

ASSEMBLY GUIDE



TS51C Drum Mower



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SCOPE AND PURPOSE

This guide is limited to Ibex TS51C drum mowers (also labeled with the original manufacturer model name, Galfre FR/G 130). The guide covers models manufactured in 2020 and forward.

This manual is a guide to aid in the assembly only. Consult the Quick Start Guide and User Manual for instructions on usage and safety.

UNCRATING

Heavier components can be lifted out of the crate, using lift straps or chains, if a lift is available.



Figure 1 lifting the drum assembly

If no lift is available, the crate will need to be cut open for easier access. Remove the smaller parts, then slide the drum unit out of the crate onto the ground. The drum mower bottom skids drag across the ground during use, so it is alright to drag them to the location that you plan to use for assembly. Lay out the parts so you can see everything in one place.

Take the bag of parts and sort them out in like groupings. It makes finding the hardware much easier during assembly. Refer to Figure 2 and the subsequent list for hardware identification.

Note: Occasionally the manufacturer will pre-install some components and this may result in your hardware assortment being slightly different than what is shown.

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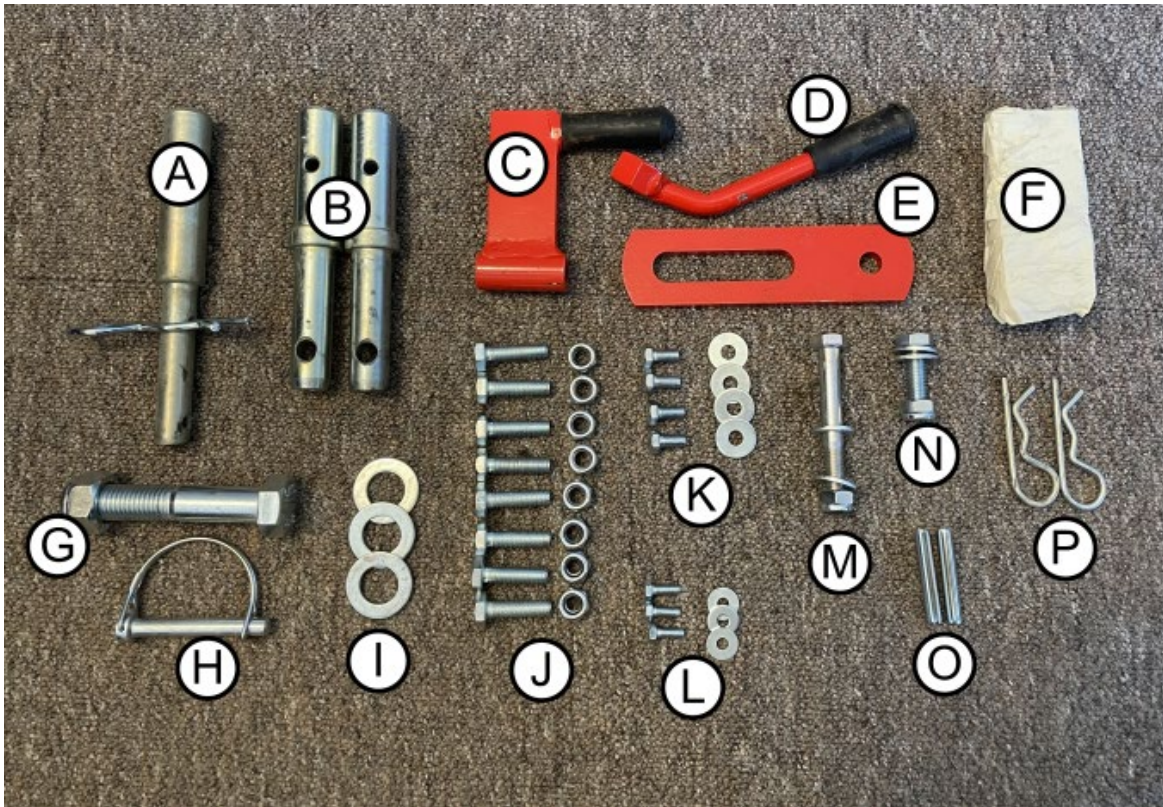


