

INSTRUCTION MANUAL



H'T

HAY TEDDERS

CONGRATULATIONS

Dear Owner,

Thank you for buying a SOVEMA manufactured product. Your new machine is carefully designed and manufactured to give you superior performance and dependable service, if properly operated and maintained.

You will find this machine to be rugged and reliable when matched to the suggested horsepower operating range.

Much time has been invested in providing safety and protection. Please carefully read this manual. It tells you how to safely and easily assemble, operate and maintain your machine.

Be sure that you and any other operator carefully follow the recommended safety practices at all times. Failure to do so could result in personal injury or property damage.

Of course, if you should ever have any problems or questions, please contact your local SOVEMA dealer or contact us at the addresses or numbers indicated in this manual.

SOVEMA manufactures a variety of innovative equipment. If you are interested in reviewing our full line, please contact us.

Thanks for your choice.

Ginettino Mayer
President

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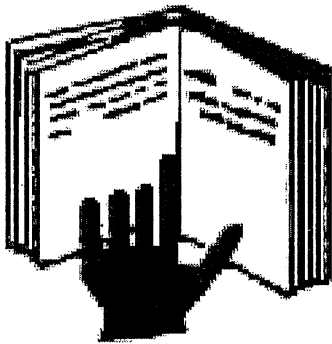
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SYMBOLS

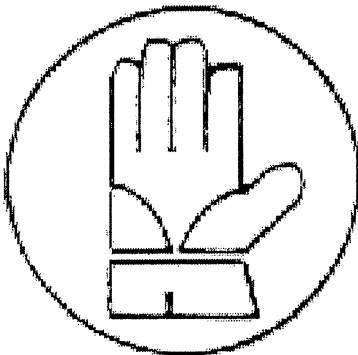
These symbols appear throughout this manual.
Remember their meaning and advice.



**MEANS:
CAUTION-YOUR SAFETY IS INVOLVED**



**MEANS:
READ CAREFULLY**



**MEANS:
USE PROTECTIVE GLOVES**

GENERAL INFORMATION



All implements with moving parts are potentially hazardous. The manufacturer has designed the implement to be used with all the safety equipment properly attached. The purpose of this manual is to assist you in safety maintaining and operating the implement.

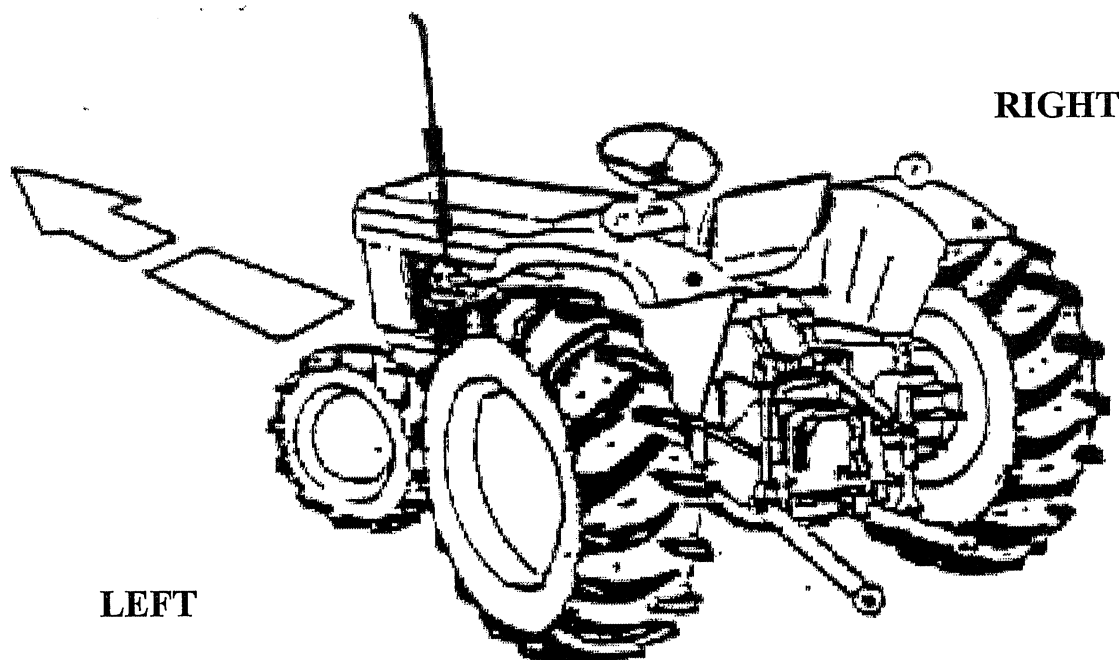


These instructions have been compiled from our experience.

Through this experience and these instructions, you should be able to develop operating procedures suitable to your particular situation.



Illustrations and data used in this manual may vary slightly in some details. Throughout this manual references are made in left and right directions. These are determined by standing at the rear of the equipment and facing the direction of forward travel.



