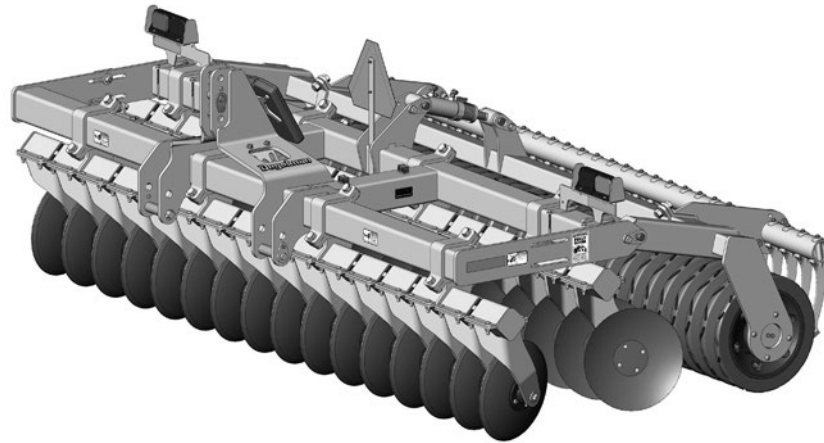
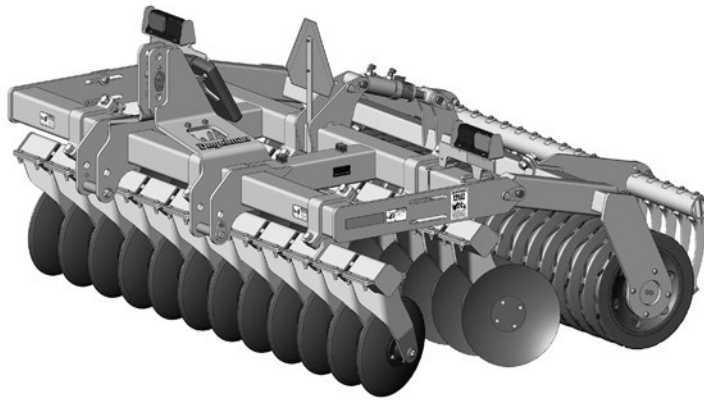


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# PRO-TILL<sup>®</sup>

HIGH PERFORMANCE TILLAGE



## PRO-TILL | 10 | 13

142766 v1.1

**DEGELMAN INDUSTRIES LP**  
BOX 830-272 INDUSTRIAL DRIVE,  
REGINA, SK, CANADA, S4P 3B1  
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**PRO-TILL 10/13**



# QUICK-START GUIDE\*

## for PRO-TILL 10/13

\* Refer to operators manual for complete safety and operation info.

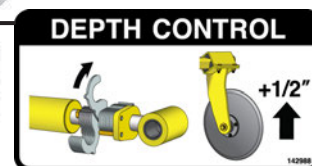
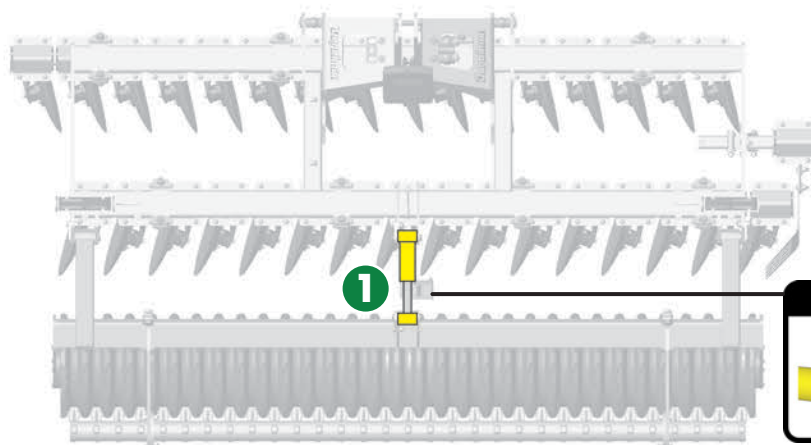
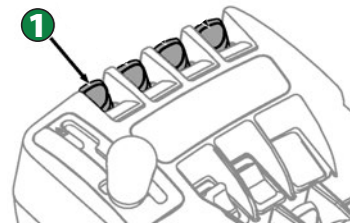
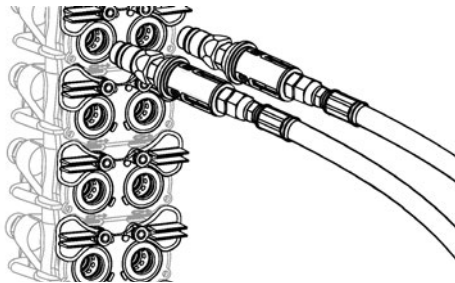


**Degelman**

### A Connect tractor to 3-point hitch.

(NOTE: Adjust pin locations to coincide with CAT size of tractor's 3-point system.)

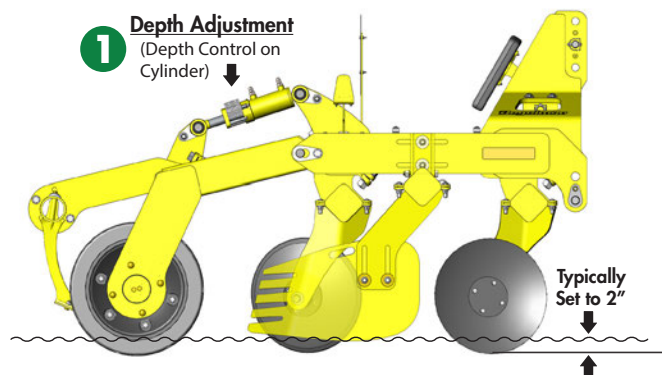
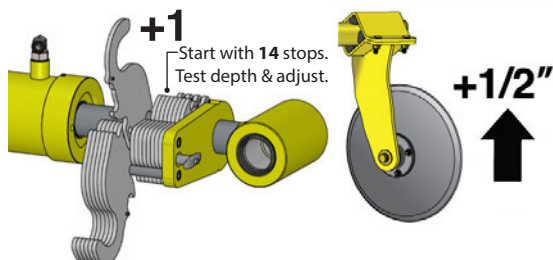
### B Connect Hydraulics **1 DEPTH**



### C Lower Machine

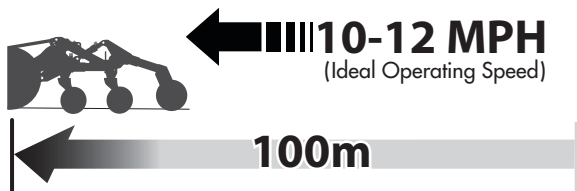
### D Set Cutting Depth

**IMPORTANT:** Cycle oil in the Depth Control Cylinder **1** before use. This is especially important after long periods of storage.



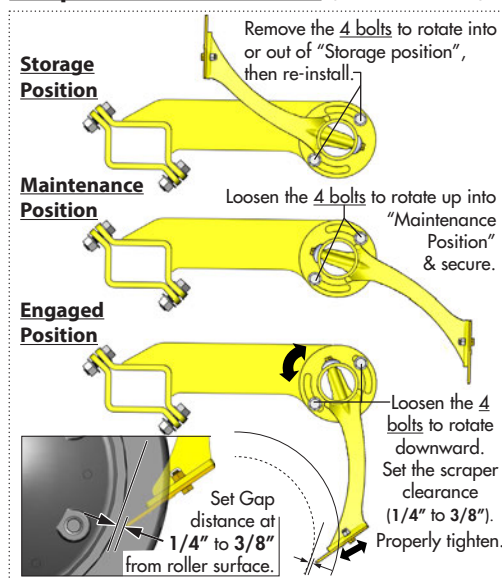
## E Test. Check. Adjust.

(NOTE: Adjust top link of 3-point hitch to level unit at desired depth.)



## F Raise 1 for Headland Turns.

### Scraper Position Overview (Rubber Roller)



#### Maintenance

(Check Machine Daily)

- Hydraulic Connections/Hoses
- Working points & pins
- Check for missing, worn or damaged parts.

\* Refer to operators manual for complete safety and operation info.



#### GPS Reference

(Set overlap to 4" per side)

(with 20" discs) **2" Depth**

**Pro-Till 10** 117" (9.98m)

**Pro-Till 13** 157" (3.99m)

(with 20" discs) **MAX Depth**

**Pro-Till 10** 119" (3.02m)

**Pro-Till 13** 159" (4.04m)

# Introduction

## **PRO-TILL®** HIGH PERFORMANCE TILLAGE

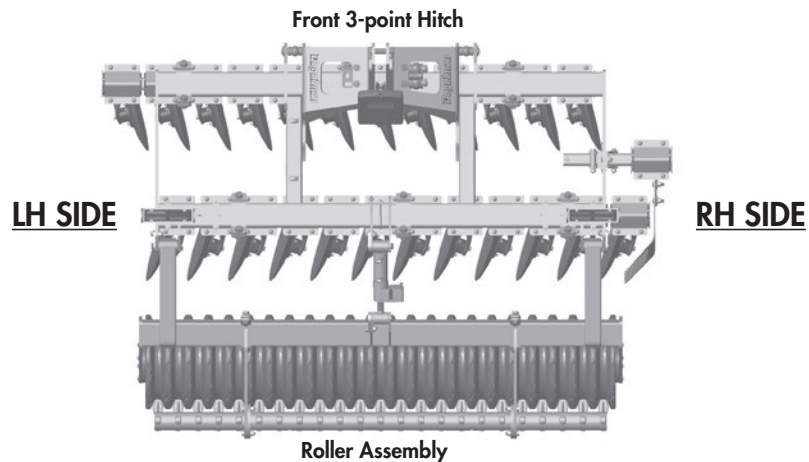
**CONGRATULATIONS** on your choice of a Degelman PRO-TILL to complement your farming operation. It has been designed and manufactured to meet the needs of a discerning agricultural market. Degelman PRO-TILL shreds heavy fall residue, opens up spring fields, levels ruts, destroys clods and produces an absolutely perfect seed bed. Degelman PRO-TILL is the fastest and most versatile piece of tillage equipment you will ever own. Use this manual as your first source of information about this machine.

**TO THE NEW OPERATOR OR OWNER** - Safe, efficient and trouble free operation of your Degelman PRO-TILL requires that you and anyone else who will be operating or maintaining it, read and understand the Safety, Operation, Maintenance and Troubleshooting information contained within this manual.

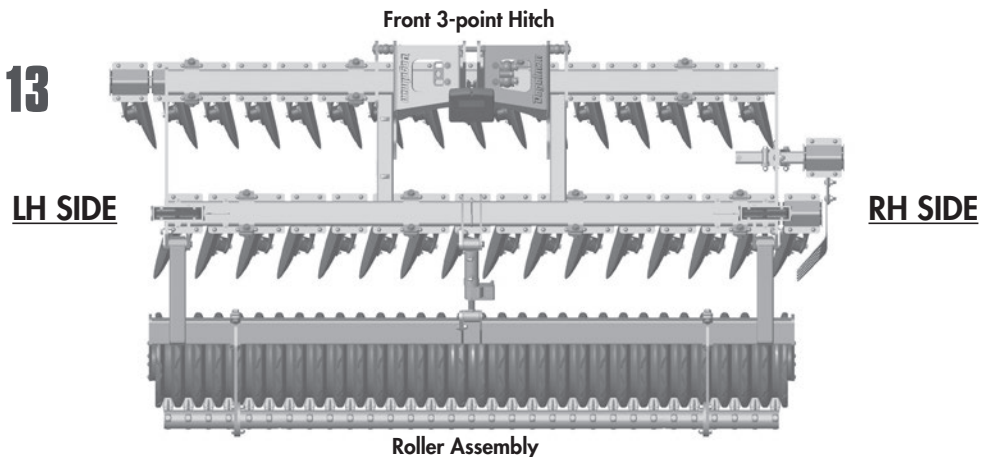
By following the operating instructions in conjunction with a good maintenance program your machine will provide many years of trouble-free service. Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Degelman Dealer if you need assistance, information, or additional copies of the manual.

**OPERATOR ORIENTATION** - The directions left, right, front and rear, as mentioned throughout the manual, are as seen from the tractor drivers' seat and facing in the direction of travel.

### **PRO-TILL | 10**



### **PRO-TILL | 13**



## Why is **SAFETY** important to **YOU**?

### 3 **BIG** Reasons:

- **Accidents Can Disable and Kill**
- **Accidents Are Costly**
- **Accidents Can Be Avoided**



### SAFETY ALERT SYMBOL

---

The **Safety Alert Symbol** identifies important safety messages applied to the PRO-TILL and in this manual. When you see this symbol, be alert to the possibility of **injury or death**. Follow the instructions provided on the safety messages.

