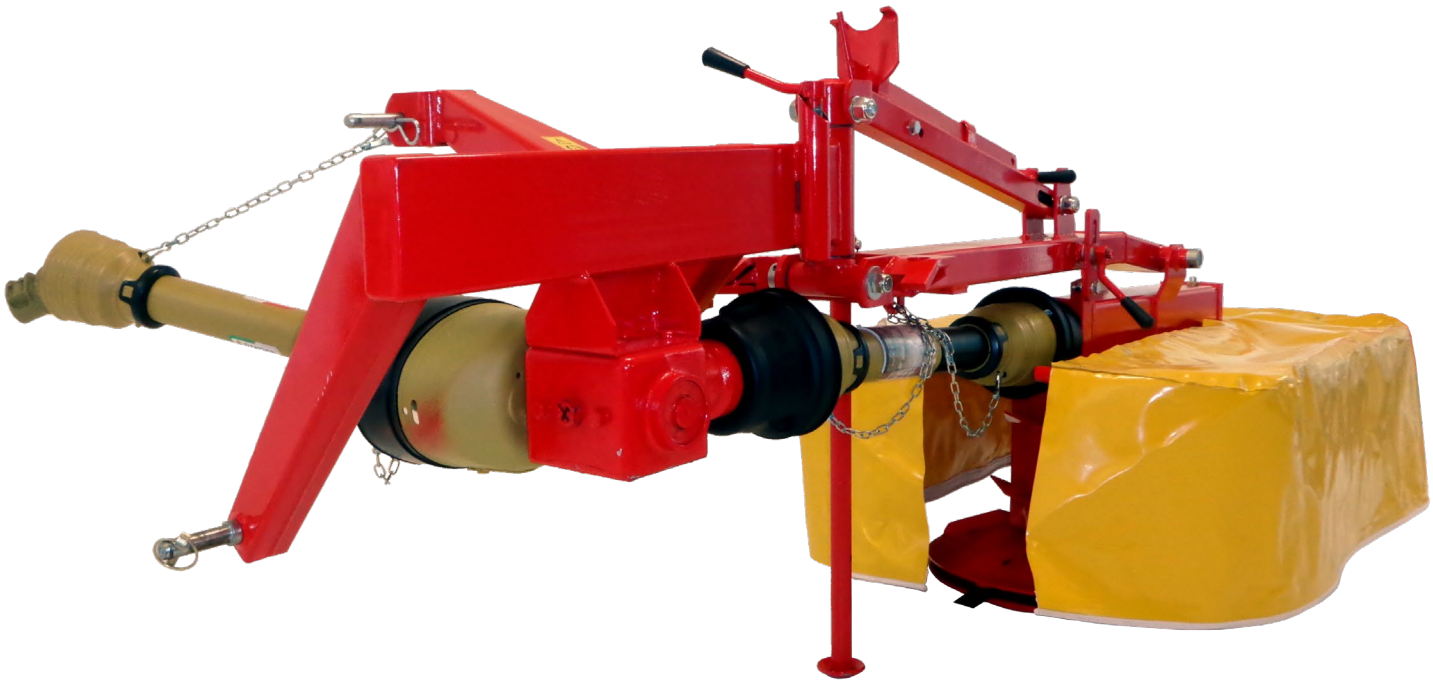
Ibex TS51C Drum Mower Assembly and Quick Start Guide



Contents

Scope and Purpose

This guide is limited to Ibex TS51C drum mowers (also labeled as Galfre FR/G 130). The guide covers models manufactured in 2020 and forward.

This manual is a guide to aid in the assembly and start-up basics only. Consult the operations 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.

Figure 2 parts ready to assemble.

Take the bag of parts and sort them out in like groupings. It makes finding the hardware much easier during assembly.

Figure 3 bag of hardware.

Figure 4 hardware sorted out.

Grease the PTO drivelines before assembly. Also grease the plastic fittings on the free rotating plastic guards. It's much easier to do before assembly. Consult the driveline manuals that are attached to the PTO drivelines for instructions on lubrication. Keep the driveline manuals for future reference.

Guard Installation

The plastic guards for the drivelines are easier to install before assembling the mower.

Figure 5 the large guard installs on the gearbox facing the tractor

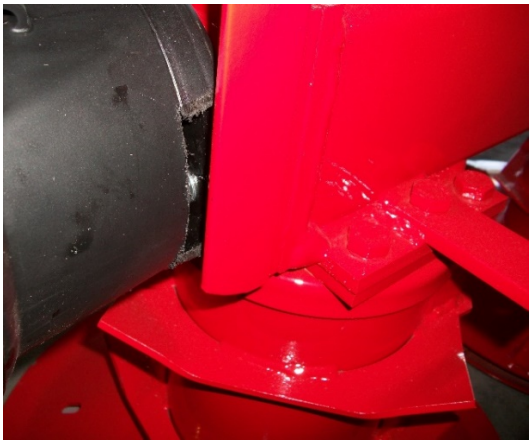


Figure 6 the guard with the notched out area is installed on the drum unit as shown (cutout may look different on your machine)

Figure 7 the third guard is installed on the remaining location on the 90 degree gearbox

Three Point Hitch

The 2 lift pins must be secured to the 3 point hitch. Position the three point hitch so the two arms face up. Find the two lift pins and the 2 smaller roll pins (spring pins) shown below. Oil the holes in the pins and the hitch then oil the roll pin. Secure the roll pin with locking pliers and drive through the holes with a hammer. The pins can be installed in a different configuration than shown, for example if the width of your tractor's lift arms is narrow, you may want to install the pins facing inward.

