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SECTION 1   TO THE OWNER
1.1 Read This Manual BEFORE Operating The Articulator

Do not allow anyone to operate the Articulator without first reading and understanding this operator’s manual in its entirety. Never allow children to operate the Articulator. Never operate the Articulator when children are present.

The information presented herein will prepare you to operate the Articulator in a safe and knowledgeable manner. Proper operation of the Articulator will provide a safer working environment, and promote higher quality, more efficient results.

Keep this manual at hand at all times for ready reference. The designed and tested safety of the Articulator is dependent upon its operation within the guidelines and limitations outlined in this manual. Always adhere to all the safety rules presented in this manual.
1.2 Product Registration

Immediately record the model and serial numbers of your Articulator in the spaces provided below.

Model Number: __________________________

Serial Number: __________________________

These numbers can be found on the serial number plate which is permanently affixed to the mower.

You should now fill out the warranty registration form online at www.lastec.com or located in the back of this section. This form must be completed and returned to the factory within fifteen (15) days of purchase in order to validate the warranty. Please do not hesitate!

1.3 If You Need To Order Parts

To order parts, contact your distributor. Be sure to have your model and serial number available as a reference. This will assist them in supplying you the correct and most current parts available for your Articulator.

CAUTION!
- Always use only genuine Lastec parts when servicing your Articulator! Use of substitute parts may cause unsafe operation, unsatisfactory performance, and void the warranty of your Articulator!
Lastec Product Warranty

LASTEC LIMITED GOLF & TURF WARRANTY

Lastec ("warrantor"), with its place of business at 8180 W. 10th Street, Indianapolis, IN 46214 warrants as stated herein to the original purchaser ("purchaser") for two (2) years or 2000 hours* of equipment use, whichever comes first, on parts and one (1) year of labor for equipment use from the date of purchase from Lastec ("warrantor"), that the equipment manufactured by warrantor and any optional equipment or accessories purchased at the same time, subject to the exclusions herein, will be free from defects in material and workmanship attributable to warrantor so long as it is operated and maintained in accordance with the instructions provided by warrantor and purchaser has completed the registration form or warrantor may choose to not honor any warranty claims. All urethane bushing hardware will be warranted for five (5) years from the date of purchase from Lastec.

* Applies to units with hour meters

90 Day Limited Warranty

Warrantor agrees to replace any defective wear components including but not limited to seals, bearings, idlers with bearings, wheels/tires, bushings and blades for ninety (90) days from date of purchase. After ninety (90) days, all wear components are no longer covered under further warranty from warrantor. Component failure as a result of improper maintenance of wear items may not be covered under warranty at the warrantor's discretion. After ninety (90) days, component failure as a result of loose hardware is no longer covered under further warranty from warrantor.

Warrantor agrees to warrant for a period of ninety (90) days from date of purchase to any original purchaser who is a rental yard, lease-based business or temporary use facility that the equipment manufactured by warrantor and any optional equipment or accessories purchased at the same time will be free from defects in material and workmanship attributable to warrantor so long as it is operated and maintained in accordance with instructions provided by warrantor. After ninety (90) days, no further warranty will exist for rental yard, lease-based or temporary use businesses or facilities.

Freight Allowance

Freight allowance for warranty – Next Day Air freight covered by warrantor in “mower down” situations for first year of warranty not to include wear items as listed above in the (90) day limited warranty. After the first year freight for warranty items would be limited to regular ground shipment at the discretion of the warrantor.

Warrantor’s Obligations as to Defects

Warrantor’s only responsibility shall be to replace any covered defects or repairs without cost to purchaser. Warrantor may request that such part or unit be returned to Warrantor’s place of business. Purchaser will be responsible for transportation or shipping of part or unit to the distributor and such part must be returned to distributor within fifteen (15) days after requested. Warrantor shall have a reasonable time within which to replace or repair defective part or unit. If warrantor
determines that the part or unit is not defective under the terms of this warranty, then purchaser shall be responsible for expenses incurred by warrantor in returning part or unit to original purchaser. Warrantor gives no allowance for labor, travel time, mileage or incidental or consequential damages. Purchaser must submit warranty claims to a distributorship authorized by Warrantor. Warrantor’s authorized distributors are responsible for all repairs and the processing of all warranty claims.

**Warranty Parts Return**

Lastec reserves the right to have parts returned that have been submitted for warranty. The service department will issue an RMA number. The part must be returned within 30 days of the requested return date. Parts not returned within 30 days of the RMA issue date will result in rejection of claim.

**Limitations and Disclaimers of Other Warranties**

EXCEPT FOR THE EXPRESS WARRANTY PROVISIONS STATED ABOVE, WARRANTOR DISCLAIMS ALL WARRANTIES, EXPRESS AND/OR IMPLIED, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

No representation or other affirmation of fact by representatives of warrantor, whether verbal or in writing, including photographs, brochures, samples, models, or other sales aids, shall constitute a warranty or other basis for any legal action against warrantor. THE ORIGINAL PURCHASER, ANY PERSONS TO WHOM THIS EQUIPMENT IS TRANSFERRED AND ANY INTENDED USER OR BENEFICIARY OF THIS EQUIPMENT SHALL NOT BE ENTITLED TO RECOVER ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FROM WARRANTOR FOR ANY REASON WHATSOEVER, INCLUDING WARRANTY OR DEFECT IN THE PRODUCT. Warrantor does not warrant that its equipment meets or complies with the requirements of a particular safety code or governmental requirements.

**Design Changes**

Warrantor reserves the right to change the design of its products from time to time without notice and without obligation to make corresponding changes in its products previously manufactured.

**Rights of Purchasers**

The validity and effect of this limited warranty as well as its interpretation, operation and effect, shall be determined exclusively by the principles of law and equity of the State of Indiana. This limited warranty gives purchaser specific legal rights. Purchaser may also have other rights, which may vary from State to State. Some States may not allow limitations as to duration of warranties so the above may not apply.

This contract supersedes all prior written and oral agreements related to the purchase and is intended to be an integration of the entire agreement between the parties. All of the promises, warranties, guarantees and representations made by warrantor or its representatives that are not specifically contained herein are not included in this warranty.
1.5 Component Manufacturers’ Warranties

Some of the component parts of your Articulator are warranted by their respective manufacturers. These parts include:

- Superior Gearbox
- Bondioli PTO Shaft

The complete manufacturers’ warranty information for these components is available upon request. Contact your Lastec dealer if you have questions concerning warranties on these component parts.

1.6 Servicing The Articulator

**CAUTION!**

- Always use only genuine Lastec parts when servicing the Articulator! Use of substitute parts may cause unsafe operation, unsatisfactory performance, and void the warranty of the Articulator!

The Articulator is carefully engineered and manufactured to provide safe, dependable, and satisfactory service. As with all other mechanical equipment, the Articulator requires routine inspection, cleaning and maintenance.

When servicing the Articulator, be sure to use only genuine Lastec parts. Utilization of substitute parts will not only void the warranty, but may also cause unsafe or unsatisfactory operation of the Articulator due to their substandard quality or incorrect application.

