HYDRAULIC FEEDER AND FEED CHUTE
HF 160

It is very important to read this instruction handbook thoroughly before using the machine!
1. GENERAL SAFETY

**IMPORTANT!** Do not operate this machine until you have read and understood the manual page by page. The owner of this machine is responsible for instructing all operators and support personnel in the operation and safety precautions of this chipper. Proper training prior to operating the chipper is obligatory.

- Failure to obey the warnings on the chipper and its accessories or in the operator's manual will result in personal injury and / or death and / or equipment damage.
- Inform everyone who works with the chipper about the risks and how they can avoid accidents.
- Do not let children or untrained persons operate the chipper.
- Ensure that the working place is clear of any bystander within a minimum risk zone of 50 ft. (15 meter).
- Always have the chipper mounted on the 3-point hitch of the tractor. Otherwise the chipper will tip over.
- Disengage the PTO, cut the engine and remove the keys before any maintenance.
- Always lock the disk with the lock bolt before and during any maintenance.
- Do not ever stand between the tractor and the chipper, not even when mounting them together.
- Beware of the rotating knives. Risk of cutting injury!
- Do not ever reach into the feed chute.
- Check that the covers of the PTO shaft are in their place and the rolling trigger chains are fastened.
- Never leave the chipper running and unattended.
- Use only original parts replacements. Do not make any modifications to the chipper or its accessories.
- Check that all moving parts are in place and in good working condition. Also check that all shields and guards are in place.
- Do not operate the chipper when fatigued or under the influence of alcohol / drugs.
- Safety goggles, earmuffs and a hard hat are obligatory when chipping. Use respirator mask, if necessary.
- Do not wear loose clothing, loose sleeves, scarves or long uncovered hair around moving parts of machinery. Also avoid gloves of poor condition or with loose fitting, because they might get caught in the branches.
Check the material before you feed it. The material must be free from nails, stones and all other materials that are not wood, paper or plastic. Feeding wire and barbed wire into the chipper is very dangerous as it might pull in the operator.

Point the discharge pipe away from windows, doorways and other areas where people or animals may be.

Keep the work area clean so there is nothing to trip over.

Point the discharge downwind to prevent dust or chips from blowing onto the operator.

If a wood jams inside the chipper, disengage the PTO, cut the engine, remove the keys and wait for all movements to stop before reaching inside the feed chute.

Be very careful when working indoors. Protect yourself against possible hazards like exhaust gas by sufficient ventilation, dust that can catch fire by cleaning the surroundings regularly, at least every two hours.

2. SAFETY INSTRUCTIONS FOR THE HYDRAULIC FEEDER AND FEED CHUTE

IMPORTANT! Always also read the general safety instructions.

IMPORTANT! Do not ever put any part of your body inside the feed chute!

Prior to operating get familiar with the function and controls of the machine. All functions must be in blameless condition.

Test the stop function.

Before starting up, check that there is no debris or foreign objects in the feed chute.

Do not work in front of the feed chute opening! Stand on the left side of the chute when feeding, as the feed roller might jerk the wood up or to the right.

When checking malfunction, all controls must be in "off" or in "stop" position.

Let go of the wood when the feed roller or the knives get hold of it. To feed short pieces, push them in with longer ones.
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SPARE PARTS

03511100 ..... HF 160 HYDRAULIC FEED CHUTE .............................. 20
03511570 ..... HF 160 HYDRAULICS ............................................. 22

WHEN ORDERING SPARE PARTS, PLEASE INDICATE MACHINES TYPE FROM THE MACHINE PLATE, SPARE-_PARTS ORDER NUMBER, DESCRIPTION AND QUANTITY REQUIRED.

EXAMPLE: HF 160, 56526031, Hose assembly, 1 pcs.
2.1. PLATES AND STICKERS FOR HYDRAULIC FEEDER AND FEED CHUTE

Do not remove any plate or sticker by the manufacturer on the chipper or the accessories. Replace missing ones immediately. You can order them as a spare parts.
PLATES AND STICKERS

1. 

2. 

3. 

---DANGER---

NEVER REACH INSIDE THE FEED CHUTE WHEN THE TRACTOR IS RUNNING.

TO FEED SHORT PIECES, PUSH THEM IN WITH LONGER PIECES.

