TRACTORTOOLS DIRECT

Galfre 130 Drum Mower Assembly Instructions

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(260) BALE-HAY

Black Hole Conditioning System

Contents

Section 1 Mower Assembly

Scope and Purpose

This guide is limited to the Galfre *large frame* 130 drum mowers sold by Tractor Tools Direct. The guide covers models manufactured in 2014 and forward.

This manual is a guide to aid in the assembly of the drum mower models listed above. Consult the operations manual for instructions on usage and safety.

Uncrating

Your crate will look like this when you receive it.

It will weigh about 810 pounds in the crate, so you will need a forklift, front loader with forks or a delivery truck with a lift gate to unload it at your location.

You can assemble the unit outside, but on a smooth floor indoors is easier. If outside, putting down a tarp makes finding dropped hardware easier.

Figure 1 crate for Galfre 130 drum mower

If you have a forklift or a loader that you can lift the heavier assemblies out, then use that with a lift strap.

Figure 2 lifting the drum assembly

If no lift is available, then the crate will need to be cut open removing one long side. You will take out the smaller parts first, then when only the unit with the 2 drums remains, slide the drums out of the crate onto the

ground or floor. Having 2 people is easier. It will not hurt anything to drag it across the floor. The drum mower bottoms drag across the ground anyway during use.

Layout the parts so you can see everything in one place.

Figure 3 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 4 bag of hardware.

Figure 5 hardware sorted out.

Grease the PTO driveline universal joints 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.

Figure 6 grease points on PTO drivelines

Guard Installation

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

Figure 7 the large guard installs on the gearbox facing the tractor

Figure 8 the guard with the notched out area is installed on the drum unit as shown

Figure 9 the third guard is installed on the gearbox

Three Point Hitch

The 2 pins must be secured to the 3 point hitch. Position the three point hitch so the two arms face up. Find the two pins and the 2 roll 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.

Figure 10 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 11 attached to lift arms

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

Figure 12 level the 3 point assembly with the top link

Blade Installation

The 6 blades 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 13 blade change 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. Never put your hand or fingers inside the opened drum. 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. The assembly video shows this in greater detail, and is on our website at www.tractortoolsdirect.com.

Figure 14 installing a blade.

Attaching the Drum Unit to the Three Point

Place the drum mower section so that it is oriented as shown. Be sure the PTO spline shafts face each other.

Figure 15 move the drum assembly over to the three point assembly like this

You will use the swivel tee subassembly shown below to link the three point hitch assembly to the arms that connect to the drum unit.

Figure 16 swivel tee identification

Figure 17 the cap and hardware are shown here for the swivel tee

Put the swivel tee through the hole so that the cap is on top. You will need either an adjustable wrench, or a 30mm socket. Don't tighten all the way, the bolt on top will need to come back out to mount the top arm later. The photo on the right shows the two arms connected so you can see the completed operation.

Figure 18 swivel tee in place for next step and the completed assembly to the right

Next get the shorter of the 2 pins. It usually has the washer and nut attached.

Figure 19 short pin identification

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 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 20 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 21 holes aligned to allow pin to pass

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

Figure 22 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 move. 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 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 23 top spring arm installed with pin blocked up by using a 2x4

The next hardware you will need is shown here.

Figure 24 use this hardware to attach spring arm to lower arm

Connect the lower arm to the top arm. Be sure the bolt goes through the loop on the spring inside the top arm.