In order to handle all of your service needs, your authorized Lastec dealer stocks genuine Lastec parts, and has trained mechanics on hand.

Be sure to complete the following Lastec Warranty Registration Form and return to Lastec within 15 days of the purchase of the Articulator. This will aid you, Lastec, and Lastec distributor in warranting and servicing of your Articulator.

Warranty registration can also be done online through the Lastec website at [www.lastelec.com](http://www.lastelec.com).
# Warranty Registration

## Lastec Warranty Registration Form

**IMPORTANT!** To validate the warranty, this registration form must be completed in full and returned to Lastec within fifteen (15) days of purchase!

<table>
<thead>
<tr>
<th>Company Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Contact</td>
<td></td>
</tr>
<tr>
<td>Mailing Address</td>
<td></td>
</tr>
<tr>
<td>Shipping Address</td>
<td></td>
</tr>
<tr>
<td>Phone</td>
<td></td>
</tr>
<tr>
<td>Fax</td>
<td></td>
</tr>
<tr>
<td>Authorized Company Representative</td>
<td></td>
</tr>
<tr>
<td>Signature</td>
<td></td>
</tr>
</tbody>
</table>

I have read and understand the warranty policy and maintenance sections of the operators manual for the machine described below.

| Mower Model: |  |
| Serial Number: |  |
| Distributor/Dealer Purchased From: |  |
| Date Purchased: |  |
| Purchase Price: |  |

## Customer Profile Information

Please check the box that most accurately describes your business:

- [ ] Golf Course
- [ ] Municipal
- [ ] Sod Farm
- [ ] Government
- [ ] Schools
- [ ] College
- [ ] Sports Complex
- [ ] Landscaping Company
- [ ] Light Agriculture
- [ ] Other

| Total Acreage Cut: | Weekly | Monthly | Annually |
| Average Operating Hours: | Weekly | Monthly | Annually |

## How Did You Hear About Us?

Please help us to better serve you by completing the following survey information:

| Do you own a Lastec Mower, and if so what model? |  |
| How did you hear about Lastec? |  |
| Who referred you to Lastec? |  |
| Who was the salesman that assisted you? |  |

Please check the box to your left if you would not allow Lastec to use your company's name for marketing purposes.

Please list the features and/or benefits which helped you to choose your Lastec Mower:
SECTION 2   SAFETY INFORMATION
2.1 Warning Symbols

Following is a legend describing the warning symbols utilized throughout this manual, and the potential types of hazards which they indicate:

**DANGER!**
- This symbol indicates a potential serious or fatal injury hazard. *Failing to properly adhere to the instructions, rules, or procedures may result in serious injury or death.*

**WARNING!**
- This symbol indicates a potential personal injury hazard. *Failing to properly adhere to the instructions, rules, or procedures may result in personal injury.*

**CAUTION!**
- This symbol indicates a potential equipment hazard. *Failing to properly adhere to the instructions, rules, or procedures may result in personal equipment malfunction, damage, or destruction.*

The above illustrated symbols are displayed throughout this manual in order to indicate important safety information. When one of these symbols appears in this manual, be aware of a potential hazard being discussed in the accompanying paragraphs. Hazards such as damage to equipment, serious personal injury, or even fatal injury are possible, perhaps even likely, if the accompanying instructions or procedures are not heeded.

2.2 Safety Decals and Symbols

The following safety symbols are used on the deck. Operators should become familiar with these symbols and heed the warnings where they appear on the deck.

- **Attention!**
- **Pinching/Crushing Danger!**
Caution! Rotating Blades!

Keep Hands and Feet Away from Blades!

Keep Covers Locked Down

Pinch Point!

Read the Manual!

Remove the Key!

Rotating Parts!

Rotating Shaft!

Stay Away!

Thrown Objects!
2.3 About This Manual

DANGER!

- Safety instructions are important! Read all safety rules in this manual as well as all safety rules in any related equipment manuals!

The purpose of this manual is to assist you in properly and safely operating and maintaining the deck. Read and understand this entire manual before attempting to set-up, operate, adjust, perform any maintenance on, or store the deck. This manual provides essential information and instructions which will help you enjoy years of dependable performance from the deck.

The designed and tested safety of the deck is dependent upon its operation within the parameters and limitations explained in this manual. Be familiar with and follow all safety rules in this manual as well as all safety rules for any related equipment.

Although these instructions have been compiled through extensive field experience and engineering data, some information presented herein may be general in nature due to unknown and/or varying operating conditions. However, these instructions, combined with your increasing experience with the deck, will enable you to develop procedures suitable to your particular cutting application.

The illustrations and data used in this manual were current at the time of printing, but the deck may vary slightly due to ongoing engineering changes. Lastec reserves the right to implement engineering and design changes to the deck as may be necessary without prior notification.

Throughout this manual, we make references to right and left directions. We determine right and left while sitting in the operator seat and facing in the direction of forward travel. Blade rotation is clockwise as viewed from the top of the deck.
2.4 Safety Guards And Covers

**DANGER!**

- NEVER operate the deck with any safety covers removed!
- Work safely! Follow all safety rules! A careful operator is the best insurance against accidents!

Some illustrations in this manual show the deck with safety covers removed in order to provide improved viewing of the particular components being discussed. *This is for informational purposes only -- never operate the deck without all covers, shields, safety devices, and grass chute or mulching plate installed and secure!*

Safety is a primary concern in the design and manufacture of all Lastec products. Unfortunately, our extensive efforts to provide safe equipment can be negated by a single careless act of an operator. In addition to the design and configuration of the deck, hazard control and accident prevention are also dependent upon the awareness, concern, prudence and proper training of all personnel involved in the operation, transportation, maintenance, and storage of the deck.

*The best safety device is an informed, careful operator!*  

*We ask you to be that kind of operator.*
2.5 Preoperational Safety Rules

**DANGER!**
- NEVER allow children to operate the deck!
- NEVER allow children on or near the deck!
- NEVER operate the deck when children are present.
- ALWAYS clear area of all personnel before operating the deck!

**WARNING!**
- NEVER allow anyone to operate the deck without proper instruction! Any and all operators must be instructed in and capable of the safe operation of the deck, its attachments, and controls!
- KNOW the controls and how to stop the deck quickly in an emergency!
- READ this entire manual before attempting to operate the deck! Only allow persons who have read and understand the entire operator’s manual to operate the deck!

- Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy rough-soled work shoes, as well as protective equipment for the eyes, hands, hearing and head. Never operate the deck or related equipment in bare feet, sandals, or sneakers.
- Clear the cut area of stones, branches, balls or other debris that may be thrown and cause injury or damage.
- Verify that all safety decals are properly installed, visible, and legible.
- Always remove accumulated debris, fuel, or excess grease and oil from the drive unit engine area to avoid a fire hazard.
- Verify that the deck is properly mounted, set up, adjusted, and in good operating condition.
- Always perform the pre-operation equipment inspection and the appropriate maintenance schedule (Section 5) before operating the deck.
- Do not change the engine governor settings or over-speed the engine.
2.6 Operational Safety Rules

**DANGER!**
- NEVER allow children to operate the deck!
- NEVER allow children on or near the deck!
- NEVER operate the deck when children are present.
- ALWAYS clear area of all personnel before operating the deck!