Figure 2 hardware

Hardware Guide

A. Top link pin	I. Pivot restrictor handle washers (Figure 23)
B. 3-point hitch pins (Figure 6)	J. Curtain frame nuts/bolts (Figure 25)
C. Transport lock (Figure 19)	K. Hardware for large PTO guard (Figure 3)
D. Pivot restrictor handle (Figure 23)	L. Hardware for small PTO guard (Figure 5)
E. Pivot restrictor plate (Figure 23)	M. Hardware for transport lock (Figure 19)
F. Drum mower blades	N. Hardware for pivot restrictor plate (Figure 23)
G. Spring arm nut/bolt (Figure 15)	O. Roll pins to retain 3 point hitch pins
H. Stand retention clip (Figure 18)	P. R-clips to secure breakaway bar (Figure 28)

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PTO GUARD INSTALLATION

Install the plastic PTO guards. They are easier to install before assembling the mower. Use the set of 4 screws and washers provided in the hardware bag to install the larger guard on the gearbox facing the tractor as shown in Figure 3. Note that this guard may appear somewhat different, and may already be installed on the gearbox.



Figure 3 larger guard installed on the gearbox facing the tractor

The small guard with a cutout is installed on the 90 degree gearbox on the other side, with the cutout facing the rear. This cutout provides space to allow the PTO shaft to pivot to 90 degrees when the mower is switched to transport mode. This guard is normally already installed.



Figure 4 smaller guard with cut-out facing the rear (cutout may look different than picture)

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Get the small guard without a cutout and use the set of 3 small screws and washers to install it at the drum unit PTO connection as shown in Figure 5.



Figure 5 the other small guard installed on the drum unit

THREE POINT HITCH

Find the two 3 point hitch pins (Figure 2, B) and the 2 smaller roll pins (Figure 2, O). The hitch pins can be installed facing outward or inward to accommodate different lift arm widths, so you may want to bring the hitch close to your tractor to see how it lines up before you decide which position to install the pins.

Position the 3 point hitch so the two arms face up. Oil the holes in the pins and in the hitch, and then oil the roll pin. Secure the roll pin with locking pliers and drive it through the holes with a hammer.

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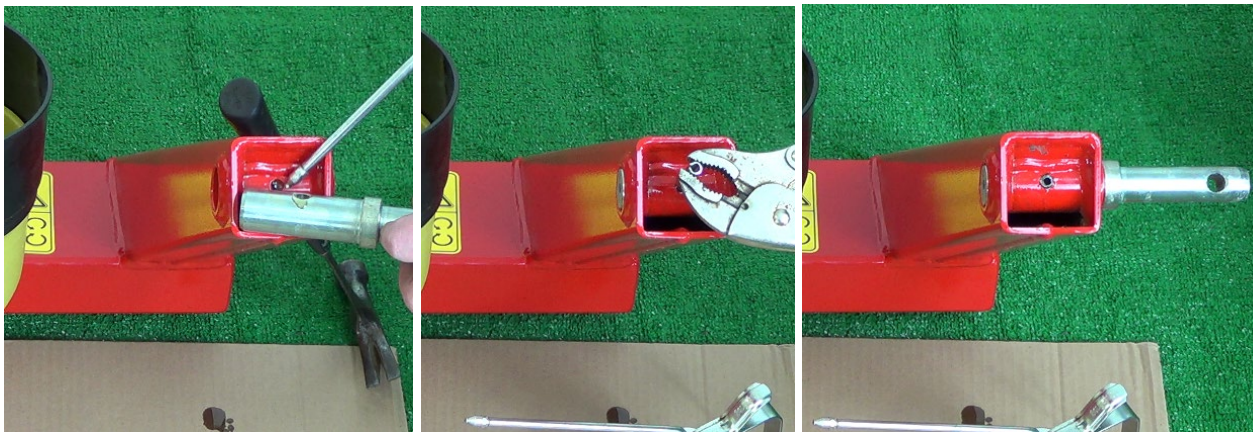


Figure 6 install the pins in the arms as shown

Attach the 3 point hitch to your tractor's lift arms. You will need linchpins to secure them (not included).



