



LandMax

Suppliers Of Quality Agricultural Machinery

21 Plummers Point Road, Tauranga



Finishing Mower

DM230

Operator's Manual

1. Introduction

Your DM230 Finishing Mower has been designed to do a range of work to your satisfaction. This list of instructions covers the basic requirements for safety and maintenance and will ensure good service if carried out as directed.

Please read the whole of this Operators Manual and familiarize yourself and/or any other operators that may be required to operate this machine before attempting to:-

- (a) Fit the machine to the tractor,
- (b) Carry out any adjustments,
- (c) Operate the machine.

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout this manual, are determined when sitting in the tractor driver's seat and facing in the direction of travel.

Additional Information and Potential Changes

LandMax reserves the right to discontinue, change, and improve its products at any time without notice or obligation to the purchaser. The descriptions and specifications contained in this manual were in effect at printing. Equipment described within this manual may be optional. Some illustrations may not be applicable to your machine.

If you want to order a spare part, please provide the model, the serial number, and the part code.

2. Safety First

Conventions used in this manual

! WARNING

This indicates a hazardous situation, which, if not avoided, could result in death or serious injury.

! CAUTION

This indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

NOTICE

This information is important in the proper use of your machine. Failure to follow this instruction could result in damage to your machine or property.

THINK Safety! WORK Safely! Please read the following safety information carefully and follow the advice given to avoid any potential dangers to yourself and others or damage to the machine. Special safety features are incorporated in the design of the Finishing Mower for your protection. However, it can still be highly dangerous to the careless operator.

YOU are responsible for the SAFE operation and maintenance of your Finishing Mower. YOU must ensure that you and anyone else, who is going to operate, maintain or work around the Finishing Mower be familiar with the operating, maintenance and safety procedures contained in this manual.

DON'T let familiarity trap you into danger.

DON'T allow riders on the Finishing Mower.

SPECTATORS (particularly children) must be kept well away while operating as sticks and stones can fly further than you think.

NEVER start or operate your Finishing Mower unless sitting on tractor seat.

ALWAYS place all controls in neutral, lower machine, stop PTO and turn off engine before dismounting tractor.

ALWAYS keep hands, feet, hair and clothing away from moving parts.

DON'T attempt any adjustment whatsoever while the machine is operating or spinning.

DON'T attempt to clear any obstruction around the machine while the machine is operating or spinning to a stop.

DON'T attempt to clear any obstruction from underneath the machine while the machine is operating or spinning to a stop.

DON'T operate your Finishing Mower whilst it is in the raised position.

ALWAYS know what you are cutting. Never operate in an area that has hidden obstacles. Remove all sticks, stones, wire or other objects that might be hooked or snagged, causing injury or damage from the working area before starting.

MAKE REGULAR INSPECTION of cutter assembly for fracture and be sure that flails and flailplates are properly attached. Replace if any irregularity or excessive wear shows.

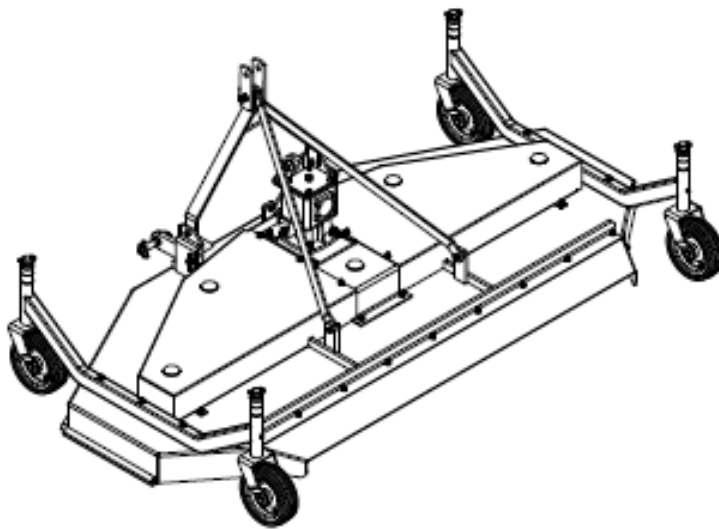
NEVER exceed the limits of your Finishing Mower. If it's ability to do a job, or to do so safely is in question –
DON'T TRY IT

3. Specifications

Your DM230 Finishing Mower is designed to cut a variety of grasses and other ground covers. You take the responsibility if the machine is used for any other purpose.

The Finishing Mower consists of five rotating shafts with five free-swinging steel blades attached to them. The blades cut the grass while travelling over the working area. Rotational power to the shaft is provided by the tractor PTO through the gearbox in the centre of the machine.

The Finishing Mower attaches to the 3 point hitch on the tractor.



| Specifications and Parameters for the Finishing Mower | |
|--|--------------------------------------|
| Dimensions (LxWxH) (mm) | 2400x 1400 x 600 |
| Structure weight (kg) | 310 |
| Cutting width (mm) | 2300 |
| Working efficiency (m²/h) | 5,000-10,000 |
| Input rotating speed (rpm) | 540 |
| PTO spline size | 6 tooth Φ 35 Rectangular spline |
| Power required (HP) | 30-45 |

4. Operation

Checking before Operating

Before operating the machine, the following areas should be checked off:

- 1 Before starting up the machine, check and lubricate all external grease points and ensure that all lubricated parts inside the machine have been oiled.
- 2 Use only an agricultural tractor of horsepower within limits of the machine specified.
- 3 Check that the machine is properly attached to the tractor. Be sure retainers are used on the mounting pins.
- 4 Check the oil level in the gearbox. Add as required.
- 5 Check that the tractor PTO shaft turns freely and that the machine drive shaft safety cover can telescope easily.
- 6 Check the blades. Be sure they are not damaged or broken and swing freely in their mount. Repair or replace as required.
- 7 Check and tighten the blade bolts.
- 8 Check for entangled material in all rotating parts. Remove this material.
- 9 Install and secure all guards, doors and covers before starting.
- 10 The chain on the protective parts of the universal joint shall be guaranteed in good condition, in case, automatic rotation occurs.