**DANGER!**
- NEVER operate the deck without all safety covers properly installed and in good condition!
- ALWAYS stay well clear of all moving parts!
- ALWAYS stay clear of blades during operation!

**WARNING!**
- ALWAYS work safely! Follow all safety rules! A careful operator is the best insurance against accidents!
- ALWAYS clear area of all personnel before operating the deck!
- Only allow persons who have read and understand the entire operator's manual to operate the deck!

- Be sure that the parking brake is set before attempting to start the engine.
- Operate only in daylight or good artificial light (min. 200 Lux).
- Be sure that all auxiliary equipment switches (blades, lights, etc.) are in the OFF position before attempting to start the engine.
- Be sure your drive unit is equipped with a ROPS (*Roll Over Protection System*), and be sure to wear your seat belt.
Never operate the deck without the grass chute or mulching plate installed and secure.

Never operate the deck unless all covers, shields, and safety devices are installed and secure.

Never permit any person other than the operator to ride or board the drive unit or deck at any time. **Never allow riders!**

Never allow anyone near the drive unit or deck while operating. **Be sure that the area behind you is clear before operating in reverse!**

Never allow anyone near or in the path of discharge.

Never discharge in the direction of bystanders, vehicles, or buildings.

Do not stop or start suddenly when going up or down a hill. Avoid operating on steep slopes.

Do not mow in reverse unless absolutely necessary - and then only after careful and constant observation of entire area behind the drive unit and deck.

Use extreme care and maintain minimum ground speed when transporting on a hillside or over rough ground, and when operating close to ditches, fences, or water.

Reduce speed on slopes and in sharp turns to minimize potential tipping or loss of control. Use caution when changing directions on slopes.

Be alert for holes in the terrain as well as any other hidden hazard. Always drive slowly over rough ground.

Disengage the blades, stop the engine, set the parking brake, and remove the key before dismounting the drive unit or making any adjustments to the deck.

Stop the drive unit immediately upon striking any obstruction. Disengage the blades, turn off the engine, set the parking brake, remove the key, and inspect the drive unit and deck for any damage. Always repair any damage before resuming operation of the deck.

Never adjust the mower deck height or lift the deck into transport position while the blades are engaged.

Never engage the blades with the mower decks raised into transport position.

Never place your hands or feet under the deck while the engine is running.
Stay well clear of any and all moving parts.

Keep hands and feet away from the blades at all times during operation.

Take all possible precautions when leaving the drive unit and deck unattended: disengage the blades, turn off the engine, set the parking brake, and remove the key anytime you leave the drive unit and deck unattended.

If your drive unit is equipped with headlights and hazard lights, always activate them whenever crossing or accessing any roadways, driveways, or parking lots. Watch for oncoming traffic.

Handle fuel with caution - it is explosive! Always use approved fuel containers; never handle fuel near an open flame; never use fuel as a solvent; never fuel the drive unit while the engine is running or hot; never fuel the deck indoors; never fuel while on drive unit; always clean up any spilled fuel; never smoke around fuel or while fueling.

Do not allow extended running of drive unit engine indoors - exhaust fumes are deadly.
2.7 Maintenance Safety Rules

DANGER!

- ALWAYS disengage the blades, turn off the engine, set the parking brake, and remove the key before performing any service to, maintenance on, or adjustments to the deck!

- NEVER allow children on or around the deck!

- Never perform maintenance on the deck when children are present.

- Always perform the appropriate maintenance schedule(s) in a timely fashion.

- Never allow anyone near any operator controls while performing adjustments, service or maintenance to the drive unit or deck.

- Always use personal protection equipment such as eye, hand, head, and ear protection when performing any service or maintenance to the drive unit or deck.

- Keep the drive unit engine area free of accumulated debris, fuel, or excess grease and oil to reduce fire hazard.

- Keep the deck in good operating condition with all safety devices in place.

- Check the blades frequently. Verify that they are sharp, free of nicks and cracks, and securely fastened.

- Periodically tighten all bolts, nuts and screws. Verify that all fasteners are properly installed to ensure the drive unit and deck are in safe operating condition.

- Upon completing any maintenance or service function, verify that all safety guards and devices are properly installed before operating the drive unit or deck.

- Verify that all warning labels and decals are properly installed, visible, and legible.

- Always remove debris from the top and bottom of the deck after each use.
2.8 Storage Safety Rules

**DANGER!**
- NEVER allow the extended running of any engine indoors! Exhaust gasses contain carbon monoxide, an odorless and deadly poison!
- NEVER allow children on or around the deck!

- Never store the deck in any area accessible by children.
- Never allow extended running of any engine indoors. Exhaust fumes are deadly.
- Never store drive unit with fuel in the tank inside a building where fumes could reach an open flame or spark.
- Allow the drive unit engine to cool before storing in an enclosed area.
- Remove all accumulated debris from the drive unit, and both the top and bottom of the deck before storing.
- Sand chipped or scratched areas and re-paint them to prevent rust during storage.
- Lubricate all moving parts of the drive unit and deck to prevent rust during storage.
## 2.9 Hazard Identified Chart

<table>
<thead>
<tr>
<th>Hazard Identified</th>
<th>Risk Source</th>
<th>Control Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator injury</td>
<td>Inexperience</td>
<td>Complete Owner’s Manual supplied covering all aspects of operating the unit. Various warning decals strategically placed on the unit.</td>
</tr>
<tr>
<td>Danger of entanglement</td>
<td>Moving parts, especially if using a PTO. Guards are not in place.</td>
<td>Warning decals stating guards must be in place. Physical guards around belts, pulleys and shafts. Clear warning in manual.</td>
</tr>
<tr>
<td>Finger pinch points</td>
<td>Moving parts</td>
<td>Warning decals stating hazardous locations. Physical guards around such points. Clear warning in manual.</td>
</tr>
</tbody>
</table>
SECTION 3  INITIAL SET-UP
3.1 Assembly Instructions

The Model 721/521XR requires a minimum amount of assembly prior to mounting to the tractor. Follow the procedures listed below to assemble the Articulator:

1. Mount the pull arms onto the Articulator pull bar. Orient the arms so that they bend outward as they extend from the tractor. **NOTE:** The pull arm gussets must be oriented as shown below.

2. Install the lift pins into the Articulator pull arms. The pins locate to the outside of the arms, with the 7/8” split lock washers and 7/8-14 hex nuts to the inside of the arms.
3.2 Mounting The Articulator To The Tractor

DANGER!
- Before attempting to mount the Articulator to the tractor, be sure the PTO is disengaged, then engine is off, the parking break set, and the transmission is in neutral.