Figure 7 3 point hitch attached to tractor's lift arms

Lift the 3 point hitch unit up and install the top link pin (Figure 2, A). Adjust the length of the top link so that the 3 point hitch is plumb (straight up and down).

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Figure 8 plumb the 3 point hitch unit using the top link

BLADE INSTALLATION

The six cutting blades that come with the mower are installed and changed with the blade change tool. The blade change tool is stored on the top of the spring arm that connects the 3 point hitch to the drum unit, shown in Figure 9 fully assembled for identification.



Figure 9 blade tool

To install a blade, position the blade change tool so that the two identical prongs are inserted between the two discs of the drum, as seen in Figure 10. Raise the arm so that the pin of the tool inserts into the slot on the upper disc. Pivot the tool up until there is sufficient clearance, install the blade, and let the tool arm down. Be sure to install the blade so that its angled edges are sloped downward. Once installed, be sure the blade is on the pin and swings freely.

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Note that the drum unit may need to be raised to provide enough clearance to properly angle the tool.

For safety purposes, never place your hand or fingers inside the opened space between the discs.



Figure 10 installing a blade

ATTACHING THE DRUM UNIT TO THE 3 POINT HITCH

Place the drum unit so that it is oriented as shown in Figure 11. Be sure the PTO spline shafts face each other.

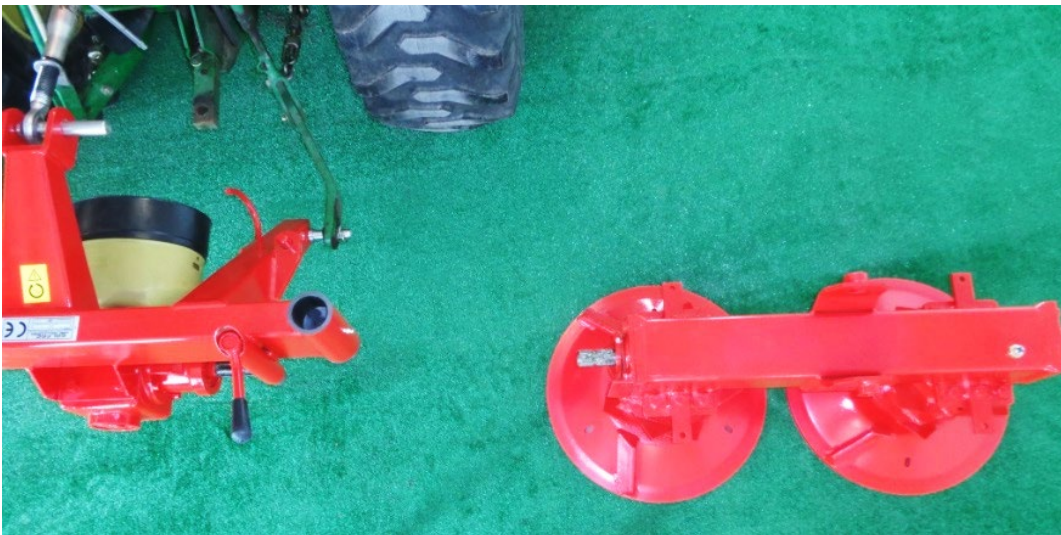


Figure 11 drum unit positioned in relation to the 3-point hitch frame

To connect the 3 point hitch frame to the drum unit, first get the larger lift arm with a swivel tee attached to it, shown in Figure 12. Remove the cap of the tee and place it on top of the drum unit with the tee facing the 3 point hitch. Slide the tee into the 3 point hitch frame and install the cap as shown in Figure 13, threading the nut only until you feel some resistance. The

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nut will be removed later when mounting the top arm. Wait to attach the other end of the lower arm until after the next step.



Figure 12 lower lift arm and swivel tee in place



Figure 13 lower lift arm in place

To install the top arm ("spring arm"), first support the lower arm as shown in Figure 14 with a 2 foot length of 2x4 or a floor jack. Doing this will prevent the pivot pin from falling out of the sleeve when the cap is removed. Attach the top spring arm around the cap as shown in Figure

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14 and secure the nut and bolt. Fully secure the nut this time, but do not over-tighten it as the pin needs to be able to pivot. The 2x4 / jack is no longer needed at this point.

