



ROTARY TILLER "N" SERIES

Operation, Service & Parts Manual



Carefully read this manual
before using the machine

October 2006

No part of this manual shall be reproduced, copied or disseminated by any means, without manufacturer prior authorization in writing. manufacturer reserves the right to make any necessary changes without giving prior notice, in order to optimize the quality and safety features and does not commit itself to updating this manual every time a change is made.

This booklet provides a thorough and accurate description of the instruction and maintenance activities to be carried out on the tiller you purchased. We congratulate you on your choice and urge you to thoroughly familiarize yourself with and follow the instructions contained in this manual. This will assure you a long, safe and trouble free working life for your tiller.

The Manufacturer shall not assume any responsibility should problems arise as a result of lack of compliance with the instructions and/or operator's negligence.

The manual is divided in chapters and paragraphs and the pages are numbered, thus offering accurate and precise information.

Date of Purchase: _____

Model Number: _____

Serial Number _____

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GENERAL INFORMATION

GENERAL INFORMATION

APPLICATION

The N Series Tillers are designed to till soil for seedbed or planting preparation.

The N Series Tillers are adapted for tractors with 540 rpm PTO speed and Category 1 and 2, 3-point hitch tractors up to 50 HP. These tillers are also Quick Hitch adaptable (by means of Quick Hitch Optional Kit).

SYMBOLS

This booklet contains three "safety pictograms" which highlight the relevant danger levels or important information:



It draws the operator's attention to special situations which may jeopardize people's safety.



It draws the attention to situations which unfavorably affect the machine efficiency, but not people's safety.

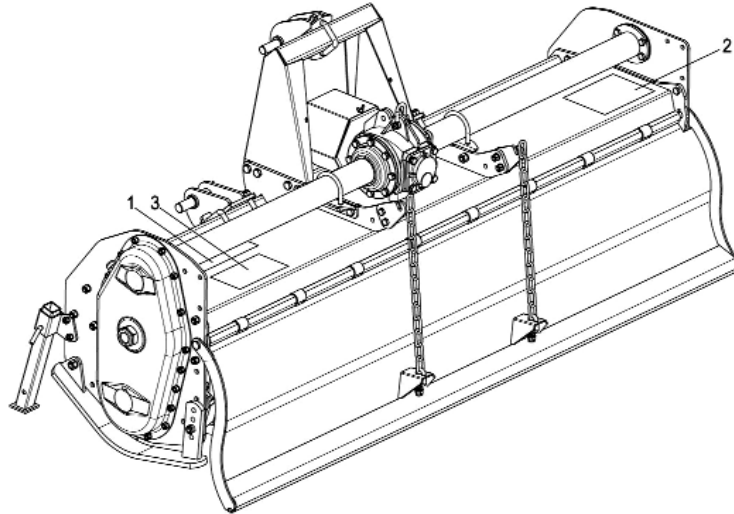


It is used for general information, when people's safety or the efficiency of the parts are not at risk.

SAFETY LABELS

SAFETY LABELS

The safety labels and information on the machine (labels 1, 2 and 3), must be complied with. Failure to comply with these warnings may result in severe injuries or even death. Make sure that the labels are always present and legible; should this not be the case, contact your nearest Gearmore dealer to request replacements



1

DANGER

1 MAKE SURE DRIVELINES ARE OF THE CORRECT LENGTH AND PROPERLY CONNECTED. DRIVELINE SEPARATION AND/OR PTO STUB SHAFT FAILURE CAN CAUSE INJURY OR DEATH. (See Operator's Manual for procedure)

2 MAKE SURE THAT DRIVELINE SHIELDS ARE INSTALLED CORRECTLY AND TURN FREELY TO AVOID INJURY OR DEATH FROM ENTANGLEMENT

3 MAKE SURE THAT DRIVELINE IS INSTALLED CORRECTLY ON TRACTOR PTO SHAFT. MOVE YOKE BACK AND FORTH UNTIL LOCKING COLLAR CLICKS FORWARD AND LOCKS YOKE IN PLACE.

4 540 PTO RPM UNLESS SPECIFICALLY MARKED OTHERWISE.

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3

WARNING

SHIELDS AND DEFLECTORS MAINTAINED IN BAD CONDITION MAY CAUSE INJURY OR DEATH FROM ENTANGLEMENT WITH ROTATING PARTS, BEING HIT BY OBJECTS THROWN WITH GREAT FORCE BY BLADES, OR BY BLADE CONTACT.

- Always replace Guards which have been removed for maintenance. Never operate with guard missing or broken.
- Chain Guards, Gearbox, Drivelines Shields, eventual Rubber-fabric Deflectors, and solid band enclosures are subject to wear and lost or broken parts must be replaced or repaired as soon as damage is found.
- Safety shielding must be installed and in good condition to avoid the possibility of thrown objects when the machine is operated in any area where thrown objects could cause injury.

4781006

2

DANGER

FAILING TO FOLLOW SAFETY MESSAGES AND OPERATING INSTRUCTIONS CAN CAUSE SERIOUS BODILY INJURY OR EVEN DEATH TO OPERATOR AND OTHERS IN THE AREA.

1. READ OPERATOR'S MANUAL CAREFULLY AND PAY ATTENTION TO SAFETY DECALS FOR TRACTOR AND TILLER THOROUGHLY TO AVOID MISUSE, ABUSE, AND ACCIDENTS. PRACTICE BEFORE OPERATING.
2. OPERATE ONLY WITH ROPS AND FASTEN SEAT BELT TO AVOID INJURY AND POSSIBLE CRUSHING DEATH FROM OVERTURN. ALLOW NO RIDERS ON TRACTOR OR TILLER. FALLING OFF CAN CAUSE SERIOUS INJURY OR DEATH BY BEING RUN OVER BY TRACTOR OR TILLER OR BY BEING CUT BY THE ROTATING TILLER BLADES. ALLOW NO CHILDREN ON OR NEAR TILLER OR TRACTOR.
3. TO AVOID INJURY FROM FALLING OBJECTS WEAR HARD HAT, SAFETY GLASSES AND SHOES.
4. BLOCK UP OR SUPPORT MACHINE SEVERELY BEFORE PUTTING HANDS OR FEET UNDER, OR WORKING UNDERNEATH LIFTED PARTS TO AVOID CRUSHING INJURY OR EVEN DEATH FROM SUDDEN, INADVERTENT DROPPING. MAKING SURE AREA IS CLEAR BEFORE LOWERING.
5. BEFORE TRANSPORTING, PUT LIFT LEVER IN LIFT (DETENT) POSITION AND FOLLOW TRAFFIC CODES. SLOW DOWN AT NIGHT, IN TURNS, & ON HILLSIDES.
6. MAKE SURE THAT SMV SIGN, WARNING LIGHTS, AND REFLECTORS ARE CLEARLY VISIBLE.
7. NEVER OPERATE WITH TILLER RAISED OF GROUND TO REDUCE POSSIBILITY OF INJURY FROM OBJECTS THROWN UNDER TILLER STRUCTURE.
8. BEFORE DISMOUNTING, SECURE TILLER IN TRANSPORT POSITION OR LOWER TO GROUND, STOP PTO, PUT TRACTOR IN PARK OR SET BRAKE, STOP ENGINE, AND REMOVE KEY. NEVER MOUNT OR DISMOUNT MOVING VEHICLE TO PREVENT POSSIBLE CRUSHING INJURY OR DEATH.