The **Safety Alert Symbol** means:

**ATTENTION!**  
**BECOME ALERT!**  
**YOUR SAFETY IS INVOLVED!**

### SIGNAL WORDS

---

Note the use of the Signal Words: **DANGER**, **WARNING**, and **CAUTION** with the safety messages. The appropriate Signal Word has been selected using the following guidelines:



**DANGER:** Indicates an imminently hazardous situation that, if not avoided, **WILL** result in death or serious injury if proper precautions are not taken.



**WARNING:** Indicates a potentially hazardous situation that, if not avoided, **COULD** result in death or serious injury if proper precautions are not taken.



**CAUTION:** Indicates a potentially hazardous situation that, if not avoided, **MAY** result in minor or moderate injury if proper practices are not taken, or, serves as a reminder to follow appropriate safety practices.






## SAFETY

**YOU** are responsible for the safe operation and maintenance of your Degelman PRO-TILL. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the PRO-TILL be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be adhered to while operating this equipment.

Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- PRO-TILL owners must give operating instructions to operators or employees before allowing them to operate the PRO-TILL, and at least annually thereafter per OSHA regulation 1928.51.
- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. All accidents can be avoided.
- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- Think SAFETY! Work SAFELY!

## GENERAL SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining or adjusting. 
2. Install and properly secure all shields and guards before operating. Use hitch pin with a mechanical locking device.
3. Have a first-aid kit available for use should the need arise and know how to use it. 
4. Have a fire extinguisher available for use should the need arise and know how to use it. 
5. Wear appropriate protective gear. This list includes but is not limited to:
  - A hard hat
  - Protective shoes with slip resistant soles
  - Protective glasses or goggles 
  - Heavy gloves
  - Wet weather gear
  - Hearing protection 
  - Respirator or filter mask
6. Clear the area of people, especially small children, and remove foreign objects from the machine before starting and operating.
7. Do not allow riders.
8. Stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
9. Review safety related items with all operators annually.

# Hook-Up

## TRACTOR SAFETY

1. Must comply with tractor manufacturer specifications for weight and suitability for 3-point mounted implements
2. Ensure tractor is properly ballasted and tires are inflated correctly.

**⚠ DANGER:** ***Never** crawl / pass under implement while raised on 3-point hitch.*



## HOOK-UP / UNHOOKING

The PRO-TILL should always be parked on a level, dry area that is free of debris and foreign objects. Follow this procedure to hook-up:

1. Clear the area of bystanders and remove foreign objects from the machine and working area.
2. Make sure there is enough room to back the tractor up to the 3-point hitch on implement.
3. Start the tractor and slowly back it up to the hitch point.
4. Set up the lower pins for CAT size of tractor.  
CAT 3 = 1-7/16"  
CAT 4 = 2" (1-7/16" + 2" Bushing)
5. Slowly back tractor up to align the hitch.  
Raise/lower 3-point arms for alignment.

(Note: If equipped, pull out the pins on top of the **lower 3-point arms** on the tractor in order to **extend the arms** and assist in the 3-point connection procedure. Once the 3-point connection pins are installed, reverse the tractor slowly until the 3-point arms lock back into place.)

6. Install connection pins on lower 3-point arms.
7. Attach top link with appropriate pin.  
CAT 3 = 1-1/4"  
CAT 4 = 1-3/4" (1-1/4" + 1-3/4" Bushing)  
(Store spare pin parts on holder)

8. Connect the hydraulic hoses.
  - Use a clean cloth or paper towel to clean the couplers on the ends of the hoses. Also clean the area around the couplers on the tractor. Remove the plastic plugs from the couplers and insert the male ends.
  - Be sure to match the pressure and return line to one valve bank.
  - Hoses are labelled: (1) Depth

9. Connect lights (electrical socket plug) to tractor.

10. When unhooking from the tractor, reverse the above procedure.



# Transport

## TRANSPORT SAFETY

1. Read and understand ALL the information in the Operator's Manual regarding procedures and SAFETY when operating the PRO-TILL in the field/yard or on the road.
2. Check with local authorities regarding machine transport on public roads. Obey all applicable laws and regulations.
3. Always travel at a safe speed. Use caution when making corners or meeting traffic.
4. Make sure the SMV (Slow Moving Vehicle) sign, and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic. Be sure to check with local highway authorities and comply with their lighting and transport requirements.
5. Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the road shoulder, if permitted by law.
6. Always use hazard warning flashers on tractor when transporting unless prohibited by law.

## TRANSPORTING

*Use the following guidelines while transporting:*

1. Fully extend roller cylinder for transport.
2. Ensure debris that may fall or become dislodged during transport is removed.
3. Be sure hazard lights are flashing and SMV decal is visible.
4. Keep brake pedals locked together at all times. (Refer to tractor manual.)
5. Look up 3-point anti-sway stabilizer system on tractor.

**! IMPORTANT:** Under NO CIRCUMSTANCES should there ever be riders while the Pro-Till is in transport.



## TRANSPORT TO FIELD POSITION

### FOLLOW PROCEDURE BELOW:

- A. Remove 3-point cylinder locks on tractor (if equipped).
- B. Lower unit.
- C. Adjust depth.

## FIELD TO TRANSPORT POSITION

### FOLLOW PROCEDURE BELOW:

- A. Raise unit.
- B. Block off cylinders with locks (if equipped).
- C. Fully lower roller during transport (i.e. Fully extend cylinder).

# Operation

## OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before using.
2. Stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
4. Do not allow riders on the PRO-TILL tractor during operation or transporting.
5. Keep all shields and guards in place when operating (if applicable).
6. Clear the area of all bystanders, especially children, before starting.
7. Do not operate machine on overly steep side hills or slopes.
8. Be careful when working around or maintaining a high-pressure hydraulic system. Ensure all components are tight and in good repair before starting.



## BREAK-IN

Although there are no operational restrictions on the PRO-TILL when it is new, there are some checks that should be done when using the machine for the first time, follow this procedure:

**⚠ IMPORTANT:** *It is important to follow the Break-In procedures especially those listed in the "Before using" section below to avoid damage:*

### A. Before using:

1. Read Safety Info. & Operator's Manual.
2. Complete steps in "Pre-Operation Checklist".
3. Check all Bolt Tightness.
4. Adjust Disc Cutting Depth as outlined in the "Setting Disc Depth" section.

### B. After operating for 2 hours:

1. Check all hardware. Tighten as required.
2. Check all hydraulic system connections. Tighten if any are leaking.

## PRE-OPERATION CHECKLIST

It is important for both personal safety and maintaining good operational condition of the machine that the pre-operational checklist be followed.

**Before operating the machine and each time thereafter, the following areas should be checked off:** 

- ☐ Use only a tractor with adequate power to pull the PRO-TILL under ordinary operating conditions.
- ☐ Check to ensure all pins on the 3-point hitch are in good shape and have klik pins installed.
- ☐ Check oil level in the tractor hydraulic reservoir. Top up as required.
- ☐ Inspect all hydraulic lines, hoses, fittings and couplers for tightness. Tighten if there are leaks. Use a clean cloth to wipe any accumulated dirt from the couplers before connecting to the tractor's hydraulic system.
- ☐ Inspect the condition/wear of the discs. If needed or desired, adjust the Disc Cutting Depth as outlined in the adjustments section. If excessive disc wear is evident, replacement may be required. Refer to maintenance section.

# Operation

## OPERATING GUIDELINES

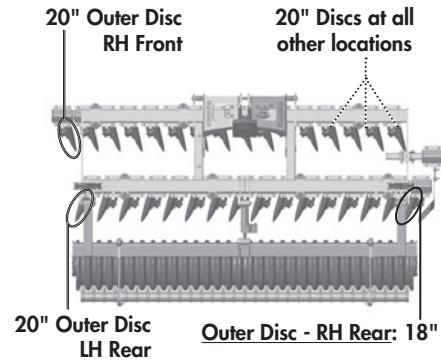
1. Cycle oil in the Depth Control Cylinder (#1) before use. This is especially important after long periods of storage.
2. Lower tractor 3-point arms.
3. **IDEAL OPERATING SPEED** is 10-12 mph.  
**Minimum** operating speed is 8 mph.  
**Maximum** operating speed is 14 mph.
4. Raise the machine out of the ground using the 3-point linkage when making headland turns.
5. Run the machine with the discs in the ground at desired depth for a short distance. If the machine is pitched forward or backward, adjust the 3-point hitch top link, or raise the roller and add/remove depth stops. Repeat until the machine is level at desired working depth.

**Note:** It is recommended to start with the Pro-Till adjusted so the front discs are 1/2" to 3/4" higher than the rear discs (*Use top link to adjust*).

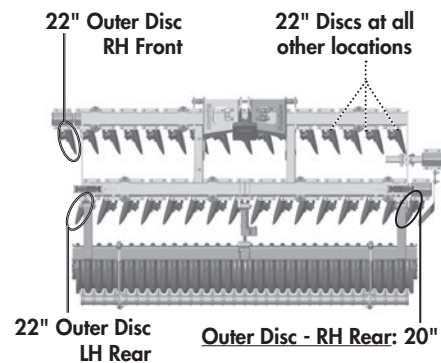
6. Each time you start a new field you may need to adjust the cutting depth depending on the type of crop residue or soil conditions. The operator can adjust the cutting depth by following the guidelines in the "Setting Disc Depth" section.
7. After making adjustments to the cutting depth it is recommended to bring the Pro-Till up to speed (10-12mph) to test the depth setting by driving about 100m (cutting performance changes dramatically from a slow speed to high speed). Stop, check depth and cut of field, re-adjust the height higher or lower, if needed, based on your preference.  
**Remember:** Removing one depth stop lowers cutting depth 1/2" deeper, Adding one depth stop raises discs up 1/2" higher.
8. Check/adjust the deflector shield height setting.
9. Harder, packed soil may require additional passes for optimum results. It is recommended to do a second pass at an angle to the original pass.

## FACTORY DISK SETUP

### 20" Disc Setup



### 22" Disc Setup



# Operation

## SETTING DISC DEPTH & DIRT DEFLECTOR

**NOTE:** As the discs wear with usage, the disc depth settings will also need to be adjusted accordingly.

Use the following as a guideline for setting depth:

1. Drive the PRO-TILL onto level ground. For initial setup, try "14 Depth Stops" on depth cylinder.
2. Fully retract the Depth (#1) cylinders to lower rear frame to ground.
3. Check the penetration depth of the front and rear row of discs. Take note of how much you

would like to raise or lower both the front and rear disc sections - round to the nearest 1/2".

4. Fully raise the frame back off the ground by extending the Depth (#1) cylinders.

5. Adjust Disc height.

**Lower Discs** - Remove one Depth Stop for each 1/2"

**Raise Discs** - Add one Depth Stop for each 1/2"

6. Repeat above procedure until proper depth is achieved.

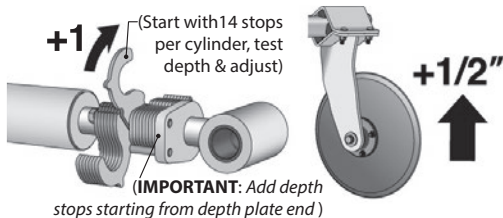
7. Adjust Dirt Deflector height as shown below.

### DEPTH SETTING OVERVIEW

Adjusting the disc cutting depth is accomplished by adding or removing a number of spacers from depth adjustment cylinder.

The spacers limit the stroke distance of the cylinder, changing the amount that the disc frames are lowered.

Each spacer that is added to the cylinders raises the frame height by 1/2". Therefore, to lower discs deeper into the soil, you would remove one spacer for each 1/2" of depth change required.



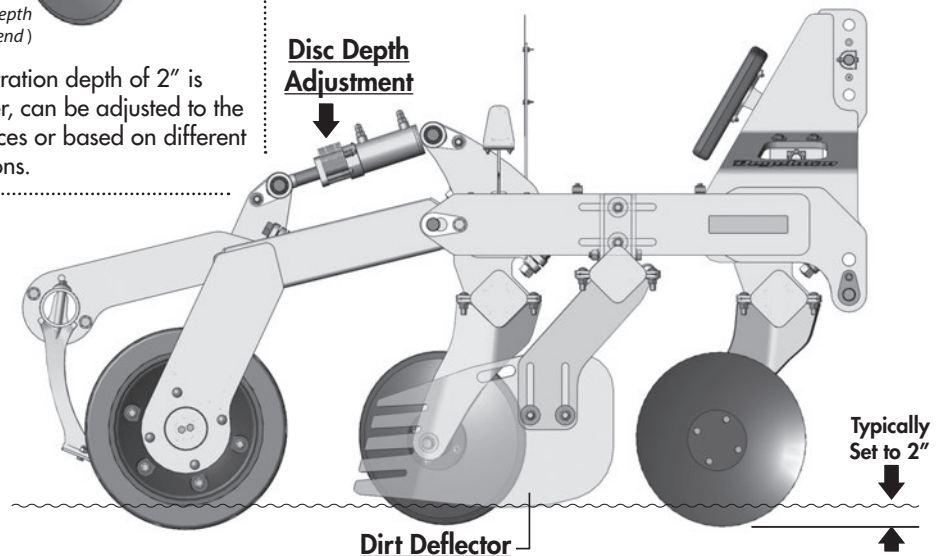
A typical recommended penetration depth of 2" is suggested. This depth, however, can be adjusted to the operators needs and preferences or based on different crop varieties and soil conditions.