Attaching / Unhooking

The Finishing Mower should always be located on a level, dry area that is free of debris and other foreign objects.

CAUTION: Before attaching the mower to the tractor, the tractor and mower should be turned off.

1. Remove protective cover from tractor's PTO shaft, lower link and suspension mechanics of tractor. It may be necessary to add weight to the 3 point hitch to lower the lift arms.
2. Reverse tractor at low speed towards the Finishing Mower and raise the lower links to proper level.
3. Connect tractor's lower links with Finishing Mower's left and right lower suspension pins. Connect the tractor's upper link with Finishing Mower's upper suspension bracket and insert pin.
4. Attach the machine drive shaft to the tractor's PTO shaft, slide the universal joint over the shaft and push on the universal joint until the lock pin clicks into position. Pull on the universal joint to be sure it is locked in position.
5. Make sure the machine drive shaft telescopes easily and the shield rotates freely.
6. Use the 3 pint hitch to raise the machine from the ground before moving the machine.
7. Reverse the above procedure when unhooking the machine from the tractor.

Machine Running-in

Although there are no operational restrictions on the Finishing Mower, when used for the first time, it is recommended that the following mechanical checks be made:

A. After operating for ½ hour or after completing 2 acres:

1. Check and tighten all nuts, bolts and other fasteners.
2. Check that the blades are in good condition and swing freely.
3. Check the oil level in the gearbox. Add as required.
4. Check that the machine drive shaft shield turns freely.
5. Lubricate all grease points.

B. After operating for 5 hours and 10 hours:

1. Repeat items 1 to 5 of Section A.
2. Press grease in each nipple three to five times.
3. Clean the machine, remove all grass and mud.

Field Operation

1. Place the 3 point linkage into its 'float' operating mode to allow the machine and the hitch to move up and down.
2. Pull the machine into the field and align with the working area.
3. Adjusting the height: There are 4 sets of adjusting spacers on the wheel fork, which make the cutting height range from 25mm to 100mm. Add or reduce adjusting spacer to get a desired cutting height.
4. Starting the Finishing mower:
 - a. Run the tractor engine at low idle.
 - b. Slowly engage the PTO control to start the mower.
 - c. Slowly bring the engine to the rated PTO speed. Never exceed rated speed.
 - d. Lower the mower to the ground and proceed with mowing.
5. Stopping the Finishing mower:
 - a. Slowly decrease engine speed to low idle.
 - b. Disengage PTO clutch slowly.
 - c. Place all controls in neutral, lower machine, stop engine and turn off ignition before dismounting.
6. Ground speed:

Travel speed can vary between 5 and 13 kph depending on the grass and terrain conditions. It is the responsibility of the operator to note the condition of the job being done and set the speed to obtain a quality cutting job and maintain control of the mower. Decrease speed if you are producing a ragged cut or leaving patches uncut.

Routine Service and Maintenance

The DM230 Finishing Mower is designed to cut grass or other plants. It is a simple and reliable system that requires minimal maintenance. However, to prolong the life of your Finishing Mower, it is important and recommended to carry out regular service and maintenance. The period recommended is based on normal operating conditions. Severe or unusual conditions may require more frequent maintenance.

NOTE: All maintenance, repairing, cleaning and lubricating must be conducted when the tractor and mower are stopped and turned off.

A. Fluids and Lubricants

1. Grease: Use multi-purpose lithium based grease.
2. Gearbox Oil: Use N46 drive and hydraulic dual-purpose oil or equivalent for all operating conditions.
Gearbox Capacity: 0.85 litre.

IMPORTANT: Check the oil level only when the Mower is cold and on level ground.

B. Greasing

1. Use a hand-held grease gun for all greasing.
2. Wipe grease nipples with a clean cloth before greasing to avoid injecting dirt and grit.
3. Replace and repair broken grease nipples immediately.
4. If grease nipples will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace grease nipple if necessary.

C. Maintenance

Daily Maintenance:

- Check and tighten all nuts, bolts and connection parts.
- Check the oil in the gearbox. Fill it up to dedicated line if necessary.
- Press grease in each nipple three to five times.
- Clean the mower; remove all grass, mud and debris.

Seasonal Maintenance:

- Check the machine as for Daily Maintenance.
- Check the oil in the Gearbox; replace if it is bad.
- Check the bearings and oil seals of blade spindles to make sure mud and water have not been entering. Disassemble, clean and replace them if necessary. Press grease into them.
- Check the distance between bearings and gears. Adjust if necessary.

Annual Maintenance:

- Clean mud, grass and debris from the machine thoroughly.
- Let the oil in the Gearbox drain out thoroughly. Check and clean it. Fill with new Gearbox oil up to the dedicated oil level.
- Check all clearance between bearings and gears if you have replaced them. Please run it without load for 3-5 minutes.
- Check and clean blade axles. Replace oil seals if required and press grease into them.
- Check all blades, replace them if they are worn or damaged.
- Repair the side skirts if necessary. Replace damaged or broken protective devices.
- Remove the drive shaft from the mower. Check and replace any components that are damaged or worn. Reattach the drive shaft to the mower – it should telescope easily and the guard should turn freely on the shaft. Grease if necessary.