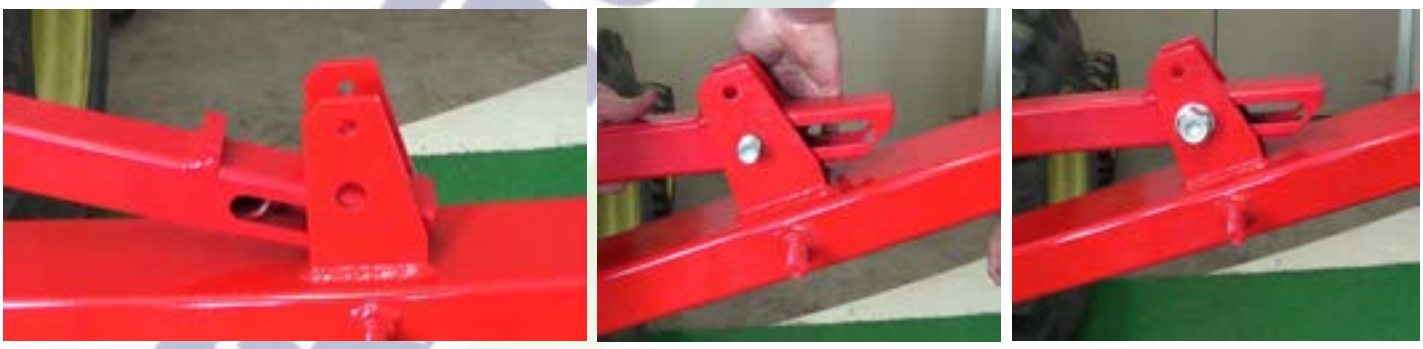

Figure 25 top spring arm attaches to lower arm here

Attaching the Drum Assembly

Position the drum mower subassembly so that the center pivot holes will 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.

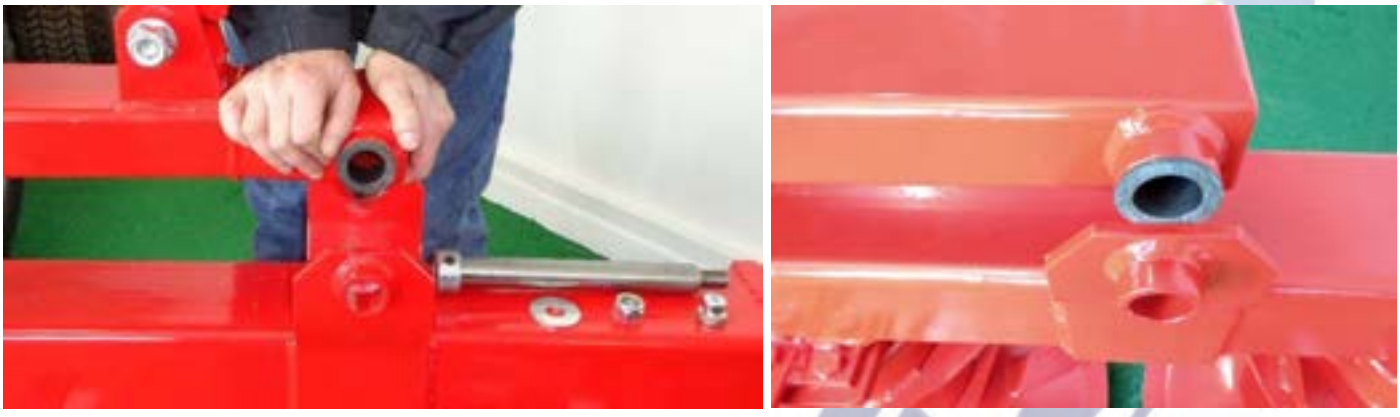

Figure 26 holes line up step 1

The centers must be lined up before driving the pin through the hole. Use a tapered pin or something smaller than the pin to line up the holes. The chamfer on the pin will only line up a 1/32” of mismatch. 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. Nudge the drum assembly to get both holes aligned at the same time.

Figure 27 holes are close to being aligned

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

Figure 28 pin is through and the nut is started

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 one of the two.

Figure 29 transport lock and rubber grip installation

PTO Driveline

The shorter PTO driveline is installed between the 3 point hitch and the drum mower. Install the big end with the free running clutch so that it is on the drum assembly.