The Model 721/521XR Articulator can be mounted to most tractors which have a category 1 three-point hitch. Follow the procedures listed below to properly mount the Articulator to the tractor:

1. Park the tractor on level ground. Lower the 3-point hitch.

2. Turn off the tractor, disengage the PTO, shift the transmission into neutral, and set the parking brake. Remove the key from the ignition.

3. Mount the Articulator pull arms to the lower arms of the 3-point hitch. Slide the Articulator lift pins into the ball swivels on the three-point hitch arms. Secure with lynch pins.


5. Connect the hydraulic hoses to the tractor.

---

<table>
<thead>
<tr>
<th>REF</th>
<th>PART #</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>040265</td>
<td>Kit, Hydraulic Hose 721XR (60&quot; &amp; 100&quot; Hoses)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>025238</td>
<td>Hose Assembly, 1/4&quot; Hyd x 100&quot;</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>025040</td>
<td>Hose Assembly, 1/4&quot; Hyd x 60&quot;</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>040266</td>
<td>Hose Assembly, 1/4&quot; Hyd W/Fittings 84&quot; Long</td>
<td>4</td>
<td>721XR Only</td>
</tr>
<tr>
<td></td>
<td>040445</td>
<td>Cover, 48&quot; Chain</td>
<td>2</td>
<td>Not Shown</td>
</tr>
</tbody>
</table>
6. Mount the PTO shaft to the Articulator, then to the tractor.

7. Secure the PTO guard retaining chains located at each end of the PTO shaft to the Articulator pull bar and the tractor. These prevent the outer guard from turning with the PTO shaft for safety purposes.

8. Turn the Articulator as far as it will go in each direction, and measure the distance between the rear tractor tire and the Articulator. Adjust the pull bar stops (located on the front dual wheel legs) to allow a minimum 2” clearance between the tractor tire and the Articulator when turning.

9. Complete the entire Initial Set-Up section of this manual before attempting to operate the Articulator.
3.3 Hose Spring Installation

Follow the procedures listed below in sequence to assemble the hose spring from the traction unit to the deck:

1. Attach one of the provided tie wraps around the hoses that are connected from the deck to the traction unit.
2. Attach one of the provided tie wraps to an elevated point on the traction unit.
3. Assemble on end of the provided spring to the tie wrap located on the traction unit.
4. Assemble the opposite end of the hose spring to the tie wrap locate around the hoses.

3.4 PTO Shaft Range Verification

**CAUTION!**

It is important to verify that the PTO shaft falls within the proper operating range to ensure safe operation of the Articulator under varying cutting conditions.

1. Take the tractor and Articulator to your most severely mounded area.
2. Disconnect the PTO shaft from the tractor.
3. Drive the tractor up a mound or across a ditch. Stop at the point where the tractor is headed up a mound and the Articulator is headed down an opposing mound, at the point where the PTO shaft will span the valley of the two mounds with the tractor and Articulator at their closest point. This should represent your maximum PTO shaft compression.
4. Reconnect the PTO shaft to the tractor.
5. If the PTO shaft is too long to allow easy connection, you will need to either install a shorter PTO shaft, cut your PTO shaft shorter, or avoid this area when cutting.
6. If the PTO shaft can be easily reconnected, then your maximum compression is within the proper range of your PTO shaft. Now you will need to check the maximum extension of your PTO shaft.
7. Drive the tractor over the mound. Stop with the tractor headed down one side of the mound and the Articulator headed up the other side, at the point where the PTO shaft spans the crest of the mount with the tractor and Articulator at their furthest point from one another. This should represent your maximum PTO shaft extension.
8. The Bondoli PTO shaft should maintain a minimum engagement of 1/3 of the total compressed shaft length.

9. If the Bondoli PTO shaft maintains at least 1/3 shaft engagement, you will be operating within the proper range of the shaft.

10. If the Bondoli PTO shaft does not maintain at least 1/3 shaft engagement, you will not be operating within the proper range of the PTO. You will need to either install a longer PTO shaft, or avoid this area when cutting.

11. If installing a longer PTO shaft, re-check your maximum PTO shaft compression.

3.5 Gearbox

Check the oil level and condition in the gearbox. The oil level should be 1/4" to 3/8" below the bottom edge of the side plug. The gearbox should be approximately half full (28 ounces). Add oil if low. If the oil appears excessively contaminated, change the oil. Use SAE 80W-90 grade gear oil.

Inspect the entire area around and under the gearbox for any oil leakage. If a leak is discovered, repair it and refill the gearbox before operating the Articulator.
3.6 Mower Deck Leveling Adjustment

The 721XR Articulator mowing decks come leveled from the Lastec factory. Should deck leveling be necessary due to shipping, usage, or maintenance, the following procedure can re-level the decks as needed.

**Leveling decks 1 and 3**

Decks 1 and 3 attach to the deck cross tube by sliding pivot ball joints. As of Serial Number 12381202, these joints can be adjusted by setting the cam position of the deck adjustment cam.

Back off the central bolt going through the ball joint and into the cam adjustment nut. **Do not remove the bolt!**

Pull out the deck adjustment cam nut to clear the stop block. Rotate the cam to the desired position to level the deck.

Tighten the central bolt. Note that the stop block prevents the cam adjustment nut from rotating out of position.

Adjusting these decks may have an effect on Decks 6 and 7. Check for proper leveling of all decks, and repeat if necessary.

**Leveling Deck 2**

Shims can be applied between the deck pan mount and the cross tube. Shims may be obtained from your Lastec dealer, part number 045446. These shims are 1/16th inch thickness.
**Leveling Decks 4 and 5**

Decks 4 and 5 can be leveled by applying spacer P116 or T104 to the ball joints as shown in the illustration. Spacer P116 is a 1/8th inch spacer and T104 is 1/4th inch. All joint spacers may need to be arranged until the deck is in the proper level configuration.

Additional leveling of the rear deck pans on decks 4 and 5 can be accomplished by using the turnbuckle of the deck height adjustment chain, as described in the following section, *Mower Deck Height Adjustment*.

**Replacing Wheels**

If one wheel is replaced, the wear level of the surrounding tires may cause the deck to cant in one direction. Leveling the decks due to a tire replacement may be necessary. Spacers on the wheel yoke assembly may be rearranged to accommodate the new tire. See *Section 5 Wheels* of the 721XR Parts Manual for the correct spacer for the yoke of the new tire. Additional or replacement spacers may be obtained from your Lastec dealer.
3.7 Mower Deck Height Adjustment

**DANGER!**

- Always stop the tractor and disengage the PTO before attempting to set or adjust the mower deck height!

- Never adjust the mower deck height with the tractor running or the PTO engaged.

The Model 721/521XR Articulator can be set to various heights ranging from 1" to 4 3/4".

Change the mower deck height at all the wheel locations by moving the wheel spacers from above to below each wheel yoke collar on each wheel yoke shaft. When there are no wheel spacers located below the collar, the deck is set at 1". There are two types of wheel spacers, 1" thick and 1/4" thick. Placing any combination of wheel spacers below the wheel shaft collar will raise the deck by the corresponding thickness of the spacer(s) used.

