

TRACTOR TOOLS DIRECT



Galfre Large Drum Mower Assembly Instructions

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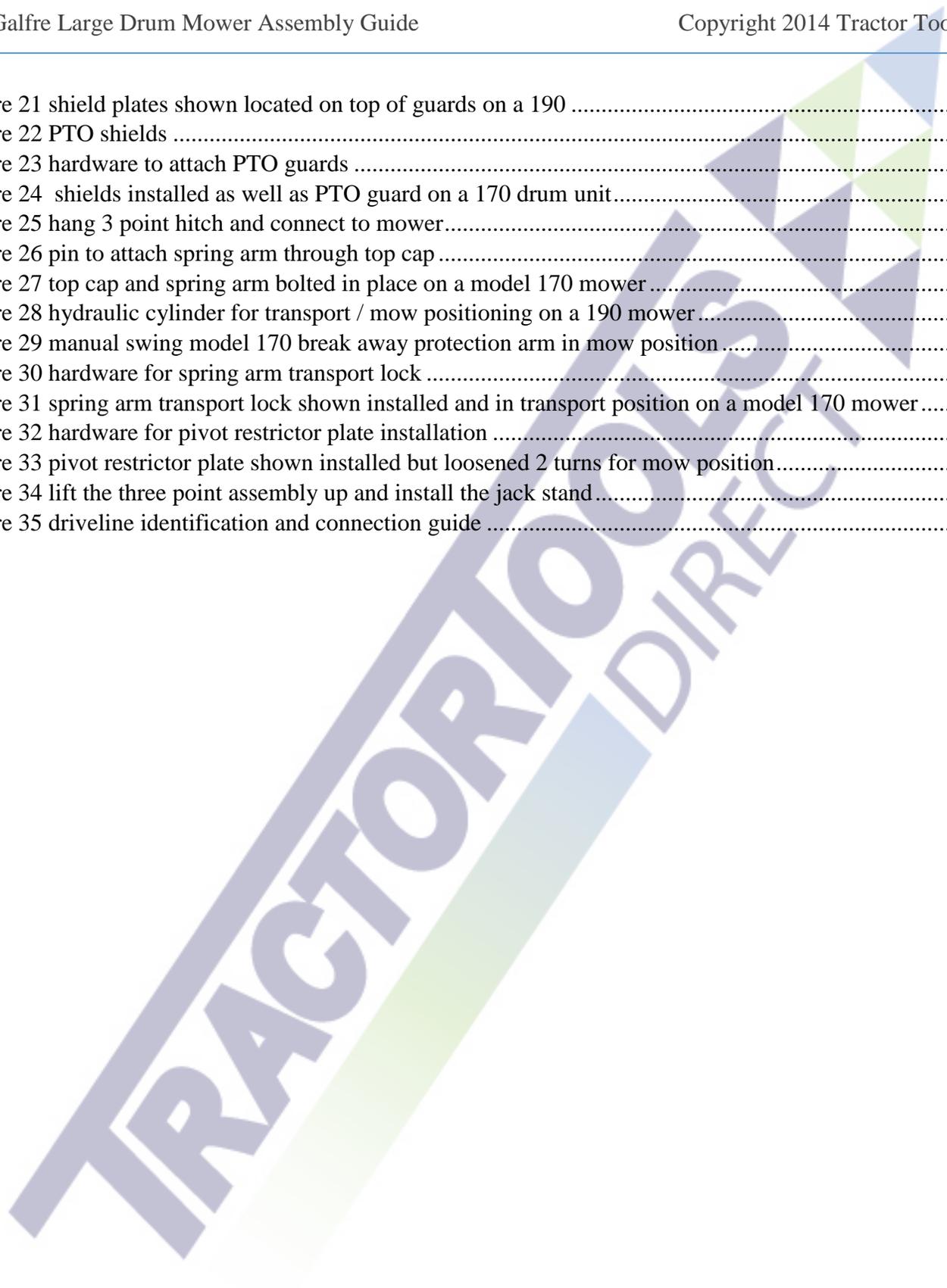
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Galfre 170, 190 & 210 Drum Mower Assembly Guide

Scope and Purpose

This guide is limited to the Galfre model 170, 190 and 210 drum mowers sold by Tractor Tools Direct. The guide covers models manufactured in 2013 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.

Introduction

The photograph in figure 1 shows a Galfre 170 drum mower assembled completely from the front. Figure 2 shows detail from the rear of the unit.



Figure 1 assembled Galfre 170 drum mower front view



Figure 2 rear of mower showing pivot pin orientation



Figure 3 Galfre 190 Drum Mower in crate as shipped

The drum mower will arrive in a wooden crate disassembled for shipment. The model 190 weighs about 1500 pounds in the crate. You will need a forklift or a front loader with the proper lift straps to unload and move it safely.