### PITCH ADJUSTMENT

Some operators may also prefer to adjust the front or rear frame disc sections to run slightly higher than the other. Adjustments to the front to rear disc section height or "pitch" are done with the top link of the 3-point hitch:

- **Lengthening 3-point top link:**
  - Lowers the Rear Discs
  - Increases Roller Pressure
- **Shortening 3-point top link:**
  - Raises the Rear Discs
  - Decreases Roller Pressure

**NOTE:** For better performance, adjust pitch slightly higher on the front (lengthen top link) to increase roller pressure.



**IMPORTANT:** You may need to adjust the deflector height according to soil penetration. Best setting is when deflector runs just slightly above the ground.

### RECOMMENDED PROCEDURE TO SET DEFLECTOR HEIGHT:

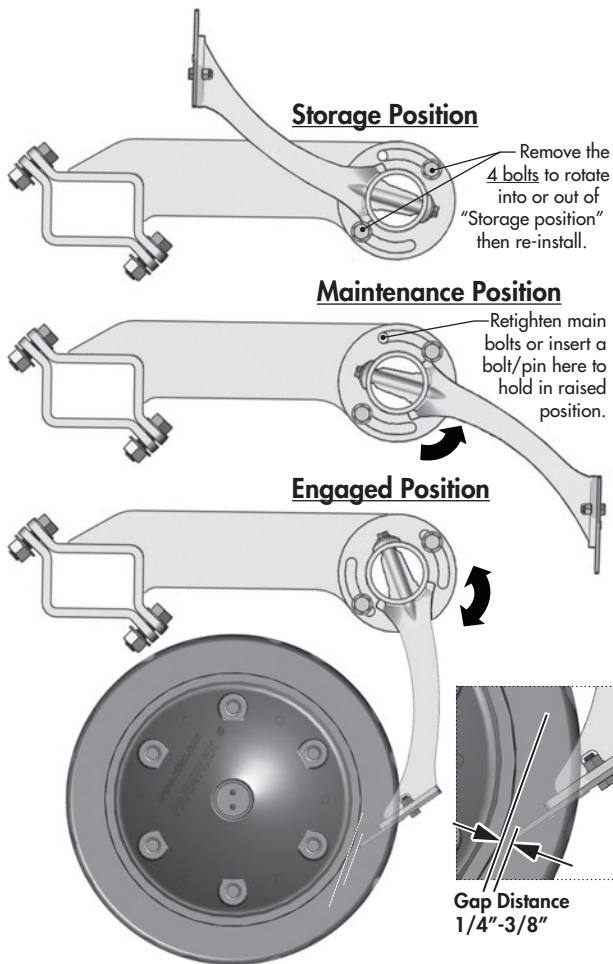
- 1 - Run the machine with discs set to the proper depth.
- 2 - Stop the machine.
- 3 - Adjust the height so the deflector is running just slightly above the ground.

**Adjust "Dirt Deflector Angle" whenever the Pitch of the Frame is adjusted.**

**Note:** If running Nose up or Nose down, adjust the deflector angle accordingly.

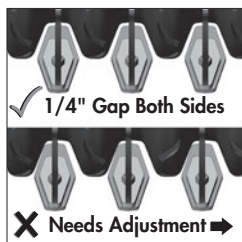
# Operation

## SCRAPER POSITION OVERVIEW

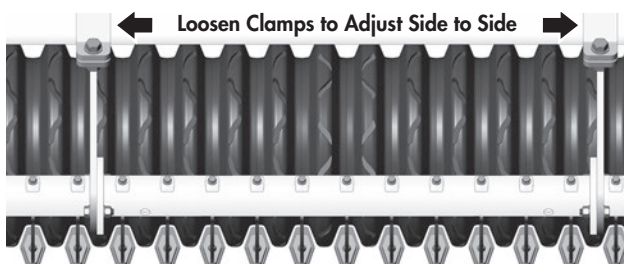


## SCRAPER SIDE-TO-SIDE POSITIONING

Inspect that the scraper plates are as close to centered as possible in the roller groove & that no scrapers are touching the sides of the rubber roller. (Ideally there should be a 1/4" gap)



If adjustment is needed, loosen the scraper arm clamps and adjust position until there is proper clearance on all edges. You may need to slightly adjust engagement distance if side-to-side is unsuccessful.



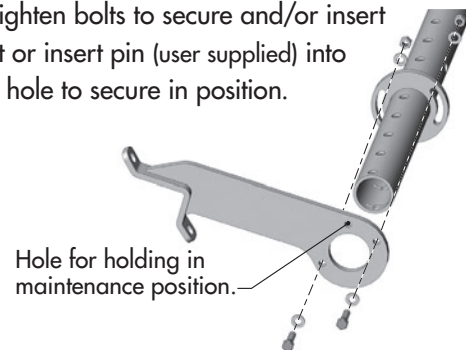
## SETTING SCRAPER POSITION

### Change into Storage Position:

- Loosen & remove the 4 bolts (2 per arm).
- Rotate section upward to new position.
- Reinstall bolts and tighten in place.
- Reverse procedure to put into working position.

### Change into Maintenance Position (from engaged):

- Loosen the 4 bolts (2 per arm).
- Rotate section upward until top hole is open.
- Tighten bolts to secure and/or insert bolt or insert pin (user supplied) into top hole to secure in position.

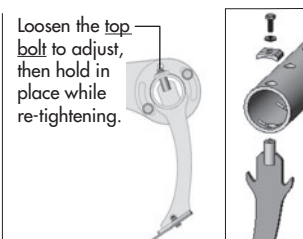


### Change into Engaged Position (from maintenance):

- Loosen the 4 bolts (2 per arm).
- Rotate section down until scraper blades are set to proper distance from inner roller groove. (1/4" to 3/8" is the recommended distance)
- Tighten bolts to secure in position.

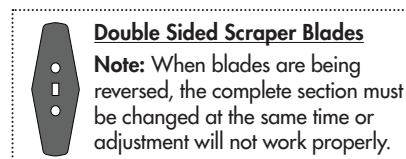
## INDIVIDUAL SCRAPER ARM ADJUSTMENT

The individual scraper arm position can also be fine tuned by loosening the top mounting bolt, adjusting the position, and then "holding in place" while retightening the bolt.



## REVERSING SCRAPER BLADES

The scraper blades are designed to be reversible in order to provide extended wear. It is advised to order replacement blades soon after reversing to prevent possible downtime in the future.





# Troubleshooting - Pro-Till 10/13

## Plugging disc rows in wet conditions:

- Ensure roller is turning & scrapers are set properly.
- Raise machine working depth.
- Increase operating speed slightly.
- Adjust pitch so front discs are slightly higher by extending 3-point top link.
- Check condition & operation of disc hubs. *(Make sure they turn freely.)*
- Wait for soil conditions to dry out more.

## Roller skidding in wet conditions:

- Check scraper operation & settings.
- Raise machine working depth.
- Adjust pitch so front discs are slightly lower by retracting 3-point top link & add depth stops to raise machine working depth.
- Wait for soil conditions to dry out more.
- Check condition & operation of bearings on both ends of the roller.

## Mud not clearing from rubber roller:

- Check scraper to roller distance & adjust if necessary. *(Scraper should be 1/4" to 3/8" from roller.)*
- Check scraper plate wear & adjust or replace as necessary. *(Replace all scrapers per row at the same time.)*
- Check scraper row adjustment for slippage & re-torque or replace hardware if necessary.

## Roller plugged in wet conditions:

- Lift 3-point to pass over pushed up mound & smooth out when soil dries.
- Fully extend depth cylinder & drive 12-14 mph on firm soil to clear rollers.
- In certain wet soil conditions place scrapers in storage position to continue operating.
- If plugging persists wait for soil conditions to dry out even more.

## Rear discs or roller not engaging in very hard soil:

- Adjust pitch so front discs are higher by extending 3-point top link. *(It may be necessary to also lower the overall machine depth.)*
- If your tractor is equipped with 3-point downforce capability, try applying downward pressure.

## Restriction or blocking on right side:

- Raise the deflector plate.
- Move deflector assembly outward.
- Raise machine working depth.
- Reduce operating speed slightly.
- Check condition & operation of disc hubs. *(Make sure they turn freely.)*
- Wait for soil conditions to dry out more.

## Leaving a ridge between passes:

- Adjust deflector up to reduce ridge.
- Adjust deflector assembly out to reduce ridge.
- Check that end disc size configuration matches factory suggested setup.
- Adjust implement width on guidance system for slightly more or less overlap.

# Troubleshooting - Pro-Till 10/13

## Leaving a groove between passes:

- Adjust deflector down to fill groove.
- Adjust deflector assembly in to fill groove.
- Check that end disc size configuration matches factory suggested setup.
- Reduce implement width on guidance system for slightly more overlap.

## Subsoil leaving a groove every 10":

- Adjust pitch to level machine. (*Disc rows are not set to the same depth.*)
- Adjust pitch to lower rear disc row by extending 3-point top link. (*Front is prone to running deeper with floating hitch & firm soil conditions.*)
- Rear discs following in front disc groove. (*Refer to the troubleshooting note for this below.*)

## Hopping or leaving waves:

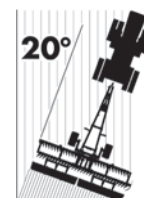
- Change operating speed. (*Best performance is achieved over 10mph.*)
- Change field working angle. (*Best finishing at 5 to 20 degrees off previously worked.*)
- Adjust working depth. (*Either deeper & run slower or shallower to run faster.*)
- Pre-work heavy trash or wet areas at a slower speed & at a different angle than final pass.
- Wait for soil conditions to dry out more.
- Ensure tractor has correct tire pressure and is properly ballasted.

## Rear discs following in front disc cut or discs not doing a full cut:

- Adjust tracking by extending the top 3-point link to track right or retracting the top link to track left.
- Adjust entire front row in small increments either left or right to achieve full cut. (*Start by moving front row to the left in small increments.*)
- Check disc wear & adjust gang spacing or replace discs as necessary. (*As discs wear, move front row right.*)
- Check factory settings on disc row locations to verify gang clamp hardware is tight & clamps have not slipped.
- Adjust GPS to actual cutting width (*see chart*) minus 4" overlap per side depending on working depth.

(with 20" discs)	<b>2" Depth</b>	<b>MAX Depth</b>
<b>Pro-Till 10</b>	117" (2.98m)	119" (3.02m)
<b>Pro-Till 13</b>	157" (3.99m)	159" (4.04m)

- Adjust working angle to approximately 20 degrees to the right from previously worked or seeded rows. (*Recommended practice*)



# Service & Maintenance

## MAINTENANCE SAFETY

1. Review the Operator's Manual and all safety items before working with, maintaining or operating the PRO-TILL.
2. Stop the tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
4. Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making any adjustments.
5. Place safety stands or large blocks under the frame before working beneath the machine.
6. Be careful when working around or maintaining a high-pressure hydraulic system. Wear proper eye and hand protection when searching for a high pressure hydraulic leak. Use a piece of wood or cardboard as a backstop when searching for a pin hole leak in a hose or a fitting.
7. Always relieve pressure before disconnecting or working on hydraulic system.
8. Never crawl/pass/work under implement while raised on 3-point hitch.



**⚠ DANGER:** *Never crawl/pass/work under implement while raised on 3-point hitch.*

## MAINTENANCE CHECKLIST

After reviewing the Maintenance and Hydraulic Safety Information, use the Maintenance Checklist provided for regular service intervals and keep a record of all scheduled maintenance:

( Initial break-in review. Read full section on pg.8 )

### A. Before using:

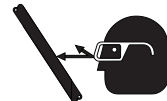
1. Read Safety Info. & Operator's Manual.
2. Complete "Pre-Operation Checklist"
3. Check all Bolt Tightness.
4. Adjust Disc Cutting Depth as outlined in the "Setting Disc Depth" section.

### B. After operating for 2 hours:

1. Check all hardware. Tighten as required.
2. Check all hydraulic system connections. Tighten if any are leaking.

## Maintenance Check - 10 Hours

- Check for worn or damaged parts
- Hydraulic fluid leaks
- Damaged hoses



## Maintenance Check - 50 Hours

- Check working points & pins
- Safety signs clean

## Annually

- Bolt tightness





# Service & Maintenance

## HARDWARE SPECIFICATIONS



**Note:** Unless stated otherwise, hardware is typically:  
Hex, Plated GR5 UNC or P8.8 (metric)

## TORQUE SPECIFICATIONS



**TORQUE**

### Checking Bolt Torque

The tables below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check the tightness of bolts periodically, using these bolt torque charts as a guide. Replace hardware with the same strength (Grade/Class) bolt.