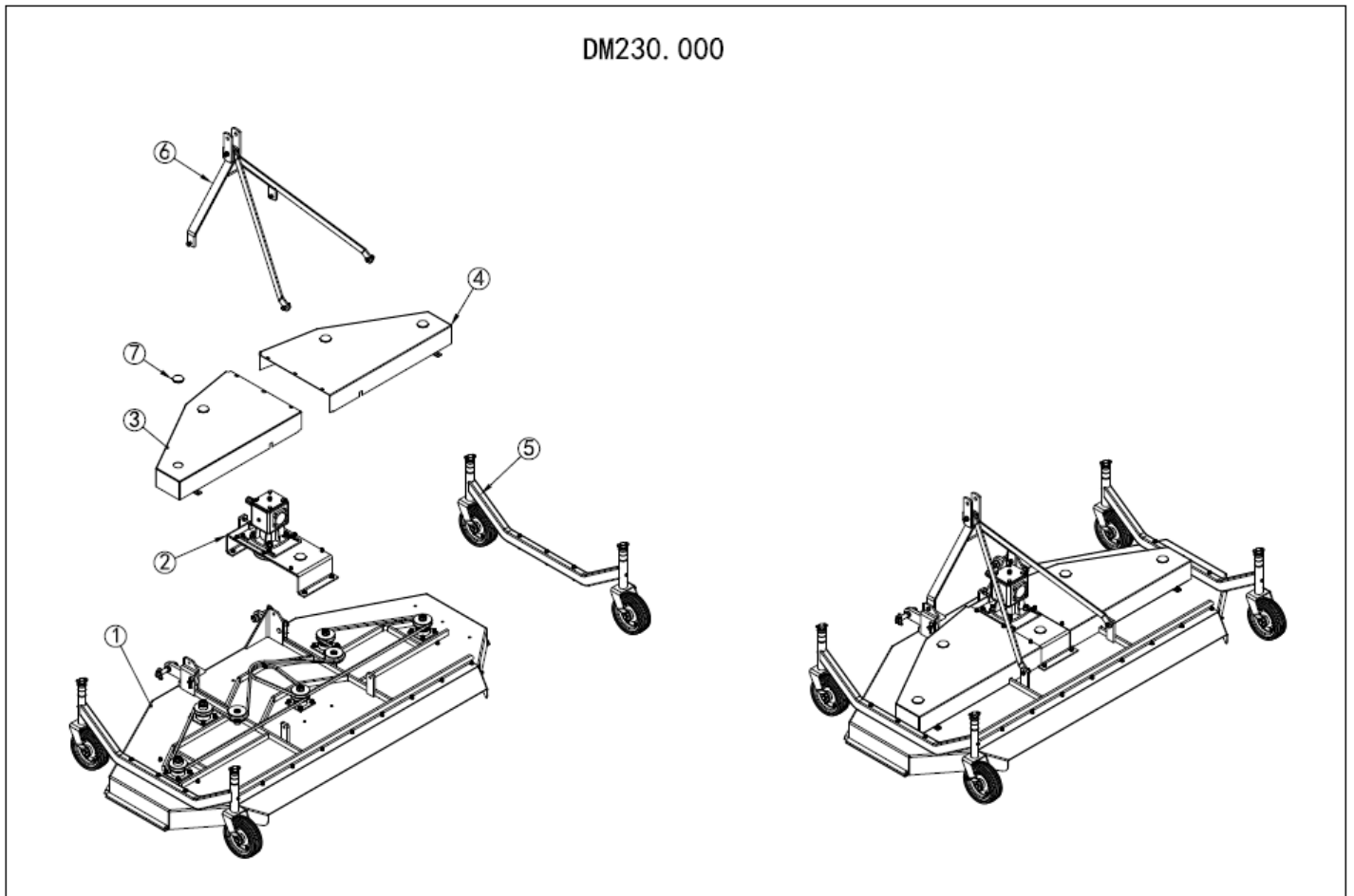
5. Trouble Shooting

In this section we have listed many of the problems, causes and solutions to the problems that you may encounter.

| Problem | Cause | Solution |
|-------------------------------------|----------------------|---|
| Finishing Mower doesn't turn | Tractor clutch slips | Tighten or replace slip clutch |
| | PTO shaft slips | Repair tractor PTO clutch |
| Poor cutting job | Travelling too fast | Slow down |
| | Blades dull | Sharpen blades |
| Grooves in grass | Bent blades | Straighten or replace blades |
| Scalping | Mower too low | Raise the mower |
| Grass being left | Travelling too fast | Slow down |
| | Top link too short | Extend top link |
| Noisy gearbox | Poor gear mesh | Remove input shaft and gear. Replace worn parts. Reassemble and use shims to give a gear backlash of 0.006-0.018 inches measured at 2 13/16" from shaft centreline. |
| Clutch slips | Overload | Slow down |
| | Clutch loose | Tighten springs on clutch plates |
| | Clutch worn out | Replace clutch components or assembly as required. |
| Vibration | Out of balance | Check for bent, damaged or broken blades. Repair or replace as required. |