1. READ MANUAL
2. SEAT BELTS, ROPS NO RIDERS
3. SAFETY SHOES, HARD HAT, SAFETY GLASSES
- 4.
5. TRANSPORT SAFELY
6. USE SMV, LIGHTS, & REFLECTORS.
7. DO NOT OPERATE WITH TILLER RAISED.
8. MOUNTING & DISMOUNTING

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TECHNICAL DATA

TECHNICAL DATA

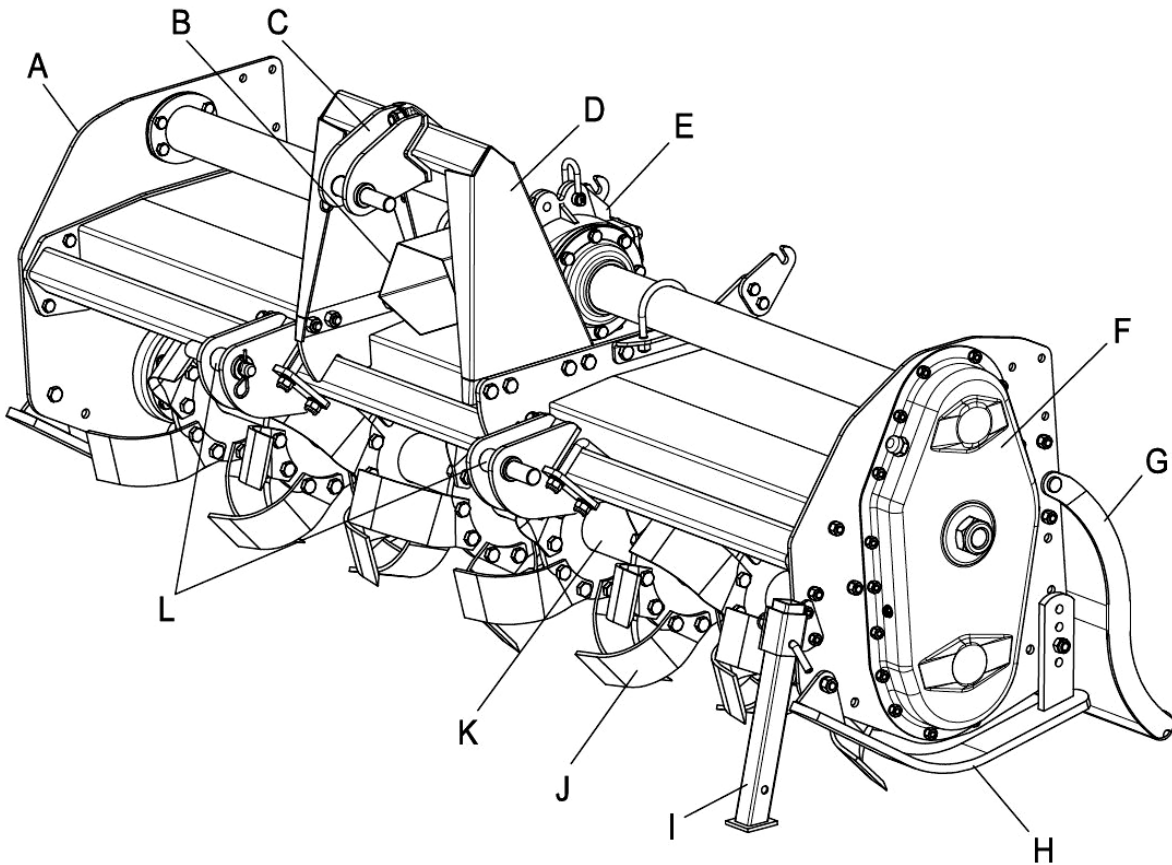
Model	Tilling Width		HP	Weight (Approx.)		Working Depth (Max.)		Side Drive		Blades (Qty.)	Blades	
	cm	Inches		kg	lbs.	cm	Inches	Chain	Gear		Blades /Flange	Shape
N	130	54	30-60	355	780	20	8		*	30	6	Curved
	155	61	30-60	380	838	20	8		*	36	6	Curved
	180	71	30-60	394	868	20	8		*	42	6	Curved
	205	81	30-60	410	904	20	8		*	48	6	Curved



When asking for information or technical service, always specify the machine type and width.

MAIN PARTS TERMINOLOGY

MAIN PARTS TERMINOLOGY



- A) Main Frame
- B) PTO Guard
- C) Top Link Coupling
- D) Third Point Mast
- E) Gearbox
- F) Transmission Case
- G) Rear Board
- H) Skid
- I) Parking Stand
- J) Tines
- K) Rotor
- L) Lower Hitch Blocks

INFORMATION

IDENTIFICATION PLATE

An identification plate is placed on each tiller and is structured as follows:

Serial number (sample):



RECOMMENDED USE

The tillers described in this instruction and maintenance manual, have been designed explicitly to till the land. Any other use jeopardizes the operator's safety and the machine integrity.

INAPPROPRIATE USE

The tillers shall not be used as follows:

- Connected to vehicles which do not have a suitable power or weight.
- Without being properly installed by securing the hitch brackets to all three points of the tractor lift unit.
- Tilling of extremely stony or unsuitable ground.
- In close proximity to person/s when power is engaged.
- Do not stand or step on the equipment when it is being operated or transported.
- Do not operate the machinery while wearing unsuitable (loose fitting) clothing.

TORQUE SPECIFICATIONS

For correct hardware tightening on the tiller, we suggest the use of suitable torque wrench and the applicable torque as listed in the table below:

M-THREADED SCREW/BOLTS
Bolt grade

Thread	8.8		10.9	
	Nm	Lb-ft	Nm	Lb-ft
M6	11	8.5	17	12
M8	28	20	40	30
M10	55	40	80	60
M12	95	70	140	105
M14	150	110	225	165
M16	240	175	305	225
M18	330	250	475	350

SAFETY

SAFETY IN THE WORKPLACE

Most of the accidents, which occur while the operator is using the machine or the equipment or carrying out maintenance and repair activities, are caused by the non-compliance with the main safety requirements.

Therefore the potential risks must be fully understood and special attention must be paid to the activity which is being executed.

**If potentially dangerous situations are known,
accidents can be prevented!**

USER'S REQUIREMENTS

The equipment user must have the following:

Physical: good sight, co-ordination and capability to execute all instructions in a safe manner.

Mental: the users must understand and follow the prescribed norms, rules and safety measures. They must be careful, pay attention to their own safety and the safety of other people and act properly and in a responsible way.

Training: the users must read and understand this manual, its pictures and charts, and the identification and hazard plates. They must be specialized, trained and qualified on any use and maintenance activities.

WORK CLOTHING

The following clothing and personal protective equipment must be used when working and executing maintenance and repair activities:

- Overalls or any other comfortable outfit; make sure that they are not too loose since they might be caught by moving parts.
- Protective gloves.
- Goggles or mask to protect the eyes and face.
- Safety helmet.
- Safety shoes.



Make sure that the personal protective equipment is properly stored and complies with the laws in force.

GENERAL SAFETY NORMS

The features of the area where work is taking place must always be taken into consideration:

- Do not stand in the working radius of the operating machinery or any other machine accessories when the equipment is running.

PREPARATION

Prepare the work:

- Do not drink alcohol, take drugs, or any other substances which may affect your ability to use the equipment before or when working.
- Make sure that there is sufficient fuel in the tractor to prevent the machine from stopping during work.
- Do not use the equipment under unsafe conditions, e.g. do not make temporary repairs just to start or keep working; do not work at night if the area is not well illuminated.

When working or executing maintenance activities, remember:

- The labels and stickers providing instructions on the use of the equipment or information on dangers must not be removed or hidden, and must be legible.
- Do not remove the safety devices, covers and safety guards, unless maintenance activities are being carried out. If the safety devices must be removed, turn the engine off, remove them correctly and re-install them before turning the tractor on.
- Do not lubricate, clean or adjust moving parts.
- Use the appropriate tools to execute maintenance or adjustment activities on the equipment.
- Do not use damaged or unsuitable tools, e.g. pliers rather than wrenches etc.
- Prior to carrying out activities on hydraulic lines under pressure, or disconnecting their components, make sure that the line is no longer under pressure and that it does not contain any hot fluids.
- Check all the fittings and make sure that they are well connected before supplying pressure to the hydraulic lines.
- Make sure that no tools, clothes or any other materials are left in areas where moving parts are present when the maintenance and repair activities are completed.
- Do not give directions and make signals at the same time during a maneuver. Maneuver directions and signals must be given from one person only.
- Do not unexpectedly call an operator, if not necessary. Do not startle the operator, e.g. by throwing objects.
- Pay attention to people in the vicinity of the work area, especially children!
- Make sure that nobody is standing in the working range of the equipment.
- Do not use the equipment to lift people.
- When the equipment is not needed, turn the engine off, leave the vehicle on a flat surface, with the first gear and the parking brake engaged. Disengage the power take off.
- Do not execute any cleaning, lubrication, repair or adjustments when the engine is running and the equipment is in the raised position.
- Do not work on steep slopes, if the stability of the vehicle can be jeopardized.

