OPERATOR'S MANUAL

WOOD CHIPPER

Model: WC8H

CAUTION: Read Manual Thoroughly Before Operation

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Introduction

CONGRATULATIONS! You have just purchased the MDLpowerup WC-Series Wood Chipper, the strongest, safest and the most compact PTO wood chipper available. We have compiled this owner's manual to help you understand and appreciate your chipper. By taking a few minutes to read this manual and understand the maintenance instructions, it will give you better performance and extend the life of your chipper. Read the manual before operating the chipper.

Set-up Instructions

1. Your chipper does need to be set up prior to installation. It arrives in a steel crate that can be dismantled in minutes. See Assembly Instructions The in-feed bin and discharge chute are shipped with the unit and are located in the bottom of the steel crate.

2. Visually inspect the in-feed bin, and the fly wheel before attaching to tractor, and applying power to ensure that nothing is in the chipper head. If the chipper deflector or any of the guards have been removed for shipping, be sure to replace them properly before use.

3. The PTO (Drive-Line) is also shipped with the unit and is located in the bottom of the steel crate.

4. When mounting, keep the chipper as close to the tractor as possible.

5. Important- Make sure that the PTO shaft is sized properly.

6. While in use, keep the PTO shaft as straight as possible. No more than 15 degrees from level is acceptable.

7. Do not operate the chipper without the chip deflectors, and or drive belt cover properly in place.

8. Read and understand all assembly instructions prior to assembly.

Assembly Instructions

Before you get started there are a few tools you will need:

- 13mm Wrench (same as 1/2”)
- 16mm Wrench (same as 5/8)
- Adjustable Wrench
- 19mm Wrench or Socket (same as 3/4”)

Assembly Time 2.5 Hours

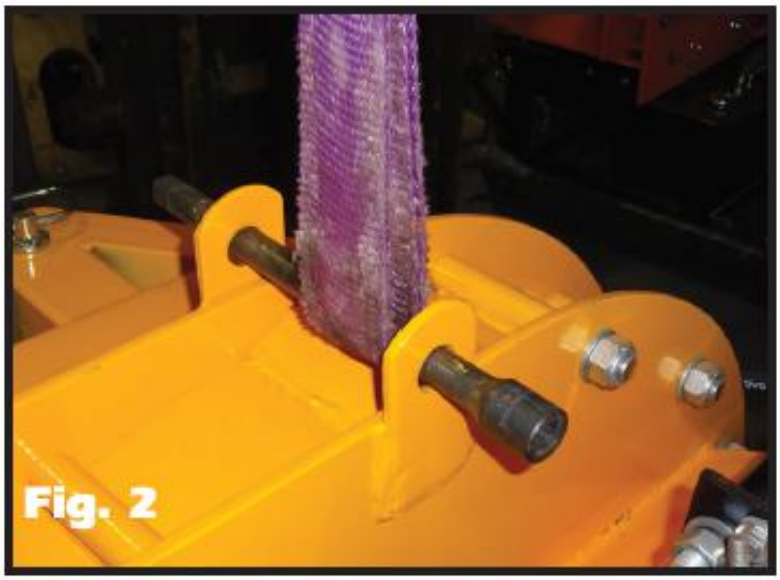
1. Remove the plastic wrapping from the crate and inspect the chipper for any obvious shipping damage.
2. Remove and unwrap all of the chipper components that are packaged with the crate.
3. Remove the cardboard box from the in-feed bin; this box contains, the hardware packet, and any additional items you may have purchased such as extra chipper knives. [Fig. 1a].

Fig 1a

4. Open the hardware packet and organize the enclosed fasteners into separate piles.
5. There is a picture of the hardware on pg. **6** of this manual that you can use as a guide to ensure that you use the correct hardware in the upcoming steps.
6. Remove the four bolts that secure the top of the crate frame.
7. Remove the top of the crate, and set it aside.
8. Located on the bottom of the crate is a cross bar that secures the chipper to the frame. Loosen the two bolts that hold this bar in place, and drive the bar forward with a dead blow hammer. [Fig. 1b].

Assembly Instructions

9. Locate the lift point on the top of the chipper. This is the balance point, and the only point the chipper should be lifted from.
10. Using a chain or strap that is rated strong enough to lift the weight of the chipper, lift the chipper out of the crate. [Fig. 2]



11. If you do not have a front end loader, attach the three point hitch of your tractor to the chipper to lift the chipper out of the crate.

Assembly Instructions

12. Measure the distance from the PTO spline of your tractor to the ground [Fig. 3]. Write down this measurement here _____. You will need it for the next step.

Fig. 3

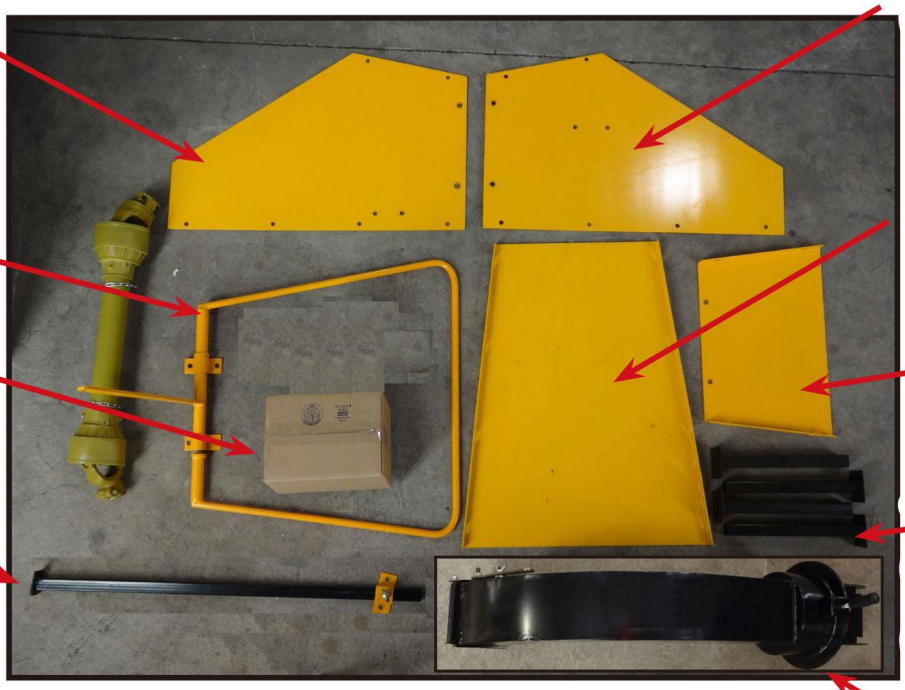
13. While the chipper is raised in the air, attach the four adjustable base legs so that when the chipper is on the ground, the spline of the chipper is slightly lower than the spline of your tractor. [Fig. 4]. The shaft does not need to be perfectly horizontal, but it is recommended that the slope of the PTO shaft is no more than 15 degrees. [Fig. 5]

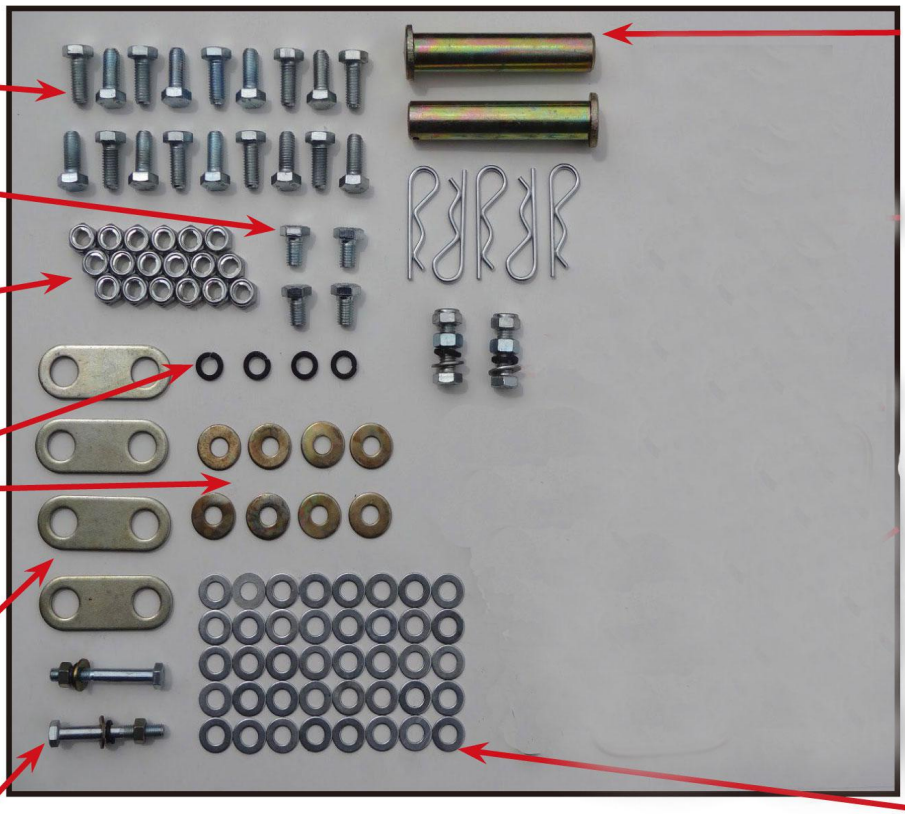
Fig. 4

Fig. 5

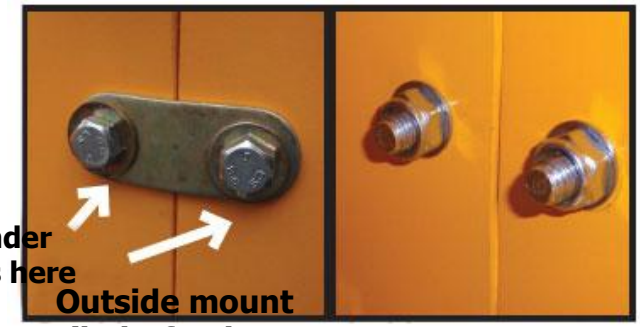
At this time, carefully lower the chipper to the ground, and remove the chain or strap.