### IMPERIAL TORQUE SPECIFICATIONS

(Coarse Thread - based on "Zinc Plated" values)



SAE-5



SAE-8

Size	Grade 5 lb.ft (N.m)	Grade 8 lb.ft (N.m)
1/4"	7 (10)	10 (14)
5/16"	15 (20)	20 (28)
3/8"	25 (35)	35 (50)
7/16"	40 (55)	60 (80)
1/2"	65 (90)	90 (120)
9/16"	90 (125)	130 (175)
5/8"	130 (175)	180 (245)
3/4"	230 (310)	320 (435)
7/8"	365 (495)	515 (700)
1"	550 (745)	770 (1050)
1-1/8"	675 (915)	1095 (1485)
1-1/4"	950 (1290)	1545 (2095)
1-3/8"	1250 (1695)	2025 (2745)
1-1/2"	1650 (2245)	2690 (3645)

### METRIC TORQUE SPECIFICATIONS

(Coarse Thread - based on "Zinc Plated" values)



8.8



10.9

Size	Class 8.8 lb.ft (N.m)	Class 10.9 lb.ft (N.m)
M6	7 (10)	10 (14)
M8	16 (22)	23 (31)
M10	30 (42)	45 (60)
M12	55 (75)	80 (108)
M14	90 (120)	125 (170)
M16	135 (185)	195 (265)
M18	190 (255)	270 (365)
M20	265 (360)	380 (515)
M22	365 (495)	520 (705)
M24	460 (625)	660 (895)
M27	675 (915)	970 (1315)
M30	915 (1240)	1310 (1780)
M33	1250 (1695)	1785 (2420)
M36	1600 (2175)	2290 (3110)

## HYDRAULIC SAFETY



- Make sure that all components in the hydraulic system are kept in good condition and are clean.
- Replace any worn, cut, abraded, flattened or crimped hoses and metal lines.
- Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cements. The hydraulic system operates under extremely high-pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.
- Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak.
- If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.
- Before applying pressure to the system, make sure all components are tight and that lines, hoses and couplings are not damaged.



## HYDRAULIC HOSE SPECIFICATIONS



**Note:** Unless otherwise stated, Hydraulic Hoses are either 3/8 or 1/2 with ORF female swivel ends.

## HYDRAULIC HOSE INSTALLATION TIPS



The following tips are to help you identify some possible problem areas in the installation of hydraulic hoses.

1. Installation should be completed in a clean environment clear of dust and contaminants. Hoses and fittings should be capped if not installed.
2. Ensure hoses are not twisted during installation as this may weaken the hose. Also, the pressure in a twisted hose may loosen fittings or connections.
3. Allow sufficient bend radius in hoses when installing to prevent lines from collapsing and flow becoming restricted.
4. When installing hoses in an area of movement or flexing, allow enough free length for motion and to ensure fitting connections are not stressed.
5. Ensure hoses are properly clamped and secured in position after routing is complete to provide a cleaner installation and prevent possible damage or hazards.

# Service & Maintenance

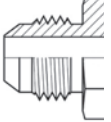
## HYDRAULIC FITTING INSTALLATION



The following info is to help you identify and properly install some of our standard hydraulic fittings.

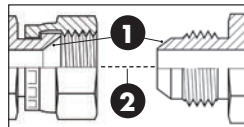
### SAE (JIC) 37° Flare

JIC fittings - Metal-to-metal sealing type fittings featuring a 37° flare (angle of sealing surface) and straight UNF (Unified National Fine) Threads.

(Lubricated Values)	Dash	Thread Size	Torque - lb.ft (N.m)
	-4	7/16 - 20	9-12 (12-16)
	-6	9/16 - 18	14-20 (19-27)
	-8	3/4 - 16	27-39 (37-53)
	-10	7/8 - 14	36-63 (50-85)
	-12	1-1/16 - 12	65-88 (90-119)

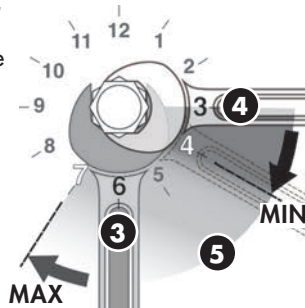
### Tightening JIC 37° Flare Type Fittings

1. Check flare and flare seat for defects that might cause leakage.
2. Align fittings before tightening. Lubricate connections & hand tighten swivel nut until snug.
3. Using two wrenches, torque to values shown in table.



#### Alternate Installation Method

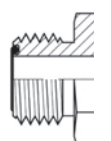
3. Using two wrenches. Place one wrench on the fixed connector body at a clock position of 6 o'clock.
4. Place the second wrench on the second connection as close to the 3 o'clock position as possible.
5. Tighten by rotating the second connection firmly to at least the 4 o'clock position, but no more than the 7 o'clock position. Typically, the larger the fitting size the less rotation required.



### ORFS (O-Ring Face Seal)

ORFS fittings use an O-ring compression method to seal. This method offers a high level of sealing along with good vibration resistance. Male fittings include an O-ring located in a groove on the flat face. Female fittings feature a flat face and UNF straight threaded swivel nut.

The **Torque** method is recommended for ORFS installation.

	Dash	Thread Size	Torque - lb.ft (N.m)
	-4	9/16 - 18	18 (25)
	-6	11/16 - 16	30 (40)
	-8	13/16 - 16	40 (55)
	-10	1 - 14	60 (80)
	-12	1-3/16 - 12	85 (115)

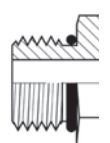
### Tightening ORFS (O-Ring Face Seal) Fittings

1. Inspect components and ensure the O-Ring seal is undamaged and properly installed in the groove of the face seal. Replacing the O-Ring may be necessary.
2. Align, thread into place and hand tighten.
3. Tighten to proper torque from the table shown above.

**Note:** A **DASH** size refers to a diameter of a hose (*inside*) or of a tube (*outside*) measured in 1/16" increments. For example, a **Hose** specified as **dash 8** or **-8** would have an **inside** diameter of 8/16" or 1/2". Alternatively, a **Tube** specified as **dash 8** or **-8** would have an **outside** diameter of 8/16" or 1/2".

### ORB (O-Ring Boss)

Male ORB fittings have straight UNF threads, a sealing face and an O-ring. The female fittings are generally found in the ports of machines and feature straight threads, a machined surface, and a chamfer to accept the O-ring. Sealing is achieved through the compression of the male O-ring against the chamfered sealing face of the female fitting.

(Lubricated Values)	Dash	Thread Size	Torque Non-Adjustable lb.ft (N.m)	Torque Adjustable lb.ft (N.m)
	-4	7/16 - 20	30 (40)	15 (20)
	-6	9/16 - 18	35 (46)	35 (46)
	-8	3/4 - 16	60 (80)	60 (80)
	-10	7/8 - 14	100 (135)	100 (135)
	-12	1-1/16 - 12	135 (185)	135 (185)

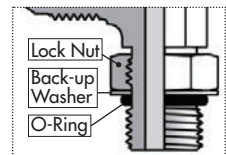
### Tightening ORB (O-Ring Boss) Fittings

#### Non-adjustable Port End Assembly

1. Inspect the components to ensure that male and female threads and sealing surfaces are free of nicks, burrs, scratches, or any foreign material.
2. Ensure O-Ring seal is properly installed and undamaged.
3. Lubricate threads and O-ring to help the O-ring slide past the port entrance corner and avoid damaging it.
4. Screw the fitting into position tighten to proper torque value from the table shown above.

#### Adjustable Port End Assembly

1. Inspect the components to ensure male & female threads and sealing surfaces are free of nicks, burrs, scratches, or any foreign material.
2. Ensure O-Ring seal is properly installed and undamaged.
3. Lubricate threads and O-ring to help the O-ring slide smoothly into the port and avoid damage.
4. Loosen back the lock nut as far as possible. Make sure back-up washer is not loose and is pushed up as far as possible.
5. Screw the fitting into port until the back-up washer or the retaining ring contacts face of the port. Light wrenching may be necessary. Over tightening may damage washer.
6. To align the end of the fitting to accept incoming tube or hose assembly, unscrew the fitting by the required amount, but not more than one full turn.
7. Using two wrenches, hold the fitting in desired position and tighten the locknut to the proper torque value from the table located above.
8. Inspect to ensure that O-ring is not pinched and that washer is seated flat on the face of the port.



# Service & Maintenance

## HYDRAULIC CYLINDER REPAIR

### PREPARATION

When cylinder repair is required, clean off unit, disconnect hoses and plug ports before removing cylinder.

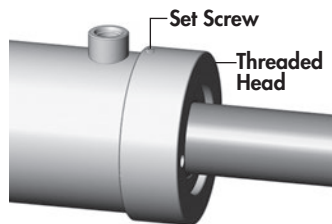
When removed, open the cylinder ports and drain the cylinder's hydraulic fluid.

Examine the type of cylinder. Make sure you have the correct tools for the job.

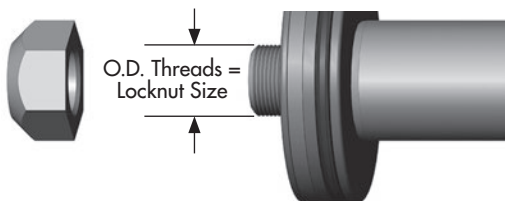
You may require the following tools:

- Proper **Seal Kit**
- Allen Key Set
- Emery cloth
- Torque Wrench

### Threaded Head Cylinder (Monarch)



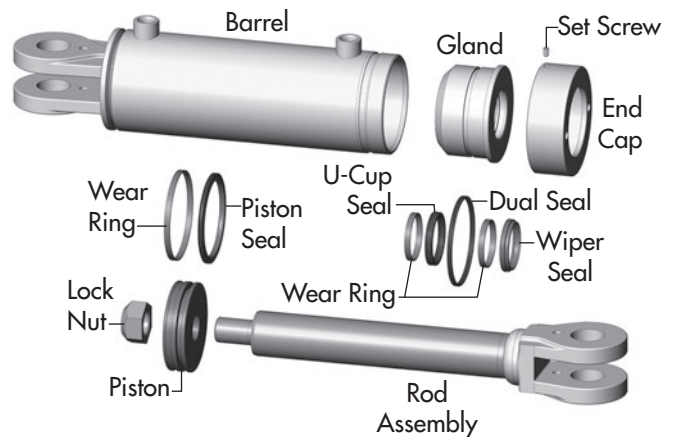
## CYLINDER ROD LOCKNUT TORQUE VALUES



LOCKNUT SIZE (PISTON)	TORQUE VALUE
3/8 - 24 UNF	25-30 lb.ft (35-42 N.m)
<b>1/2 - 20 UNF</b>	<b>40-60 lb.ft (55-80 N.m)</b>
5/8 - 18 UNF	95-105 lb.ft (130-140 N.m)
<b>3/4 - 16 UNF</b>	<b>175-225 lb.ft (240-305 N.m)</b>
7/8 - 14 UNF	200-275 lb.ft (270-370 N.m)
<b>1 - 14 UNF</b>	<b>300-380 lb.ft (405-515 N.m)</b>
1 1/8 - 12 UNF	400-500 lb.ft (540-675 N.m)
<b>1 1/4 - 12 UNF</b>	<b>500-600 lb.ft (675-810 N.m)</b>
1 1/2 - 12 UNF	700-800 lb.ft (950-1085 N.m)
<b>1 3/4 - 12 UNF</b>	<b>800-900 lb.ft (1085-1220 N.m)</b>

## REPAIRING A THREADED HEAD CYLINDER

### Set Screw Style



### DISASSEMBLY

1. Loosen Set Screw and turn off end cap.
2. Carefully remove piston/rod/gland assemblies.
3. Disassemble the piston from the rod assembly by removing lock nut.

**NOTE:** DO NOT clamp rod by chrome surface.

4. Slide off gland assembly & end cap.
5. Remove seals and inspect all parts for damage.
6. Install new seals and replace damaged parts with new components.
7. Inspect the inside of the cylinder barrel, piston, rod and other polished parts for burrs and scratches. Smooth areas as needed with an emery cloth.

### REASSEMBLY

1. Reinstall rod through end cap & gland assembly.
2. Secure piston to rod with lock nut. Torque lock nut to proper value (refer to chart for proper torque value).
3. Lube inside of barrel, piston seals, and gland seals with hydraulic oil.
4. With cylinder body held gently in a vise, insert piston, gland, end cap and rod combination using a slight rocking motion.
5. Apply Loctite anti-seize before installing cylinder end cap.
6. Torque cylinder end cap to 440 lb.ft (600 N.m).
7. Tighten Set Screw on end cap to 6 lb.ft (8 N.m).