IF THE FEED ROLLER BECOMES TANGLED, REVERSE THE FEED UNTIL THE MATERIAL COMES LOOSE, THEN TURN THE TRACTOR OFF AND REMOVE THE TANGLE.

DO NOT WORK IN FRONT OF THE FEED CHUTE; STAND ON THE LEFT SIDE OF THE CHUTE WHEN YOU ARE FEEDING THE CHIPPER. THE FEED ROLLER MIGHT JERK THE TREE UP OR TO THE RIGHT.

IF A TREE JAMS INSIDE THE FEED CHUTE, TURN THE TRACTOR OFF AND WAIT FOR ALL MOVEMENT TO STOP BEFORE REACHING INSIDE THE FEED CHUTE.

1 pc 41014830

4. 

SAFETY BAR
PUSH FORWARD TO REVERSE FEED

2 pc 41014220

5. 

6. 

2 pc 41014270

2 pc 40605214

7. 

max. Hydr. Pressure 175 bar

1 pc 40605214
<table>
<thead>
<tr>
<th>Part</th>
<th>Order no.</th>
<th>Description</th>
<th>Remarks</th>
<th>Qty.</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>40142080</td>
<td>Safety goggles, earmuffs and a hard hat must be used when operating the chipper</td>
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<td>2</td>
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<tr>
<td>2.</td>
<td>41014120</td>
<td>Beware of rotation roller</td>
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<td>3.</td>
<td>41014830</td>
<td>DANGER! Warnings</td>
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<td>4.</td>
<td>41014220</td>
<td>Safety bar / control bar push forward to reverse feed</td>
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<td>2</td>
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<tr>
<td>5.</td>
<td>41014270</td>
<td>Lifting point</td>
<td></td>
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<tr>
<td>6.</td>
<td>40605214</td>
<td>Manufacturer’s plate</td>
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<td>7.</td>
<td>40141657</td>
<td>Max. Hydr. Pressure 175 bar</td>
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</tbody>
</table>
3. INTRODUCTION

3.1. FIELD OF APPLICATION
Feeding difficult material becomes easier and more effective when using the hydraulic feeder and feed chute HF160. Also the chip quality improves due to constant feeding speed and is less dependent on knife sharpness.

The HF160 can be driven by the tractor hydraulics or the independent hydraulic unit HD11 (accessory).

You can easily replace a mechanical feed chute or a drop spout with the HF160 feeder and feed chute.

4. MAIN COMPONENTS

1. Safety / control bar
2. Control valve
3. Flow regulator
4. Hydraulic motor
5. Feed roller
6. Frame
7. Feed chute
8. Pawl lever

Fig. 1. HF160 main components.
Fig. 2. HF160 Dimensions.
6. PREPARATIONS FOR START UP

6.1. LIFTING THE MACHINE OR THE MACHINE PART

**IMPORTANT!**
Prior to every procedure always recall the general safety instructions given in chapter 1.

**DANGER!**
Make sure that nobody will enter the lifting zone.

**CAUTION!**
Always check before lifting that the lifting equipment is in order and use the marked lifting points, whenever possible. Always use proper lifting equipment and check for its sufficient lifting capacity.

Know the weight of the load and check that the performance of the lifting equipment will not be exceeded.

Check the hoisting cables and chains regularly. Mark any discarded cable and remove it immediately.

![HF160 lifting points](image)

--- 1 1 ---

6.2. MOUNTING AND CONNECTING

**CAUTION!**
The HF 160 is designed for open center hydraulics only. For closed hydraulic systems the control valve has to be changed.

Maximum hydraulic pressure 2500 PSI (175 bar)

1. Mount the feeder to the chipper with a hinge pin and, from the other side, with two M12x40 bolts and M12 nuts, fig.4.
2. Fasten the feed chute to the feeder frame with two hinge bolts (M8x110 bolts and M8 lock nuts) and lock it into working position, fig.5.

3. Fasten the control rod to the safety / control bar, refer to Spare parts, page 3

4. Connect the hydraulic hoses by connecting the pressure hose (marked “IN”) to the hydraulics of the tractor. Then connect the return hose (marked “OUT”) either to the return hose hook-up of the double-acting hydraulic valve or, in a single acting system, directly to the oil reservoir. We recommend an oil filter in the return line, fig.6.
7. SAFETY OPERATION

**IMPORTANT!** Prior to every procedure always recall the general safety instructions given in chapter 1.

Feeding wire and barbed wire into the chipper might pull in the operator. Do not reach inside the feed chute until all movements have stopped!