Assembly Instructions



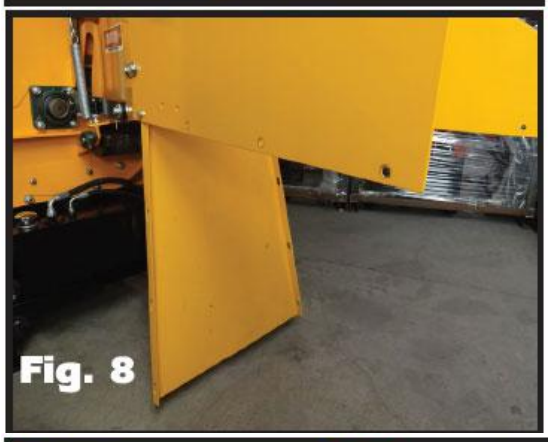


Assembly Instructions



[Above] View of proper assembly of in-feed bin using 2 hole straps. All other bolts are typically assembled as follows; bolt- washer panel washer-lock-nut.

1. Attach the left panel of the in-feed bin using two of the 2-hole straps and two M10x-25mm bolts. The straps will bend when tightened down. This panel can be identified by the two small holes on the bottom of the panel where the fasteners for the support leg attach. [Fig. 6]
2. Attach the right side panel in the same manor. This panel can be identified by the two fastener holes in the middle of the panel where the hydraulic control valve mounts. [Fig. 7]
3. Attach the bottom panel of the in-feed bin, by first inserting the two M10x25 bolts through the side panels in the two holes closest to the feed roller. Do not tighten these bolts yet, and allow the panel to hang vertically. [Fig. 8]
4. Raise the bottom panel in place and insert two M10x25 bolts through the side panel in the two holes closest to the end of the panel. [Fig. 9].
5. Install the remaining four M10x25 bolts in the remaining four holes in the lower panel.



Assembly Instructions

6. Before tightening the bolts, ensure that the lower panel is slightly higher than the in-feed bin. This will prevent material from hanging up where the two pieces join together. [Fig. 10]

Fig. 10

7. Attach the top panel of the in-feed bin by installing the two M10x25mm bolts in the two forward holes of the panel. [Fig. 11]

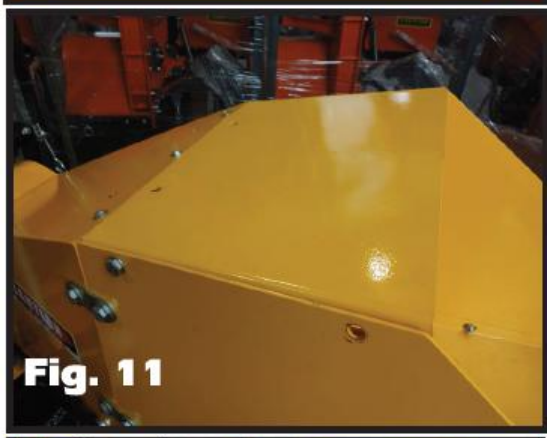


Fig. 11

8. Install the two M10x40mm bolts in the two holes closest to the opening. These bolts should be installed from the inside so that they point outward. [Fig.12]. These bolts are used to connect the safety bar in an upcoming step.

Fig. 12

9. Attach the support leg with two M10x25 bolts. [Fig. 13]. Remember, the support leg should be in the down position during storage only. When the chipper is attached to the tractor, the support leg should be in the up position at all times.

Fig. 13

Note: Although we choose to install the hardware with the bolts pointing into the in-feed bin, it is acceptable to point them outward to avoid the possibility of branches catching on

Assembly Instructions

10. Attach the hydraulic control valve to the right side panel of the in-feed bin using two M8x60 bolts. [Fig. 14].
11. Attach the upper feed roller assist lever using four M10x25mm bolts. [Fig. 15].
12. Fasten the chain from the upper feed roller assembly to the feed roller assist lever. The hardware for this is found located on the end of the chain. [Fig. 16].
13. If you buy new **safety bar,** then connect the **safety bar** to the two M10x40 bolts protruding from the top side of the in-feed bin. First, hook the control valve side of the safety bar over the bolt on the right side panel, then pull the opposite arm of the safety bar over the bolt on the left side panel.
    [Fig.17, 18].

Fig. 14

Fig. 15

Fig. 16

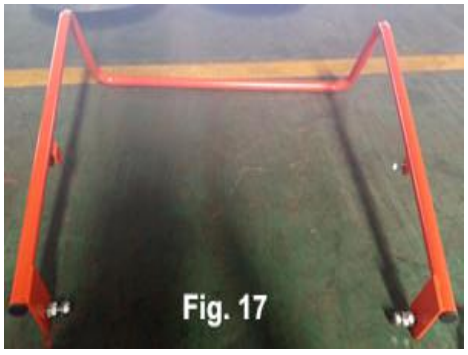


Fig. 17

Fig. 18

Assembly Instructions

14. Thread an M10 locknut onto the bolt on either side, but do night tighten these nuts. This is a hinge point, and the safety bar must move freely. [Fig. 18].

14. Connect the safety bar to the hydraulic control valve by removing the lever on the valve, aligning the slot on the safety bar to the valve, and reinstalling the lever. [Fig. 19, 20].

15. Some hydraulic fittings are left slightly loose for shipping purposes, so at this time check and tighten them as needed.

16. Affix the discharge chute to the chipper using four M10x15mm bolts along with the four 10mm lock washers that were included in the hardware packet. [Fig. 21].

Fig. 22-2

Fig. 19

Fig. 20

Fig. 21

Fig. 22

Note: Please check to make sure all nuts and bolts on machine are tightened after you complete assembly, and before machine is first used. This step has not been done for you prior to shipment, except for the flywheel bolts

Assembly Instructions

17. Fill the hydraulic tank with 6-1/2 gallons of high quality hydraulic oil. There is a chart on page 18 that you can refer to determine the proper viscosity recommended for your region. Do not over fill the tank; there should be a 1” air space at the top of the tank.

18. Connect the chipper to the 3 point hitch of your tractor [Fig. 23].

19. Next you must measure to determine the proper length of the PTO shaft.

20. To do this, raise the chipper so that the spline of the chipper and that the spline of the tractor are horizontal with each other.

21. Measure the distance from the end of the spline of your tractor to the end of the spline of the chipper. This is the Measured Shaft End Distance, or MSED. [Fig. 25].

22. Now the shaft must be sized according to this measurement. Refer to the cart on the bottom of page **22** to determine if the shaft must be cut to size. If so, see the “PTO shaft cutting instructions” on page **22** .

Assembly Instructions

23. After properly sizing the shaft, locate the three grease fittings on the shafts U-joints, and pump several shots of high quality grease into the fittings. [Fig. 26]. **NOTE: Check to ensure that the zerk (grease) fittings are screwed in tight. Occasionally, dried paint may cover the end of the zerk fitting on the PTO shaft. Remove this by scraping the paint off with a knife prior to attempting to pump grease into these fittings.**

Fig. 28

24. Attach the PTO shaft from the tractor to the chipper. Notice that one end of the shaft has a shear bolt, this end should be attached to the tractor. [Fig. 27]

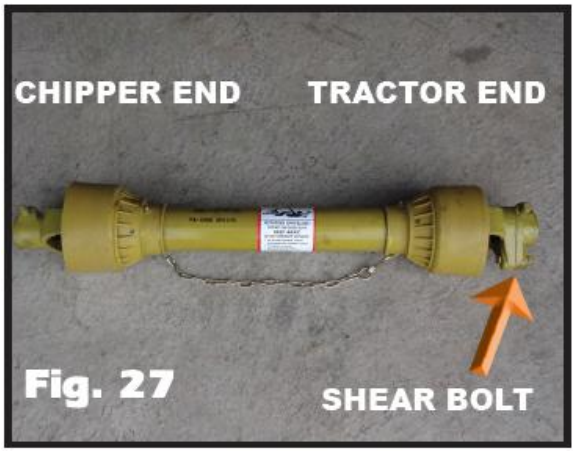


Fig. 27

25. Prior to shipping the chipper to you, the following service has been done in our warehouse: the drive belts have been adjusted and tightened, the bearings on the chipper have been greased, USA made knives have been installed, adjusted, and the bolts were torqued to 40 ft. lbs.

Fig. 26

26. Before operating your chipper, you must first purge any air from the hydraulic system.

27. First, locate the hydraulic flow valve (this valve is the in-line valve on the hydraulic line with a small dial). Turn the dial counter-clockwise, and ensure that the valve is fully opened. [Fig. 28]. This valve is used to increase or decrease the in-feed roller speed. Turn the dial counterclockwise to increase speed, and clockwise to decrease speed. Use slower speed for larger material, but for peak performance the valve should be kept open for optimal hydraulic flow and pressure.