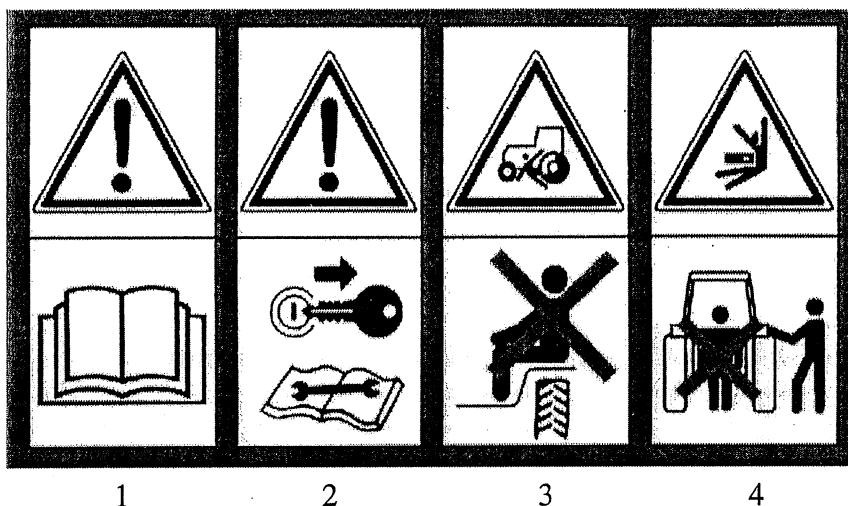
Even if some illustrations in this manual show the machine with safety shields removed for a better view, never operate in these conditions.

BEFORE OPERATING THE IMPLEMENT, ALL SAFETY SHIELDS OR DEVICES MUST BE MOUNTED.

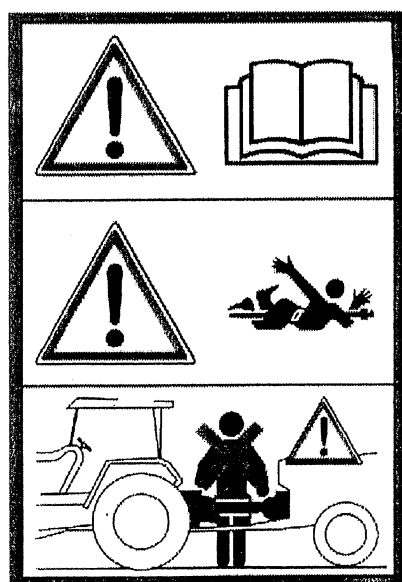
SAFETY AND WARNING DECALS



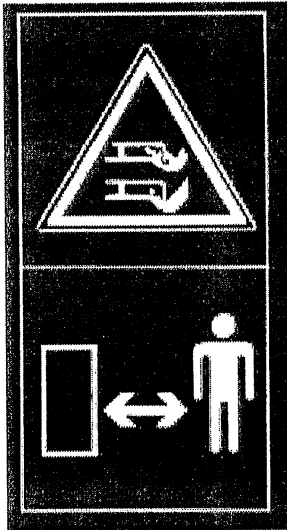
Safety decals on the implement contain important safety warning messages. To prevent injuries we invite the operator to read them carefully and keep them clear. Check that all the decals are on the machine. If not, DO NOT USE the machine and report to the Dealer immediately to get the decals. Decals on the machine are the following and mean:



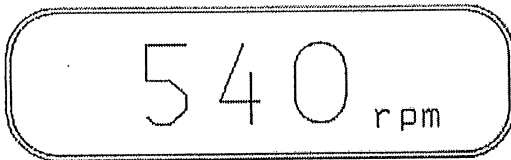
1. Before operating the equipment, read carefully the operator's manual.
2. Before maintenance operation, disengage the tractor PTO, lower the implement, shut off the engine, remove the ignition key and read the operator's manual.
3. Do not allow riders on tractor or implement.
4. Do not stand up behind the tractor during the operations.



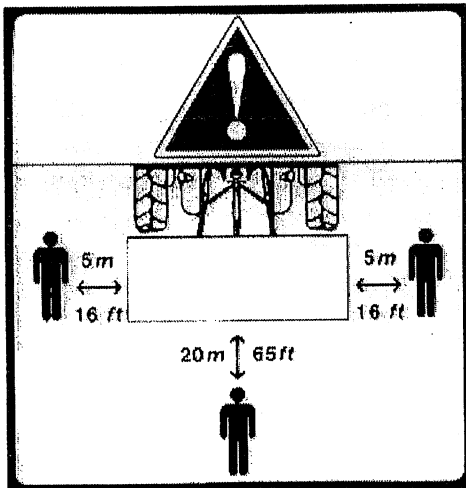
5. Before connecting PTO shaft to the tractor read operator's manual carefully.
6. DANGER! Entanglement of driveline.
7. KEEP AWAY from driveline in operation: contact can cause death!



8. **Danger.** Your hands and feet can be injured by moving parts. Keep away from the implement.



9. The machine is designed for use on tractors with 540 RPM PTO only.



10. **Caution!** During working operations all bystanders must stay beyond the above shown distances from the implement.

SAFETY INSTRUCTIONS



Before using the implement you must be sure to know the main safety precautions; in fact many accidents are caused by not observing these rules.



Preparational and operational safety



Make sure that no person operates this machine unless they first, thoroughly read and study the operator instructions for this machine and understand all the safety precautions.



Keep all guards, shields and safety decals in place and proper working order before operating this machine.



Operate only with a tractor equipped with an approved Roll Over Protective System (ROPS) and always wear your seat-belt.



Operate only in daylight or good artificial light.



Only trained personnel can operate with the tractor and the implement.



Personal protection equipment, including safety shoes, safety glasses, hard hat and gloves are recommended during the different operations. Do not allow long hair, loose fitting clothing or jewelry to be around moving parts.



Do not leave the tractor seat until the engine is shut off, brakes locked and ignition key removed.



Do not allow riders on the machine or tractor at any time. No safe place for any rider.



Before starting to operate, be sure that the tractor's PTO is set to match the PTO requirements of the implement. The speed is indicated in this manual and on the implement.



Do not use different driveline . Always use type and size supplied by the manufacturer.