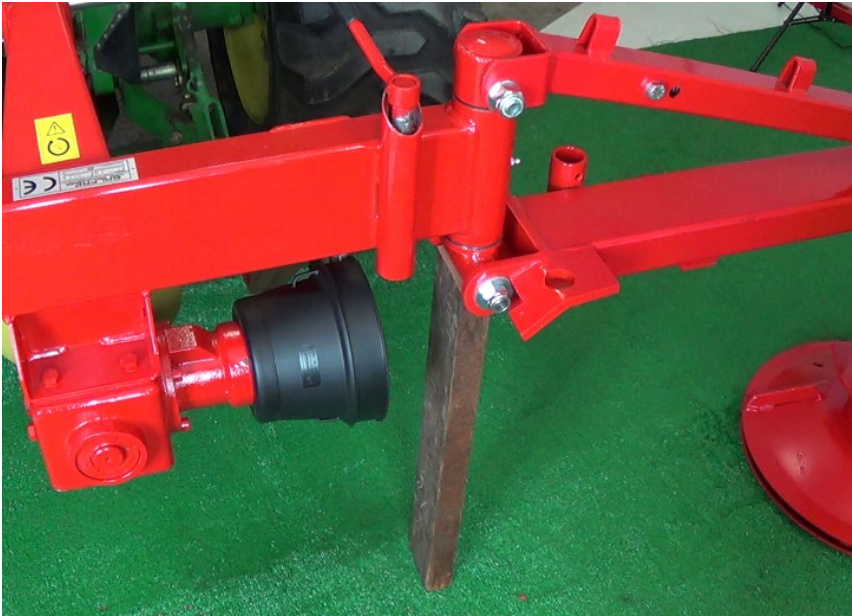


Figure 14 top spring arm installed with pin blocked up by using a 2x4

Connect the lower arm to the spring arm as shown in Figure 15 using the spring arm nut/bolt (Figure 2, G). **Be sure the bolt goes through the loop on the end of the spring.** The lower arm will need to be raised up at an angle as shown in Figure 15 to line everything up.

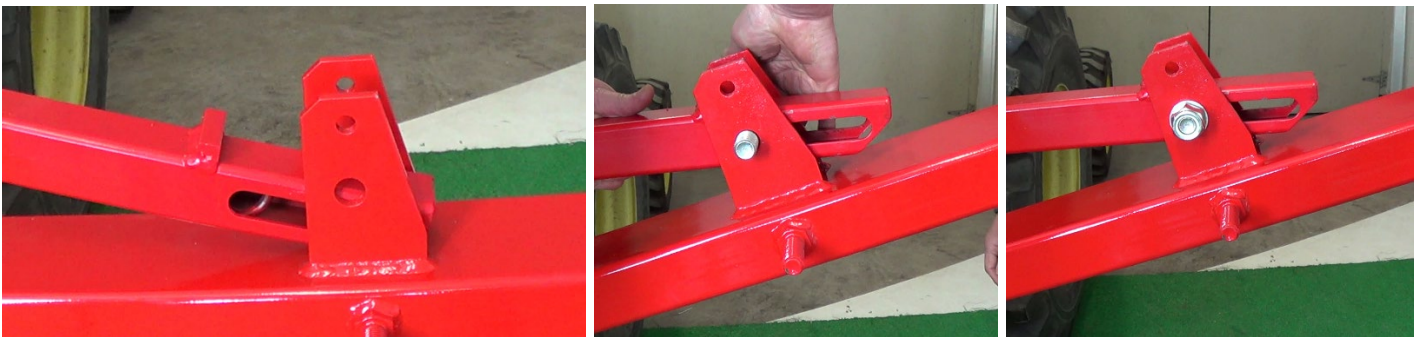


Figure 15 spring arm attachment to lower arm

To attach the lower arm to the drum unit, you will need to put downward force on the lift arm. You will be extending the suspension spring when you do this. If you are working by yourself, try using a ratchet strap to pull the arm down to make this operation easier.

