

AGRICULTURAL MACHINERY  
**sitrex**®

***USE AND MAINTENANCE***

***HAYMAKER HM/300***

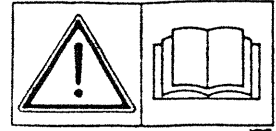
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## CHAPTER 1

### GENERAL INTRODUCTION - WARRANTY



The safety of the user and any persons in the vicinity of the HM/300 (henceforth referred to as the machine) is paramount.

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 lifting unit and 3-point universal linkage.

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 Chapter 3 on general safety instructions.

These instructions must always be heeded.

If you are in any doubt, contact the Sitrex Assistance Centre 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.

SITREX s.r.l. warrants new Sitrex 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.

Sitrex 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 Sitrex 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.

SITREX undertakes no responsibility for any obligation or agreement reached by any Sitrex 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 2

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

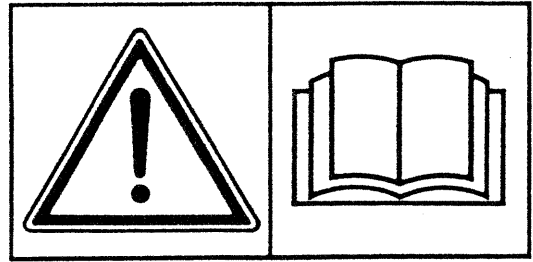
## IMPORTANT

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

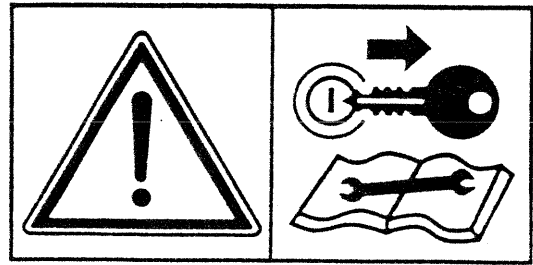
1

Before beginning operations, read the instruction manual carefully.



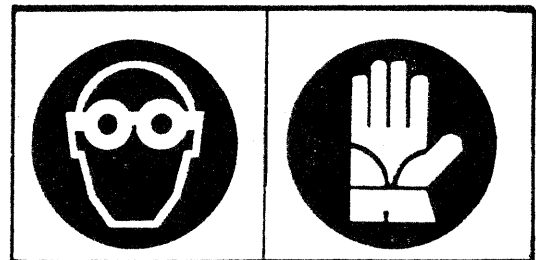
2

Before undertaking any maintenance, stop the machine and support it on the ground. Then consult the instruction 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.



**DANGER!!!**



5

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.



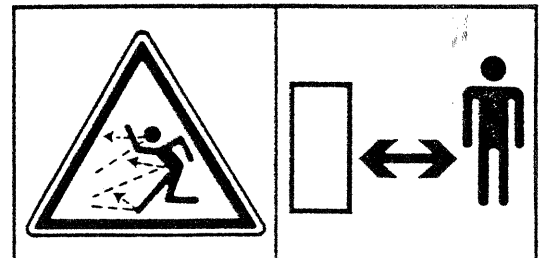
6

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



7

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



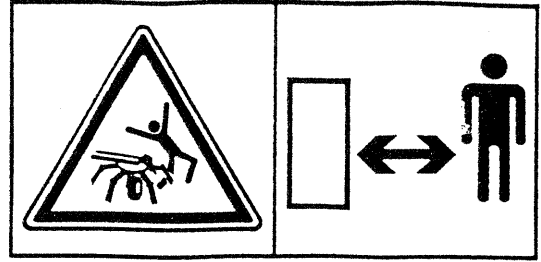
8

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.



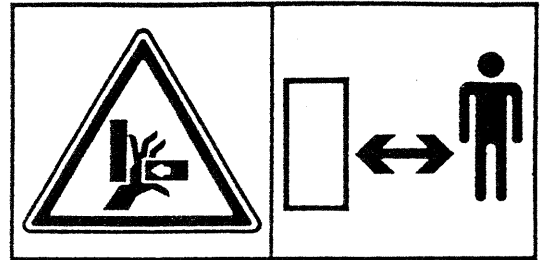
**9**

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



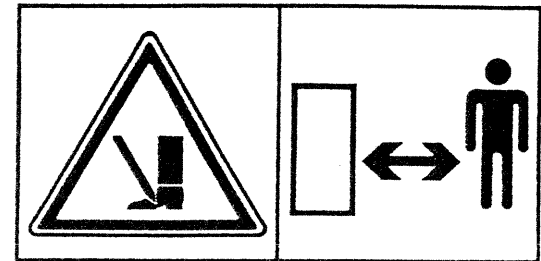
**10**

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



**11**

Indicates that there is a risk of injury to feet from rotating tines. Keep a safe distance away.



## INDICATION SIGNS

**12**

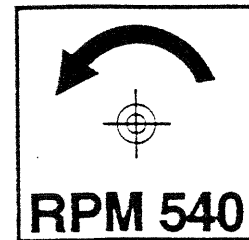
Indicates a greasing point.

**GREASE**



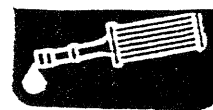
**13**

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, see the diagram on p.15...



## CHAPTER 3

### GENERAL SUMMARY OF SAFETY AND ACCIDENT-PREVENTION INSTRUCTIONS

## GENERAL SUMMARY OF SAFETY AND ACCIDENT-PREVENTION INSTRUCTIONS

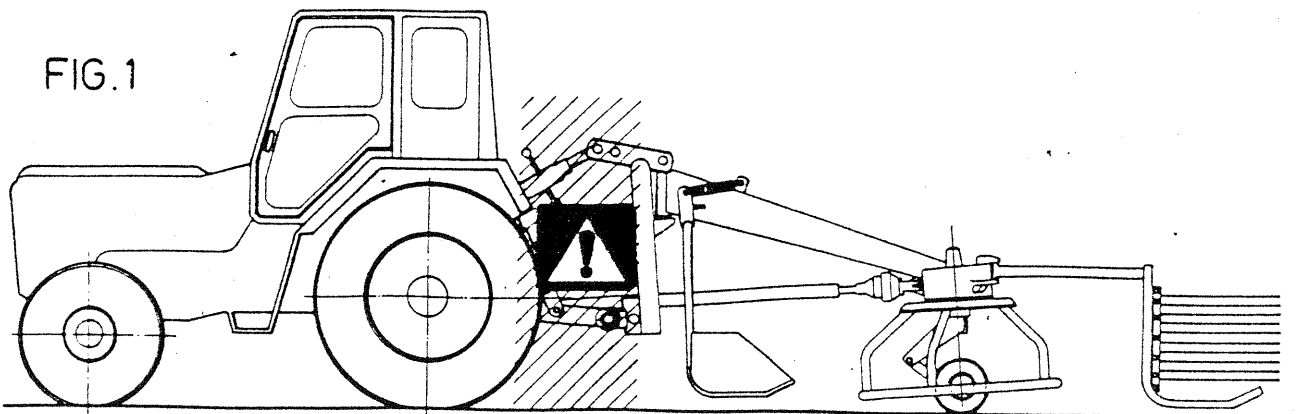
Read all the directions carefully before using the machine. When in doubt, seek advice from the manufacturers.

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 immobilised 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 licence.
- 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, familiarise 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 roadholding, 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 centre 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

FIG.1



35° - Fig.2) and when it is not in use.

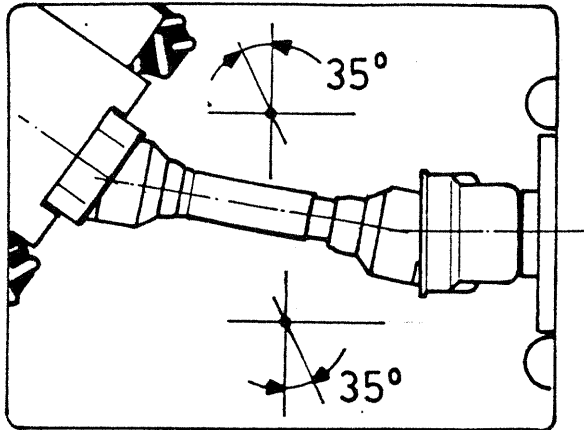


FIG.2

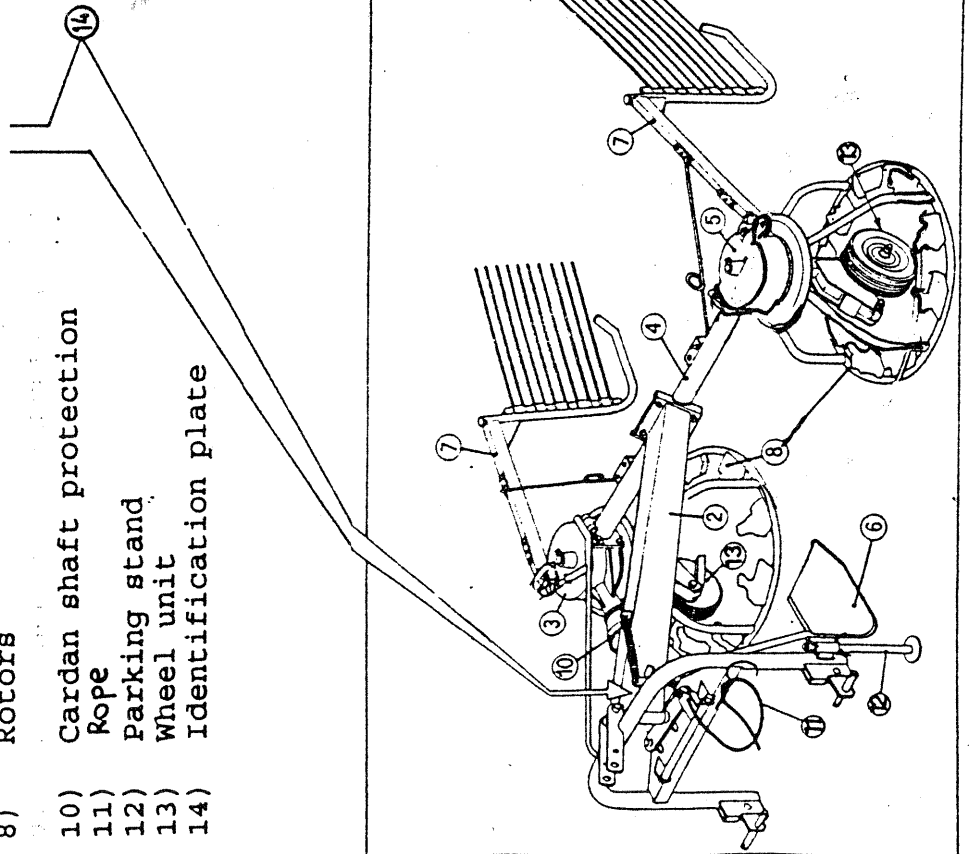
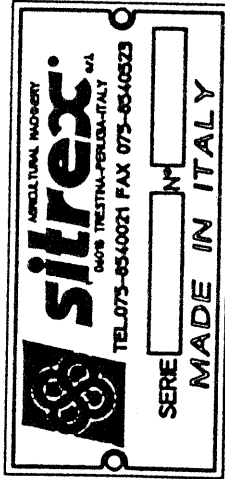
- 45-** Safety decals must always be clearly visible. They must be kept clean and replaced if they become too illegible (they can be ordered from the agent if necessary).
- 46-** The instruction booklet must be available for the lifetime of the machine.
- 37-** Only clean and grease the Cardan shaft when the power takeoff is disengaged, the engine is off, the parking brake is applied and the ignition key is removed.
- 38-** When the Cardan shaft is not in use, rest it on the support provided.
- 39-** On disconnecting the Cardan shaft, replace the protective hood on the power takeoff shaft.
- 40-** Prolonged use of the machine can cause the drive boxes (Fig.4) to become hot. To avoid any risk of getting burnt, avoid touching these areas both during use and some time afterwards.
- 41-** Periodically check screws and nuts for tightness and grip. Tighten if necessary.
- 42-** When the machine is raised for maintenance work and tine replacement, put suitable supports under the machine as a safety precaution.
- 43-** Ensure that the recommended grease is used.
- 44-** Spare parts must meet the requirements as defined by the manufacturer. Use only original spare parts.

## CHAPTER 4

### PRODUCT IDENTIFICATION

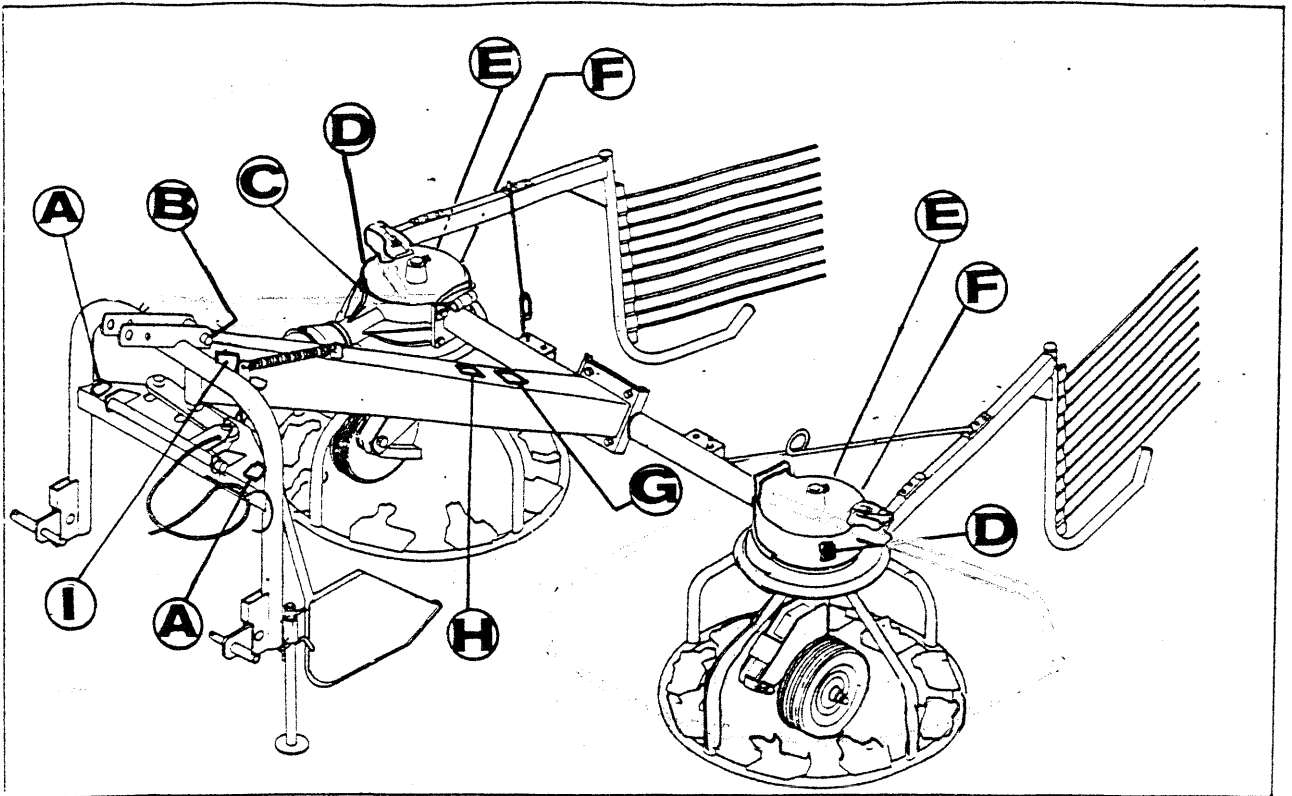
**MAIN PARTS**

- 1) Three-point linkage
- 2) Bar
- 3) Reduction unit
- 4) Axle
- 5) Driven box
- 6) Hay guard
- 7) Deflectors
- 8) ROTORS
- 10) Cardan shaft protection
- 11) Rope
- 12) Parking stand
- 13) Wheel unit
- 14) Identification plate



**TECHNICAL DETAILS**

RPM TRACTOR	RPM ROTORS	POWER REQUIRED	WHEEL TYPE	OPERATING WIDTH	TRANSPORT WIDTH	WEIGHT
540	180	HP 20	15x6.00	m m 2800	2600	KG 340
		KW 15	6 PLY	110"	102"	LBS 750



LOCATION OF SIGNS AND SYMBOLS ON THE MACHINE

- A) See drawing 10 p.8
- B) See drawing 12 p.8
- C) See drawing 13 p.8
- D) See drawing 11 p.8
- E) See drawing 9 p.8
- F) See drawing 7 p.7
- G) See drawing 1 p.6
- H) See drawing 2 p.6
- I) Identification plate

# CHAPTER 5

## 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.

How the machine is lifted will depend on the model and the type of packing. Details are given below.