Example: (1) 1" spacer and (2) 1/4" spacers placed below the wheel yoke collars will set the mower deck to 2 1/2".

Change the mower deck height on the center rear decks (decks 4 & 5) by moving the spacers on the deck height chains from below to above the retaining plate. There are 3 knurled spacers, each indicating 1" increments, and 12 plain spacers, each indicating 1/4" increments. When there are no spacers above the plate, the deck is set at 1". Placing any combination of wheel spacers above the plate will raise the deck by the corresponding thickness of the spacer(s) used.

The height adjustment chains can also be calibrated using the turnbuckles located at the top of the chains. Simply set the spacers to the desired deck height, and measure from the bottom of the pan to the floor to verify the setting. Adjust the turnbuckle in or out to calibrate the measurement with the spacer setting.
Also, use the height adjustment holes in the anti-scalp brackets to adjust all the anti-scalp wheels to one of the two available height adjustments as shown below.

### 3.8 Deck Drive Belts

**WARNING!**
- NEVER inspect, adjust, or change the deck drive belts while the tractor is running.
- Always clean the entire deck (including under the belt covers) of all grease, oil, fuel, grass or debris to prevent fire or projectile hazards.

**CAUTION!**
- When cutting with new belts, do not over-power the Articulator within the first few hours of operation. Listen for excessive belt slippage. Check belt tension after 2 hours of operation. Check all belt tension adjustment hardware after the first 8 hours of operation.

The overall life of the Articulator drive and deck belts is most greatly affected by the attention given them within their initial 8 hours of use than at any other time. Properly adjusted, the belts can perform over 1000 hours of service. Improperly adjusted, they can fail within a few hours. Be aware that over 50% of the total belt stretch will occur within the first few hours of use.

The deck drive belts are located between the gearbox and the center mower deck, under the center deck belt cover. To access the belts, remove the hardware and lift the cover from the deck.
The spring-loaded idler automatically tensions the belts.

Check the belts for visible wear or damage. If either belt appears excessively worn, damaged, cracked, weathered, or otherwise appears to pose an unsuitable or unsafe operating condition, replace the belt.

Check the belts for proper tension. If the idler arm pivots to its maximum stroke without adequately tightening the belts, you need to replace the belts. If the belts you are checking are new, and the idler tensioner goes to its maximum or maximum stroke without adequately tightening the belts, it is likely you have installed the wrong size belts. Contact your Lastec distributor for the proper belt lengths for your Articulator.

Be sure that the idler tensioning spring is properly installed and in good condition. If for some reason this spring becomes loose, detached, or fatigued, the idler will not properly tension the belts.

Clean entire deck area (under the belt cover) of all excess grease, oil, fuel, grass, or debris before operating the Articulator. This will help prevent damage to the equipment, fire hazard, and projectile hazards.

Be sure to replace the belt cover and hardware.

### 3.9 Deck Belts and Alignment

**WARNING!**
- NEVER inspect, adjust, or change the deck drive belts while the tractor is running.
- Always clean the entire deck (including under the belt covers) of all grease, oil, fuel, grass or debris to prevent fire or projectile hazards.

**CAUTION!**
- When cutting with new belts, do not over-power the Articulator within the first few hours of operation. Listen for excessive belt slippage. Check belt tension after 2 hours of operation. Check all belt tension adjustment hardware after the first 8 hours of operation.

Again, the overall life of the Articulator drive and deck belts is more greatly affected by the attention given them within their initial 8 hours of use than at any other time. Properly adjusted, the belts can perform over 1000 hours of service. Improperly adjusted, they can fail within a few hours. Be aware that over 50% of the total belt stretch will occur within the first few hours of use.
To access each belt, remove the belt cover hardware, and lift the belt cover from the mower deck. Follow the procedures below in order to properly tension the deck belts:

1. Remove all belt covers.

2. Deflect the sides of each deck belt inward at its center point between the pulleys. Applying light pressure (approximately 10 lbs), you should be able to deflect the belt approximately 1/2' to 3/4' inward.

3. If you cannot deflect the belt at least 1/2" inward with 10lbs of pressure, loosen the belt slightly. If you can deflect the belt more than 3/4" inward, tighten the belt slightly. To adjust the slide bar, loosen the jam nut and adjust the bolt in or out of the slide bar. DO NOT TIGHTEN THE BOLT HEAD AND NYLOCK NUT AGAINST THE ADJUSTMENT PLATE ON THE DECK. MAINTAIN 1/32" GAP BETWEEN PLATE AND WASHERS TO ALLOW THE DECK TO FLOAT PROPERLY WITHOUT PLACING EXCESS STRESS ON THE SLIDE BAR.

4. Align the front three decks (decks 1, 2, and 3). Adjust the pivot slide bars located on the main deck common legs. Adjusting the slide bar in swings the outer front deck outward away from the main deck. Adjusting the slide bar out swings the outer front deck inward toward the main deck. Align the decks so that the wheels are parallel to one another and aligned with the tractor tires. Wheel misalignment causes premature wear and wheel failure.

5. Align the outside two decks (decks 6 and 7). Adjust the tie rod located under the hydraulic cylinder on each deck. Adjusting the tie rod out swings the deck back, adjusting it in swings the deck forward. Adjust the tie rods so that the slide bars are centered within the belts.

6. Tighten all slide bar jam nuts.

7. Clean each entire deck area (under the belt covers) of all excess grease, oil, fuel, grass, or debris before operating the Articulator. This will help prevent damage to the equipment, fire hazard, and projectile hazards.

8. Be sure to replace all belt covers and hardware.
3.10 Blades

**DANGER!**

- NEVER inspect, adjust, change, or perform any other maintenance to the blades while the engine is running!
- ALWAYS turn off the blades, turn off the engine, remove the key, and set the parking brake before attempting to inspect, adjust, change, or perform any other maintenance to the blades!
- Keep all personnel clear of all controls while inspecting, adjusting, changing, or performing maintenance to the blades!

The Model 721/521XR Articulator utilizes seven (721XR)/five (521XR) individual 21” high-lift blades, located under each articulated mower deck.

NEVER go near, or expose yourself or others in any way to the blades while the engine is running!

ALWAYS disengage the blades, turn off the tractor, remove the key, and set the parking brake before attempting to inspect, adjust, change or perform any other maintenance to the blades!

Keep all personnel clear of all controls while inspecting, adjusting, changing, or performing maintenance to the blades!

Inspect all blades for proper installation, orientation, tightness, sharpness, and overall condition. Be sure the lift fins are oriented to the top of the blades. Verify that the mount bolts are secure, the blades are sharp, and free of any nicks, cracks, or bends. Always replace any damaged, dull, or missing blades before operating the Articulator. The Recommended torque value for the blade bolts is **75 ft/lbs**.

Lastec also offers optional low-lift blades and mulching blades for certain cutting applications. Contact your Lastec distributor for further information about optional blades available.
3.11 Gauge Wheels

Verify proper function of all mower deck gauge wheels. The wheels should turn freely without excessive side-to-side motion, and be free of debris. Clean, adjust, or replace as necessary.