Manufacturer shall not assume any responsibilities if these instructions are not strictly followed.

SET-UP

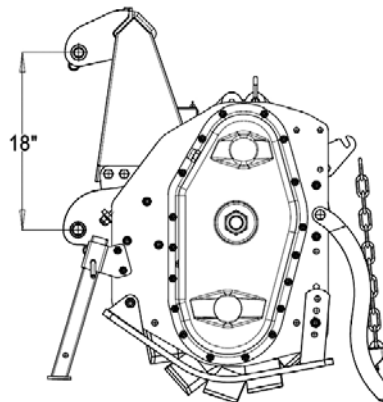
ATTACHMENT TO THE TRACTOR

This tiller may be attached to any tractor equipped with a Cat. 1 or 2, 3-point hitch with suitable ball ends; it can also be attached by means of a Cat. 1 Quick Hitch.

3-POINT CATEGORY 1 HITCH

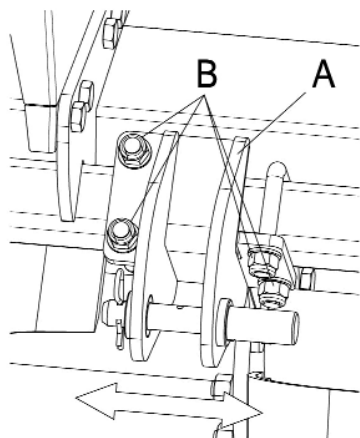
To connect the tiller to the tractor's 3-point hitch, do the following operations:

- 1) Install both the upper and the lower link brackets with the holes facing down as shown in **picture 1**; this gives you the standard A.S.A.E. vertical dimension of 18" (**picture 1**).



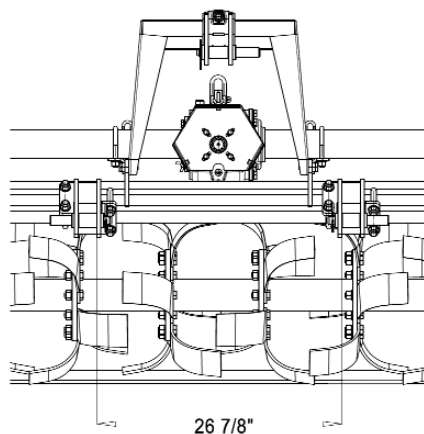
picture 1

- 2) Release the bolts **B** and adjust the position of the brackets **A** to obtain standard A.S.A.E. horizontal displacement 26 7/8" (**picture 2**).

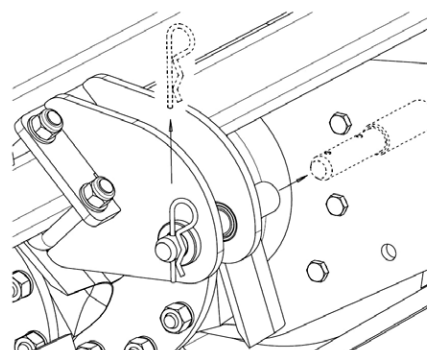


picture 2

- 3) Remove the cotter pins from the hitch pins (**picture 3**).
- 4) Remove the lower hitch pins from the lower hitch brackets (**picture 3**).



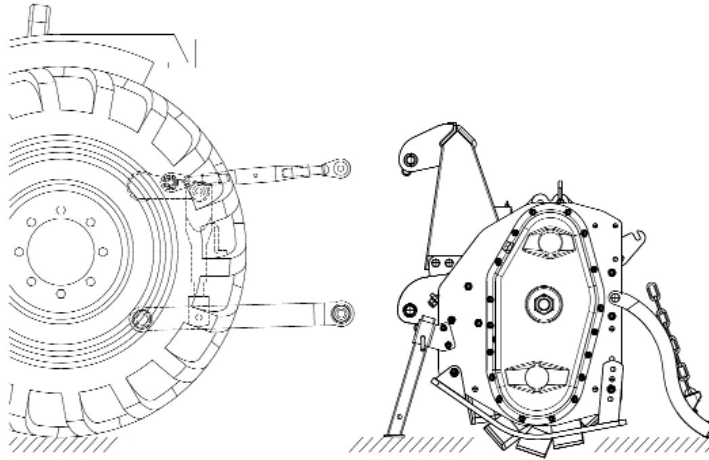
26 7/8"



picture 3

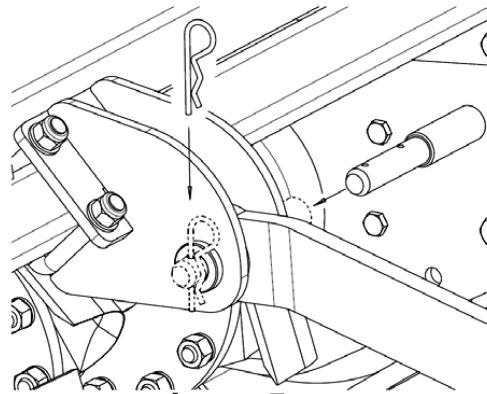
SET-UP

- 5) Before attaching the equipment to the tractor, make sure that the ground is smooth and flat and that nobody is standing between the tractor and the tiller; slowly move the tractor towards the tiller by aligning the tractor lifter arms with the lift bracket holes (**picture 4**); turn the engine off and pull the brake.



picture 4

- 6) Insert the lower hitch pins through the hitch bracket and ball ends (**picture 5**).
- 7) Secure them by means of the cotter pins which were previously removed (**picture 5**).



picture 5

- 8) Connect the tractor top link to the third upper point by removing the pin located between the two plates, inserting the top link and securing it by means of the hair pin. Shift the parking stand in the upper position.
- 9) Adjust the top link so that the upper part of the frame is parallel to the ground. Block all the linking parts by means of the sway chains or arms.
- 10) Make sure that the central unit axis (gearbox assembly) is parallel to the ground, thus minimizing the stresses on the power take off and increasing the working life of the equipment.



Caution

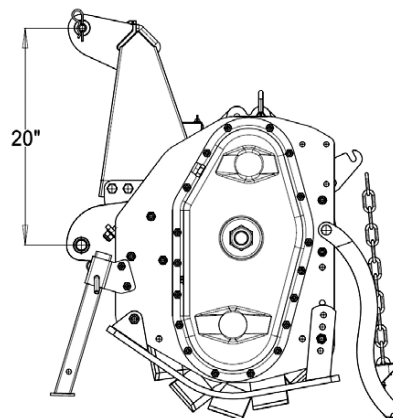
After executing all the above mentioned activities, make sure that all the nuts and bolts are tightened.

SET-UP

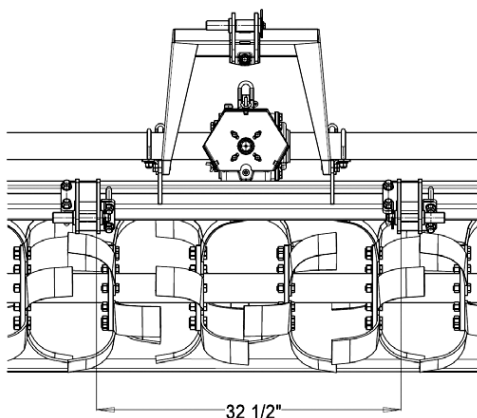
3-POINT CATEGORY 2 HITCH

To connect the tiller to the tractor's Cat. 2, 3-point hitch, do the following operations:

- 1) Install the upper link bracket with the holes facing up and the lower link brackets with the holes facing down as shown in **picture 6**; this gives you the standard A.S.A.E. vertical dimension of 20".