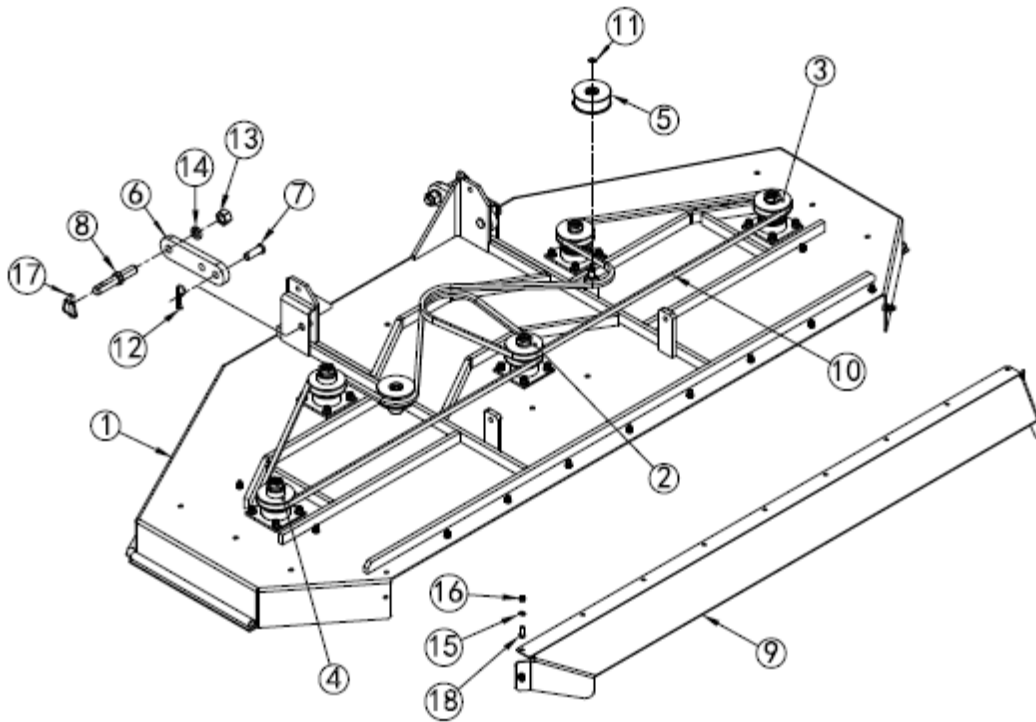
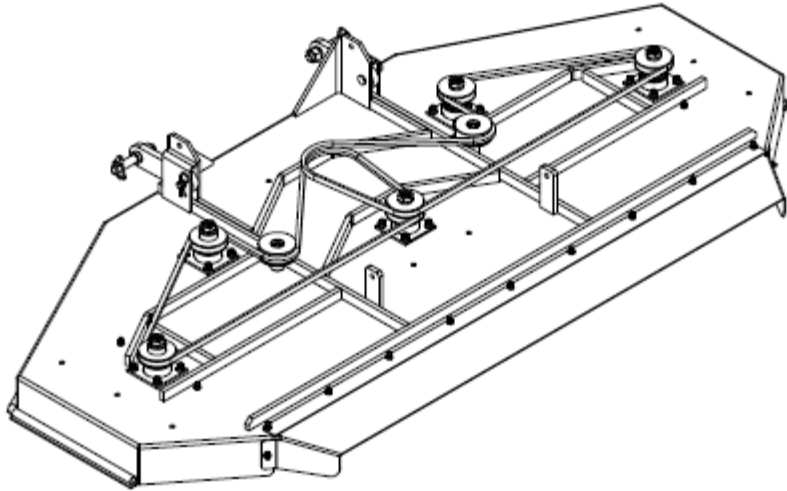
6. Parts Illustration

The following section contains a parts list for your machine. When ordering parts for your Finishing Mower, always give your dealer the Model and Serial number of your machine. This will assist him in ordering and obtaining the correct parts. Use the exploded view and parts list of the area of interest to exactly identify the required part.



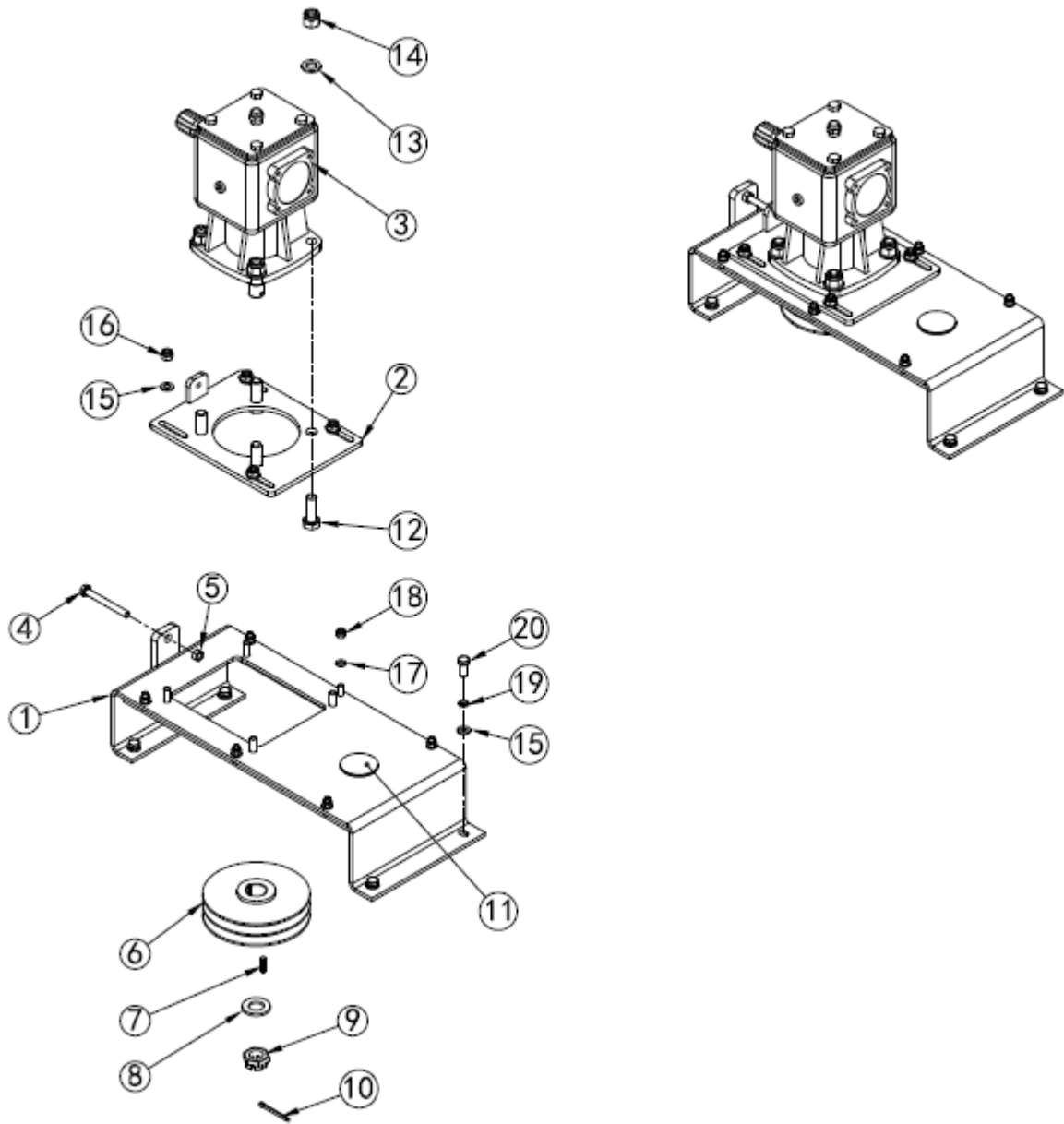
| ITEM | DM230.000 PART No. | NAME & DESCRIPTION | QTY. |
|------|-----------------------|---------------------------|------|
| 1 | DM230.001 | DECK,ASSEMBLY | 1 |
| 2 | DM230.002 | TRANSMISSION,ASSEMBLY | 1 |
| 3 | DM230.018 | LEFT SHIELD,WELDMENT | 1 |
| 4 | DM230.019 | RIGHT SHIELD,WELDMENT | 1 |
| 5 | DM230.007 | SUPPORTING WHEEL,ASSEMBLY | 2 |
| 6 | DM230.006 | HITCH FRAME,ASSEMBLY | 1 |
| 7 | FM150.123 | PLUG,GREASE NIPPLE | 4 |