The packing can vary from country to country depending on transport requirements.



# Unpacking the machine



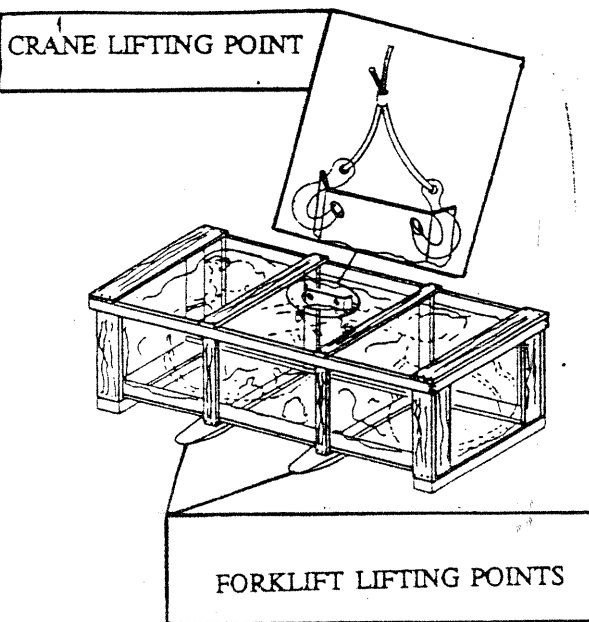
Lift the machine using a forklift truck, crane or other suitable equipment of sufficient capacity after first checking the weight of the configurations in the table given below.

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

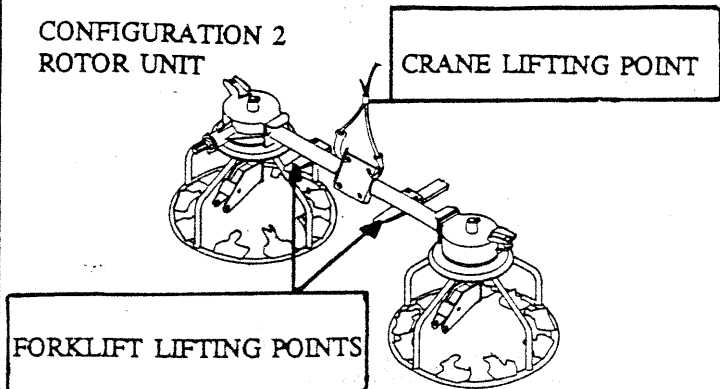
Keep the load as low as possible during movement for maximum stability and to ensure that the operator has maximum visibility.

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

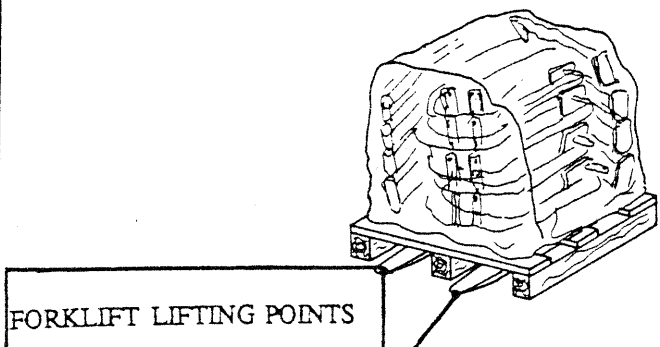
CONFIGURATION 1  
COMPLETE MACHINE



CONFIGURATION 2  
ROTOR UNIT



CONFIGURATION 3  
PARTS FOR ASSEMBLING THE ROTOR UNIT



WEIGHT - CONFIG.1		WEIGHT - CONFIG.2		WEIGHT - CONFIG.3	
KG	375	KG		KG	
LBS	825	LBS		LBS	

- NOTE:
- 1) In configuration 3, the material on the pallet is for assembling ... machines and is wrapped in nylon film to keep the load stable.
  - 2) 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.
  - 3) When storing, it is permissible to stack 2-3 crates on top of each other. Make sure that they are perfectly aligned vertically.
  - 4) In the event of further transport, ensure that the machine is packed in one of the above configurations (1, 2, 3) when on the transporting vehicle.



**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:

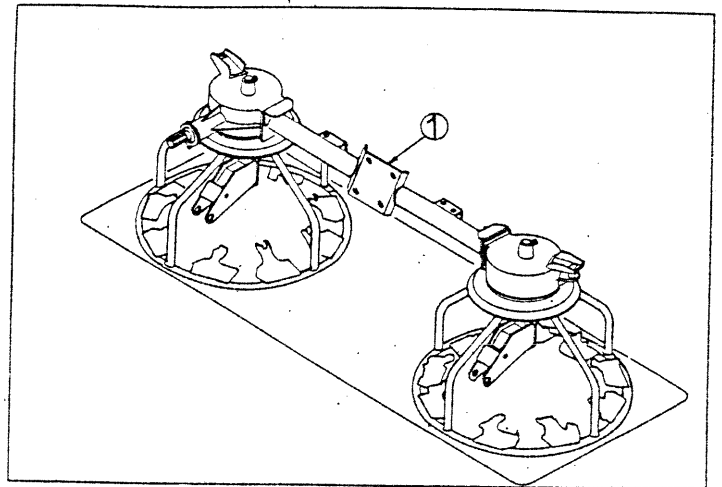


**ATTENTION!!!**



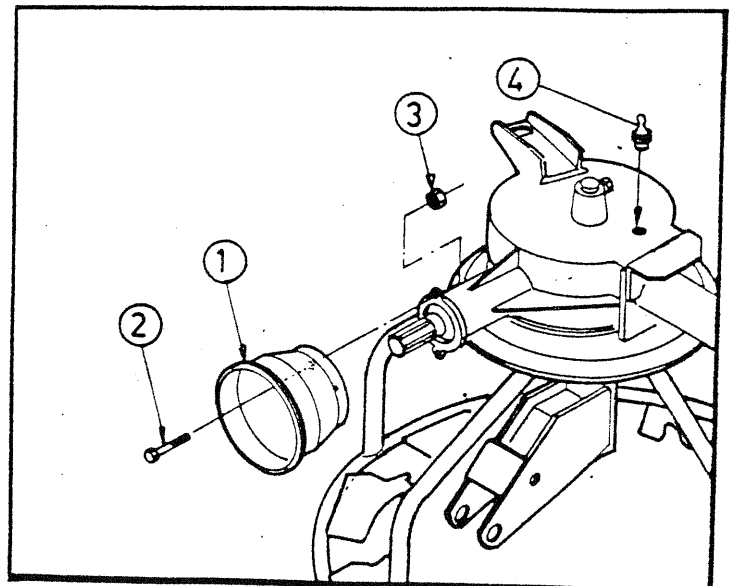
**1**

Place the unit (1) on a solid, flat surface. Make sure this operation is correctly carried out before proceeding to the next phase.



**2**

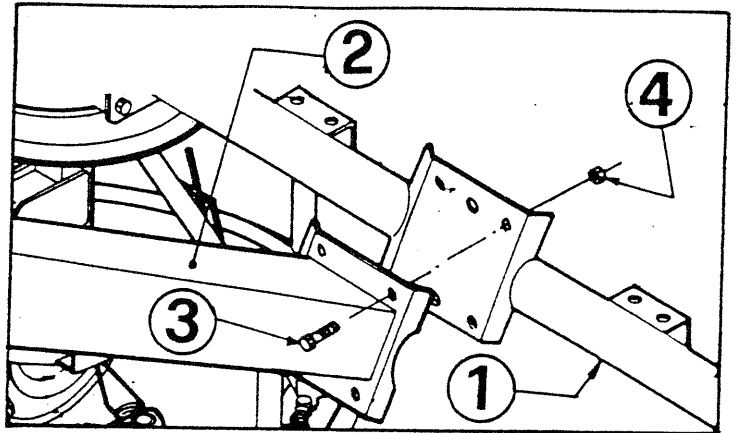
Attach the hood (1) to the drive box using screws (2) and nuts (3). Screw the grease nipples (4) into both drive boxes. Make sure these operations are correctly carried out before proceeding to the next phase.



**! ATTENTION!!! !**

**3**

Fit the bar (2) to the unit (1) using the screws (3) and nuts (4). Make sure all these operations are correctly carried out before proceeding to the next phase.



**! ATTENTION!!! !**

**4**

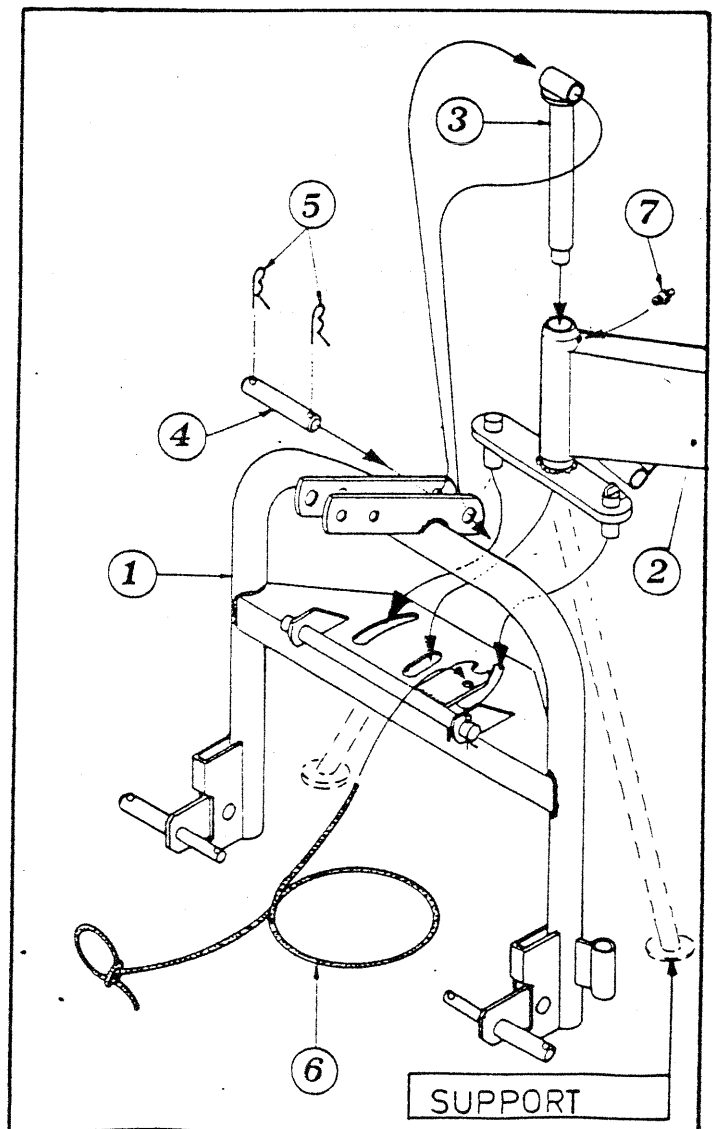
It is advisable to place a support under the front part of the bar (2) so as to avoid the machine tipping forwards.

Attach frame (1) to drawbar (2) by pins (3-4-5)

Tie with rope (6) as shown in drawing.

Fit the grease nipple (7) into proper seat.

Make sure all these operations are correctly carried out before proceeding to the next phase.





**DANGER!!!**



**5**

In order to continue assembly safely and correctly, you must now raise the machine.

You can use a suitably strong lifting device (crane/winch forklift) or a tractor with a 3-point linkage matching that of the machine.



**DANGER!!!**



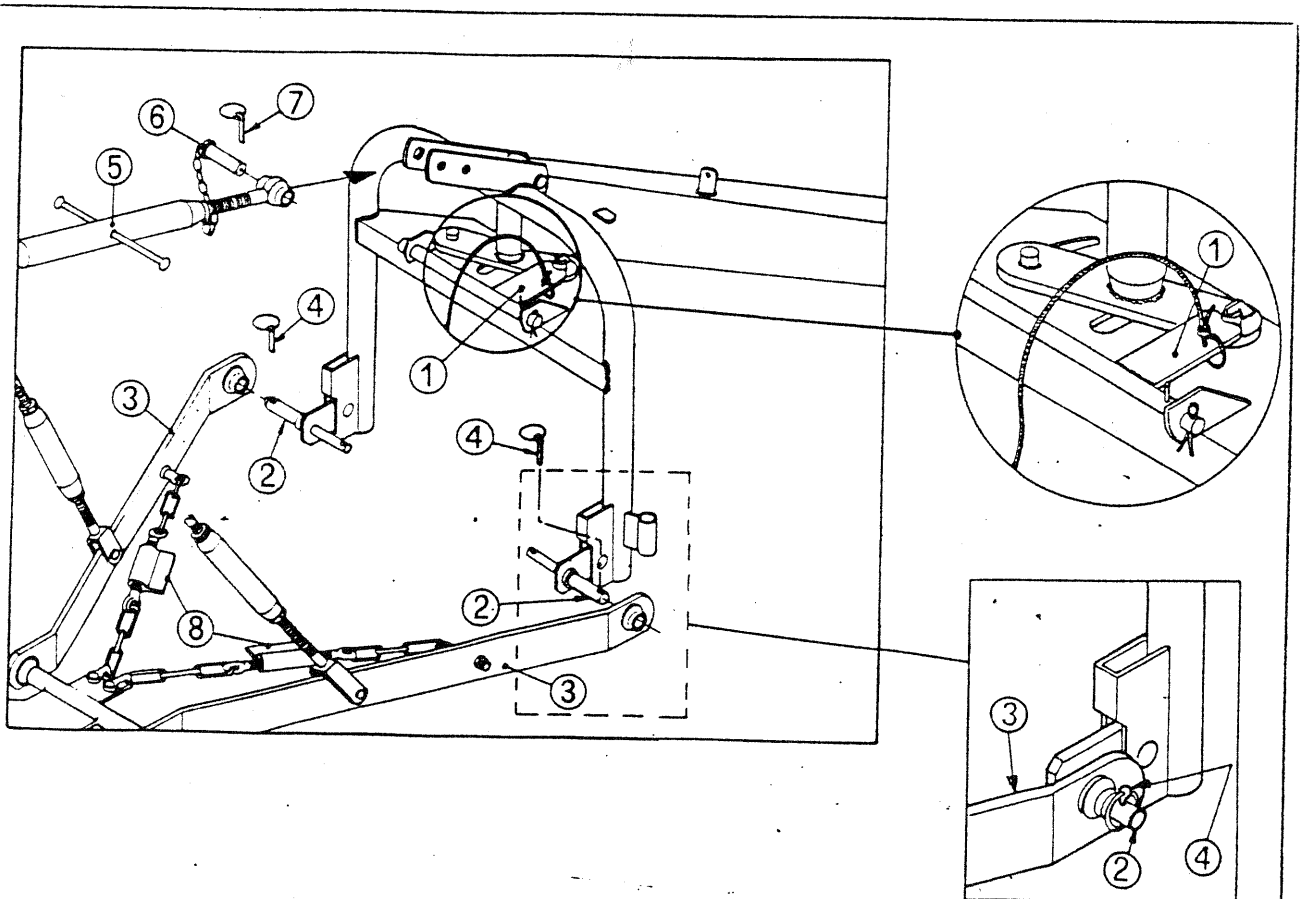
**6**

**Lifting with a tractor**  
 Make sure the lever (1) is in the locked position. Reverse the tractor towards the machine while lining up the tractor lifter arms (3) and then apply the parking brake. Remove the ignition key from the instrument panel. Insert the brackets at the ends of the arms (3) in the pins (2) and lock them with split pins (4). Fit the upper tie rod (5) into

the seating shown and lock it with the pin (6) and split pin (7). Adjust the tie rod until the rotors of the machine are parallel with the ground.