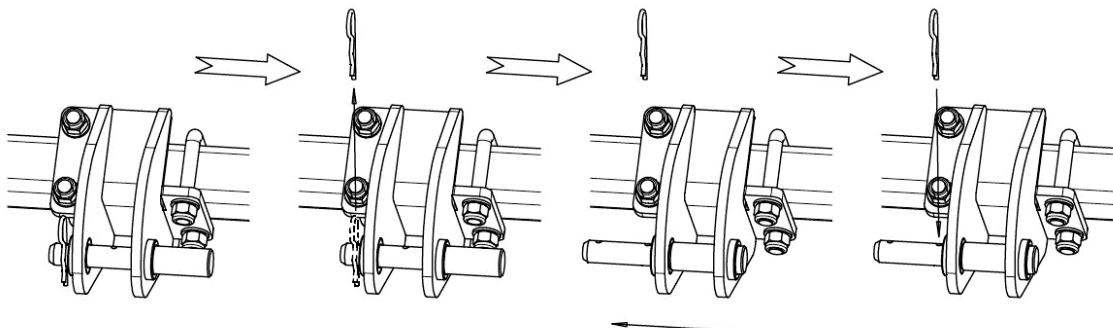
picture 6



picture 7

- 2) Release the bolts **B** and adjust the position of the brackets **A** (as shown in **picture 2**) to obtain horizontal displacement 32 1/2" (**picture 7**).

- 3) Remove the cotter pin, shift the pin to the greater diameter and reinsert the cotter pin (**picture 8**).



picture 8

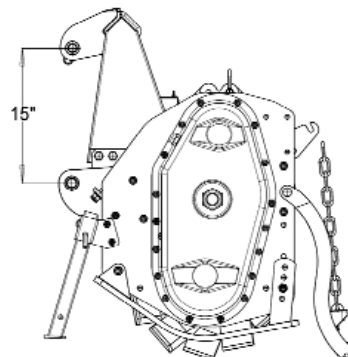
- 4) Repeat the same operations as described for Cat. 1 hitch.

SET-UP

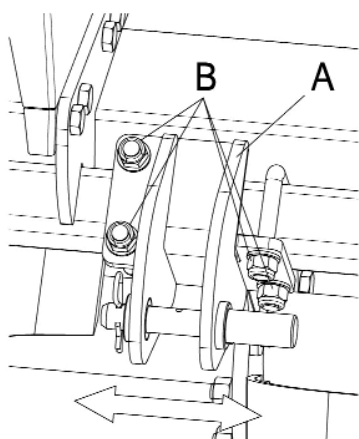
3-POINT CATEGORY 1 QUICK HITCH

The N Series Tillers are Cat. 1 Quick Hitch adaptable. To attach the implement to the tractor it is necessary to order the Quick Hitch Kit composed of 3 bushings. The following operations are needed:

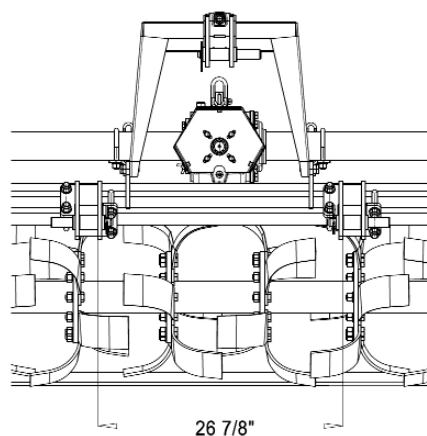
- 1) Place the bottom brackets with holes facing up and the upper bracket with the hole facing down as shown in **picture 5**; this gives you the standard A.S.A.E. dimension of 15" for Quick Hitch (**picture 9**).
- 2) Release the bolts **B** and adjust the position of the brackets **A** to obtain horizontal displacement of $26 \frac{7}{8}$ " (**picture 2**).



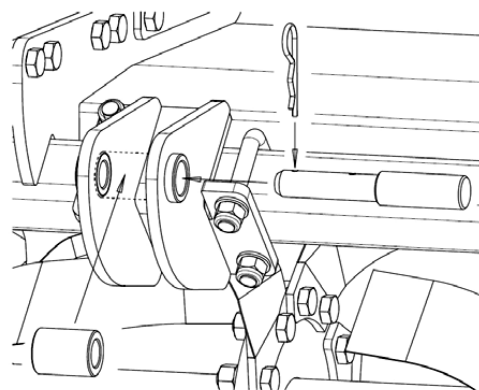
picture 9



picture 2

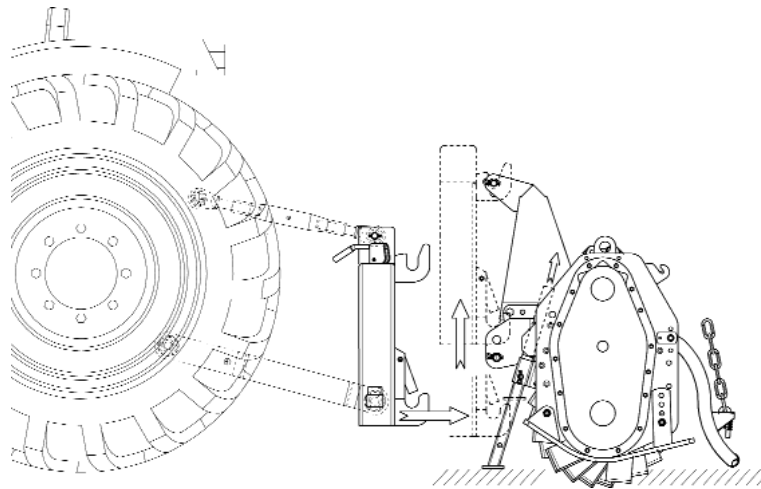


- 3) Insert the lower bushing of the kit in the lower hitches (**picture 10**).
- 4) Insert the lower hitch pins through the hitch bracket and bushing (**picture 10**).
- 5) Secure them by means of the hair pins which were previously removed (**picture 10**).
- 6) Repeat the same operations from 3 to 5 for the upper bracket with the upper bushing.
- 7) Before attaching the equipment to the tractor, make sure that the ground is smooth and flat and that nobody is standing between the tractor and the tiller; slowly move the tractor towards the tiller by aligning the tractor lifter arms with the bracket holes; turn the engine off and pull the brake.



picture 10

SET-UP



- 8) Lift the Quick Hitch until its hooks engage the hitches of the implement.
- 9) Raise the parking stand to the upper position.

PTO SHAFT CONNECTION

Before installing the PTO shaft make sure that the RPM rating and the direction of rotation match those of the tractor. Carefully read the PTO shaft and tractor instructions. Furthermore, accurately read the instructions of the manufacturer of the PTO shaft and of the tractor.

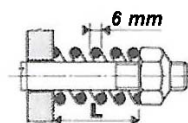
Before starting any activity, make sure that the guards are installed on the power take off of the tractor and PTO shaft. Make sure that they cover the PTO shaft throughout its length.

⚠ Caution

When fully extended, the plastic pipes must overlap by at least 1/3 of the length of the pipes (LT). When retracted, the minimum acceptable clearance is 2".

SLIP CLUTCH DRIVE SHAFT

This tiller has a drive shaft with a slip clutch, which has been calibrated for a certain overload. To adjust the clutch, tighten or loosen bolts equally. Don't over-tighten or clutch will lock and not slip under stress, which could cause damage during operation. The clutch assembly should get warm (normal temp. 104-122°F) under normal operation. If the clutch gets extremely hot, this is a sign of slippage. If the machine sits for an extended period of time with no usage, the bolts should be loosened and the PTO engaged. This will allow the clutch discs to become free again. After a few seconds, shut-off the tractor and retighten bolts equally. Recheck clutch assembly for temperature after using in tilling application. If it is too hot, the bolts need tightening. If it is too cool, loosen bolts.



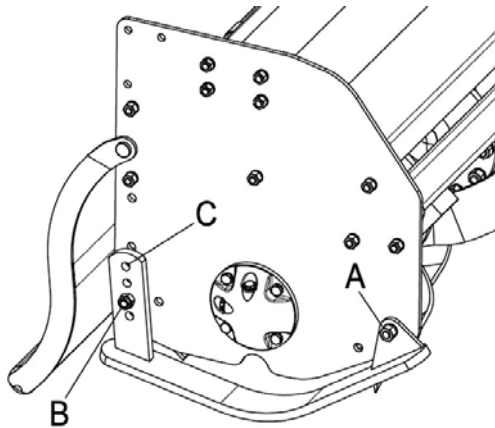
WORKING LENGTH mm (in.)