Pour water down the feed chute, if the chipper starts smoking.

If a wood jams inside the chipper, cut the engine, remove the keys and wait for all movements to stop before reaching inside the feed chute.

Look out for flying debris!

Before feeding, make sure that the material is free from stones, nails and all other materials that are not wood, paper or plastic. Also avoid chipping woods that are frozen solid, as they will not self-feed well.

Do not stand in front of the feed chute when feeding. The feed roller might jerk the wood up or to the right.

7.1. CONTROLS

The safety / control bar of HF160 has 3 positions:

1. **FEEDING**
   The feed roller rotates inwards and the wood can be fed. The safety / control bar will lock in this position.

2. **STOP**
   The feed roller is not rotating and the feeding is stopped. The safety / control bar will lock in this position.

3. **REVERSE**
   The feed roller rotates outwards and the wood is released from the feeder.

7.2. OPERATION

1. Ensure that the feed chute is empty. Engage the hydraulics.

2. Check the material to be fed.

3. If needed, adjust the rotation speed of the feed roller to match the speed of the disk, refer to chapter 7.3.

4. Put the safety / control bar into FEEDING position. The feed roller will start rotating when there is no air left in the hydraulic circuit.

5. Push the wood into the feed chute. **IMPORTANT!** Let go of the wood as soon as the feed roller gets hold of it.

   - When the tractor power is insufficient for chipping large wood, the tractor rpm’s might decrease too much. Interrupt the feeding by pushing the safety / control bar to STOP position. When the rpm’s have increased enough, continue feeding by pushing the safety / control bar into FEEDING position.

   - If you have to remove the wood from the feed chute during chipping, push the safety / control bar to REVERSE position and keep it there until the feed roller release the wood. Let go of the safety / control bar, which automatically returns to STOP position.
DANGER! Do not ever reach inside the feed chute!

- In case of tangle, reverse the feeding until the material comes loose and then disengage the PTO. Cut the engine, remove the keys and remove the tangle.

Check every ½ hour for overheating oil especially, if the tractor has a very small hydraulic oil tank. Let the tractor cool off, if the motor is hot.

7.3. ADJUSTING THE FEEDING SPEED

To prevent valve damage, stop the feed roller rotation before adjusting the feeding speed.

- Use the control valve to adjust the rotation speed of the feed roller to match the speed of the disk. Turning counter-clockwise increases the feed roller speed, fig.8.

Fig. 8.
- Test the speed. It is correct, when the wood does not push against the disk or the spikes of the feed roller does not noticeably slow down the feeding of the wood.
8. SAFETY MAINTENANCE AND SERVICE

Prior to any procedure also recall the general safety instructions in chapter 1.
Use only original spare parts.
Observe common safety practice.

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**WARNING!**
Before performing lubrication work on any equipment, consult the manufacturer’s instruction manual and follow the recommended procedures.

Ensure that the chipper is on a firm and level surface.

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**WARNING!**
Before lubricating the machine, shut down the engine and stop the machine.

When handling the knives, use protective gloves.

Do not ever stand between the tractor and the chipper. Modifications of chipper are prohibited.

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**DANGER!**
Pressurized oil can be hazardous. Pressurized oil jet can penetrate skin and cause serious injuries or death.

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**CAUTION!**
Occasional skin exposure with oil is not dangerous. If though you can not prevent long–time exposure use protective gloves and other protective clothing.

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**WARNING!**
Keep flammable material away from heat, sparks and open fire.
9. MAINTENANCE

Prior to every procedure always recall the general safety instructions given in chapter 1.

- The bearings of the feed rollers are permanently lubricated and do not need any further service.
- Grease the glide bearings of the roll holder shaft once a week.

![Fig. 9. Greasing the roll holder's shaft bearings.]

- Check and tighten possibly loose screws and nuts often.
- Check the condition of hydraulic hoses and the tightness of connections once a year.
- Take care that the oil in the hydraulic system is clean. Dirt may damage valves and hydraulic motors.