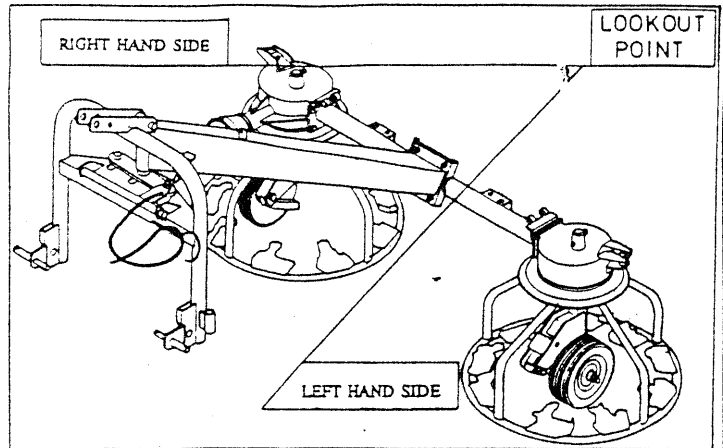
Stabilise the machine by stopping any oscillation with the tighteners (8). Now, the machine may be raised with the tractor lifter.

Make sure all these operations are correctly carried out before proceeding to the next phase.



7

The terms "left-hand side" and "right-hand side" are now introduced. They refer to the machine as observed from the position shown in the illustration opposite.



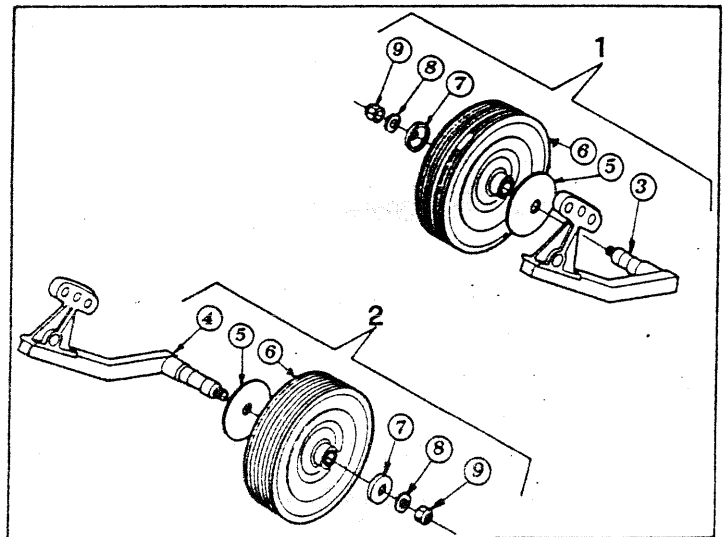
CAUTION



8

Fit the large disk (5), the wheel (6), the small disk (7) and the washer (8) to the right-hand (3) and left-hand (4) arms. Then secure with nuts (9). The two wheel units are now assembled: the right-hand unit (1) and the left-hand unit (2).

Make sure these operations are correctly carried out before proceeding to the next phase.



ATTENTION!!!



9

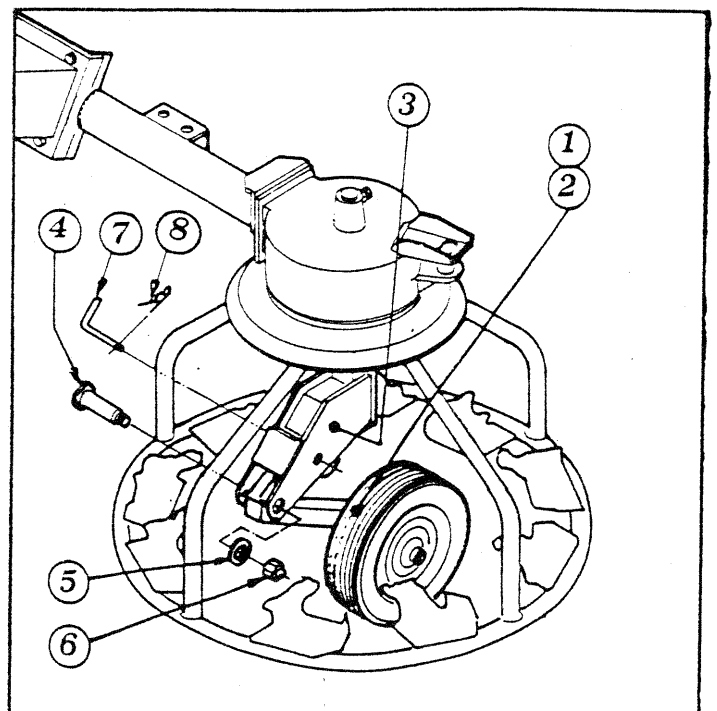
Exercise extreme care when the machine is suspended.

The right-hand (1) and left-hand (2) wheel units can be assembled in 3 different positions:

See page 34/2 for details.

Fit the right-hand (1) and left-hand (2) units to the appropriate brackets (3) already attached to the rotors. Use the bolts (4), washers (5), nuts (6), pins (7) and split pins (8).

Make sure all these operations are correctly carried out before proceeding to the next phase.



**! ATTENTION!!! !**

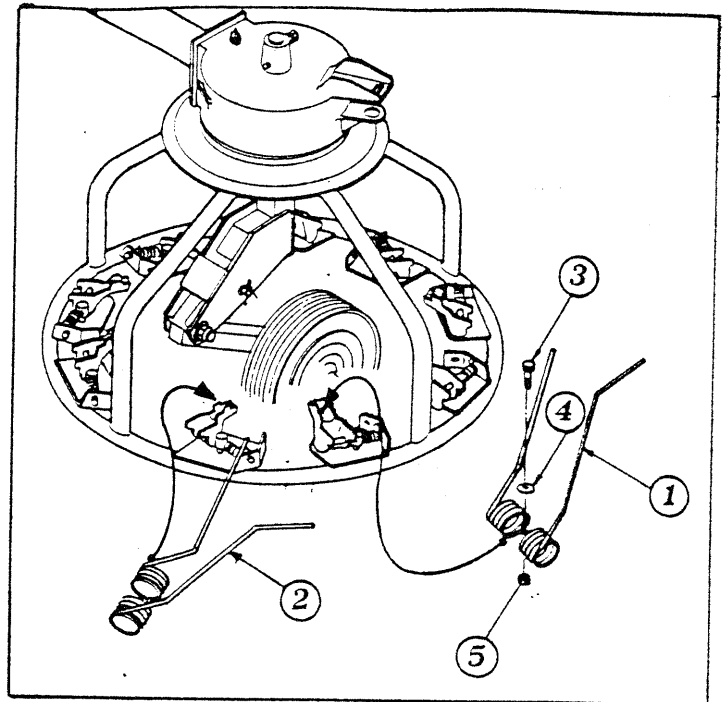
## 10

Exercise extreme care when the machine is suspended.

Place a parallel tine (1) in its appropriate seating and fix it in place with the screw (3), washer (4) and nut (5).

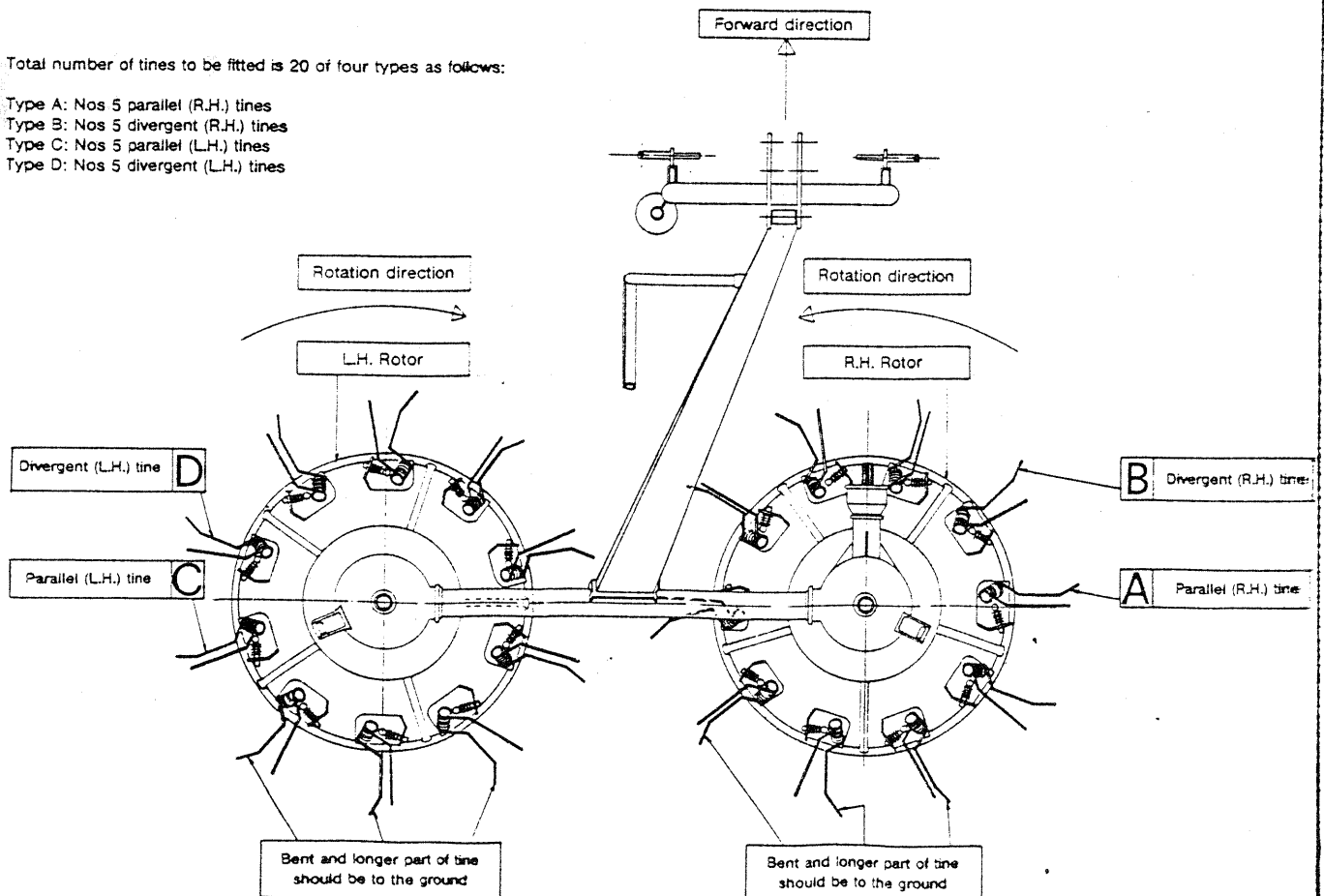
A divergent tine (2) is fitted in the same way. For the complete tine assembly see the following illustration.

Make sure these operations are correctly carried out before proceeding to the next phase.



Total number of tines to be fitted is 20 of four types as follows:

- Type A: Nos 5 parallel (R.H.) tines
- Type B: Nos 5 divergent (R.H.) tines
- Type C: Nos 5 parallel (L.H.) tines
- Type D: Nos 5 divergent (L.H.) tines

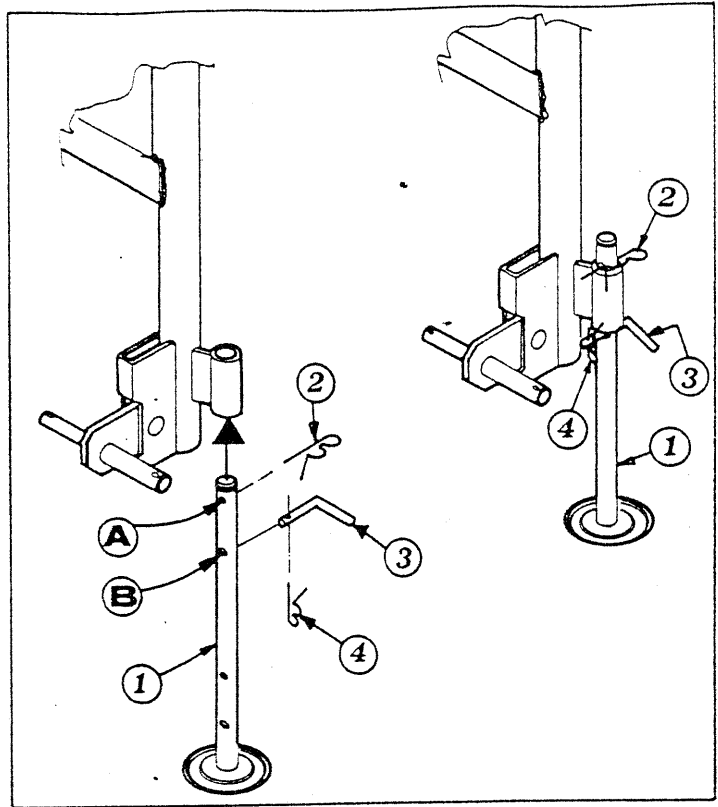


**! ATTENTION!!! !**

**11**

Insert the parking stand (1) in the slot as shown and secure by inserting the split pin (2) in the hole (A) and the pin (3) in the hole (B). Lock pin (3) with clip (4).

Make sure these operations are correctly carried out before proceeding to the next phase.