Check that each wheel swivels freely in the shaft pivot collar, and the bushings are in good condition. If any wheel does not swivel freely, clean and grease the shaft collar assembly. Replace the bushings if necessary.

Replace any worn or damaged tires.

3.12 General

Verify that all warning decals are in place, visible and legible.

Verify that all covers and safety devices are properly installed and fastened.

Check that the discharge chute is clear of debris, properly mounted, and in good condition.

Inspect entire Articulator for loose or entangled parts, debris, obstructions, neglected tools, or any other possible safety hazards, equipment hazards or projectile hazards.
3.13 Pre-Operation Equipment Inspection Checklist

Perform the following equipment inspection prior to each operation of the Articulator.

- With the tractor and Articulator parked on level ground, verify that the Articulator is properly mounted to the tractor and secure.
- Verify that the PTO shaft is properly mounted and secure, and the PTO shaft cover retaining chains are secure.
- Check the oil level in the gearbox.
- Inspect area around and under the gearbox for any oil leakage.
- Set the deck height to the desired level. If necessary, calibrate the rear deck height chains.
- Check the deck drive belt and idler tension spring for proper installation, tension and condition.
- Clean the entire center deck area (including under the belt cover) of all grease, oil, fuel, grass, or debris. Be sure to replace all covers, shields, and guards.
- Check all deck belts for proper tension.
- Align front decks 1, 2 and 3.
- Align outer decks 6 & 7.
- Clean each entire deck area (including under the belt covers) of all grease, oil, fuel, grass, or debris. Be sure to replace all covers, shields, and guards.
- Inspect all blades for proper installation, orientation, tightness, sharpness, and overall condition.
- Verify proper function of all gauge wheels.
- Verify that all warning decals are in place, visible and legible.
- Verify that all covers and safety devices are properly installed and secure.
- Check that the discharge chute is clear of debris, properly mounted, and in good condition.
- Inspect entire Articulator for loose or entangled parts, debris, obstructions, or neglected tools.
- Perform all safety, set-up, and pre-operation procedures listed in your tractor manual.
- Complete the appropriate maintenance checklist (section 5).
SECTION 4  OPERATING PROCEDURES
Operating Procedures

Transporting The Articulator

4.1 Transporting The Articulator

DANGER!

- Never engage the PTO when the Articulator is in the transport position!
- Never raise the Articulator into the transport position while the PTO is engaged.

The Model 721XR/521XR/721XRT Articulator uses hydraulics to lower the rear wheels, lift the decks, and fold up the two outside decks (721XR/721XRT only), allowing easy transportation. This feature has many other benefits, including remote operation, access across narrow bridges, through gates, or doorways, and reduction of required storage space. **Complete the Initial Set-Up section of this manual BEFORE attempting to operate the Articulator.**

4.2 Hydraulic Lift Operation

When properly operated, the hydraulic lift unit enables remote folding and safe transportation of the Articulator. As with all industrial equipment, improper operation of the hydraulic lift unit may result in damage to equipment, serious personal injury, or fatal injury. Follow the instructions carefully when operating the lift unit.

DANGER!

- Never engage the PTO with the decks raised!
- Never raise the decks with the PTO engaged!
- Never operate the hydraulics with the PTO engaged!
- Damage to equipment, serious personal injury, or fatal injury can result!

The 721XR/721XRT Articulator mowing decks come leveled from the Lastec factory. Should deck leveling be necessary during maintenance, see the section on Mower Deck Leveling Adjustment in the Maintenance section of this manual.

1. Disengage the PTO. Wait for all motion to stop.
2. Lift the tractor 3-point hitch, raising the front of the Articulator.
3. Slowly engage the hydraulics.
4. As the decks begin to rise, watch carefully to be sure there is no obstruction or binding in
the Articulator.

5. Activate the hydraulics until the rear wheels lower, the decks raise, both outside decks fold completely (721XR/721XRT only), and the hydraulic cylinders are fully retracted on the wing decks (721XR/721XRT only) and extended on the main frame.

6. Secure the safety cables. (721XR/721XRT only)

7. The Articulator is now ready for transport.

8. Upon arriving at the work area, activate the hydraulics, lowering the Articulator. Lower the decks until the hydraulic cylinders are fully extended on the wing decks (721XR/721XRT) and retracted on the main frame. The cylinders on the outside two decks should be completely extended and centered in the slots on the front decks (decks 1 and 3) to allow for proper deck flotation (721XR/721XRT only).

9. Lower the tractor 3-point hitch, lowering the front of the Articulator to cut position.
4.3 Preparation For Cutting

DANGER!
- Always follow all safety rules stated in this manual and in your tractor manual. A well-informed, safety-conscience operator is the best safeguard against accidents or injuries.
- Never allow extended running of any engine indoors! Exhaust gasses contain carbon-monoxide, and can be fatal.

WARNING!
- Never attempt to operate the Articulator until you have read and understood this manual and your tractor manual in their entirety!

CAUTION!
- Always perform the preoperation equipment inspection before attempting to operate the Articulator.
- Always perform the appropriate maintenance schedule(s) before attempting to operate the Articulator.

The Articulator is designed specifically for finish mowing applications. One of the unique benefits of the Articulator’s cutting system is its ability to float over contours that are impossible for other wide-area mowers to cut accurately. The Articulator offers a high level of maneuverability.

Although the Articulator is an industrial-quality mower, do not attempt to use it to cut extremely long grass or areas heavy with brush or debris.

Before operating the Articulator, you must read and completely understand this manual as well as the tractor manual. In addition, you must also complete the appropriate maintenance schedules and perform a complete pre-operating checklist.

- Complete the Initial Set-Up section of this manual BEFORE attempting to operate the Articulator.
- Release the deck lock cables to allow the Articulator to float properly. Secure the deck lock cables to the chains.
- After transporting to the work area, lower the Articulator into the cutting position.
Be sure the Articulator is not positioned over any debris or loose objects.

Be sure there are no people near the Articulator, especially in the path of discharge.

Turn off the tractor, disengage the PTO, shift the transmission into neutral, and set the parking brake.

Start the tractor. Keep the tractor on a low RPM setting. DO NOT ENGAGE THE PTO WITH THE TRACTOR AT HIGH IDLE.

Engage the PTO.

If there is any belt squeal, excessive vibration, or any indication of obstructions or debris in the blades, disengage the PTO at once.

If the Articulator appears to be operating correctly, slowly increase the tractor engine speed until the PTO shaft is operating at the tractor manufacturer's recommended operating RPM. IMPORTANT! For best results the Articulator should run as close to 540 RPM as possible without exceeding it.

Release the parking brake and carefully begin cutting.
4.4 Recommended Blades

**Ultra Low Blade (Part No. 063265)**

Use Ultra Low Lift Blade when the conditions are dry and in sandy soil areas. When conditions like this are evident, lift created by the cutter blades can be reduced, decreasing the abrasion wear to the cutter blades and deck caused by sand. The Low Lift Blade will also help reduce cutter deck blowout during the conditions stated above.