SPRING HEIGHT	
FF-2	
	Nm
L=29.5 (1.161")	---
L=29.0 (1.142")	610
L=28.5 (1.122")	750
L=28.0 (1.102")	900
L=27.5 (1.083")	1050
L=27.0 (1.063")	---
L=26.5 (1.043")	---

SET-UP

WORKING DEPTH ADJUSTMENT

The working depth of the equipment depends on the position of the lateral skids. If the skids are raised, the working depth increases; if the skids are lowered, the working depth decreases.



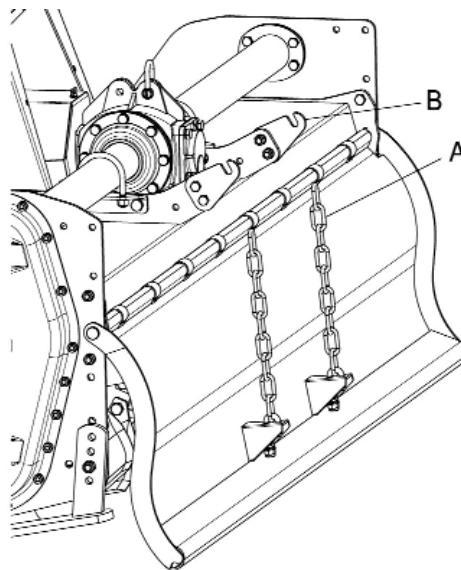
picture 1%

To adjust the working depth, loosen nut **A** (**picture 1%**), remove nut **B** and adjust the skid height according to the holes **C**. When the adjustment is completed, tighten both the screws to the correct torque, according to the values suggested in Torque Specifications, page 5.

IMPORTANT: Make sure that the skids are set at the same height on both sides.

LEVELING BOARD ADJUSTMENT

The rear leveling board can be adjusted in height to better compact the ground and make it flat. The adjustment can be made by releasing chains **A** (**picture 1&**) from upper hooks **B** and inserting it back to the desired height.



picture 1&

MAINTENANCE



These activities must be carried out with the engine off, the power take off disengaged and the hand brake applied. If needed, lift the equipment and place it on supports, thus preventing any injuries that might be caused by a sudden fall of the equipment.

START UP

After carrying out these adjustments, the equipment is ready for use. When at the working area, do not start the power take off with the tiller in working position in the ground. Be sure to lift it by a few centimeters using the tractor lift. Start the engine, engage the power take off, lower the equipment to its working position and start.

ROAD TRANSPORT

With reference to road transport, follow local traffic regulations.

SHUT DOWN

The following activities are recommended if the tiller will not be used for a long period of time:

1. Clean and dry the equipment.
2. Inspect the equipment and replace the damaged or worn parts if necessary.
3. Tighten all the screws and nuts.

Lubricate and cover the machine with a tarpaulin and store it in a dry place.

MAINTENANCE

Maintenance is crucial for the working life and efficiency of any agricultural equipment. If the equipment is properly maintained and operated, a long working life and operator safety are assured.

The maintenance intervals indicated in this booklet are provided as a mere reference and are related to normal working conditions; changes may occur depending on the type of activities, environmental dust, seasonal factors, etc.



- Before injecting lubricating grease into the grease fittings, clean the fittings to prevent mud, dust, or any other foreign matter from contaminating the grease and reducing the lubrication effect.
- When adding or changing the oil, use the same type of oil to prevent mixing oils with different features.
- All maintenance activities must be carried out with the tiller resting horizontally on the ground.
- After using the equipment for a few hours, make sure that all the bolts (especially tine bolts) are tightened; regularly check all the machine guards.

FIRST CHECK

- After 50 working hours, change the oil in the gearbox and make sure that all the screws and bolts are tightened.

MAINTENANCE

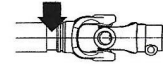
EVERY 8 WORKING HOURS

- Grease the PTO shaft crosses.

20h

EVERY 20 WORKING HOURS

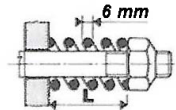
- Grease the PTO shaft inner drive tube.



Inner tube
Tube intérieure

EVERY 50 WORKING HOURS

- Check the oil level in the external rotor bearing through the inspection plug **A**. If needed remove the plug **B** and add SAE EP 80W90 oil (**picture 13**).
- Check the oil level in the case/bevel gear pair by removing gearbox's upper oil plug (**A - picture 14**). If needed add SAE EP 80W90 oil.
- Check the oil level in the side transmission (**A - picture 15**). If needed add SAE EP 80W90 oil.
- Make sure that all the screws and bolts, especially on the blades, are tightened.
- Check slip-clutch spring tension (1050 Nm).

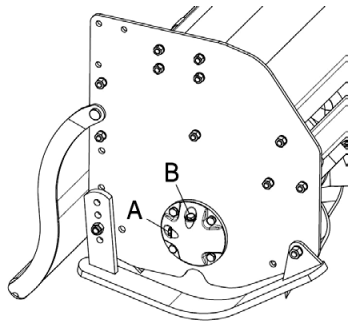


WORKING LENGTH mm (in.)

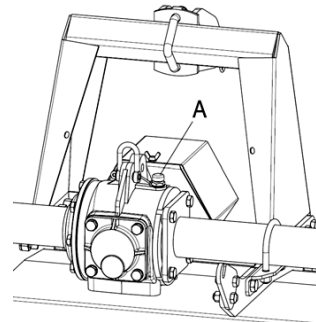
SPRING HEIGHT	
FF-2	
	Nm
L=29.5 (1.161")	---
L=29.0 (1.142")	610
L=28.5 (1.122")	750
L=28.0 (1.102")	900
L=27.5 (1.083")	1050
L=27.0 (1.063")	---
L=26.5 (1.043")	---

EVERY 500 WORKING HOURS

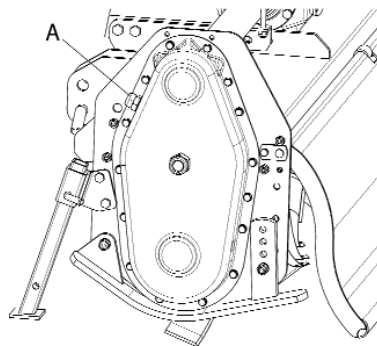
- Change the oil of the case/bevel gear pair, side transmission and rotor support; use SAE EP 80W90 oil. Contact the closest dealer for this maintenance activity.



picture 13



picture 14



picture 15

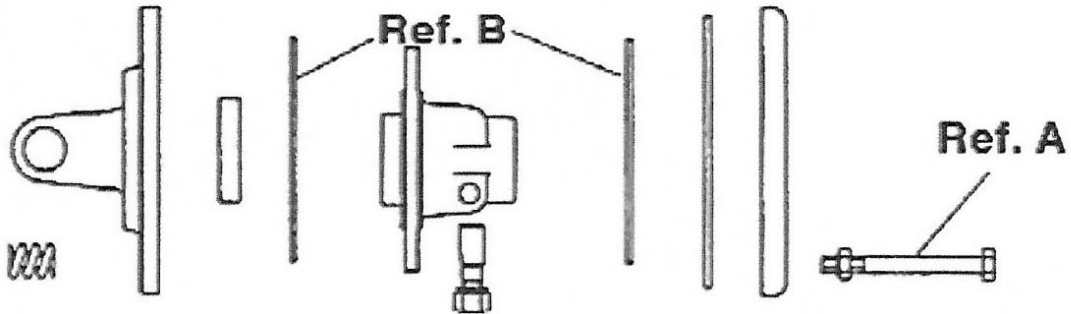
Caution

The old oil must be disposed of in compliance with the local laws where these activities are carried out; do not spill or dispose of waste oil on the ground.

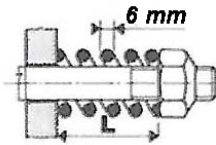
Danger

The maintenance activities must be carried out with the engine off, the power take off disengaged, the parking brake engaged, and the equipment placed on the ground.

REPLACING CLUTCH LININGS



1. Mount clutch assembly in vise.
2. Remove all bolts and nuts (**Ref. A**).
3. Disassemble all components.
4. Check the condition of all parts, friction plates especially.
5. Replace clutch linings (**Ref. B**).
6. Reassemble the components, install spring with their corresponding bolts and nuts.
7. Tighten nuts following an alternating cross pattern until reaching a height of 27.6 mm (1.083").
8. Check that the height is the same for all springs.
9. Reinstall driveline, making sure all shields are in place.