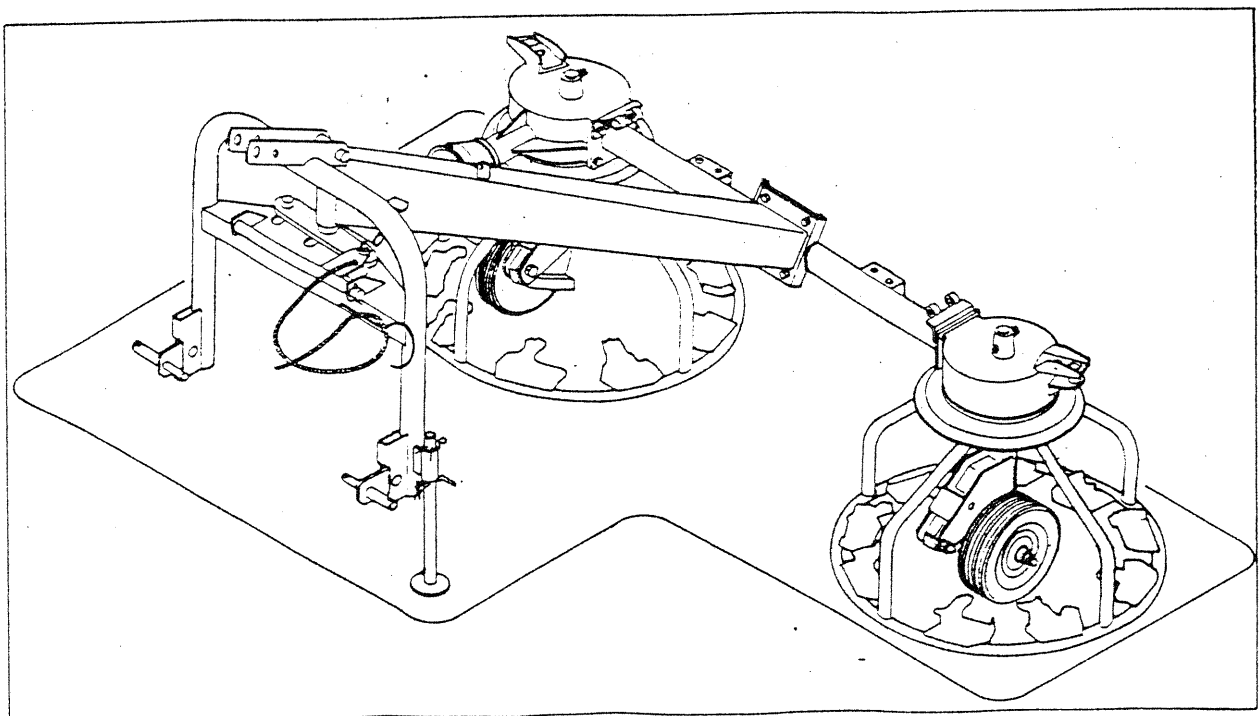


**! ATTENTION!!! !**

**12**

The machine should now be lowered to the ground. Make sure this operation is

correctly carried out before proceeding to the next phase.







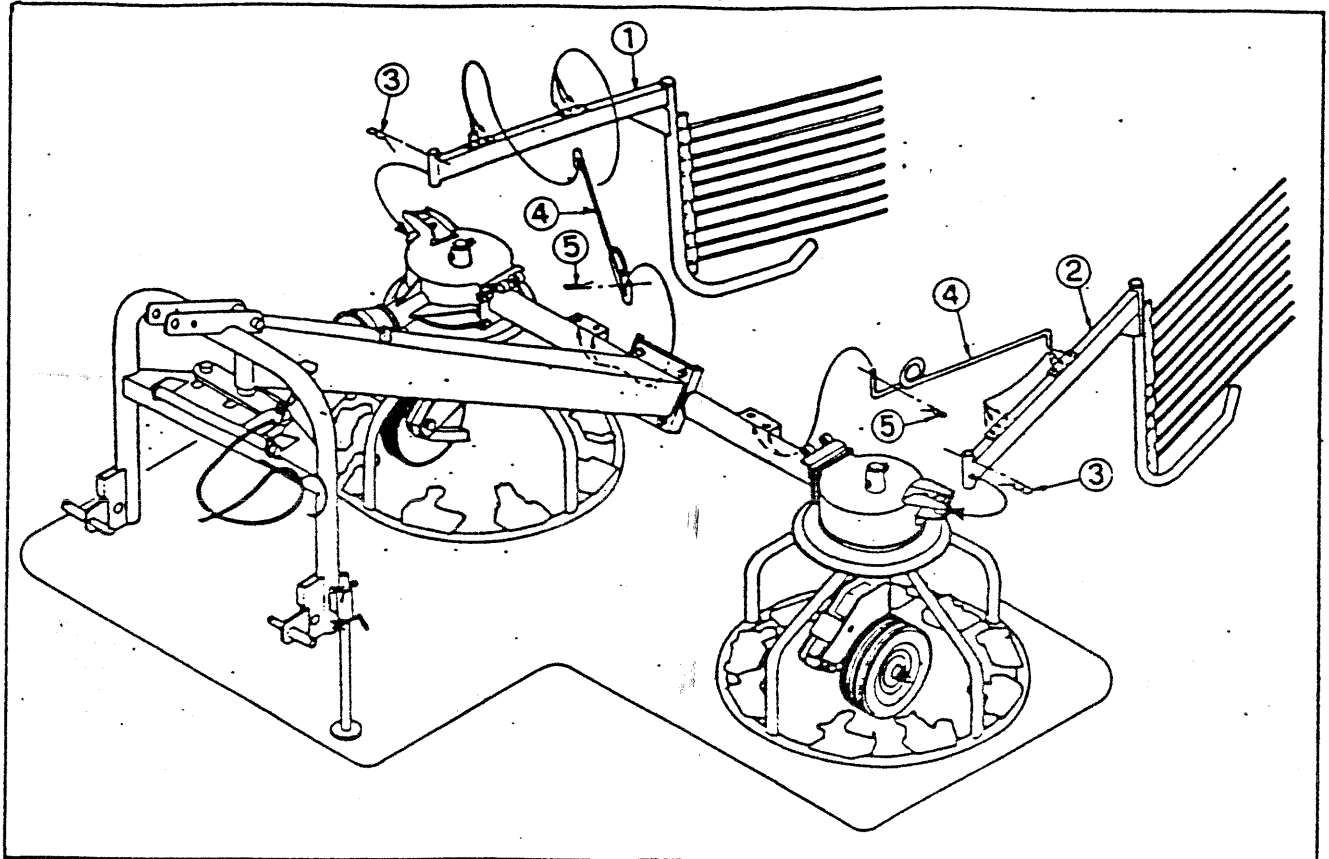
CAUTION



### 13

Attach the right-hand (1) and left-hand (2) deflectors to their brackets and secure with split pins (3). Fit the spring arms (4) in their slots (for the various

choices see page 34/3) and secure with split pins (5). Make sure these operations are correctly carried out before proceeding to the next phase.



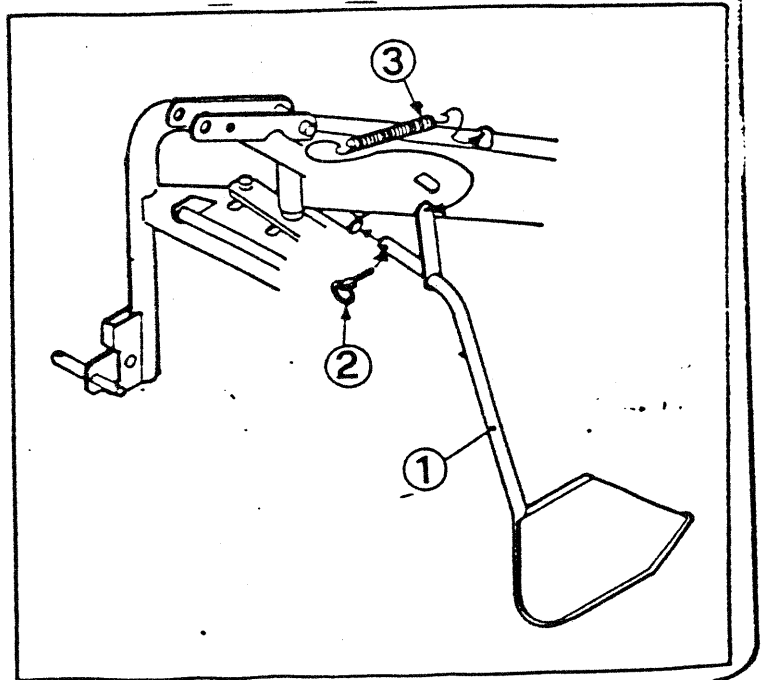


CAUTION



**14**

Fit the hay guard (1) in the correct place and secure with a split pin (2). Hook the spring (3) into the correct hole. Make sure these operations are correctly carried out before proceeding to the next phase.



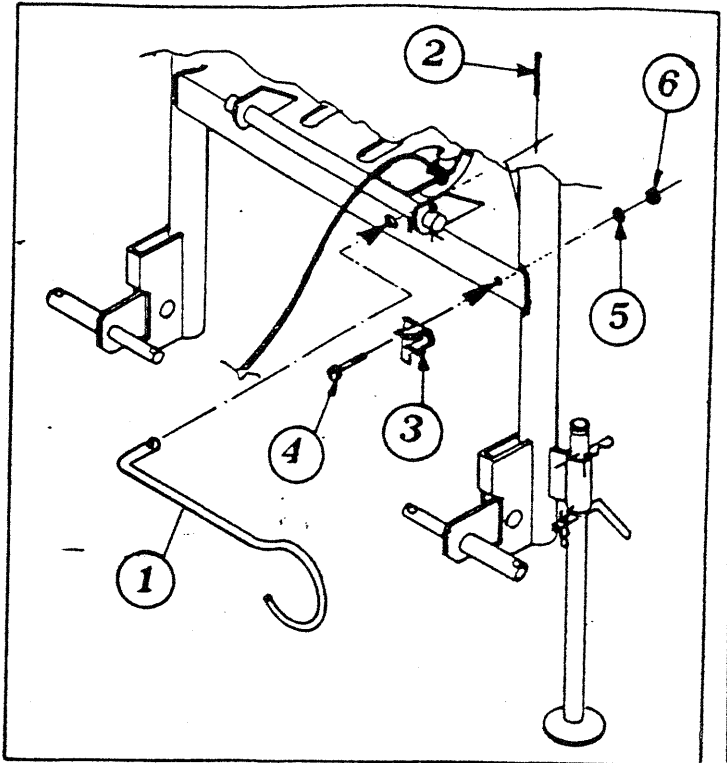


CAUTION



16

Put the cardan shaft support in the hole indicated and secure it using the flexible pin ( 2 ). Insert the clip ( 3 ) in the hole as shown and fasten it using the screw ( 4 ), the washer ( 5 ) and nut ( 6 ).

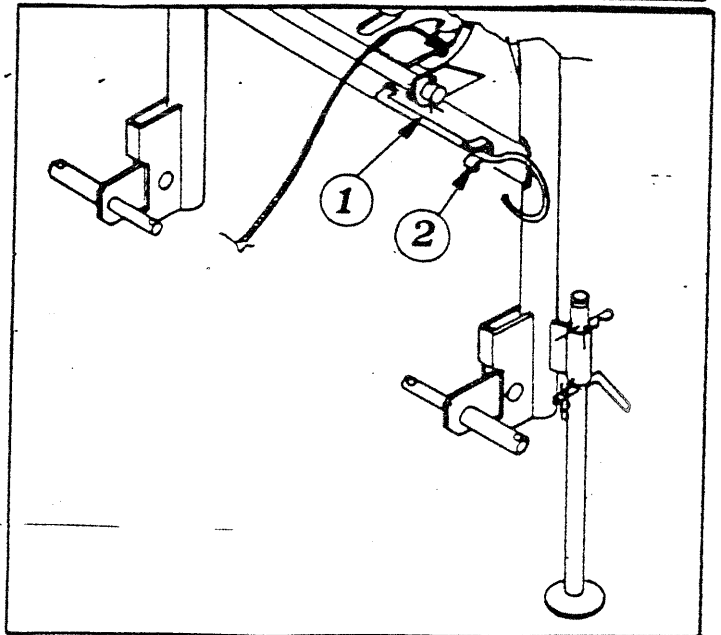


CAUTION



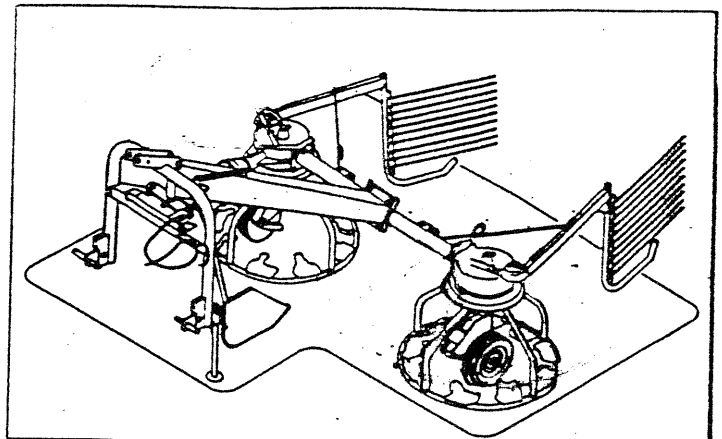
17

When the machine is working, the cardan shaft support ( 1 ) must be lodged securely in the clip ( 2 ).



18

Assembly is now complete and the machine is as shown in the illustration.



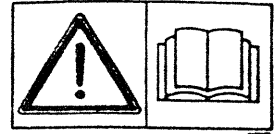
## CHAPTER 6

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 instructions.

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



**DANGER!!!**



Ensure that the lever (1) is in the locked position.

Reverse the tractor towards the machine lining up the tractor lifter arms (3) with the lateral connecting pins (2):

Switch off the tractor engine and apply the parking brake. Remove the ignition key from the instrument panel.

Fit the sockets at the ends of the lifting arms (3) over the pins (2) on the machine's 3-point linkage.

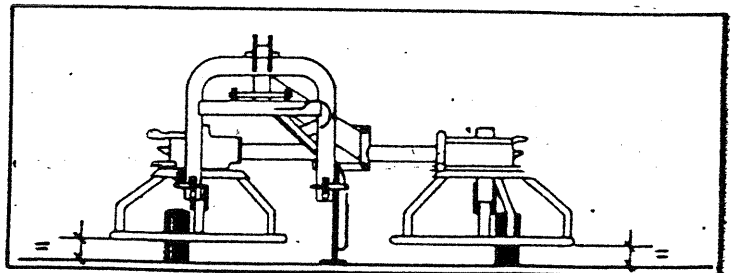
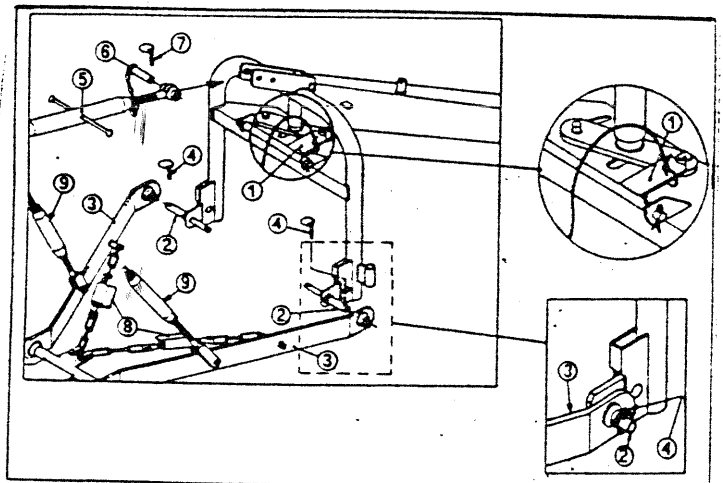
Secure them with split pins (4).

