



# Snow Plow Operation and Parts Manual

## For all High Country and Metropolitan Series Plows Serial Numbers 4000 & Up

PLOW\_HIGH COUNTRY\_METRO SN 4000 & UP.doc REV 012523



Distant Discharge



High Country



Expressway

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Torsion Trip Edge



Taper



Metropolitan

**When ordering parts, please refer to the Model and Serial Numbers of your plow. They are on the back cover of this manual.**

Manual No. BON-000903

# SAFETY FIRST

Please read this manual before attempting to install or operate this equipment.



*The symbol at left means ALERT. Any time you see this symbol, you are being warned that your safety is in danger! Please be careful!*

## GUIDELINES TO FOLLOW:

1. Turn off all power including truck engine when servicing or installing equipment.
2. Follow all recommended operation procedures.
3. Follow a regular maintenance schedule so that your equipment is kept in good operating condition at all times. Improper maintenance can lead to failure during operation, which makes for unsafe conditions.
4. Recognize and avoid hazardous situations during the installation, operation, maintenance, and servicing of equipment.
5. Please pay attention to, and respect, safety decals. They are there to protect you from injury.

## AVOID ACCIDENTS

Most accidents, whether they occur in industry, on the farm, at home, or on the highway, are caused by failure of some individual to follow simple and fundamental safety rules or regulations. For this reason, most accidents can be prevented by recognizing the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are many conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.

A careful operator is the best insurance against an accident. The complete observance of one simple rule would prevent many thousand serious injuries each year. That rule is:

***NEVER ATTEMPT TO CLEAN, OIL, OR ADJUST  
A MACHINE WHILE IT IS IN MOTION.***

**NATIONAL SAFETY COUNCIL**

# PLEASE, ALWAYS THINK SAFETY FIRST!

The purpose of this manual is to inform the person using the unit with the necessary information to properly install, operate, and maintain this unit. These instructions cannot replace the fundamental knowledge that a person must possess in order to safely and adequately operate this unit. The person must be qualified and possess the clear thinking necessary to install and operate this equipment. Since the life of any machine depends largely upon the care it is given, we suggest that this manual be read thoroughly and referred to regularly by anyone working on or around this unit. If for any reason you do not understand the instructions, please call your authorized service center or our office at (815) 284-3819. It has been our experience that by following these installation and maintenance instructions, and by observing the operation of this equipment, you will have sufficient understanding of how to troubleshoot and correct all normal problems that you may encounter during the life of the equipment.

*THE NEED FOR SAFETY CANNOT BE STRESSED ENOUGH. WE URGE YOU TO MAKE SAFETY YOUR TOP PRIORITY WHEN OPERATING THIS UNIT OR ANY OTHER EQUIPMENT.*

**ACCIDENTS HURT!  
ACCIDENTS COST!  
ACCIDENTS CAN BE AVOIDED!**

## General Maintenance Guidelines



**Caution – the following items must be checked before initial start-up of the new plow.**

### **Initial servicing:**

- Check all bolts for tightness. Torque as required if loose.
- Check for missing or broken cotter pins.
- Grease all fittings as required.
- Verify all hydraulic fittings are tight and not leaking.
- Check all hydraulic lines for damage or kinks.
- Check cylinder and lift arm operation.

### **After first hour of operation and every 8 hours thereafter:**

- Check all bolts for tightness. Torque as required if loose.
- Check for missing or broken cotter pins.
- Verify all hydraulic fittings are tight and not leaking.
- Check plow cutting edge wear.



**Caution – failure to check and replace worn cutting edges will result in damage to plow!**

**Power washing of the hitch and truck is recommended after each use to prevent corrosion damage.**

## General Operating Instructions

**Special note:** This manual is intended for use as a supplement to your specific municipal guidelines in snow plow operation, and is not intended to be a “*complete snow plowing guide*”. Proper training is the key to safe and proper operation of this equipment.

### **Hook up:**

Your hitch may be equipped with a quick attach hitching system. In order for this system to work properly the plow must be stored so that the push frame is in a level position. If this condition does not exist, the quick attach loop will not line up with the receiver on the truck.

Before hooking up the plow, be sure to give the plow and the plow hitch a good visual inspection to see that there is no damage to any of the components. If damage is found it should be repaired before using the equipment. Refer to the maintenance section of this manual.

**Quick Attach Receiver Hook-up:** To hook up the plow, lift the drop pin lever on the receiver and secure it on the upper retaining stop. Drive the truck squarely up to the snow plow taking care to keep it centered on the plow while approaching. Proceed forward until the curved push plates on the front of the receiver are against the channel on the a-frame of the plow.



**Warning – take the truck out of gear and secure the parking brake before getting out of the cab.**

Lower the drop pin. Be sure the drop pin lever is secured under the lower retaining stop. Connect the power reversing hoses.

**Swivel bar hook up:** drive the truck squarely up to the snow plow taking care to keep it centered on the plow while approaching. Proceed forward until the pin-up holes on the front of the truck hitch are lined up with the holes on the a-frame of the plow. Install pins and keepers.

**Other hook-up equipment:** if you have a different hook-up than those described above, see your authorized dealer for further instructions.

For chain hook-up instructions, refer to the level lifts section of this manual. After hook up, reverse and lift the plow several times to be sure everything is working properly.

**For chain hook up instructions, refer to the Level Lift Devices section, page 6**

After hook up, reverse and lift the plow several times to be sure everything is working properly.



**Warning – make sure all persons are in the clear before operating the plow.**

## **Operation:**

Special care and alertness need to be practiced when plowing snow, because often conditions are hazardous and visibility is poor.

- Always be sure to have the truck's hazard lighting system in operation while plowing. Plow hook up or shift change is a good time to check that all lighting is working properly.
- Maximum plowing speeds are recommended not to exceed 15 mph while plowing city streets, and 25 mph for rural routes.
- If the plow is equipped with a trip cutting edge, the plow will trip and clear obstructions with minimal impact to the truck and driver. This tripping mechanism should automatically return the cutting edge to its plowing position. However, if the springs are weak or if one or more are broken, then the operator may have to lift the plow slightly to allow the cutting edge to return to its normal position. If this condition persists, it would be advisable to change the springs.
- The pitch of the plow is adjustable to different positions. Different positions may be desirable in different conditions. For further instructions, see your municipal guidelines for plowing snow.

## **Unhooking plow:**

Park the plow in the desired position, reverse to the straight position, and lower to the ground.

Be sure to lower the lift arm to put slack in the chain for ease of removal.

Apply the parking brake. Shut the truck off and move the power reversing handle back and forth to relieve any pressure at the quick connects.

Place a stand under the plow to hold it level. If the plow is equipped with shoes, no stand is needed, but be sure that they are touching the ground.

Disconnect hoses and lift chain. Lift drop pin lever to its upper position and secure. Visually inspect plow for any damage.

Slowly back truck away from plow

**Put the lift arm in the stowed position.**

## Level Lifting Devices

Your plow or hitch may be equipped with one of the following level lifting devices:

- Telescopic level lift arm
- Table mount Level Raise Lift System



**Warning – improper operation of this equipment will affect how the plow operates, and could cause damage to the equipment. Read and understand this section thoroughly before operating equipment.**

### **Telescopic lift arm:**

The telescopic lift arm works by lifting the plow directly above the reversing pivot point on the plow table. The key to proper operation of this lift arm is proper inner lift arm placement.

Extend the inner arm out so the chain loop is directly above the pivot point. Hook up the chains, making sure that there are an equal number of links on each side of the plow.

Lift the plow off of the ground slightly and reverse to the right (curb side). Check for level and adjust as required:

If the driver's side is low, move the inner lift arm **in** one hole.

If the curb side is low, move the inner lift arm **out** one hole.

Repeat as necessary until level is achieved.

Additional adjustment can be achieved by shortening or lengthening one of the lift chains.



**Warning – make sure the plow does not lift any more than 14" off the ground. Excessive lift height (chains too short), could damage the plow, hitch, and lift arm.**

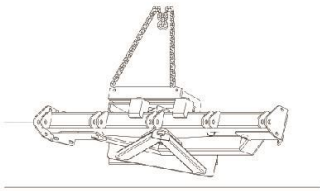
These settings may be different for each truck and plow. If the same truck and plow will always be operated together, the settings can be marked on the equipment – insert a plastic zip strip through the proper chain links, and mark the lift arm with a paint stick.

## Level Raise Lift System:

The Level Raise Lift System has all of the leveling equipment mounted on the plow. It operates by shifting the chain lift points on the plow as the plow reverses, and is not dependent on a specific lift arm. One advantage of the Level Raise Lift System is that it will work with many different brands of plow hitches. The Level Raise Lift System has three adjustments to vary the amount of shift, and is set up at the factory in the forward position (below, right). **This position will work with all Bonnell Manufactured equipment.** In cases where another brand of hitch is being used, adjusting this setting may be required.

## LEVEL RAISE LIFT SYSTEM ADJUSTMENT

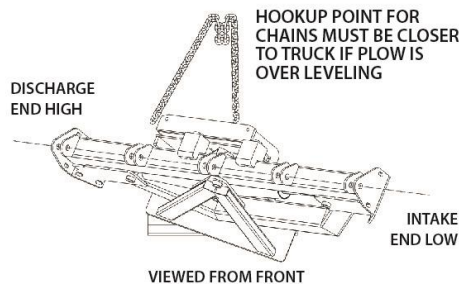
THE BONNELL LEVEL RAISE LIFT SYSTEM CARRIAGE ASSEMBLY ASSISTS IN MAKING THE CUTTING EDGE PARALLEL TO THE GROUND.



### BEFORE STARTING:

1. VERIFY CHAINS ARE NOT TWISTED.
2. VERIFY CHAINS ARE ATTACHED TO THE LIFT ARM WITH THE SAME NUMBER OF LINKS.
3. OBSERVE IF PLOW IS "OVER LEVEL" OR "UNDER LEVEL", AT RIGHT.
4. USING THE STEPS ABOVE SHOULD ACHIEVE GOOD LEVELING RESULTS WITH ALL BONNELL EQUIPMENT.
5. AS A LAST RESORT, REFER TO CARRIAGE BOLT ADJUSTMENT, LOWER RIGHT HAND CORNER.

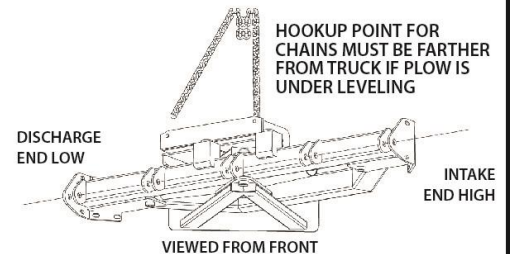
**OVER LEVELING:**  
WHEN THE PLOW IS REVERSED,  
THE INTAKE END IS LOW  
(END FARTHEST FORWARD)



**TO ADJUST FOR OVER LEVELING:**  
MOVE PLOW LIFT CHAINS IN  
(CLOSER TO THE TRUCK)

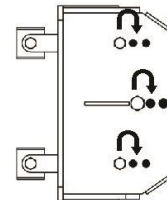
BON-003853

**UNDER LEVELING:**  
WHEN THE PLOW IS REVERSED,  
THE DISCHARGE END IS LOW  
(END CLOSEST TO TRUCK)



**TO ADJUST FOR UNDER LEVELING:**  
MOVE PLOW LIFT CHAINS OUT  
(FARTHER AWAY FROM THE TRUCK)

**CARRIAGE BOLT ADJUSTMENT**  
(FOR UNDER LEVELING ONLY)



FURTHER ADJUSTMENT FOR UNDER LEVELING:

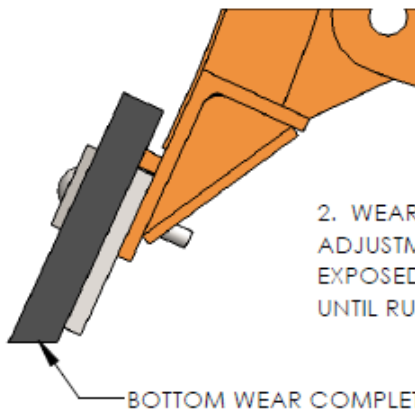
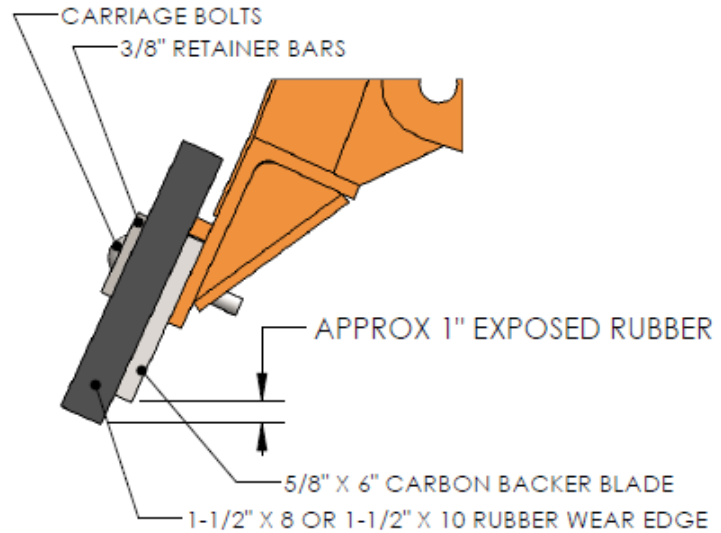
WITH PLOW IN BULLDOZE POSITION, MOVE ALL THREE PIVOT BOLTS ON CARRIAGE BACK ONE HOLE. REPEAT STEP 3.



**Warning – make sure the plow does not lift any more than 14" off the ground. Excessive lift height (chains too short) could damage the plow, hitch, and lift arm.**

FILE NAME	RUBBER CUTTING EDGE OPERATION	REV.	DESCRIPTION	DATE	INITIALS
DWG NAME	INSTALLATION & SETUP	-	ORIGINAL	1/11/22	JJS

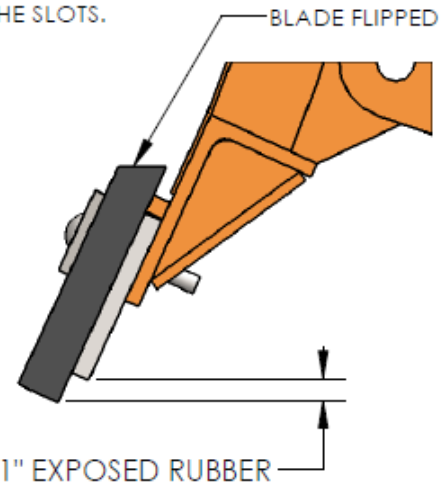
1. INSTALLATION AND ASSEMBLY: BONNELL INDUSTRIES USES CENTER PUNCHED 8" OR 10" WIDE RUBBER CUTTING EDGES WITH A 5/8" X 6" STANDARD CARBON BACKER BLADE. THE BACKER BLADE WORKS WITH THE RUBBER EDGE TO KEEP THE PLOW AT PROPER PLOWING HEIGHT SO THAT PLOW WILL RUN SOMEWHAT LEVEL.



2. WEAR AND ADJUSTMENT: AS BLADE WEARS, ADJUSTMENT IS NECESSARY TO OBTAIN PROPER EXPOSED RUBBER DISTANCE. CONTINUE ADJUSTING UNTIL RUBBER REACHES THE BOTTOM OF THE SLOTS.

3. FLIP BLADE: WHEN WEAR IS COMPLETE ON BOTTOM OF EDGE, REMOVE AND FLIP OVER TO UTILIZE THE "TOP" WEAR SURFACE, AGAIN KEEPING MINIMAL RUBBER EXPOSED.

TIP: FOR ADDITIONAL WEAR, ALLOW BACK BLADE TO WEAR DOWN APPROXIMATELY 1" PRIOR TO FLIPPING BLADE.



**TROUBLESHOOTING:**

1. PLOW CHATTER:
  1. DRY OR SPOTTY PAVEMENT WILL CAUSE CHATTER.
  2. CHECK EXPOSED RUBBER MEASUREMENT. MORE THAN 1" OF EXPOSED RUBBER BELOW BACKER BLADE CAN CAUSE CHATTER.
2. RUBBER TEARING OR CRACKING:
  1. CHECK EXPOSED RUBBER MEASUREMENT. MORE THAN 1" OF EXPOSED RUBBER BELOW BACKER BLADE CAN CAUSE CRACKING OR TEARING IN THE BLADE.
  2. LOOSE BLADE BOLTS CAN CAUSE TEAROUT AT MOUNTING SLOTS.
3. UNEVEN WEAR OF RUBBER:
  1. LOOSE BLADE BOLTS CAN CAUSE UNEVEN WEAR.
  2. ROAD CROWN OR UNEVEN SURFACES CAN ALSO CONTRIBUTE.

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DIXON, ILLINOIS  
PHONE: 800-851-9664



## Torsion Spring Replacement



The following instructions need to be followed step by step. Bonnell industries had proven these steps to be successful, repeatable and safe. Bonnell industries will not be responsible for any failure or injury with respect to these operations if these guidelines have not been followed. If there are any questions pertaining to these instructions, please contact us before proceeding.

### Removing springs:

Tools required:

- One person
- One ½" pneumatic impact
- One helper bar (heavy wall tubing with at least 7/8" id by 4-5' long).
- Two 5/8"-11 x 6" bolts
- One 5/8" flat washer
- One 15/16" impact socket
- One ½" allen wrench for impact



**WARNING – never remove all four bolts on the spring retainer blocks at one time! This may cause the spring to fly out of its position and cause injury to anyone in its path!**

1. Flip the plow over on its face and place supports under the cutting edge to hold the springs up at a good working height. **Warning – be sure the plow is very secure on stands before proceeding to change springs.**
2. Change one spring at a time so that there is always tension against the cutting edge. Failing to do this may allow the plow to start to trip after removing two or more springs which may in turn cause the plow to become unstable on the stands, creating a dangerous situation.
3. Remove the standard hex head bolt on the left (drivers) side of the spring, and replace with a 5/8"x6" bolt. (continued, next page)

## Torsion Spring Replacement, continued

4. Remove the allen head bolt on the left (drivers) side of the spring, and replace with a 5/8"x6" bolt and flat washer. The flat washer is to keep the bolt from damaging the counter bore in the retainer block.
5. Loosen both bolts on the right (curb) side of the spring about five turns.
6. Slip the helper bar over the left end "tang" of the spring, and slowly but forcefully apply tension to it. Then release slowly. The spring should come up out of its nested position. Note – if the spring is broken, there may be little or no tension on it. If this is the case proceed to step 8.
7. At this point the spring will still hold some tension against the four bolts holding it. To relieve this tension, loosen each of the four bolts a little at a time respectively until the spring is loose.
8. **Remove the bolts and the spring and proceed to the spring installation section of this manual.**

## Torsion Spring Replacement, continued

### Two person spring installation:

Tools required:

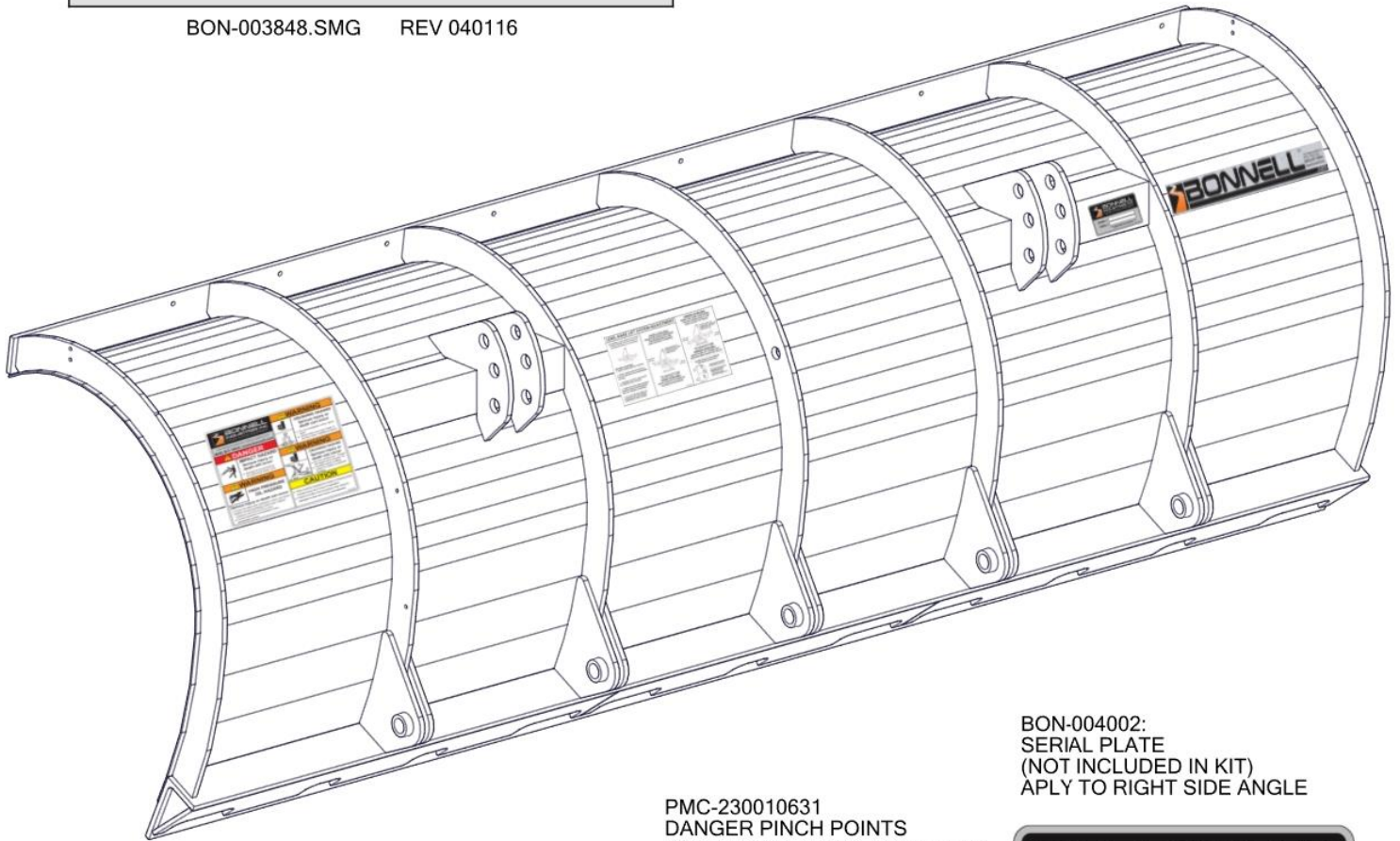
- One ½" pneumatic impact
- One helper bar (heavy wall tubing with at least 7/8" ID by 4-5' long).
- One 5/8"-11 tap
- One 15/16" impact socket
- One ½" allen wrench for impact
- Anti-seize lubricant
- Air nozzle

1. Remove springs following the preceding instructions in this manual. Note – be sure to clean out all threaded holes in the retainer blocks with a tap. Use an air nozzle to blow out these holes, and apply anti-seize to the threads.
2. Slip the short end “tang” of the spring into the hole in the lower moldboard angle.
3. Coat the outer surface of the spring tube with anti-seize lubricant. **NOTE: spring tube required for springs with ¾" diameter wire only!**
4. Insert the spring tube into the spring and slide the spring rod through the spring tube until it is nested in the retainer block on the right end of the spring.
5. Place the top half of the retainer block over the rod and start the proper bolts into the block. **Note – be sure to use anti-seize on the bolts.**
6. Using an impact, turn the bolts in as far as the spring tension will allow.
7. Note – this step requires two persons – one person needs to slip the helper bar over the spring and twist it until the spring drops down into its nested position. At the same time a second person needs to tighten the bolts as much as possible. This should bring the spring rod within ½" of being nested in the left end of the retainer block.
8. Place the top half of the retainer block over the rod on the left end of the spring and start the standard hex head bolt with a lock washer. Tighten this bolt down securely before trying to start the allen head bolt.
9. Start and tighten the allen head bolt, and retighten the bolts on the right end of the spring.

**Spring installation complete.**

# PLOW DECALS AND PLACEMENT

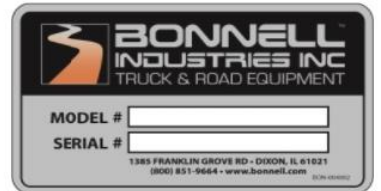
BON-003848.SMG REV 040116



BON-004002:  
SERIAL PLATE  
(NOT INCLUDED IN KIT)  
APPLY TO RIGHT SIDE ANGLE

PMC-230010631  
DANGER PINCH POINTS  
APPLY TO ALL HYD. CYLINDERS

BON-003864  
DANGER/WARNINGS/CAUTION  
APPLY TO LEFT SIDE OF MOLDBOARD



<p><b>BONNELL INDUSTRIES INC</b> TRUCK &amp; ROAD EQUIPMENT</p> <p>1385 FRANKLIN GROVE RD., DIXON, ILLINOIS 61021 (800) 851-9664   www.bonnell.com</p>		<p><b>WARNING</b></p> <p><b>CRUSHING HAZARD</b> Serious injury or death can occur</p> <ul style="list-style-type: none"> <li>Do not overtighten chain clevis bolts.</li> <li>Clevis bolts must spin freely in clevises when installed properly.</li> </ul>
<p><b>DANGER</b></p> <p><b>IMPACT HAZARD</b> Serious injury or death will occur</p> <ul style="list-style-type: none"> <li>Springs to be serviced by an authorized dealer only.</li> </ul>		<p><b>WARNING</b></p> <p><b>CRUSHING HAZARD</b> Serious injury or death can occur</p> <ul style="list-style-type: none"> <li>Do not overfill plow. Proper lift height not to exceed 14".</li> <li>Increase stack in lifting chains or cables to prevent binding.</li> </ul>
<p><b>WARNING</b></p> <p><b>HIGH PRESSURE OIL HAZARD</b></p> <p>Serious injury or death can occur</p> <ul style="list-style-type: none"> <li>Check for leaks with cardboard; never use hands.</li> <li>Before loosening fittings: lower load, release pressure, and be sure oil is cool.</li> <li>Consult physician immediately if skin penetration occurs.</li> </ul>		<p><b>CAUTION</b></p> <ul style="list-style-type: none"> <li>Plow must be checked for loose or missing bolts at least every four hours of operation.</li> <li>Failure to follow this procedure may result in damage to plow and could void warranty.</li> </ul>

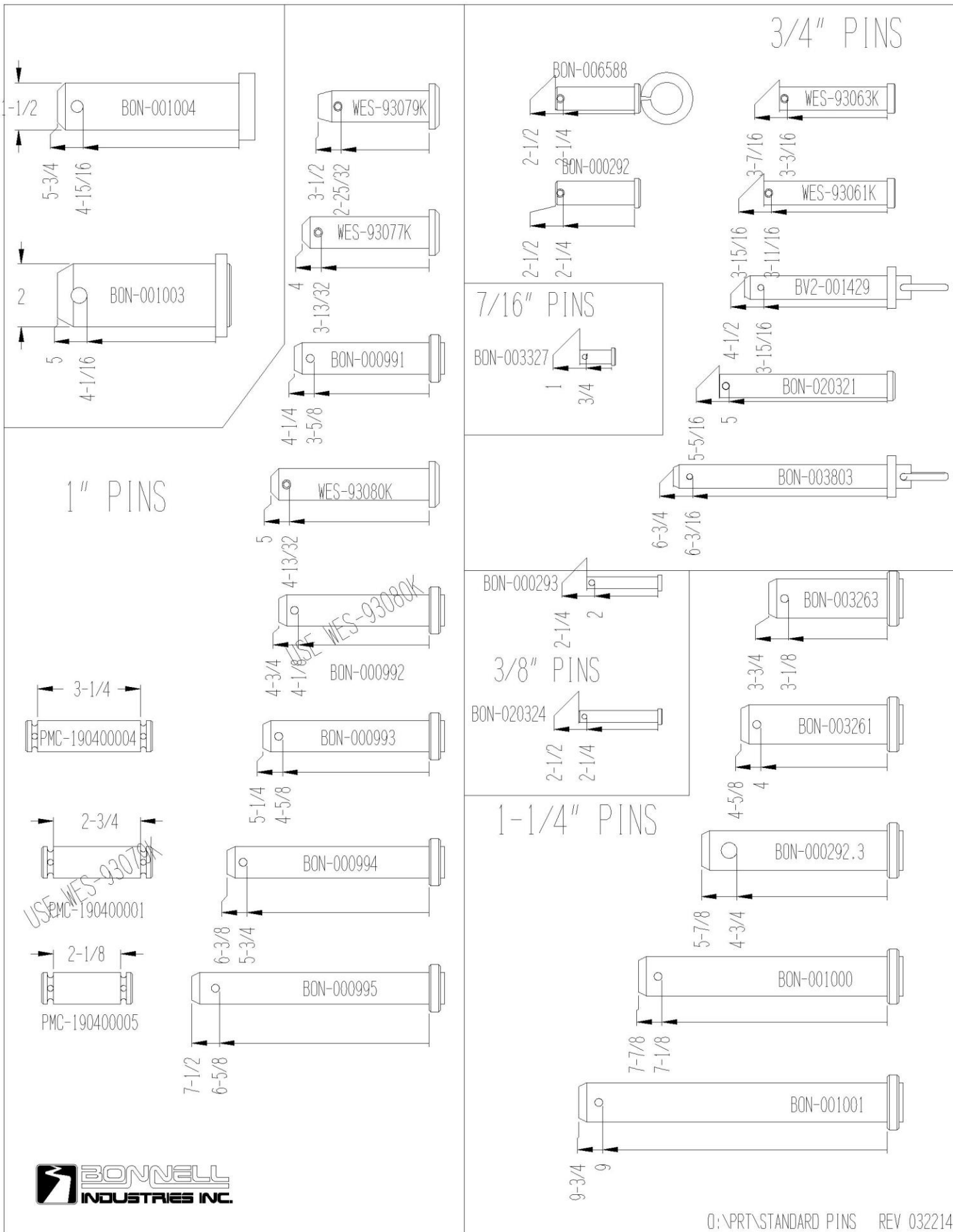
BON-003853 LEVEL RAISE ADJUSTMENT  
APPLY TO CENTER OF MOLDBOARD  
IF PLOW IS EQUIPPED WITH LRLS