Figure 4 parts removed from crate shown here for reference

Uncrating

To make a good start of this project, unpack everything to be sure you are not missing anything and to check for shipping damage. It makes finding what you need easier if everything is organized into like groups.



Figure 5 Bags of small hardware shown sorted

Take the 2 bags of small hardware and separate into like groups.



Figure 6 parts to connect arm to drum

Drum support arm

The drum support arm is held in place with the long pin shown in the middle photo in figure 6 above.



Figure 7 model 190 drum assembly with arm before attachment

The arm shown in figure 6 is shown here ready to install the long pin.

Spring arm installation

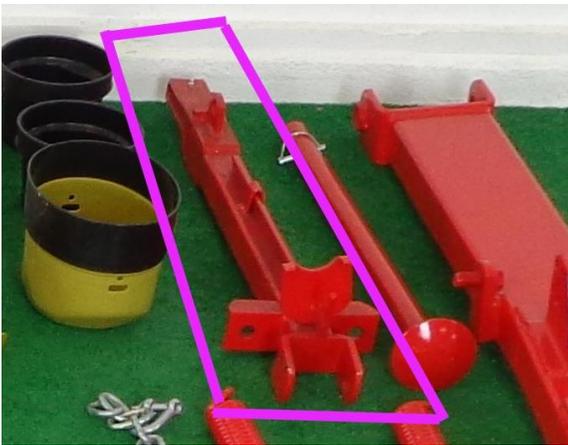


Figure 8 spring arm with blade change tool

The spring arm holds 2 extension springs in tension to transfer some of the weight of the drum unit to the tractor through the 3 point hitch.



Figure 9 long pin goes through as shown

Place the long pin with 2 holes through the lower set of holes on the support arm as shown.



Figure 10 spring attachment hardware shown with springs

Use the 2 short bars, washers and cotter pin to attach the springs to the mower end.

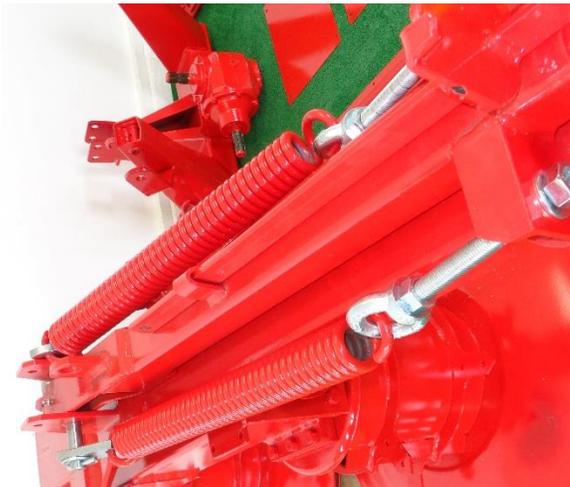


Figure 11 springs attached at both ends but not in tension

Attach the springs to the 3 point end of the spring arm with the eye nuts, all thread, nuts and washers as shown. Do not tighten yet as it will make assembly difficult later.

Swivel pin

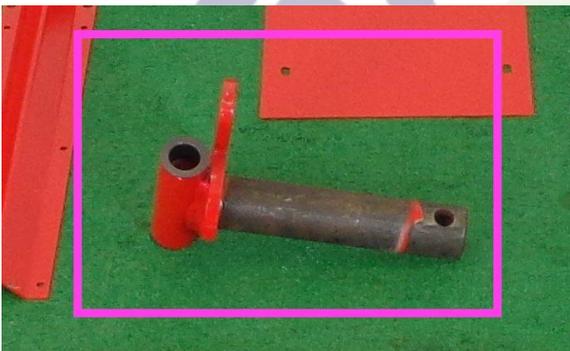


Figure 12 swivel pin

Locate the swivel pin. This pin connects the three point hitch assembly and the support arm of the mower together. The swivel pin allows the mower to swing back 90° for transport.



Figure 13 install pin with hole to back

Make sure the hole is to the back. Look at figure 2 to be certain you have it correctly oriented before proceeding.

Blade installation



Figure 14 installing blades with the blade change tool

Find the 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. The blade tool can slip off if it is raised too high.

Position the tool, raise the arm, install blade let the tool arm down. Be sure the blade is on the pin and swings freely.

For correct balance, the blades should be replaced in sets. It's always a good idea to keep at least one extra set on hand during hay season.