Fit the upper tie rod (5) into the bracket as shown and secure it with the pin (6) and split pin (7). Adjust the tie rod until the rotors of the machine are parallel with the ground.

To avoid excessive transversal play, adjust the tighteners (8) on the arms.

Approximately 50 mm (2 inches) of play is recommended on each side.

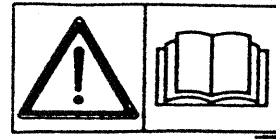
Level the machine horizontally by adjusting the tractor lifter arms (9).



## 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.

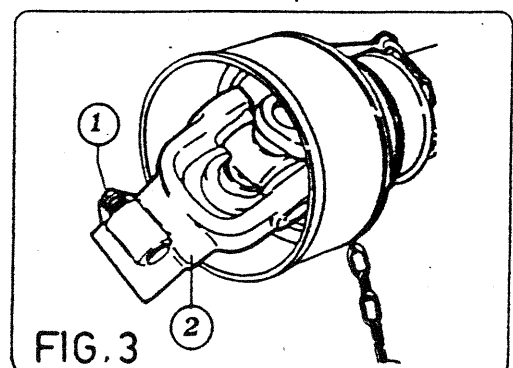
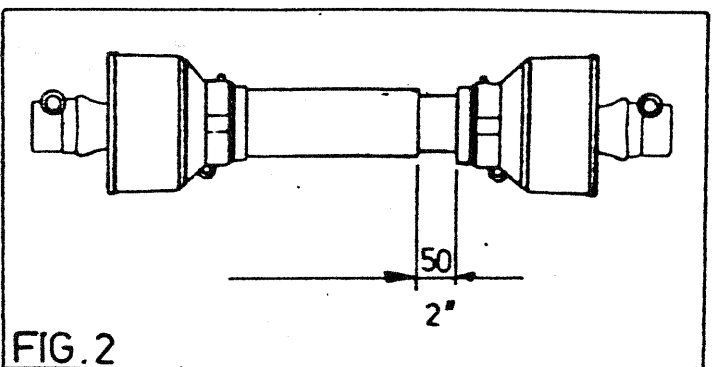
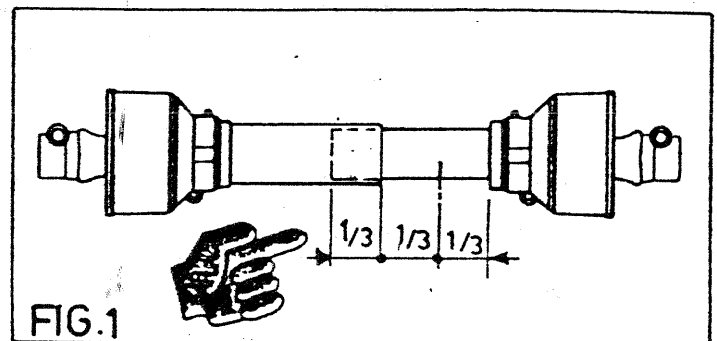
During both transport and use, avoid conditions where the Cardan transmission shaft is extended to the maximum. In all working conditions, the telescopic tubes must overlap by at least  $\frac{1}{3}$  of their length (Fig.1).

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

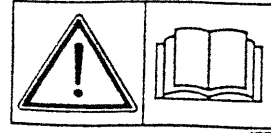
Take particular care when connecting the two Cardan shaft end forks and make sure that they are fully secured.

This is achieved by inserting the safety pins and bolts (1) (Fig.3.) 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.



## TRANSPORT BY ROAD



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 immobilised.

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 HM/300 is an agricultural machine NOT designed for transporting persons or goods.

Consult the tractor maintenance-and-use manual where necessary.

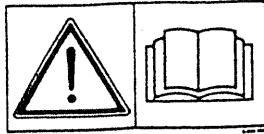
Maintain constant control over the vehicle and ensure that you know how to stop the tractor quickly and switch off the engine.

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.



### GENERAL INSTRUCTIONS FOR FIELD USE

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



CAUTION



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 familiarise 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 manoeuvring 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.

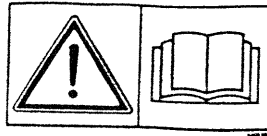
Before leaving the tractor, disengage the power takeoff, lower the machine until its wheels are on the ground and put the hydraulic directional control lever into the locked position.

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.





## GENERAL INSTRUCTIONS FOR USE



**DANGER!!!**



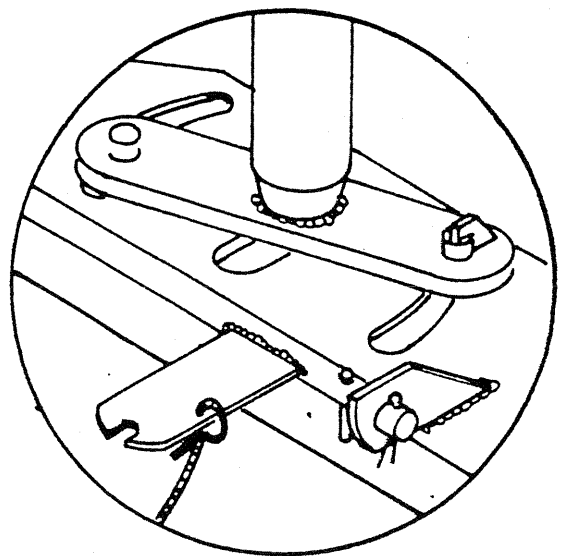
In addition to the instructions given above, each time you have to make adjustments before and during work, we recommend moving the tractor and machine to a firm, flat open area. Before getting off the tractor to make adjustments, follow this procedure exactly:

- 1) Lower the machine until its wheels touch the ground (this is recommended every time the tractor is stopped for any reason).
- 2) Put the hydraulic directional control lever on the tractor into the locked position.
- 3) Switch off the engine, leaving the tractor in gear.
- 4) Apply the parking brake.
- 5) Remove the ignition key from the instrument panel.

Now prepare the machine for field use as follows:

**1**

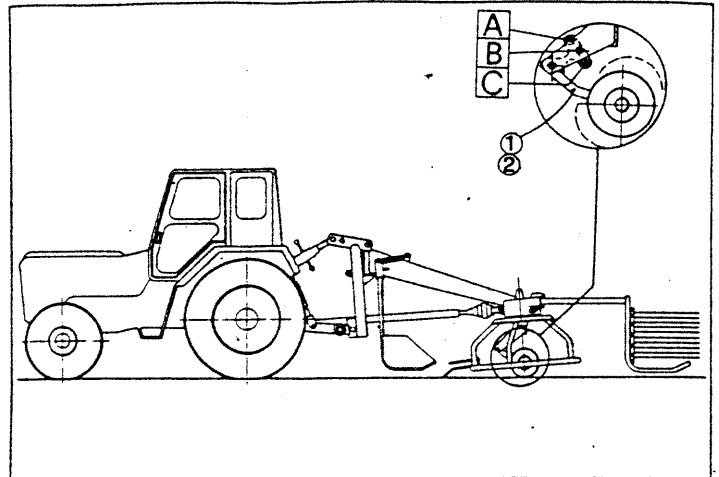
When the machine is in use, the lever (1) must always be in the position shown.



## 2

Exercise maximum care and heed the safety rules mentioned above. The right-hand and left-hand wheel arms (1) (2) have three operating positions: A, B and C.

- C) For raking when hay is very dry and sparse.
- B) For raking in remaining conditions. For spreading and turning in normal pasture conditions.
- A) For spreading and turning when hay is wet and plentiful.



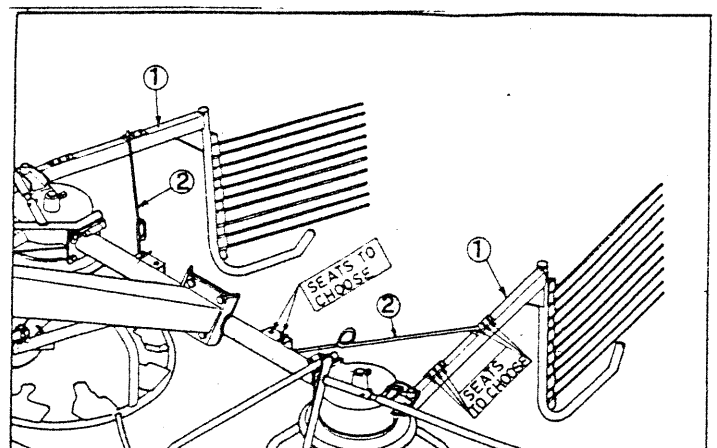
## 3

The deflectors (1) are always used when raking. Depending on the amount of hay to be worked, the operator may, each time, reset the position of the deflectors.

Adjustment is made by moving the spring arms (2) to the required position.

The deflectors are not normally used when spreading and turning.

For special uses for the deflectors during spreading and turning, see pages 36/37. If the deflectors are removed in the field, we recommend taking them a good distance from where the machine is working. Ensure that no-one touches them as the tines can cause injuries. On returning to the farm, the deflectors should be refitted in the correct positions as shown in diagram 13 on page 25.



#### 4

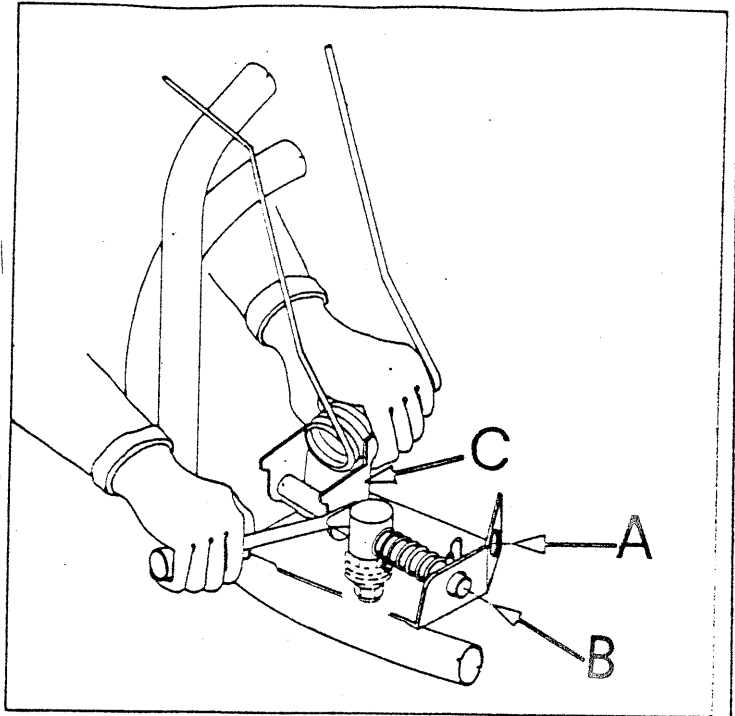
##### Tine positions

The tines have two operating positions:

A: Inner hole (nearer the wheel): for raking

B: Outer hole: for spreading and turning

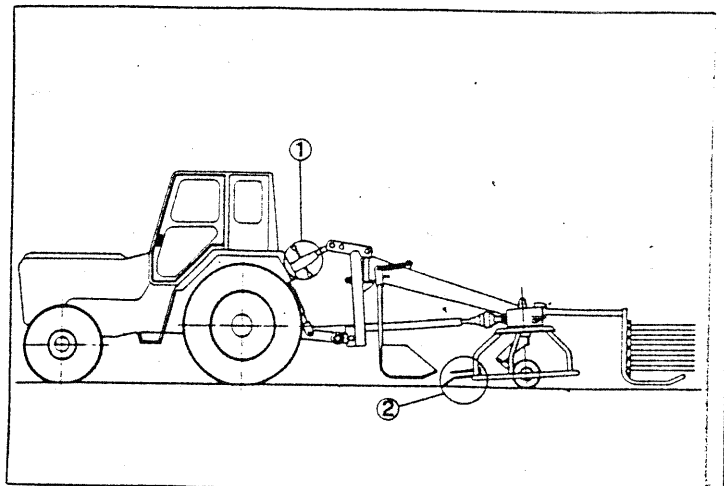
To change tine position, you should lever against support (C) using a screwdriver or lever and move the tine backwards until the pin comes out of the hole. Then rotate the support until the pin can slot into the other hole (see diagram).



#### 5

While raking, turning and spreading, the machine should be inclined forwards. This is achieved by adjusting the arm (1) on the top linkage point of the tractor.

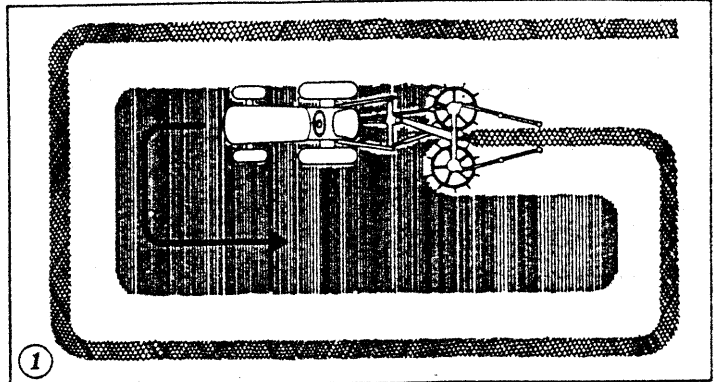
The correct position is reached when the end point of the parallel tine (2) lightly touches the ground as in the illustration.



## OPERATING EXAMPLES

### IMPORTANT

1) During operation the machine must only turn to the left. You may turn to the right only when the machine has been raised by the tractor's hydraulic lifter..

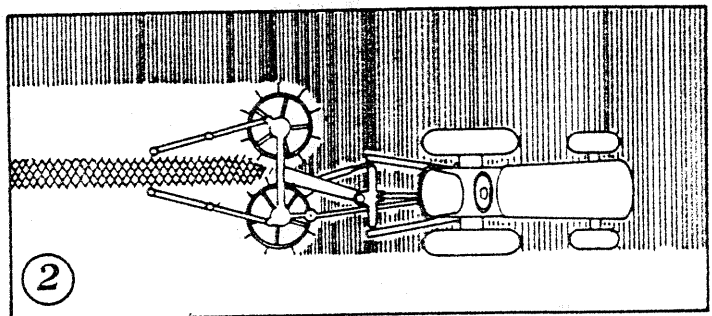


2) Raking:

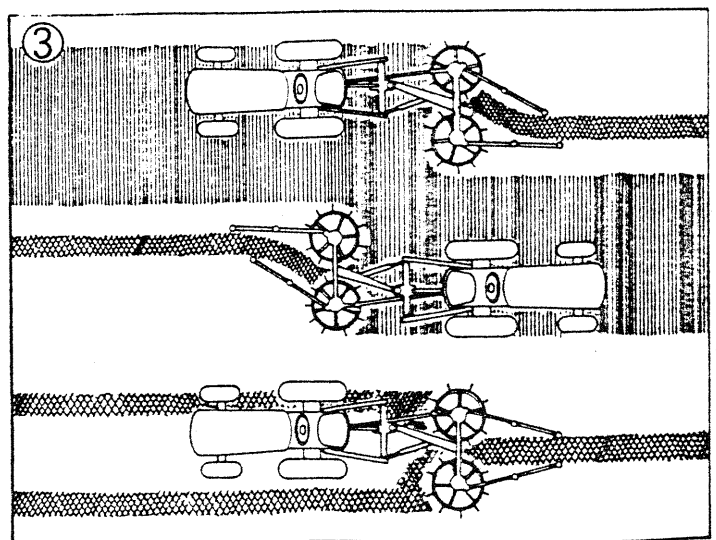
Tines : In the raking position (see note 4 on page 35)

Deflectors: Adjust according to the amount of hay.