**Low-Lift Blade (Part No. P246)**

Low-Lift Blade is recommended for 1”-2” cutting height. Use a Low Lift Blade when the conditions are dry, the region is experiencing a drought, in sandy soil areas or when performing seasonal scalping. When conditions like this are evident, lift created by the cutter blades can be reduced, decreasing the abrasion wear to the cutter blades and deck caused by sand. The Low Lift Blade will also help reduce cutter deck blowout during the conditions stated above.

**High-Lift Blade (Part No. P128)**

High-Lift Blade is recommended for cool season grasses and cut heights of 2” and above, unless in sandy conditions. These blades are shipped standard on all mowers.

Use a High Lift Blade when the conditions are extremely wet or heavy. The High Lift Blades will create greater lift that may be needed in difficult cutting conditions. Additional deck cleaning may be required when using High Lift Blades.

**Gator Mulching Blade (Part No. P322)**

Mulching blades are designed for use with a mulching (discharge block-off) plate or with a complete mulching system. These blades feature a high lift, “double-cut” edge for quick, thorough shredding of grass clippings, leaves and debris.
4.5  Ground Speed

**CAUTION!**
- Excessive ground speed over rough terrain can cause structural damage to the Articulator.
- Always drive cautiously and reduce ground speed when driving over rough terrain.

Recommended ground speed range for the Articulator is 3 to 5 MPH. Your speed may vary within this range as your cutting conditions vary. Excessive ground speed while traveling over rough terrain can cause the Articulator to bounce excessively, which in turn increases the stress on its structure and the likelihood of damage to the machine. Thus, while a higher ground speed is acceptable for wide, open, flat areas, a slower ground speed is required for rough or contoured areas.

Always adhere to the tractor manufacturer's recommended ground speed range when operating the Articulator.

4.6  Cutting In Reverse

**WARNING!**
- Always ensure the area behind the tractor is clear of people or obstacles before backing the Articulator and tractor.

Be sure entire area around the tractor and Articulator are clear of people or obstructions before traveling in reverse.

If you are not familiar with backing techniques, practice in an open area to develop the required skills before operating the Articulator.

When backing up with the articulator, with the blades on or off, you must carefully watch the area around the articulator for obstacles, people, pets and anything that the machine could come into contact with.
4.7 Cutting Extreme Contours

**WARNING!**

- Always use a tractor equipped with ROPS.
- Always wear your seat belt.

The Articulator cuts contoured areas well, producing a quality of cut which rivals that of a single push mower.

The basic rule of thumb to use when judging the ability of the Articulator to handle a contoured area is to cut the area with a 21” push mower set at the same height as the Articulator. If the mower cuts without scalping, the Articulator will be able to handle the area.

When cutting extreme contours, always use a tractor equipped with a ROPS, and always wear your seat belt.

Following are important guidelines to follow when cutting extreme contours or side hills:

- Never exceed the tractor manufacturer’s maximum side slope ratings.
- Always use a tractor equipped with a ROPS.
- Always wear your seatbelt.
- Do not operate the Articulator in areas which are so extremely contoured that it causes the PTO shaft chatter or vibrate.

4.8 Cutting Wet Grass

Operation of the Articulator is not adversely affected by wet cutting conditions. However, a slower ground speed is recommended for improved grass discharge and reduced turf tear.

If, when cutting excessively wet or tall grass at reduced ground speed, you still do not get adequate grass discharge, consider making two passes over the area.
SECTION 5 MAINTENANCE
CAUTION!

- Always perform the appropriate maintenance checklists at the proper time interval.
- Failure to perform the appropriate maintenance checklists at the proper time interval will cause damage to the Articulator, unsafe operating conditions and substandard performance.
- Warranty issues are dependent on proper maintenance.

Along with completing the Pre-Operation Equipment Inspection Checklist *each time* you operate the Articulator, complete the following Maintenance Checklists at the indicated time intervals.

### 5.1 Mower Deck Leveling Adjustment

The mowing decks come leveled from the Lastec factory. Should the decks require resetting during the course of maintenance, an eccentric cam in the ball joint of the deck pivot assemblies can be adjusted to level the decks.

Decks 1 and 3 attach to the deck cross tube by sliding pivot ball joints that can be adjusted by setting the cam position of the deck adjustment cam.

Loosen the central bolt that goes through the ball joint.

Pull out the bushing containing the deck adjustment cam.

Position the deck adjustment cam to level the deck.

Replace the deck adjustment cam with bushing. Note that a weldment block prevents the hex head on the deck adjustment cam from rotating.

Tighten the central bolt and check for proper level height.
5.2 Every 8 Operating Hours

- Complete the Pre-Operation Equipment Inspection Checklist.
- Grease all grease zerks.
- Verify all hardware is functional, securely fastened and in good condition.
- Grease all wheel hubs.
- Grease the PTO shaft collar and both cross bearings.
- Inspect all belts for cracks, wear, or damage; replace as needed.
- Inspect the spindle bearing grease seals (under each deck) for grease leakage or improper seating.
- Inspect gearbox and seals for leaks.
- Verify that the split-tapered bushing bolts mounted in the drive pulley under the gearbox are tight. **(Torque to 96-120 in.lbs)**
- Lubricate all joints and moving parts which are not equipped with grease fittings. **(Recommend the use a nickel-based anti-seize for these areas).**
- Inspect entire Articulator for loose or entangled parts, debris, obstructions, misplaced tools, or any other possible safety hazards, equipment hazards or projectile hazards. Clean off decks of any dirt, grease or oil.
- Clean and gauge wheels to reset the bearing pre-loads. **(Reference Service Bulletin SB-0149)**
- Perform the appropriate maintenance procedures listed in your tractor manual.
- Verify proper installation, operation and flow of grass chutes.
5.3 First 8 Hours

- Check deck alignment and belt tension.
- Lubricate the PTO quick-disconnect pin or twist sleeve. *(Recommend the use a nickel-based anti-seize for these areas)*.

5.4 First 50 Hours

- Change gearbox lube with 80W90 gear oil.

5.5 Every 50 Operating Hours

- Check deck alignment and belt tension.
- Check deck drive belt alignment.
- Grease all blade spindle bearing housings. *Fill until grease purges from the weep hole in the side of the bearing housing*.
- Inspect all bushings for wear. Replace as needed.
- Inspect gearbox pivot stop bolts, wear pad, and bushings. Replace or adjust as needed.
- Check and clean, if necessary, any debris that may have accumulated during operation.
- Check gearbox lube level and condition.

5.6 Every 200 Operating Hours

- Change the gearbox oil *(28 ounces SAE 80W-90 Grade gear oil)*.

5.7 Every 500 Operating Hours

- Inspect all blade spindle bearings for wear or damage. Replace if needed.
- Inspect and re-pack all wheel bearings. Replace if needed.
- Inspect all component parts and wear points. Repair or replace any worn, damaged, or missing parts.
5.8 Annual

- Replace gearbox shaft seals.