# Service & Maintenance

## REPLACING A PRESSED BUSHING

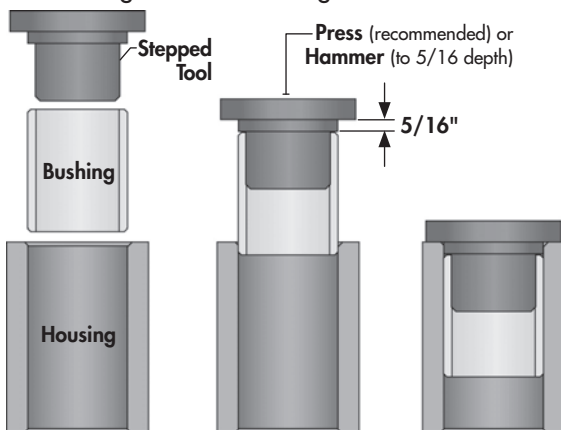
**NOTE:** You may need the following tools:  
Press, hammer, punch, pry-bar, "Step-Tool"

Use the following as a guideline for repair:

1. Ensure the area and frame are properly secured, supported, and safe to work on. Safely remove the pin(s), cylinder, and/or components necessary in order to access and work on the damaged bushing.
2. Remove the existing bushing using required tools. In some instances, you may need to cut the damaged bushing in order for easier removal (use proper safety precautions and try not to damage other components if using this method).
3. With the bushing removed, clean and prepare the location for the new bushing insert. **Note:** A mixture of "Dish Soap and Water" is recommended to use as a lubricant on the outside of the composite bushing.

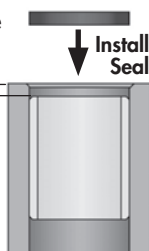
**⚠ IMPORTANT: DO NOT** use oil or grease on outside or inside of composite bushings.

4. Use a stepped tool to ensure the edge of the bushing is not damaged when inserting.



5. Ensuring the bushing is properly aligned, press into hole (preferred method) or hammer into position by striking the stepped tool.
6. Continue to install until the bushing edge is recessed in to a distance of 5/16" to allow for the outer seal to be properly installed. Do not exceed this depth.
7. Repeat steps 4-6 for opposite bushing (if applicable).
8. When both bushings are installed to the proper depth, install the new seals.
9. Re-assemble all other necessary components.

**⚠ IMPORTANT: DO NOT** use oil or grease on pins or bushing surfaces when re-installing.



## STORAGE

The PRO-TILL should be carefully prepared for storage to ensure that all dirt, mud, debris and moisture has been removed.

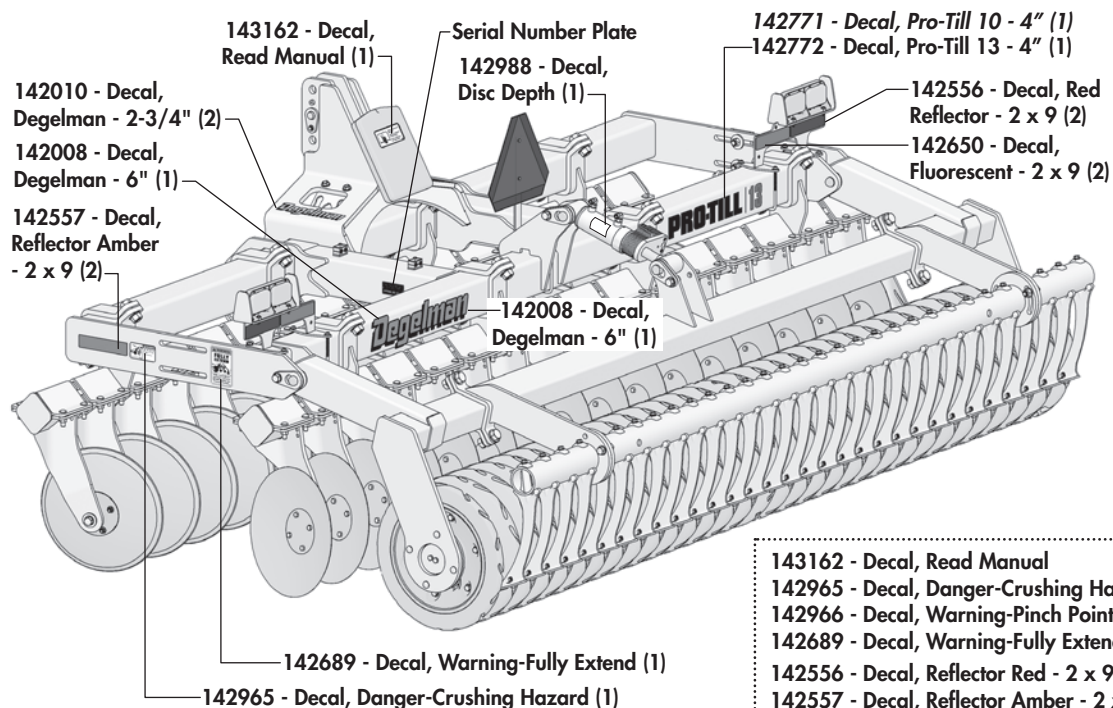
Follow this procedure when preparing to store:

1. Wash the entire machine thoroughly using a water hose or pressure washer to remove all dirt, mud, debris or residue.
2. Inspect all parts to see if anything has become entangled in them. Remove entangled material.
3. Inspect all hydraulic hoses, fittings, lines and couplers. Tighten any loose fittings. Replace any hose that is badly cut, nicked or abraded or is separating from the crimped end of the fitting.
4. Touch up all paint nicks and scratches to prevent rusting.
5. Select a firm, dry, level area free of debris.
6. Oil exposed chrome shaft on the hydraulic cylinder to prevent rusting.

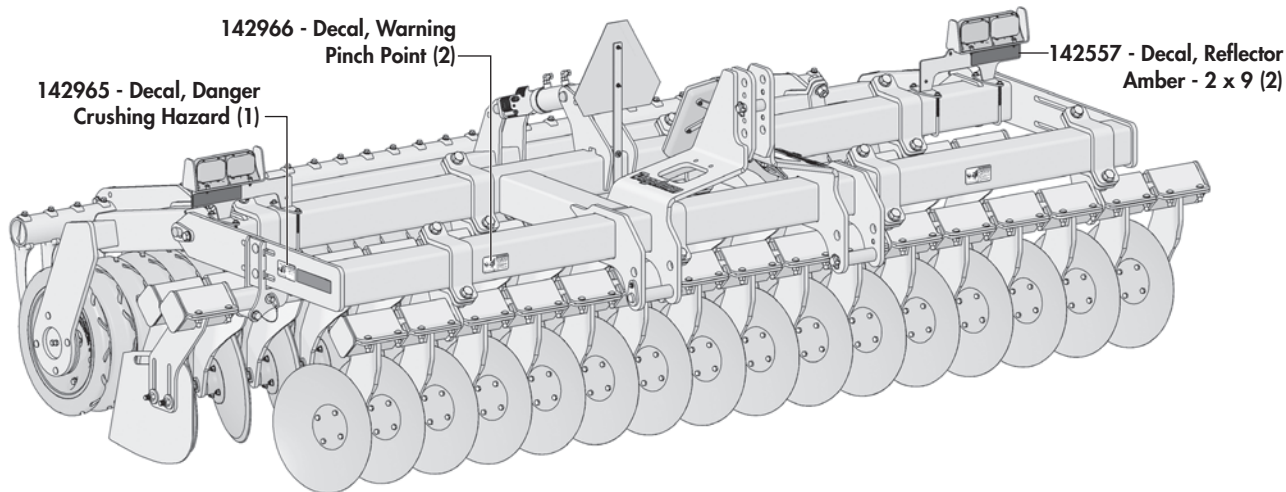


# Service & Maintenance

## DECAL LOCATION OVERVIEW



143162 - Decal, Read Manual	(1)
142965 - Decal, Danger-Crushing Hazard	(1)
142966 - Decal, Warning-Pinch Point	(1)
142689 - Decal, Warning-Fully Extend	(1)
142556 - Decal, Reflector Red - 2 x 9	(2)
142557 - Decal, Reflector Amber - 2 x 9	(4)
142650 - Decal, Fluorescent - 2 x 9	(2)
142988 - Decal, Disc Depth	(1)
142008 - Decal, Degelman - 6"	(1)
142010 - Decal, Degelman - 2-3/4"	(2)
142771 - Decal, Pro-Till 10 - 4"	(1)
142772 - Decal, Pro-Till 13 - 4"	(1)

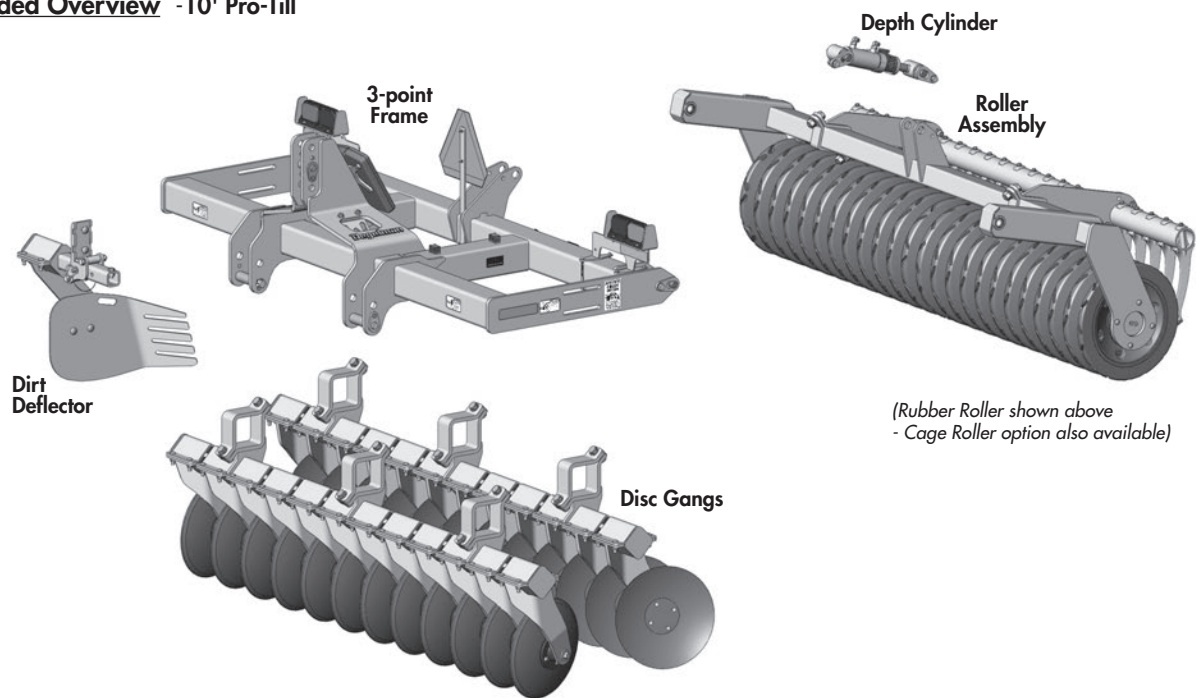




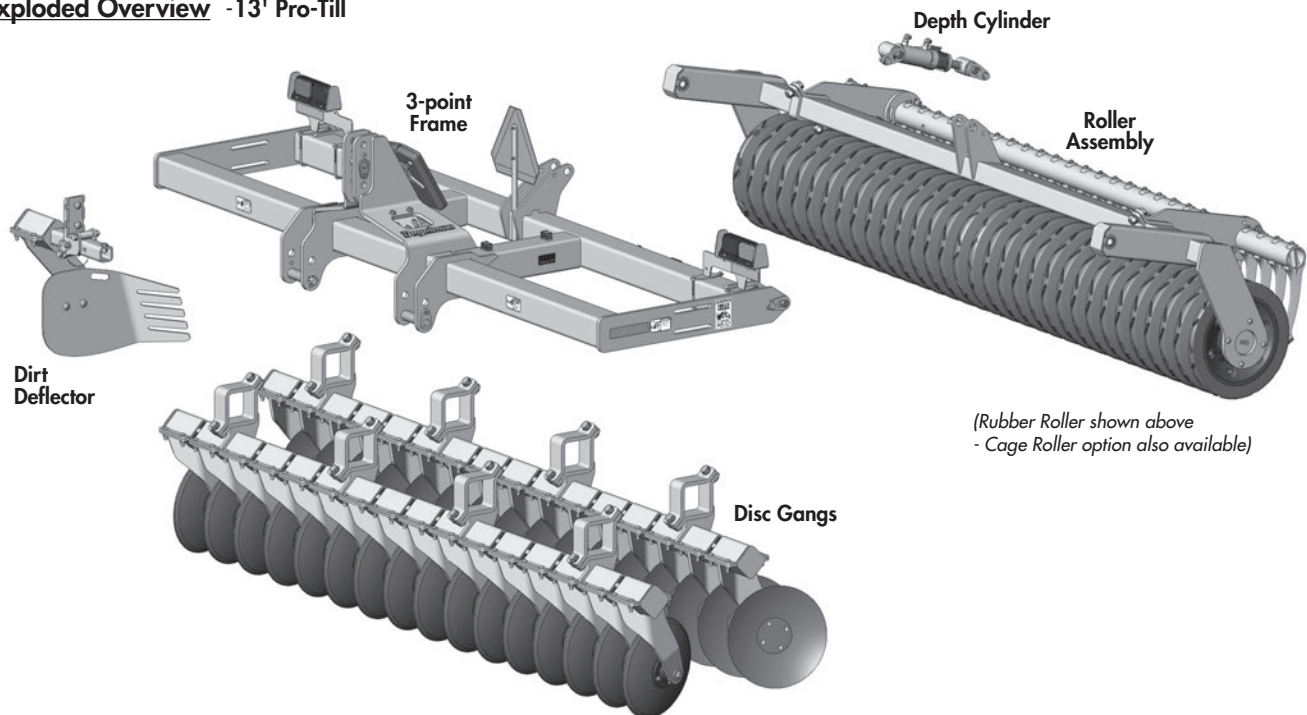
# Pro-Till Overview

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## Exploded Overview - 10' Pro-Till