<p><b>LEVEL RAISE LIFT SYSTEM ADJUSTMENT</b></p> <p>THE BONNELL LEVEL RAISE LIFT SYSTEM CARRIAGE ASSEMBLY ASSISTS IN MAKING THE CUTTING EDGE PARALLEL TO THE GROUND.</p>		
<p><b>BEFORE STARTING:</b></p> <ol style="list-style-type: none"> <li>VERIFY CHAINS ARE NOT TWISTED.</li> <li>VERIFY CHAINS ARE ATTACHED TO THE LIFT ARM WITH THE SAME NUMBER OF LINKS.</li> <li>OBSERVE IF PLOW IS "OVER LEVEL" OR "UNDER LEVEL"; AT RIGHT.</li> <li>USING THE STEPS ABOVE SHOULD ACHIEVE GOOD LEVELING RESULTS WITH ALL BONNELL EQUIPMENT.</li> <li>AS A LAST RESORT, REFER TO CARRIAGE BOLT ADJUSTMENT, LOWER RIGHT HAND CORNER.</li> </ol>	<p><b>OVER LEVELING:</b> WHEN THE PLOW IS REVERSED, THE INTAKE END IS LOW (END FARTHEST FORWARD)</p> <p>HOOKUP POINT FOR CHAINS MUST BE CLOSER TO TRUCK IF PLOW IS OVER LEVELING</p> <p><b>TO ADJUST FOR OVER LEVELING:</b> MOVE PLOW LIFT CHAINS IN (CLOSER TO THE TRUCK)</p>	<p><b>UNDER LEVELING:</b> WHEN THE PLOW IS REVERSED, THE DISCHARGE END IS LOW (END CLOSEST TO TRUCK)</p> <p>HOOKUP POINT FOR CHAINS MUST BE FARTHER FROM TRUCK IF PLOW IS UNDER LEVELING</p> <p><b>TO ADJUST FOR UNDER LEVELING:</b> MOVE PLOW LIFT CHAINS OUT (FARTHER AWAY FROM THE TRUCK)</p> <p><b>CARRIAGE BOLT ADJUSTMENT</b> (FOR UNDER LEVELING ONLY)</p> <p>FURTHER ADJUSTMENT FOR UNDER LEVELING: WITH PLOW IN BULLDOZE POSITION, MOVE ALL THREE PIVOT BOLTS ON CARRIAGE BACK ONE HOLE. REPEAT STEP 3.</p>

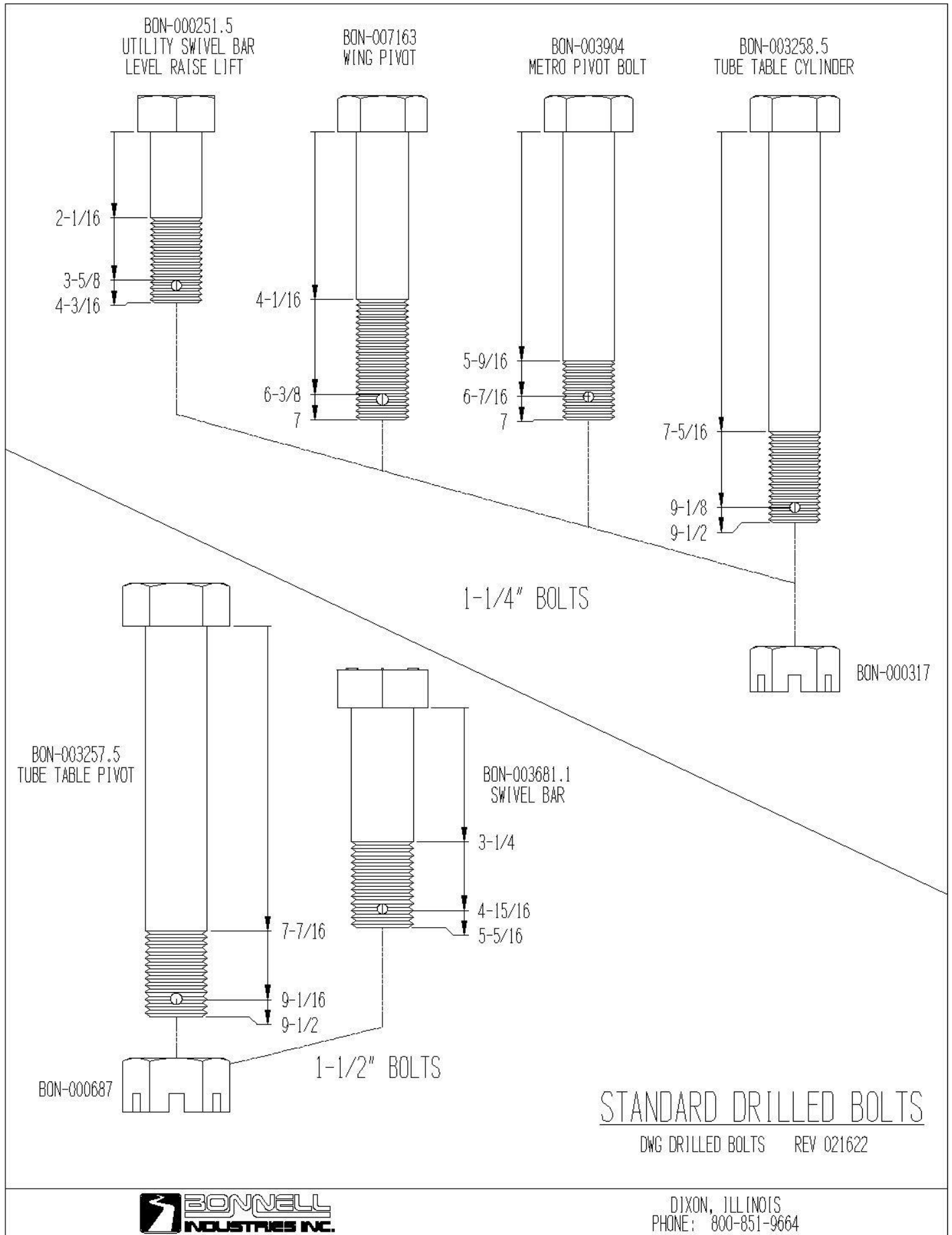
BON-003301 BONNELL LOGO  
APPLY TO RIGHT END OF MOLDBOARD



# Standard Pin Reference Chart



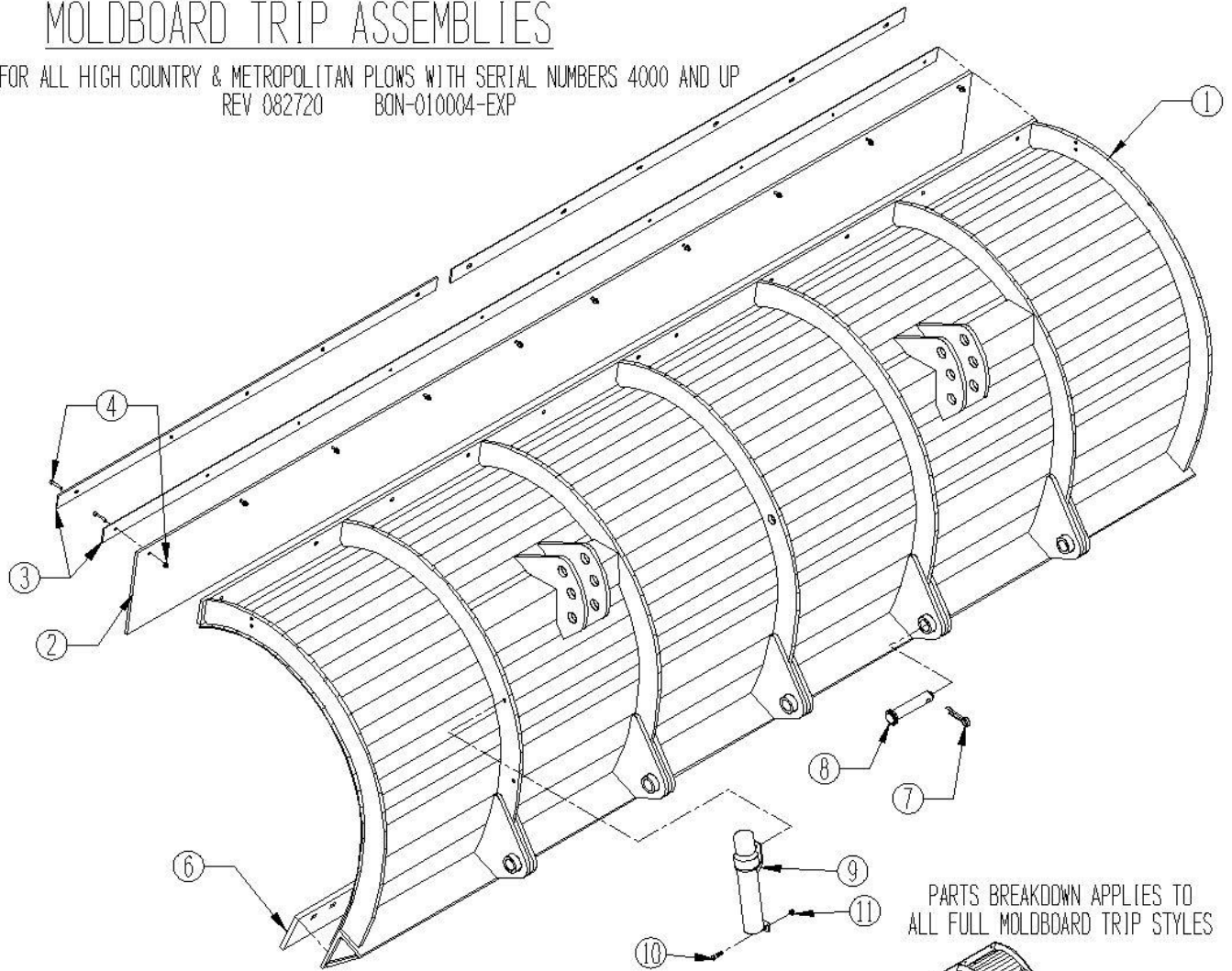
# Standard Drilled Bolts Reference Chart



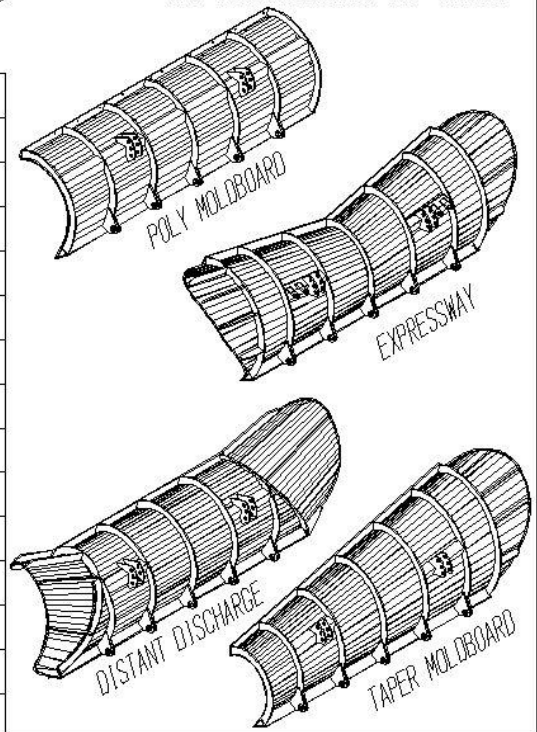
DIXON, ILLINOIS  
PHONE: 800-851-9664

# MOLDBOARD TRIP ASSEMBLIES

FOR ALL HIGH COUNTRY & METROPOLITAN PLOWS WITH SERIAL NUMBERS 4000 AND UP  
REV 082720 BON-010004-EXP



PARTS BREAKDOWN APPLIES TO ALL FULL MOLDBOARD TRIP STYLES



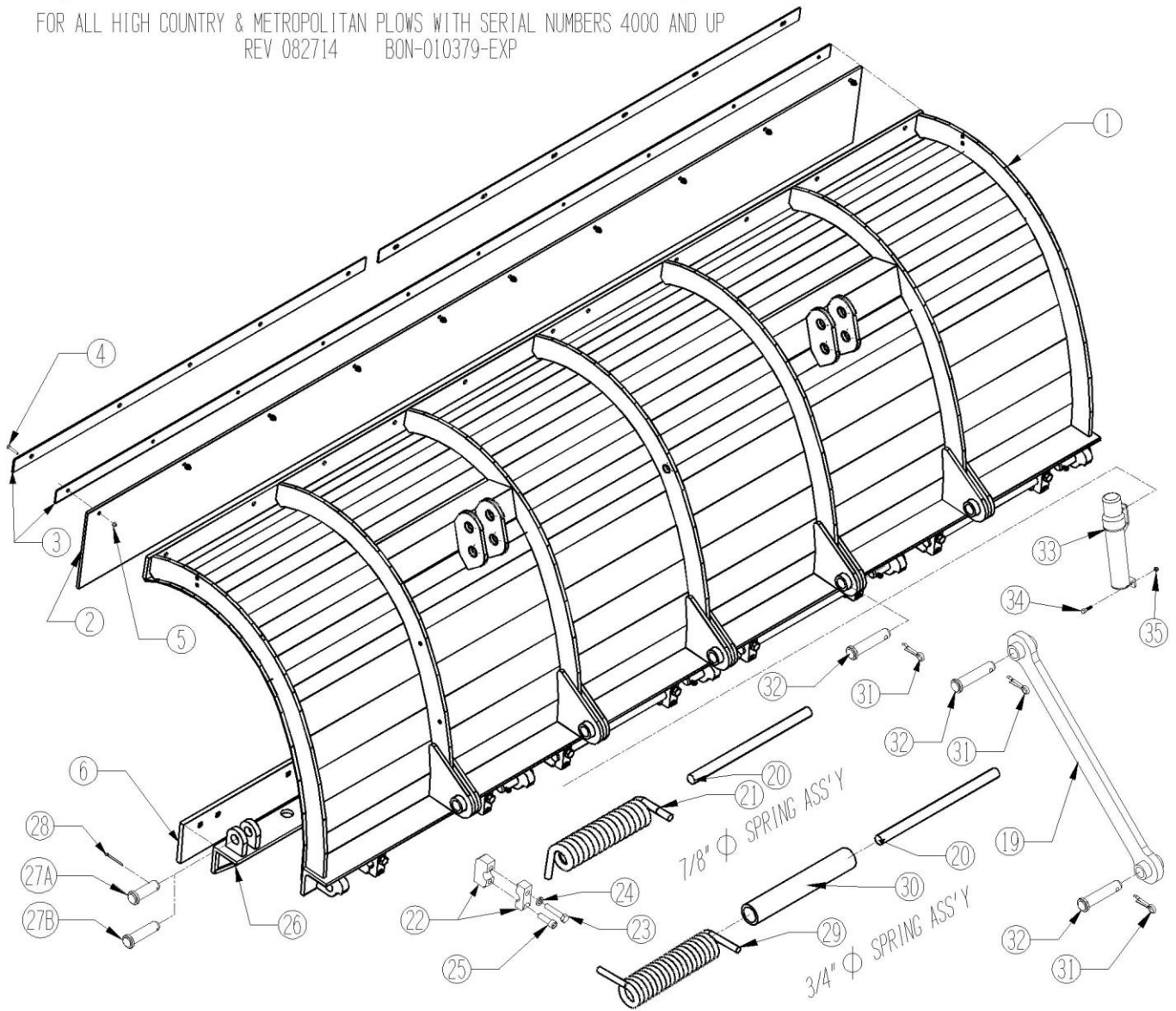
1	1	VARIABLES	MOLDBOARD Ⓢ CALL FACTORY FOR PART NUMBER AND PRICING
2	AR	BON-000703	3/8"X12" RUBBER FLAP (SOLD BY THE FOOT)
2	AR	BON-000703.4	3/8"X18" RUBBER FLAP (SOLD BY THE FOOT)
3	AR	1/8X2	FLAP RETAINER FOR (SOLD BY THE FOOT)
3	AR	BON-003135	FLAP RETAINER, 5', FOR STRAIGHT MOLDBOARDS ONLY
3	AR	BON-003136	FLAP RETAINER, 6', FOR STRAIGHT MOLDBOARDS ONLY
4	AR	BK-1024	KIT (6) 3/8X1-3/4 FLANGE BOLTS, (6) NYLON LOCK NUTS)
6	REFER TO THE CUTTING EDGE PAGE OF THIS MANUAL FOR OPTIONAL BLADES		
7	5	BON-000292.1	GUEST PIN FOR 1/2" HOLE
8	5	BON-000292.3	PIN, 1-1/4X5-3/4 BUTTON HEAD
9	1	BON-000950	MANUAL CANISTER, SMALL
10	2	BON-000031	5/16"x1-1/4 HEX BOLT, GRADE 8
11	2	BON-000320	5/16" HEX LOCK NUT, GRADE 5
ITEM	QTY	PART #	DESCRIPTION



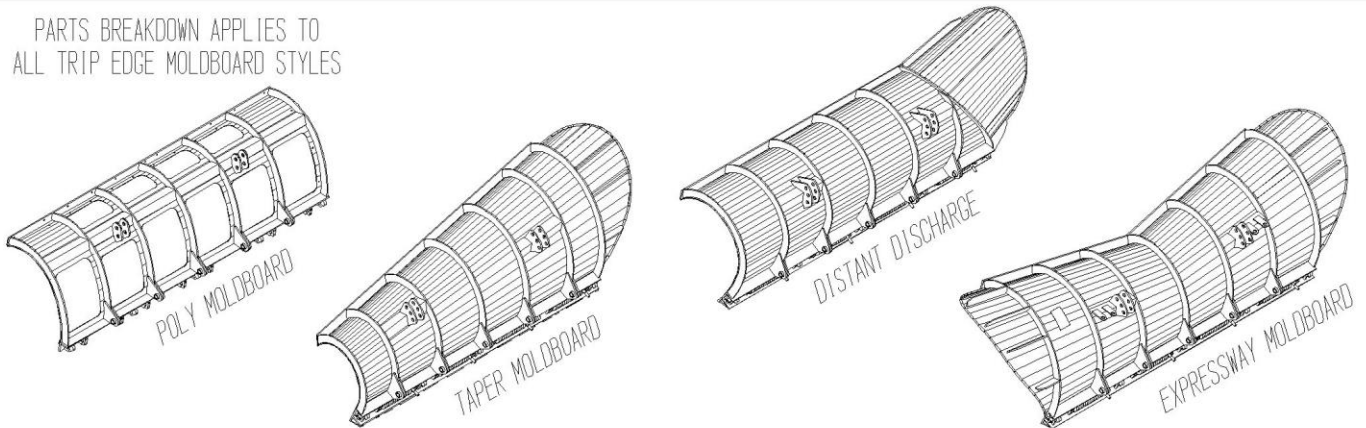
DIXON, ILLINOIS  
PHONE: 800-851-9664

# TORSION TRIP MOLDBOARD ASSEMBLIES

FOR ALL HIGH COUNTRY & METROPOLITAN PLOWS WITH SERIAL NUMBERS 4000 AND UP  
 REV 082714 BON-010379-EXP



PARTS BREAKDOWN APPLIES TO ALL TRIP EDGE MOLDBOARD STYLES



DIXON, ILLINOIS  
 PHONE: 800-851-9664



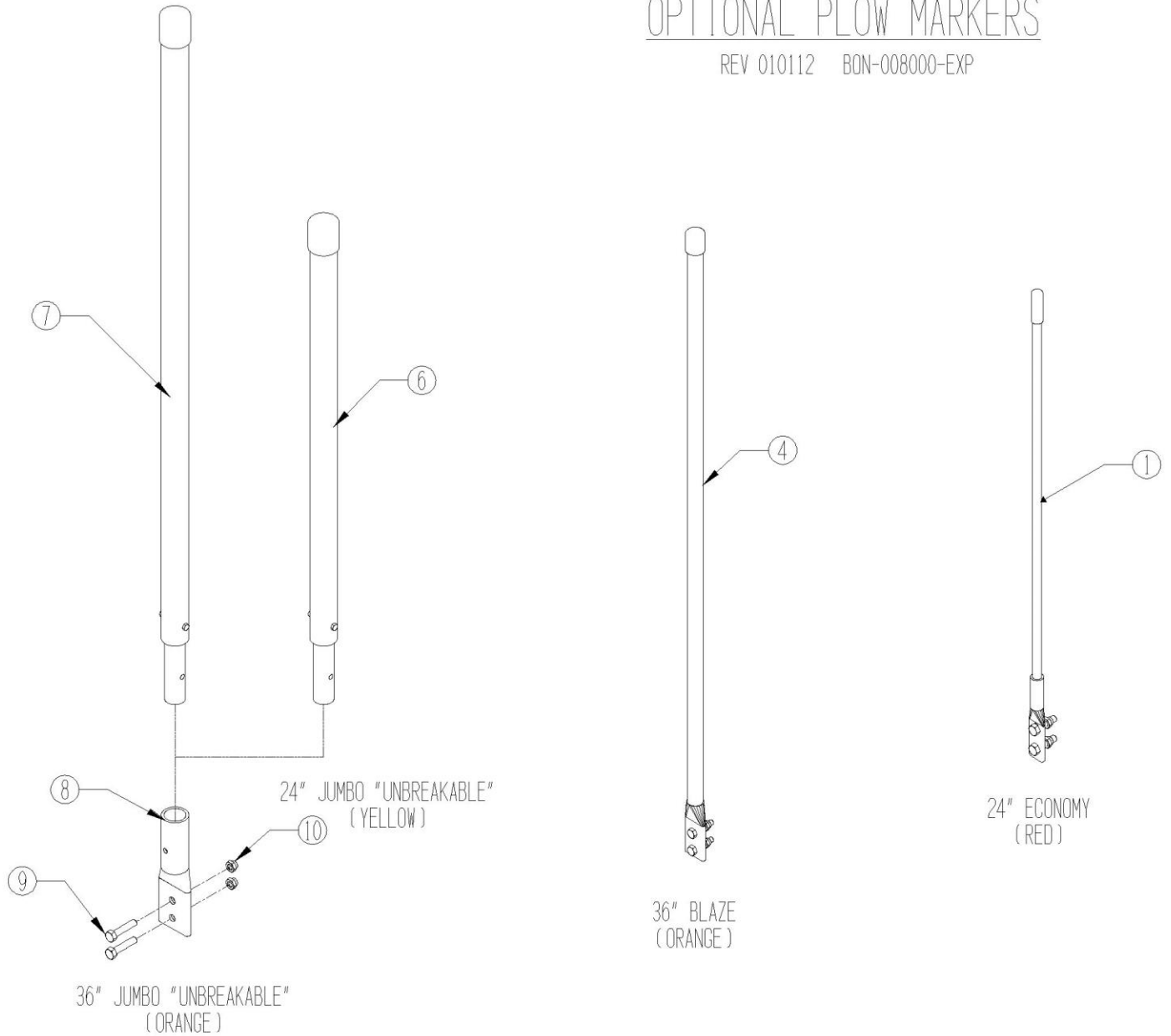
## TORSION TRIP MOLDBOARD ASSEMBLIES

**FOR ALL HIGH COUNTRY & METROPOLITAN PLOWS WITH SERIAL NUMBERS 4000 AND UP**

ITEM #	PART #	QTY.	DESCRIPTION
1	VARIABLES	1	MOLDBOARD – CALL FACTORY FOR PART NUMBER AND PRICING
2	BON-000703	AR	3/8"X12" RUBBER FLAP (SOLD BY THE FOOT)
	BON-000703.4	AR	3/8"X18" RUBBER FLAP (SOLD BY THE FOOT)
3	1/8X2	AR	FLAP RETAINER FOR TAPERS AND DISTANT DISCHARGE PLOWS ONLY(SOLD BY THE FOOT)
	BON-003135	AR	FLAP RETAINER, 5', FOR STRAIGHT MOLDBOARDS ONLY
	BON-003136	AR	FLAP RETAINER, 6', FOR STRAIGHT MOLDBOARDS ONLY
4	BON-000007	AR	1/4"X1-1/2 HEX BOLT, GRADE 8
5	BON-000318.5	AR	1/4" HEX LOCK NUT, GRADE 5
6	REFER TO THE CUTTING EDGE PAGE OF THIS MANUAL FOR OPTIONAL BLADES & BOLTS		
19	BON-010099	2	RIGID TRIP ARM BAR
20	BON-003441	4	TORSION TRIP ROD
21	BON-007025	AR	TORSION TRIP SPRING, 7/8" WIRE DIAMETER
22	BON-003427	8	SPLIT BLOCK, TWO PCS.
23	BON-000157	8	5/8"X3 HEX BOLT, GRADE 8
24	BON-000356	8	5/8" SPLIT LOCK WASHER
25	SCS-5/8-11X2	8	5/8"X2 SOCKET CAP SCREW
26	BON-010366	AR	5' TRIP SECTION
	BON-010367	AR	6' TRIP SECTION
	BON-010371	AR	9' TRIP SECTION
	BON-010372	AR	10' TRIP SECTION
	BON-010373	AR	11' TRIP SECTION
	BON-010374	AR	12' TRIP SECTION
	BON-010389	AR	14' TRIP SECTION
27A	BON-003263	5	1-1/4"X4-1/4" PIN (3-1/8" WORKING LENGTH) - SINGLE TRIP SECTION
27B	BON-003261	AR	1-1/4"X4-3/4" PIN (4" WORKING LENGTH) - MULTIPLE TRIP SECTIONS
28	BON-000385	5	1/4"X2 COTTER PIN
29	BON-000700.6	AR	TORSION TRIP SPRING, 3/4" WIRE DIAMETER
30	BON-003442	AR	TORSION TRIP SPRING TUBE - USE WITH 3/4" SPRING ONLY
31	BON-000292.1	5	GUEST PIN FOR 1/2" HOLE
32	BON-000292.3	5	PIN, 1-1/4X5-3/4 BUTTON HEAD
33	BON-000950	1	MANUAL CANISTER, SMALL
34	BON-000031	2	5/16"x1-1/4 HEX BOLT, GRADE 8
35	BON-000320	2	5/16" HEX LOCK NUT, GRADE 5