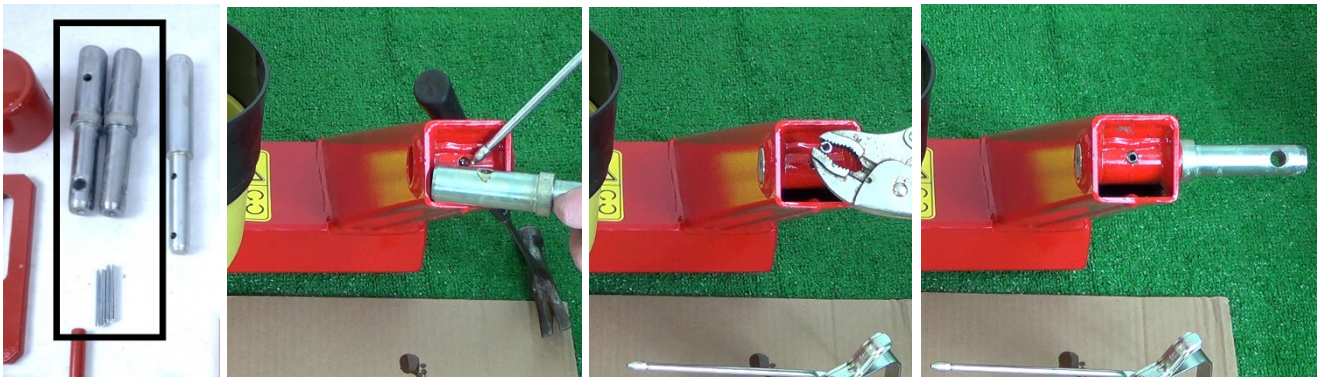


Figure 8 install the pins in the arms as shown on both sides

Move the 3 point hitch assembly over to the back of your tractor. Attach to the tractor lift arms and install the lynch pins.

Figure 9 attached to lift arms

Lift the 3 point hitch unit up and install the top link pin. Adjust the length of the top link to make the 3 point hitch close to straight up and down.

Figure 10 level the 3 point hitch unit with the top link

Blade Installation

The 6 cutting blades that come with the mower are installed and changed with the blade tool. The blade tool is stored on the top of the spring arm that connects the 3 point hitch to the drum unit, shown here fully assembled.

Figure 11 blade tool

Find the 6 blades and separate them. Install them with the beveled edges face up. Using the blade tool, pry open the drums and install the blade by fitting the hole of the blade over the pin inside. For safety purposes, never place your hand or fingers inside the opened space between the discs. Position the tool, raise the arm, install the blade, and let the tool arm down. Be sure the blade is on the pin and swings freely.

Figure 12 installing a blade

Attaching the Drum Unit to the Three Point Hitch

Place the drum unit so that it is oriented as shown in Figure 13. Be sure the PTO spline shafts face each other.

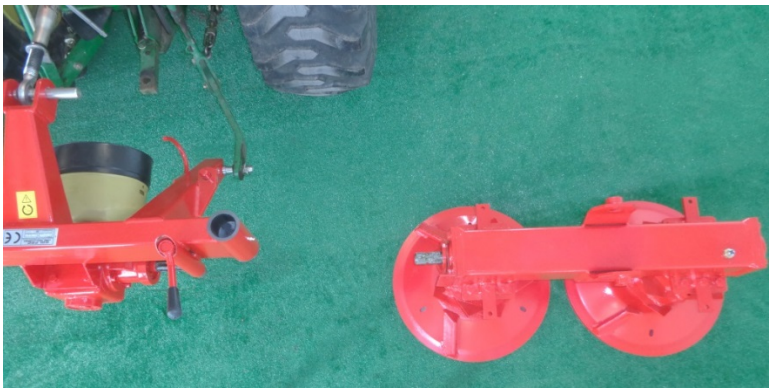


Figure 13 move the drum unit over to the three point hitch assembly like this

You will use the swivel tee subassembly shown below to connect two lift arms to the three point hitch assembly.