Guard installation

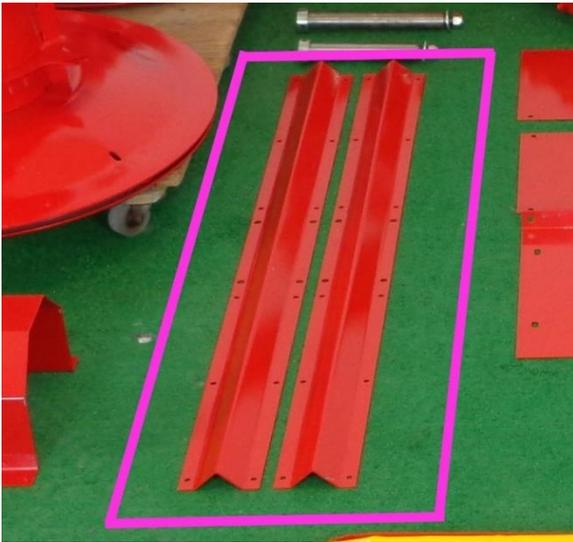


Figure 15 guard holders

Locate the two guard holders that support the top guards and curtains.



Figure 16 set of 8 nuts and bolts used to attach guard holders



Figure 17 guard holders shown installed on both ends of the 190 drum unit



Figure 18 set of 48 nuts and bolts are for guards and shield plates on a 190 mower



Figure 19 guards hang from the guard holders and are secured with hardware shown

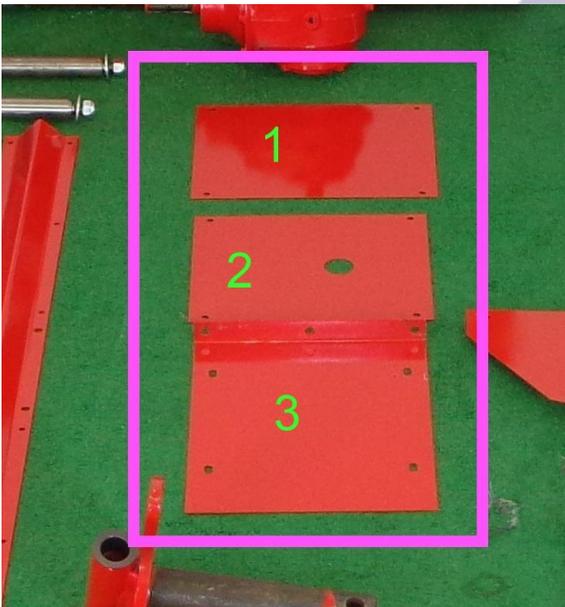


Figure 20 three shield plates install on top of the 2 large guards with curtains



Figure 21 shield plates shown located on top of guards on a 190

Having a second person help make it easier to access the top and bottom of the hardware. Use a powered driver to speed the installation of the hardware.

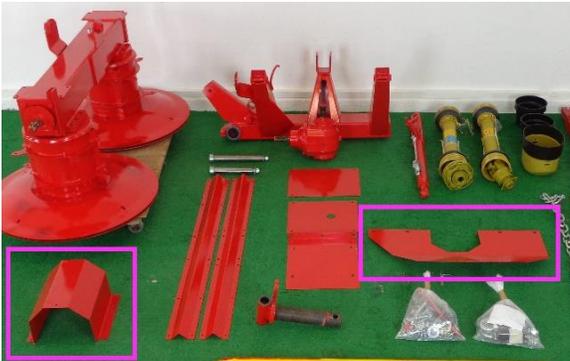


Figure 22 PTO shields



Figure 23 hardware to attach PTO guards



Figure 24 shields installed as well as PTO guard on a 170 drum unit

Spring arm attachment



Figure 25 hang 3 point hitch and connect to mower

The three point hitch is joined to the mower by the swivel pin. Lift the three point hitch above the swivel pin and raise the pin and start it in the hole with plastic bushings. Little by little, lower the three point hitch so that the pin is through the hole completely. The support arm was held up with a cut length of 2x4 board and can be seen in figure 24 above. The red top cap with 2 holes is placed on top of the pin and the holes are aligned. Then the spring arm (upper arm) is aligned so that all the holes in the pin, cap and arm are aligned and then the threaded pin shown in figure 25 is pushed through. Install the nut and just snug - it needs to be able to pivot. The nylon retainer will keep it from backing off. The photo in figure 27 shows the finished assembly.