# OPTIONAL PLOW MARKERS

REV 010112 BON-008000-EXP



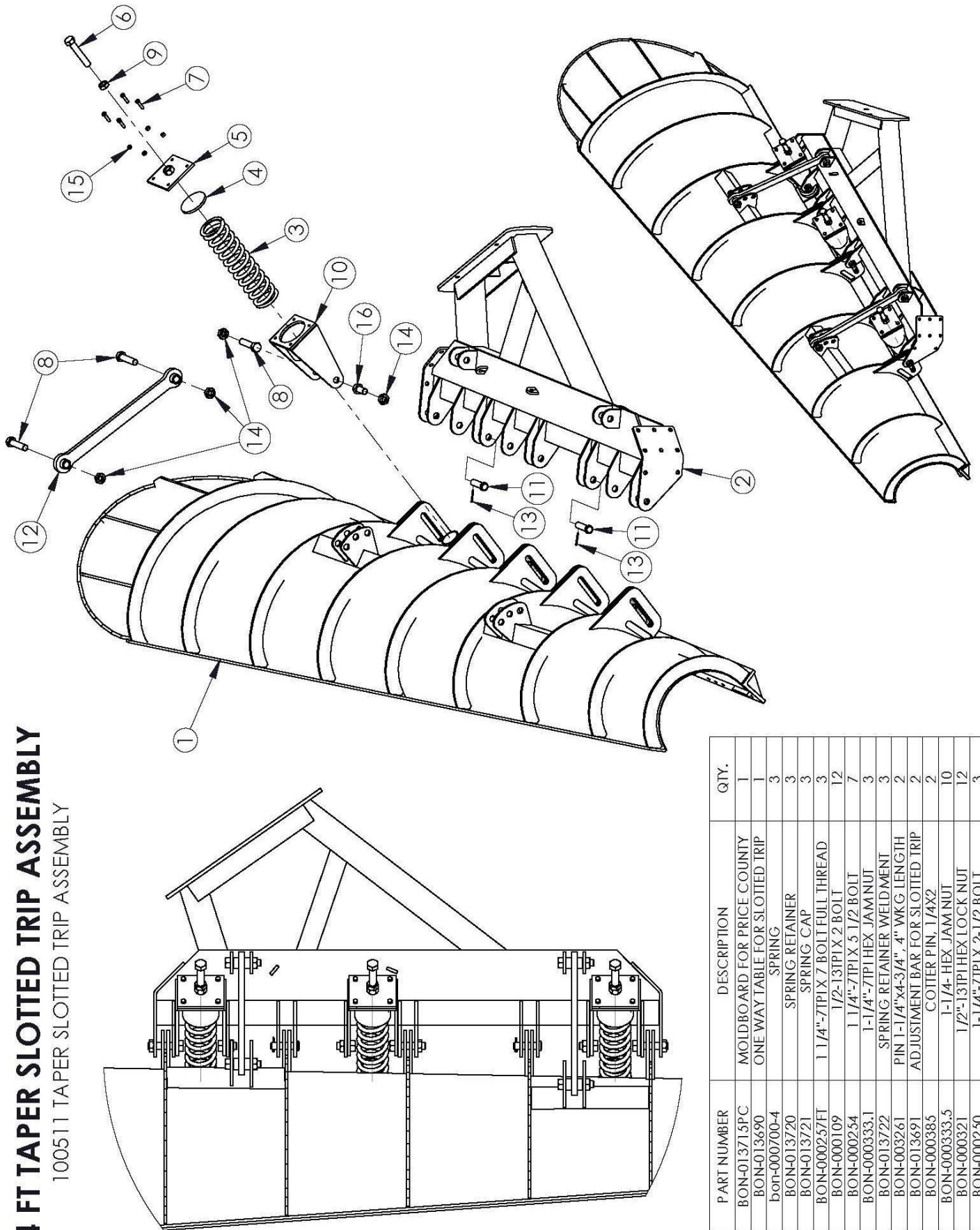
1-3	2	WES-62265	24" ECONOMY BLADE MARKERS W/BOLTS, PAIR (OPTIONAL)
2	4	BON-000031	5/16"x1-1/4 HEX BOLT, GRADE 8
3	4	BON-000320	5/16" HEX LOCK NUT, GRADE 5
4-6	2	STEWART BC-36	36" BLAZE ORANGE MARKERS W/BOLTS, PAIR (OPTIONAL)
5	4	BON-000006	1/4"x1-1/4 HEX BOLT, GRADE 8
6	4	BON-000318.5	1/4"HEX LOCK NUT, GRADE 5
7	2	BON-008000-36	36" JUMBO BLADE GUIDE MARKERS ONLY, PAIR (OPTIONAL)
8	4	BON-008000	BOLT ON BRACKET FOR JUMBO BLADE GUIDES, PAIR (OPT.)
9	4	BON-000031	5/16"x1-1/2 HEX BOLT, GRADE 8
10	4	BON-000320	5/16" HEX LOCK NUT, GRADE 5
ITEM	QTY	PART #	DESCRIPTION



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# 14 FT TAPER SLOTTED TRIP ASSEMBLY

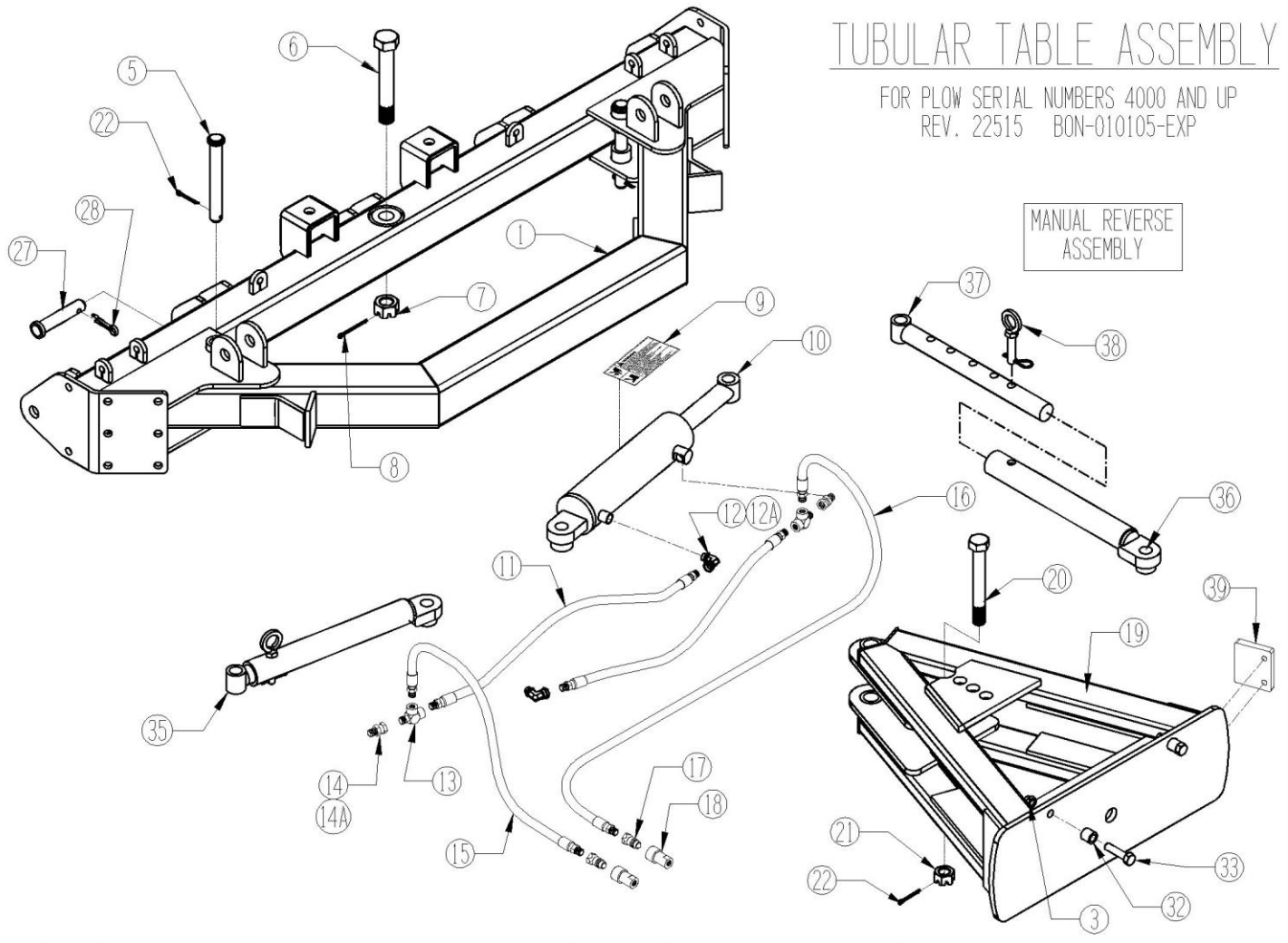
100511 TAPER SLOTTED TRIP ASSEMBLY



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	BON-013715PC	MOLDBOARD FOR PRICE COUNTY	1
2	BON-013690	ONE WAY TABLE FOR SLOTTED TRIP	1
3	BON-000700-4	SPRING	3
4	BON-013720	SPRING RETAINER	3
5	BON-013721	SPRING CAP	3
6	BON-000257FT	1 1/4"-7TPI X 7 BOLT FULL THREAD	3
7	BON-000109	1/2-13TPI X 2 BOLT	12
8	BON-000254	1 1/4"-7TPI X 5 1/2 BOLT	7
9	BON-000333.1	1-1/4"-7TPI HEX JAM NUT	3
10	BON-013722	SPRING RETAINER WELDMENT	3
11	BON-0003261	PIN 1-1/4"x4-3/4", 4" WKG LENGTH	2
12	BON-013691	ADJUSTMENT BAR FOR SLOTTED TRIP	2
13	BON-000385	COTTER PIN, 1/4X2	2
14	BON-000333.5	1-1/4"-HEX JAM NUT	10
15	BON-000321	1/2"-13TPI HEX LOCK NUT	12
16	BON-000250	1-1/4"-7TPI X 2-1/2 BOLT	3

# TUBULAR TABLE ASSEMBLY

FOR PLOW SERIAL NUMBERS 4000 AND UP  
REV. 22515 BON-010105-EXP



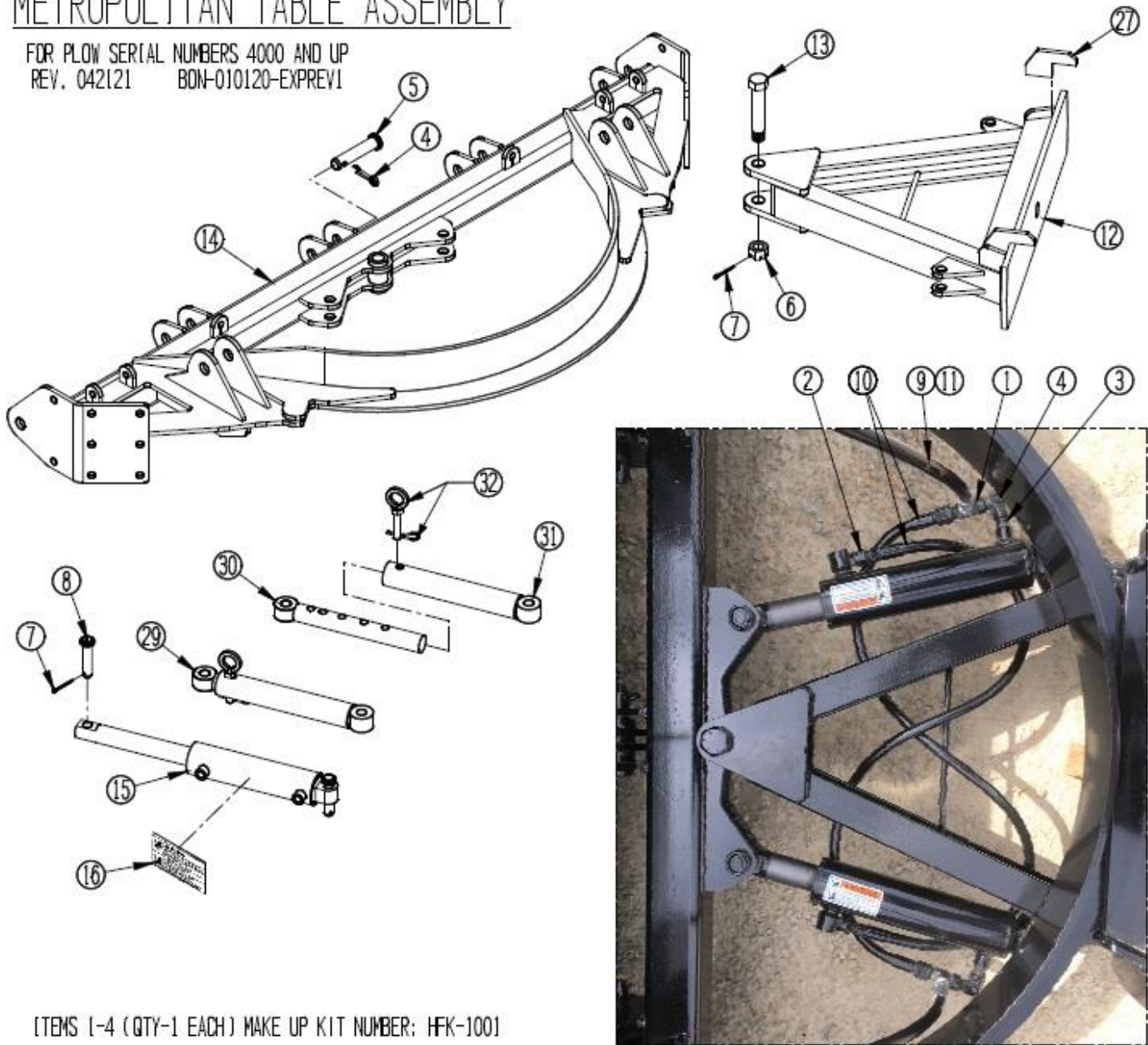
1	1	BON-010100	TUBULAR TABLE WELDMENT	17-18	2	PHD-4000-4P	1/2" QUICK DISCONNECT SET
3	2	BON-000323	3/4" HEX LOCK NUT	17	2	PHD-4010-4P	1/2" QUICK DISCONNECT MALE
5	2	BON-001001	OUTSIDE CYLINDER PIN	18	2	PHD-4050-4P	1/2" QUICK DISCONNECT FEMALE
6-8	1	BON-003257	PIVOT BOLT ASSEMBLY	19	1	BON-003254	TUBULAR A-FRAME
6	1	BON-003257.5	PIVOT BOLT	20-22	1	BON-003258	CENTER CYLINDER BOLT ASSEMBLY
9	2	PMC-230010631	WARNING PINCH POINT DECAL	20	1	BON-003258.5	CENTER CYLINDER BOLT
10	2	BON-003648	CYLINDER, CHROME ROD	21	1	BON-000317	1-1/4" HEX SLOTTED NUT
10A	2	BON-003648N	CYLINDER, NITRIDED ROD	22	3	BON-000385	1/4"X2 COTTER PIN
11	2	BON-003271	CROSS-OVER HOSE	32,33,3	2	BON-003624.5	SWIVEL BAR STOP
12	AR	60UB 08X08	1/2" 90 DEGREE ELBOW	32	2	BON-003624.5CTL	SWIVEL BAR STOP TUBE
12A	AR	60UA 08X08	1/2" 90 DEGREE ELBOW, NPT	33	2	BON-000186	3/4"X3 HEX BOLT, GRADE 8
13	2	25VK 08	TEE-FITTING	35	2	BON-003655	MANUAL REVERSE ADJUSTMENT ASSEMBLY
14	AR	60SB 08X08	SWIVEL ADAPTER	36	2	BON-003656	OUTER TUBE WELDMENT, MANUAL REVERSE
14A	AR	60SA 08X08	SWIVEL ADAPTER, NPT	37	2	BON-003657	INNER ROD WELDMENT, MANUAL REVERSE
15	1	BON-001924	DRIVER SIDE HOSE TO TRUCK	38	2	BON-003658	LATCH PIN, MANUAL REVERSE
16	1	BON-003270	PASSENGER SIDE HOSE TO TRUCK	39	AR	BON-003378	SPACER BLOCK (3/4" THICK)
ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION



DIXON, ILLINOIS  
PHONE: 800-851-9664

# METROPOLITAN TABLE ASSEMBLY

FOR PLOW SERIAL NUMBERS 4000 AND UP  
REV. 042121 BDN-010120-EXPREV1

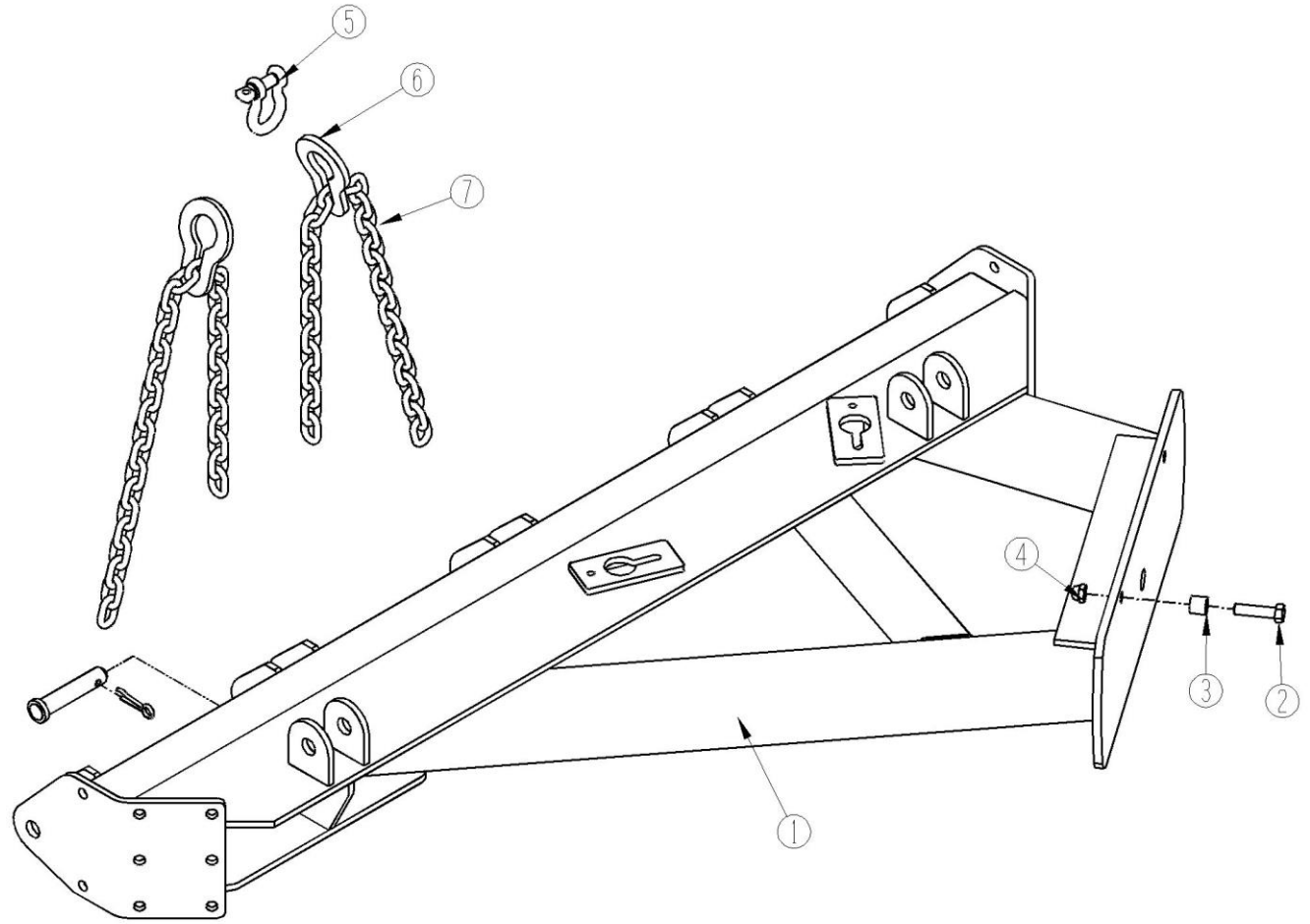


(ITEMS 1-4 (QTY-1 EACH) MAKE UP KIT NUMBER: HFK-1001

1	2	25VK 08	MALE PIPE X FEMALE PIPE X FEMALE PIPE	13	1	BON-003903	METROPOLITAN PIVOT BOLT WITH NUT
2	2	60SB 08X08	MALE ORB X FEM PIPE SWVL 3/4-16TPI TO 1/2 NPSM	14	1	BON-010121	METROPOLITAN TABLE WELDMENT
3	2	722FSD 08X08	MALE ORB TO MALE NPT ADAPTOR	15	2	CD3001000011	3X10 D.A. CYLINDERS W/2" CHROME ROD
4	2	25UG 08	MALE PIPE X 90DEG FEMALE PIPE 1/2"NPTF	15A	2	CD3001000011N	3X10 D.A. CYLINDERS W/2" NITRIDED ROD
6	1	BON-000317	1 1/4"-7TPI HEX SLOTTED NUT	16	2	PMC-230010631	WARNING PINCH POINT DECAL
7	3	BON-000385	1/4X2 COTTER PIN	27	2	BON-002001	SWIVEL BAR STOP
8	4	BON-000991	PIN LIFT RAM, 1" DIA. x 4-1/4 LONG	29	2	BON-003675	MANUAL REVERSE ADJUSTMENT ASSEMBLY
9	1	BON-001924	HOSE ASSY FOR PC TABLE, LONG	30	2	BON-003676	INNER ROD WELDMENT, MANUAL REVERSE
10	2	BON-001924.5	METRO PLOW CROSSOVER HOSE	31	2	BON-003677	OUTER TUBE WELDMENT, MANUAL REVERSE
11	1	BON-003270	TUBE TABLE LONG HOSE, 54"	32	2	BON-003658	LATCH PIN, MANUAL REVERSE
12	1	BON-003901	METROPLOITAN A-FRAME WELDMENT				
ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION

# ONE-WAY TUBULAR TABLE ASSEMBLY

FOR PLOW SERIAL NUMBERS 4000 AND UP  
REV 082208 BON-010140-EXP

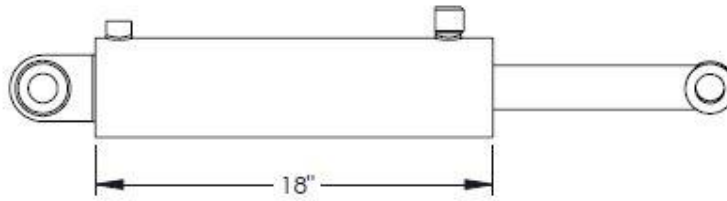


1	1	BON-010140	ONE-WAY TUBULAR TABLE
2-4	2	BON-003624.5	SWIVEL BAR STOP
2	2	BON-000186	3/4"X3 HEX BOLT, GRADE 8
3	2	BON-003624.5-CTL	SWIVEL BAR STOP TUBE
4	2	BON-000323	3/4" HEX LOCK NUT
5	1	BON-000663	7/8" SCREW PIN ANCHOR SHACKLE
6	2	BON-000988	PEAR LINK
7	2	BON-001942	1/2" CHAIN X 4'-6" LONG
ITEM	QTY	PART #	DESCRIPTION

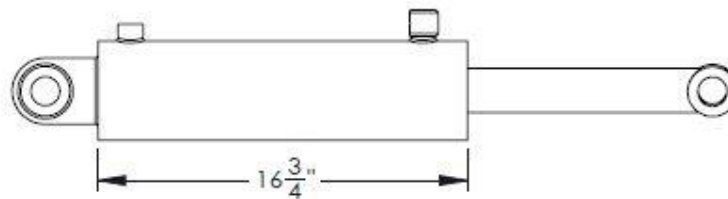


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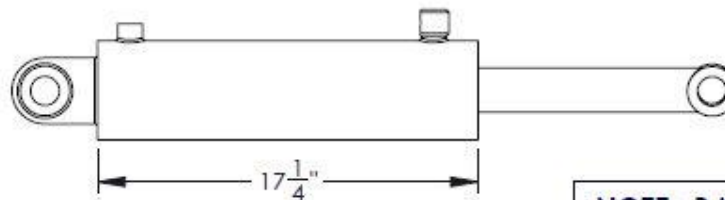
## BON-003648 TUBE TABLE CYLINDER



**COLUMBUS HYDRAULICS  
(2007-2018)**



**MONARCH INDUSTRIES  
(2006, CURRENT)**



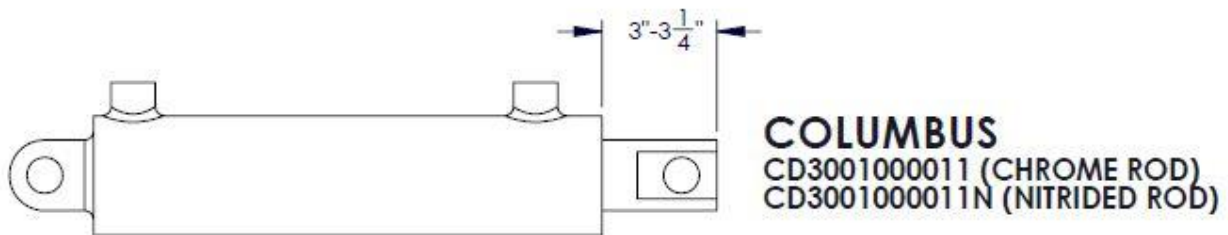
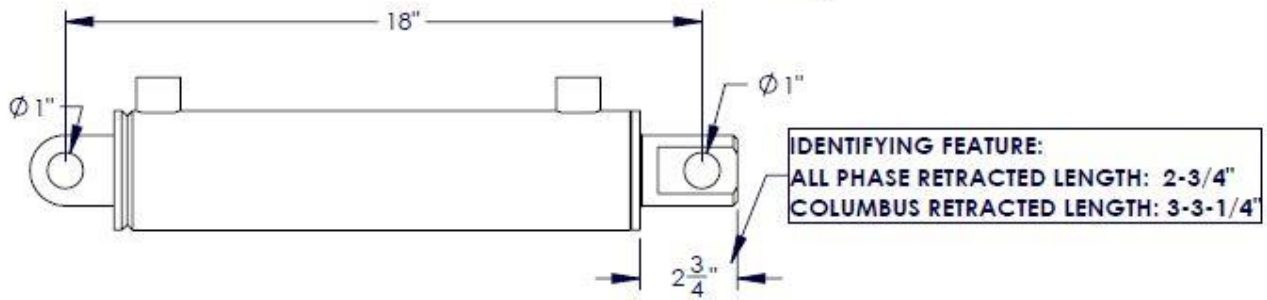
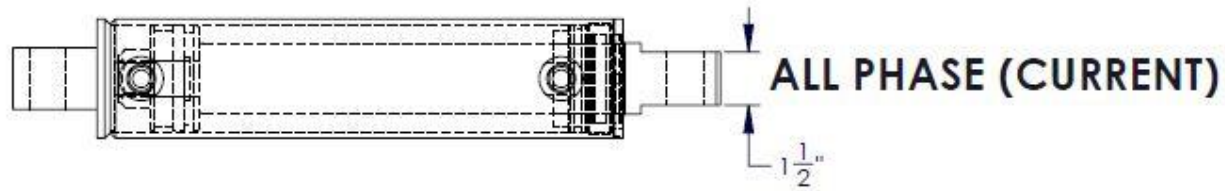
**PRINCE MFG CORP  
(OBSOLETE)**

**NOTE: BARREL LENGTH MUST  
BE MEASURED TO DETERMINE  
PROPER SEAL KIT.**

MFGR	PART NO.	NITRIDE ROD	CHROME ROD	PACKING KIT	RETAINING RING
PRINCE	AR-115	N/A	PMC-021100257	PMC-PMCK-AF-402	N/A
MONARCH	40WD12-200	495963	493770	644327	N/A
COLUMBUS	BON-003648	BON-003648.4	BON-003648.3	BON-003648.1	BON-003648.2

MANUFACTURER	BORE (IN)	ROD DIAM (IN)	STROKE (IN)	RETRACTED DIAM (IN)	PORT SIZES (IN)	TYPE
PRINCE	4	2	12	23.5	1/2-1/2	NPTF
MONARCH	4	2	12	23.5	1/2-1/2	ORB
COLUMBUS	4	2	12	23.5	1/2-1/2	NPTF