Figure 14 swivel tee assembly

Figure 15 the cap and hardware are shown here for the swivel tee

Put the swivel tee through the hole, without the cap, so that the cap goes on top. Install the nut & bolt only until you feel some resistance – don't tighten all the way as the bolt will need to come back out to mount the top arm later. You will need either an adjustable wrench or a 30mm socket to secure the nut.

Figure 16 swivel tee in place for next step

Next get the shorter of the two swivel pins as seen in Figure 17. It usually has the washer and nut attached.

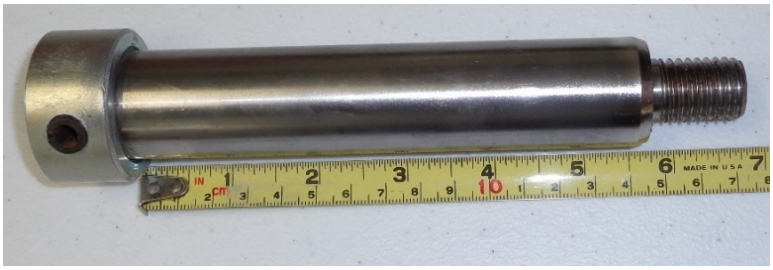


Figure 17 short swivel pin

Align the two holes on the support arm so that they centered to the bushing. The pin will not go through and the plastic bushings could be damaged if the holes are not well aligned first. You can use an adjustable height stand such as a chair to hold up the arm while aligning the holes. Take note of the orientation of features so that it is installed right side up.

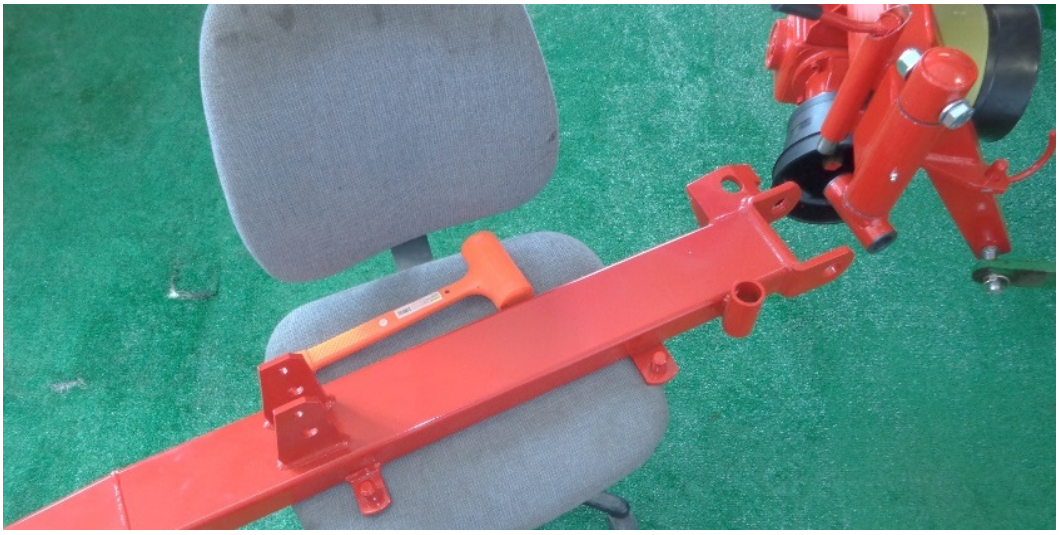


Figure 18 align holes in arm to swivel tee

Adjust the centers of the holes to be concentric and well-aligned before attempting to push the pin through.

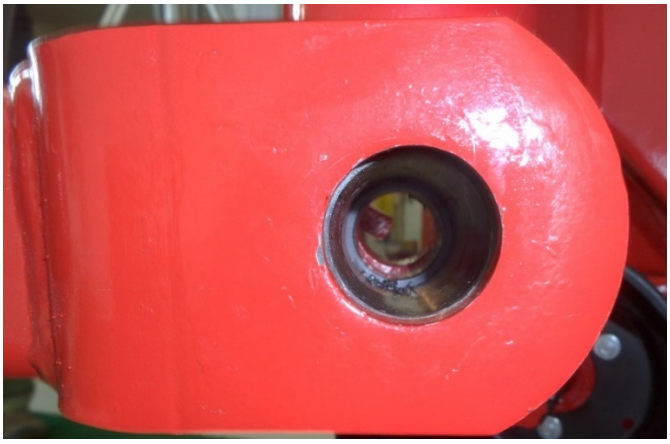


Figure 19 holes aligned to allow pin to pass

Drive the pin through. Fit the washer and the nut. The nut takes a 30mm wrench. Do not over tighten, just snug. Use a screwdriver, or something that will fit through the hole in the round head to keep the pin from turning.

Figure 20 pin through and nut started

The top spring arm will fit onto the top cap as shown. Again, do not over-tighten as it needs to be able to pivot. Before removing the bolt from the top cap, raise the three point hitch on the tractor and cut a 2 foot length of 2x4 to support the lower arm. Let the three point hitch down so it is resting on the 2x4. This way the pin will not fall out of the hole when the hardware is removed on the top.