- Change the gearbox oil (*28 ounces SAE 80W-90 Grade Gear Oil*).

- Replace deck pivot pins and bushings.

- For your convenience, Lastec has developed a complete Rebuild Kit for your Articulator. The 721XR/721XRT kit number is 040220. The 521XR kit number is 029600. Although this kit is optional, Lastec recommends the installation of this kit as an annual maintenance program.

- If installing the 040220 Model 721XR/721XRT Deck Drive Rebuild kit, or the 029600 Model 521XR Deck Drive Rebuild kit, complete the 8, 50, 200 & 500 Hour Maintenance Checklists.
### 5.9 Articulator Specifications, 521XR/721XR/721XRT

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<th>7' 6&quot; [521XR Only]</th>
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<tbody>
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<td>Gearbox Oil</td>
<td>28 Ounces SAE 80W-90 Grade Gear Oil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTO Shaft</td>
<td>Bondioli 21 1/4&quot; 7104051FFT07S07 [521XR/721XRT Only]</td>
<td>P225-10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bondioli 80 Deg [721XRT Only]</td>
<td>103610</td>
<td></td>
</tr>
</tbody>
</table>
## 5.10 Articulator Maintenance Chart, 721XR/721XRT

<table>
<thead>
<tr>
<th>Task Description</th>
<th>8 Hrs</th>
<th>50 Hrs</th>
<th>200 Hrs</th>
<th>500 Hrs</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the Pre-Operation Equipment Inspection Checklist</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Inspect Articulator for Loose or Entangled Parts, Debris, Obstructions, Neglected Tools or Other Hazards</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Inspect All Blade Spindle Spindle Bearings for Wear, Damage, Debris, &amp; Proper Installation</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Inspect All Component Parts And Wear Points</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Change the Gearbox Oil with 80W90</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Inspect All Blade Spindle Bearings for Wear, Damage, &amp; Proper Installation</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Inspect All Component Parts And Wear Points</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Install the 040220 Model 721XR Articulator Rebuild Kit</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Re-pack All Wheel Bearings</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Replace gearbox shaft seals</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
</tbody>
</table>

* First 8 hours, then every 50 after that.
** First 50 hours, then every 200 after that.
5.11 Torque Values

Below is a table of suggested torque values for this unit. Please use these torque values on this unit unless otherwise specified.

<table>
<thead>
<tr>
<th>Grade Mark</th>
<th>Units</th>
<th>SAE 5</th>
<th>SAE 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td></td>
<td>105000 PSI</td>
<td>150000 PSI</td>
</tr>
<tr>
<td>Grade Mark</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bolt Dia.</th>
<th>Threads Per In.</th>
<th>Units</th>
<th>SAE 5</th>
<th>SAE 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>32</td>
<td>in-lbs (Nm)</td>
<td>20 (2.3)</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>32</td>
<td>in-lbs (Nm)</td>
<td>24 (2.7)</td>
<td>30 (3.4)</td>
</tr>
<tr>
<td>10</td>
<td>24</td>
<td>in-lbs (Nm)</td>
<td>35 (4.0)</td>
<td>45 (5.1)</td>
</tr>
<tr>
<td>10</td>
<td>32</td>
<td>in-lbs (Nm)</td>
<td>40 (4.5)</td>
<td>50 (5.7)</td>
</tr>
<tr>
<td>12</td>
<td>24</td>
<td>in-lbs (Nm)</td>
<td>50 (5.7)</td>
<td>65 (7.3)</td>
</tr>
<tr>
<td>1/4</td>
<td>20</td>
<td>in-lbs (Nm)</td>
<td>95 (10.7)</td>
<td>125 (14.1)</td>
</tr>
<tr>
<td>1/4</td>
<td>28</td>
<td>in-lbs (Nm)</td>
<td>95 (10.7)</td>
<td>150 (17.0)</td>
</tr>
<tr>
<td>5/16</td>
<td>18</td>
<td>ft-lbs (Nm)</td>
<td>17 (22.6)</td>
<td>23 (31.2)</td>
</tr>
<tr>
<td>5/16</td>
<td>24</td>
<td>ft-lbs (Nm)</td>
<td>20 (27.1)</td>
<td>25 (33.8)</td>
</tr>
<tr>
<td>3/8</td>
<td>16</td>
<td>ft-lbs (Nm)</td>
<td>30 (40.7)</td>
<td>40 (54.2)</td>
</tr>
<tr>
<td>3/8</td>
<td>24</td>
<td>ft-lbs (Nm)</td>
<td>35 (47.5)</td>
<td>45 (61.0)</td>
</tr>
<tr>
<td>7/16</td>
<td>14</td>
<td>ft-lbs (Nm)</td>
<td>50 (67.8)</td>
<td>65 (88.1)</td>
</tr>
<tr>
<td>7/16</td>
<td>20</td>
<td>ft-lbs (Nm)</td>
<td>55 (74.6)</td>
<td>70 (94.9)</td>
</tr>
<tr>
<td>1/2</td>
<td>13</td>
<td>ft-lbs (Nm)</td>
<td>75 (101.7)</td>
<td>100 (135.6)</td>
</tr>
<tr>
<td>1/2</td>
<td>20</td>
<td>ft-lbs (Nm)</td>
<td>85 (115.3)</td>
<td>110 (149.2)</td>
</tr>
<tr>
<td>9/16</td>
<td>12</td>
<td>ft-lbs (Nm)</td>
<td>105 (142.4)</td>
<td>135 (183.1)</td>
</tr>
<tr>
<td>9/16</td>
<td>18</td>
<td>ft-lbs (Nm)</td>
<td>115 (155.9)</td>
<td>150 (203.4)</td>
</tr>
<tr>
<td>5/8</td>
<td>11</td>
<td>ft-lbs (Nm)</td>
<td>150 (203.4)</td>
<td>195 (264.4)</td>
</tr>
<tr>
<td>5/8</td>
<td>18</td>
<td>ft-lbs (Nm)</td>
<td>160 (217.0)</td>
<td>210 (284.8)</td>
</tr>
<tr>
<td>3/4</td>
<td>10</td>
<td>ft-lbs (Nm)</td>
<td>170 (230.5)</td>
<td>220 (298.3)</td>
</tr>
<tr>
<td>3/4</td>
<td>16</td>
<td>ft-lbs (Nm)</td>
<td>175 (237.3)</td>
<td>225 (305.1)</td>
</tr>
<tr>
<td>7/8</td>
<td>9</td>
<td>ft-lbs (Nm)</td>
<td>302 (409.5)</td>
<td>473 (640.9)</td>
</tr>
<tr>
<td>7/8</td>
<td>14</td>
<td>ft-lbs (Nm)</td>
<td>300 (406.8)</td>
<td>400 (542.4)</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>ft-lbs (Nm)</td>
<td>466 (631.8)</td>
<td>714 (967.4)</td>
</tr>
</tbody>
</table>