Assembly Instructions

28. The hydraulic control valve has three detent positions. The center position is neutral. Pull back on the lever toward the hopper opening to engage the feed rollers, and push forward on the lever to reverse the feed rollers. At this time, leave the valve in the center position.

29. Start your tractor's engine. While at idle, engage the power take off (PTO) of your tractor. Make sure that you are wearing protective safety gear at this time and that all bystanders are safely out of the way.

30. Slowly increase the engine speed of your tractor until the PTO speed reaches 540 RPM. Usually there will be a mark on your tractor's tachometer that will indicate the necessary engine speed to achieve the required PTO speed of 540 RPM. [Fig. 29]

31. Run the chipper with the hydraulic control valve in the center position for 2-3 minutes. Then move the lever into the remaining positions, and run it for an additional 2-3 minutes each. When you notice that the feed rollers change direction when the hydraulic valve is actuated, the system is purged. **NOTE: Occasionally when purging the hydraulic system, air bubbles (foaming) will develop in the lines. This is evident when, immediately after purging the system, the rollers do not run smoothly. To rectify this, let the chipper sit overnight. This will allow the bubble to settle out of the hydraulic fluid.**

32. Disengage the tractor's power take off, and stop the engine. When the flywheel stops turning, recheck the hydraulic oil level. There should be a 1" air space at the top of the tank. If more oil is required, add it at this time.

33. Setup is now complete. Please read and understand all operation instructions before using the chipper.

DRIVE LINE SAFETY TIPS

Agriculture and forestry are recognized as one of the most hazardous of occupations. Today's farmer spends long hours in close proximity to increasingly complex and powerful machinery.

To avoid accidents, everyone from the component supplier and the company who manufacturers and assembles the machinery, to the dealers and ultimately the actual user, must keep safety in mind. The checklist below relates to the drive line of agricultural implements, general safety literature, and the standards published by the American Society of Agricultural Engineers.

DRIVE LINE SAFETY CHECKLIST

Drive-Line Specifications – The first step towards safe applications is to specify and test the drive-line so that it operates properly under expected field conditions.

1. Specify and test the proper size joints and telescoping members based upon the power required by the implement, speed of rotation, joints angles, shock loads, and expected life.

2. Test the hitch geometry to prevent the drive line from:
   - Extending beyond the recommended maximum length.
   - Bottoming out.
   - Reaching a position that allows universal joints to lock.
   - Exceeding the maximum allowable angle for constant velocity of the universal joints.

   Information concerning these parameters may be found in all drive-line manufacturer's catalogs.

3. Specify and test telescoping members to allow the lowest possible thrust loads, considering the expected working conditions.

4. Specify and test torque limiters to control excessive shock loads.

5. Where necessary, specify and test overrunning clutches to prevent inertial loads from overpowering the tractor.

DRIVE LINE SAFETY CHECKLIST

Hazard Reduction - The second step in specifying a safe drive-line application is to strive to eliminate as many hazards as possible

1. On drive-line with torque limiting or overrunning devices, specify that the device be positioned to the end of the drive-line by the implement.
2. For implement connections which require bolts or set screws, select and/or supply hardware which minimizes protrusions. Information concerning these parameters may be found in all drive-line manufacturer's catalogs.
3. For tractors PTO shaft connections, specify a safety type yoke (twist or slide collar) to minimize protrusions.
4. Provide a proper clearance zone for the operation of the drive-line, to avoid damaging the shielding components.

Some common areas of interference are:

- Three point linkage.
- Extended or eye loop hitch pins.
- Hydraulic hoses.

Guarding – For hazards which cannot be eliminated effectively, guarding must be provided whenever feasible.

The PTO master shield, integral drive-line shield, and implement input connection shield should provide an interactive guarding system.

1. Provide instructions by labels or manuals. The implement should be used only with the tractor's PTO master shield in place.

2. Specify and test an integral drive-line shield with end cones which overlap, but not interfere with the PTO master shield or implement input connection shield.

3. Provide an implement input connection shield to interact with the integral drive-line shield to provide guarding of the shaft coupling and any torque limiting devices installed on the drive-line.

4. Check that all routine maintenance of the drive-line can be done without removal of the shields.

DRIVE LINE SAFETY CHECKLIST

Warnings and Instructions – Provide warnings and instructions for hazards associated with the machine. Provide instructions for proper maintenance and repair.

1. Provide labels on the unit to advise the user of proper hitch dimensions and maximum safe operating speed.

2. Check that proper danger labels are supplied with the drive-line concerning these parameters may be found in all drive-line manufacturer's catalogs.

3. Provide easy-to-understand instructions for proper drive-line operation, maintenance, and repair in the operator's manual.

4. Advise against the use of PTO adapters which may defeat the purpose of the tractor's master shield and adversely affect the performance of the drive-line.

5. Advise the user of locations of genuine original equipment spare parts. Further information about drive-line specifications and safety may be obtained from your drive-line supplier and the following ASME standards and engineering practices:

S203 – Rear power take-off for agricultural tractors
S205 – Power take-off definitions and terminology for agricultural tractor
S207 – Operating requirements for tractors and power take-off driven equipment implements
S318 – Safety for agricultural equipment
S331 – Implement power take-off drive-line specifications
S333 – Agricultural tractor auxiliary power take-off drives
S350 – Safety alert symbol for agricultural equipment
S441 – Safety signs
S493 – Guarding for agricultural equipment
EP363 – Technical publications for agricultural equipment

Other standards may apply for particular types of implements. All drive-line manufacturers strive to produce a safe product. Drive-lines, like most other components must be used properly, including the use of proper tractor master shields and implement input connection shields. Please contact us if you have any questions about your drive-line applications.

SAFETY INSTRUCTIONS

Do not attempt to operate the chipper until you have read and understand the owner's manual.

Keep the decals in place and in good repair. We will furnish new decals upon request.

It is NOT recommended to operate the chipper in temperatures below freezing. Hardened steel (as used on knives) can become brittle in temperatures below freezing and may result in breakage.

Always keep the guards and chip deflector installed properly while operating the chipper.

Never leave the chipper running unattended.

Do not attempt alterations, repairs, or adjustments while the flywheel is turning. Always disconnect the PTO, stop the tractor's motor, and put the keys in your pocket prior to attempting any alterations, repairs or adjustments.

Keep hands, feet, and other extremities out of and away from the hopper (in-feed bin).

Point the discharge chute away from doorways, sidewalks, or any other area where your view is obstructed. The chute should be pointed downwind when possible. This will keep the chips from blowing back in the operator's direction. Keep everyone, especially children, away from the area of operation.

WEAR PROTECTIVE GEAR!
EYES – wrap around safety glasses
EARS – ear plugs
HANDS – leather gloves
FEET – steel toed boots
LEGS – heavy pants
ARMS – long sleeved shirt

No loose clothing should be worn around the chipper. Personal injury can occur if someone or something turns the flywheel over when the knives are being checked or the cutter bar is being adjusted. The flywheel has enough residual energy to easily remove fingers.

MACHINE CHECKLIST

CAUTION: Visually inspect the in-feed bin and the flywheel before applying power to ensure that the chipper head is clear, all the bolts are clear, and the knives clear the case and the cutter bar.

Make sure that:

1. Bystanders are at a safe distance from chipper during operation
2. Children should NEVER operate, or be near the chipper during operation.
3. The PTO shaft does not come apart or bottom out during the normal lifting range.

Check the chip pile to see if the knives need to be serviced. Long slivers in the chip pile are one of the best indicators of dull knives.

MACHINE OPERATION

The chipper is a flywheel-and-knife type of chipper, not a shredder. The knives actually chip the limbs they are fed into the head. The knives must be sharp to operate properly. Dirt, rocks, nails, or other foreign material will shorten knife life.

Before operating the chipper, review the machine checklist. After visually inspecting the fly wheel and in-feed bin to ensure there are no obstructions in the chipper head, start the tractor. Make sure the chipper is firmly on the ground and that the PTO shaft is no more than 15 degrees from level. The chipper must be resting on solid ground prior to operation. DO NOT operate while raised by 3 pt. hitch.

Start the chipper slowly (idle) with the PTO engaged. Gradually increase engine RPM until the tractor PTO speed is 540 RPM (not 540 engine RPM) The chipper is designed to run at 540 RPM. Lower RPM can damage the chipper if material jams and stops the flywheel. The material will feed into the head more easily if you start the pieces with the large end first.

The feed rollers will fold branches as they are pulled into the hopper. Occasionally, a limb fork may have to be cut to feed properly. If the material stops feeding, sometimes a little push on the long end of the limb will help.