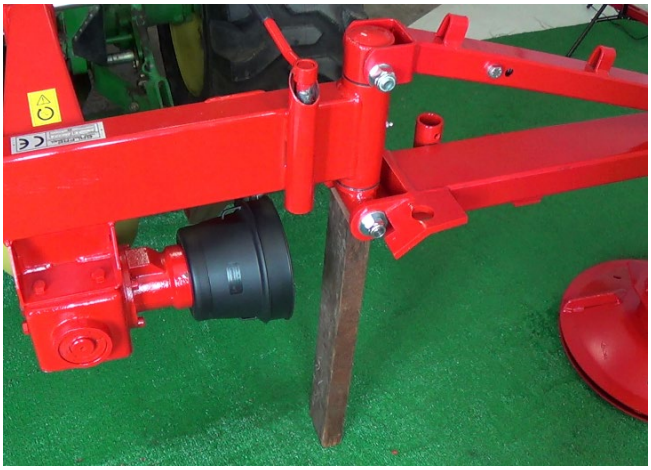


Figure 21 top spring arm installed with pin blocked up by using a 2x4

Next, get the hardware to secure the spring arm to the lower lift arm as shown in Figure 22.

Figure 22 hardware to attach spring arm to lower arm

Connect the lower arm to the top arm as shown in Figure 23. Be sure the bolt goes through the loop on the spring inside the top arm. The lower arm will need to be raised up at an angle to line everything up.

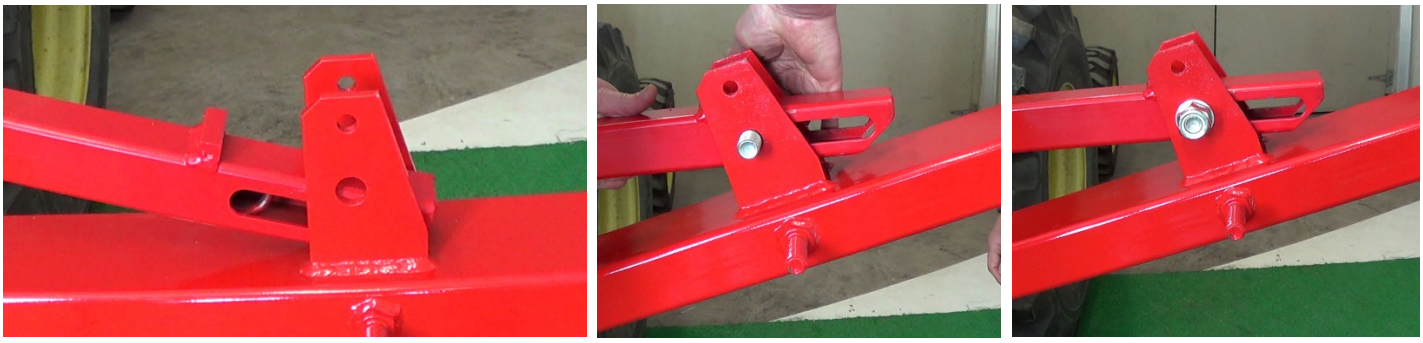


Figure 23 top spring arm attachment to lower arm

Attaching the Drum Unit

Position the drum unit so that the center pivot holes line up when the arm assembly is pushed down. If you are working by yourself, using a ratchet strap to pull down the spring loaded arm will make this operation easier.