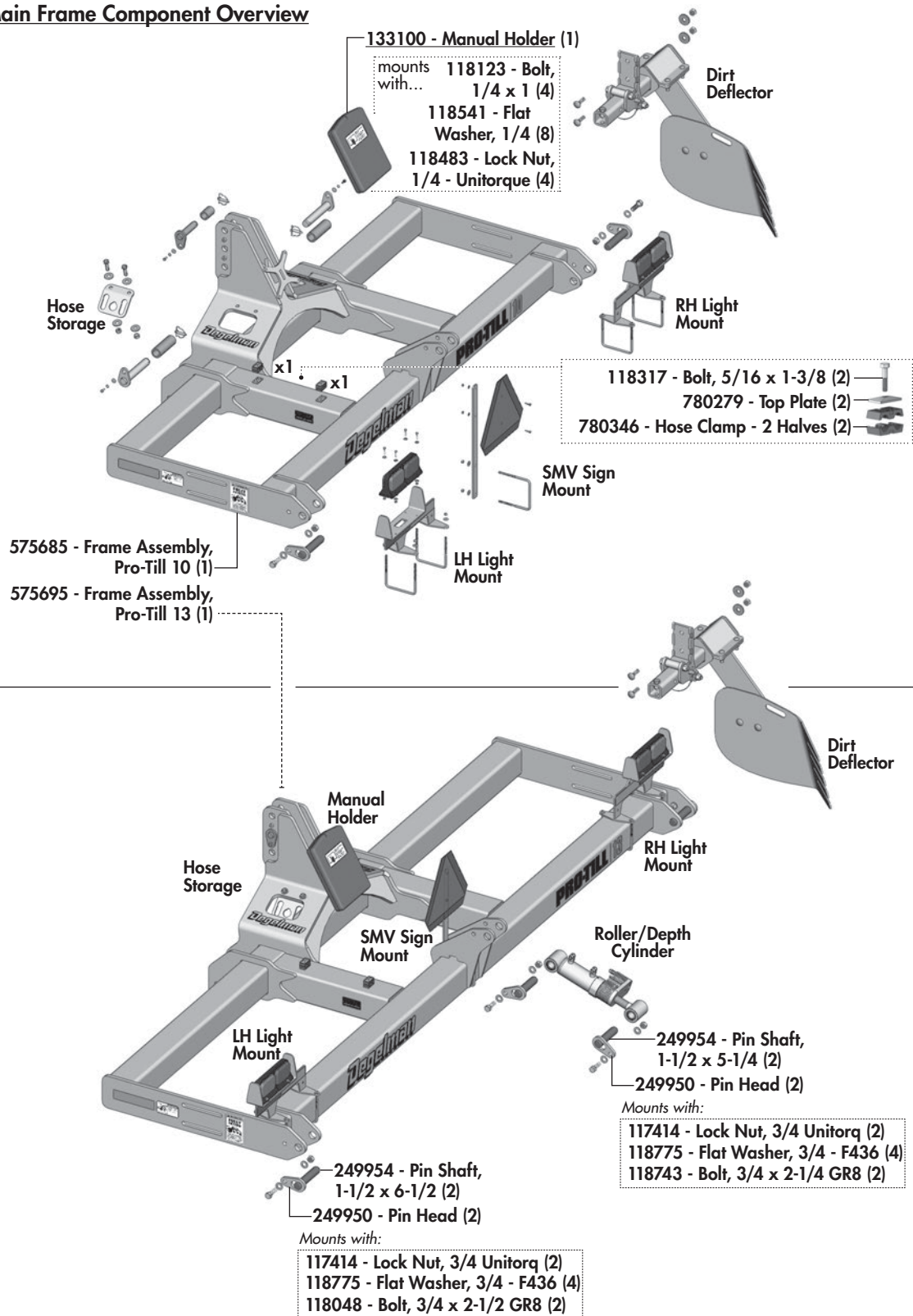


## Exploded Overview - 13' Pro-Till



# Main Frame Overview

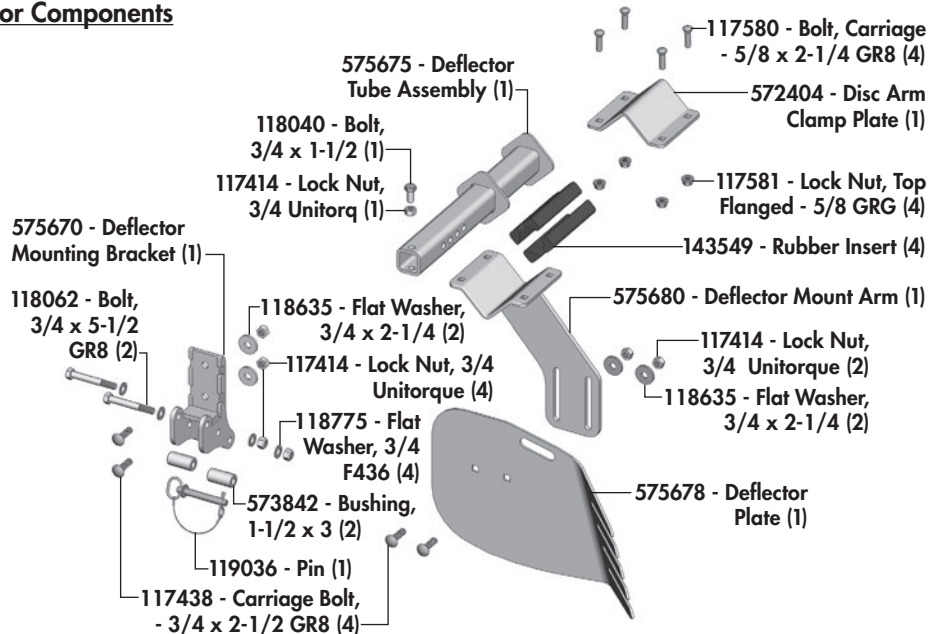
## Main Frame Component Overview



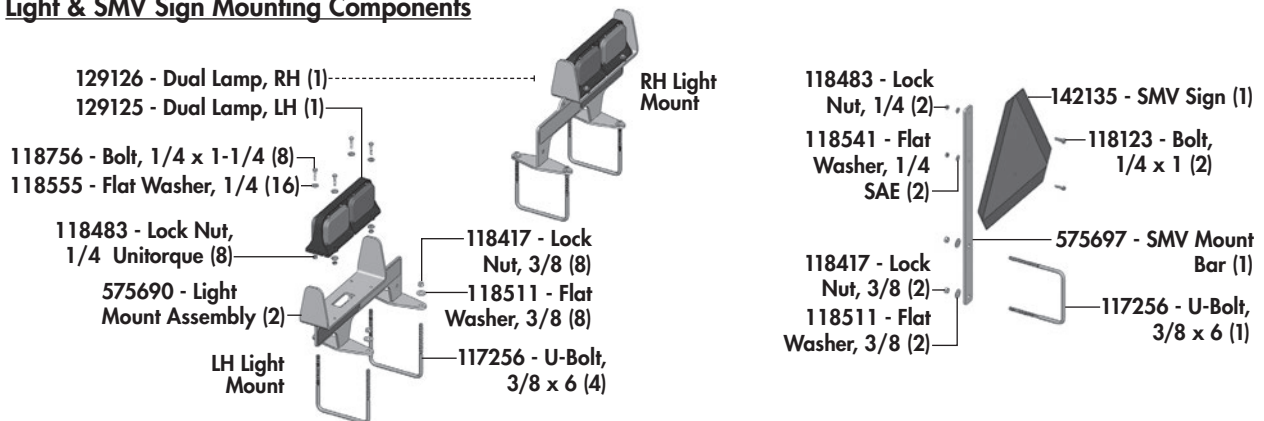


# Frame Components

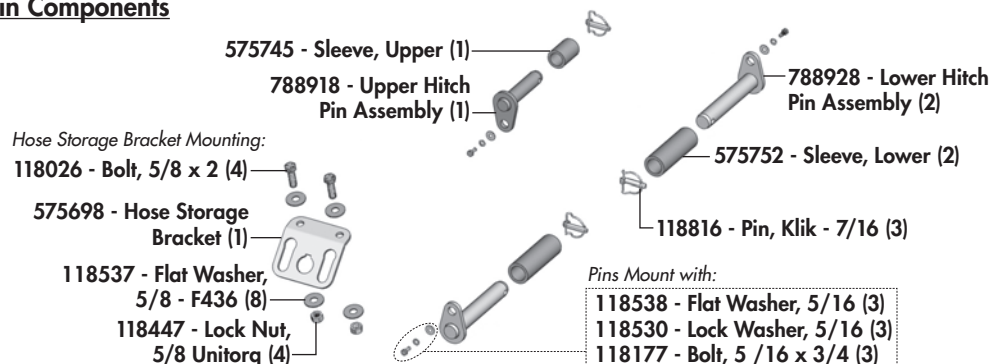
## Dirt Deflector Components



## Light & SMV Sign Mounting Components

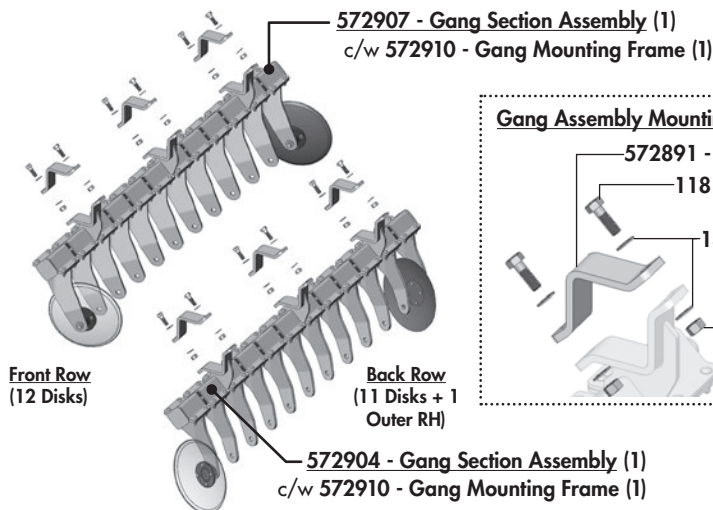
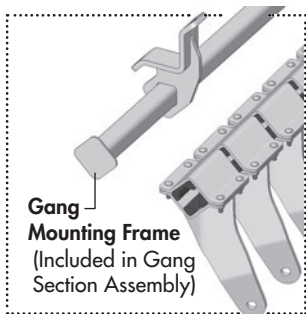