MACHINE OPERATION

1. Remember to chip only clean material, or knife life will be shortened.
2. Do not move the chipper while the flywheel is turning.
3. Block the tractor wheels and set the parking brake while running the chipper.
4. Watch the discharge chute while operating the unit, and if the chips stop flowing, stop feeding material into the unit by pushing forward on the hydraulic control valve handle located on the side of the in-feed bin.
5. Most of the time this will be enough to clear the chips out of the unit. If the unit slows down noticeably, first shut off the PTO power, then the tractor. Unplug the head by turning it backwards by hand with the discharge chute and the top section of the flywheel housing wrap off.
6. Remove the chips from the top of the head. If this fails, remove the clean-out door, located in the lower part of the front side-plate of the chipper below the main shaft, and then work the chips out of the case.
7. Replace the clean-out door after all the chips are removed, be sure to use both the lock washers and flat washers.
8. Do not operate the chipper without the chip deflector in place.
9. Before stopping the chipper, be sure that all of the material is out of the chipper head and out of the in feed roller.
10. All of the material in the chute must be gone or the unit could jam on a small piece of material. This can usually be cleared by turning the unit backwards by hand.
11. Dull knives cause many problems such as: seeming lack of power, plugging of the discharge chute, rough cutting with more vibration than usual, feed roll shaft broken, main bearing house broken, main bearing working loose and the flywheel or knives hitting the case or bed knife, feed roller kicking out of gear, and not feeding.
12. When sharpening the knives, be careful to keep angle A at a 37-39° angle. Knives cannot be rounded, or the knives will not pull the material into the head. **(See Flywheel Knife Sharpening Instructions on pg. 24)**
13. The best way to tell if the knives need sharpening is to watch the chips coming out of the chip discharge. If they are long and straight, the knives are in need of service. Sometimes the knives feel sharp to the fingers, but may be worn or rounded. They will need to be sharpened.

LUBRICATION

Bearings - grease all bearing zerks every 10 hours of operation.

PTO Shaft – grease the two grease zerks on the universals every 10 hours of use with a high quality multi-purpose grease.

Hydraulic Tank - Fill hydraulic tank with 7 gallons**(26L)** of hydraulic oil, either straight hydraulic oil or universal hydraulic/transmission oil is okay. We recommend using the correct viscosity according to the temperature of the operating environment. Use the chart below to determine proper oil viscosity

ISO Grade	SAE Grade Equivalent	Air Temperature	Operating Temperature
32	10W	30 °- 80 °F	25 °- 145 °F
46	20W	40 °- 100 °F	30 °- 160 °F
68	20W	50 °- 100 °F	35 °- 185 °F

Shear Bolt Replacement - Grade 2, Size 5/16 x 18 x 2”

PREVENTATIVE MAINTENANCE

1. Check all bolts, set-screws and fasteners after running 10 hours, and once per day thereafter.
2. Check for loose belts and broken pulleys, loose springs, dry slides,
3. The main drive belts on the chipper need to be tight.
4. The belt of the main drive on the PTO chipper should be checked every 10 hours of operation.
5. All decals and safety instructions should be kept clean and legible. It is the operator’s responsibility to replace the decals as needed. They will be mailed to you at no charge.

TROUBLE SHOOTING

PROBLEM: Flywheel head slows but tractor does not

Possible Causes	Solution
Main drive belts are slipping	Tighten or replace if necessary
Fly wheel knives dull	Sharpen or replace

TROUBLE SHOOTING

PROBLEM: Feed rollers stop unexpectedly

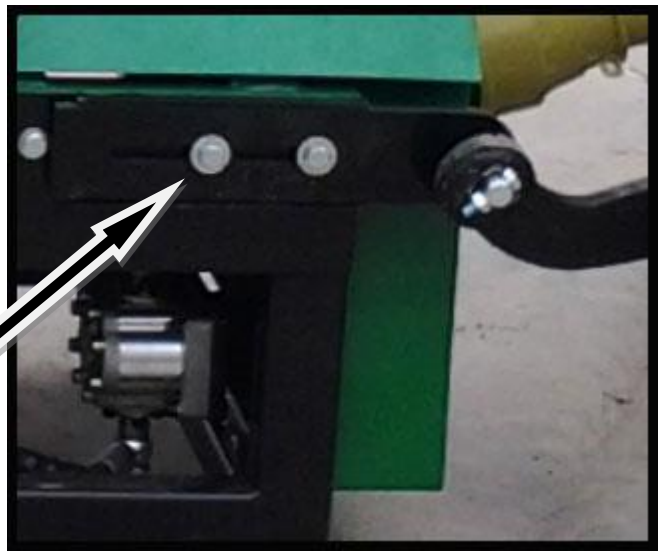
Possible Causes	Solution
Hydraulic oil lever low	Fill tank
Air in hydraulic system	Let sit for 1 day for air to work its way out
Loose belt	Tighten hydraulic pump belt
High pressure relief valve stuck open	Call us For personal assistance adjusting this.

PROBLEM: Not chipping clean or chip deflector plugging

Possible Causes	Solution
Flywheel knives dull	Sharpen or replace
Chipper head turning too slowly	Check PTO speed at 540 RPM

PROBLEM: Unit won't feed limbs properly

Possible Causes	Solution
Not enough down pressure on limbs	Adjust eyebolts to increase spring tension
Fork in material too wide	Remove and trim
Feed roll tension springs stretched	Replace



To achieve proper MSED: Adjust the bolts and move draw arm in or out.

DRIVE LINE FITTING ADJUSTMENTS

This data is for drive-line fitting adjustment. Prior to startup, the PTO that is supplied with your chipper must be properly sized to insure proper operation. If this is not done, damage to the chipper, PTO, and tractor PTO drive-line will occur. These calculations are based on the following assumptions:

The drive-line has an active length range of 20-3/4" to 25-1/4"

DRIVE LINE FITTING ADJUSTMENTS

The two shaft ends are horizontal with one another The following steps should be taken to insure the proper fitting of the PTO drive-line (provided with your chipper) with your tractor PTO drive.

Attach the chipper to your tractor's three point connections.

Raise the chipper to a position where its drive-shaft is level with the tractor PTO drive-shaft. The horizontal position is recommended for operation of the chipper. A maximum of 15 degrees of offset from the horizontal position between the two shaft ends is allowable for proper operation of the unit by the PTO drive-line manufacturer. However, drive-line calculations are based on a level horizontal position.

With the two drive shafts level with one another, measure the distance between the ends of the two shafts. (The chipper and the tractor PTO shaft ends). This distance between the two shaft ends is the measured shaft end distance, or "MSED". The PTO drive-line is capable of handling a MSED between 20" to 25-1/2", allowing for at least 1/3 of shaft overlap as recommended by the drive-line manufacturer.

If the MSED is longer than 25-1/2", a longer drive-line is needed and should be ordered.

If the MSED is shorter than 20", extend the draw arm of the chipper outward until a minimum of 20" is achieved. See [fig 25] on **pg. 11**

MSED	
Between 23-1/4" x 25-1/4"	No adjustment needed
22"	Cut 1" from each shaft
21"	Cut 2" from each shaft
20"	Cut 3" from each shaft

Most drive-lines can be adjusted to fit by cutting off equal amounts of the ends of the shaft and the guard tube of the PTO drive-line. In no case can more than 3" of shaft and guard tube be removed, or the contact area is not sufficient for proper and safe operation of the drive-shaft. Cut off the same amount from the shaft tube plastic cover and the guard tube safety cover to insure proper assembly and fit of the drive-line. Consult the driveline manufacturer data enclosed with your drive-line for proper assembly, disassembly, lubrication and operation prior to startup and during operation.

DRIVE LINE FITTING ADJUSTMENTS

REMEMBER: Contact with the drive-line while in use can result in serious injury or death. Any portion of the drive-line while not shielded must be guarded by an interactive guarding system. The manufacturer of the equipment is responsible for providing guards. Any replacement guard must be one which is specified by that manufacturer. In short, do not remove any of the plastic safety covers on the drive-line and insure that caution is used around this drive-line. No one should be in the drive-line area when it is operating.

Note: this is the shear bolt section of the shaft, and this end should be attached to the tractor

5/16”x18x 2”

Shear bolt

To cut the PTO shaft, unhook chain, and separate the two halves. Mark and cut equal amounts off of the plastic shields. Then, mark and cut the same mount off of the steel shafts. De-burr , grease, and reassemble the shaft. Shorten the chian so that there is no slack when the shaft is extended to its longest point.

KNIFE CHANGING/ADJUSTING

Tools You Will Need:

- Torque Wrench
- 17mm Socket
- 16mm Wrench/Socket
- 6mm Allen Wrench

STEPS:

- Detach PTO shaft from chipper. [fig. 1]
- Remove shield that covers drive belts.
- Remove access panel on front and back of flywheel chamber to expose knife bolts and nuts. [fig. 2] [fig. 3]
- Clean and remove any debris that is impacted in knife bolt allen head socket using an awl or other pointed object. Take care to clean these out thoroughly to ensure allen wrench drive bit seats properly. If not, you may strip the heads out. Air blow gun is also helpful.
- Hold the head of the M10 cap screws with a 6mm allen wrench. From the back side of the flywheel, with a 17mm socket remove the nylon lock nuts. [fig. 2]
- Remove the knives. Be careful not to drop the nuts or bolts into the flywheel chamber. If you do - See “Clearing An Object From The Flywheel Housing.” [Pg 25]
- Replace knives with new or sharpened knives. **Be sure there is no debris between knife and flywheel.**
- Torque knife bolts by holding M10 cap screw heads with 6mm allen wrench, then with a 17mm socket and a torque wrench, tighten nylon lock nuts to 40 ft./lbs. DO NOT over torque bolts or knife breakage may occur. [fig. 2] [fig. 4]
- Replace access covers front and back. Note: Rotate the flywheel by band to check to make sure that both flywheel knives clear the bed knife without coming into contact with it, before applying PTO power to the chipper.