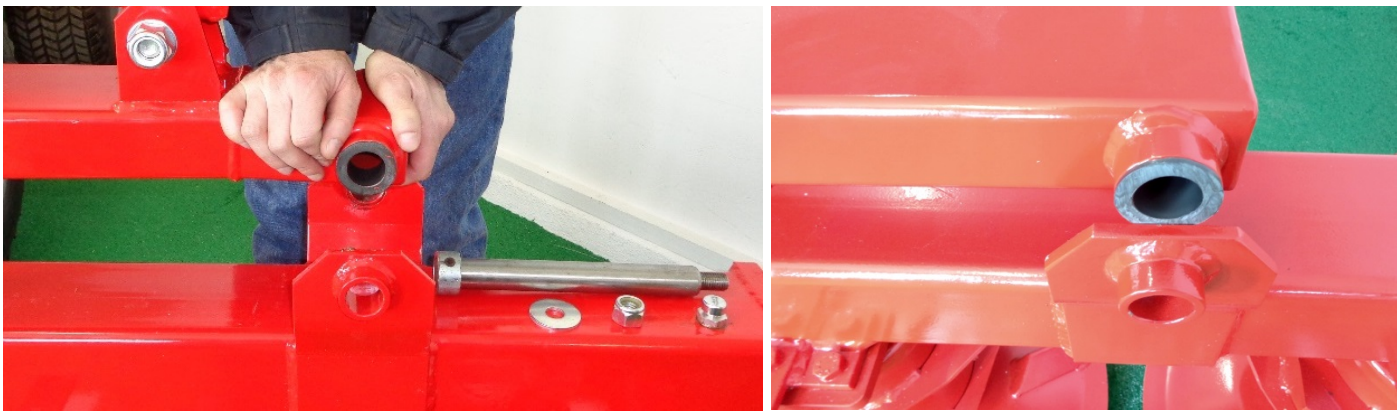


Figure 24 push the lower arm down to line up with drum unit

The centers must be lined up before driving the pin through the hole. Use a long screwdriver, long punch, or something similar to line up the holes. Do not force the pin through, as you can damage the plastic bushings. A little oil on the pin can help. Use the top link to adjust the angle and adjust the three point height on the tractor to put in best position. 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.

Figure 25 holes are close to being aligned

Put the washer and nut on the pivot pin, but do not over-tighten.

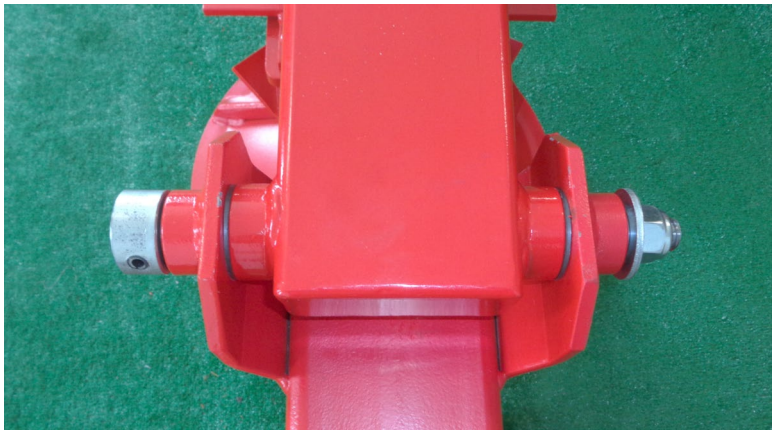


Figure 26 nut and washer installed on pivot pin

Transport Lock

Install the transport lock for the spring arm as shown. Use a mallet to drive the rubber grip over the pin as shown. There are 2 rubber grips, use the smaller of the two.

Figure 27 transport lock and rubber grip installation

PTO Drivelines

The PTO driveline with the one-way clutch shown in the picture below is installed between the 3 point hitch and the drum unit. Install the wider clutch end so that it is attached to drum unit.

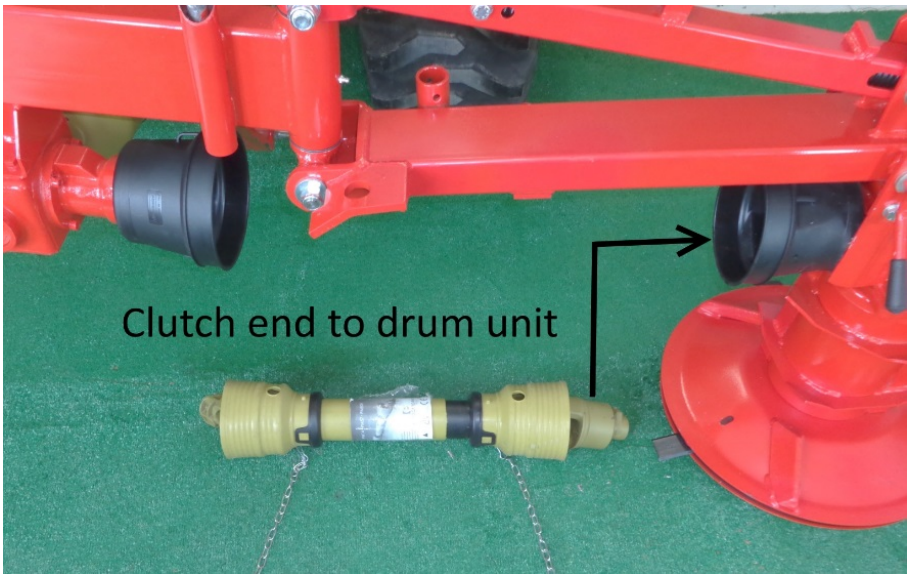


Figure 28 connect the driveline with one-way clutch

Attach the guard chains so that the guards do not spin for your safety.

Figure 29 guard chains attached

The driveline with the slip clutch is attached between the 90 degree gearbox and the tractor. The slip clutch (the wider end with the springs) attaches to the mower, while the other end attaches to the tractor.

Figure 30 shaft with slip clutch end

Pivot Restrictor

The drum unit pivots to adjust to the terrain while cutting. The pivot restrictor keeps the mower from pivoting too far and also secures it while in transport mode. Gather the parts shown in Figure 31 with two 19 mm wrenches. Take care to face the head of the bolt out as the clearance with the handle is tight. Only 3 of the 4 washers are used.