Wheels : In the centre or low position (see note 2 on page 34)

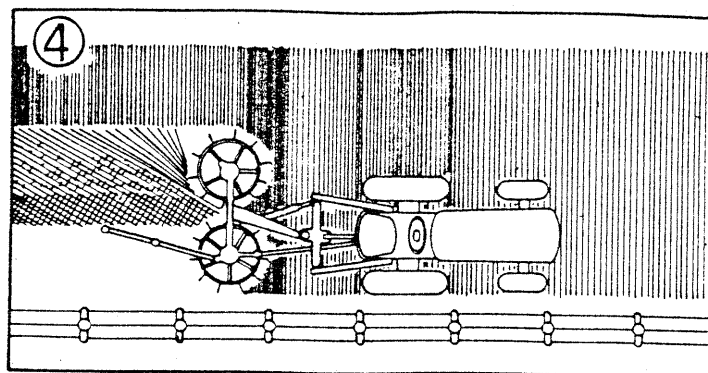


3) To combine two swaths:  
Make two swaths very close together and then combine them.



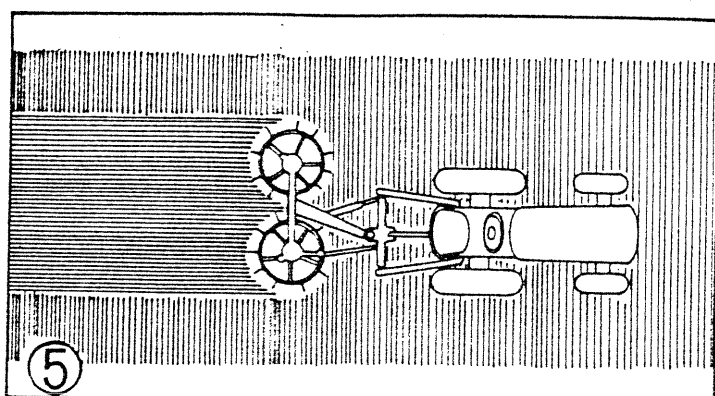
4) Working alongside embankments and ditches:

When working alongside embankments and ditches, the rotor nearest the embankment or ditch must have its tines in the raking position and the deflector fitted. The other rotor has no deflector fitted and the tines should be in the spreading position.



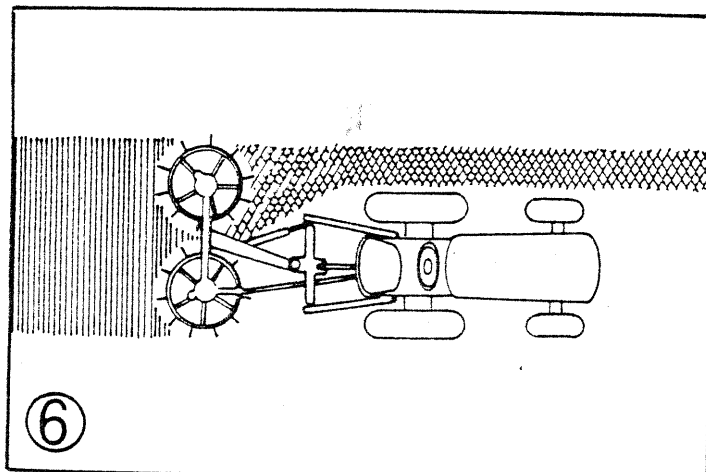
5) Turning and spreading :

Tines: Inner position  
(see note 4 on page 35 )  
Wheels: Centre or high position  
(see note 2 on page 34 )  
without deflectors.



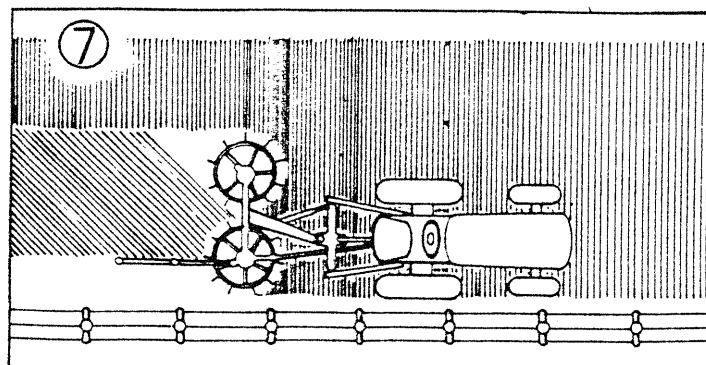
6) Swath spreading :

Tines: Spreading position  
(see note 4 on page 35 )  
Tractor: To the right of the swath.



7) Spreading near embankment and ditches:

Tines: Spreading position  
(see note 4 on page 35 )  
Wheels: Centre or high position  
(see note 2 on page 34 )  
Deflectors: Only on the rotor nearest the embankment or ditch and in the open position.



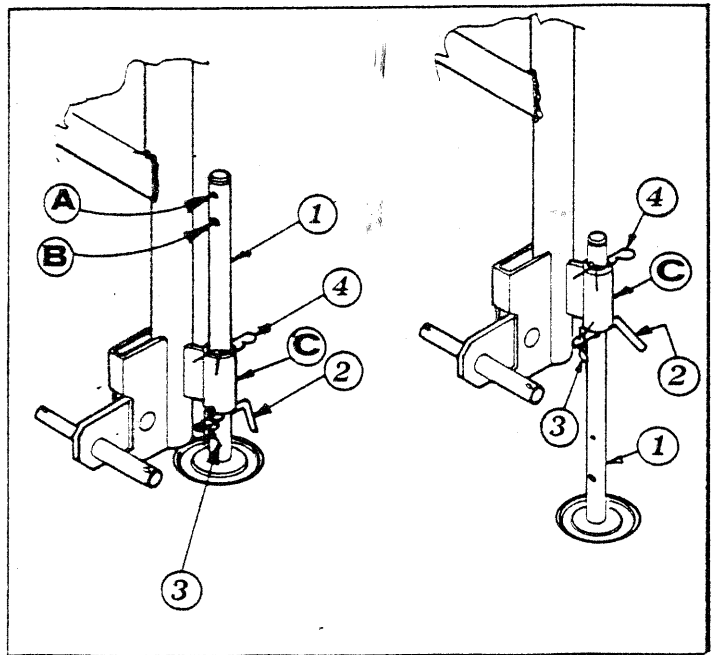
## TEMPORARY PARKING



If the machine has to be temporarily parked (for extended periods see page 42.) proceed as follows, bearing in mind the instructions in Chapter 3.  
Before getting off the tractor, follow this procedure exactly:

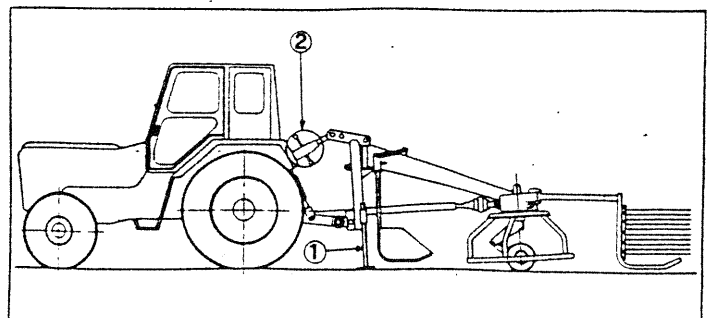
- 1 Choose a flat, hard open space, away from frequented areas if possible.
- 2 Lower the machine until its wheels touch the ground (this is recommended every time the tractor is stopped for any reason).
- 3 Put the hydraulic directional control lever on the tractor into the locked position.
- 4 Switch off the engine, leaving the tractor in gear.
- 5 Apply the parking brake.
- 6 Remove the ignition key.
- 7

Remove pin(4)and insert into hole (A), bring down the jack (1)until hole(B) is underneath the jack - holder bushing (C).  
Remove pin (3) insert pin (2)into hole (B) and lock with pin (3).



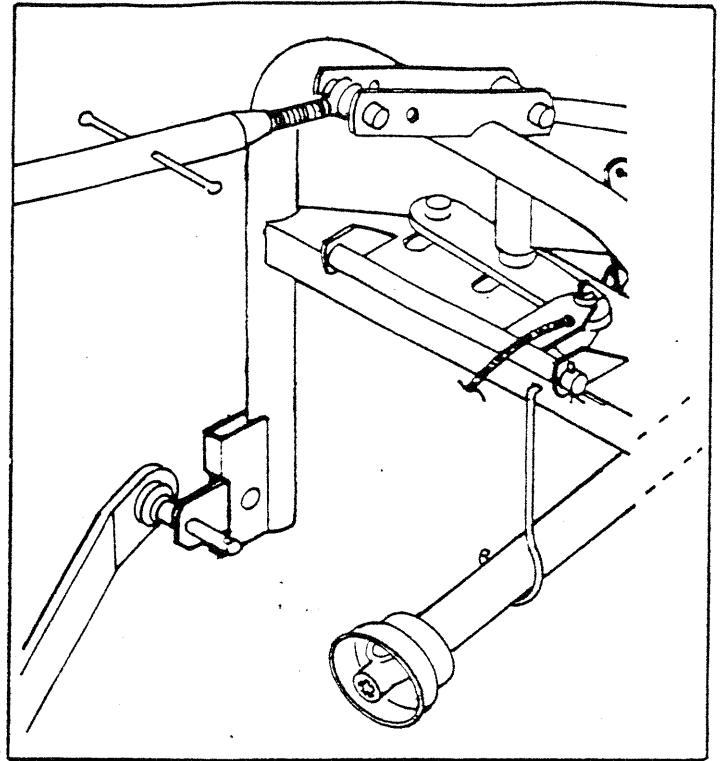
8

Make sure that the parking stand(1)makes firm contact with the ground by making adjustments to the top linkage point(2)



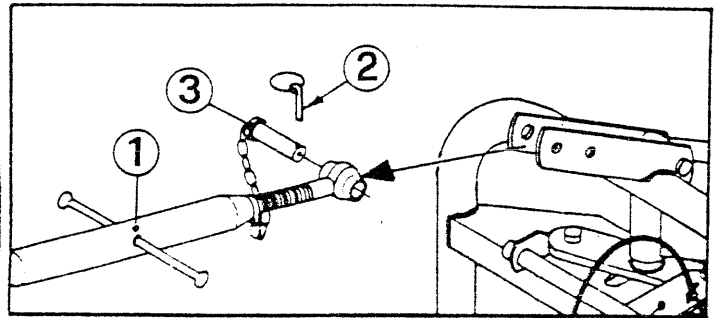
**9**

Disengage the Cardan shaft and place it on its rest.



**10**

Withdraw the split pin (2) from the pin (3) and remove this pin. The tie rod (1) is now disconnected from the machine.

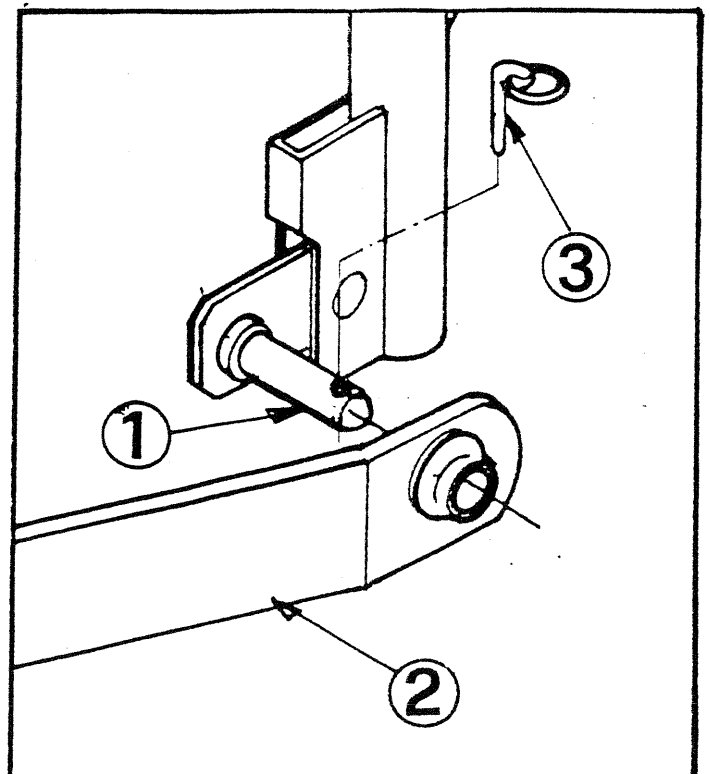


**CAUTION**



**11**

Withdraw the split pin (3) and remove the lateral arms (2) from the pins (1) on the 3-point linkage.

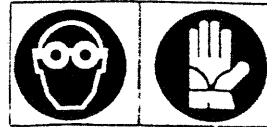
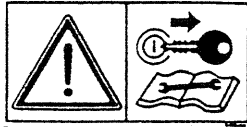
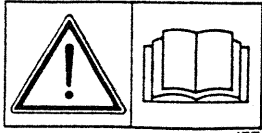


# Chapter 7

## MAINTENANCE



## 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.

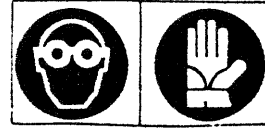
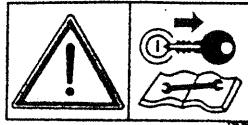
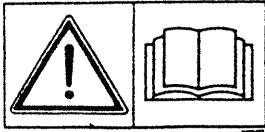
Respect the warnings and procedures for maintenance and technical assistance given in this manual.

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

Use commercial non-flammable and non-toxic solvents, authorised 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 authorisation 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.