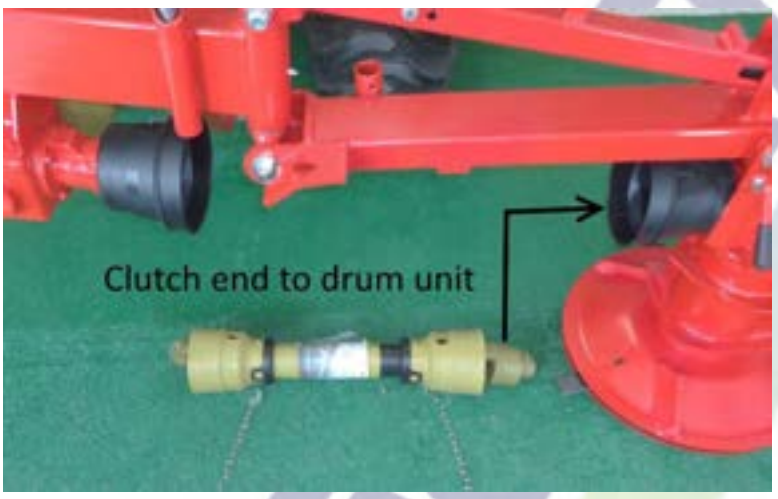

Figure 30 connect the short driveline with one way clutch

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

Figure 31 guard chains attached

Angle restrictor plate

The drum mower pivots to adjust to the terrain while cutting. The restrictor plate keeps the mower from pivoting too far. Gather the parts shown below in figure 32 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 32 restrictor plate with hardware

Figure 33 plate shown installed from side

Assemble as shown in figure 33. The arm is kept tight during transport to keep the drums from pivoting down and possibly dragging on the ground. For mowing, the clamp arm is loosened 2 turns out so that the mower pivots within the range allowed by the slot.

Guards Installation

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

Figure 34 front guard has 6 holes

The 8 sets each of hardware shown here are used to fasten the top guards. Install the guards aligning the pin in the front to the hole in the rear guard, then bolt on. Do not install the toe guard yet, as the curtain must be fitted first. You will need 2 wrenches that are 17mm for these nuts and cap screws.

Figure 35 eight sets of fasteners used for attaching guard frame

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

Figure 36 curtain installed with 2 holes for toe guard facing forward

Secure the toe guard with the remaining four cap screws.

Figure 37 curtain straps secure to the guard frame

Lubrication

The PTO 90° gearbox is filled to the bottom of the fill hole on the side that is about ½ way up.

The gearbox over the drums contains 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. Insert a clean dry straw and press against white blotter paper to see the 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 is EP 90 gear oil.

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.

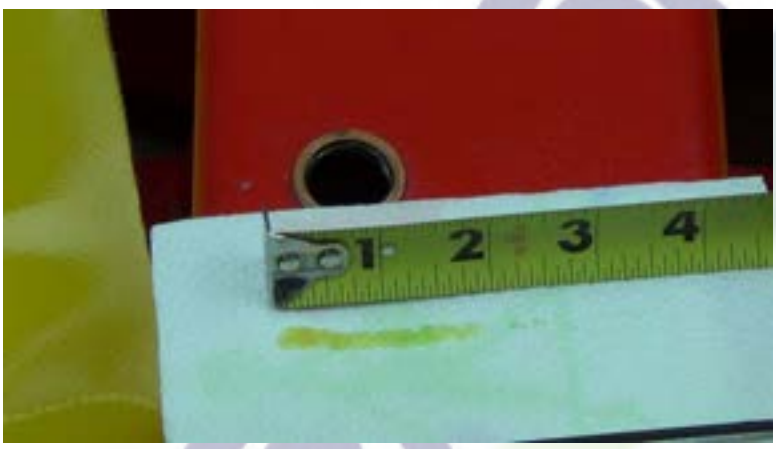

Figure 38 correct oil level in drum gearbox

Section 2 Using the Mower with Your Tractor

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

Shown here is the process for one particular tractor. The process measurements will be different for other models of tractor, so do not use my 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. Note the slip clutch end goes to the gearbox on the 130 mower. 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 39 instructions that shipped with the PTO at time of writing this guide

Figure 40 PTO's installed to mark overlap

Marking the PTO to Cut

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 40mm (about 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 41 mark overlap length

The overlap length is 150mm for our tractor. Add 40mm to that for our cutoff length. The amount to cut off is 190mm. That will be 19 cm on a typical ruler. I am working in metric because the instructions given by the manufacturer of the PTO are in metric.

Figure 42 cut off length marked

Cutting the PTO

Cut the 190mm length of tube, leaving the steel shaft inside not cut.

Figure 43 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.

Figure 44 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 45 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 46 shaft is marked to cut off same length as plastic tube

When cutting the steel shaft, clamp it in a vise using the discard end to clamp on. Be careful and wear your eye protection.