DM230.001

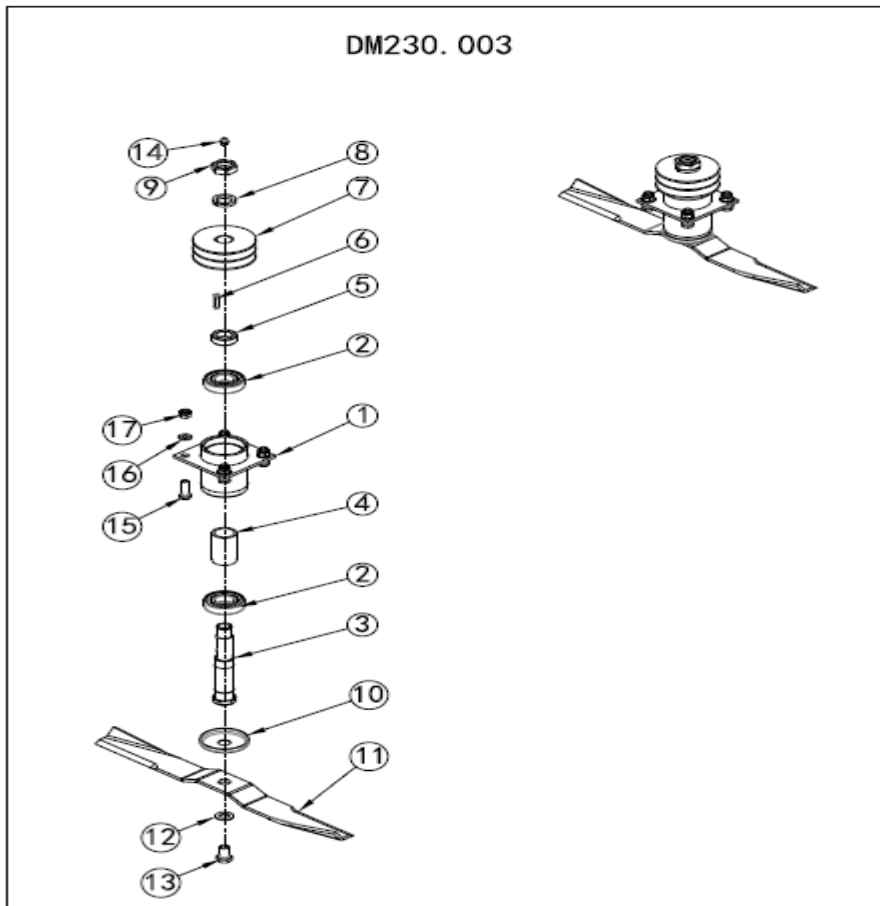


| | DM230.001 | | |
|------|------------------|-------------------------|------|
| ITEM | PART No. | NAME & DESCRIPTION | QTY. |
| 1 | DM230.011A | DECK,WELDMENT | 1 |
| 2 | DM230.003 | MID PULLEY,ASSEMBLY | 1 |
| 3 | DM230.004 | HIGH PULLEY,ASSEMBLY | 2 |
| 4 | DM230.005 | LOW PULLEY,ASSEMBLY | 2 |
| 5 | DM230.008 | TENSION PULLEY,ASSEMBLY | 2 |
| 6 | DM230.101 | CONNECTING PLATE | 2 |
| 7 | DM230.109 | PIN | 2 |
| 8 | FM150.114 | BOTTOM HITCH PIN | 2 |
| 9 | DM230.108 | BACK SHIELD | 1 |
| 10 | GB11544-B2743Li | BELT B2743Li | 2 |
| 11 | GB 894. 1-86-15 | CIRCLIP FOR SHAFT A15 | 2 |
| 12 | RP-4 | R-PIN 4-18 | 2 |
| 13 | GB/T6171-M22x1.5 | NUT M22x1.5 | 2 |
| 14 | GB/T93-22 | LOCK WASHER 22 | 2 |
| 15 | GB/T 97. 1--8 | PLAIN WASHER 8 | 15 |
| 16 | GB/T 889. 1-M8 | LOCK NUT M8 | 15 |
| 17 | LP-11x45 | LINCH PIN 11x45 | 2 |
| 18 | GB5783-M8x25 | BOLT M8x25 | 11 |