Fig. 1

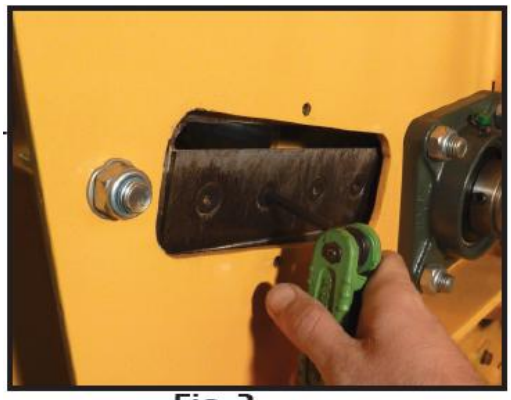


Fig. 2

Fig. 3

Fig. 4

KNIFE CHANGING/ADJUSTING

Tools You Will Need:

- Torque Wrench
- 17mm Socket
- 6mm Allen Wrench

STEPS:

- Detach PTO shaft from chipper. [fig. 1]
- Remove both tension springs from in-feed roller assembly.
- Raise and support in-feed roller, a short piece of 2x4 works well for this. [fig. 2]
- Clean and remove any debris that is impacted in knife bolt allen head socket using an awl or other pointed object. Take care to clean these out thoroughly to ensure allen wrench drive bit seats properly. If not, you may strip the heads out. Air blow gun is also helpful.
- Insert short end of allen wrench into socket, allowing long end to rest against the flywheel. Hold firm so wrench does not slip out of socket.
- Using a 17mm socket, remove all three nuts from the bottom of the bed knife. Remove bed knife. [fig. 3]
- Using an air gun, blow all debris from bed knife seat. Be sure to clear any debris that could interfere with the bed knife seating properly on the frame.
- Replace bed knife, ensure that there is (0.0200”- 0.0300”) of clearance between the flywheel knife and the bed knife. This is about the thickness of a credit card. [fig. 4]
- Replace all three bolts/nuts and tighten to 40 ft./lbs. with a torque wrench. DO NOT over torque bolts or knife breakage may occur.
- Replace all shields and covers.
- Re-attach PTO shaft. Note: Rotate the flywheel by band to check to make sure that both flywheel knives clear the bed knife, without coming into contact with it, before
- applying PTO power to the chipper.

FLYWHEEL KNIFE SHARPENING

SHARPEN FLYWHEEL KNIVES STEPS:

To properly sharpen the knives, sharpen an angle A and keep the angle about 37°-39°, the same as a new set. [fig. 1]

Area B cannot be rounded, or the knives will not pull the material into the head.

The best way to tell if the knives need sharpening is to watch the chips coming out of the chip discharge.

If they are long and stringy, the knives need to be serviced.

Sometimes, the knives feel sharp to the fingers, but may be worn or rounded in area B. These knives need to be sharpened.

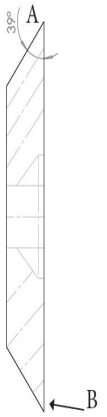


Fig. 1

CHANGING HYDRAULIC FILTER

Tools You Will Need:

- 4mm Allen Wrench
- 1” Wrench or Adjustable Wrench

STEPS:

Remove hydraulic line from tank. [fig. 1]

Remove screws that secure filter assembly. [fig. 2]

Remove filter assembly and replace filter. [fig. 3]

CLEARING FLYWHEEL HOUSING

Tools You Will Need:

- 16mm Wrench

STEPS:

- Detach PTO shaft from chipper. [fig. 1]
- Locate access door on bottom of flywheel housing. There is one on the front of the machine and one on the back of the machine on the very bottom of the flywheel housing [fig. 2]

CLEARING FLYWHEEL HOUSING

- Using a 16mm wrench, remove the two bolts that secure the access cover. [fig. 2]
- Remove cover.
- Locate/clear object from flywheel chamber. [fig. 3]
- Replace access cover/bolts.
- Re-attach PTO shaft to chipper.
- Don't drop nut again..

Fig. 2

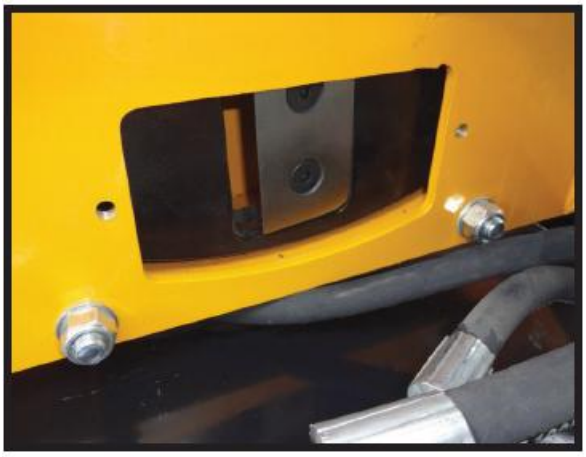


Fig. 3

CHANGING/ADJUSTING DRIVE BELT

Tools You Will Need:

- 18mm Wrench
- 18mm Socket
- 4-BX-46 Belts
- Straight Edge

STEPS:

- Detach PTO shaft from chipper. [fig. 1]
- Remove drive belt cover.

Fig. 1

CHANGING/ADJUSTING DRIVE BELT

- Loosen 4 bolts that support the lower jack shaft assembly. (18mm) [fig. 2]

Fig. 2

- Loosen 4 adjustment bolts until jack shaft
- assembly and belts become loose. (18mm) [fig. 3] [fig. 4]

Fig. 3

- Remove/replace belts.
- Tighten 4 adjustment bolts until belts are tight and pulleys are parallel and in line with
- each other. (+/- 1/8” is acceptable) [fig. 5]
- Attach drive belt cover.
- Re-attach PTO shaft.

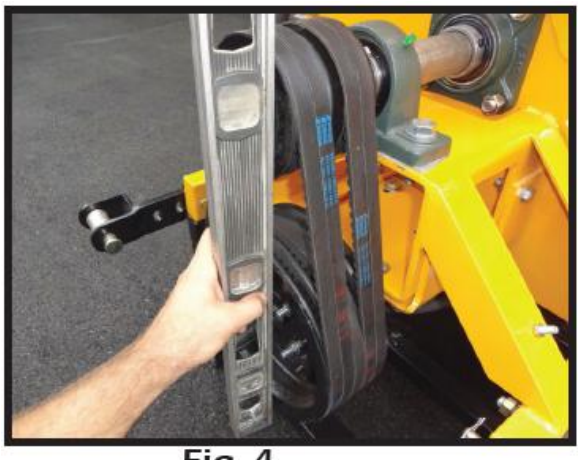
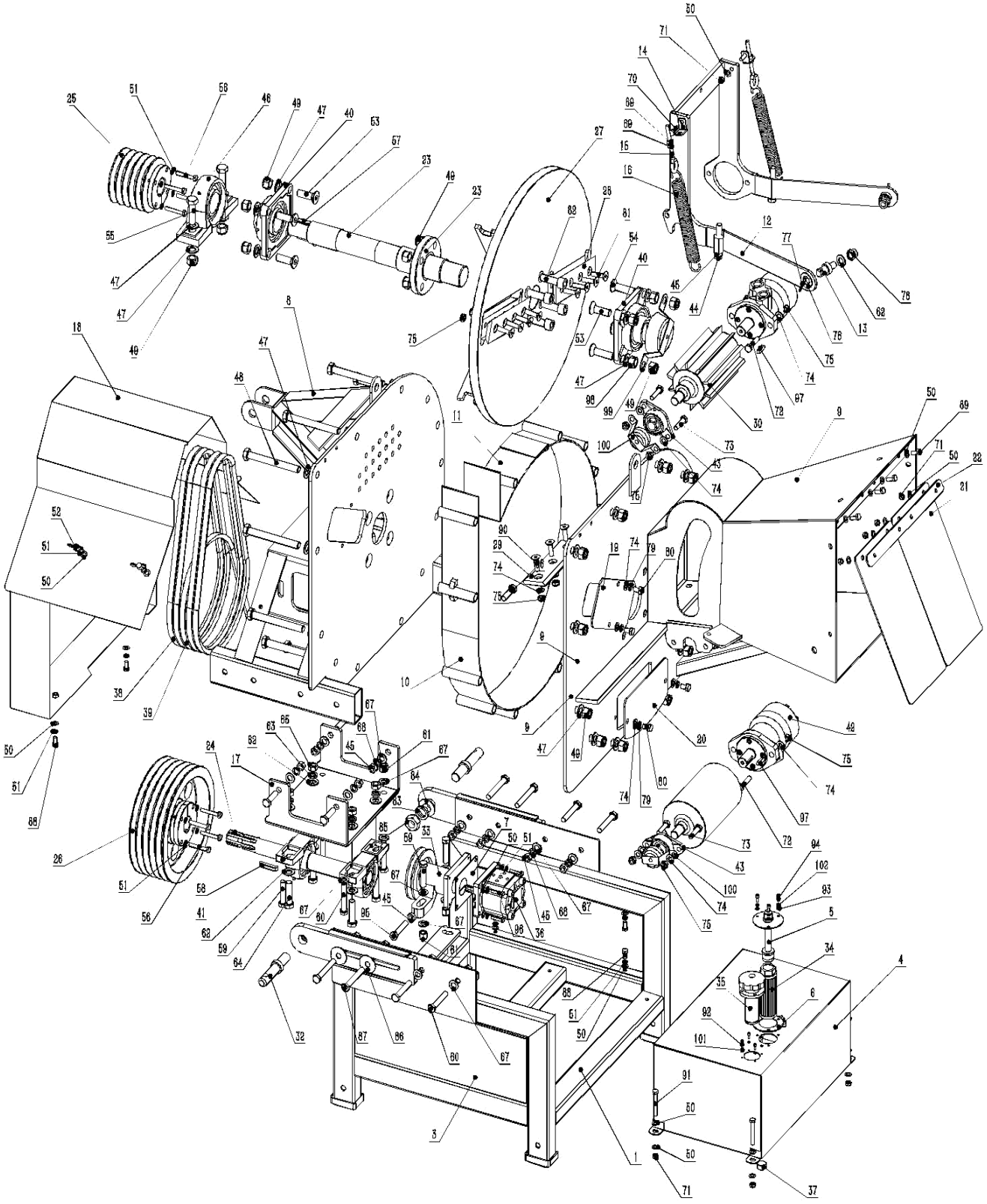