![IMPORTANT! Too much grease will cause heat, which reduces lubrication.]
9.1. MAINTENANCE AND LUBRICATION SCHEDULE

<table>
<thead>
<tr>
<th>GENERAL</th>
<th>EVERY 8 HOURS</th>
<th>EVERY 20 HOURS</th>
<th>EVERY 40 HOURS</th>
<th>EVERY 2000 HOURS OR 1 YEAR</th>
<th>PROCEDURE</th>
<th>SEE PAGE</th>
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</thead>
<tbody>
<tr>
<td>Sliding bearings of feed roller fastener shaft</td>
<td></td>
<td></td>
<td>X</td>
<td>Grease once a week.</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Hydraulic hoses and hose connections</td>
<td></td>
<td></td>
<td>X</td>
<td>Check hose condition and tightness of connections once a year.</td>
<td>(Spare parts)</td>
<td></td>
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<tr>
<td>Bolts and nuts</td>
<td>X</td>
<td></td>
<td></td>
<td>Check and tighten.</td>
<td>(Spare parts)</td>
<td></td>
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</table>

10. TROUBLE SHOOTING

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>PROPABLE CAUSES</th>
<th>SOLUTIONS</th>
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<tbody>
<tr>
<td>OVERHEATING KNIVES / OVERHEATING DISK SIDES</td>
<td>TOO HIGH ROTATING SPEED OF FEED ROLLER</td>
<td>ADJUST TO CORRECT FEEDING SPEED</td>
</tr>
<tr>
<td>FEEDER NOT WORKING</td>
<td>LOOSE HOSES</td>
<td>CONNECT HOSES</td>
</tr>
<tr>
<td></td>
<td>DIRT IN THE QUICK COUPLING</td>
<td>CLEAN WITH PRESSURISED AIR OR REPLACE, IF NEEDED</td>
</tr>
<tr>
<td></td>
<td>WRONG QUICK COUPLINGS</td>
<td>REPLACE WITH CORRECT SPARE PARTS, REFER TO SPARE PARTS</td>
</tr>
<tr>
<td></td>
<td>LOOSE QUICK COUPLING</td>
<td>CHECK CONNECTION</td>
</tr>
<tr>
<td></td>
<td>CLOGGED CHECK VALVE OF THE RETURN HOSE</td>
<td>CLEAN OR REPLACE</td>
</tr>
<tr>
<td></td>
<td>NO OIL IN THE TRACTOR</td>
<td>ADD OIL</td>
</tr>
<tr>
<td></td>
<td>INCORRECT PRESSURE IN TRACTOR OR FEEDER</td>
<td>ADJUST TO CORRECT PRESSURE</td>
</tr>
<tr>
<td>TANGLING MATERIAL</td>
<td>FEED ROLLER ASKEW</td>
<td>CHECK CLEARANCE BETWEEN ROLLER AND SWEEPER</td>
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</table>
# 11. TECHNICAL DATA