DM230.002

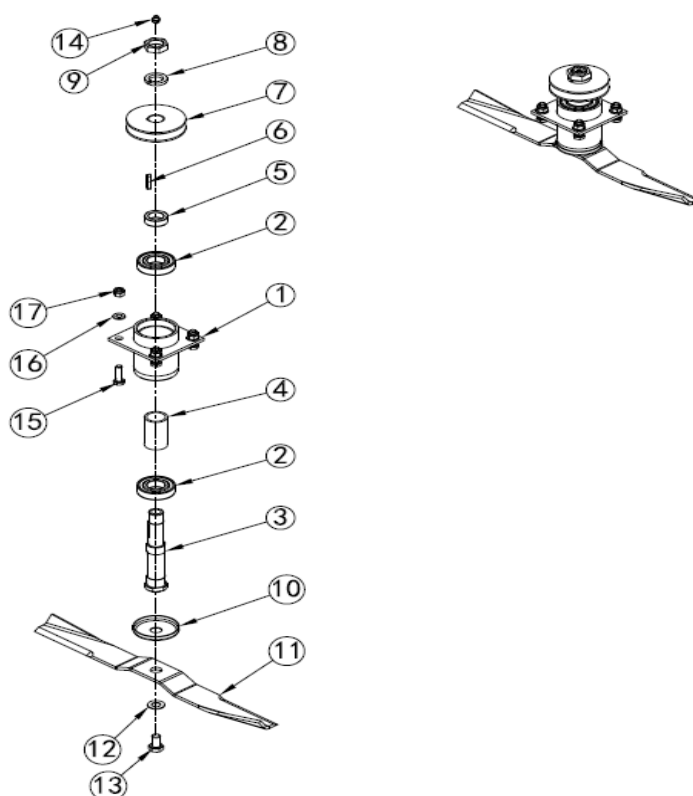


| | DM230.002 | | |
|------|-------------------|--------------------------|------|
| ITEM | PART No. | NAME & DESCRIPTION | QTY. |
| 1 | DM230.016 | CONNECTING BASE,WELDMENT | 1 |
| 2 | DM230.017 | SUBPLATE,WELDMENT | 1 |
| 3 | XH30.283Z.11L | GEAR BOX,ASSEMBLY | 1 |
| 4 | GB/T 5783-M10×90 | BOLT M10x90 | 1 |
| 5 | GB/T 6170-M10 | NUT M10 | 1 |
| 6 | FM150.103 | DRIVING PULLEY | 1 |
| 7 | GB/T1096- B6×25 | KEY B6x25 | 1 |
| 8 | XH30.147Z.01L.02 | PLAIN WASHER | 1 |
| 9 | XH30.283Z.11L.01 | SLOTTED NUT | 1 |
| 10 | GB/T91-5×50 | COTTER 5x50 | 1 |
| 11 | FM150.123 | PLUG | 1 |
| 12 | GB/T 5783-M16×45 | BOLT M16x45 | 4 |
| 13 | GB/T 97. 1-16×3 | PLAIN WASHER 16 | 4 |
| 14 | GB/T 889. 1-M16 | LOCK NUT M16 | 4 |
| 15 | GB/T 97. 1-10×2 | PLAIN WASHER 10 | 8 |
| 16 | GB/T 889. 1-M10 | LOCK NUT M10 | 4 |
| 17 | GB/T 97. 1-8×1. 6 | PLAIN WASHER 8 | 6 |
| 18 | GB/T 889. 1-M8 | LOCK NUT M8 | 6 |
| 19 | GB/T 93-10×2. 6 | LOCK WASHER 10 | 4 |
| 20 | GB/T 5783-M10×25 | BOLT M10x25 | 4 |



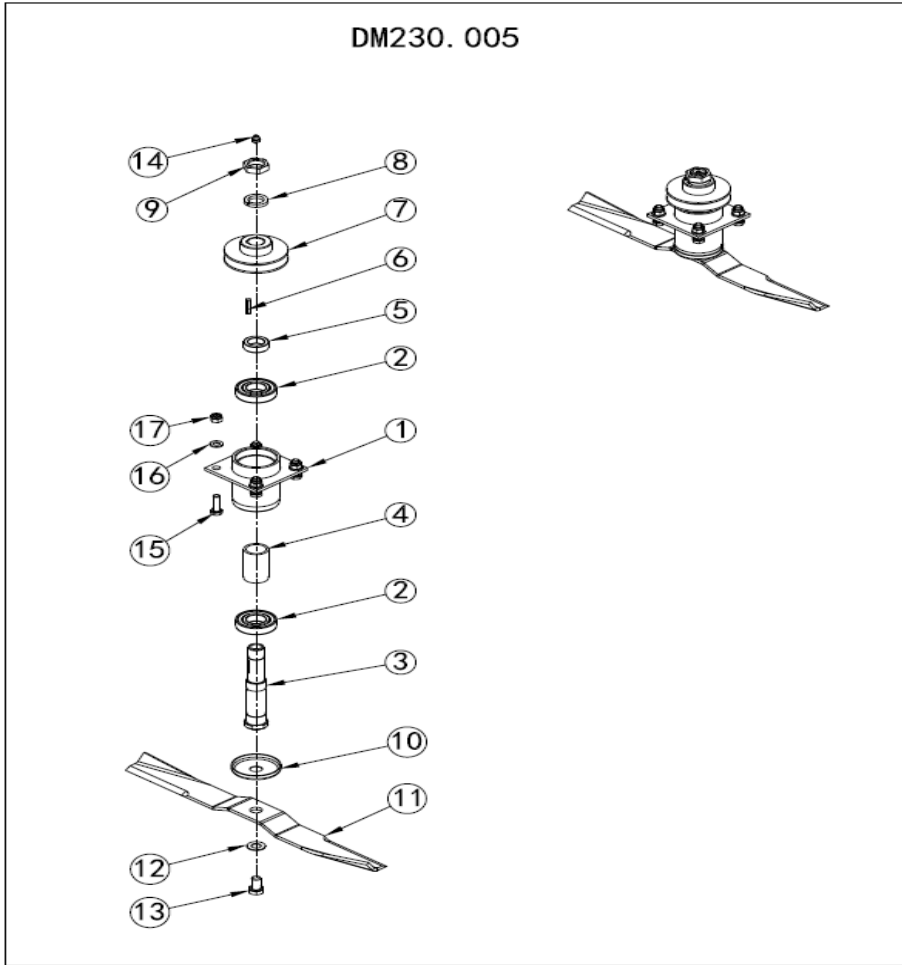
| ITEM | DM230.003 PART No. | NAME & DESCRIPTION | QTY. |
|------|-----------------------|-----------------------|------|
| 1 | FM150.020 | BEARING SEAT,WELDMENT | 1 |
| 2 | GB/T276-6206-2Z | BEARING 6202-2Z | 2 |
| 3 | FM150.110 | SHAFT | 1 |
| 4 | FM150.126 | BUSH | 1 |
| 5 | FM150.125 | SPACER | 1 |
| 6 | GB/T1096-A6×35 | KEY A6x35 | 1 |
| 7 | FM150.104 | PULLEY,DOUBLE GROOVE | 1 |
| 8 | GB/T93-24 | LOCK WASHER 24 | 1 |
| 9 | GB/T6173-M24x2 | NUT M24x2 | 1 |
| 10 | FM150.112 | GASKET | 1 |
| 11 | DM150.108 | KNIFE | 1 |
| 12 | GB/T955-14 | SPRING WASHER 14 | 1 |
| 13 | GB/T5783-M14x25-L | BOLT M14x25-L | 1 |
| 14 | GB1152-M10x1 | ZERK M10x1 | 1 |
| 15 | GB/T5783-M10×35 | BOLT M10x35 | 4 |
| 16 | GB/T97. 1-10 | PLAIN WASHER 10 | 4 |
| 17 | GB/T889. 1-M10 | LOCK NUT M10 | 4 |