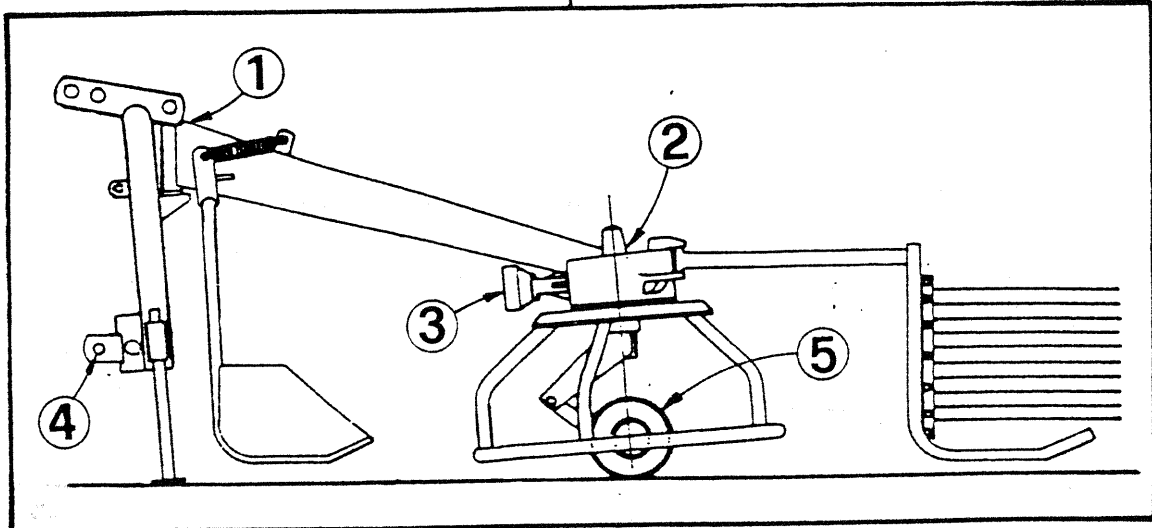
Grease the machine thoroughly and then cover it completely and lay it up in a dry place.





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

6



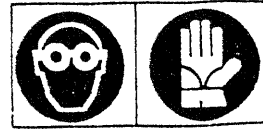
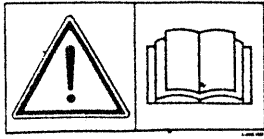
Number	Quantity	Description	Operation	Every ..... hours	Product to be used	Notes
1	1	3-point linkage pivot	Greasing	8	Grease	
2	2	Gearboxes	Greasing	8	Grease	
3	1	Power takeoff shaft	Cleaning Greasing	A	Additives ● Grease	
4	2	Arm linkage pins	Cleaning Greasing	B	Additives ● Grease	
5	2	Tyres	Check pressure	B	Compressor	45 psi
6	-	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..

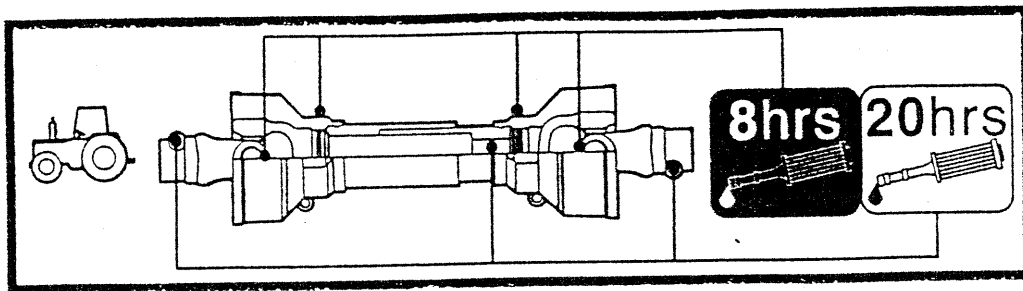
B = Each time the machine is connected to the tractor.

- 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.

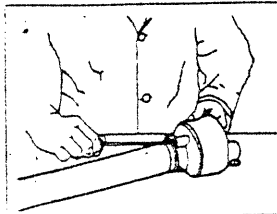


## MAINTENANCE OF SLIDING PARTS

### DISMANTLING

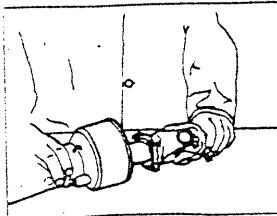
1

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



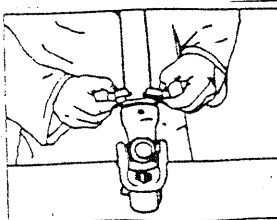
2

Withdraw the shaft protective guard.



3

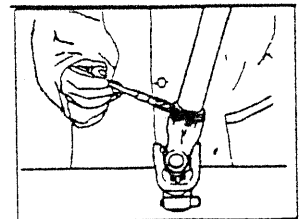
Check the condition of the ferrule and all protective parts.



### ASSEMBLY

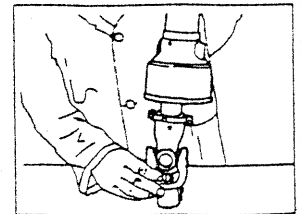
4

Lubricate the supporting ferrule seating.



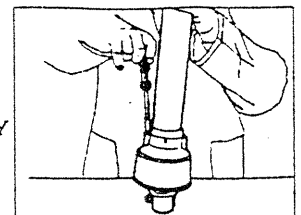
5

Refit the supporting ferrule.



6

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 70 dB.

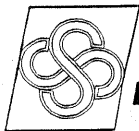
Vibration from the machine affecting the upper body and limbs of the driver is insignificant and is lower than the values given in Point 3.6.3 of Enclosure 1 of the Machine Directives (89/392/EEC, 91/386/EEC).

#### 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.

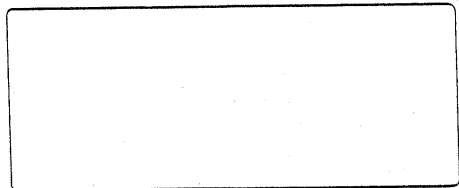
There is a very small amount of residual grease which must be disposed of according to the regulations in force in the country concerned.

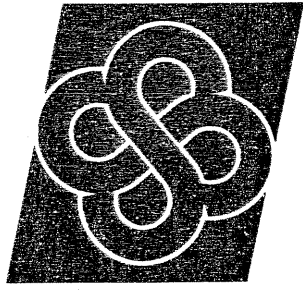


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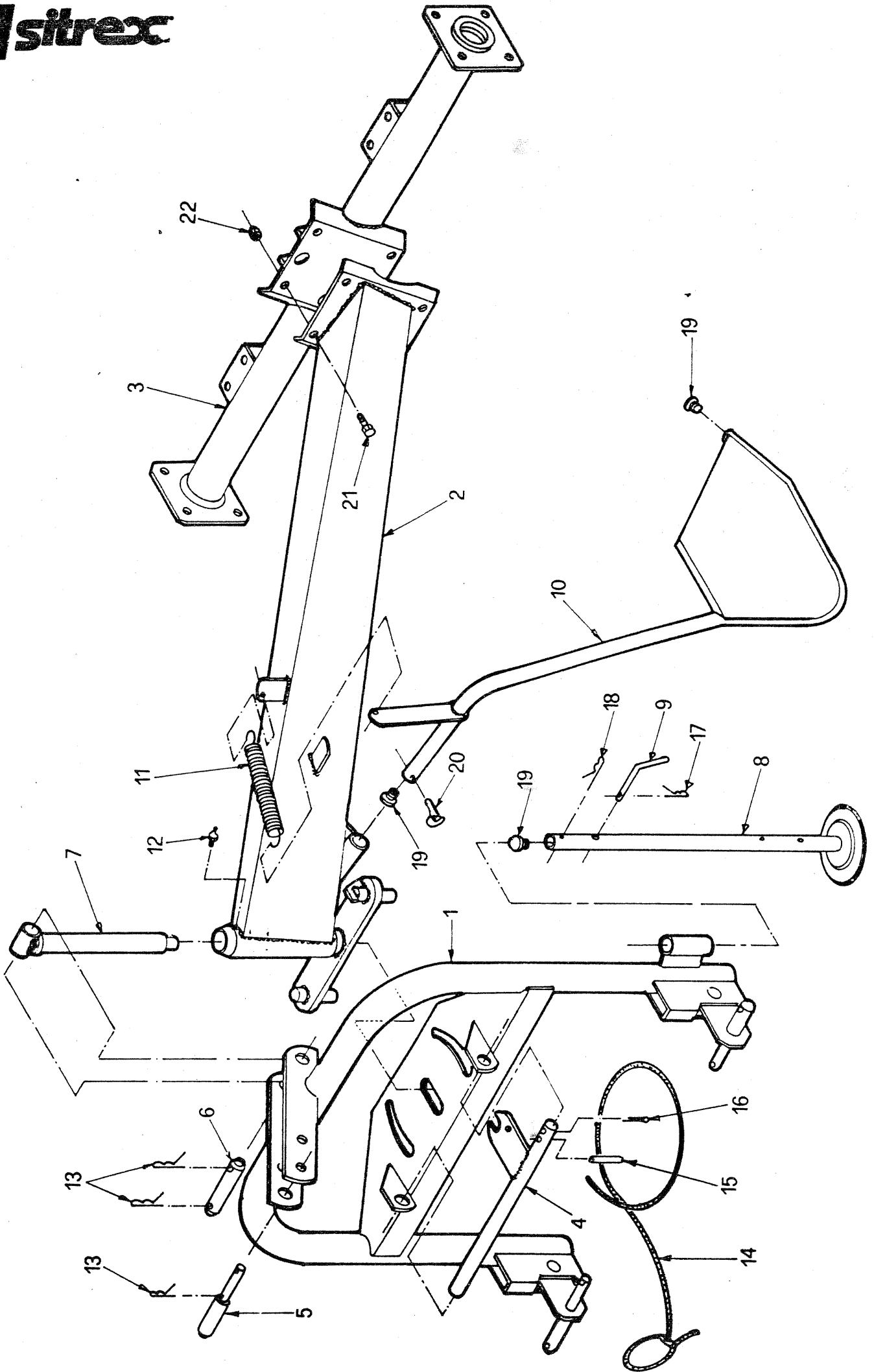