Make sure driveline spring-activated locking pin operate freely and are seated firmly in tractor PTO stub shaft groove.



For engaging or disengaging the tractor PTO, refer to your tractor manual.



Connect and disconnect PTO shaft only when tractor engine is shut off.



Keep hands, feet, hair and clothing away from moving parts.



To prevent injury by thrown objects DO NOT operate unless all personnel, livestock and pets are 20 m (65 ft) away.



The rotating parts of the machine have been designed and tested for rugged use. However they could fail upon impact with heavy solid objects. Such impact could cause the broken objects to be thrown outward at very high speed. To reduce the possibility of serious injury, or even death, never allow the rotating parts to contact such obstacles.



Stop the machine and tractor immediately upon striking an obstruction. Turn engine off, remove key, inspect and repair any damage before resuming operation.



No repairs or adjustments should be attempted while the machine is attached to a tractor that is turned on.



Working inclination of PTO driveline must not exceed 25° (see fig.1). Working angles greater will damage the PTO and serious personal injury could occur as well.

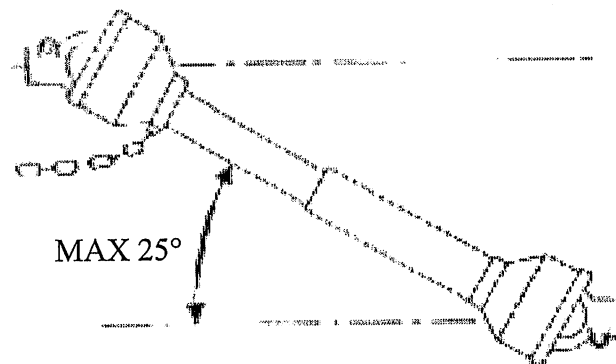


Fig. 1



Disengage tractor PTO and place transmission into neutral before attempting to start engine.

Transport safety



Plan your route to avoid heavy traffic.



For public roads, comply with state and local safety and movement rules.



Be sure that the implement is in the raised position for transport.



When you must drive, do not drink.



Pay attention for traffic when operating near or crossing roadways.



Reduce speed when transporting mounted implement to avoid bouncing and loss of steering control.



Pay attention when you turn curves or you go up and down on hills with the implement. Be sure that at least 25% of the tractor's weight is on the front wheels to maintain safe steering. Drive at a low speed.



NEVER allow riders on implement or tractor. Falling off can kill.



Be a safe and courteous driver.

Maintenance safety



Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.



For maintenance follow these common practises:

- keep service area clean;
- use adequate light for the job;
- be sure tools and electrical outlets are properly grounded;
- make sure there is plenty of ventilation.



Before making maintenance on this machine, drive to a level area, disengage the PTO, lower the machine, shut off the engine, set the brakes and remove the ignition key.



Keep all persons away from operator control area while performing maintenance.



ALWAYS use personal protection devices.



Periodically tighten all bolts, nuts and screws.



The implement manufacturers assumes no liability if replacement parts other than the original factory parts are used.



After servicing, be sure that all safety shields are re-installed properly.

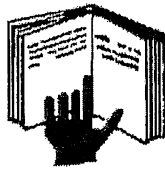


Be sure that all safety decals are installed, clean and in good condition.



If the machine is modified from the original design, no responsibility for the manufacturer can be claimed.

TECHNICAL SPECIFICATIONS



Implement of this manual is a HAY-TEDDER series HT2 and HT4.

SERIES HT2

MODEL	Rotors no.	Tines and arms no.	Working width cm./ft.	HP	Weight kg./lbs.	Working tyres
HT-2/310PT	2	12	310 / 10	10 - 15	183 / 403	16.6.50 x 8

SERIES HT4

MODEL	Rotors no.	Tines and arms no.	Working width cm./ft.	HP	Weight kg./lbs.	Working tyres
HT-4/520PTS	4	24	520 / 17	15 - 25	405 / 892	16.6.50 x 8
HT-4/520PTH	4	24	520 / 17	15 - 25	422 / 929	16.6.50 x 8

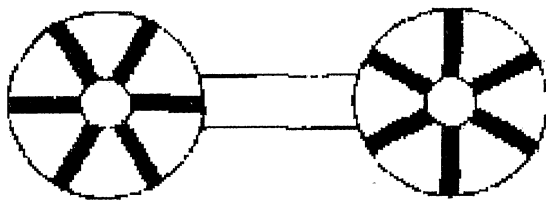
ASSEMBLY INSTRUCTIONS



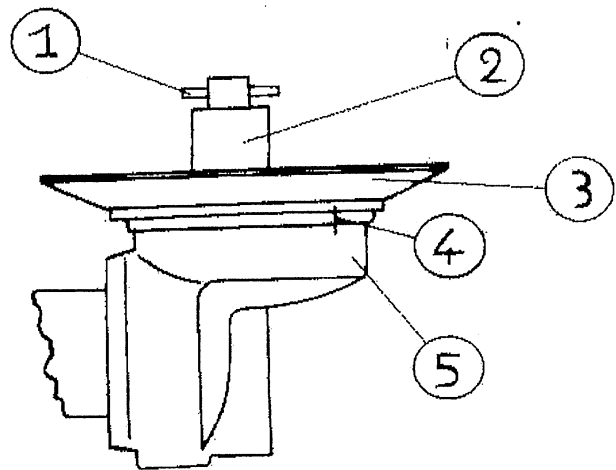
After removal from the shipping crate, with a hoist or forklift, securely position this main section in an upside down condition. This will allow you better access to assemble the wheels and axles onto the rotor shafts.

Check that the rotor flanges are in correct timing.