<table>
<thead>
<tr>
<th>Feed roller</th>
<th>1 pcs. ø10” (260 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. tree diameter</td>
<td>6,1/4” (160 mm)</td>
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<tr>
<td>Hydraulic motor</td>
<td>1 pcs. 24 in³ (400 cm³)</td>
</tr>
<tr>
<td>Oil demand, P.T.O speed 540 rpm.</td>
<td>min. 3 US gal/min. (15 l/min), max 10 gal/min.</td>
</tr>
<tr>
<td>Max. hydraulic pressure</td>
<td>2538 PSI (175 bar)</td>
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<tr>
<td>Feed chute opening size</td>
<td>37” x 36” (940mm x 910mm)</td>
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<tr>
<td>Weight:</td>
<td></td>
</tr>
<tr>
<td>HF 160 total weight</td>
<td>352 lb. (160 kg)</td>
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<tr>
<td>Feeder</td>
<td>230 lb. (104 kg)</td>
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<tr>
<td>Feed chute</td>
<td>123 lb. (56 kg)</td>
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03512800  . HF 160 Hydraulic feeder and feeding chute
<table>
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<tr>
<th>Part</th>
<th>Order no.</th>
<th>Description</th>
<th>Remarks</th>
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<td>1</td>
<td>03512830</td>
<td>Feeder frame</td>
<td></td>
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<td>2</td>
<td>33341967</td>
<td>Roller holder</td>
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<td>3</td>
<td>54561022</td>
<td>Slide bearing</td>
<td></td>
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<td>4</td>
<td>33342049</td>
<td>Feed roller</td>
<td></td>
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<td>5</td>
<td>43313048</td>
<td>Roll fastener</td>
<td></td>
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<td>6</td>
<td>54511340</td>
<td>Splined ball bearing</td>
<td></td>
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<td>52230067</td>
<td>Circlip</td>
<td>35x2,5 DIN471</td>
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<td>52840204</td>
<td>Spring pin</td>
<td>5x40 DIN1481</td>
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<td>Spring</td>
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<td>Valve base plate</td>
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<td>20</td>
<td>43512640</td>
<td>Handle (Safety / control bar)</td>
<td>Left</td>
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<td>Washer</td>
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<td>Rubber fastener</td>
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<td>1.</td>
<td>56526031</td>
<td>Hose assembly</td>
<td>K1/2&quot;S L= 0,4m</td>
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<td>2.</td>
<td>56526098</td>
<td>Hose assembly</td>
<td>K1/2&quot;S L= 0,7m (contains parts 5, 13)</td>
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<td>3.</td>
<td>03511600</td>
<td>Hose assembly</td>
<td>2100+ male fast coupling+ counter valve</td>
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<td>4.</td>
<td>03512870</td>
<td>Hose assembly</td>
<td>2200+ male fast coupling</td>
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<td>5.</td>
<td>52432010</td>
<td>Double fitting</td>
<td>R3/8−1/2</td>
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<td>6.</td>
<td>52442175</td>
<td>Angle fitting</td>
<td>R1/2 04510−08 90°</td>
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<td>7.</td>
<td>52435773</td>
<td>Fitting</td>
<td>R1/2 04010−08</td>
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<td>8.</td>
<td>52443686</td>
<td>T-fitting</td>
<td>R1/2 702−8</td>
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<td>9.</td>
<td>52451002</td>
<td>Angle fitting</td>
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<td>10.</td>
<td>52435930</td>
<td>Fitting</td>
<td>UK R3/8−SK R1/2</td>
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<td>11.</td>
<td>56050156</td>
<td>Valve</td>
<td>For open system</td>
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<td>12.</td>
<td>56050164</td>
<td>Valve</td>
<td>For closed system</td>
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<td>13.</td>
<td>56070832</td>
<td>Flow control valve</td>
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<td>14.</td>
<td>52390200</td>
<td>Steel−rubber ring</td>
<td>21,5 x 28,7 x 2,5</td>
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<td>15.</td>
<td>56001951</td>
<td>Hydraulic motor</td>
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<td>16.</td>
<td>56001951</td>
<td>Seal kit for hydraulic motor</td>
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<td>17.</td>
<td>57609125</td>
<td>Spline</td>
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LIMITED WARRANTY

Valby products are warranted to be free from defects in materials and workmanship for 12 months from the date of purchase, or one month from in-service, whichever is longer. The warranty covers parts replacement only. The free replacement of parts is exclusive. The manufacturer is not liable for any incidental or consequential damages. No labor costs are included. This warranty does not cover defects resulting from:
* misuse of the product
* inadequate maintenance or
* modifications of the product.

The warranty is effective only, if the lower portion of this card is completed and returned to the importer within 14 days of receipt of the product.

IMPORTANT: Do not operate your machine without reading the operators manual! If the operators manual was lost, a new manual can be obtained from importer (write address below or call 607-589-6160).

NORTHEAST IMPLEMENT CORP.
476 Halsey Valley Road
SPENCER, NEW YORK 14883
Date of delivery ___ / ___ 20 ___
Dealer: ___________________________________________
Dealer's address: ___________________________________
Tel: _____________________________________________
Customer: _________________________________________
Customer's address: ________________________________
Tel: _____________________________________________
Product: _________________________________________
Serial No: _______________________________________
Notes: ___________________________________________

NORMET CORPORATION
Ahmolanla 6
74510 Peltosalmi
Finland
Tel. +358-17-83241
Telefax +358-17-823606

Return to the manufacturer:
Date of delivery ___ / ___ 20 ___
Dealer: ___________________________________________
Dealer's address: ___________________________________
Tel: _____________________________________________
Customer: _________________________________________
Customer's address: ________________________________
Tel: _____________________________________________
Product: _________________________________________
Serial No: _______________________________________
Notes: ___________________________________________

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