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## SPARE PARTS LIST

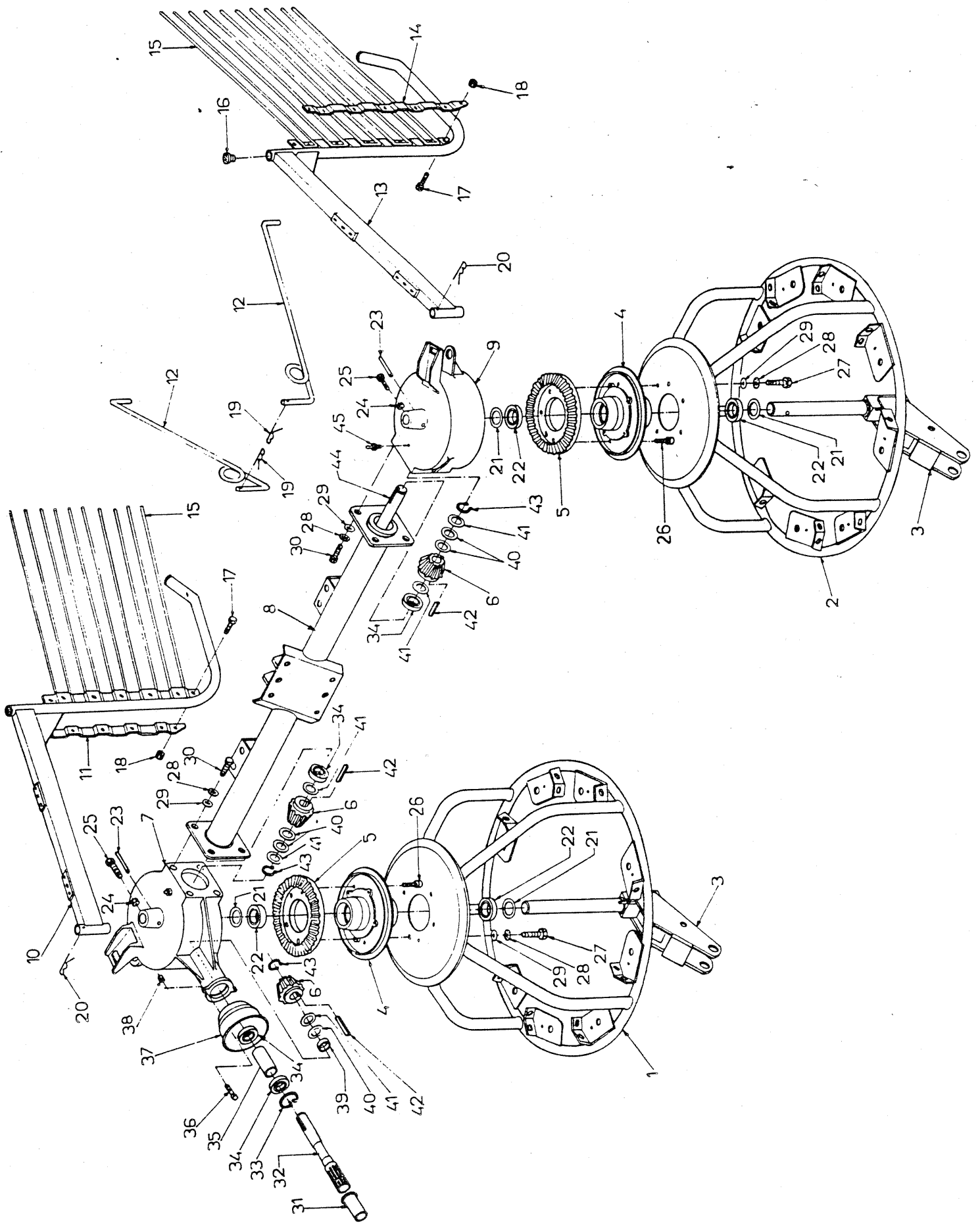
***HAYMAKER HM/300***



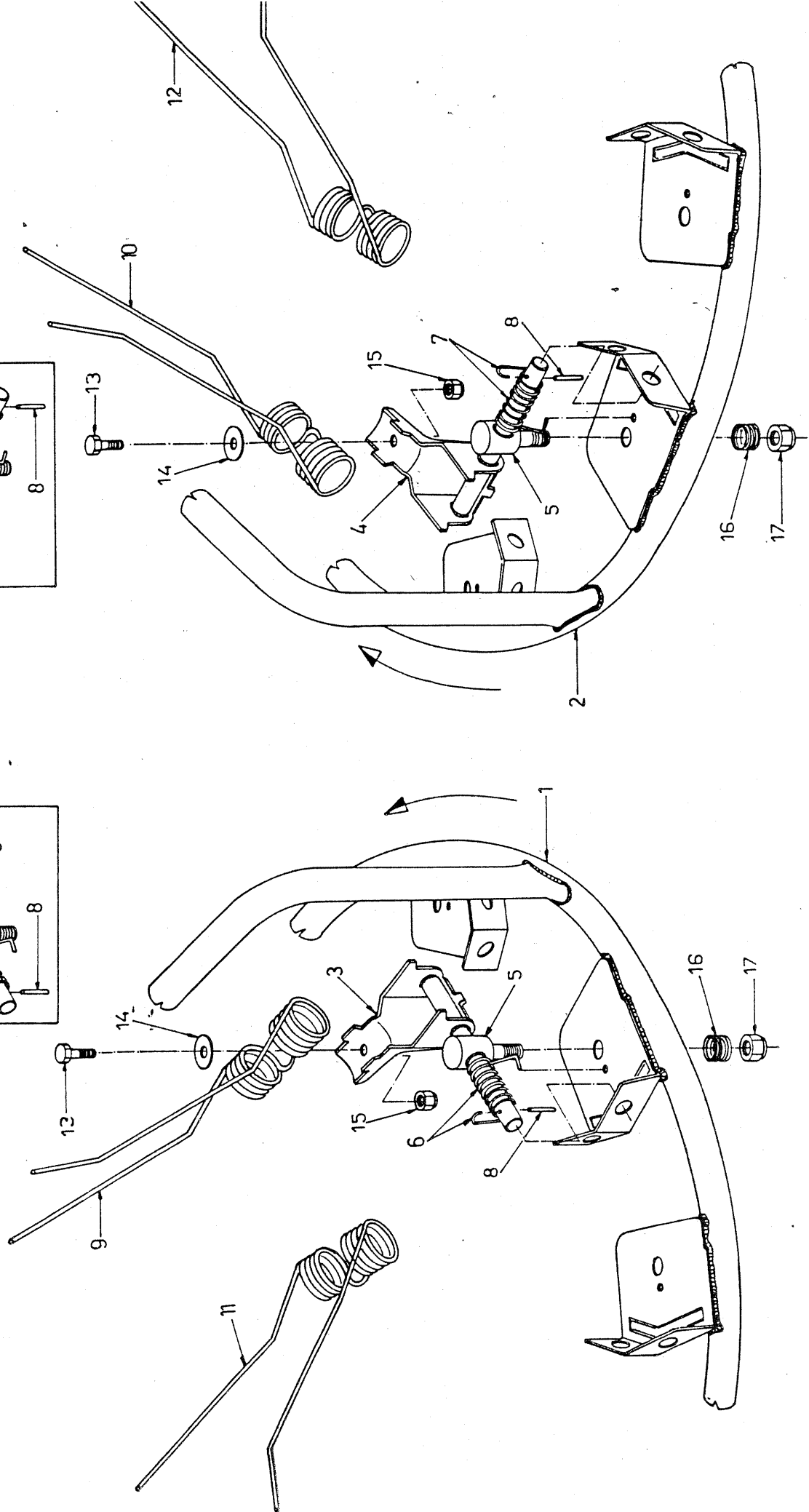
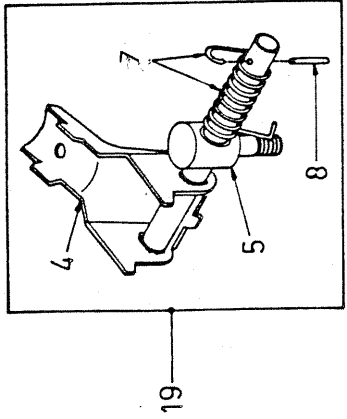
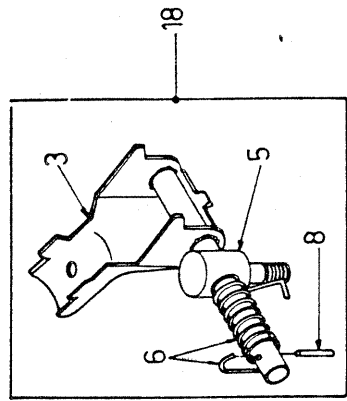


**HM 300 - TABLE 1**

Item	Qty.	Part no.	DESCRIPTION
1	1	200.516	3 Point Hitch
2	1	200.517	Main Frame
3	1	200.518	Axle
4	1	200.519	Lock Lever
5	1	200.343	Pin
6	1	200.520	Pin
7	1	200.521	Pin
8	1	200.522	Parking Stand
9	1	200.328	Pin
10	1	200.259	Guard
11	1	200.279	Spring
12	1	600.124	Grease Nipple
13	3	600.308	Split Pin
14	1	200.523	Rope
15	1	600.444	Spring Pin
16	1	600.545	Split Pin
17	1	600.019	Split Pin
18	1	600.020	Split Pin
19	3	200.309	Plug
20	1	600.017	Pin
21	4	600.620	Screw
22	4	600.625	Self-Locking Nut



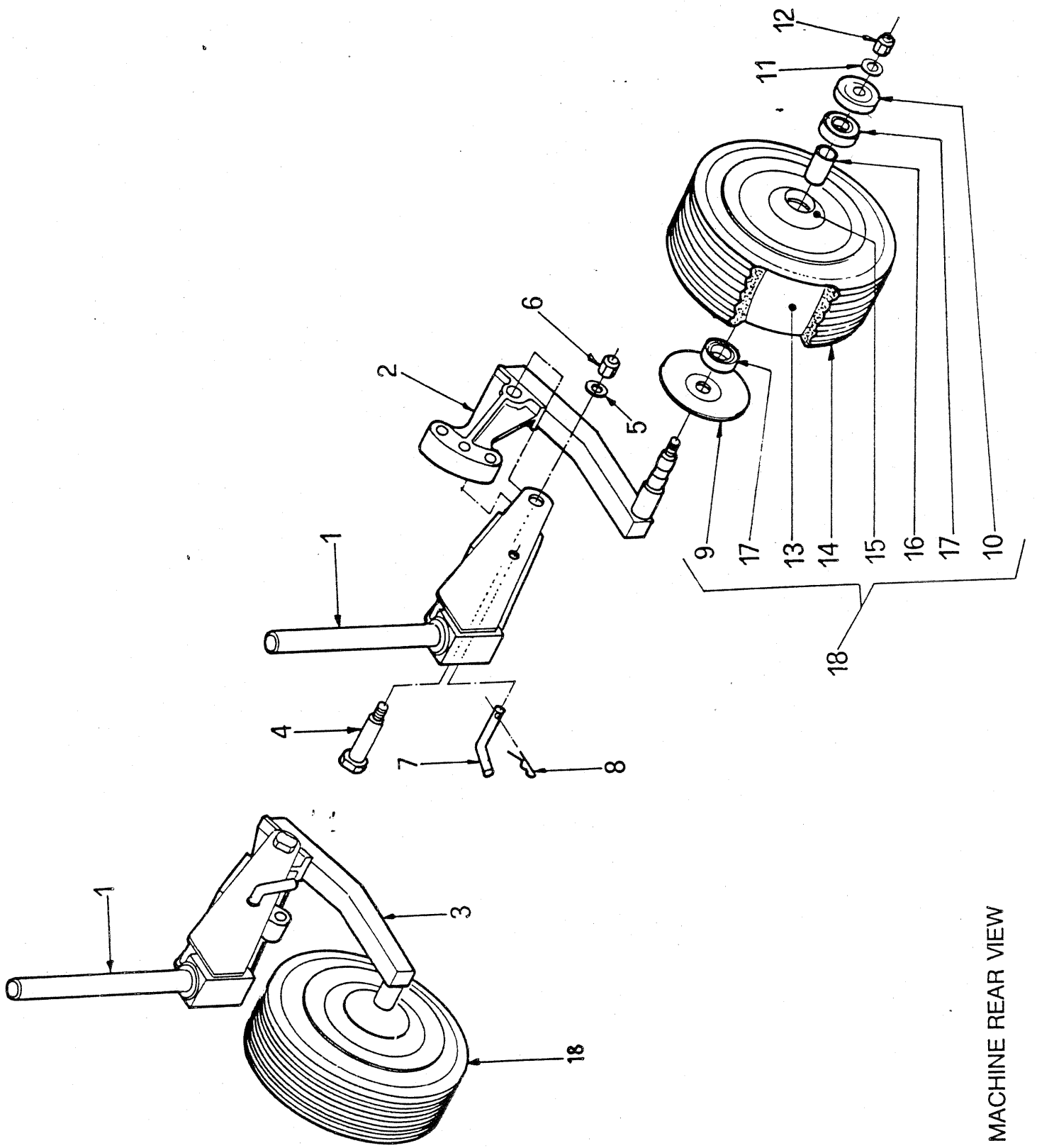
Item	Qty.	Part no.	DESCRIPTION
1	1	200.257	R.H. Rotor
2	1	200.258	L.H. Rotor
3	2	200.253	Wheel-Support
4	2	200.267	Flange
5	2	200.244	Crown
6	3	200.243	Pinion
7	1	200.265	Drive Box
8	1	200.518	Axle
9	1	200.266	Hose Box
10	1	200.260	R.H. Deflector
11	1	200.262	R.H. Tine Lock
12	2	200.276	Spring
13	1	200.261	L.H. Deflector
14	1	200.263	L.H. Tine Lock
15	10	200.283	Tine
16	4	200.309	Cap
17	14	600.226	Screw
18	14	600.627	Nut
19	2	600.019	Split Pin
20	2	600.020	Split Pin
21	4	200.274	Shim
22	4	600.608	Bearing
23	2	600.655	Spring Pin
24	2	600.623	Nut
25	2	600.615	Screw
26	4	600.613	Screw
27	10	600.617	Screw
28	18	600.633	Washer
29	18	600.088	Washer
30	8	600.442	Screw
31	1	600.172	Guard
32	1	200.240	P.T.O. Shaft
33	1	600.612	Snap Ring
34	4	600.609	Bearing
35	1	200.249	Spacer
36	2	600.236	Screw
37	1	600.818	Hood
38	2	600.472	Nut
39	1	200.250	Spacer
40	5	200.273	Shim
41	5	200.272	Shim
42	3	600.610	Tab
43	3	600.611	Snap Ring
44	1	200.241	Drive Shaft
45	3	600.034	Grease Nipple



MACHINE FRONT VIEW

**HM 300 - TABLE 3**

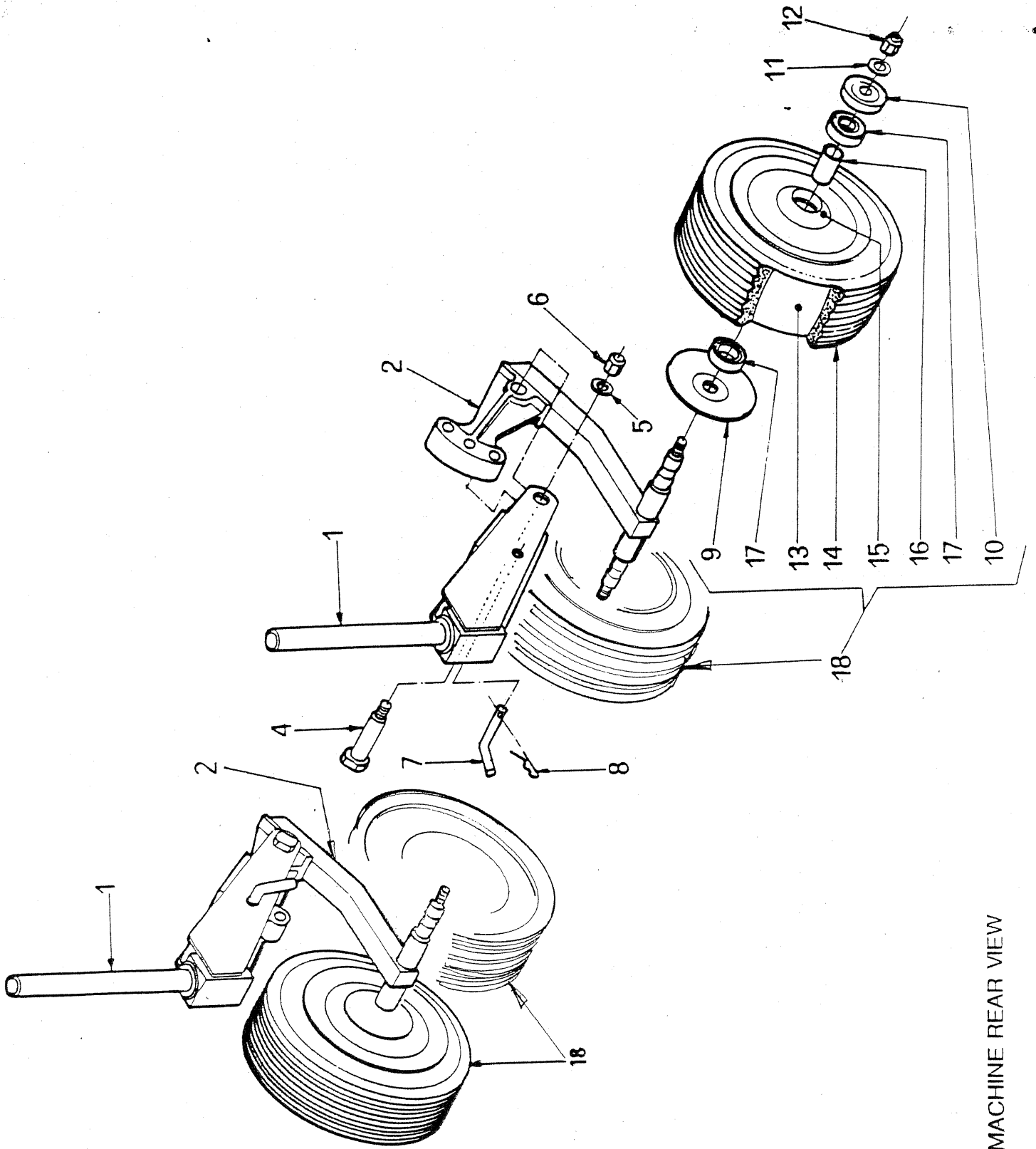
Item	Qty.	Part no.	DESCRIPTION
1	1	200.257	R.H. Rotor
2	1	200.258	L.H. Rotor
3	10	200.289	R.H. Tine Holder
4	10	200.290	L.H. Tine Holder
5	20	200.236	Pin
6	10	200.281	R.H. Spring
7	10	200.282	L.H. Spring
8	20	600.635	Spring Pin
9	5	200.284	R.H. Parallel Tine
10	5	200.285	L.H. Parallel Tine
11	5	200.287	R.H. Large Tine
12	5	200.286	L.H. Large Tine
13	20	600.616	Screw
14	20	600.845	Washer
15	20	600.366	Self Locking Nut
16	20	200.280	Spring
17	20	600.626	Self Locking Nut
18	10	200.270	R.H. Tine Holder, Complete
19	10	200.271	L.H. Tine Holder, Complete



MACHINE REAR VIEW

**HM 300 TABLE 4**

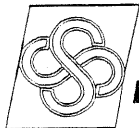
Item	Qty.	Part no.	DESCRIPTION
1	2	200.253	Bracket
2	1	200.268	R.H. Bracket
3	1	200.269	L.H. Bracket
4	2	200.237	Pin
5	2	600.632	Washer
6	2	600.630	Self-Locking Nut
7	2	200.239	Pin
8	2	600.019	Split Pin
9	2	200.720	Inner Dust Cover
10	2	200.247	Outer Dust Cover
11	2	600.031	Washer
12	2	600.629	Self-Locking Nut
13	2	600.638	Tube
14	2	600.639	Cover
15	2	600.637/a	Rim
16	2	200.245	Spacer
17	4	600.602	Bearing
18	2	200.295	Tire Assy



MACHINE REAR VIEW



Item	Qty.	Part no.	DESCRIPTION
1	2	200.253	Bracket
2	2	210.524	Bracket
4	2	200.237	Pin
5	2	600.632	Washer
6	2	600.630	Self-Locking Nut
7	2	200.239	Pin
8	2	600.019	Split Pin
9	4	200.720	Inner Dust Cover
10	4	200.247	Outer Dust Cover
11	4	600.031	Washer
12	4	600.629	Self-Locking Nut
13	4	600.638	Tube
14	4	600.639	Cover
15	4	600.637/a	Rim
16	4	200.245	Spacer
17	8	600.602	Bearing
18	4	200.295	Tire Assy



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