WORKING LENGTH mm (in.)

SPRING HEIGHT FF-2	Nm
L=29.5 (1.161")	---
L=29.0 (1.142")	610
L=28.5 (1.122")	750
L=28.0 (1.102")	900
L=27.5 (1.083")	1050
L=27.0 (1.063")	---
L=26.5 (1.043")	---

SPARE PARTS

BLADES REPLACEMENT

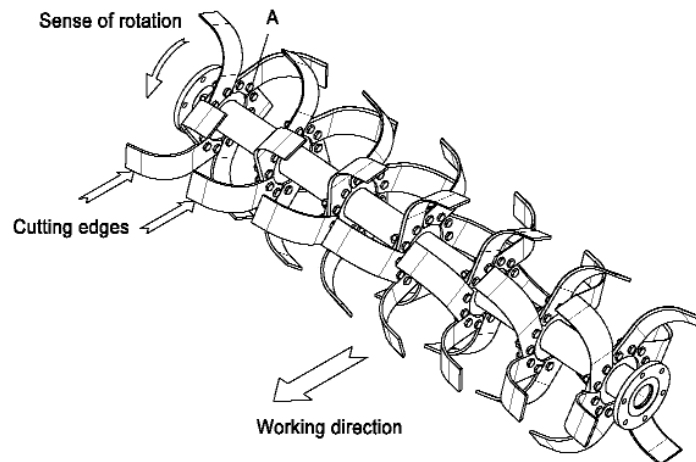
To assure the optimum efficiency of the machine, make sure that the tiller blades are in a good working condition and that their bolts are tightened; replace them if they are broken or bent. The new parts must be installed in the original position.



Before replacing the blades, turn the tractor engine off, pull the parking brake, disengage the power take off, raise the tiller using the tractor lift, and install supports to prevent accidental dropping of the machine.

Pay special attention to the bolts **A** on the blades (**picture 16**): the screw head must be placed on the blade side, with the washer and the nut on the flange side, so that the bolts cannot loosen while the equipment is being used.

When several blades must be replaced, replace one blade at a time, so that the initial helical layout is maintained (**picture 16**).



picture 16

HOW TO ORDER SPARE PARTS

For spare parts requests please refer to our spare parts catalogue.

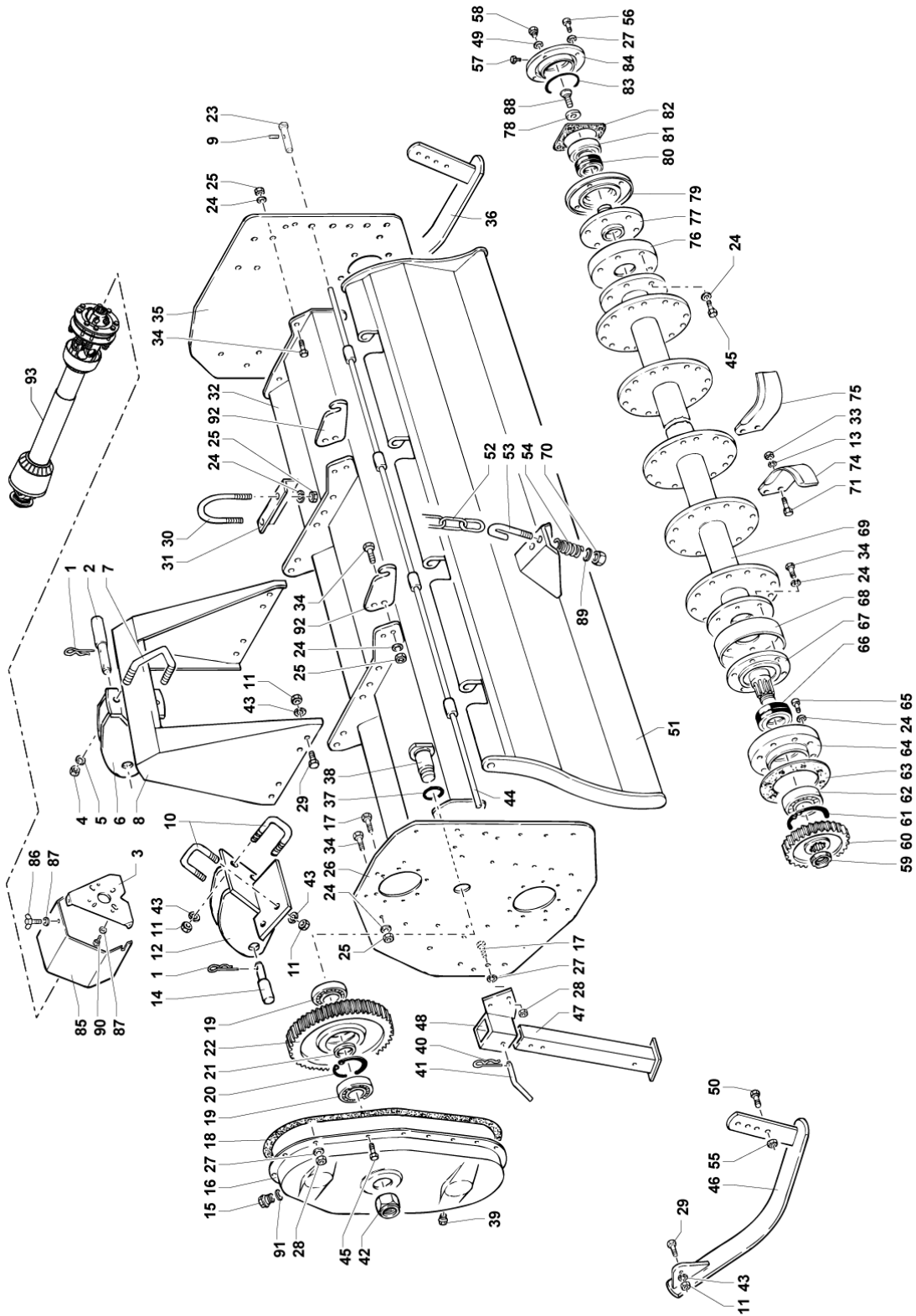
The spare parts can be ordered from the dealer or service center. The following data must always be specified:

- Equipment model and width.
- Part number of the requested component. If the code number is missing, indicate the reference number in which it is shown and the relevant reference.
- Description of the part and requested quantity.
- Requested type of transport. Should this information not be provided, the dealer or service center shall not be responsible for delays caused by circumstances beyond their control. The addressee shall be responsible for any transport charges.

TROUBLESHOOTING CHART

PROBLEM	CAUSE	SOLUTION
Excessive vibration	Drive shaft damaged	Replace worn drive shaft
	Tines broken off	Replace damaged tines
	Bent rotor shaft	Replace rotor shaft
Rotor shaft does not turn	PTO Clutch slipping	Check slip clutch adjustment
		Replace clutch discs
Tilling deeper on one side	Tractor lower lift arm out of adjustment	Adjust lift arm
	Tiller depth skid not properly adjusted	Adjust skids to level depth
Tiller bouncing	Trying to go too deep on first pass	Raise tiller so tilling 3" deep
	Tractor in too high a gear	Tiller runs smoother in first or second gear
Leaving tire tracks	Tires set out too wide	Set in tractor tires
	Tractor too large	Offset tiller to cover right tire tracks
PTO will not untelescope	Improper lubrication	Separate and grease both halves
	PTO twisted	Replace twisted parts
	Shields damaged	Replace shields