Figure 31 restrictor plate with hardware

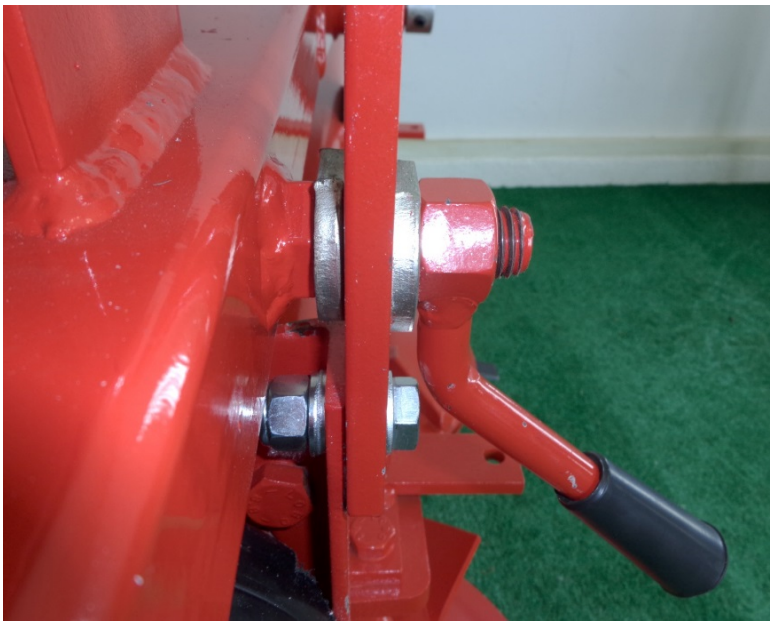


Figure 32 plate shown installed from side

Assemble as shown in Figure 32. The clamp handle should be tightened during transport to keep the drums from pivoting down and possibly dragging. 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

The front guard frame has 6 holes and a pin that slides into the tubing of the rear frame as shown.

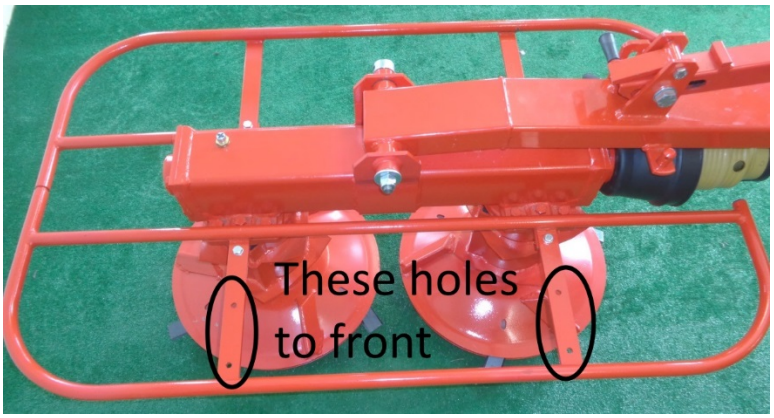


Figure 33 front guard has 6 holes

The 8 sets of hardware shown in Figure 34 are used to fasten the guard frames. Align the pin in the front frame to the hole in the rear frame, then bolt on. Do not install the bumper guard yet (the double-T shaped frame seen in Figure 35), as the curtain must be fitted first. You will need 2 wrenches that are 17mm for these nuts and cap screws.

Figure 34 eight sets of fasteners used for attaching guard frame

Install the curtain with the 2 cutout holes facing forward, as the bumper guard goes through these holes.

Figure 35 curtain installed with 2 holes for toe guard facing forward

Secure the bumper guard with the remaining screws. Secure the curtain with the included straps.

Figure 36 curtain straps secure to the guard frame

Lubrication

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.

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

The gearbox over the drums contains about 3 liters of oil. The oil is not easily visible, so use a straw or the like to check the level. 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. If you are uncertain how to properly fill the gearbox with oil, please contact your dealer for advice.

Verify that there is oil in the 2 gearboxes 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.

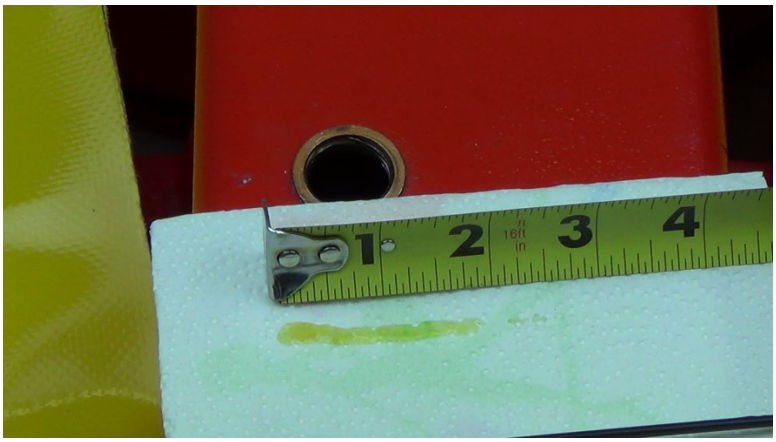


Figure 37 correct oil level in drum gearbox

PTO Safety Warnings

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

The primary PTO shaft is supplied long because the length of the draw arms on tractors vary. It is typical to have to remove excess length from the PTO 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 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 of personal injury.