## 3-Point Hitch Pin Components

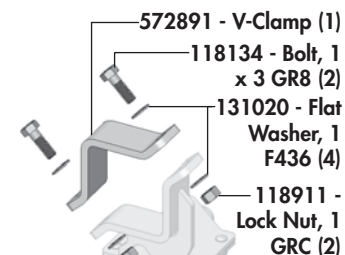


# Disc Gang Components - 10/13

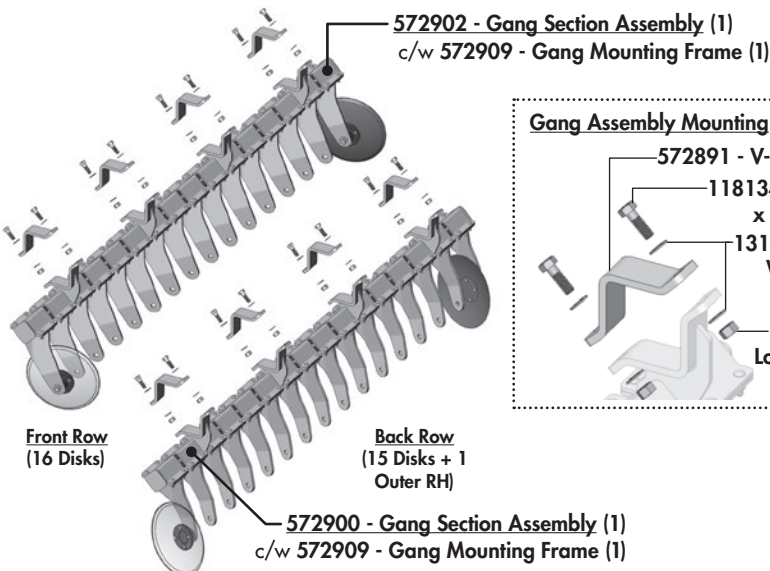
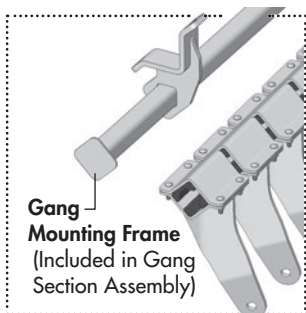
## 10' Pro-Till Disc Gang Overview



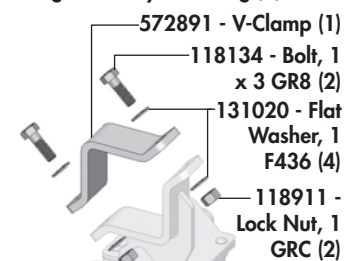
### Gang Assembly Mounting (6)



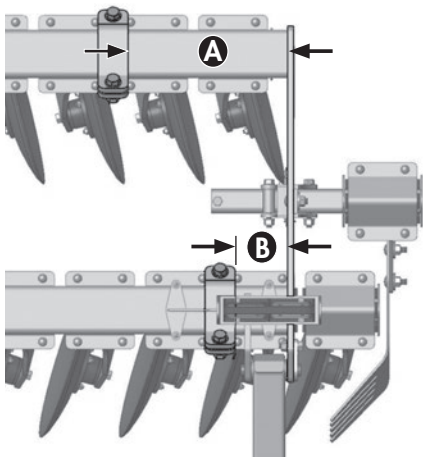
## 13' Pro-Till Disc Gang Overview



### Gang Assembly Mounting (8)



## Setting Gang Section Spacing - Overview



### 20" Discs

A = 19-1/4"  
B = 5-3/4"  
-OR-

### 22" Discs

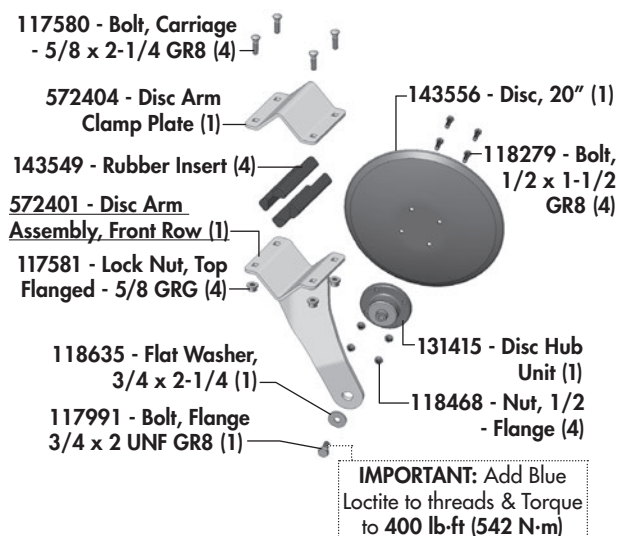
A = 19-3/4"  
B = 5-3/4"

Gang section spacing starts by setting the distance from the **RH Inside Plate** to the **Edge of the first V-Clamp**.

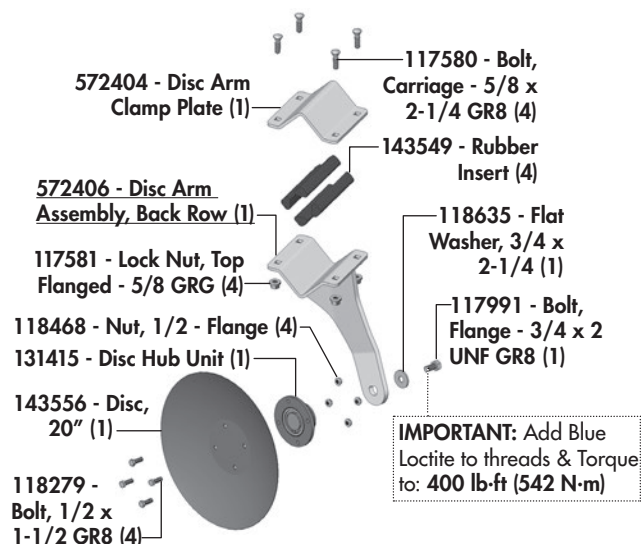
(Both *front & rear* gang sections.  
Measurements **A & B** in diagram).

# Disc Arm Components & Disc Options

## Front Row - Standard Disc Assembly Components

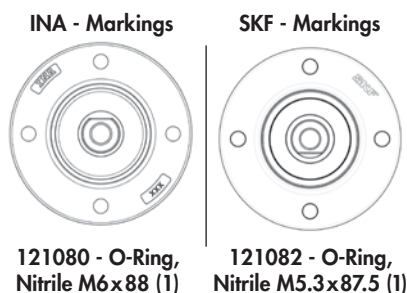


## Back Row - Standard Disc Assembly Components



## Disc Hub Components

**131415 - Disc Hub Unit** (Varied Suppliers) - Replacement O-Rings



## Discs/Hubs - Required Numbers Per Machine

10' Pro-Till Requires **24** Discs/Hubs

13' Pro-Till Requires **32** Discs/Hubs

Standard	20"	22"	
<b>Premium Discs</b>			
20" Straight	20" Double-V Notched	22" Straight	22" Double-V Notched
143556	143553	143562	143566

## Typical Factory Settings of End Discs

### 20" Disc Option

(3) - 20" End Discs - Straight 143556 &  
(1) - 18" Rear RH - End Disc 143550

### 22" Disc Option

(3) - 22" End Discs - Straight 143562 &  
(1) - 20" Rear RH - End Disc 143556

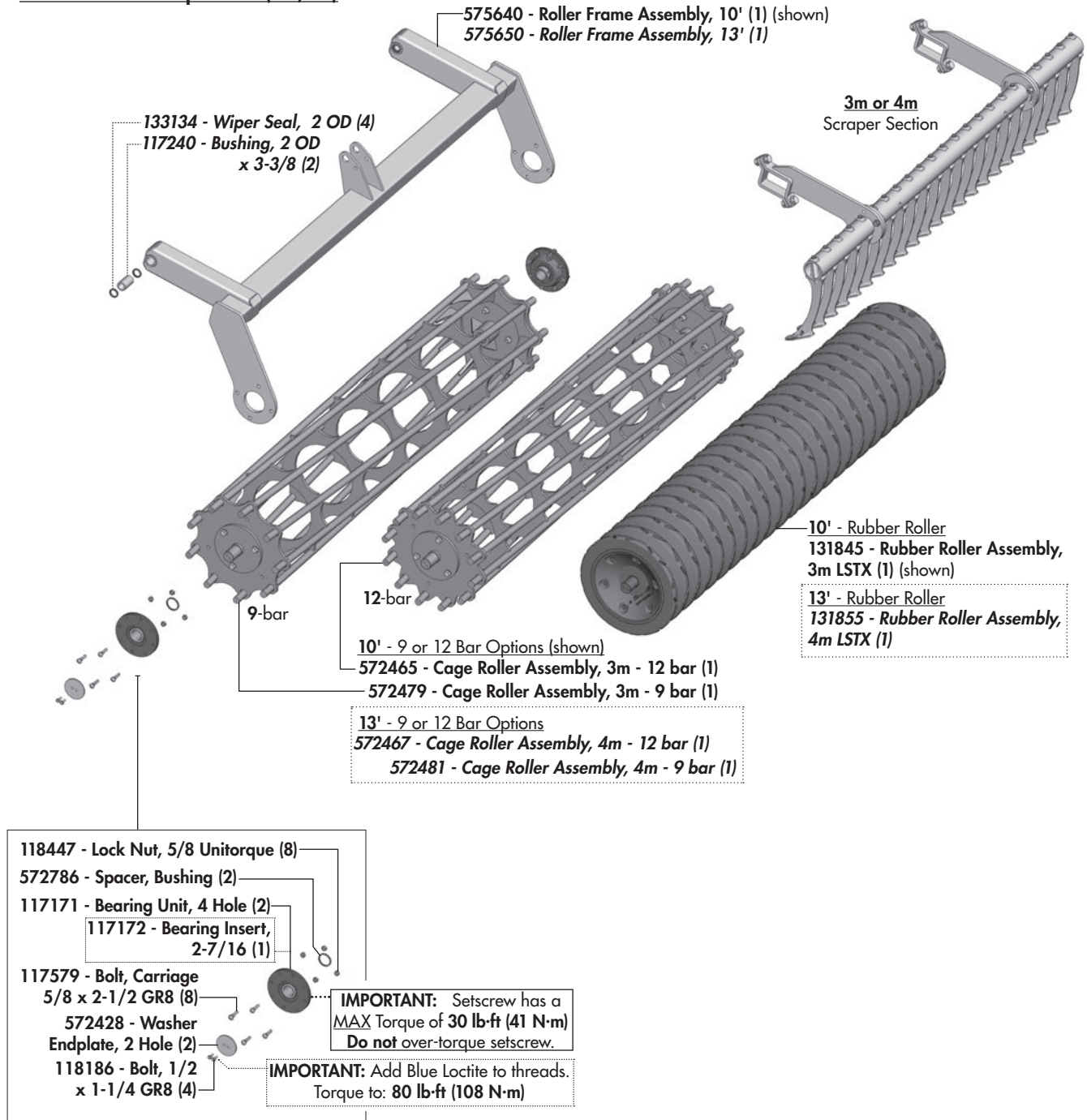
(Note: Customers may wish to adjust the end disc sizes and locations for customer preferred performance in certain soil or field conditions.)



**IMPORTANT:** Safely secure the Pro-Till onto blocks in the lowered position when changing or servicing discs.

# Roller Options & Frame Components

## Roller Frame Components (RH/LH)





# Roller Components

## Rubber Roller Assembly Overview

ProTill 10  3m

ProTill 13  4m

131845 - Roller Assembly,  
LSTX 3m (1)

131855 - Roller  
Assembly,  
LSTX 4m (1)

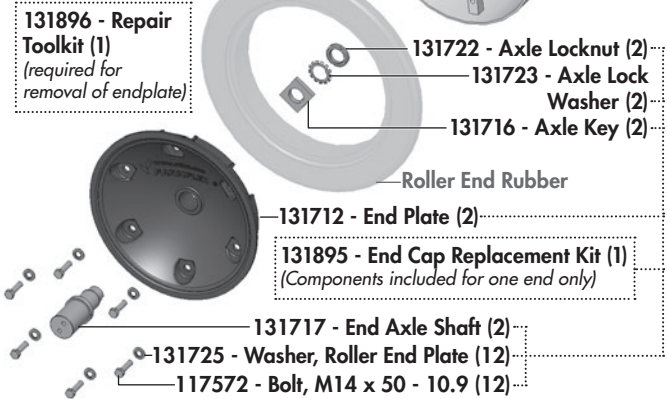
## Rubber Roller Frame Components



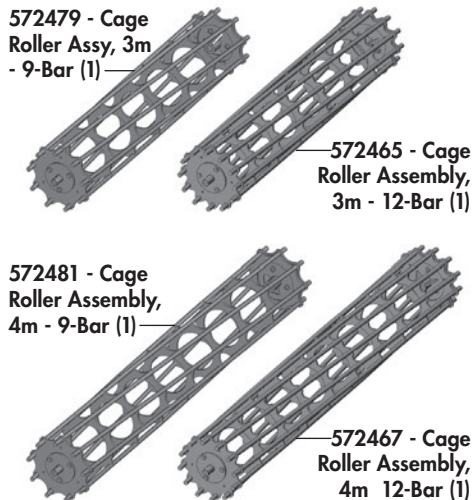
## Tube Frame Assembly

131816 - Tube Assembly - 4m (1)  
131730 - Tube Assembly - 3m (1)