Fig. 4

Fig. 5

PARTS LIST



PARTS LIST

WC8H Wood Chipper Diagram 1

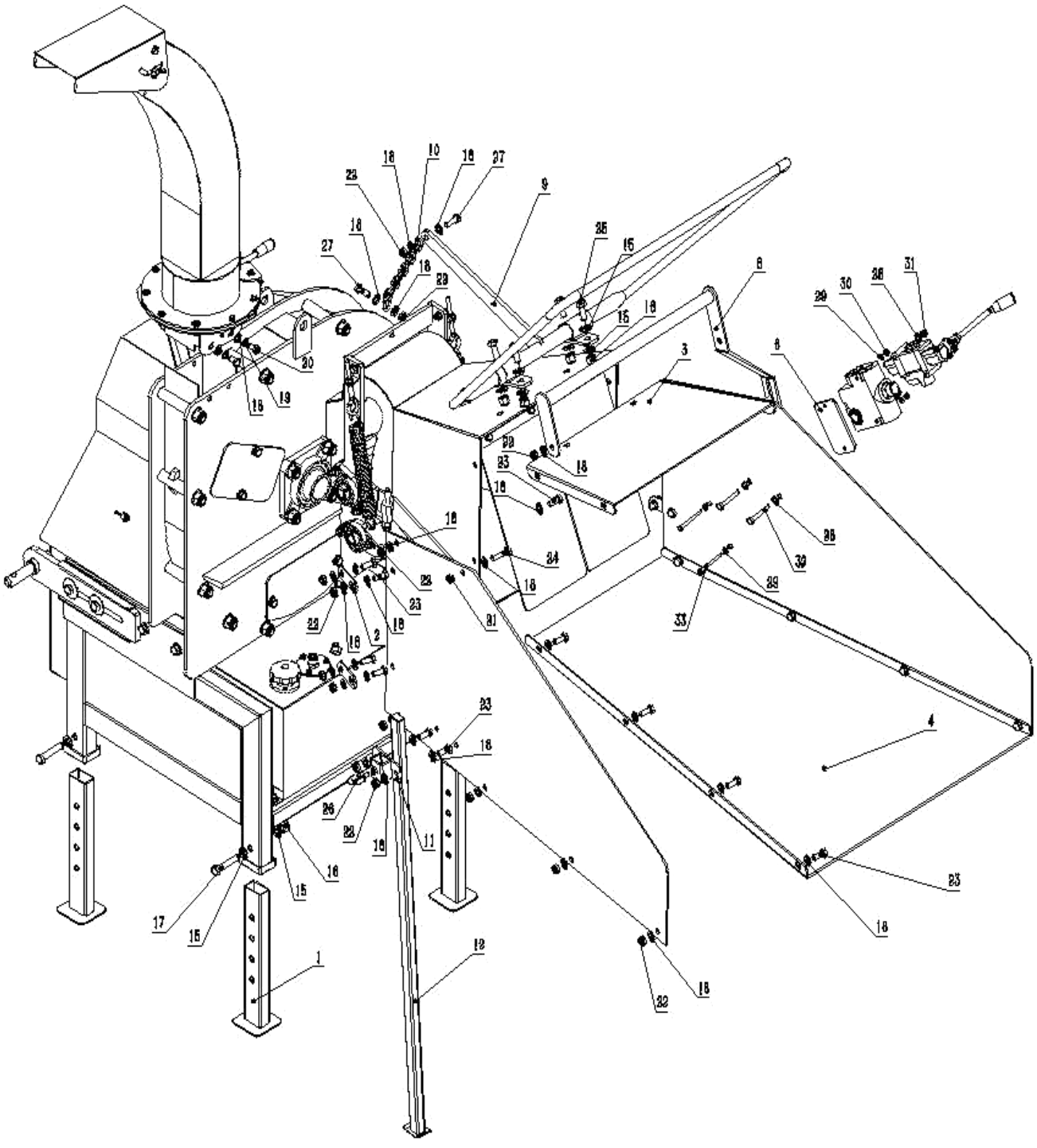
Part No.	Drawing No.	Name	Style	Quantity
1	TH600-1.1-PU	underbed		1
2	TM600-1.2	outer connecting plate		2
3	TM600-1.4-PU	underbed mesh		2
4	TH600-1.4	oil tank		1
5	TH600-1.5	lubricating nipple		1
6	TH600-1.5.5	nipple rubber		1
7	TH600-1.7	gear pump gasket		1
8	TM600-2.1	blade box front		1
9	TH600-2.2	blade box back		1
10	TM600-2.3	blade box coaming A		1
11	TM600-2.4	coamingB		1
12	TH600-2.5	feed roller stand		1
13	TM600-2.5.9	rotating shaft		2
14	TM600-2.5.6	feed roller spring pulling plate		2
15	TM600-2.5.7	spring hanger		2
16	TM600-2.5.8	tension spring		2
17	TM600-2.6	tighten support		1
18	TH600-2.7	belt cover		1
19	TM600-2.11	exchange blade cover plate		2
20	TM600-2.12	discharge hopper cover plate		1
21	TM600-2.14	slab rubber		2
22	TM600-2.15	mound layer		1
23	TH600-5.1	principle axis		1
24	TM600-5.2	drive shaft		1
25	TM600-5.3	capstan		1

26	TM600-5.4	driving wheel		1
27	TM600-5.5	blade disk		1
28	TM600-5.6	blade		2
29	TM600-5.7	dead knife		1
30	TH600-5.8	upper feed roller		1
31	TH600-5.9	down feed roller		1
32	P3-02-1.9	bow beam connection pin		2
33	05.08.03	300 pump frame		1
34	W1-3.1	oil-in filter		1
35	05.06.07	refuel filter	EF1-25	1
36	05.08.07	gear pump	CBN-F306-FL	1
37	30511	hexagonal socket head plug	1/2"NPT	1
38	07.06.32	v-belt	B-1168Li	4
39	07.06.33	v-belt	B-1080Li	1
40	GB/T 7810-1995	square bearing	UCF210	2
41	GB/T 7810-1995	plummer block housing bearing	UCP207	2
42	05.08.01	hydraulic motor	BMP-160-2AMH	2
43	GB/T 7810-1995	diamond bearing	UCFLU204	2
44	GB/T 5781-2000	hexagon bolt	M12X80	2
45	GB/T 41-2000	hexagon nut	M12	15
46	GB/T 7810-1995	plummer block housing bearing	UCP210	1
47	GB/T 95-2002	flat washer C	16	38
48	GB/T 5783-2000	hexagon bolt	M16×140	13
49	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M16	27
50	GB/T 95-2002	flat washer C	8	36
51	GB/T 93-1987	standard spring washer	8	26
52	03.01.04.43	butterfly bolt	M8×15	4
53	GB/T 70.3-2000	countersunk head screw	M16×50	6
54	GB/T 70.3-2000	countersunk head screw	M16×50	2
55	GB/T 5783-2000	hexagon bolt	M16×55	2

56	GB/T 5781-2000	hexagon bolt	M8X50	8
57	GB/T 1096-1979	flat key	12X50	1
58	GB/T 1096-2003	flat key	10×50	1
59	GB/T 5781-2000	hexagon bolt	M12X55	4
60	GB/T 5781-2000	hexagon bolt	M12X70	6
61	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M12	4
62	GB/T 95-1985	flat washer	14	10
63	GB/T 93-1987	spring washer	14	4
64	GB/T 5781-2000	hexagon bolt	M14X55	4
65	GB/T 41-2000	hexagon nut	M14	4
66	GB/T 5781-2000	hexagon bolt	M12X45	4
67	GB/T 95-2002	flat washer C	12	24
68	GB/T 93-1987	standard spring washer	12	12
69	GB/T 41-2000	hexagon nut	M8	4
70	GB/T 5781-2000	hexagon bolt	M8X25	2
71	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M8	10
72	GB/T 5781-2000	hexagon bolt	M10X45	4
73	GB/T 5781-2000	hexagon bolt	M10X40	4
74	GB/T 95-2002	flat washer C	10	17
75	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M10	19
76	GB/T 95-2002	flat washer C	20	2
77	GB/T 91-2000	Cotter pin	4X40	2
78	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M14	2
79	GB/T 93-1987	spring washer	10	6
80	GB/T 5781-2000	hexagon bolt	M10X16	6
81	GB/T 70.3-2000	countersunk head screw	M10×40	8
82	GB/T 70.1-2000	Hexagon socket cap screw	M16×50	4
83	GB/T 93-1987	standard spring washer	22	2
84	GB/T 96-1985	Flat washer	22X44X2	2
85	GB/T 41-2000	hexagon nut	M22	2