The PTO shaft must never completely collapse in use, because to do so would put the weight of the implement attached to the tractor pushing against the PTO's of the tractor and implement. The output bearings are not designed for thrust forces pushing the PTO forward into the gearbox, and could cause severe damage. This could be an expensive repair on the tractor if the PTO bearings or gearing were damaged due to an improperly fitted PTO shaft. If you have to lift the implement to attach the PTO, then the PTO shaft is too long and must be cut.

The PTO shaft going to the tractor should have 2 inches of space to retract when the distance between the splines on the tractor and implement are at minimum. If this is not the case, the PTO must be cut to avoid damaging the tractor or the PTO shaft. If you need to cut the PTO shaft, see the instructions that came with the shaft.

Cutting the PTO Shaft to Fit the Tractor

The PTO shaft that attaches to your tractor may be too long to fit and will have to be shortened. The process discussed here will be different for different models of tractor, so do not use these measurements as they may not work for another make and model tractor.

First, have the implement attached to the tractor so that it is adjusted as it will be used, and that the PTO splines on the tractor and the implement are at the same height so the distance between them is at the minimum condition. Attach both ends of the PTO to the tractor and to the implement with the PTO split apart in two pieces. The PTO guard on the gearbox is removed for better visibility. Orient the shafts so that they pass by one-another as parallel as possible.

Figure 38 PTOs installed to mark overlap

Using a straight edge, transfer a mark from the end of the tube section to the other section as shown here and in the manual that comes with the PTO. This line represents how much the shafts are too long to fit together. The

manufacturer of the PTO shafts recommends adding an inch and a half to the amount to cut off the plastic tube and the steel telescoping tube of each half of the PTO.

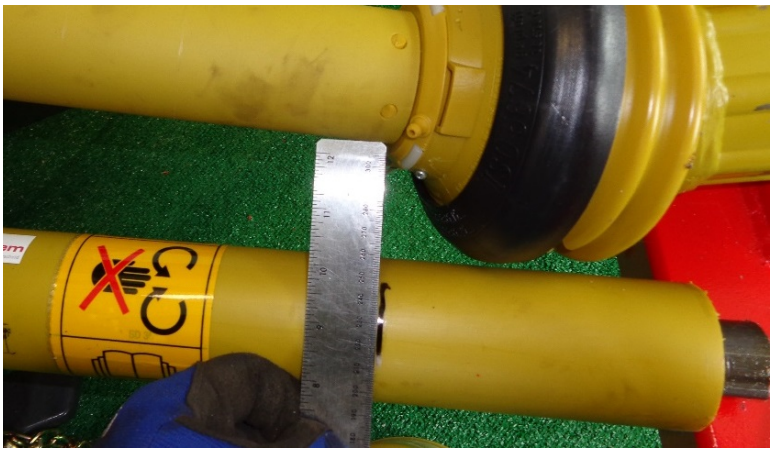


Figure 39 mark overlap length

The overlap length is 150mm for our tractor. Add an inch and a half (40mm) to that for our cutoff length. The amount to cut off is 190mm. That will be 19 cm on a typical ruler. These measurements are metric because the instructions given by the manufacturer of the PTO are in metric.

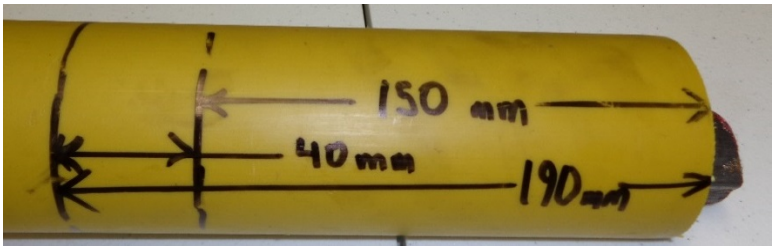


Figure 40 cut off length marked

Cut the measured length of plastic tube, leaving the steel shaft inside not cut.

Figure 41 plastic tube cut

Use the cut length of plastic tube to mark the remaining 3 cuts. Align the end of the tube with the end of the shaft as shown in Figure 42.