The position that a tine arm mounts to the rotor flange/plate should be pointing in the middle of two of the tine arm positions of the next rotor plate.



- 1 - Roll Pins;
- 2 - Discard spacer;
- 3 - Flange;
- 4 - Mark;
- 5 - Housing.



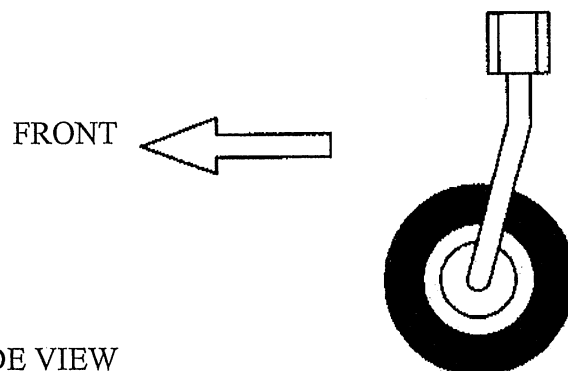
Then mark each of the rotor flanges and housings so that you can easily see if you have accidentally moved one out of timing during assembly.

Remove the roll pins from the rotor shaft (one rotor at a time). Remove and discard the spacer and then mount the axle & tire/wheel assy.

See axle arrangement page for correct positioning of these axles.

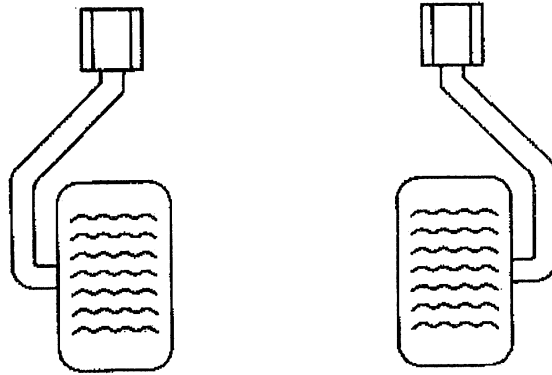
Note: it is suggested that you use a thread glue on the bolts and nuts during assembly to help keep them tight.

AXLE ARRANGEMENT



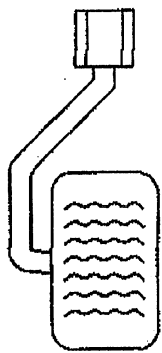
L.H. AXLE SIDE VIEW

2 ROTOR TEDDER

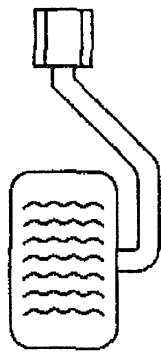


L.H. AXLE REAR VIEW - R.H. AXLE REAR VIEW

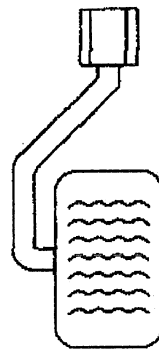
4 ROTOR TEDDER



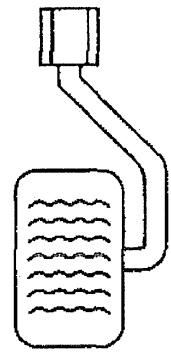
L.H. AXLE
REAR VIEW



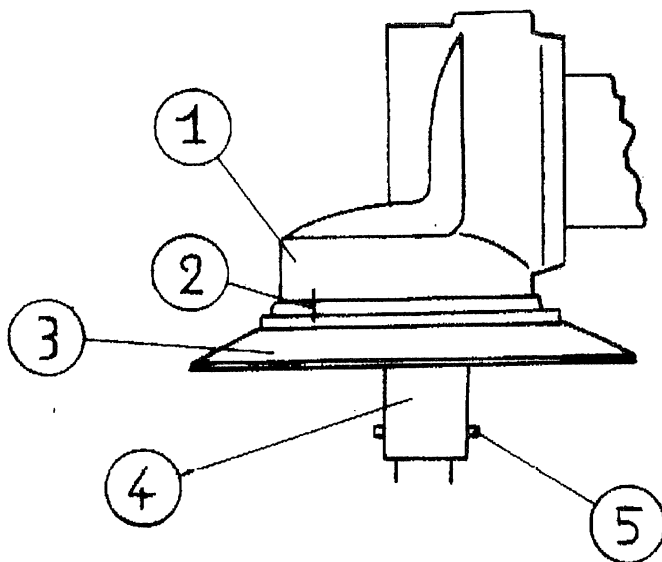
R.H. AXLE
REAR VIEW



L.H. AXLE
REAR VIEW



R.H. AXLE
REAR VIEW



- 1 - Housing;
- 2 - Marks;
- 3 - Flange;
- 4 - Wheel fork;
- 5 - Roll pins.

If you find a rotor out of time, this can be changed by removing the wheel axle from the rotor shaft and moving the flange/hub/gear assembly away from the housing about an inch to disengage it from its drive pinion.

Rotate the rotor assembly to the position needed and then slide it back into the housing to re-engage it with the pinion. When corrected re-attach the wheel-axle assy.