# 3X10 DOUBLE ACTING REVERSING CYLINDER FOR METRO PLOWS



IDENTIFYING FEATURE:  
CHEVRON PACK NUT WITH BM STAMP



**BEST METAL**

IDENTIFYING FEATURE:  
CHEVRON PACK NUT - BLANK



**MONARCH**

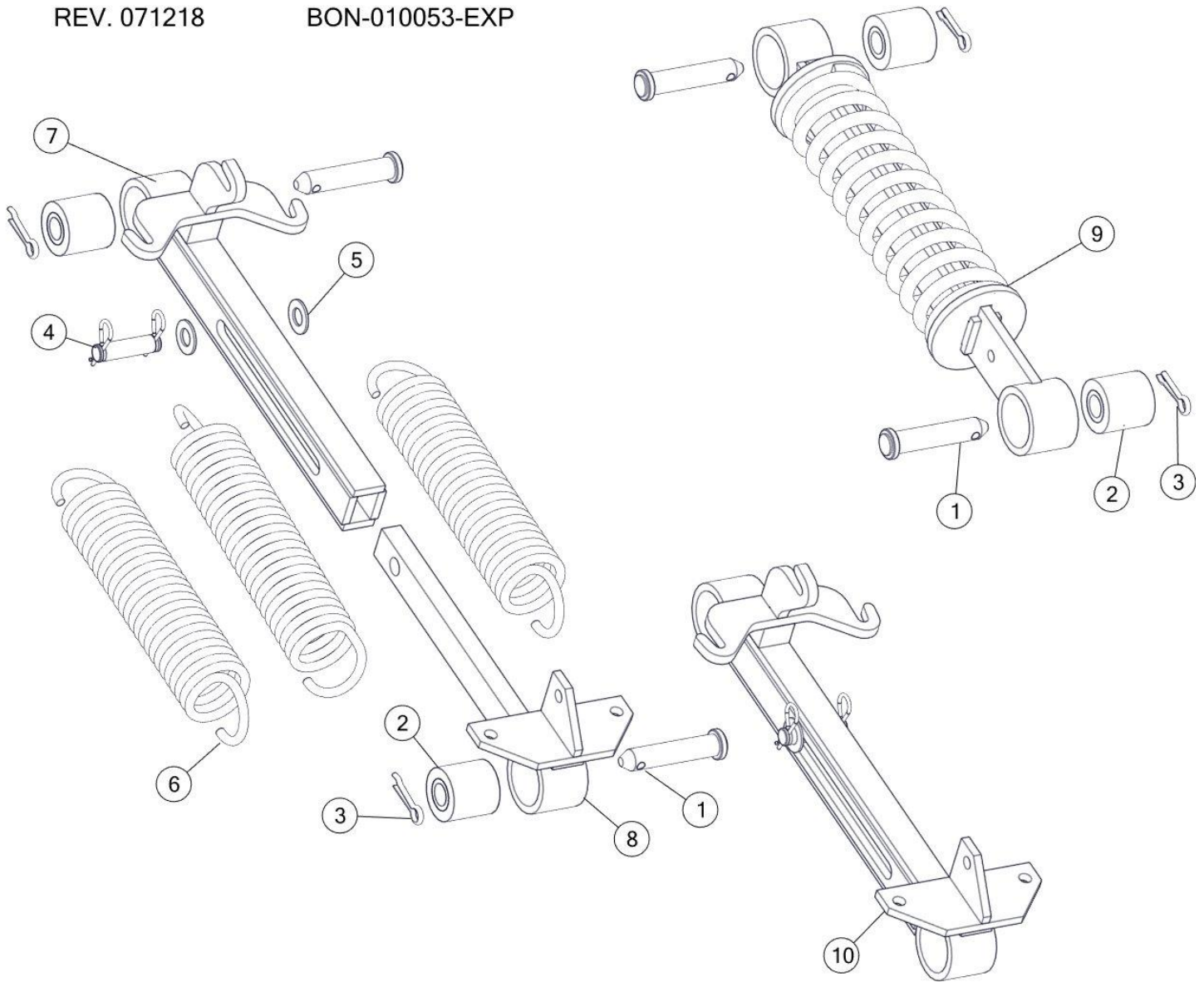
MFGR	PACKING KIT	BORE (IN)	ROD DIAM (IN)	STROKE (IN)	RETRACTED LENGTH (IN)	PORT SIZE (IN)	TYPE
COLUMBUS	RKT3000-0058	3	2	10	18	1/2	ORB
ALL PHASE	CD3001000011N-SK	3	2	10	18	1/2	ORB
BEST METAL	DA-300-200-RPK	3	2	10	18	1/2	ORB
MONARCH	MON-05631	3	2	10	18	1/2	ORB



# CUSHIONED TRIP ARM ASSEMBLIES

REV. 071218

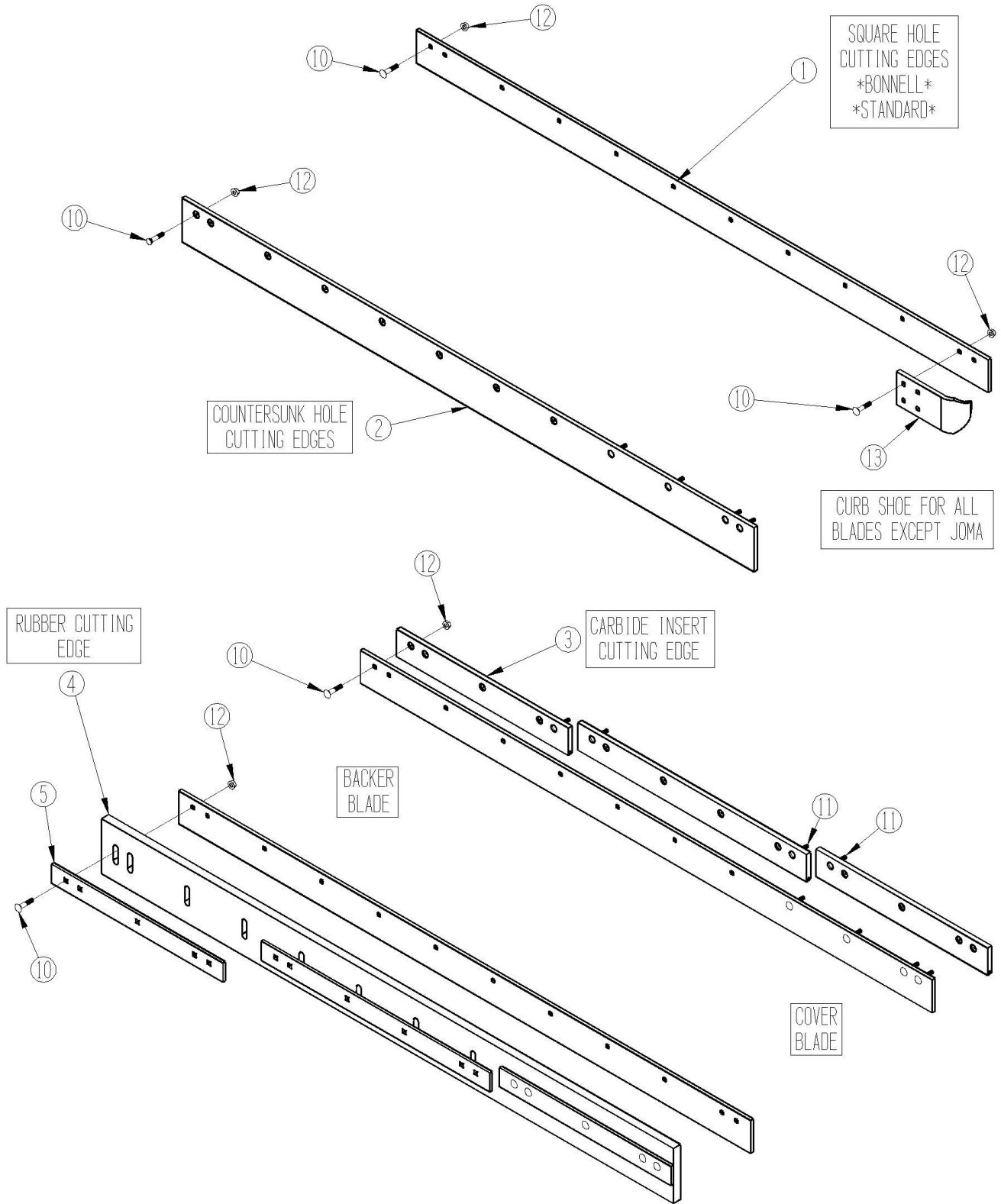
BON-010053-EXP



BOM ID	Qty	PartNo (config)	Description (config)
1	4	BON-000292.3	PIN, 1-1/4 X 5-3/4 BUTTON HEAD, 4-3/4" WORKING LENGTH
2	4	BON-010052	POLY URETHANE BUSHING FOR TRIP BAR.
3	4	BON-000292.1	GUEST PIN FOR 1/2" HOLE ALSO CALLED A CLINCH PIN
4	1	PMC-190400004	CLEVIS PIN, 1" X 3-1/4" WORKING LENGTH
5	2	BON-000345SAEH	FLATWASHER, 1" SAE; HARDENED
6	3	BON--000700	EXTENSION SPRING
7	1	BON-008161	MX TRIP ARM UPPER SECTION
8	1	BON-008162	MX TRIP ARM LOWER
9	1	BON-010226	COMPRESSION SPRING ASSEMBLY
10	1	BON-008160	EXTENSION TRIP ASSEMBLY, LESS SPRINGS

# OPTIONAL SNOW PLOW CUTTING EDGES AND ACCESSORIES

REV 040811 0:/MANUALS/CUTTING EDGES



DIXON, ILLINOIS  
PHONE: 800-851-9664

**OPTIONAL SNOW PLOW CUTTING EDGES AND ACCESSORIES**

ITEM#	PART#	DESCRIPTION
1	BON-000721.3	5/8" X 6" X 3'-0 (5 BOLTS REQUIRED)
1	BON-000721.4	5/8" X 6" X 4'-0 (6 BOLTS REQUIRED)
1	BON-000721.5	5/8" X 6" X 5'-0 (7 BOLTS REQUIRED)
1	BON-000721.7	5/8" X 6" X 6'-0 (8 BOLTS REQUIRED)
1	BON-000721	5/8" X 6" X 9'-0 (11 BOLTS REQUIRED)
1	BON-000706	5/8" X 6" X 10'-0 (12 BOLTS REQUIRED)
1	BON-000710	5/8" X 6" X 11'-0 (13 BOLTS REQUIRED)
1	BON-000714	5/8" X 6" X 12'-0 (14 BOLTS REQUIRED)
1	BON-000723	5/8" X 8" X 3'-0 (5 BOLTS REQUIRED)
1	BON-000724	5/8" X 8" X 4'-0 (6 BOLTS REQUIRED)
1	BON-000725	5/8" X 8" X 5'-0 (7 BOLTS REQUIRED)
1	BON-000725.2	5/8" X 8" X 6'-0 (8 BOLTS REQUIRED)
1	BON-000722	5/8" X 8" X 9'-0 (11 BOLTS REQUIRED)
1	BON-000707	5/8" X 8" X 10'-0 (12 BOLTS REQUIRED)
1	BON-000711A	5/8" X 8" X 11'-0 (13 BOLTS REQUIRED)
1	BON-000715	5/8" X 8" X 12'-0 (14 BOLTS REQUIRED)
2	BON-000753	3/4" X 8" X 4'-0 (6 BOLTS REQUIRED)
2	BON-000753.5	3/4" X 8" X 5'-0 (7 BOLTS REQUIRED)
2	BON-000753.6	3/4" X 8" X 6'-0 (8 BOLTS REQUIRED)
2	BON-000711.4	3/4" X 8" X 10'-0 (12 BOLTS REQUIRED)
2	BON-000711.5	3/4" X 8" X 11'-0 (13 BOLTS REQUIRED)
2	BON-000711.6	3/4" X 8" X 12'-0 (14 BOLTS REQUIRED)
2	BON-000711.9	1" X 8" X 10'-0 (12 BOLTS REQUIRED)
2	BON-000711.7	1" X 8" X 11'-0 (13 BOLTS REQUIRED)
2	BON-000711.8	1" X 8" X 12'-0 (14 BOLTS REQUIRED)

**SPECIAL FLAME HARDENED CUTTING EDGES**

2	BON-000753.3SH	3/4" X 8" X 3'-0 (5 BOLTS REQUIRED)
2	BON-000753.4SH	3/4" X 8" X 4'-0 (6 BOLTS REQUIRED)
2	BON-000753.5SH	3/4" X 8" X 5'-0 (7 BOLTS REQUIRED)
2	BON-000753.6SH	3/4" X 8" X 6'-0 (8 BOLTS REQUIRED)

**CARBIDE INSERT CUTTING EDGES**

3	BON-000717	7/8" X 5" X 3'-0 (5 BOLTS REQUIRED)
3	BON-000718	7/8" X 5" X 4'-0 (6 BOLTS REQUIRED)

**RUBBER CUTTING EDGES**

4	MSB-S108-10	1-1/2"X10" X 9'-0 (11 BOLTS REQUIRED)
4	MSB-S120-10	1-1/2"X10" X 10'-0 (12 BOLTS REQUIRED)
4	MSB-S132-10	1-1/2"X10" X 11'-0 (13 BOLTS REQUIRED)
4	MSB-S144-10	1-1/2"X10" X 12'-0 (14 BOLTS REQUIRED)

**CLAMP STRIPS FOR RUBBER CUTTING EDGES**

5	BON-005056	3' RUBBER CUTTING EDGE CLAMP STRIP
5	BON-005057	4' RUBBER CUTTING EDGE CLAMP STRIP
5	BON-005058	5' RUBBER CUTTING EDGE CLAMP STRIP

**OPTIONAL CURB SHOES**

13	BON-003233.6	3/4" X 6", UNIVERSAL (2 BOLTS REQUIRED)
13	BON-003235.6	3/4" X 8", UNIVERSAL (2 BOLTS REQUIRED)

**BOLTS FOR ALL CUTTING EDGES AND CURB GUARDS**

NOTE: THE BOLTS LISTED BELOW ARE ALSO AVAILABLE IN BOXED QUANTITIES OF 15 PCS PER BOX, AND INCLUDE NUTS. TO ORDER, ADD A "P" TO THE END OF THE PART NUMBER LISTED.

10	BON-CB8200	5/8"X2 CARRIAGE BOLT, GRADE 8
10	BON-CB8250	5/8"X2-1/2 CARRIAGE BOLT, GRADE 8
10	BON-CB8300	5/8"X3 CARRIAGE BOLT, GRADE 8
10	BON-CB8350	5/8"X3-1/2 CARRIAGE BOLT, GRADE 8
10	BON-CB8400	5/8"X4 CARRIAGE BOLT, GRADE 8
10	BON-CB8450	5/8"X4-1/2 CARRIAGE BOLT, GRADE 8
11	BON-000659	5/8"X2 PLOW BOLT, GRADE 8
11	BON-000659.2	5/8"X2-1/2 PLOW BOLT, GRADE 8
11	BON-000659.3	5/8"X3 PLOW BOLT, GRADE 8
11	BON-000659.4	5/8"X3-1/2 PLOW BOLT, GRADE 8
11	BON-000659.5	5/8"X4 PLOW BOLT, GRADE 8
11	BON-000659.6	5/8"X4-1/2 PLOW BOLT, GRADE 8
12	BON-000307F	5/8" HEX FLANGE LOCK NUT

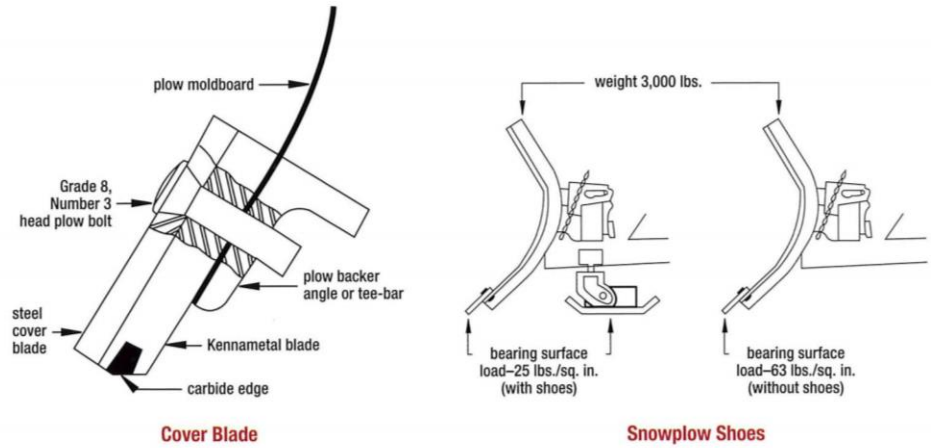
## Kennametal Snowplow Blades & Shoes Operating Tips

To significantly reduce blade chatter and bolt failure, we highly recommend Grade 8, Number 3 head plow bolts, with self-locking nuts, for mounting our blades.

We also recommend use of a “cover blade” — a steel section bolted to the front of the carbide blade — to reinforce your moldboard, absorb shock, and greatly diminish steel erosion around the carbide insert area. Such practice can improve blade life by as much as 30%.

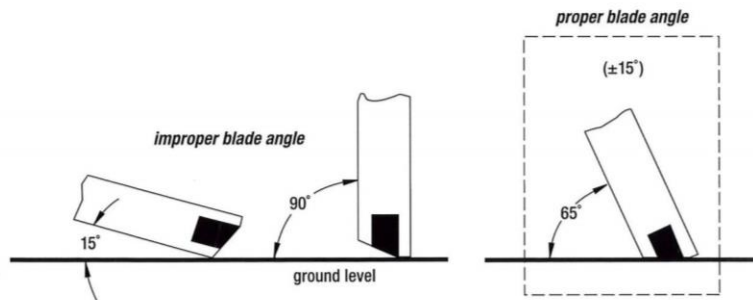
Snowplow shoes can be employed with our snowplow blades... to provide uniform plow frame weight distribution.

Lastly, we strongly suggest that you set your snowplow blade attack angle approximately 65° from the ground. A higher or lower angle could produce increased vibration and far less wear life.



**Cover Blade**

**Snowplow Shoes**



**Snowplow Blade Attack Angles**

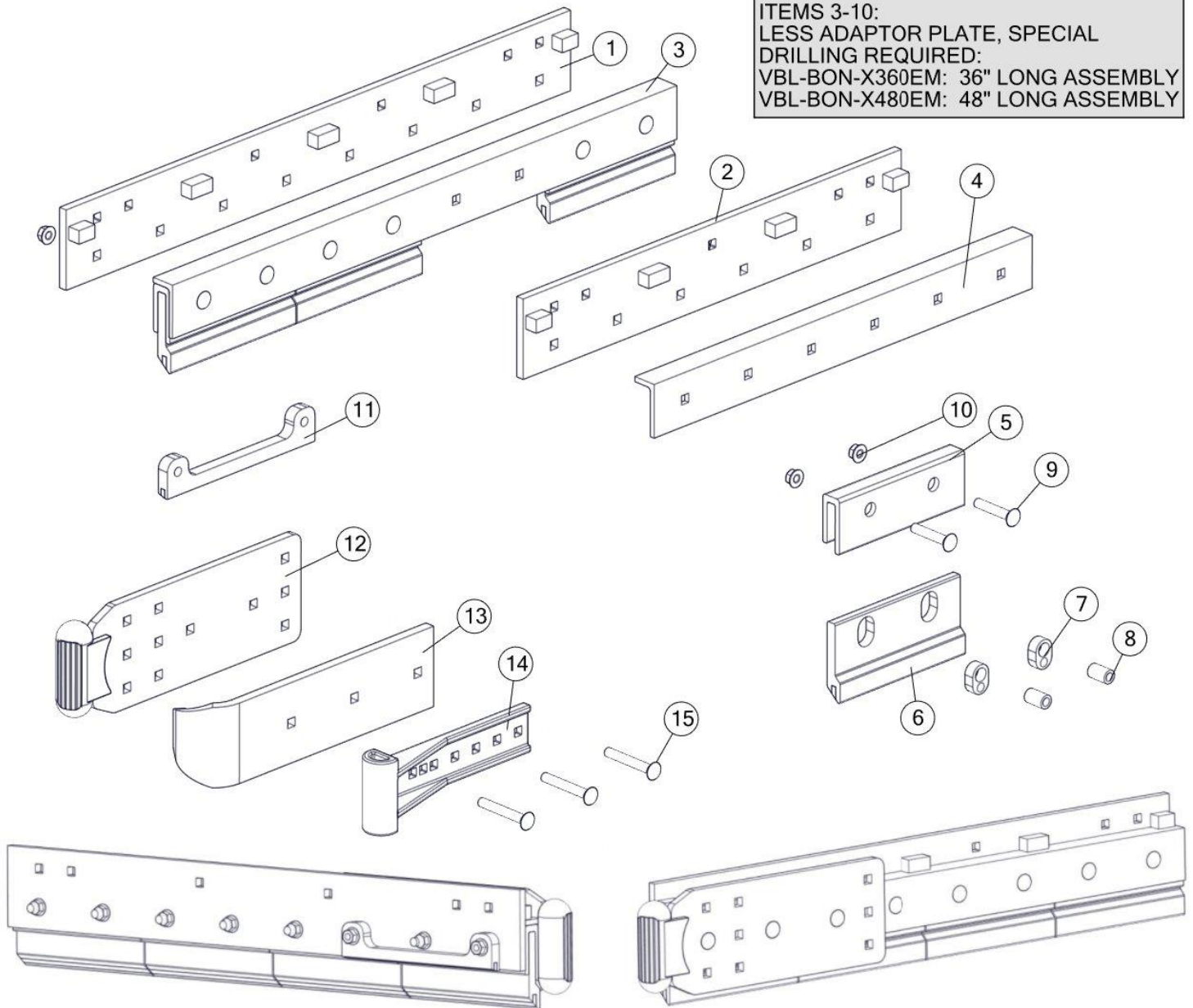
# POLARFLEX CUTTING EDGE SYSTEM FRONT MOUNT & DIRECT MOUNT SYSTEMS

REV 013017 VBL-X-48-W.SMG

## COMPLETE ASSEMBLIES:

ITEMS 1-10:  
VBL-X-36-W: 36" LONG ASSEMBLY  
VBL-X-48-W: 48" LONG ASSEMBLY

ITEMS 3-10:  
LESS ADAPTOR PLATE, SPECIAL  
DRILLING REQUIRED:  
VBL-BON-X360EM: 36" LONG ASSEMBLY  
VBL-BON-X480EM: 48" LONG ASSEMBLY



BOM ID	Qty	PartNo (config)	Description (config)
1	1	VBL-BUX-48-W	ADAPTOR PLATE, 48"
2	1	VBL-BUX-36-W	ADAPTOR PLATE, 36"
3	1	BON-010421-VBL	48" RETAINER ANGLE
4	1	BON-010420-VBL	36" RETAINER ANGLE
5	4	VBL-XFE-12-2	RUBBER CASING
6	4	VBL-XWS-12	12" CARBIDE SECTION
7	8	VBL-XFE-58-B	RUBBER BUSHING
8	8	VBL-XSB-58	BUSHING
9	8	BON-CB8350	5/8-11 X 3-1/2" GRADE 8 CARRIAGE BOLT
10	10	BON-000307F	5/8-11 HEX FLANGED LOCK NUT
11	1	VBL-XWSHOE-W	FROG PROTECTOR
12	1	BON-003194	UNIVERSAL CARBIDE BULL NOSE 3 HOLE MOUNT, 5/8" X 8"
13	1	VBL-003236	CURB SHOE, WRAP AROUND STYLE
14	1	VBL-10620029	CURB SHOE, BULL NOSE
15	3	BON-CB8450	5/8-11NC X 4-1/2" GRADE 8 CARRIAGE BOLT

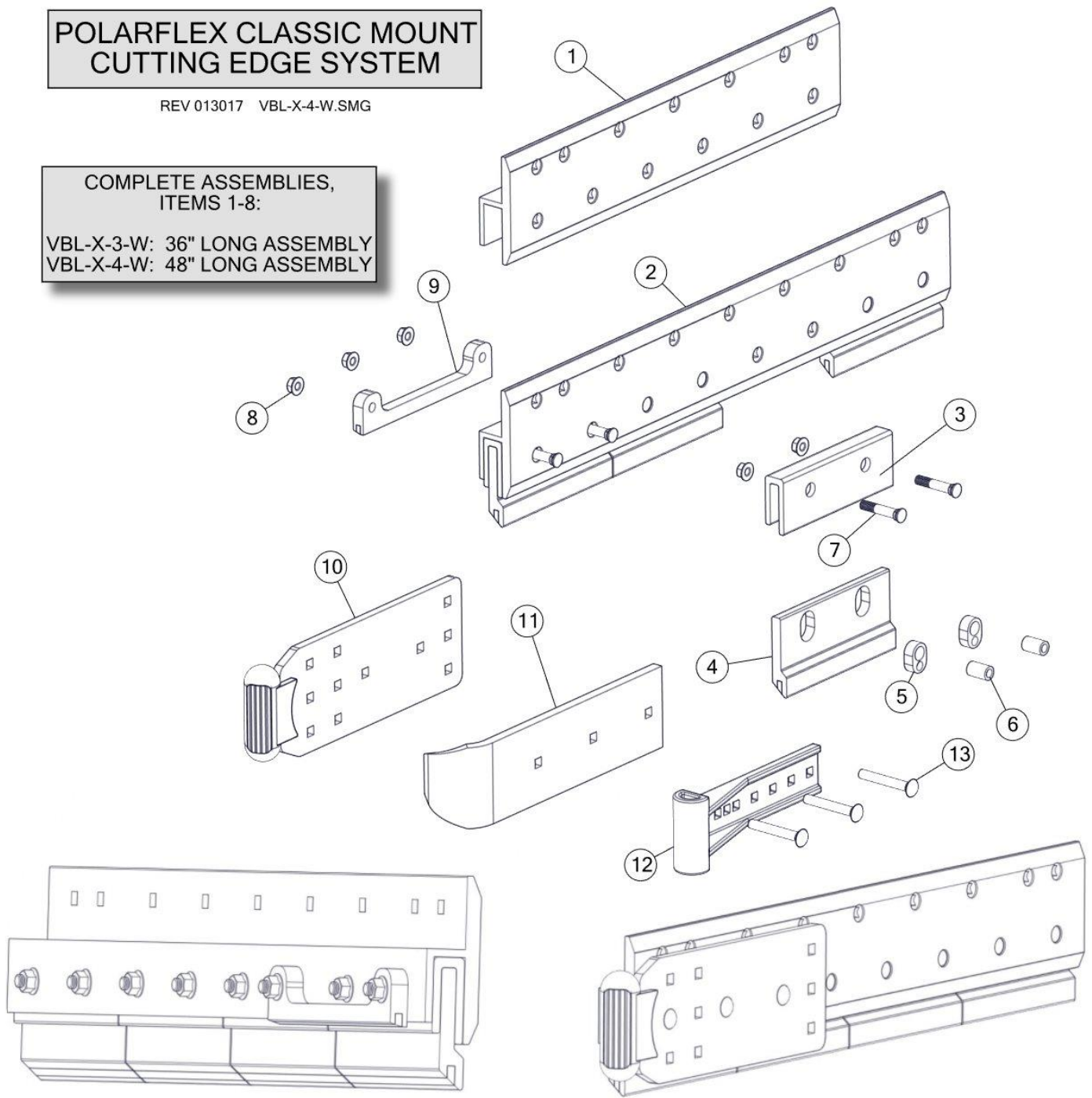
QTY'S SHOWN  
AT LEFT ARE FOR  
ONE 48" SECTION

# POLARFLEX CLASSIC MOUNT CUTTING EDGE SYSTEM

REV 013017 VBL-X-4-W.SMG

COMPLETE ASSEMBLIES,  
ITEMS 1-8:

VBL-X-3-W: 36" LONG ASSEMBLY  
VBL-X-4-W: 48" LONG ASSEMBLY

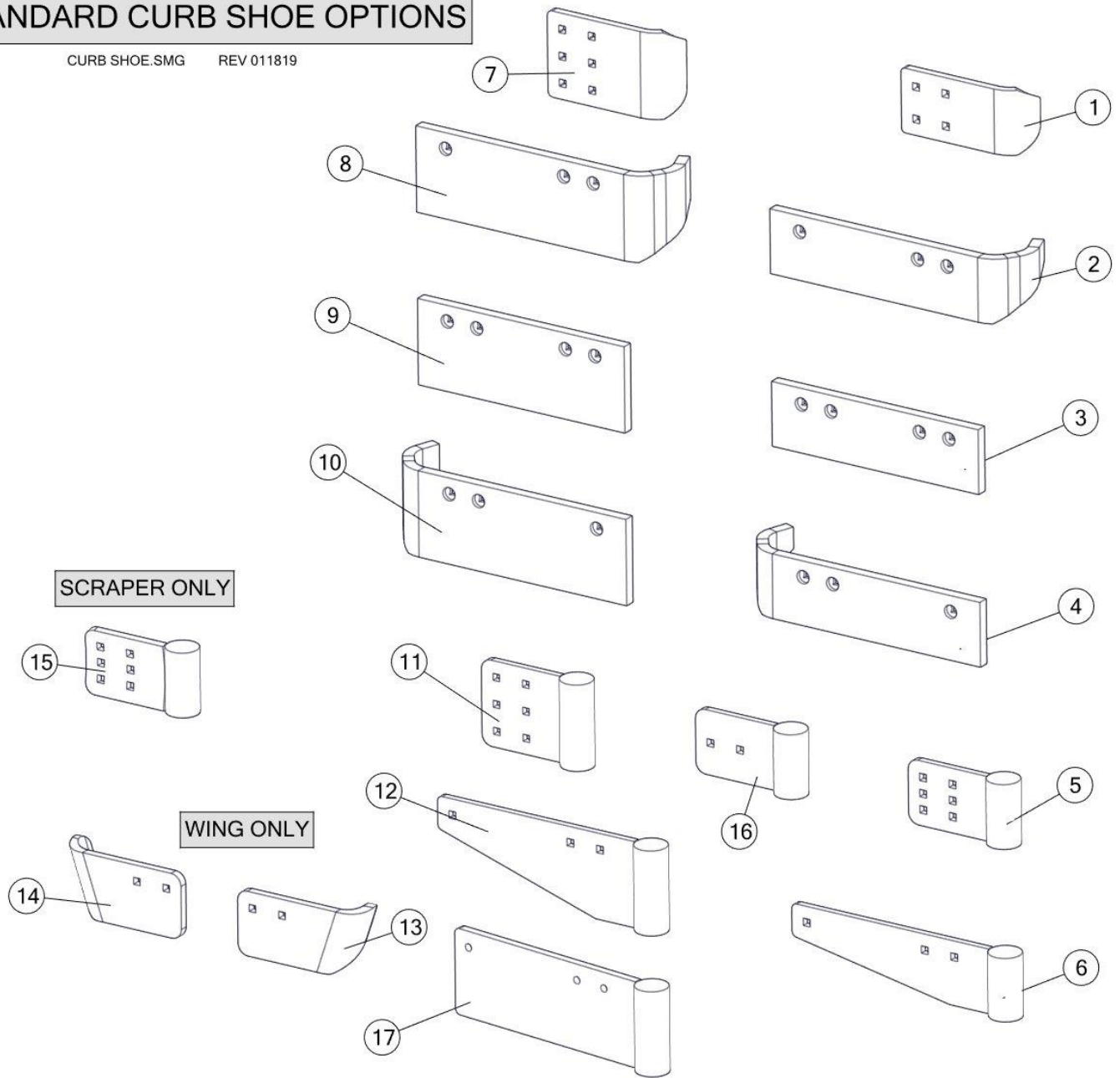


BOM ID	Qty	PartNo (config)	Description (config)
1	1	VBL-BX-3-W	HOLDER BRACKET, 36"
2	1	VBL-BX-4-W	HOLDER BRACKET, 48"
3	4	VBL-XFE-12-2	RUBBER CASING
4	4	VBL-XWS-12	12" CARBIDE SECTION
5	8	VBL-XFE-58-B	RUBBER BUSHING
6	8	VBL-XSB-58	BUSHING
7	8	BON-000659.4	5/8" X 3-1/2" PLOW BOLT
8	8	BON-000307F	5/8-11 HEX FLANGED LOCK NUT
9	1	VBL-XWSHOE-W	FROG PROTECTOR
10	1	BON-003194	UNIVERSAL CARBIDE BULL NOSE 3 HOLE MOUNT, 5/8" X 8"
11	1	VBL-003236	CURB SHOE, WRAP AROUND STYLE
12	1	VBL-10620029	CURB SHOE, BULL NOSE
13	3	BON-CB8450	5/8

QTY'S SHOWN  
AT LEFT ARE FOR  
ONE 48" SECTION

# STANDARD CURB SHOE OPTIONS

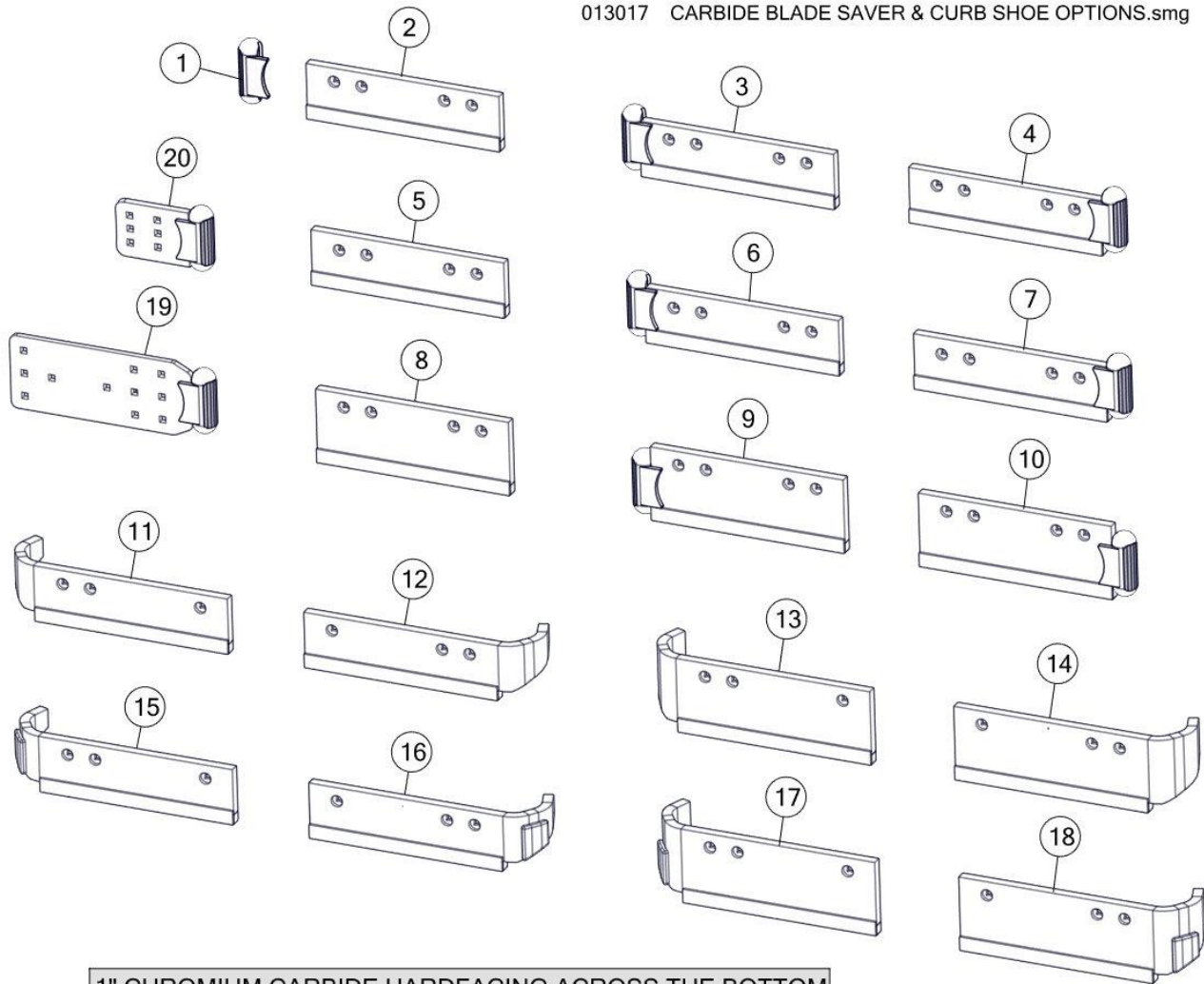
CURB SHOE.SMG REV 011819



BOM ID	PartNo (config)	Qty	Description (config)	Number
1	BON-003233.6	1	WRAP AROUND CURB SHOE, 3/4" X 6"	
2	BON-003126L	1	WRAP AROUND CURB SHOE LEFT HAND, 1" X 6"	
3	BON-003125	1	BLADE SAVER 1" X 6"	
4	BON-003126R	1	WRAP AROUND CURB SHOE RIGHT HAND, 1" X 6"	
5	BON-003231	1	BULL NOSE CURB SHOE, 5/8" X 6"	
6	BON-003231.5	1	BULL NOSE 3 HOLE MOUNT, 5/8" X 6"	
7	BON-003235.6	1	WRAP AROUND CURB SHOE, 3/4" X 8"	
8	BON-003128L	1	WRAP AROUND CURB SHOE LEFT HAND, 1" X 8"	
9	BON-003127	1	BLADE SAVER 1" X 8"	
10	BON-003128R	1	WRAP AROUND CURB SHOE RIGHT HAND, 1" X 8"	
11	BON-003269	1	BULL NOSE CURB SHOE, 5/8" X 8"	
12	BON-003269.5	1	BULL NOSE 3 HOLE MOUNT, 3/4" X 8"	
13	BON-003234.3	1	CURB SHOE, WING TOE, 3/4" X 6"	
14	BON-003234.3-LH	1	CURB SHOE, WING TOE, LEFT HAND 3/4" X 6"	
15	BON-003230	1	BULLNOSE FOR UNDERBODY SCRAPER, 5/8" X 6"	
16	BON-003250	1	BULL NOSE CENTER PUNCH, 5/8" X 6"	
17	BON-003189	1	BULL NOSE 3 HOLE MOUNT, 3/4" X 8"	

# CARBIDE BLADE SAVER & CURB SHOE OPTIONS

013017 CARBIDE BLADE SAVER & CURB SHOE OPTIONS.smg



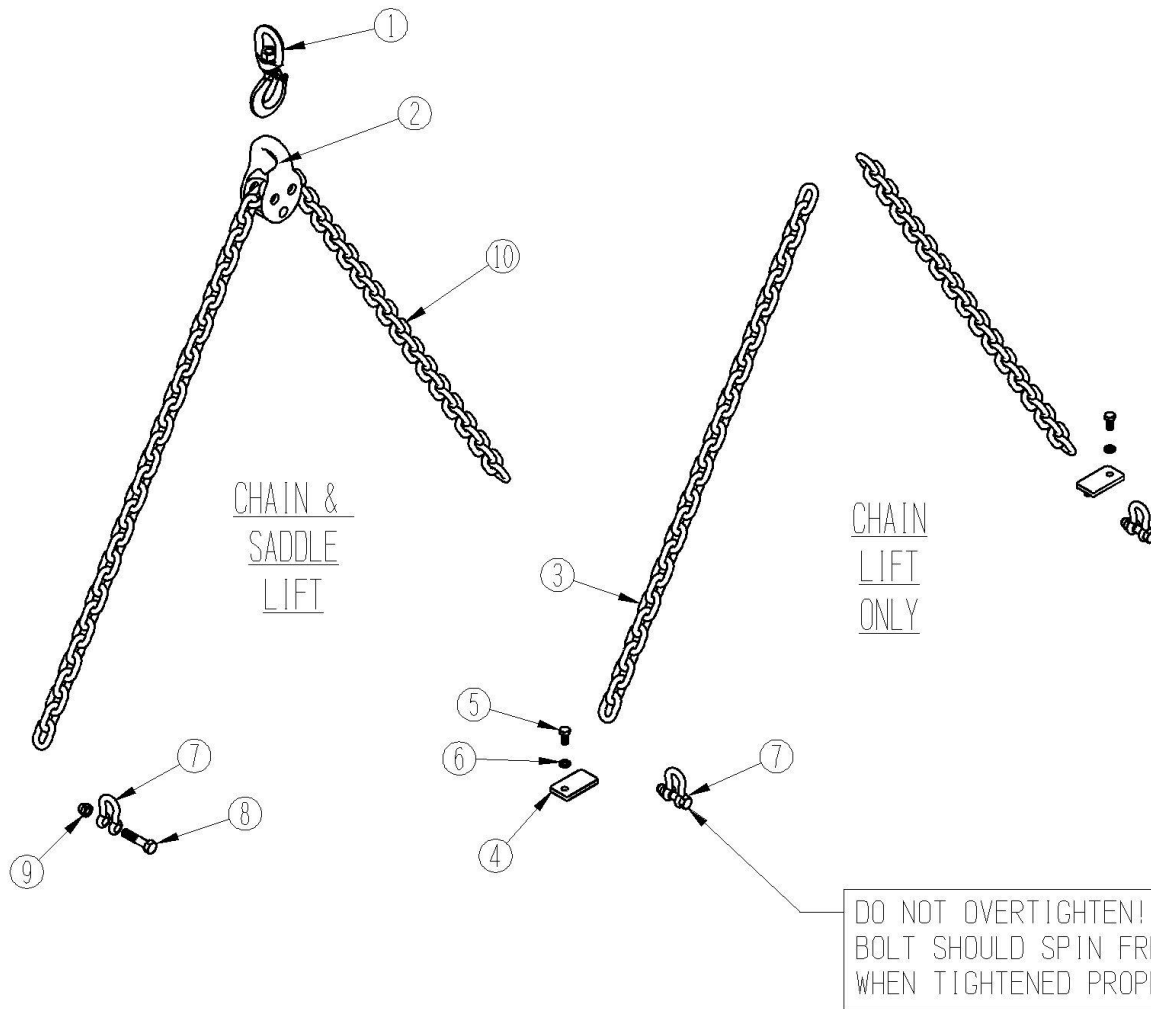
1" CHROMIUM CARBIDE HARDFACING ACROSS THE BOTTOM  
ON ALL ITEMS EXCEPT #19 & #20

BOM ID	Qty	PartNo (config)	Description (config)	Number
1	1	BON-003137	BULLNOSE CASTING CARBIDE WELDMENT	
2	1	BON-003111	6" CARBIDE BLADE SAVER (1-1/2 TOP GAGE)	
3	1	BON-003132R	6" CARBIDE BLADE SAVER & BULLNOSE (1-1/2 GAGE) R.H.	
4	1	BON-003132L	6" CARBIDE BLADE SAVER & BULLNOSE (1-1/2 GAGE) L.H.	
5	1	BON-003112	6" CARBIDE BLADE SAVER (1-3/4 TOP GAGE)	
6	1	BON-003133R	6" CARBIDE BLADE SAVER & BULLNOSE (1-3/4 GAGE) R.H.	
7	1	BON-003133L	6" CARBIDE BLADE SAVER & BULLNOSE (1-3/4 GAGE) L.H.	
8	1	BON-003113	8" CARBIDE BLADE SAVER (1-1/2 TOP GAGE)	
9	1	BON-003134R	8" CARBIDE BLADE SAVER & BULLNOSE (1-1/2 GAGE) R.H.	
10	1	BON-003134L	8" CARBIDE BLADE SAVER & BULLNOSE (1-1/2 GAGE) L.H.	
11	1	BON-003175R	6" CARBIDE WRAP AROUND CURB SHOE (1-1/2 TOP GAGE) R.H.	
12	1	BON-003175L	6" CARBIDE WRAP AROUND CURB SHOE (1-1/2 TOP GAGE) L.H.	
13	1	BON-003177R	8" CARBIDE WRAP AROUND CURB SHOE (1-1/2 TOP GAGE) R.H.	
14	1	BON-003177L	8" CARBIDE WRAP AROUND CURB SHOE (1-1/2 TOP GAGE) L.H.	
15	1	BON-003176R	6" CARBIDE WRAP AROUND CURB SHOE (1-1/2 TOP GAGE) R.H.	
16	1	BON-003176L	6" CARBIDE WRAP AROUND CURB SHOE (1-1/2 TOP GAGE) L.H.	
17	1	BON-003178R	8" CARBIDE WRAP AROUND CURB SHOE (1-1/2 TOP GAGE) R.H.	
18	1	BON-003178L	8" CARBIDE WRAP AROUND CURB SHOE (1-1/2 TOP GAGE) L.H.	
19	1	BON-003194	UNIVERSAL CARBIDE BULL NOSE 3 HOLE MOUNT, 5/8" X 8"	
20	1	BON-003195	BULLNOSE FOR SCRAPER, 5/8" X 6" CARBIDE END	



# CHAIN LIFT ASSEMBLIES

REV 021312 BON-003620-EXP



1	1	BON-003186	HOOK	6	2	BON-000354	1/2" LOCK WASHER
2	1	BON-000984	CHAIN BLOCK (SADDLE)	7	2	BON-000660.5	1/2" ROUND PIN ANCHOR SHACKLE
3	2	BON-001942	1/2" GR43 CHAIN, 4'-6" LONG	8	2	BON-000156	5/8X2-3/4 HEX BOLT
4	2	BON-001315	CHAIN RETAINER	9	2	BON-000322	5/8" HEX LOCK NUT
5	2	BON-000105	1/2X1 HEX BOLT	10	1	BON-001940	1/2" GR43 CHAIN X 9'-0
ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION

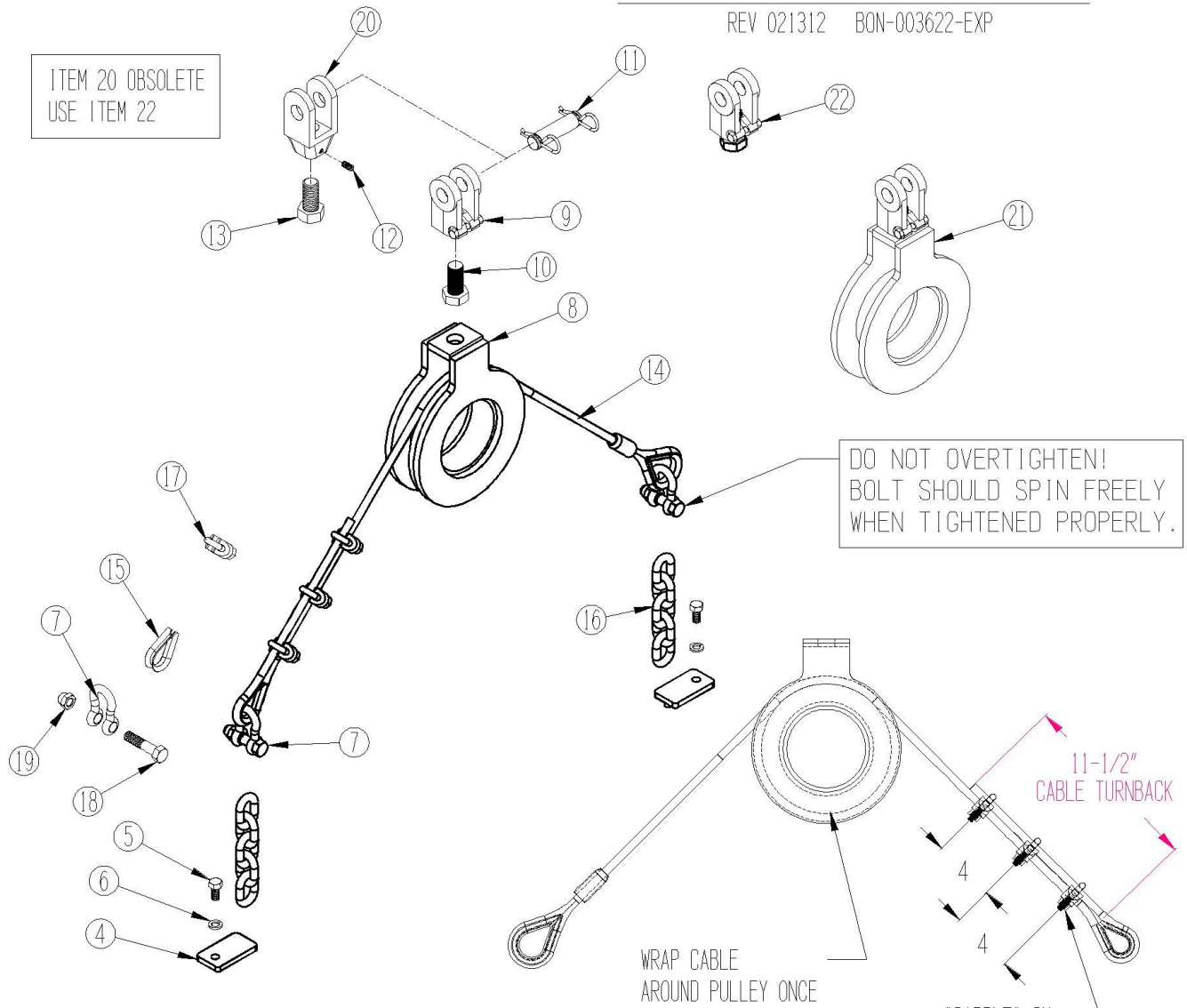


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# CABLE WRAP LIFT ASSEMBLY

REV 021312 BON-003622-EXP

ITEM 20 OBSOLETE  
USE ITEM 22



4-16		BON-003622	ENTIRE ASS'Y WITH RETAINERS & BOLTS				
7-16		BON-001960	ENTIRE ASS'Y LESS RETAINERS & BOLTS	13	1	BON-000234	1"-8TPI X 3" LONG GRADE 5 BOLT
4	2	BON-001315	CHAIN RETAINER	14	1	BON-000683	CABLE
5	2	BON-000105	1/2"X1 HEX BOLT, GRADE 8	15	1	BON-000682	THIMBLE
6	2	BON-000354	1/2" LOCK WASHER	16	2	BON-007140	CHAIN, 5 LINKS
7	2	BON-000660.5	1/2" ROUND PIN ANCHOR SHACKLE	17	3	BON-000681	1/2" WIRE ROPE CLIP
8	1	BON-000983	PULLEY	18	2	BON-000156	5/8"X2-3/4" HEX BOLT, GRADE 8
9	1	BON-000982	CLEVIS	19	2	BON-000322	5/8" HEX LOCK NUT
10	1	BON-000985	1"-14 TPI X 2" GRADE 5 HEX BOLT	20	1	BON-000989	OLD STYLE CLEVIS W/SET SCREW OBSOLETE
11	1	PMC-190400004	CLEVIS PIN WITH KEEPERS	21	1	BON-000979	CABLE PULLEY ASS'Y W/CLEVIS AND PIN
12	1	SSS-3/8-16X3/4	SET SCREW	22	1	BON-000990	CLEVIS WITH BOLT, FINE THREAD
ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION



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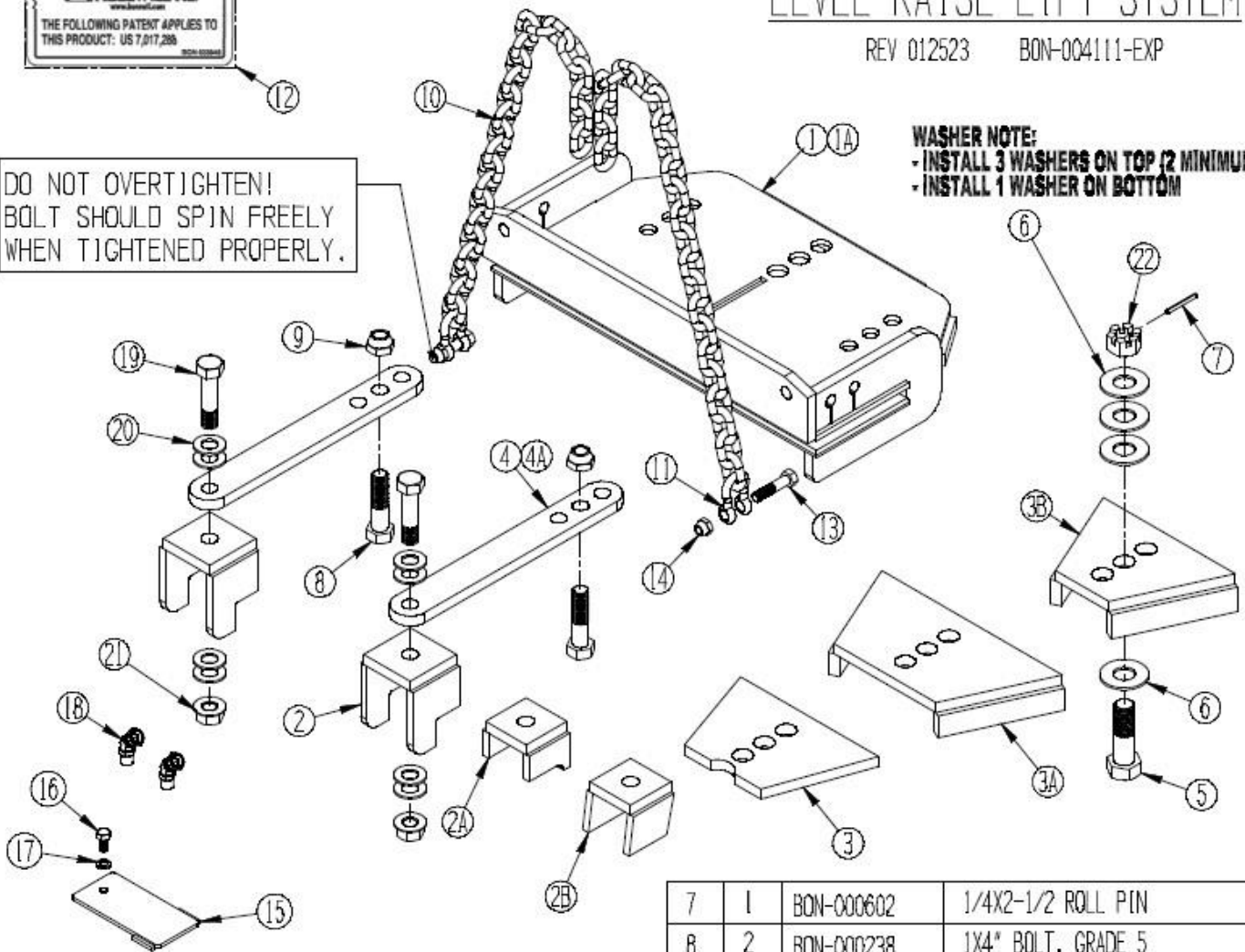


# LEVEL RAISE LIFT SYSTEM

REV 012523 BON-004111-EXP

DO NOT OVERTIGHTEN!  
BOLT SHOULD SPIN FREELY  
WHEN TIGHTENED PROPERLY.