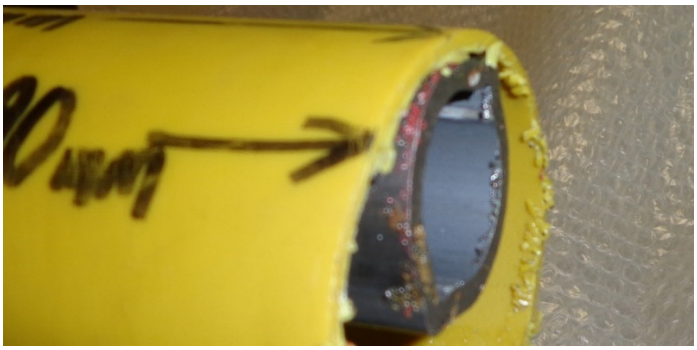


Figure 42 align end of tube to end of shaft

Use the other end of the tube to mark the cut length on the steel shaft.

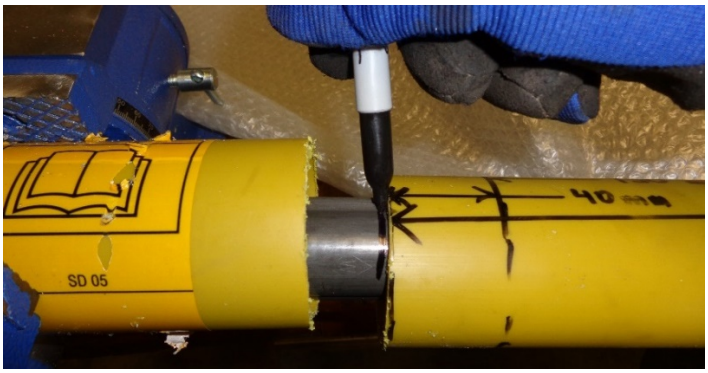


Figure 43 use tube to mark the cut length to steel shaft

Now the shaft is marked to cut the same length as the plastic tube.

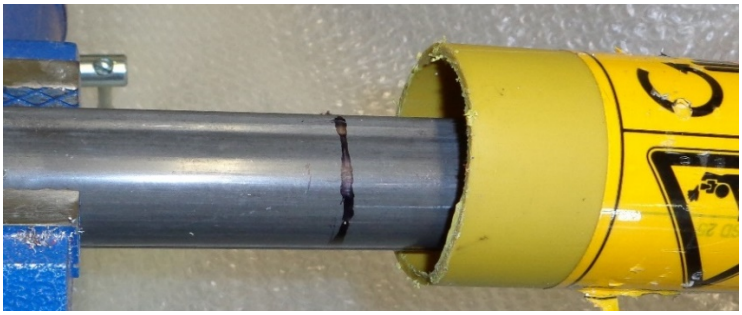


Figure 44 shaft is marked to cut off same length as plastic tube

Cut the shaft using a metal cutting blade such as a hack saw, band saw, or similar. When cutting the steel shaft, clamp it in a vise using the discard end to clamp on. Be sure to wear eye protection.

Figure 45 clamp on the part of the shaft that is being cut off, then cut

Repeat the process so that both shaft halves have had the same length removed.

When the cut is complete, there will be metal shavings and burrs that need to be removed.

Figure 46 burrs and shavings must be removed

Using a file, grinder, wire wheel, flap wheel, grinding disk or what have you, de-burr the shafts after you cut them.

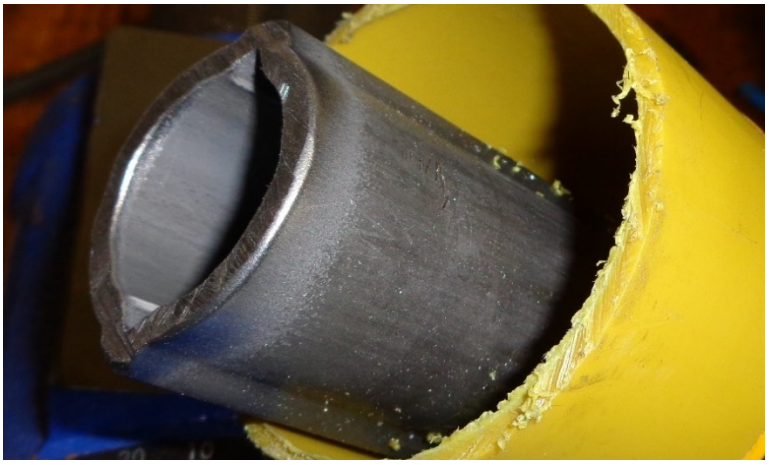


Figure 47 burrs removed with a file, grinder and power wire wheel.

Before re-assembling the shafts, push a rag down into each shaft and then around the outside to clear out debris.

Now that both shaft halves are clean inside and out, grease the inside of the bigger shaft. Re-assemble the shaft.

Figure 48 spread grease inside outer shaft

Installing the PTO Shaft

The newly cut PTO shaft should now fit between the tractor and the implement when the implement is attached to your tractor. There should be sufficient clearance to attach the end that attaches to the tractor when the PTO splines are at the same height.