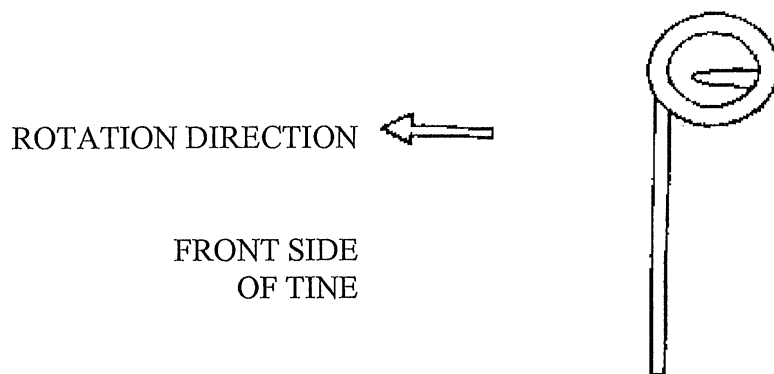
After all wheels/axles are mounted and you have re-checked the rotors for correct timing you can now return the machine to a secure upright position and mount the hitch or drawbar.

Then continue with the assembly process.

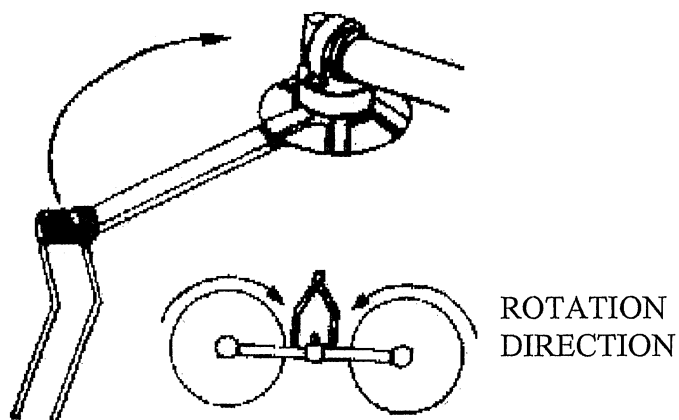
Tines and tine arms;

- a. Note the direction of rotation for each rotor.
-SEE DIRECTION OF ROTATION PAGE.
- b. The front side of the tine should face the direction of rotation of that rotor.

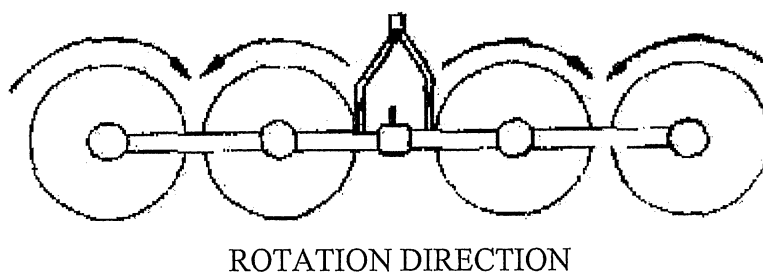
DIRECTION OF ROTATION TINES & ROTORS



2 ROTOR MODELS



4 ROTOR MODELS



MAIN CHECK LIST



Before connecting the machine to the tractor, read the following instructions:

Be sure the weight and power of the tractor is correct with the implement you want to connect. If you have any doubt, see the technical specifications.



- Ensure that all safety decals are properly installed and clean.
- Check oil in the gearboxes. If there is no oil, the gears can be damaged.
- Ensure that all safety shieldings are properly installed and in good condition.

ATTACHING THE MACHINE TO THE TRACTOR



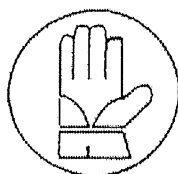
Before attaching the machine to the tractor you must be sure that the engine is shut off, brakes are locked and the ignition key is removed.

This operation must be made on a flat area as it is very dangerous.



Do not allow anyone between tractor and implement when the engine is running.

Follow these instructions:



Connect the hitch of the drawbar to the tractor using a hitch pin and the hair clip pin (see fig 1).

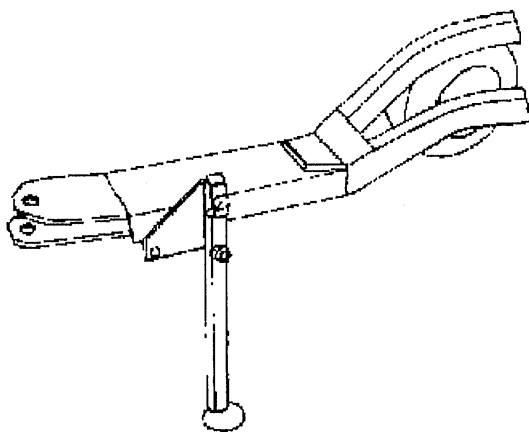


FIG. 1

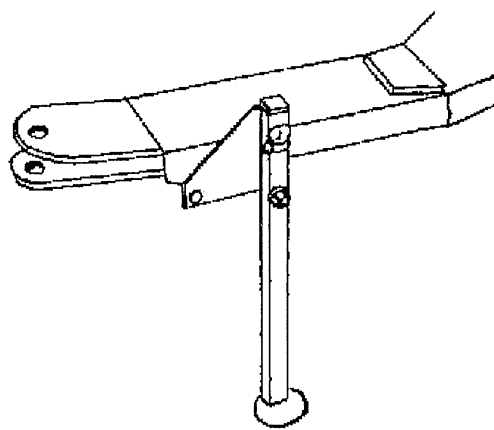


FIG. 2



Remove pin "A" from parking stand (see fig 2). Rotate the stand counter-clockwise to the horizontal position. Insert pin in the hole "B".



Connect PTO shaft to the tractor.



When attaching driveline yoke, it is very important that the spring activated locking collar turns freely and that it seats properly in the tractor PTO shaft groove.