**WASHER NOTE:**  
- INSTALL 3 WASHERS ON TOP (2 MINIMUM)  
- INSTALL 1 WASHER ON BOTTOM



7	1	BON-000602	1/4X2-1/2 ROLL PIN
8	2	BON-000238	1X4" BOLT, GRADE 5
9	2	BON-000310.3	1" HEX LOCK NUT
10	2	BON-001943	LIFT CHAIN, GRADE 43, X 3'-3"
11	2	BON-000660.5	1/2" ROUND PIN ANCHOR SHACKLE
12	1	BON-003846	DECAL, PATENT
13	2	BON-000156	5/8"x2-3/4" HEX BOLT, GRADE 8
14	2	BON-000322	5/8" HEX LOCK NUT
15	2	BON-010106	BANJO SLOT COVER
16	2	BON-000105	1/2"X1" HEX BOLT, GRADE 8
17	2	BON-000354	1/2" LOCK WASHER
18	2	60TA-08X08	45 DEG. ELBOW SWIVEL FITTING
19	2	BON-000238.5	1X3-1/2" BOLT, SPECIAL
20	8	BON-000345SAEH	1" HARDENED FLAT WASHER
21	2	BON-000310F	1" FLANGED LOCK NUT
22	1	BON-000317	1-1/4" HEX SLOTTED NUT ONLY

1	1	BON-004111-11	LEVEL LIFT WLDMT (MX7,MC7,TT7,TZ7)
1A	1	BON-004111-11-COC	LEVEL LIFT WLDMT (TT11,TZ11)
2	2	BON-004111-12	TABLE MOUNT LUG (MX1,MC1,TT1)
2A	2	BON-004109	TABLE MOUNT LUG (MX7,MC7,TT7,TZ7)
2B	2	BON-004125	TABLE MOUNT LUG (TT11,TZ11)
3	1	BON-004111-5	A-FRAME MOUNT PLATE (MX1,MC1,TT1)
3A	1	BON-004108	A-FRAME MOUNT PLATE (MX7,MC7,TT7,TZ7)
3B	1	BON-004126	A-FRAME MOUNT PLATE (TT11,TZ11)
4	2	BON-004111-4	LEVEL LIFT ARM (MX7,MC7,TT7,TZ7)
4A	2	BON-004111-4-COC	LEVEL LIFT ARM (TT11,TZ11)
5	1	BON-000251.5	1-1/4" BOLT ONLY, CROSS DRILLED
6	4	BON-000346HD	1-1/8" HARDENED FLAT WASHER
ITEM	QTY	PART #	DESCRIPTION

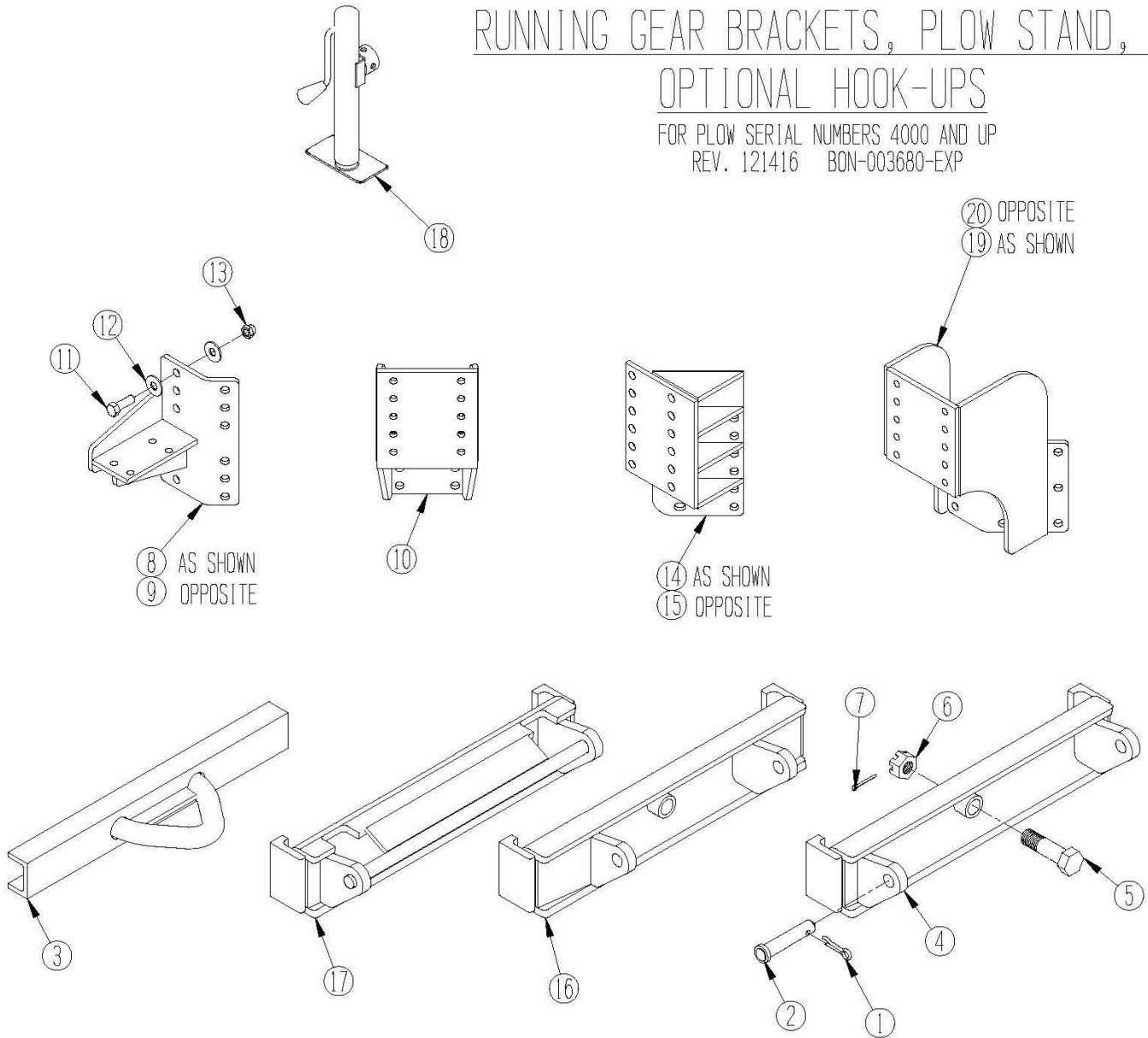
ITEM	QTY	PART #	DESCRIPTION
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# RUNNING GEAR BRACKETS, PLOW STAND, & OPTIONAL HOOK-UPS

FOR PLOW SERIAL NUMBERS 4000 AND UP  
REV. 121416 BON-003680-EXP



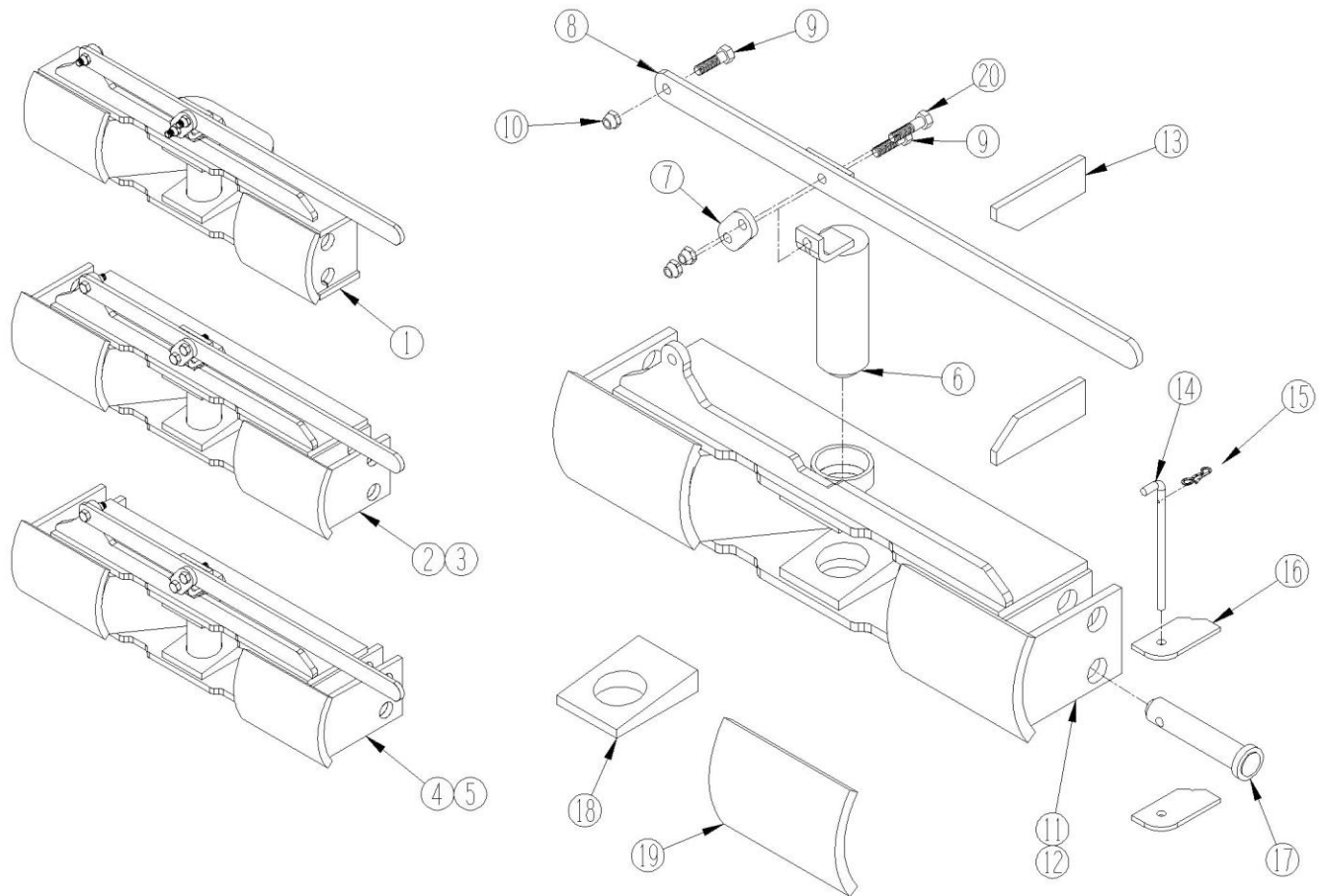
1	7	BON-000292.1	GUEST PIN FOR 1/2" HOLE	11-13	8	BON-000410.2	MOUNTING BOLT ASSEMBLY
2	7	BON-000292.3	PIN, 1-1/4X5-3/4 BUTTON HEAD	11	8	BON-000184	3/4"X2-1/2 HEX BOLT GRADE 8
3	1	BON-001041	29" QUICK ATTACH LOOP	12	16	BON-000342	3/4" FLAT WASHER
4	1	BON-003680	SWIVEL BAR	13	8	BON-000323	3/4" HEX LOCK NUT
5-7	1	BON-003681	SWIVEL BAR BOLT ASSEMBLY	14	1	BON-004006L	MTG. BRACKET FOR STEEL WHEELS LT H.
5	1	BON-003681.1	1-1/2" HEX BOLT ONLY, DRILLED	15	1	BON-004006R	MTG. BRACKET FOR STEEL WHEELS LT H.
6	1	BON-000687	1-1/2" HEX SLOTTED NUT	16	1	BON-003682	SWIVEL BAR, 21" CENTERS
7	1	BON-000386	1/4"X3 COTTER PIN	17	1	BON-002250	SWIVEL BAR, FLINK QL2 & PENNDOT STYLE
8	1	BON-004007L	PNEUMATIC WHEEL ADAPTER BRACKET LT H.	18	1	BON-010024	PLOW STAND, INCLUDES MOUNTING BOSS
9	1	BON-004007R	PNEUMATIC WHEEL ADAPTER BRACKET RT H.	19	1	BON-004013	SNOW WHEEL HEAVY DUTY BRACKET L.H.
10	2	BON-004009	SNOW WHEEL #6509 ADAPTER BRACKET	20	1	BON-004014	SNOW WHEEL HEAVY DUTY BRACKET R.H.
ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION



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# QUICK ATTACH RECEIVERS

FOR RECEIVERS MADE AFTER 2-1-2003  
REV. 061215 BON-001027-EXP



1	AR	BON-001027.1	TRUCK SECTION, WELD IN STYLE	11	AR	BON-002303	STANDARD EAR
2	AR	BON-001027	TRUCK SECTION, STANDARD PIN-UP STYLE	12	AR	BON-002303.5	MONROE EAR
3	AR	BON-001042	ENTIRE ASSEMBLY, STANDARD BONNELL STYLE W/PINS	13	2	BON-001045	LEVER RETAINERS
4	AR	BON-001027.5	TRUCK SECTION, MONROE PIN-UP STYLE	14	2	BON-001043	LOCK PIN
5	AR	BON-001042.1	ENTIRE ASSEMBLY, MONROE STYLE W/PINS	15	2	BON-000402	LOCKING HAIR PIN
6	1	BON-001046	MAIN DROP PIN	16	4	BON-001044	LOCK PIN EARS
7	1	BON-001048	LEVER TO PIN LINK	17	4	BON-000292.3	1-1/4"X5-3/4 PIN
8	1	BON-001047	LEVER	18	AR	BON-002307	REPLACEMENT WEDGE
9	2	BON-000108	1/2"X1-3/4 HEX BOLT, GRADE 8	19	AR	BON-002301	REPLACEMENT CURVED PLATE
10	3	BON-000321	1/2" LOCK NUT, GRADE 5	20	1	BON-000109	1/2"X 2" HEX BOLT, GRADE 8
ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION

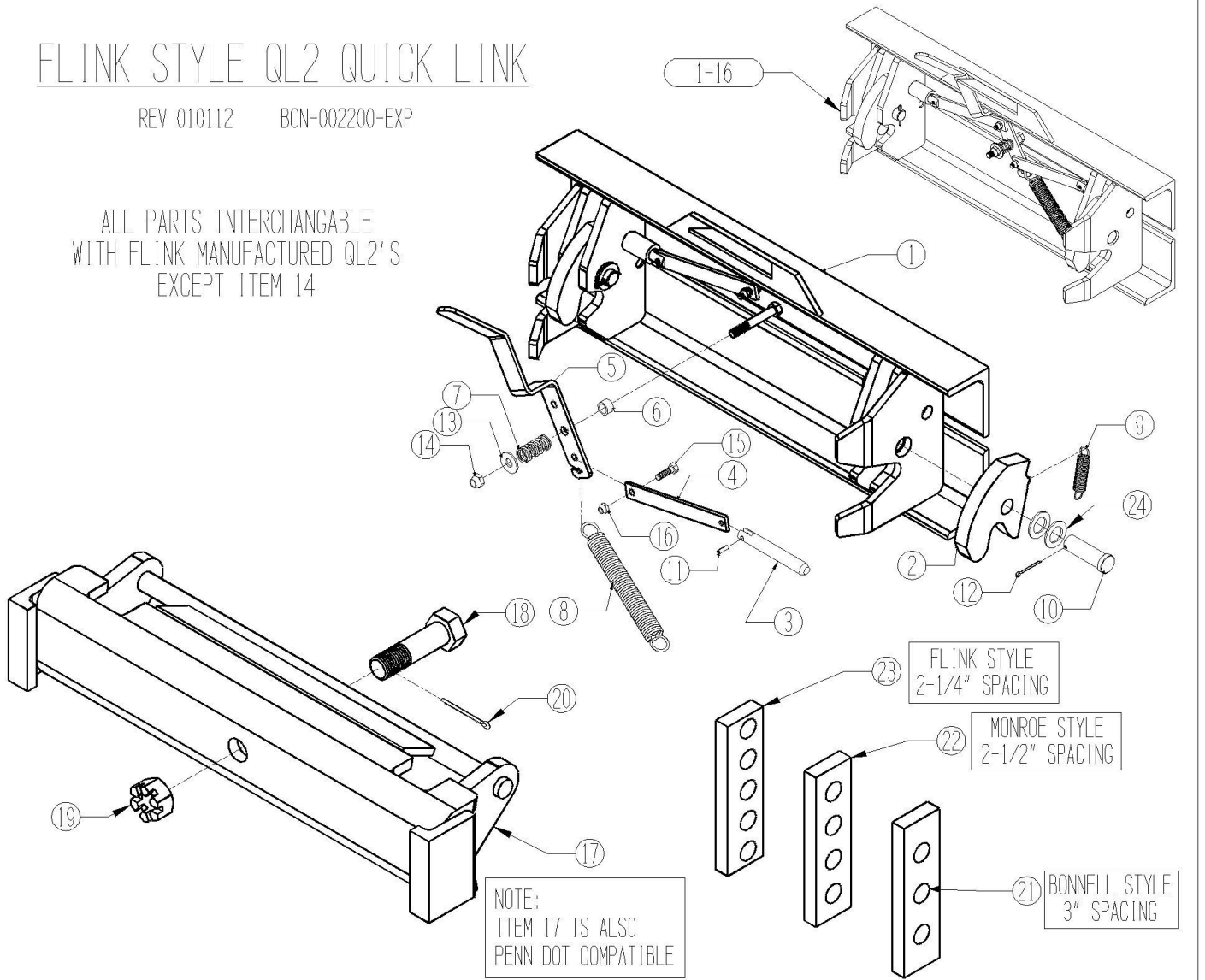


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# FLINK STYLE QL2 QUICK LINK

REV 010112 BON-002200-EXP

ALL PARTS INTERCHANGABLE  
WITH FLINK MANUFACTURED QL2'S  
EXCEPT ITEM 14



1-16	1	BON-002200	COMPLETE ASSEMBLY	13	1	BON-000340	1/2" FLAT WASHER
1	1	BON-002201	QL2 RECEIVER MAIN WELDMENT	14	1	BON-000321	1/2" HEX LOCK NUT
2	2	BON-002202	LATCH PLATE	15	2	BON-000058	3/8" X 1-1/4" HEX BOLT
3	2	BON-002203	BULLET PIN	16	2	BON-000319	3/8" HEX LOCK NUT
4	2	BON-002204	PIN LINKAGE	17	1	BON-002250	QL2 SWIVEL BAR FLINK STYLE
5	1	BON-002205	LATCH LEVER	18-20	1	BON-003681	SWIVEL BAR BOLT ASSEMBLY
6	1	BON-002206	HANDLE SPACER	18	1	BON-003681.1	1-1/2" HEX BOLT ONLY, CROSS DRILLED
7	1	BON-002207	COMPRESSION SPRING	19	1	BON-000687	1-1/2" HEX SLOTTED NUT
8	1	BON-002208	HANDLE TENSION SPRING	20	1	BON-000386	1/4"X3 COTTER PIN
9	2	BON-002209	LATCH PLATE TENSION SPRING	21	AR	BON-002226	ADAPTER PLATE, BONNELL
10	2	BON-002210	1-1/4" X 4-1/4" PIN	22	AR	BON-002227	ADAPTER PLATE, MONROE
11	2	BON-002211	1/4" X 3/4" ROLL PIN	23	AR	BON-002225	ADAPTER PLATE, FLINK
12	2	BON-000379	1/4" X 2" COTTER PIN	24	4	WES-91192	1" SAE WASHER
ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION



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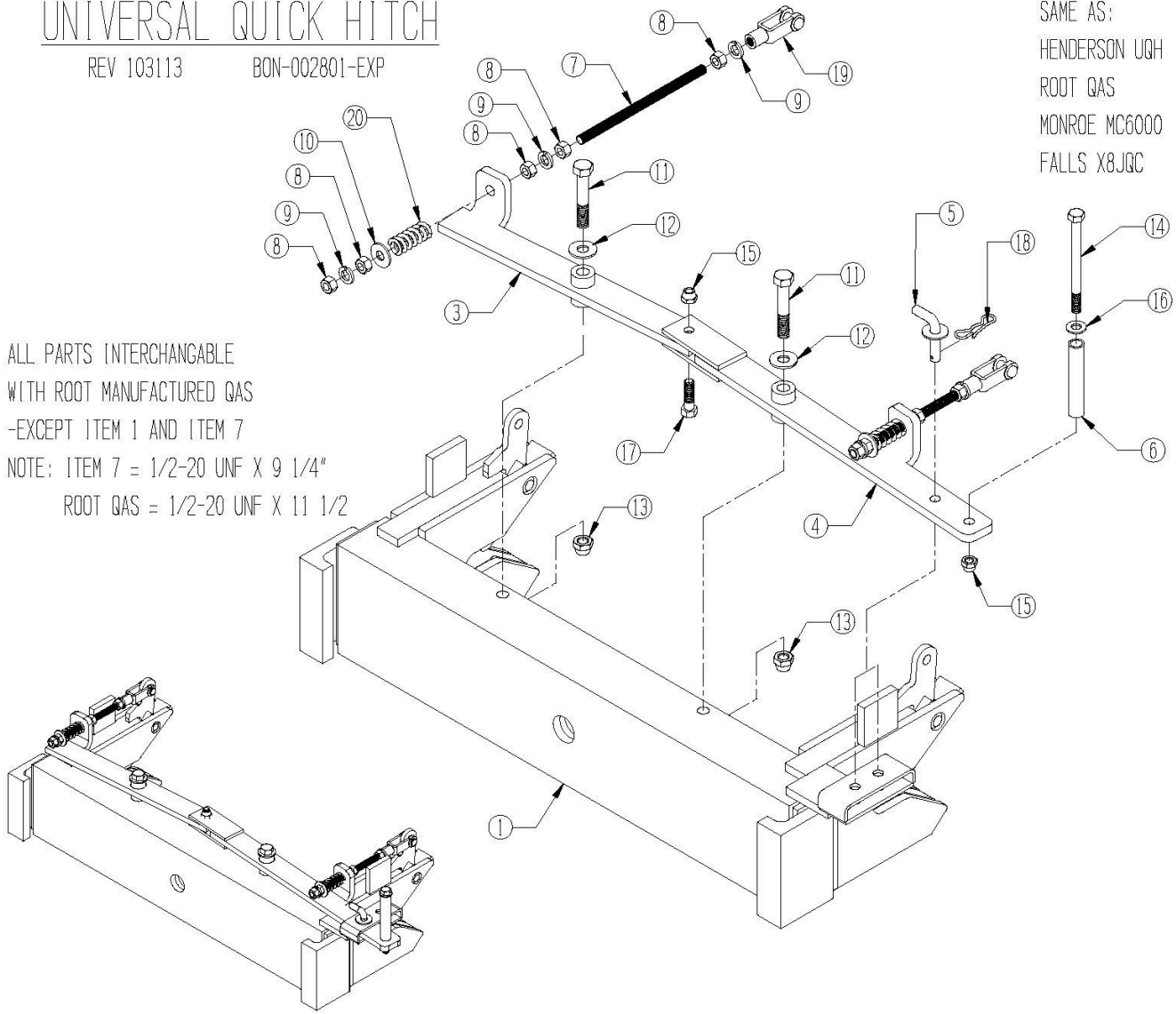
# UNIVERSAL QUICK HITCH

REV 103113

BON-002801-EXP

SAME AS:  
HENDERSON UQH  
ROOT QAS  
MONROE MC6000  
FALLS X8JGC

ALL PARTS INTERCHANGABLE  
WITH ROOT MANUFACTURED QAS  
-EXCEPT ITEM 1 AND ITEM 7  
NOTE: ITEM 7 = 1/2-20 UNF X 9 1/4"  
ROOT QAS = 1/2-20 UNF X 11 1/2"



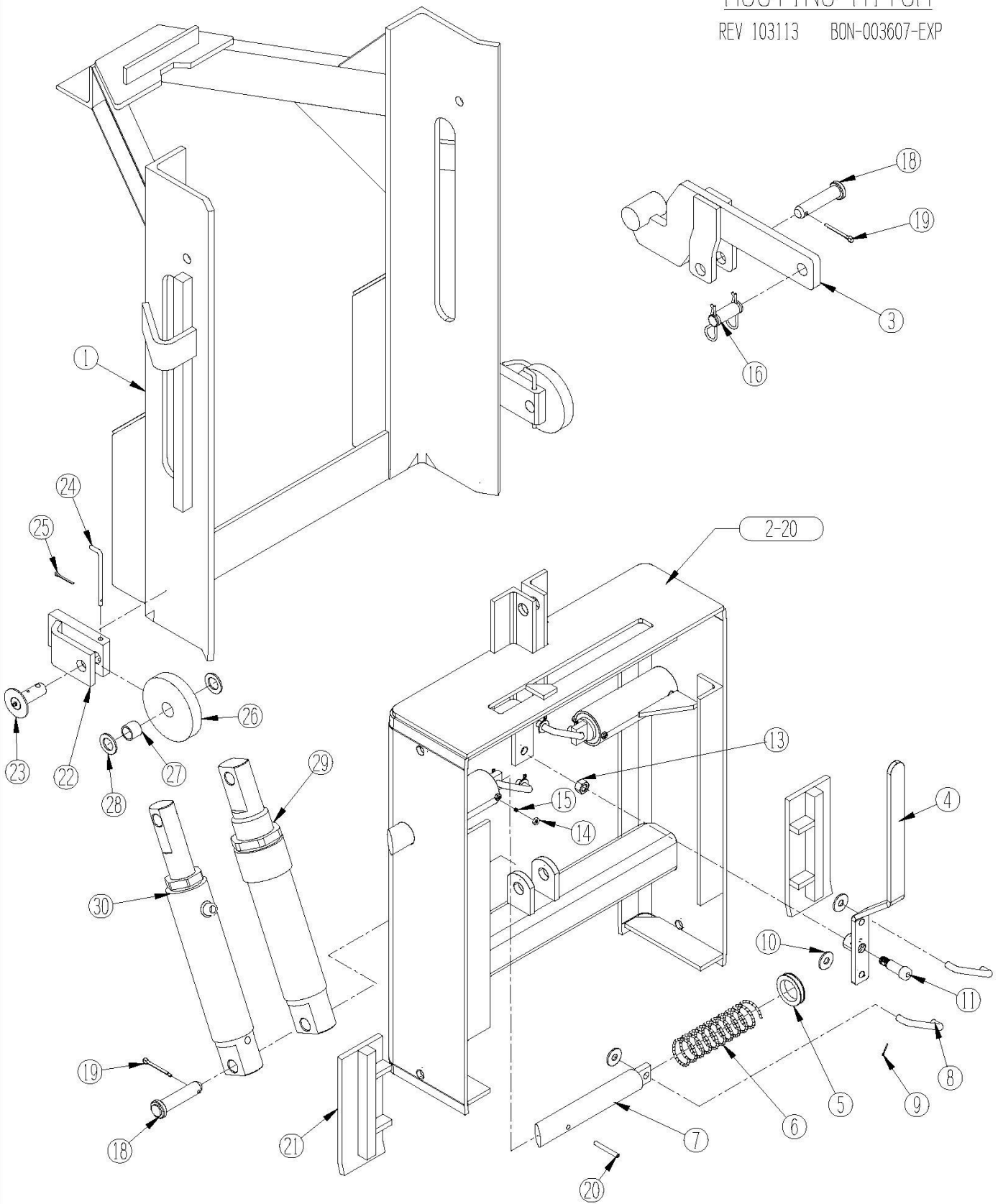
1-21	1	BON-002801	COMPLETE ASSEMBLY				
1	1	BON-002802	UQH MAIN WELDMENT	12	2	BON-000341	5/8 FLATWASHER
3	1	BON-002804	UQH RIGHT LEVER WELDMENT	13	2	BON-000322	5/8-11UNC HEX LOCK NUT
4	1	BON-002803	UQH LEFT LEVER WELDMENT	14	1	BON-000121	1/2-13 UNC X 6 HEX BOLT
5	1	BON-002810	UQH PULL PIN WELDMENT	15	2	BON-000321	1/2-13 UNC HEX LOCK NUT
6	1	BON-003227	CRANK HANDLE PIPE	16	1	BON-000340.5	1/2 SAE FLAT WASHER
7	2	BON-002808	1/2-20 THREADED ROD	17	1	BON-000108	1/2-13 UNC X 1 3/4 HEX BOLT
8	10	BON-000305.1	1/2-20 UNF HEX NUT	18	1	BON-000403	LOCKING HAIR PIN
9	6	BON-000354	1/2 LOCK WASHER	19	2	BON-002809	YOKE
10	2	BON-000340	1/2 WIDE FLATWASHER	20	2	BON-002807	SPRING
11	2	BON-000159	5/8-11 UNC X 3 1/2 HEX BOLT	8-10,19-20	2	BON-002806	SPRING ROD ASSEMBLY
ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION



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PHONE: 800-851-9664

# HUSTING HITCH

REV 103113 BON-003607-EXP



DIXON, ILLINOIS  
PHONE: 800-851-9664



## HUSTING HITCH

ITEM #	PART #	QTY.	DESCRIPTION
1	BON-003607	1	29" PLOW SECTION
	BON-003608	1	34" PLOW SECTION
2-20	BON-003609	1	29" TRUCK SECTION
	BON-003610	1	34" TRUCK SECTION
3	KAS-000925	1	LIFT ARM
4	BON-003605	1	RELEASE HANDLE, 29" & 34", 2013 & NEWER "CLOSED TOP" HITCHES
	KAS-000922	1	29" RELEASE HANDLE 2012 & OLDER "OPEN TOP" HITCHES
	KAS-000979	1	34" RELEASE HANDLE 2012 & OLDER "OPEN TOP" HITCHES
5	KAS-000939	2	SPRING RETAINER
6	KAS-000943	2	SPRING
7	KAS-000930	2	LATCH PIN
8	KAS-000942	2	29" CONNECTOR LINK
	KAS-000981	2	34" CONNECTOR LINK
9	BON-000369	4	3/32"X1-1/2 COTTER PIN
10	BON-000340.5	4	1/2" FLAT WASHER
11	KAS-000933.1	1	STEP BOLT
13	BON-000307	1	5/8" HEX NUT
14	KAS-000723	4	5/16" FINE THREAD HEX JAM NUT
15	KAS-000958	4	5/16" X 1/2" FINE THREAD SET SCREW
16	PMC-190400005	1	LIFT ARM PIN
18	BON-000991	2	1"X4-1/4 PIN
19	BON-000385	2	1/4"X2 COTTER PIN
20	KAS-000741	2	ROLL PIN

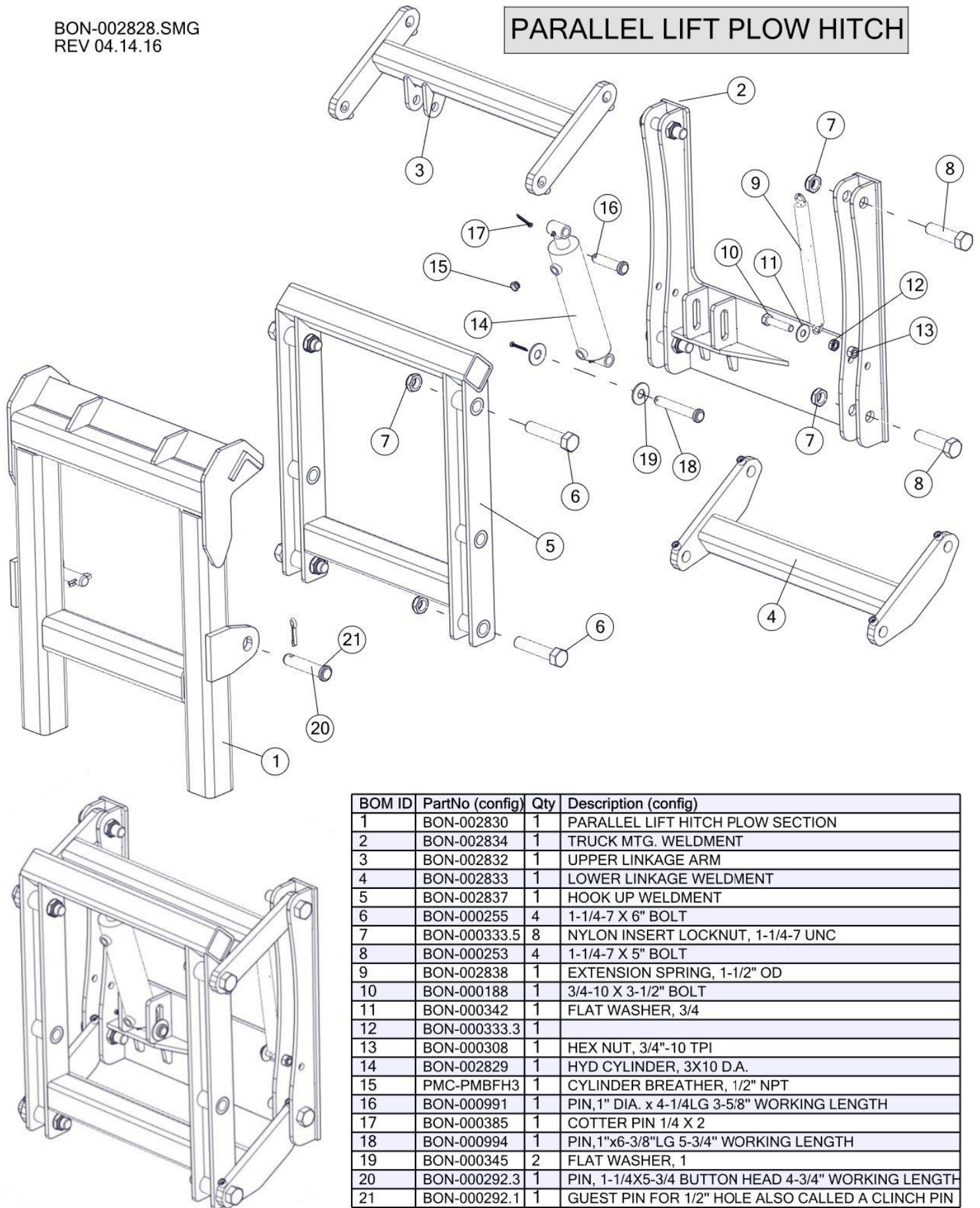
## HUSTING ROLLER KIT (OPTIONAL)