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Figure 16 push the lower arm down to line up with drum unit

The holes must be lined up before attempting to drive the pin through. Use a long screwdriver, long punch, or a similar tool to line up the holes while attempting to drive the pin. Do not force the pin through, as you can damage the nylon bushings. A little oil on the pin can help. Use the top link to adjust the angle and adjust the height of the 3 point hitch to better line up the holes. Use patience as the pin will not go through easily until it is lined up well. Try nudging the drum unit to get all holes aligned at the same time.

Install the washer and nut on the pivot pin. The nut is a nylon locking nut and should not be over-tightened. Insert a screwdriver in the hole in the pin if necessary to prevent it from turning while securing the nut.

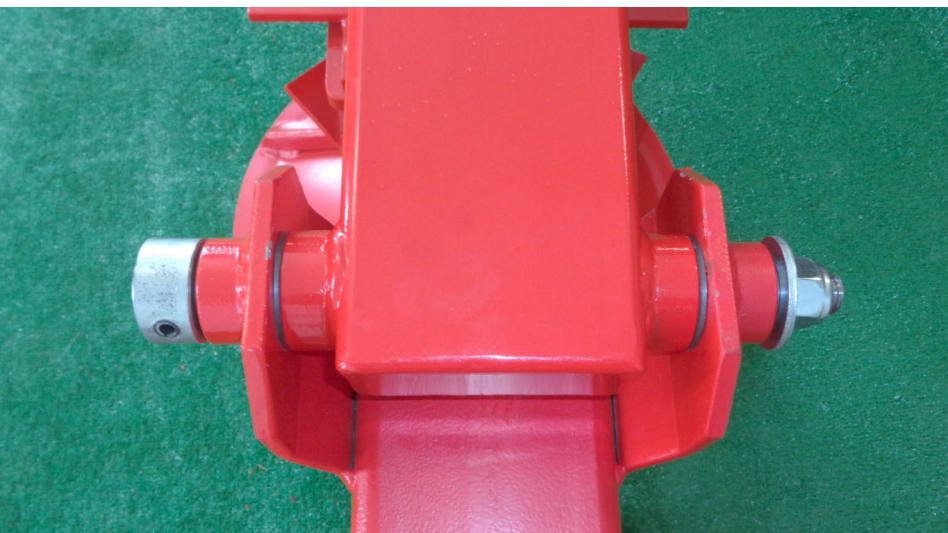


Figure 17 pivot pin installed

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STORAGE STAND

Install the storage stand as shown in Figure 18 using the clip provided (Figure 2, H).



Figure 18 storage stand

TRANSPORT LOCK

Install the transport lock for the spring arm as shown in Figure 19 using the nut/bolt found in the hardware bag (Figure 2, M).



Figure 19 transport lock installed

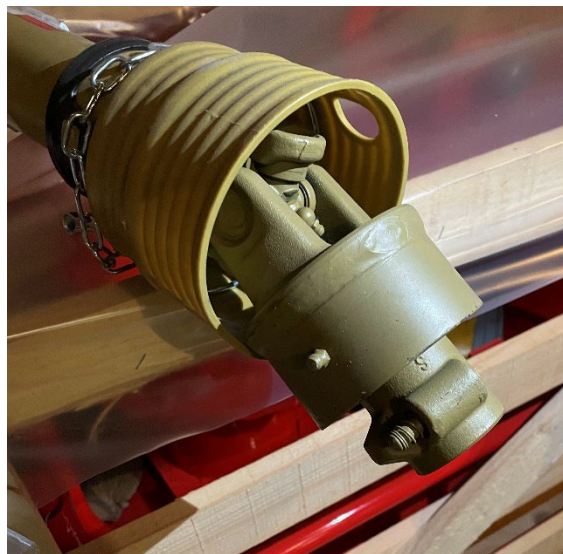
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PTO SHAFTS

Grease the U-joints and the plastic bearings of the PTO shafts before assembly. Your mower comes with two different PTO shafts, one with a slip clutch and another with a one-way clutch. It's important to install them in the correct location, and in the correct direction. Examples of the two clutches are shown below. Note that the shafts that come with your machine may appear slightly different or be a different color.