## Rubber Roller End Assembly Components

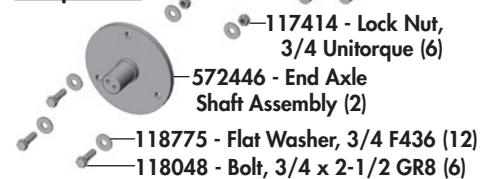


## Cage Roller Frame Components



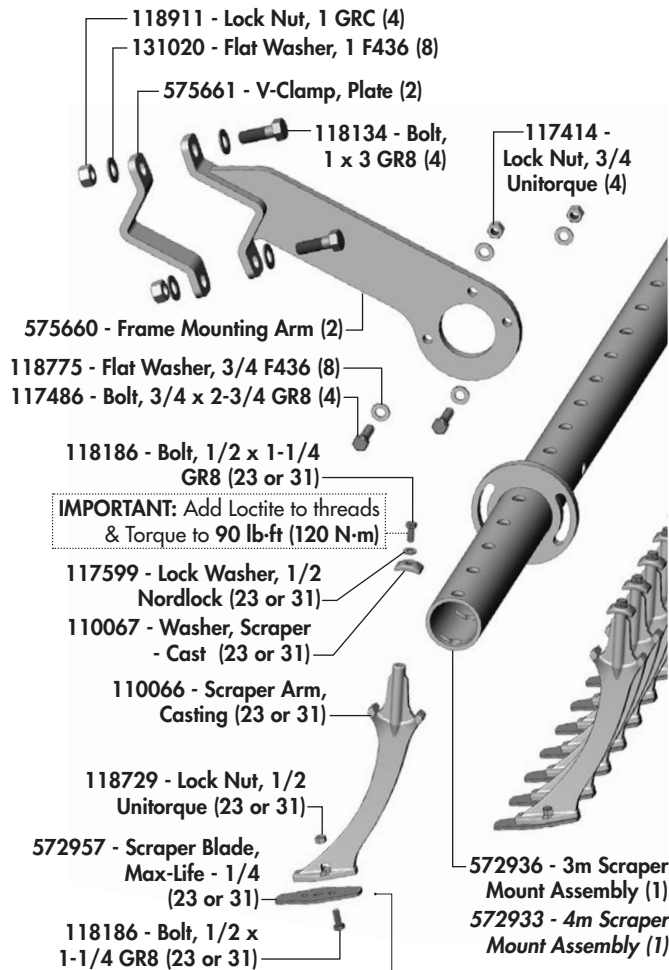
572466 - 12 Bar - 4m (1)  
572464 - 12 Bar - 3m (1)  
572480 - 9 Bar - 4m (1)  
572478 - 9 Bar - 3m (1)

## Cage Roller End Assembly Components



# Scraper Section Components *(Rubber Roller Models)*

## Scraper Section Component Overview



## Scraper Blade Replacement Options

### 1. Max-Life Replacement Scraper Blades

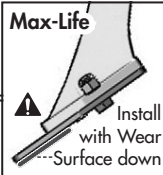
requires new hardware (Locknuts)

Kits: 10': 575757 (23) 13': 575758 (31)

572957 - Scraper Blade, Max-Life - 1/4

118186 - Bolt, 1/2 x 1-1/4 GR8

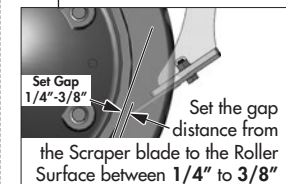
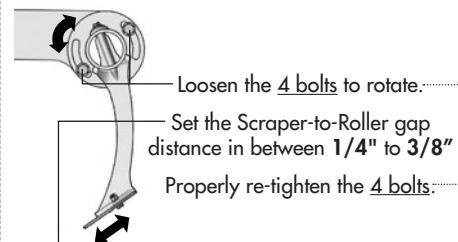
118729 - Lock Nut, 1/2 Unitorque



### 2. Double Scraper Blade Kits - c/w Bolts & Locknuts.








Kits: 10': 575755 (23) 13': 575756 (31)

## Setting Scraper Blade Gap Distance





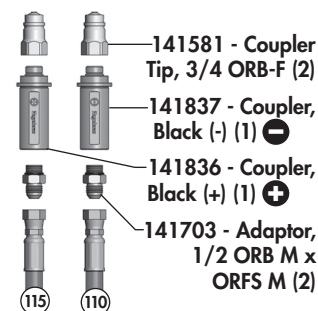
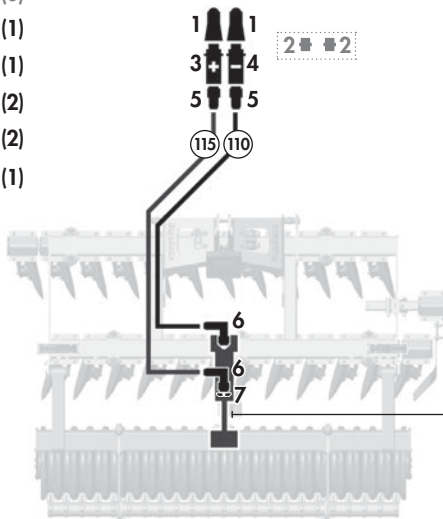
# Hydraulic Layout - Depth

## Hydraulic Fittings Required

- |   |   |  |     |
|---|---|--|-----|
| 1 |  | 141581 - Coupler Tip, 3/4 ORB F        | (2) |
| 2 |  | 141676 - Connector, 3/4 ORB M x M      | (0) |
| 3 |  | 141836 - Coupler, Black (+)            | (1) |
| 4 |  | 141837 - Coupler, Black (-)            | (1) |
| 5 |  | 141703 - Adaptor, 1/2 ORB M x ORFS M   | (2) |
| 6 |  | 141704 - Elbow, 90° 1/2 ORB M x ORFS M | (2) |
| 7 |  | 122668 - Orifice, 3/4-16 UNF           | (1) |

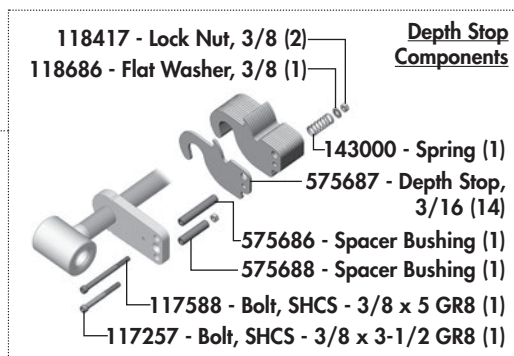
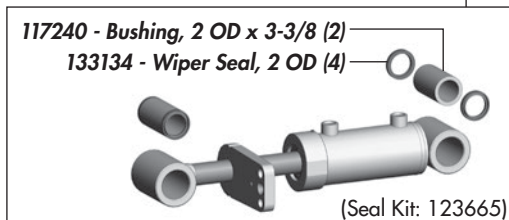
## Required Hoses for Roller Cylinder

- |   |                          |     |
|---|--------------------------|-----|
|  | 126727 - Hose, 3/8 x 110 | (1) |
|  | 126904 - Hose, 3/8 x 115 | (1) |



## Roller/Depth Cylinder Components

123740 - Cylinder, Monarch - 3 x 4 x 1-1/2 (2)



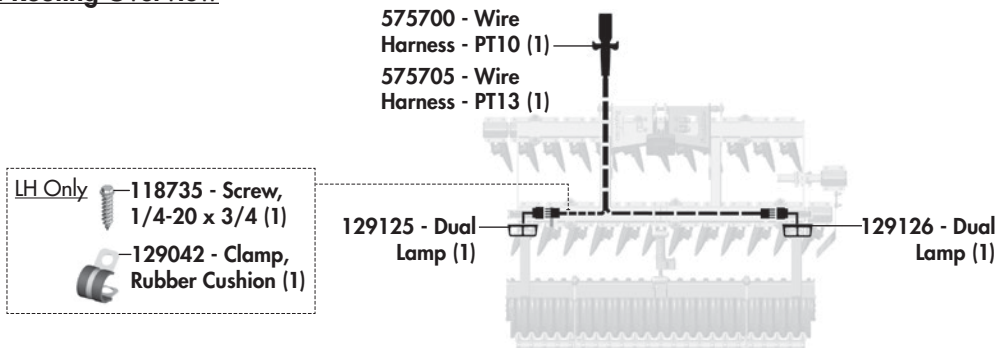
## Maintenance Free Pins & Bushings

**⚠ IMPORTANT: INSTALL DRY**  
Do NOT use any oil/grease/lubricant on pin or bushing surfaces when installing the maintenance free pins into composite bushings.



# Light Routing Overview

## Light Routing Overview



# Warranty

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## **2 Year** **Limited Warranty - Agricultural Products**

Degelman Industries LP ("Degelman") warrants to the original purchaser of any new Degelman equipment, purchased from an authorized Degelman dealer, that the equipment will be free from defects in material and workmanship for a period of two (2) years from the date of delivery, for non-commercial use (including farm, institutional, government, and municipality) and (1) year from the date of delivery for commercial use. The obligation of Degelman to the purchaser under this warranty is limited to the repair or replacement of defective parts in the first year and to the provision, but not the installation of replacement parts in the second year. Degelman reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

This warranty limits its replacement or repair coverage to what is consistent with the warranty of Degelman's suppliers of purchased components.

Replacement or repair parts installed in the equipment covered by this limited warranty are warranted for ninety (90) days from the date of delivery of such part or the expiration of the applicable new equipment warranty period, whichever occurs later. Warranted parts shall be provided at no cost to the user at an authorized Degelman dealer during regular working hours. Warranted replacement parts will either be replaced or rebuilt at Degelman's discretion.

### ***Disclaimer of implied warranties & consequential damages***

This warranty shall not be interpreted to render Degelman Industries LP liable for injury, death, property damage or damages of any kind, whether direct, consequential, or contingent to property. Without limiting the generality of the foregoing, Degelman shall not be liable for damages resulting from any cause beyond its reasonable control, including, without limitation, loss of crops, any expense or loss of labour, supplies, rental machinery or loss of use.

No other warranty of any kind whatsoever, express or implied is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale. This exclusion shall not apply in any jurisdiction where it is not permitted by law.

### ***This limited warranty shall not apply:***

1. If, in the sole opinion of Degelman, the unit has been subjected to misapplication, abuse, misuse, negligence accident or incorrect off-site machine set-up.
2. To any goods that have sustained damage or deterioration attributable to a lack of routine maintenance (eg. Check and Re-torque of fastening hardware, Hydraulic fluid purities, drive train alignments, and clutch operation)
3. If parts not made or supplied by Degelman have been used in the connection with the unit, if, in the sole judgement of Degelman such use affects its performance, safety, stability or reliability.
4. If the unit has been altered or repaired outside of an authorized Degelman dealership in a manner which, in the sole judgement of Degelman, affects its performance, safety, stability or reliability.
5. To expendable or wear items such as (eg. Harrow tines, Rock Picker and Rock Rake wear teeth and replaceable bushings and pins.) and any other items that in the company's sole judgement are a wear item.

No employee or representative of Degelman Industries LP is authorized to change this limited warranty in any way or grant any other warranty unless such change is made in writing and signed by the Degelman Service Manager.

This limited warranty is subject to any future availability of supply, which may directly affect Degelman's ability to obtain materials or manufacture replacement parts.

Degelman reserves the right to make improvements in design or changes in specifications at any time, without incurring obligations to owners of equipment previously delivered.

This limited warranty is subject to compliance by the customer to the enclosed *Retail Customer's Responsibility Under Degelman Warranty*.



# Warranty

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## ***Retail Customer's Responsibility Under Degelman Warranty.***

It is the retail customer and/or Operator's responsibility to read the Operator's Manual, to operate, lubricate, maintain and store the equipment in accordance with all instructions and safety procedures. Failure of the operator to read the operators manual is a misuse of this equipment.

It is the retail customer and/or operators responsibility to inspect the product and to have any part(s) repaired or replaced when continued operation would cause damage or excessive wear to other parts or cause safety hazard.

It is the retail customer's responsibility to deliver the product to the authorized Degelman dealer, from whom he purchased it, for service or replacement of defective parts, which are covered by warranty. Repairs to be submitted for warranty consideration must be made within forty-five days of failure.

It is the Retail Customer's responsibility for any cost incurred by the dealer for hauling of the product for the purpose of performing a warranty obligation or inspection.

## **WARRANTY INFORMATION**

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**Make certain the warranty registration card has been forwarded to:**

**Degelman Industries LP  
Box 830 -272 Industrial Dr.  
Regina, SK, Canada  
S4P 3B1**

Always give your dealer the serial number of your Degelman product when ordering parts or requesting service or other information.

The serial number is located on the machine as shown in the diagram below. In the space provided record the model number, the serial number and the date of purchase to assist your dealer in providing you with prompt and efficient service.

SERIAL NUMBER: \_\_\_\_\_

MODEL NUMBER: \_\_\_\_\_

DATE OF PURCHASE: \_\_\_\_\_