21-28	BON-003614	1	ROLLER KIT
21	BON-003616L/R	2	ROLLER PAD, LEFT OR RIGHT
22-28	BON-003614.2	2	ROLLER
22	KAS-000588	2	ROLLER BASE
23	KAS-009587	2	AXLE PIN
24	KAS-002084	2	LOCK PIN
25	BON-000371	2	COTTER PIN
26	KAS-009578	2	WHEEL
27	KAS-006251	2	BUSHING
28	KAS-002536	4	FLAT WASHER

## HUSTING LIFT CYLINDERS

29	BON-003604	AR	CYLINDER, 3X10 SA HUSTING RAM
30	BON-003604.5	AR	CYLINDER,3X10RAM,HUSTING,DA FOR A HUSTING PLOW FRAME
30	BON-003604.5SPL	AR	CYLINDER,3X10 RAM, DA FOR A HUSTING PLOW FRAME WITH LIVE END PORT IN LINE WITH PIN EYE AND DEAD END PORT 90 DEGREE TO PIN EYE

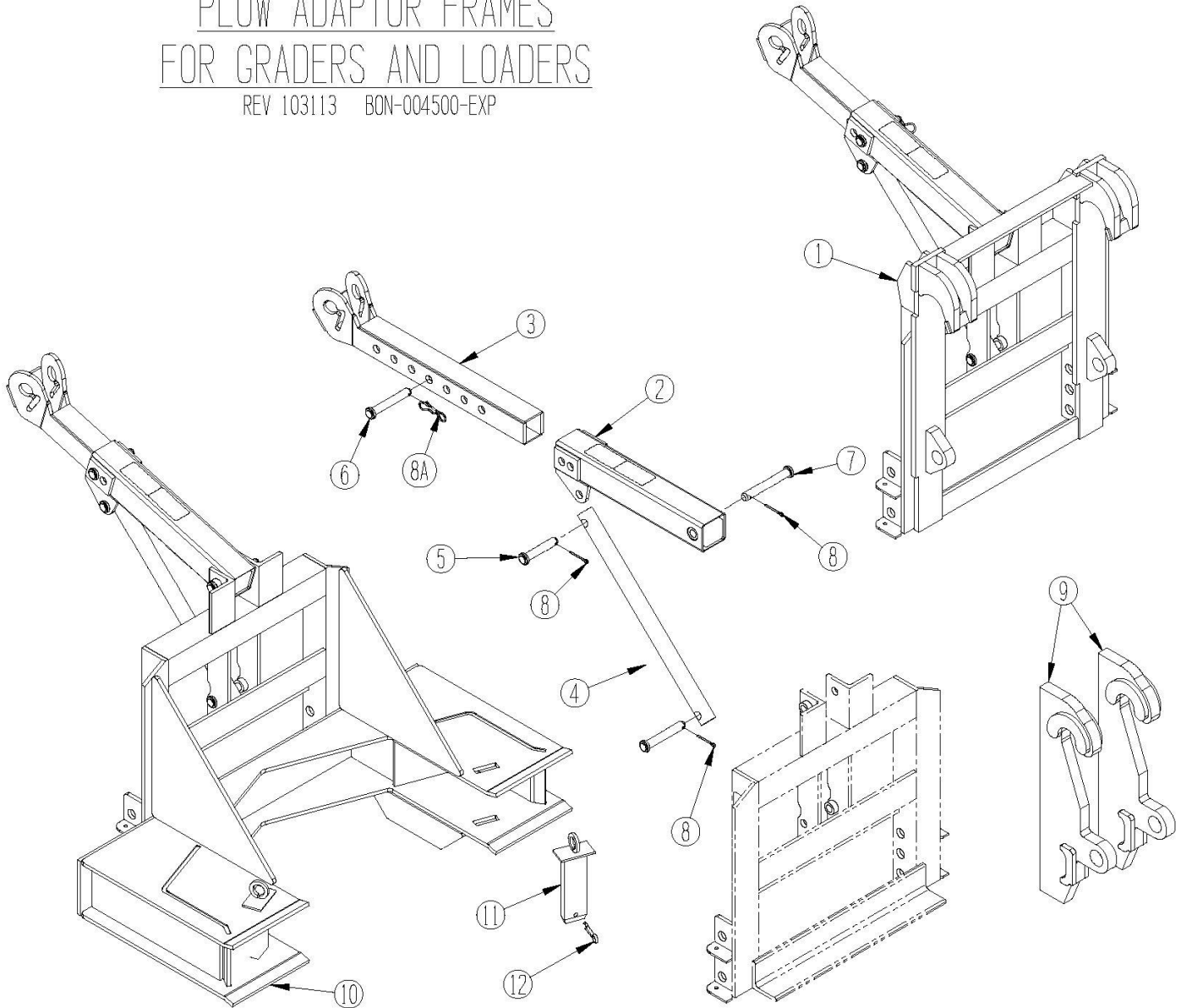
# PARALLEL LIFT PLOW HITCH



BOM ID	PartNo (config)	Qty	Description (config)
1	BON-002830	1	PARALLEL LIFT HITCH PLOW SECTION
2	BON-002834	1	TRUCK MTG. WELDMENT
3	BON-002832	1	UPPER LINKAGE ARM
4	BON-002833	1	LOWER LINKAGE WELDMENT
5	BON-002837	1	HOOK UP WELDMENT
6	BON-000255	4	1-1/4-7 X 6" BOLT
7	BON-000333.5	8	NYLON INSERT LOCKNUT, 1-1/4-7 UNC
8	BON-000253	4	1-1/4-7 X 5" BOLT
9	BON-002838	1	EXTENSION SPRING, 1-1/2" OD
10	BON-000188	1	3/4-10 X 3-1/2" BOLT
11	BON-000342	1	FLAT WASHER, 3/4
12	BON-000333.3	1	
13	BON-000308	1	HEX NUT, 3/4"-10 TPI
14	BON-002829	1	HYD CYLINDER, 3X10 D.A.
15	PMC-PMBFH3	1	CYLINDER BREATHER, 1/2" NPT
16	BON-000991	1	PIN, 1" DIA. x 4-1/4LG 3-5/8" WORKING LENGTH
17	BON-000385	1	COTTER PIN 1/4 X 2
18	BON-000994	1	PIN, 1"x6-3/8"LG 5-3/4" WORKING LENGTH
19	BON-000345	2	FLAT WASHER, 1
20	BON-000292.3	1	PIN, 1-1/4X5-3/4 BUTTON HEAD 4-3/4" WORKING LENGTH
21	BON-000292.1	1	GUEST PIN FOR 1/2" HOLE ALSO CALLED A CLINCH PIN

# PLOW ADAPTOR FRAMES FOR GRADERS AND LOADERS

REV 103113 BON-004500-EXP



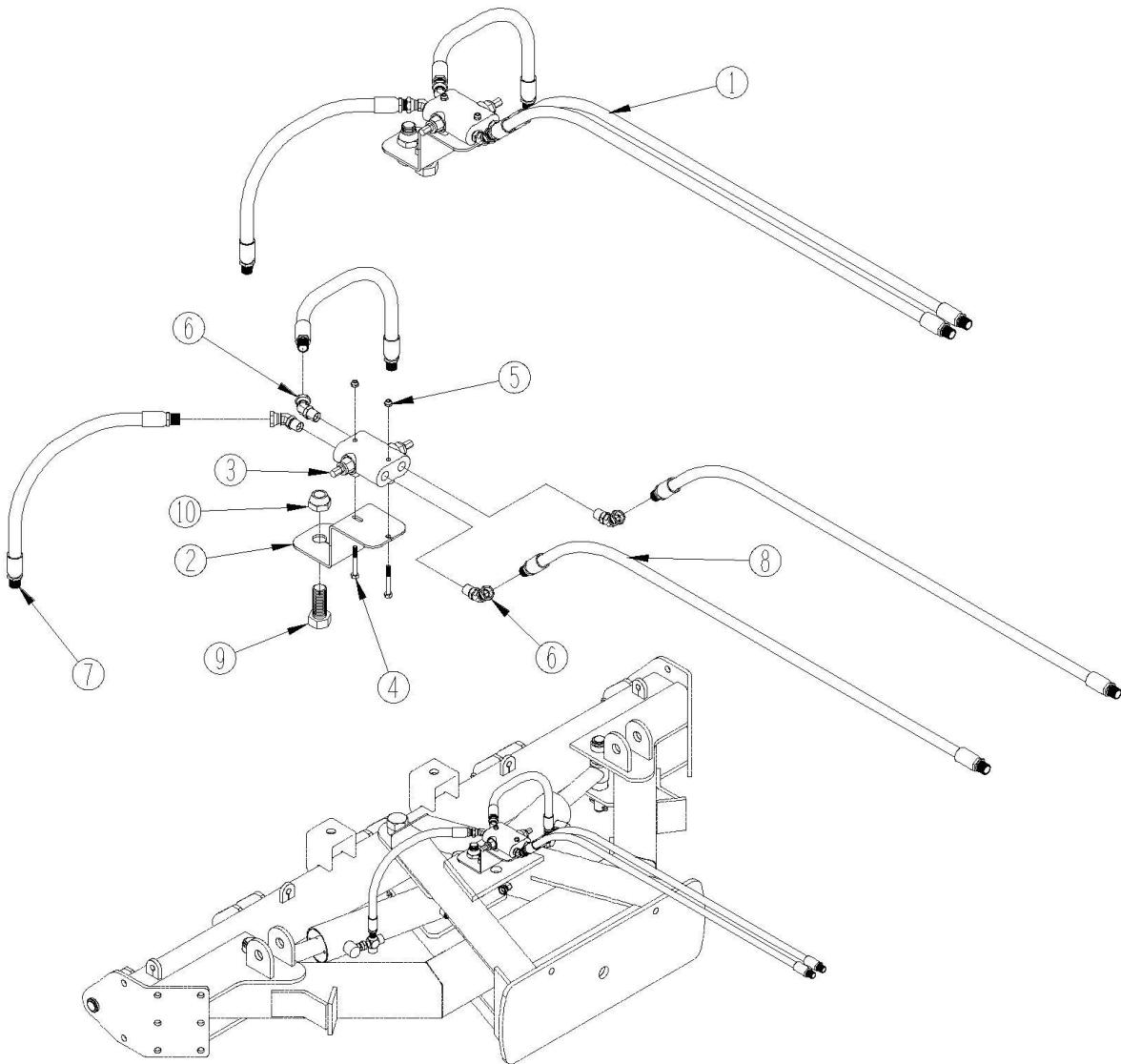
1	AR	BON-004500	ADAPTOR ASSEMBLY, BALDERSON	9	BON-003572	BALDERSON ADAPTOR HOOKS
	AR	BON-004501	ADAPTOR ASSEMBLY, JRB-416		JRB-90W00003	JRB HOOKS - FITS JD 544, 624
	AR	BON-004502	ADAPTOR ASSEMBLY, JRB-418		JRB-418	JRB HOOKS - FITS JD 644
2	1	BON-003202.4	OUTER LIFT ARM	10	CAT-103-8613	CAT 1T38, 1T62G, 950 CUSTOM
3	1	BON-003202.2	INNER LIFT ARM		CAT-113-2677	CAT 1T12-1T28G, 924G, 416B-420D, 430D-446B
4	1	BON-003158.6-10	STIFF BAR		CAT-121-8908	CAT 916, 918, 924, 926-928, 938
5	1	BON-000993	PIN, 1" X 5-1/4" W/L		CAT-243-4596	CAT 950B-962G, 966D-972G
6	2	BON-000994	PIN, 1" X 6-3/8" W/L		BON-003158.6	SCARIFIER ADAPTOR ASSEMBLY
7	1	BON-000995	PIN, 1" X 7-1/2" W/L	10A	BON-003158.5	SCARIFIER SOCKET ONLY
8	3	BON-000385	1/4X2 COTTER PIN	11	BON-003185	SCARIFER MOUNTING PIN
8A	1	BON-000404	LOCKING HAIR PIN	12	BON-000292.1	GUEST PIN
ITEM	QTY	PART #	DESCRIPTION	ITEM	PART #	DESCRIPTION



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# CUSHION KIT - TUBE TABLE WITHOUT LRLS

021611 BON-004143-EXP



ITEM	QTY	PART #	DESCRIPTION
1	1	BON-004143	COMPLETE KIT
2	1	BON-004142	CUSHION VALVE BRACKET
3	1	DRV-4HH	CUSHION VALVE
4	2	BON-000036	5/16"-18TPI X 2-1/2" GR. 8 BOLT
5	2	BON-000320	5/16"-18TPI HEX LOCK NUT
6	4	60TA 08X08	MAKE PIEP X 45 DEG FEMPIPE SWVL 1/2" NPTF TO 1/2" NPSM
7	2	BON-004132	3/8" HOSE X 25" LONG
8	2	BON-001924	3/8" HOSE X 50" LONG
9	2	BON-000232	1"-8TPI X 2 1/2" LONG GRADE 5 BOLT
10	2	BON-000310.3	1"-8TPI NYLON HEX LOCK NUT GRADE 2 NUT

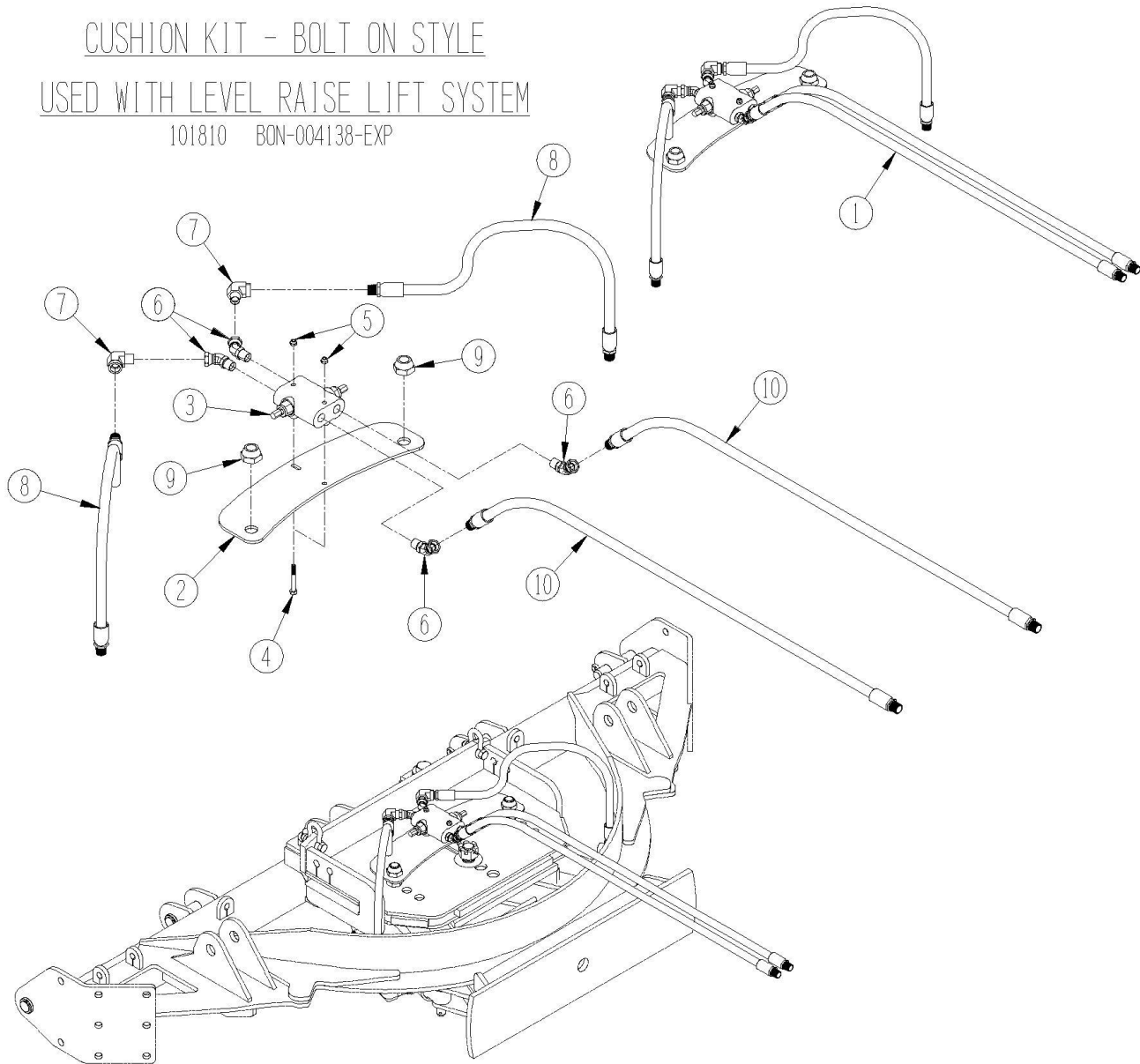


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PHONE: 800-851-9664

# CUSHION KIT - BOLT ON STYLE

USED WITH LEVEL RAISE LIFT SYSTEM

101810 BON-004138-EXP



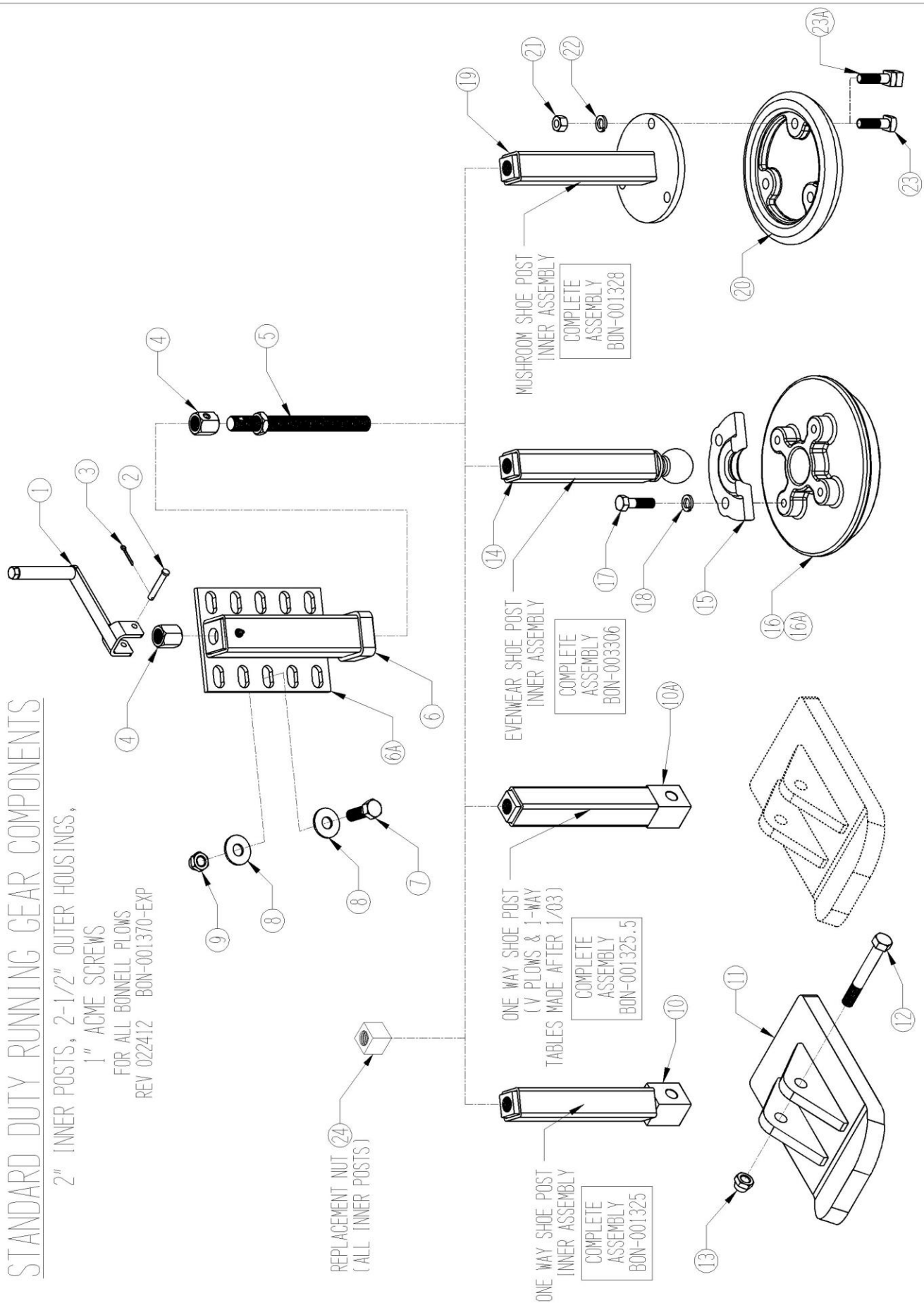
ITEM	QTY	PART #	DESCRIPTION
1	1	BON-004138	CUSHION KIT - METRO MC7 BOLT ON
2	1	BON-004130	CUSHION VALVE BRACKET - BOLT ON
3	1	DRV-4HH	CUSHION VALVE SET
4	2	BON-000036	5/16"-18TPI X 2 1/2" GR.8 BOLT
5	2	BON-000320	5/16"-18TPI HEX LOCK NUT
6	4	60TA 08X08	MALE PIPE X 45DEG FEMPIPE SWVL 1/2 NPTF TO 1/2 NPSM
7	2	25UG 08	MALE PIPE X 90DEG FEMALE PIPE 1/2 NPTF
8	2	BON-004133	1/2" HOSE X 34-1/2" LONG
9	2	BON-000310.3	1"-8TPI NYLON HEX LOCK NUT
10	2	BON-001924	1/2" HOSE X 51" LONG



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# STANDARD DUTY RUNNING GEAR COMPONENTS

2" INNER POSTS, 2-1/2" OUTER HOUSINGS,  
 1" ACME SCREWS  
 FOR ALL BONNELL PLOWS  
 REV 022412 BON-001370-EXP



DIXON, ILLINOIS  
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## STANDARD DUTY RUNNING GEAR COMPONENTS

ITEM #	PART #	QTY.	DESCRIPTION
1-6,10-12	BON-001325	2 PER PLOW	OLD STYLE (PLOWES MADE BEFORE 1/03) COMPLETE STANDARD DUTY ONE-WAY SHOE ASSEMBLY, LESS MOUNTING BOLTS
1-6, 10A-12	BON-001325.5	2 PER PLOW	NEW STYLE (PLOWES MADE AFTER 1/03) COMPLETE STANDARD DUTY ONE-WAY SHOE ASSEMBLY, LESS MOUNTING BOLTS
1-6,14-18	BON-003306	2 PER PLOW	COMPLETE STANDARD DUTY EVEN WEAR SHOE ASSEMBLY, LESS MOUNTING BOLTS
1-6,19-23	BON-001328	2 PER PLOW	COMPLETE STANDARD DUTY MUSHROOM SHOE ASSEMBLY, LESS MOUNTING BOLTS
1	BON-001374	1	STANDARD DUTY CRANK HANDLE
2	BON-000293	1	3/4"X2-1/2 CLEVIS PIN
3	BON-000377	1	5/32"X1 COTTER PIN
4	BON-001340	1	1" ACME TOP NUT (W/O CROSS DRILL)
4,5	BON-001360	1	1" ACME SCREW ASSEMBLY, DRILLED
6	BON-001370	1	OUTER HOUSING
6A	BON-001405	AR	MOUNTING PLATE
7-9	BON-000410.2	4	MOUNTING BOLT ASSEMBLY
7	BON-000183	4	3/4"X2-1/4 HEX BOLT, GRADE 8
8	BON-000342	8	3/4" FLAT WASHER
9	BON-000323	4	3/4" HEX LOCK NUT

### STANDARD DUTY ONE WAY SHOE COMPONENTS

10	BON-001371	1	INNER POST, OLD STYLE, FOR PLOWES (MADE BEFORE 1/03)
10A	BON-001380	1	INNER POST, V-PLOW, & PLOWES AFTER 1/03
11	BON-000980	1	ONE-WAY SHOE
12,13	BON-000407	1	SHOE BOLT ASSEMBLY
12	BON-000193	1	3/4"X5-1/2 HEX BOLT GRADE 8
13	BON-000323	1	3/4" HEX LOCK NUT

### STANDARD DUTY EVENWEAR SHOE COMPONENTS

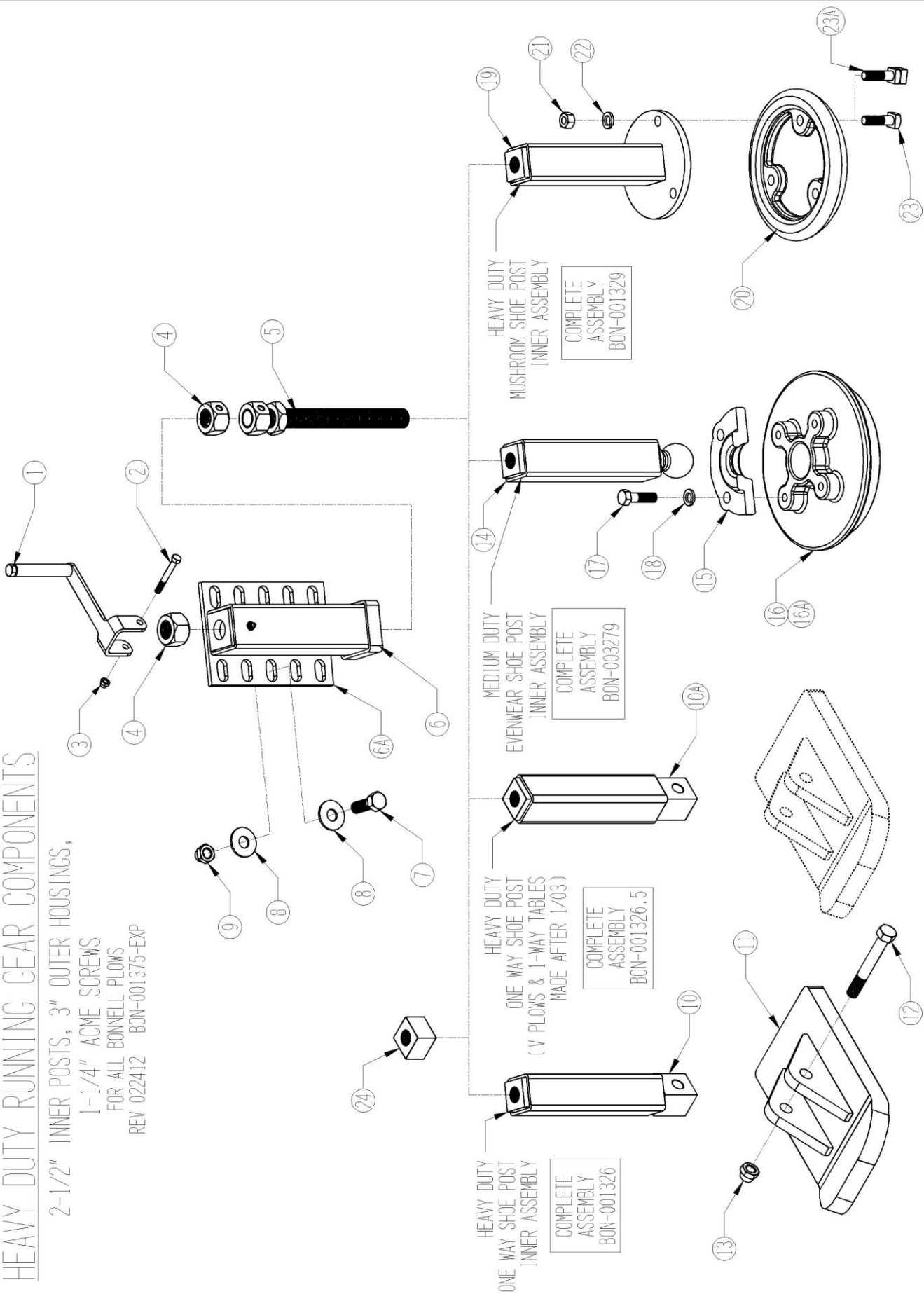
14	BON-003305	1	INNER POST
15-18	BON-003465	1	STANDARD SHOE KIT WITH SPLIT PLATES AND BOLTS
15	BON-003268	2	SPLIT SHOE PLATE
16	BON-003267	1	STANDARD EVEN-WEAR SHOE
16A	BON-003267-CARB	1	CARBIDE EVEN WEAR SHOE
17	BON-000154	4	5/8"X2-1/4 HEX BOLT, GRADE 8
18	BON-000356	4	5/8" SPLIT LOCK WASHER