DM230.004



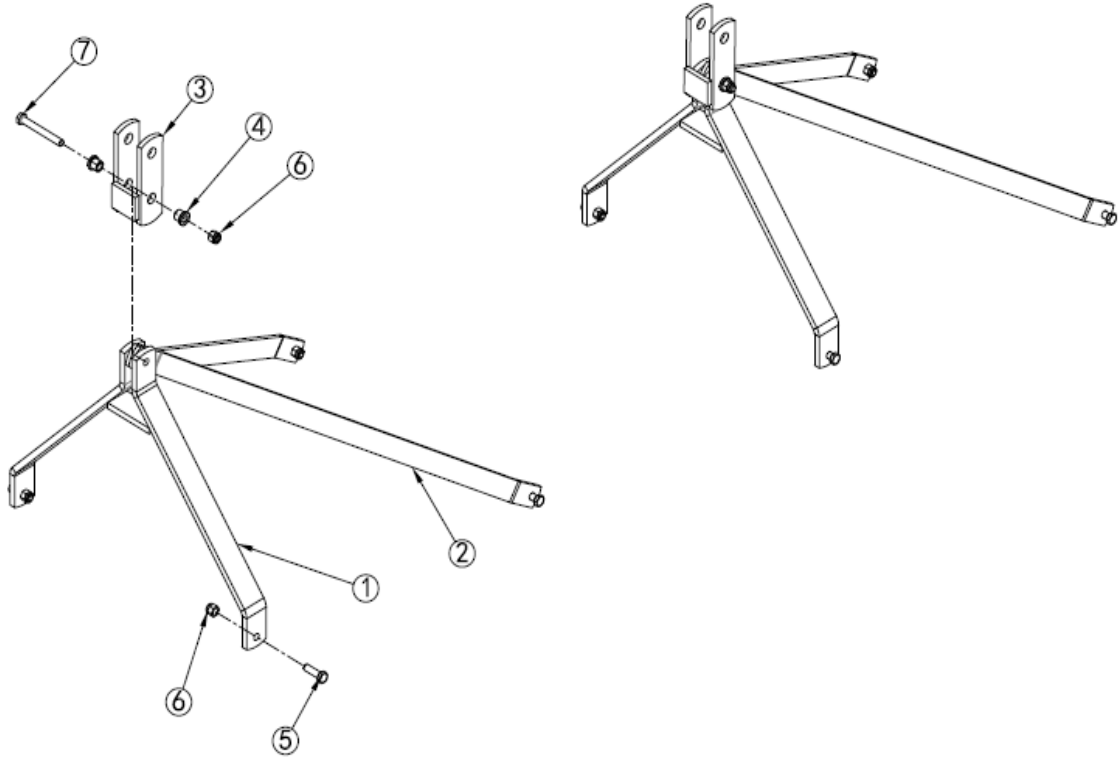
| ITEM | PART No. | NAME & DESCRIPTION | QTY. |
|------|-------------------|------------------------|------|
| 1 | FM150.020 | BEARING SEAT, WELDMENT | 1 |
| 2 | GB/T276-6206-2Z | BEARING 6202-2Z | 2 |
| 3 | FM150.110 | SHAFT | 1 |
| 4 | FM150.126 | BUSH | 1 |
| 5 | FM150.125 | SPACER | 1 |
| 6 | GB/T1096-A6×35 | KEY A6x35 | 1 |
| 7 | FM150.108 | PULLEY, SINGLE GROOVE | 1 |
| 8 | GB/T93-24 | LOCK WASHER 24 | 1 |
| 9 | GB/T6173-M24x2 | NUT M24x2 | 1 |
| 10 | FM150.112 | GASKET | 1 |
| 11 | DM150.108 | KNIFE | 1 |
| 12 | GB/T955-14 | SPRING WASHER 14 | 1 |
| 13 | GB/T5783-M14x25-L | BOLT M14x25-L | 1 |
| 14 | GB1152-M10x1 | ZERK M10x1 | 1 |
| 15 | GB/T5783-M10×35 | BOLT M10x35 | 4 |
| 16 | GB/T97. 1-10 | PLAIN WASHER 10 | 4 |
| 17 | GB/T889. 1-M10 | LOCK NUT M10 | 4 |