"N" TILLER ASSEMBLY



TILLER ASSEMBLY

<u>REF#</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	3	6351004	Split Pin 4 x 80
2	1	5304001	Upper Pin
3	1	4138035	Protection Support
4	2	34100016	Nut M16 UNI 5587
5	2	34121016	Washer UNI 1751
6	1	4007937	Upper 3rd Point
7	1	4302257	U Screw
8	1	4008697	Junction For 3rd Point
9	2	6330636	Split Pin
10	4	4307802	U Screw
11	18	34100014	Nut M14 UNI 5587
12	1	4007935	Plate DX Lower 3 Pt Hitch
12	1	4007936	Plate SX
13	As Req'd*	34032014	Washer 14 FIAT 10188
14	2	4309179	Lower Pin
15	1	3442022	Plug M22 x 1.5
16	1	4018347	Cover
17	18	31510025	Bolt M10 x 1.5 x 25 UNI 5739
18	1	4788398	Gasket
19	2	30210	Bearing 30210
20	1	6310090	Circlip
21	1	4598238	Spacer
22	1	4728017	Intermediate Gear Z=41
23	2	4232111	Lateral Bonnet Pin
24	As Req'd*	34121012	Washer UNI 1751
25	As Req'd*	34100012	Nut M12 UNI 5587
26	1	4937901	Transmission Side Plate
27	22	34121010	Washer UNI 1751
28	18	34100010	Nut M10 UNI 5587
29	10	31514035	Bolt M14 x 2 x 35 UNI 5739
30	2	4332278	U Screw
31	2	4137741	Support
32	1	4007905	Frame N155
32	1	4007906	Frame N180
32	1	4007907	Frame N205
33	As Req'd*	34101014	Nut M14 UNI 5587
34	As Req'd*	31512035	Bolt M12 x 1.75 x 35 UNI 5739
35	1	4937902	External Side Plate
36	1	4007002	Right Skid
37	1	6800045	O-Ring
38	1	4208153	Pin

TILLER ASSEMBLY

<u>REF#</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
39	1	3441014	Oil Level Plug M14 x 1.5
40	1	6351003	Split Pin 3 x 60
41	1	5236115	Pin
42	1	34106040	Self Locking Nut M40 x 2
43	18	34121014	Washer UNI 1751
44	1	4232106	Bonnet Pin N155
44	1	4232107	Bonnet Pin N180
44	1	4232108	Bonnet Pin N205
45	8	31512030	Bolt M12 x 1.75 x 30 UNI 5739
46	1	4007003	Left Skid
47	1	4002376	Parking Stand
48	1	4002377	Support
49	1	6470114	Washer
50	2	31514040	Bolt M14 x 20 x 40 UNI 5739
51	1	4007919	Bonnet N155
51	1	4007920	Bonnet N180
51	1	4007921	Bonnet N205
52	1	4508003	Bonnet Chain 17 N155
52	2	4508002	Bonnet Chain 15 N180 & N205
53	1	4302183	Chain Hook N155
53	2	4302183	Chain Hook N180 & N205
54	1	4212214	Spring N155
54	2	4212214	Spring N180 & N205
55	2	34106014	Self Locking Nut M14
56	4	31510030	Bolt M10 x 1.5 x 30 UNI 5739
57	1	3441014	Oil Plug M14 x 1.5
58	1	3444014	Oil Level Plug M14 x 1.5
59	1	34127035	Self Locking Metal Ring M35 x 1.5
60	1	4728337	Gear Z=32
61	1	6310100	Circlip
62	1	6309	Bearing 6309
63	1	4788217	Gasket
64	1	4708201	Hub Support
65	8	31712025	Bolt M12 x 1.75 x 25 UNI 5931
66	1	6203707	Oil Seal GNL IM 5470
67	1	4728200	Left Rotor Hub
68	1	4148040	Dust Cover
69	1	4007942	Holder Rotor N155
69	1	4007943	Holder Rotor N180
69	1	4007944	Holder Rotor N205
70	1	34106012	Self Locking Nut M12 N155

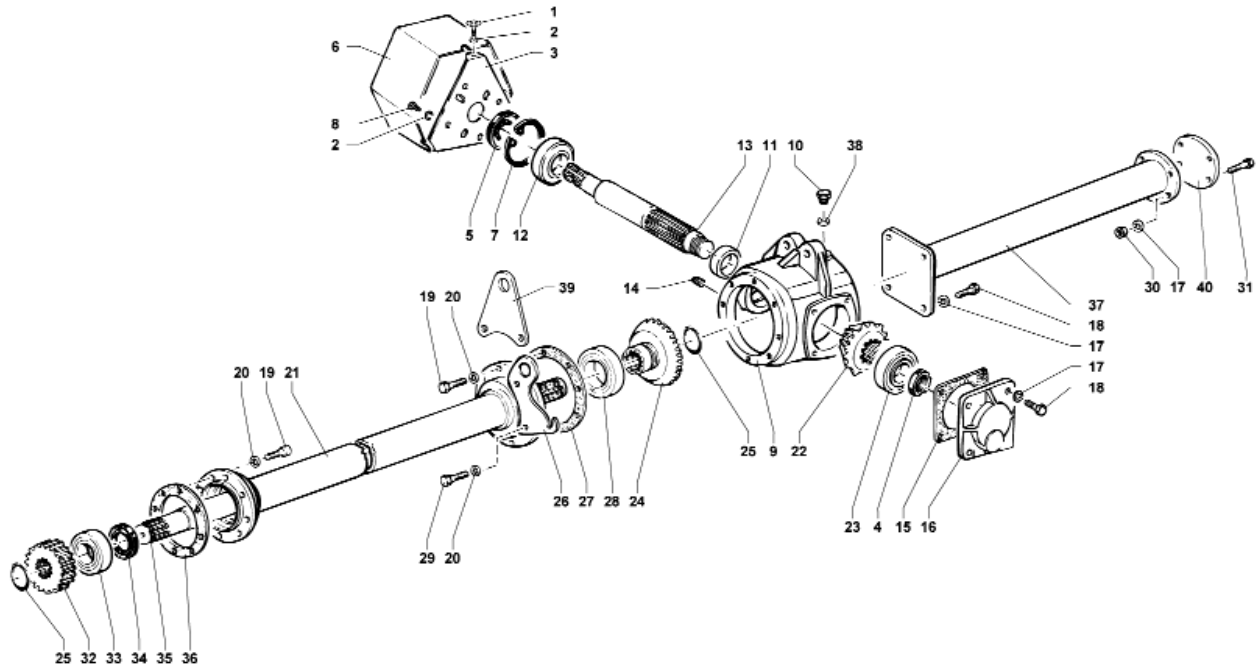
TILLER ASSEMBLY

<u>REF#</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
70	2	34106012	Self Locking Nut M12 N180 & N205
71	As Req'd*	31414040	Bolt M14 x 1.5 x 40 Length 20
72	As Req'd*	4818224	Left Square Blade
73	As Req'd*	4818225	Right Square Blade
74	As Req'd*	4818222	Left Blade
75	As Req'd*	4818223	Right Blade
76	1	4148030	Dust Cover
77	1	4708249	Right Rotor Hub
78	1	4208021	Washer, Special
79	1	4708239	Hub Support
80	1	6205300	Oil Seal
81	1	6307	Bearing 6307
82	1	4788219	Gasket
83	1	6800094	O-Ring
84	1	4708248	Bearing Support
85	1	4138034	Joint Protection
86	3	33108020	Bolt M8 x 1.25 x 20 UNI 5449
87	7	34118008	Washer UNI 6593
88	1	30612030	Bolt M12 x 1.75 x 30 UNI 5933
89	1	34120012	Washer UNI 6592 N155
89	2	34120012	Washer UNI 6592 N180 & N205
90	4	31508016	Bolt M8 x 1.25 x 16 UNI 5739
91	1	3470118	Washer
92	2	4934778	Chain Plate N180 & N205
93	1	E8218635	Driveline

* Quantities Required

Ref #	Quantities for Model Number		
	N155	N180	N205
13	72	84	96
24	25	29	29
25	20	24	24
33	72	84	96
34	11	15	15
71	72	84	96
72	18	21	24
73	18	21	24
74	18	21	24
75	18	21	24