86	GB_T96-2002	Big washer	13.5X44X2	4
87	GB/T 5781-2000	hexagon bolt	M12X85	4
88	GB/T 5781-2000	hexagon bolt	M8X16	10
89	GB_T 5781-2000	hexagon bolt	M8X20	4
90	GB/T 70.3-2000	countersunk head screw	M10×35	3
91	GB/T 5781-2000	hexagon bolt	M8X60	4
92	GB/T 70.1-2000	Hexagon socket cap screw	M4X10	4
93	GB/T 95-2002	flat washer C	5	3
94	GB/T 70.1-2000	Hexagon socket cap screw	M5X12	3
95	GB/T 5781-2000	hexagon bolt	M12X60	1
96	GB/T 5781-2000	hexagon bolt	M6X30	4
97	GB/T 1096-1979	Flat key	8X30	2
98	GB/T 41-2000	hexagon nut	M16	2
99	TM600-7.1	UCF210 bearing cap		1
100	TM600-7.2	UCFL204 bearing cap		2
101	GB/T 93-1987	standard spring washer	4	4
102	GB/T 93-1987	standard spring washer	5	3

PARTS LIST



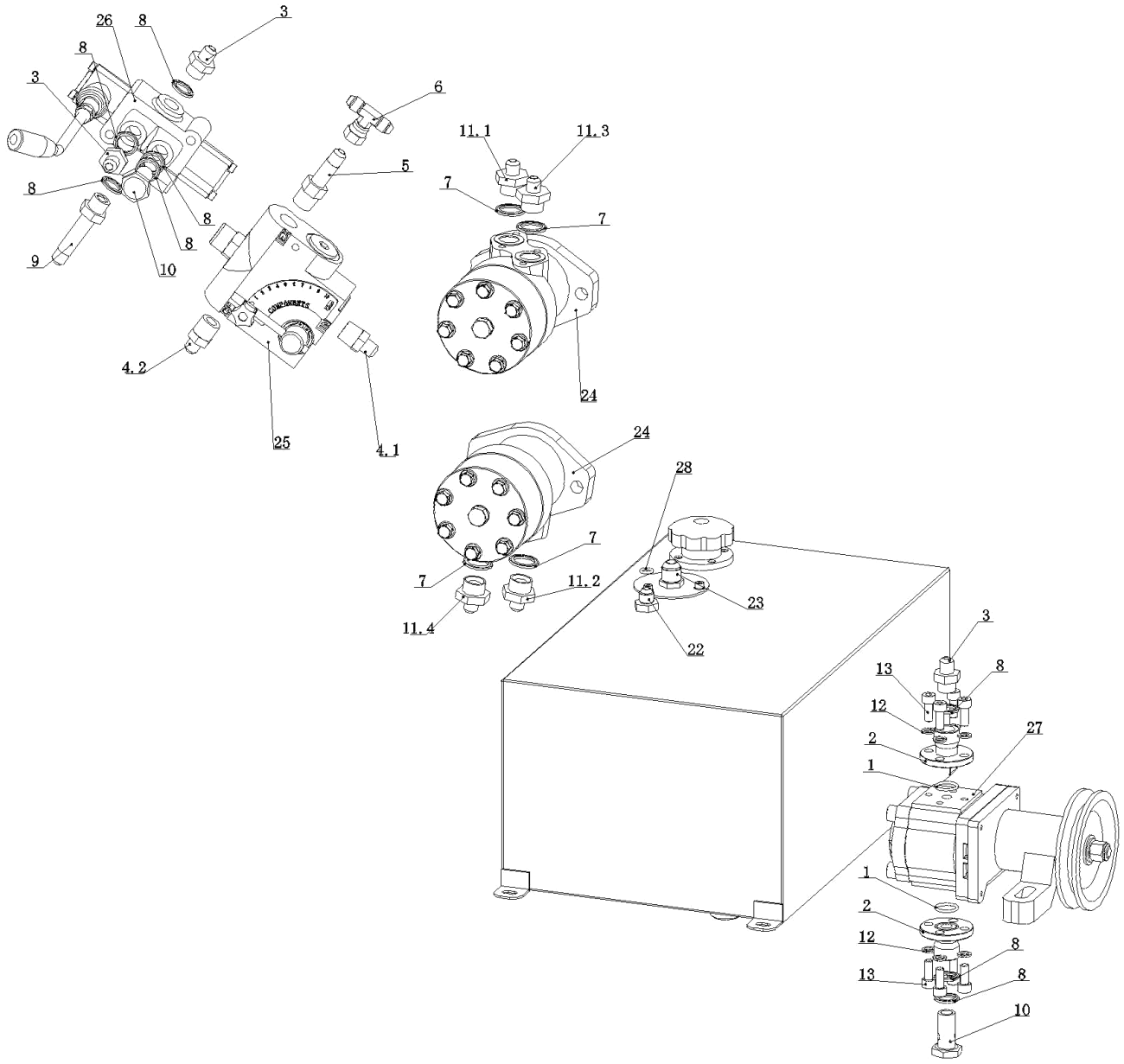
PARTS LIST

WC8H Wood Chipper Diagram 2

Part no.	Drawing no.	Name	Style	Quantity
1	TM600-1.3	support leg		4
15	GB/T 95-2002	flat washer C	12	8
16	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M12	4
17	GB/T 5781-2000	hexagon bolt	M12X60	4
9	TM600-3.6	feed roller control handle		1
10	TM600-3.6.7	chain		1
15	GB/T 95-2002	flat washer C	12	8
16	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M12	4
18	GB/T 95-2002	flat washer C	10	4
22	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M10	2
25	GB/T 5781-2000	hexagon bolt	M12X35	4
27	GB/T 5781-2000	hexagon bolt	M10X30	2
8	TH600-3.5-PU	Hydraulic control valve		1
18	GB/T 95-2002	flat washer C	10	4
21	GB/T 41-2000	hexagon nut	M10	2
22	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M10	2
24	GB/T 5781-2000	hexagon bolt	M10X40	2
11	TM600-3.7	feed hopper outrigger adjusting plate		1
12	TM600-3.8	feed hopper outrigger		1
18	GB/T 95-2002	flat washer C	10	4
22	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M10	2
23	GB/T 5781-2000	hexagon bolt	M10X25	2
26	GB/T 825-1988	lifting bolt	M8X16	1
2	TM600-2.13	feed hopper connection plate		4
3	TM600-3.1-PU	feed hopper upper plate		1
4	TM600-3.2-PU	feed hopper lower plate		1

5	TH600-3.3-PU	feed hopper left-side plate		1
6	TH600-3.3.2-PU	flow control valve base plate		1
7	TH600-3.4-PU	feed hopper right-side plate		1
18	GB/T 95-2002	flat washer C	10	40
19	GB/T 93-1987	Spring washer	10	4
20	GB/T 5781-2000	hexagon bolt	M10X16	4
22	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M10	18
23	GB/T 5781-2000	hexagon bolt	M10X25	18
28	GB/T 95-2002	flat washer C	8	4
29	GB/T 95-2002	flat washer C	6	4
30	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M6	2
31	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M8	2
32	GB/T 5781-2000	hexagon bolt	M8X60	2
33	GB/T 5781-2000	hexagon bolt	M6X70	2

PARTS LIST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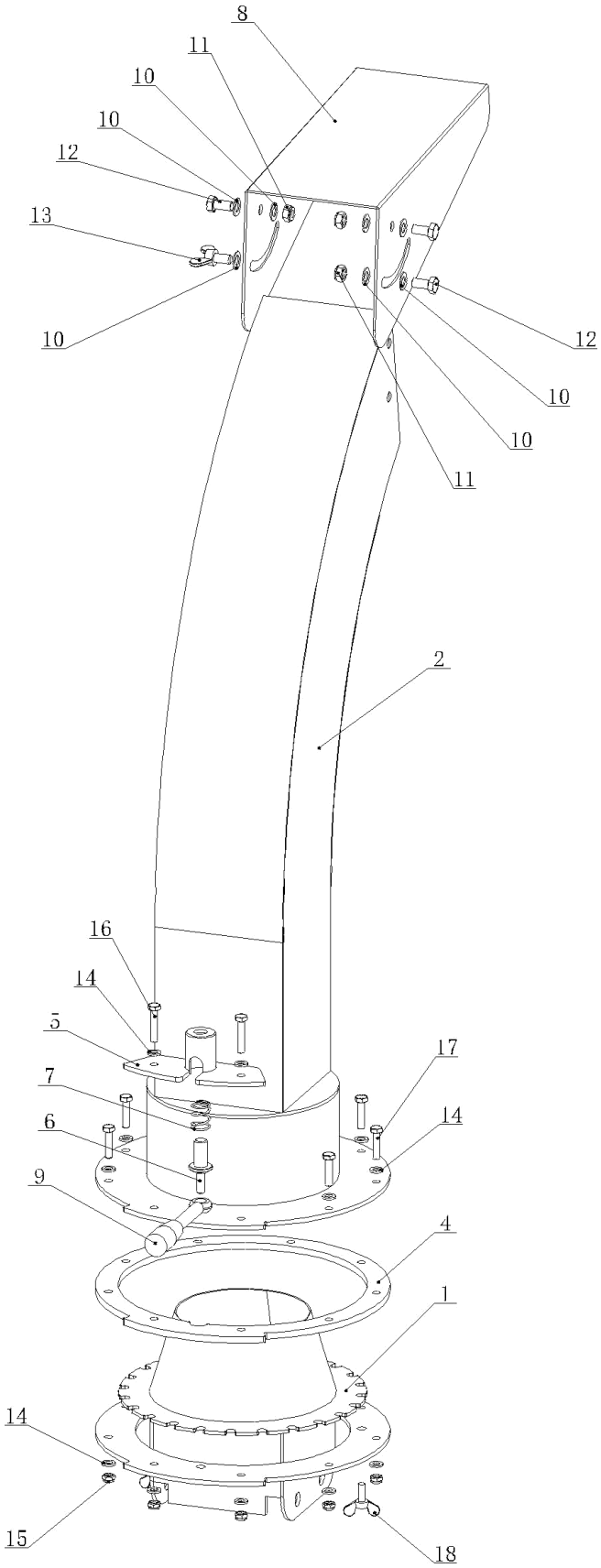
PARTS LIST