DM230.005



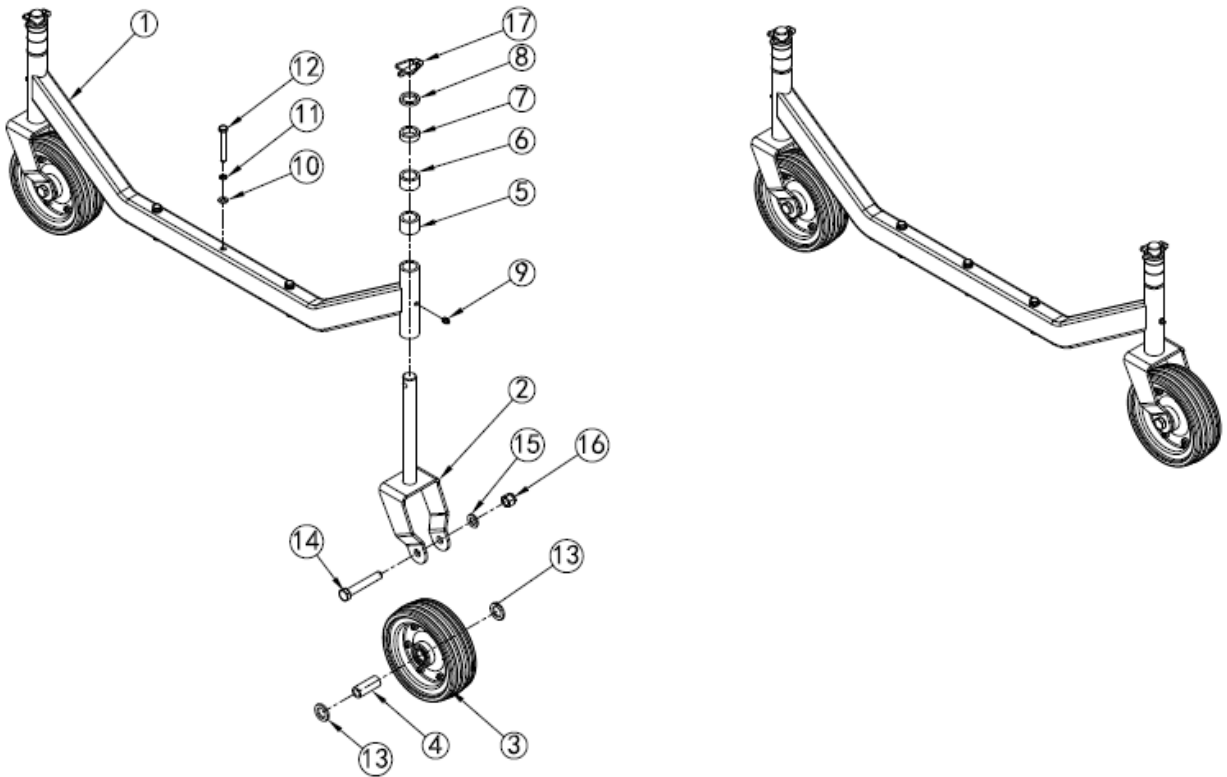
| ITEM | PART No. | NAME & DESCRIPTION | QTY. |
|------|-------------------|-----------------------|------|
| 1 | FM150.020 | BEARING SEAT,WELDMENT | 1 |
| 2 | GB/T276-6206-2Z | BEARING 6202-2Z | 2 |
| 3 | FM150.110 | SHAFT | 1 |
| 4 | FM150.126 | BUSH | 1 |
| 5 | FM150.125 | SPACER | 1 |
| 6 | GB/T1096-A6×35 | KEY A6x35 | 1 |
| 7 | FM150.108 | PULLEY,SINGLE GROOVE | 1 |
| 8 | GB/T93-24 | LOCK WASHER 24 | 1 |
| 9 | GB/T6173-M24x2 | NUT M24x2 | 1 |
| 10 | FM150.112 | GASKET | 1 |
| 11 | DM150.108 | KNIFE | 1 |
| 12 | GB/T955-14 | SPRING WASHER 14 | 1 |
| 13 | GB/T5783-M14x25-L | BOLT M14x25-L | 1 |
| 14 | GB1152-M10x1 | ZERK M10x1 | 1 |
| 15 | GB/T5783-M10×35 | BOLT M10x35 | 4 |
| 16 | GB/T97. 1-10 | PLAIN WASHER 10 | 4 |
| 17 | GB/T889. 1-M10 | LOCK NUT M10 | 4 |

DM230.006



| ITEM | PART No. | NAME & DESCRIPTION | QTY. |
|------|-------------------|--------------------------|------|
| | DM230.006 | | |
| 1 | DM230.014 | HITCH FRAME,WELDMENT | 1 |
| 2 | DM230.102 | TENSION BAR | 2 |
| 3 | DM230.015 | LINKING BRACKET,WELDMENT | 1 |
| 4 | DM230.107 | SLEEVE | 2 |
| 5 | GB/T 5783-M12×40 | BOLT M12x40 | 4 |
| 6 | GB/T 889. 1-M12 | LOCK NUT M12 | 5 |
| 7 | GB/T 5782-M12×100 | BOLT M12x100 | 1 |

DM230.007



| ITEM | PART No. | NAME & DESCRIPTION | QTY. |
|------|------------------|----------------------|------|
| 1 | DM230.012 | WHEEL STAND,WELDMENT | 1 |
| 2 | DM230.013 | WHEEL YOKE,WELDMENT | 2 |
| 3 | FM150.030 | WHEEL,ASSEMBLY | 2 |
| 4 | FM150.107 | BUSHING | 2 |
| 5 | DM230.106 | SPACER 4 | 2 |
| 6 | DM230.105 | SPACER 3 | 2 |
| 7 | DM230.104 | SPACER 2 | 2 |
| 8 | DM230.103 | SPACER 1 | 2 |
| 9 | GB1152-M10x1 | ZERK M10x1 | 2 |
| 10 | GB/T 97. 1-10×2 | PLAIN WASHER 10 | 3 |
| 11 | GB/T 93-10×2. 6 | LOCK WASHER 10 | 3 |
| 12 | GB/T 5782-M10×80 | BOLT M10x80 | 3 |
| 13 | GB/T848-24 | PLAIN WASHER 24 | 4 |
| 14 | GB/T5782-M16×100 | BOLT M16x100 | 2 |
| 15 | GB/T97. 1-16 | PLAIN WASHER 16 | 2 |
| 16 | GB/T889. 1-M16 | LOCK NUT M16 | 2 |
| 17 | LP-11x45 | LINCH PIN 11x45 | 2 |