For Model 520 Hydraulic folded, connect the hoses to the tractor hydraulic system

Shortening the PTO shaft

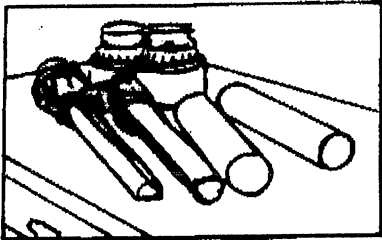
Due to the many different types of tractors, it may be necessary to shorten the PTO shaft.



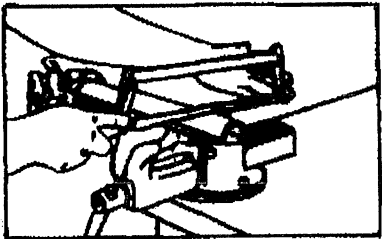
Always refer to the manual of the driveline's manufacturers. Read it carefully.



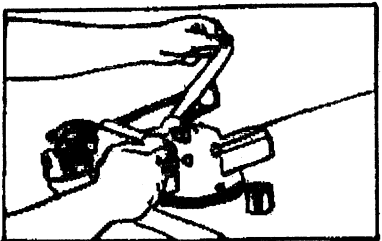
Listed below are some basic guidelines on performing this modification process. Determine how much length is to be removed, then:



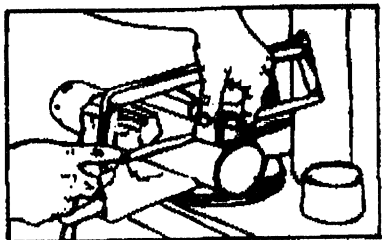
1) Remove plastic protection (both sections)



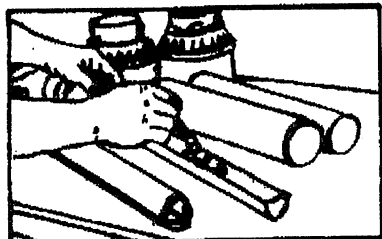
2) Cut the excess length of both tubes



3) Deburr and clean the saw-dust off ends of tubes.
Remove packing inside shaft tubing



4) Cut the plastic protection to the same length you have cut the joints



5) Put grease on the male joint section and reassemble protection



Do not use PTO shafts without proper shielding installed.



BEGINNING WORK



After completing all safety controls, you can start:

- If you have: HT2-310 (2 rotor machine)

Adjust the screw crank of the drawbar to lower the front tines just off the ground but still close enough to engage the crop.

- If you have: HT4-520 PTH (4 rotors-hydraulic fold machine)

From the tractor, activate the hyd. to put pressure on the lift cylinders and then pull the release cord to unlatch the cylinders and then release hydraulic pressure to lower the wings to the ground.

After the machine is lowered to working position adjust the screw crank of the drawbar to lower the front tines just off the ground but still close enough to engage the crop.

- If you have: HT4-520 PTS (4 rotors-spring-assist fold machine)

Dis-engage the locking handles of the spring lift assembly and manually lower each wing to the ground.

After the machine is lowered to working position adjust the screw crank of the drawbar to lower the front tines just off the ground but still close enough to engage the crop.



Keep yourself and others clear of the wings' rotor tines when dis-engaging the lock handles and lowering the wings to the ground.

- Reduce engine speed and engage the tractor PTO.

- Before moving forward, gradually increase the engine speed to develop full PTO speed.

- Enter the area to be worked with the tedder at full PTO speed and, if necessary to temporarily regulate engine speed during operation, increase or decrease the speed gradually.

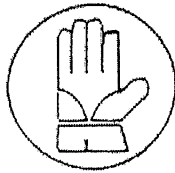


Proper working ground speed depends on the density of the crop to be worked. Never exceed 5 MPH (8 KMS).



Never attempt to engage power to the PTO while the wings are in a folded position. This could result in extreme damage to the machines' drive parts.

TRANSPORT



Always attach the implements hitch to the tractor before attempting any of the following transport procedures.

Model HT2-310, 2 rotor machine

Adjust the screw/crank on the drawbar to raise the front tines for ground clearance during transport.



Always make sure that the area around the machine is safely clear of people, animals and obstructions before raising or lowering the wings or operating the machine.

Model HT4-520 PTS, spring-assist fold machine

Fold the wings up until the spring loaded latches lock them in place.

Then adjust the regulating screw/crank on the drawbar to bring the front tines up off the ground for clearance in transport.

Model HT4-520 PTH, hydraulic fold machine

Connect the hydraulic hose to the tractor and activate the tractor hyd. valve to apply pressure on the cylinders. The wings will fold up and should lock in place.

Then adjust the regulating screw/crank on the drawbar to bring the front tines up off the ground for clearance in transport.

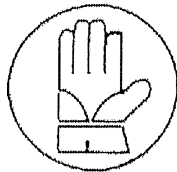


Always display slow moving vehicle (SMV) symbol on the rear. Display of this symbol will help the operator avoid accidents.

DISCONNECTING THE MACHINE FROM THE TRACTOR



Detaching of the machine must be made on a flat area and it is very dangerous. You must pay attention. Follow these instructions:



While remaining in the tractor seat, put the tractor PTO in neutral.



When the rotors are completely stopped, turn off the engine and set the parking brakes.



Remove the ignition key.



Descend from the tractor and disconnect the driveline.



If you have an hydraulic fold machine, disconnect hydraulic hoses from the tractor.



Engage the parking stand.

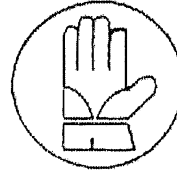


Disconnect the hitch of the drawbar from the tractor.



Before disconnecting the driveline, be sure the tractor PTO is in neutral and engine is off.

