620.384	CENTER BODY	
8	1	610.548	SPRING PIN	
12	1	620.422	TUBE	
13	1	620.423	TUBE	
16	1	610.551	SPRING PIN	
17	1	620.387	YOKE	
21	1	620.424	TORQUE	
22	1	620.389	CROSS JOURNAL ASS.	
25	1	620.390	CONE	
26	1	610.557	RING	
27	1	620.391	RING	
28	6	620.392	SCREW	
29	1	620.425	TUBE	
30	1	620.426	TUBE	
32	1	610.562	RING	
33	1	620.395	BASIC CONE	
34	5	620.396	WASHER	
35	1	620.397	BASIC CONE	
40	3	620.398	CHAINE	
41	1	620.399	HOOK CHAINE	
48	1	620.400	LABEL	
49	1	620.401	LABEL	
50	1	620.402	MANUAL	
51	1	620.427	JOINT	
61	1	620.428	GREASE NIPPLE	
62	1	620.429	BODY	
63	1	620.430	HUB	
64	1	620.431	PUSH BUTTON	
65	1	610.572	COMPLETE PUSH BUTTON	
66	1	620.432	REATING WASHER	
67	1	620.433	CIRCLIP	
91	1	620.434	HALF SHAFT (WITHOUT GUARD)	
92	1	620.435	HALF SHAFT (WITHOUT GUARD)	
93	1	620.436	HALF SHAFT (WITH GUARD)	
94	1	620.437	HALF SHAFT (WITH GUARD)	
95	1	620.438	HALF SAFETY GUARD	
96	1	620.439	HALF SAFETY GUARD	
97	1	620.440	SAFETY GUARD	

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