GEARBOX ASSEMBLY

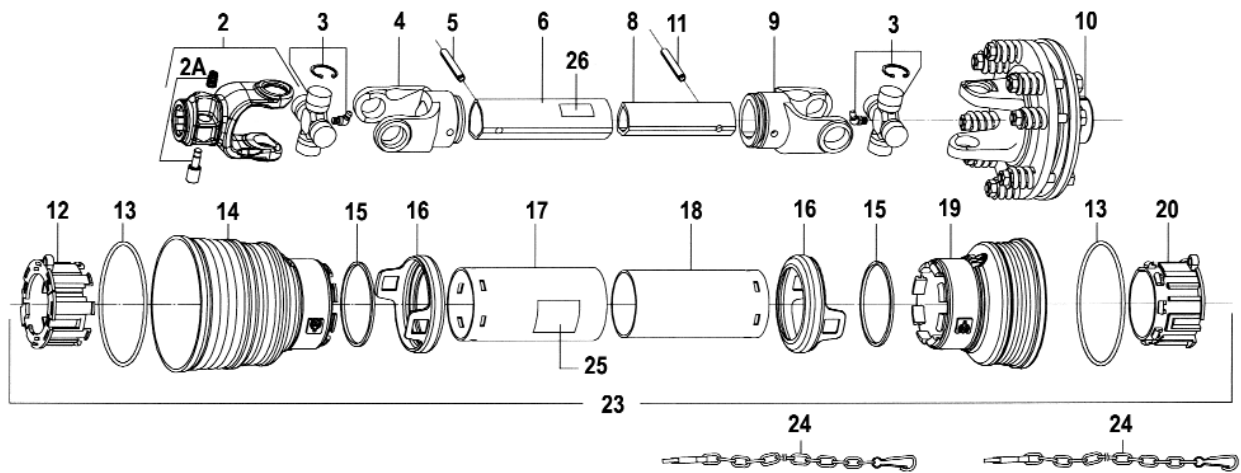


<u>REF#</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	3	33108020	Bolt M8 x 1.25 x 20 UNI 5449
2	7	34118008	Washer UNI 6593
3	1	4138035	Protection Support
4	1	34127035	Self Locking Metal Ring M35 x 1.5
5	1	35.72.10	Oil Seal 35 x 72 x 10
6	1	4138034	Joint Protection
7	1	6310072	Circlip
8	4	31508016	Bolt M8 x 1.25 x 16 UNI 5739
9	1	4657744	Gearbox
10	1	3442018	Plug M18 x 1.5
11	1	4599031	Spacer
12	1	6207	Bearing 6207
13	1	4227742	PTO Shaft
14	1	3441018	Plug M18 x 1.5
15	1	4788219	Gasket
16	1	4647745	Cover
17	12	34121012	Washer UNI 1751
18	8	31512030	Bolt M12 x 1.75 x 30 UNI 5739

GEARBOX ASSEMBLY

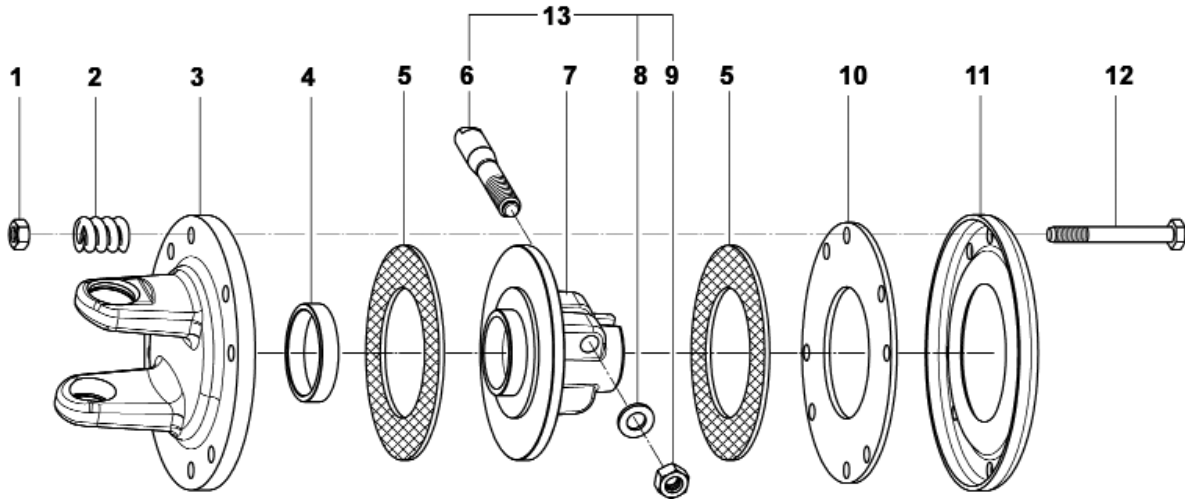
<u>REF#</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
19	14	31510025	Bolt M10 x 1.5 x 25 UNI 5739
20	16	34121010	Washer UNI 1751
21	1	4007965	Shaft Support N155
21	1	4007966	Shaft Support N180
21	1	4007967	Shaft Support N205
22	1	4728643	Pinion Z=15
23	1	30308	Bearing 30308
24	1	4728642	Ring Bevel Gear Z=22
25	2	6320045	Circlip
26	1	4148067	Chain Plate N155
27	1	4788413	Gasket
28	1	6311	Bearing 6311
29	2	31510030	Bolt M10 x 1.5 x 30 UNI 5739
30	4	34100012	Nut M12 UNI 5587
31	4	31512035	Bolt M12 x 1.75 x 35 UNI 5739
32	1	4728336	Driving Gear Z=21
33	1	6309	Bearing 6309
34	1	45x72x10	Oil Seal 45 x 72 x10
35	1	4217910	Shaft N155
35	1	4217911	Shaft N180
35	1	4217912	Shaft N205
36	1	4788693	Gasket
37	1	4007958	External Support N155
37	1	4007959	External Support N180
37	1	4007960	External Support N205
38	1	6470117	Washer
39	1	4937914	Lifting Hook Plate N180 & N205
40	1	4937912	Spacer Plate

DRIVESHAFT ASSEMBLY



<u>REF#</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
2	1	1026010	Yoke Assembly, Tractor End
2A	1	1581038	Push Pin Kit
3	2	1006020	Cross Assembly
4	1	1706027	Outer Tube Yoke
5	1	6331080	Roll Pin 8 x 80 Outer Tube
6	1	1528074	Outer Tube
8	1	1526074	Inner Tube
9	1	1706029	Inner Tube Yoke
10	1	1386016	Torque Limiter, 2 Friction Discs
11	1	6331070	Roll Pin 8 x 70 Inner Tube
12	1	1786710	Tube Bearing
13	2	1215733	Stiffening Ring
14	1	1785703	Standard Cone
15	2	1215735	Stop Ring
16	2	1885709	Safety Sleeve
17	1	1776064	Outer Tube Shield
18	1	1877064	Inner Tube Shield
19	1	1785702	Short Cone
20	1	1786711	Tube Bearing, Inner Tube
23	1	90SC6064	Complete Protection
24	2	1006065	Anti-rotation Chain
25	1	1140001	Outer Decal
26	1	1140003	Inner Decal

SLIP CLUTCH ASSEMBLY



<u>REF#</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	8	6411010	Screw Nut For Spring
2	8	1215012	Spring
3	1	1706033	Flange With Yoke
4	1	1705009	Bushing
5	2	1808010	Friction Disc
6	1	1231038	Conical Clamp
7	1	1708907	Hub With Flange
8	1	6412012	Washer
9	1	6410712	Screw Nut
10	1	1138008	Inner Disc
11	1	1138007	Pressure Disc
12	8	6001085	Bolt For Spring
13	1	6821271	Conical Clamp Kit Replacement

LIMITED WARRANTY



GEARMORE, INC., warrants each new Gearmore product to be free from defects in material and workmanship for a period of twelve (12) months from date of purchase to the original purchaser. This warranty shall not apply to implements or parts that have been subject to misuse, negligence, accident, or that have been altered in any way.

Our obligation shall be limited to repairing or replacement of any part, provided that such part is returned within thirty (30) days from date of failure to Gearmore through the dealer from whom the purchase was made, transportation charges prepaid.

This warranty shall not be interpreted to render us liable for injury or damages of any kind or nature, direct, consequential or contingent, to person or property. This warranty does not extend to loss of crops, loss because of delay in harvesting or any other expenses, for any other reasons.

Gearmore in no way warrants engines, tires, or other trade accessories, since these items are warranted separately by these respective manufacturers.

Gearmore reserves the right to make improvements in design or changes in specification at any time, without incurring any obligations to owners or units previously sold.

GEARMORE, INC.
13477 Benson Ave.
Chino, CA 91710

Always refer to and heed machine operating warning decals on machine.

The serial number of this product is stored in our computer database, thus submitting a warranty registration card is not required.