STORING OF THE MACHINE



As your machine is an investment and if remains unused for a long period, we suggest the following procedures:

1. Wash and dry the machine.
2. Check all the moving parts; for excessive wear replace the parts or contact your local dealer.
3. Check bolts and nuts for proper tightness.
4. Lubricate all the active parts like bearings, all grease zerks locations and any other pivot or wear points that may not have a fitting.
5. Lubricate all not-painted parts.
6. Store the machine in a clean and dry place under roof.

MAINTENANCE



For a long life of the machine and trouble free operation, regular program of maintenance is required.

The recommended times of maintenance are for normal use of the machine and can be varied according to the different conditions.



Always disengage tractor PTO before starting maintenance.



At the beginning of each day of use:

- Check the oil level in the central gearbox housing. You should maintain the level at half-full, which is equal to approximately 1 ¼ quarts of SAE 90 gear oil.
- Check tires.

Every 5 working hours:

- It is suggested that you grease the PTO shaft components.
- Be sure driveline shields are in place and in good condition.

Every 10 working hours:

- Clean and then lubricate all grease zerks locations and any other pivot or wear points that may not have a fitting.
- Check for loose bolts, nuts and tines. Tighten as needed.
- Clean the machine.

Every 15 working hours:

- For wing machines (HT4), remove the rubber shields at the folding joints, grease the double u-joints and re-install the shields.

Every 50 working hours:

- Inspect the tines for excessive wear and replace as needed.
- Observe performance of the torque limiter clutch out the PTO shaft. Contact your local dealer if service is needed.

After first 100 working hours:

- Drain oil from central gearbox and replace with new oil, SAE 90 gear oil.

200 working hours thereafter:

- Drain oil from central gearbox and replace with new oil, SAE 90 gear oil.



TOXICOLOGICAL INFORMATION ABOUT THE LUBRICANTS



	Types of Danger	Protective Equipment	Primary Intervention
SKIN	Possible irritation after prolonged contact	Gloves and/or lotion barrier	Wash with soap & water
EYES	Possible irritation on contact	Protective goggles	Rinse thoroughly w/ running water
INHALATION	Possible irritation after prolonged exposure	Maintain an oil mist level of 5mg/m ³ between TLV-TWA limits	Expose to fresh air and call medical assist immediately
INGESTION	Such possibilities not considered		DO NOT provoke vomiting; call medical assist immediately

LIMITED WARRANTY POLICY



SOVEMA S.p.A., Manufacturer of quality machinery, guarantees new Sovema machinery from 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 recommendations set forth in SOVEMA's operator manual. SOVEMA's liability for any defect of accepted goods shall be limited to replacing them, or as SOVEMA shall elect.

The original purchaser will qualify for the SOVEMA warranty only after they have completed the warranty card in full and forwarded it to SOVEMA S.p.A. Italy or any SOVEMA branch.

SOVEMA's obligation shall terminate 12 (twelve) months after the date of purchase of the product by the original purchaser. This warranty cannot be assigned or transferred to anyone unless SOVEMA's consent in writing has first been obtained. All warranty claims must be forwarded to SOVEMA S.p.A. Italy or a SOVEMA branch within 8 (eight) days after occurrence.

The original purchaser will be responsible for and bear the costs of:

A/ Normal maintenance such as greasing, maintenance of oil levels, minor adjustments, etc.

B/ Transportation of any kind of, any SOVEMA product to and from the place where warranty work is performed.

This warranty shall not apply to any machine which has been repaired or altered in any way outside the SOVEMA factory which affects its stability or reliability, nor which has been subject to misuse, negligence or accident, nor to any machine that has not been operated in accordance with SOVEMA's printed instructions, or operated beyond the company recommended capacity as per machine.

This warranty shall not be applicable to items which are subject to the warranties of their respective manufacturers. Such items would include but would not be limited to clutches, universal joints, knives, hydraulic components, bearings, tires, belts and other trade accessories.

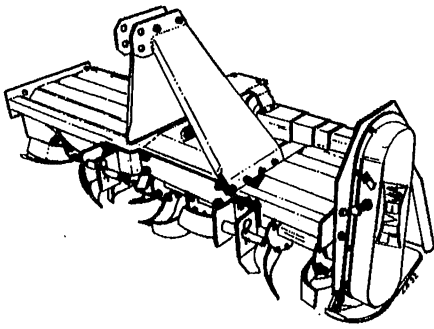
This warranty shall not be applicable to items defined as normal wearing items. Such items would include but would not be limited to belts, discs, knives, tines stone guards, tires, slip clutches, pitman shaft, swath sticks, blades or tine holders.

The judgement of SOVEMA S.p.A. in all cases of claims under this warranty shall be final and conclusiv and the original purchaser agrees to accept its decisions about all questions as to defects and/or to the exchange of any part or parts.

No Agent, Employee or Representative of SOVEMA has any authority to bind SOVEMA to any affirmation, representation or warranty, concerning its machinery except as specifically set forth.

SOVEMA shall not be liable for special or consequential damages of any kind caused by any SOVEMA product.