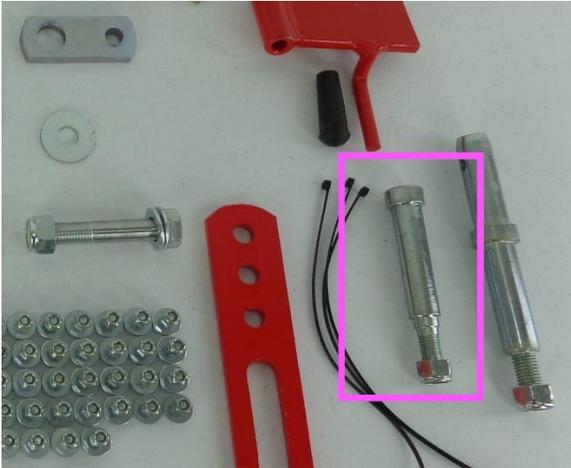


Figure 26 pin to attach spring arm through top cap



Figure 27 top cap and spring arm bolted in place on a model 170 mower

Hydraulic cylinder installation (some models)



Figure 28 hydraulic cylinder for transport / mow positioning on a 190 mower

The hydraulic cylinder is installed as shown in figure 27. The hoses are not shown – they simply bolt onto the top of the block. The 170 drum mower can be ordered with hydraulic swing, but comes standard with manual swing. Figure 28 shows the breakaway arm holding the mower in the mow position. Both the hydraulic and manual swing incorporate this safety feature. If the mower were to strike an immovable object, the arm would

release allowing the mower to fold back 15 degrees to dissipate the impact force. Consult the owner’s manual for details of operation specific to your model.



Figure 29 manual swing model 170 break away protection arm in mow position

Spring arm transport lock



Figure 30 hardware for spring arm transport lock



Figure 31 spring arm transport lock shown installed and in transport position on a model 170 mower

Gather the hardware shown and install as shown. The transport lock is shown in the transport position.

Drum unit pivot lock and restrictor plate.

The function of this part is to allow the drum section to pivot on the support arm within a controlled range. The angle of pivot is kept in a safe range to keep the driveline from exceeding its working angle range and length.

During transport the mower is swung back and locked into place. This plate with the nut and handle shown in figure 32 is tightened so that the drum mower does not freely pivot while driving down the. It is released 2 turns for mowing.



Figure 32 hardware for pivot restrictor plate installation



Figure 33 pivot restrictor plate shown installed but loosened 2 turns for mow position



Figure 34 lift the three point assembly up and install the jack stand

Use your loader or forklift to raise up the three point hitch enough to start the jack through the hole from the bottom and lock it into place with the pin provided.

Driveline installation



Figure 35 driveline identification and connection guide

The upper driveline in figure 35 has a torque limiting slip clutch installed in order to protect the tractor and mower in the event of an overload condition. The side having the clutch is connected to the gearbox input.

The lower driveline has a one-way clutch sometimes called an over-run clutch to keep the stored rotational energy in the rotating drums from back-driving the tractor. Install the clutch end to the drum assembly and the other plain end onto the gearbox output spline.

Depending on your tractor, it may be necessary to cut the tractor PTO (the top one in the photo) if it is too long. Refer to the owner’s manual supplied with the driveline for procedure on how to cut the driveline to the correct length if it is too long. Leaving a driveline too long can damage the tractor, driveline and the mower. The manual supplied with the driveline details all maintenance and lubrication procedures. Please keep it for reference, and read it before using the equipment. Tractor Tools Direct also has a downloadable guide and a video at www.tractortoolsdirect.com that shows the basic steps to cut a driveline PTO. We recommend, however, that you follow the manufacturers published literature for specific clearance values and minimum overlap measurements for safe operation of your equipment.

Lubrication



Verify the level of the oil in the right angle gearbox on the three point hitch. The level should be half way up and filled to the level of the plug on the side. Refer to the owner's manual for oil type. Although units are shipped with oil, it is always a good idea to check them one last time before first use.

The fill and check point for the drum unit gearbox is to the left of the pivot pin. See the owner's manual specific to your mower model for oil type and level.

There are 2 grease points on the mower. The first time the swivel pin is greased it will take about 50 pumps to fill up the air space around the pin. Stop when grease starts coming out around the plastic bushings. The spring arm has a grease point above the pivot pin.

The drivelines have grease points on the universal joints, one way clutch and the free turning plastic shield bearings. See the literature supplied with the driveline for manufacturers recommended lubrication procedures.

Completion checklist

If you have not done so already, adjust the tension on the two springs on the top arm so that the threaded rod is at the half way point as is shown in figure 2. Tighten the nut into the eye nut so that the threaded rod does not back out of the eye nut. Both nuts in the center of the threaded rod should be tightened against each other to keep the nuts from becoming loose.

Go back and make sure that the hardware is correctly tightened and the cotter pins have been set as to not come loose and fall out.