Slip Clutch



One-Way Clutch

The PTO shaft with the **slip clutch** is attached between the 90 degree gearbox and the tractor, as shown in Figure 20. The slip clutch (the wider end with the springs) attaches to the mower, while the other end attaches to the tractor.



Figure 20 shaft with slip clutch end

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As with any new implement, the shaft that attaches to the tractor **may need to be cut to length**. Consult the included Ibex Equipment PTO Shaft Cutting Guide.

The PTO shaft with the **one-way clutch** installed between the 90 degree gearbox and the mower's drum unit, as oriented in Figure 21. Install the thicker clutch end so that it is attached to the drum unit. **DO NOT CUT THIS SHAFT** as it is cut to the correct length at the factory.

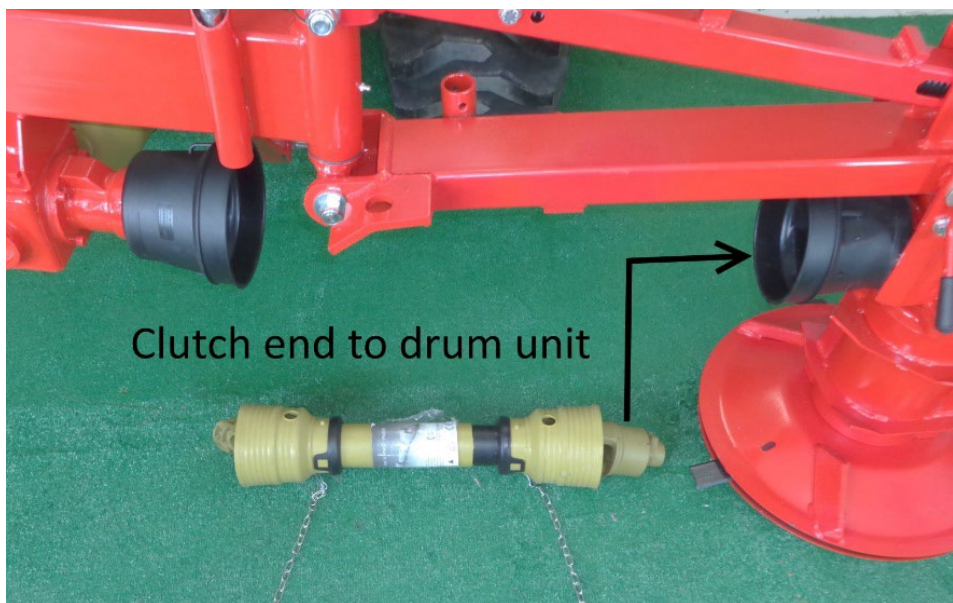


Figure 21 connect the driveline with one-way clutch

Attach the PTO shaft guard chains as shown in Figure 22 so that the guards do not spin during operation.



Figure 22 guard chains attached

Read the manuals that are supplied with your PTO shafts before operating the machinery. Failure to follow all safety procedures in the manufacturer's literature could lead to equipment damage, personal injury, or death.

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As noted before, the PTO shaft that attaches to the tractor is supplied long because the lengths of lift arms on tractors vary. It is typical to have to shorten the PTO shaft before using the implement with your tractor. If you have more than one tractor, it is important to cut the shaft for the tractor you will be using the implement with. Mark the PTO shaft with permanent marker as to which tractor it is to be used with to avoid confusion that could lead to damage. Using a PTO shaft that is too short can cause the PTO to separate during use that could lead to damage or personal injury.

The PTO shaft must **never completely collapse** during operation. This would compress the weight of the implement against the tractor and implement's PTO splines. The output bearings on the tractor are not designed to accept thrust forces against the PTO.

Consult the included Ibex Equipment PTO Shaft Cutting Guide to learn how to check whether the shaft must be cut and how to perform this procedure.

PIVOT RESTRICTOR

The drum unit rests completely on the ground during operation, and variation in the terrain will cause it to move up and down and pivot on the central pin. The pivot restrictor keeps the mower from pivoting too far and prevents excess movement while in transport mode.