WC8H Wood Chipper Diagram 3

Part no.	Drawing no.	Name	Style	Quantity
1	03.08.52	O style ring	D24X2.4	2
2	05.05.13	pump glib	M18X1.5	2
3	05.05.14	straight joint	M18X1.5 9/16-18UNF	3
4	05.05.17	straight joint	G1/2 9/16-18UNF	2
5	05.05.18	long straight joint	G1/2 9/16-18UNF	1
6	05.05.19	T-junction	9/16-18UNF	1
7	03.08.54	seal washer	n22	4
8	03.08.53	seal washer	n18	8
9	05.05.20	long straight joint	M18X1.5 9/16-18UNF	1
10	05.05.15	oil pipe union	M18X1.5	2
11	05.05.16	straight joint	M22X1.5 9/16-18UNF	4
12	GB/T 93-1987	standard spring washer	8	7
13	GB/T 70.1-2000	Hexagon socket cap screw	M8X20	8
14	05.04.59	Oil-in pipe 1		1
15	05.04.60	Oil-in pipe 2		1
16	05.04.61	Oil-in pipe 3		1
17	05.04.62	Oil-return 1		1
18	05.04.63	Oil-return 2		1
19	05.04.64	Oil-in pipe 4		1
20	05.04.65	Oil-return 3		1
21	05.04.66	Oil-in pipe 5		1
22	TH600-1.4	Oil tank		1
23	TH600-1.5	oil-in glib		1
24	05.08.01	hydraulic motor	BMP-160-2AMH	2
25	05.08.02	flow control valve		1
26	05.08.04	Valve		1
27	05.08.07	Gear pump	CBN-F306-FL	1
28	03.08.52	O style ring	D14X2.4	1

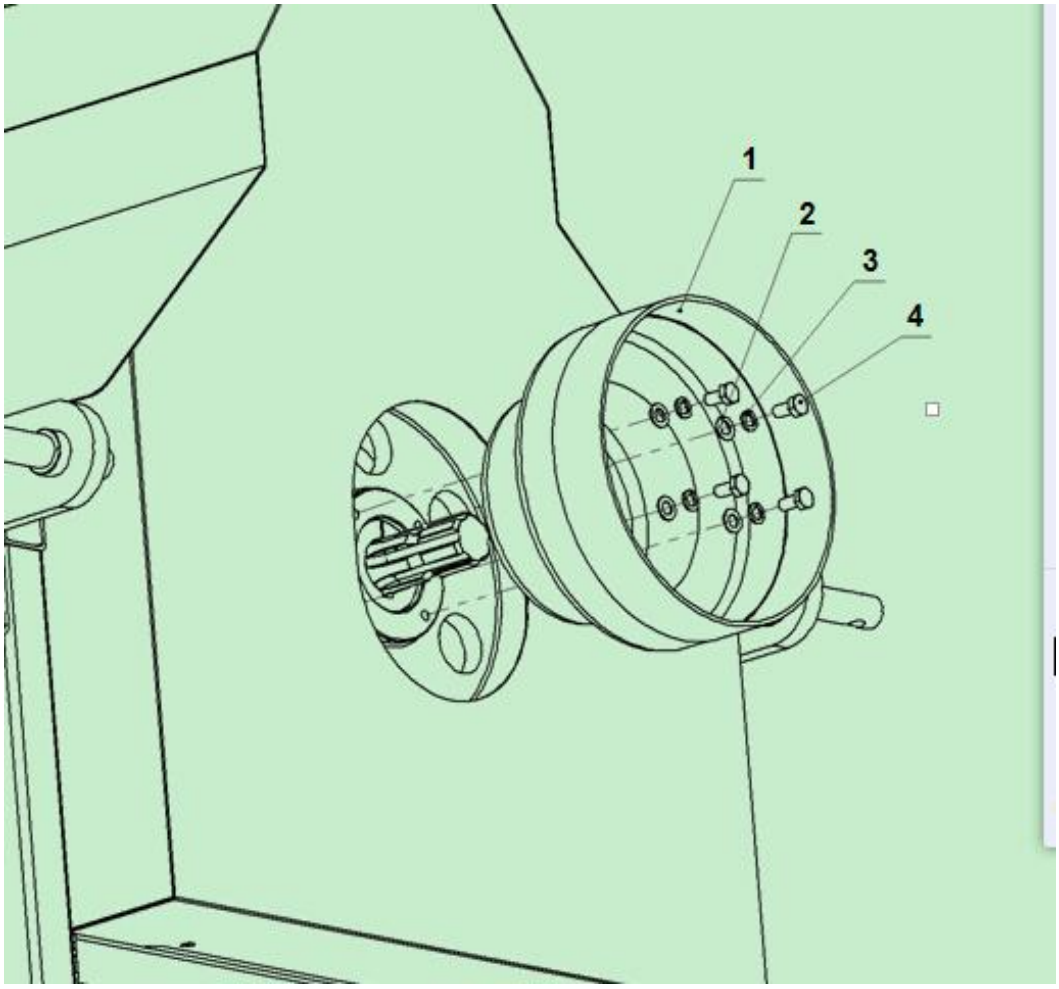
PARTS LIST



PARTS LIST

WC8H Wood Chipper Diagram 4

Part No.	Drawing No.	Name	Style	Quantity
1	TM600-4.1	discharge lower hopper		1
2	TM600-4.2	discharge upper hopper		1
3	TM600-4.3	ratating disk clamping plate		1
4	TM600-4.4	rotating disk clapboard		1
5	TM600-4.5	control plate		1
6	TM600-4.6	control shaft		1
7	TM600-4.6.1	control shaft spring		1
8	TM600-4.7	deflector		1
9	TM600-4.9	control handle		1
10	GB/T 95-2002	flat washer C	8	7
11	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M8	3
12	GB/T 5781-2000	hexagon bolt	M8X16	3
13	03.01.04.43	butterfly bolt	M8×15	1
14	GB/T 95-2002	flat washer C	6	18
15	GB/T 889.1-2000	nonmetal inserts hexagon lock nut	M6	9
16	GB/T 5781-2000	hexagon bolt	M6X30	2
17	GB/T 5781-2000	hexagon bolt	M6X25	7
18		butterfly bolt	M6×15	2



PARTS LIST

Wc8m Wood Chipper Diagram 5

Part no.	Drawing no.	Name	Style	Quantity
1	03.12.15	PTO shaft cover		1
2	GB/T 95-2002	Flat washer C	8	4
3	GB/T 93-1987	Standard spring washer	8	4
4	GB/T 5781-2000	Hexagon bolt	M8X16	4

Warranty

Warranty

MDLpowerup warrants to the original purchaser that this MDLpowerup product will be free from defects in material and workmanship beginning on the date of purchase by the end user according to the following schedule when used as intended and under normal service and conditions for personal use.

Overall Unit and Driveline: One year Parts and Labor

Gearbox: One year on all components.

Blades and Belts: Considered wear items.

This Warranty is limited to the replacement of any defective part by **MDLpowerup** and the installation by the dealer of any such replacement part, and does not cover common wear items. MDLpowerup reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

This Warranty does not apply to any part or product which in MDLpowerup's judgment shall have been misused or damaged by accident or lack of normal maintenance or care, or which has been repaired or altered in a way which adversely affects its performance or reliability, or which has been used for a purpose for which the product is not designed. Misuse also specifically includes failure to properly maintain oil levels, grease points, and driveline shafts.

Claims under this Warranty should be made to the dealer which originally sold the product and all warranty adjustments must be made through an authorized MDLpowerup dealer. MDLpowerup reserves the right to make changes in materials or design of the product at any time without notice.

This Warranty shall not be interpreted to render MDLpowerup liable for damages of any kind, direct, consequential, or contingent to property. Furthermore, MDLpowerup shall not be liable for damages resulting from any cause beyond its reasonable control. This Warranty does not extend to loss of crops, any expense or loss for labor, supplies, rental machinery or for any other reason.

No other warranty of any kind whatsoever, express or implied, is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.

This Warranty is not valid unless registered with MDLpowerup within 30 days from the date of purchase by the end user.

Metcalfe Developments

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