Figure 47 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. If your shaft has 3 points instead of the 2 shown here, look for the one with the flat, it is different than the other two. The ones with the flat must align or they will not fit together.

De-burr the PTO

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

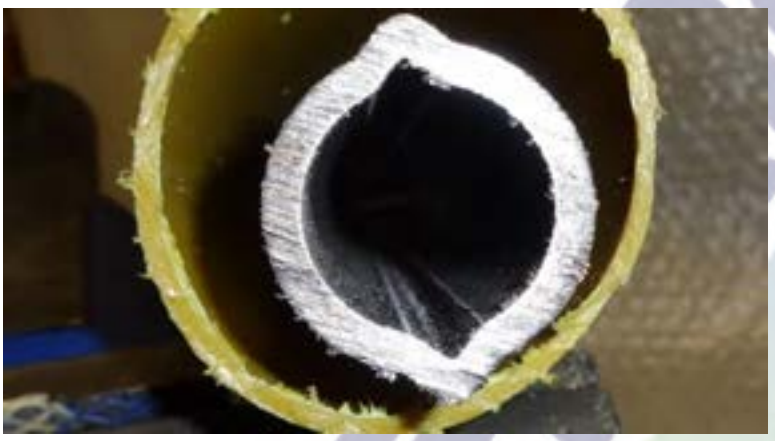

Figure 48 burrs and shavings must be removed

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

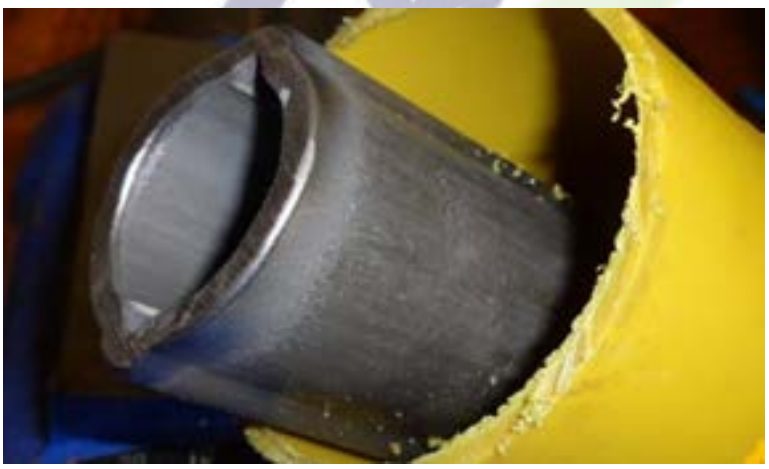

Figure 49 burrs removed with a file, grinder and power wire wheel.

Clean and Lubricate PTO

Before re-assembling the shafts, push a rag down into each shaft and then around the outside with something like a used hacksaw blade, then remove the rag to clear out the debris and shavings.

Figure 50 push towel into and around shaft to remove shavings

Now that both shaft halves are clean inside and out, wipe off that used hacksaw blade and spread some lithium based all-purpose grease into the inside of the bigger shaft. The smaller shaft will fit inside the bigger shaft. Spread it out so it does not just get pushed down to the end.

Figure 51 spread grease in outer shaft

Re-assemble the PTO.

Install PTO

After you have cut the PTO driveline to the correct length for your tractor, you will install it on the drum mower.

The Galfre 130 Drum mower uses a torque limiting slip clutch to protect the gearing on the mower and on your tractor. Install the clutch end onto the gearbox. The plastic guard has a cut out window that snaps out to gain access to the bolt that retains the male and female splines together.

The PTO should now fit between the tractor and the implement when the implement is attached to your tractor. There should be sufficient clearance to start the end that attaches to the tractor when the PTO splines are at the same height. If you have to raise the implement to connect the PTO, the PTO is too long.

You are done with assembly. Go back and check that you tightened everything and have installed all pins and chains, checked oil levels and lubricate all grease points.

Now have a sit down and read the owner's manual before attempting to operate the drum mower.

This guide is only intended as an assembly guide. Consult the owner's manual for instructions on operation and safety related matters.