Install the pivot restrictor plate (Figure 2, E) and pivot restrictor handle (Figure 2, D) using the hardware (Figure 2, N). Use Figures Figure 23 and Figure 24 as a guide. **Note that the washers provided to you may look different than in the picture.** Often standard flat washers are provided as shown in the Hardware Guide on p.2 instead of the odd-shaped washers shown. Install the washers in whichever configuration places the pivot restrictor plate in a straight vertical position (plumb).



Figure 23 pivot restrictor plate & handle installation

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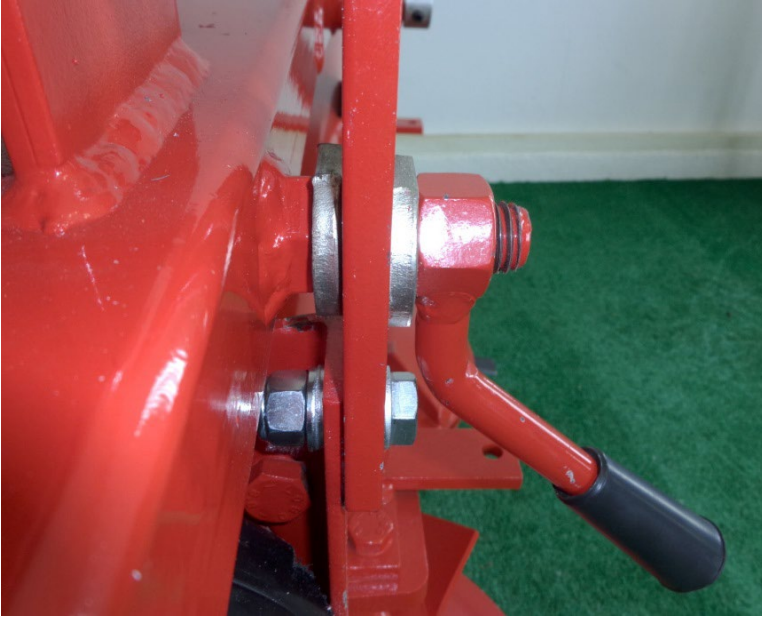


Figure 24 pivot restrictor plate & handle shown installed from side

The pivot restrictor handle should be tightened **during transport only**. During mowing, the handle is loosened so that the mower pivots freely within the range allowed by the slot in the restrictor plate.

GUARD INSTALLATION

Use the curtain frame nuts & bolts (Figure 2, J) to install the curtain frame as shown in Figure 25. Align the pin of the front frame piece to the hole in the rear frame piece, then bolt both onto the drum unit. Do not install the optional bumper guard yet (the double-T shaped frame seen in Figure 27), as the curtain must be fitted first. It's best to fit all nuts & bolts loosely before tightening them to allow for adjustment as the holes are not precision-aligned.

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Figure 25 front guard has six holes

Secure the curtain around the frame using the included straps as shown in Figure 26.



Figure 26 curtain straps secure to the guard frame

You can now install the optional bumper guard if desired. The bumper guard can help to cut certain taller crops more efficiently.

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Figure 27 curtain installed with 2 holes for toe guard facing forward

SAFETY RELEASE (“BREAKAWAY BAR”)

The safety release bar (also called the “breakaway bar”) is installed in the orientation shown in Figure 28 when the mower is in mowing position.



Figure 28 safety release bar

The breakaway bar is removed and reinstalled in a different position for transport mode. See the owner’s manual for more information regarding switching to transport mode.

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LUBRICATION

Verify that there is oil in the 90 degree gearbox and drum unit gear chamber, and lubricate all grease points. Some of the grease points will take more grease than usual the first time they are lubricated due to filling up the air space between the bushings.

The 90 degree gearbox is filled to the bottom of the fill hole/fill level hole on the side.

The gearbox over the drums should contain about 3 quarts of oil. The oil is not easily visible, so use a straw or another type of clean stick to check the level when the drum unit is on level ground. About 1-3/4 to 2 inches of oil is the correct level.

Do not overfill the gearboxes. Having the gearboxes too full of oil will cause overheating, foaming and premature failure of the lubricating oil.

The correct oil for both the 90 degree gearbox and the drum unit reservoir is a gear oil near 90 weight (80W90 is commonly found in stores) that is rated for EP, or extreme pressure.