SOVEMA PRODUCT LINE SHEET

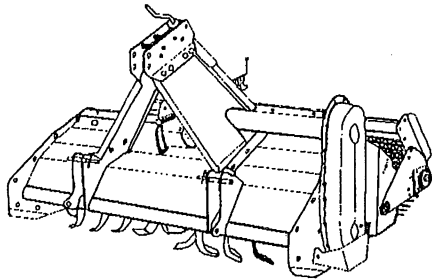
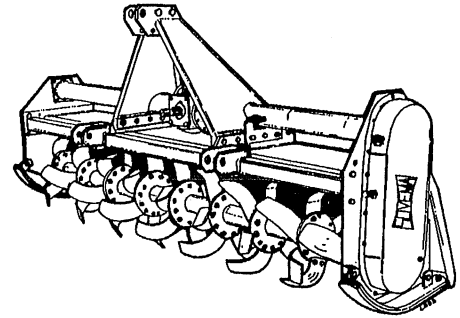


SIDE SHIFT ROTARY TILLERS

- 15 different models;
- for tractors from 12 to 70 HP
- working width from 80 to 200 cm.

FIXED ROTARY TILLERS

- over 45 different models;
- for tractors from 15 to 130 HP
- working width from 80 to 300 cm.

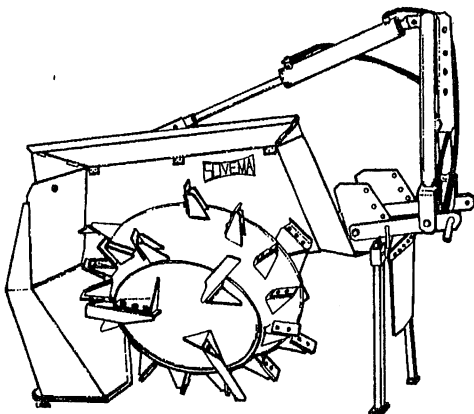
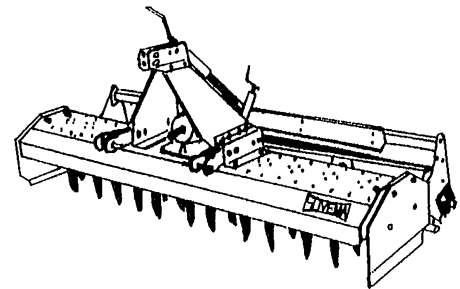


STONE BURIERS

- 6 different models;
- for tractors from 35 to 90 HP
- working width from 100 to 200 cm.

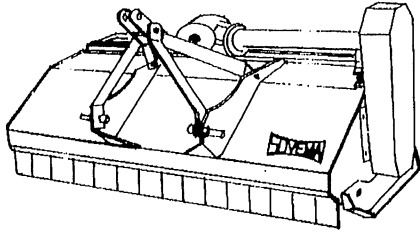
ROTARY HARROWS

- 13 different models;
- for tractors from 25 to 150 HP
- working width from 110 to 500 cm.



ROTARY DITCHERS

- 10 different models;
- for tractors from 40 to 130 HP
- working depth from 45 to 110 cm.

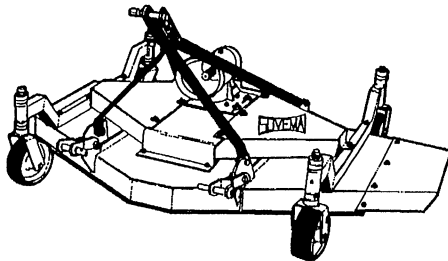
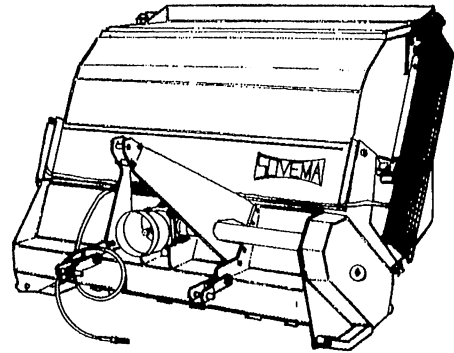


FLAIL MOWERS - SHREDDERS

- 35 different models;
- for tractors from 15 to 120 HP
- working width from 100 to 470 cm.

MOWERS COLLECTOR

- 6 different models;
- for tractors from 30 to 60 HP
- working width from 120 to 180 cm.
- Available with high discharge and low discharge

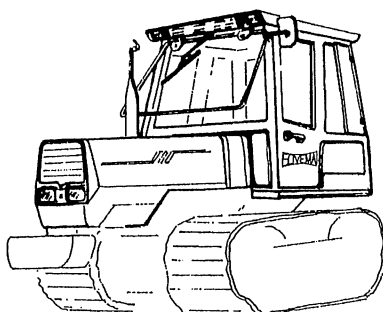
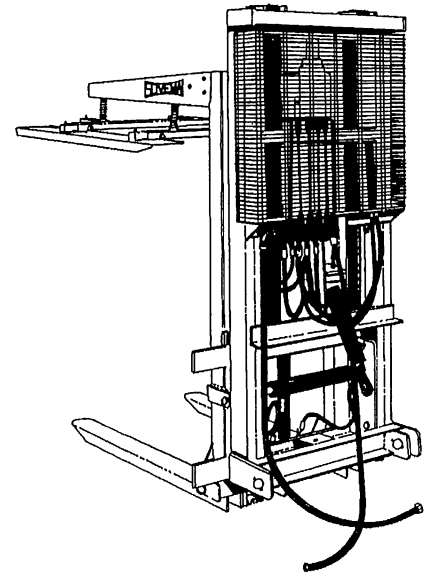


FINISHING MOWERS

- 14 different models;
- for tractors from 15 to 70 HP
- working width from 100 to 300 cm.

HYDRAULIC FORK-LIFTS

- 11 different models;
- for tractors up to 60 HP
- lifting capacity from 1.300 Kg. to 2.000 Kg.



TRACTOR CABS

- over twenty models of cabs for eleven manufacturer of tractors;
- for tractors with wheels or crawlers
- all models available with heating and/or air conditioned