### STANDARD DUTY MUSHROOM SHOE COMPONENTS

19	BON-001372	1	INNER POST
20	BON-000981.1H	1	MUSHROOM SHOE (HARDENED)
21-23	BON-000410.1	3	SHOE BOLT ASSEMBLY
21	BON-000307	3	5/8" HEX NUT
22	BON-000356	3	5/8" SPLIT LOCK WASHER
23	BON-000290	3	5/8"X2-1/4 SQUARE HEAD BOLT
23A	BON-000290.5	3	5/8" X 2-1/4 SQUARE HEAD BOLT, CARBIDE
24	BON-001342	AR	1"-5 ACME BLOCK NUT

# HEAVY DUTY RUNNING GEAR COMPONENTS

2-1/2" INNER POSTS, 3" OUTER HOUSINGS,  
 1-1/4" ACME SCREWS  
 FOR ALL BONNELL PLOWS  
 REV 022412 BON-001375-EXP



DIXON, ILLINOIS  
 PHONE: 800-851-9664



## HEAVY DUTY RUNNING GEAR COMPONENTS

ITEM #	PART #	QTY.	DESCRIPTION
1-6,10-13	BON-001326	2 PER PLOW	OLD STYLE (PLOW MADE BEFORE 1/03) COMPLETE HEAVY DUTY ONE-WAY SHOE ASSEMBLY, LESS MOUNTING BOLTS
1-6, 10A-13	BON-001326.5	2 PER PLOW	NEW STYLE (PLOW MADE AFTER 1/03) COMPLETE HEAVY DUTY ONE-WAY SHOE ASSEMBLY, LESS MOUNTING BOLTS
1-6,19-23	BON-001329	2 PER PLOW	COMPLETE HEAVY DUTY MUSHROOM SHOE ASSEMBLY, LESS MOUNTING BOLTS
1	BON-001379	1	HEAVY DUTY CRANK HANDLE
2	BON-000066	1	3/8"X3-1/4 HEX BOLT, GRADE 8
3	BON-000319	1	3/8" HEX LOCK NUT
4	BON-001344	1	1-1/4" ACME TOP NUT (W/O CROSS DRILL)
4,5	BON-001361	1	1-1/4" ACME SCREW ASSEMBLY, DRILLED
6	BON-001375	1	OUTER HOUSING
6A	BON-001405	AR	MOUNTING PLATE, BONNELL STYLE
	BON-001405-1	AR	MOUNTING PLATE, WAUSAU STYLE
7-9	BON-000410.2	4	MOUNTING BOLT ASSEMBLY
7	BON-000183	4	3/4"X2-1/4 HEX BOLT, GRADE 8
8	BON-000342	8	3/4" FLAT WASHER
9	BON-000323	4	3/4" HEX LOCK NUT
<b>MEDIUM DUTY EVENWEAR SHOE COMPONENTS</b>			
14	BON-003278	1	INNER POST
15-18	BON-003465	1	STANDARD SHOE KIT WITH SPLIT PLATES AND BOLTS
15	BON-003268	2	SPLIT SHOE PLATE
16	BON-003267	1	STANDARD EVEN-WEAR SHOE
16A	BON-003267-CARB	1	CARBIDE EVEN WEAR SHOE
17	BON-000154	4	5/8"X2-1/4 HEX BOLT, GRADE 8
18	BON-000356	4	5/8" SPLIT LOCK WASHER
<b>HEAVY DUTY ONE WAY SHOE COMPONENTS</b>			
10	BON-001376	1	INNER POST, OLD STYLE, FOR PLOW (MADE BEFORE 1/03)
10A	BON-003101	1	INNER POST, V-PLOW, & PLOW AFTER 1/03
11	BON-000980	1	ONE-WAY SHOE
12,13	BON-000407	1	SHOE BOLT ASSEMBLY
12	BON-000193	1	3/4"X5-1/2 HEX BOLT GRADE 8
13	BON-000323	1	3/4" HEX LOCK NUT
<b>MEDIUM DUTY EVEN WEAR SHOE COMPONENTS</b>			
14	BON-003278	1	INNER POST
15-18	BON-003465	1	STANDARD SHOE KIT WITH SPLIT PLATES AND BOLTS
15	BON-003268	2	SPLIT SHOE PLATE
16	BON-003267	1	STANDARD EVEN-WEAR SHOE
16A	BON-003267-CARB	1	CARBIDE EVEN WEAR SHOE
17	BON-000154	4	5/8"X2-1/4 HEX BOLT, GRADE 8
18	BON-000356	4	5/8" SPLIT LOCK WASHER
<b>HEAVY DUTY MUSHROOM SHOE COMPONENTS</b>			
19	BON-001377	4	INNER POST
20	BON-000981.1H	3	MUSHROOM SHOE (HARDENED)
21-23	BON-000410.1	3	SHOE BOLT ASSEMBLY
21	BON-000307	3	5/8" HEX NUT
22	BON-000356	3	5/8" SPLIT LOCK WASHER
23	BON-000290	3	5/8"X2-1/4 SQUARE HEAD BOLT
23A	BON-000290.5	3	5/8" X 2-1/4 SQUARE HEAD BOLT, CARBIDE
24	BON-001347	1	1-1/4" ACME THREADED BLOCK

# HEAVY DUTY EVEN WEAR COMPONENTS

3" INNER POSTS, 3 1/2" OUTER HOUSINGS, 1 1/4" ACRYL SCREWS  
 REV 0222.4 BCN 003274 EXP  
 \*FOR ALL BONNELL P\_DKS

10 MONROE/AFNKF/GJFDHIII  
 STYLE HC HOUSING (OPTIONAL)

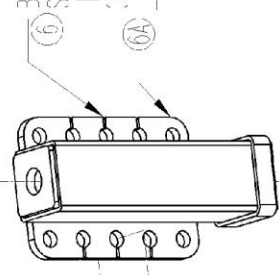
MONROE  
 COMPLETE  
 ASSEMBLY  
 BCN-003274M

21 - LINK STYLE HD  
 HOUSING (OPTIONAL)

LINK  
 COMPLETE  
 ASSEMBLY  
 BCN-003274F

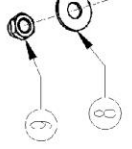
22 HENDERSON STYLE  
 HD HOUSING (OPTIONAL)

HENDERSON  
 COMPLETE  
 ASSEMBLY  
 BCN-003274H



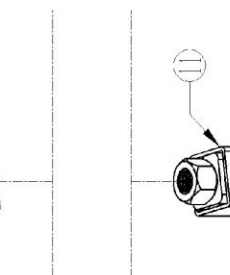
6 BONNELL  
 STYLE HD  
 HOUSING  
 (STANDARD)

6A COMPLETE  
 ASSEMBLY  
 BCN-003274



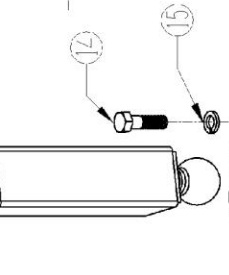
7 MONROE  
 STYLE HD  
 HOUSING

8 COMPLETE  
 ASSEMBLY  
 BCN-003274M



21 LINK  
 STYLE HD  
 HOUSING

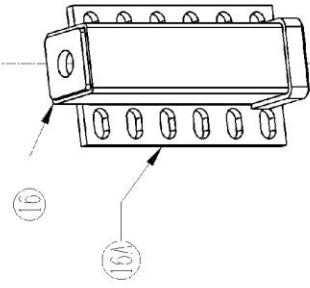
21A COMPLETE  
 ASSEMBLY  
 BCN-003274F



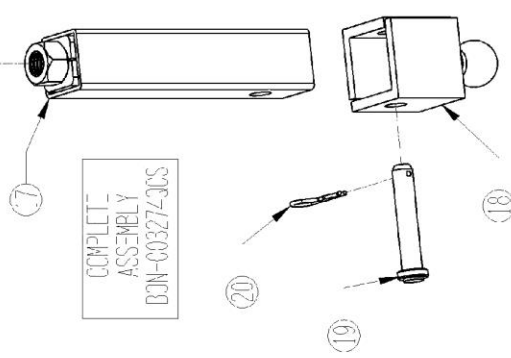
22 HENDERSON  
 STYLE HD  
 HOUSING

22A COMPLETE  
 ASSEMBLY  
 BCN-003274H

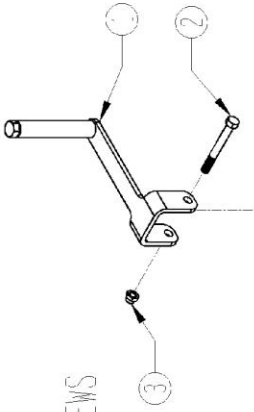
# QUICK CHANGE COMPONENTS



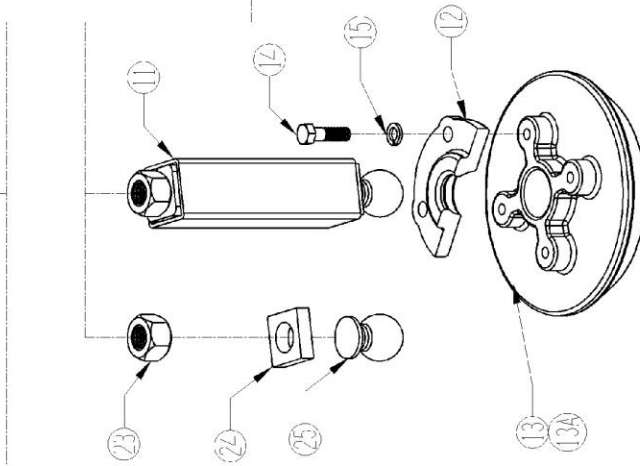
16 COMPLETE  
 ASSEMBLY  
 BCN-003274JCS



COMPLETE  
 ASSEMBLY  
 BCN-003274JCS



3 COMPLETE  
 ASSEMBLY  
 BCN-003274



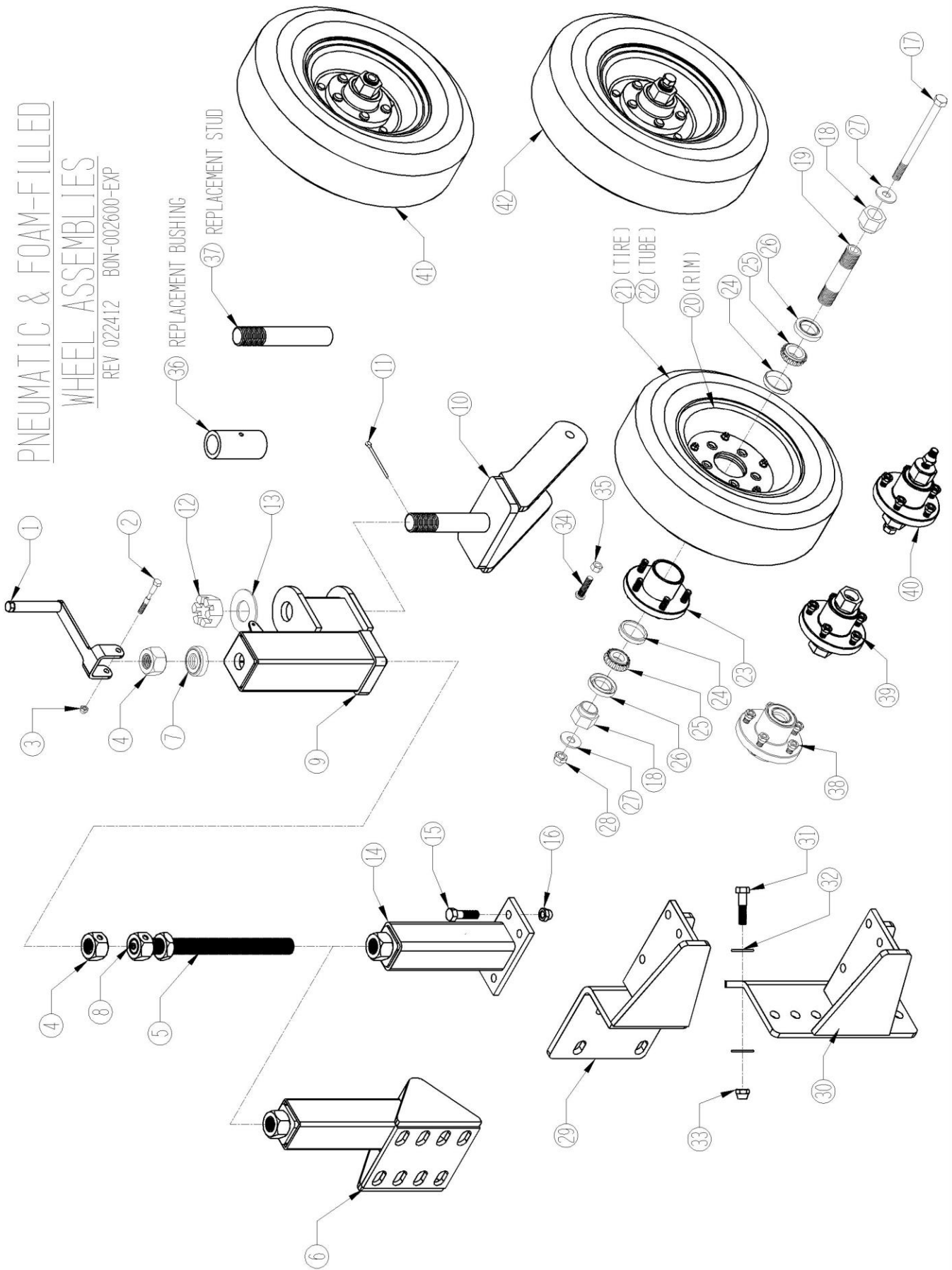
CLIXON, ILLINOIS  
 PHONE: 830-831-9664

## HEAVY DUTY EVEN-WEAR SHOE COMPONENTS

ITEM #	PART #	QTY.	DESCRIPTION
1-6,11-15	BON-003274	2 PER PLOW	COMPLETE HEAVY DUTY EVEN WEAR SHOE ASSEMBLY, BONNELL STYLE, LESS MOUNTING BOLTS
1-6,11-15	BON-003274-CARB	2 PER PLOW	COMPLETE HEAVY DUTY EVEN WEAR SHOE ASSEMBLY, BONNELL STYLE, LESS MOUNTING BOLTS, WITH CARBIDE SHOE
1-5,10-15	BON-003274M	2 PER PLOW	COMPLETE HEAVY DUTY EVEN WEAR SHOE ASSEMBLY, MONROE STYLE, LESS MOUNTING BOLTS
1-5,11-15,21	BON-003274F	2 PER PLOW	COMPLETE HEAVY DUTY EVEN WEAR SHOE ASSEMBLY, FLINK STYLE, LESS MOUNTING BOLTS
1-5,11-15,22	BON-003274H	2 PER PLOW	COMPLETE HEAVY DUTY EVEN WEAR SHOE ASSEMBLY, HENDERSON STYLE, LESS MOUNTING BOLTS
1-5,11-20	BON-003274QCS	2 PER PLOW	COMPLETE HEAVY DUTY EVEN WEAR SHOE ASSEMBLY, BONNELL STYLE, WITH QUICK CHANGE SHOE, LESS MOUNTING BOLTS
1	BON-001379	1	HEAVY DUTY CRANK HANDLE
2	BON-000066	1	3/8"X3-1/4 HEX BOLT, GRADE 8
3	BON-000319	1	3/8" HEX LOCK NUT
4	BON-001344	1	1-1/4" ACME TOP NUT (W/O CROSS DRILL)
4,5	BON-001361	1	1-1/4" ACME SCREW ASSEMBLY, DRILLED
6	BON-003276	1	BONNELL STYLE OUTER HOUSING
6A	BON-003282	AR	BONNELL STYLE MOUNTING PLATE
7-9	BON-000410.2	4	MOUNTING BOLT ASSEMBLY
7	BON-000183	4	3/4"X2-1/4 HEX BOLT, GRADE 8
8	BON-000342	4	3/4" FLAT WASHER
9	BON-000323	4	3/4" HEX LOCK NUT
10	BON-003276M	1	MONROE STYLE OUTER HOUSING
10A	BON-003282M	AR	MONROE STYLE MOUNTING PLATE
11	BON-003275	1	INNER POST
12-15	BON-003465	1	STANDARD SHOE KIT WITH SPLIT PLATES AND BOLTS
12-15	BON-003465-CARB	1	CARBIDE SHOE KIT WITH SPLIT PLATES AND BOLTS
12	BON-003268	2	SPLIT SHOE PLATE
13	BON-003267	1	STANDARD EVEN-WEAR SHOE
13A	BON-003267-CARB		CARBIDE EVEN WEAR SHOE
14	BON-000154	4	5/8"X2-1/4 HEX BOLT, GRADE 8
15	BON-000356	4	5/8" SPLIT LOCK WASHER
16	BON-003276QCS	1	OUTER HOUSING
16A	BON-003282QCS	AR	MOUNTING PLATE
17	BON-003275QC	1	INNER POST
18	BON-003275.1QC	1	PIVOT BALL
19	BON-000993	1	1"X5-1/4 PIN
20	BON-000400	1	HAIR PIN
21	BON-003276F	1	MONROE STYLE OUTER HOUSING
21A	BON-003282F	AR	MONROE STYLE MOUNTING PLATE
22	BON-003276H	1	MONROE STYLE OUTER HOUSING
22A	BON-003282H	AR	MONROE STYLE MOUNTING PLATE
23	BON-001344	1	REPLACEMENT 1-1/4" ACME NUT
24	BON-003462	1	REPLACEMENT BALL SUPPORT PLATE
25	BON-003312	1	REPLACEMENT BALL, HARDENED

# PNEUMATIC & FOAM-FILLED WHEEL ASSEMBLIES

REV 022412 BON-002600-EXP



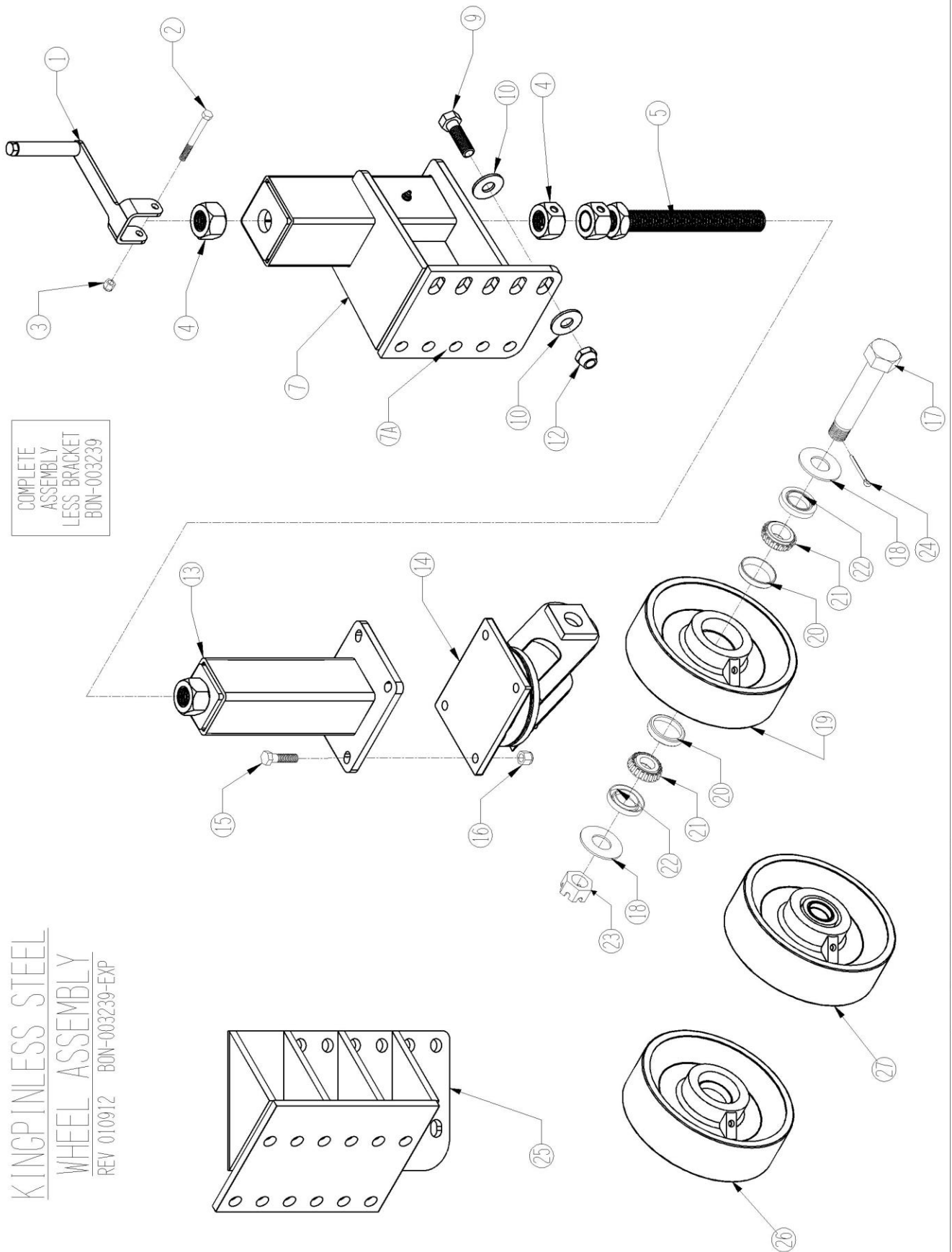
DIXON, ILLINOIS  
PHONE: 800-851-9664



ITEM #	PART #	QTY.	DESCRIPTION
	BON-002600	2 PER PLOW	TOP MOUNT PNEUMATIC WHEEL ASSEMBLY COMPLETE, LESS MOUNTING BOLTS AND BRACKETS
	BON-002600-FF	2 PER PLOW	TOP MOUNT FOAM FILLED WHEEL ASSEMBLY COMPLETE, LESS MOUNTING BOLTS AND BRACKETS
	BON-001335	2 PER PLOW	FRONT MOUNT PNEUMATIC WHEEL ASSEMBLY COMPLETE, LESS MOUNTING BOLTS AND BRACKETS
	BON-001335-FF	2 PER PLOW	FRONT MOUNT FOAM FILLED WHEEL ASSEMBLY COMPLETE, LESS MOUNTING BOLTS AND BRACKETS
1	BON-001379	1	HEAVY DUTY CRANK HANDLE
2,3	BON-001404	1	3/8"X3-1/2 HEX BOLT WITH GREASE SLOT & NUT
3	BON-000319	1	3/8" HEX LOCK NUT ONLY
4	BON-001344	1	1-1/4" ACME TOP NUT (W/O CROSS DRILL)
4,5,8	BON-001362	1	1-1/4" ACME SCREW ASSEMBLY, DRILLED
6	BON-001403	1	FRONT MOUNT INNER POST
7	BRG-NICE-616	1	BEARING
8	BON-000652	1	GREASE ZERK
9	BON-001389	1	OUTER HOUSING
10	BON-001393	1	YOKE
11	BON-000386	1	1/4"X3 COTTER PIN
12	BON-000687	1	1-1/2" HEX SLOTTED NUT
13	BON-000348	1	1-1/2" FLAT WASHER
14	BON-001886	1	TOP MOUNT INNER POST
15	BON-000153	4	5/8"X2" HEX BOLT, GRADE 8
16	BON-000322	4	5/8" HEX LOCK NUT
17	BON-000170	1	5/8"X8-1/2 HEX BOLT, GRADE 8
17,27,28	BON-003099	1	PNEUMATIC WHEEL BOLT ASSEMBLY
18	BON-001977	2	1-1/4" AXLE NUT
19	BON-001968	1	1-1/4"X5-3/4" AXLE TUBE
20-22	BON-001357		570 X 8 TIRE AND RIM ASSEMBLY
20-22	BON-001357.6	1	FOAM FILLED TIRE AND RIM ASSEMBLY
20	BON-003167	2	5 BOLT SPLIT RIM
21	BON-001398	1	570 X 8 TIRE
22	BON-001400	1	570 X 8 TUBE
23	BON-003162.5	1	5 BOLT HUB
24	RACE-LM67010	2	RACE
25	BRG-LM67048	2	BEARING
26	C/R-14975	2	OIL SEAL
27	BON-000341	1	5/8" FLAT WASHER
28	BON-000322	1	5/8" HEX LOCK NUT
29	BON-004008L	1	ADAPTER BRACKET FOR TUBE TABLE (LEFT HAND SHOWN: R/H IS BON-004008R)
30	BON-004007L	1	ADAPTER BRACKET FOR METRO TABLE (LEFT HAND SHOWN: R/H IS BON-004007R)
31-33	BON-000410.2	8	BRACKET MOUNTING BOLT
34	BON-000296.5	5	WHEEL STUD
35	BON-000297	5	LUG NUT, 1/2-20
36	BON-001389-CTL	1	REPLACEMENT BUSHING ONLY
37	BON-001451	1	REPLACEMENT STUD ONLY, 1-1/2 THREADED X 8-3/4"
38	BON-003162	AR	5 BOLT HUB WITH BEARINGS AND SEALS ONLY
39	BON-003077.5	AR	5 BOLT HUB ASSEMBLY WITH AXLE BOLT ONLY, LESS BOLT ASSEMBLY
40	BON-003077	AR	5 BOLT HUB ASSEMBLY COMPLETE WITH AXLE AND BOLT ASSEMBLY
41	BON-002063.5	AR	570 X 8 PNEUMATIC WHEEL ASSEMBLY COMPLETE WITH TIRE, RIM, HUB AND AXLE, LESS BOLT ASSEMBLY
42	BON-002063	AR	570 X 8 PNEUMATIC WHEEL ASSEMBLY COMPLETE WITH TIRE, RIM, HUB, AXLE, AND BOLT ASSEMBLY

KINGPINLESS STEEL  
WHEEL ASSEMBLY  
REV 010912 BON-003239-EXP

COMPLETE  
ASSEMBLY  
LESS BRACKET  
BON-003239



DIXON, ILLINOIS  
PHONE: 800-851-9664



## KINGPINLESS STEEL WHEEL ASSEMBLY

ITEM #	PART #	QTY.	DESCRIPTION
1-24	BON-003239	2 PER PLOW	COMPLETE HEAVY KINGPINLESS STEEL WHEEL ASSEMBLY, LESS MOUNTING BOLTS
1	BON-001379	1	HEAVY DUTY CRANK HANDLE
2	BON-000066	1	3/8"X3-1/4 HEX BOLT, GRADE 8
3	BON-000319	1	3/8" HEX LOCK NUT
4	BON-001344	1	1-1/4" ACME TOP NUT (W/O CROSS DRILL)
4,5	BON-001361	1	1-1/4" ACME SCREW ASSEMBLY, DRILLED
7	BON-003237	1	OUTER HOUSING
7A	BON-001432	1	MOUNTING PLATE
9	BON-000183	4	3/4"X2-1/4 HEX BOLT, GRADE 8
10	BON-000342	8	3/4" FLAT WASHER
12	BON-000323	4	3/4" HEX LOCK NUT
13	BON-003238	1	INNER POST
14	BON-003905	1	SWIVEL
15	BON-000109	4	1/2"X2 HEX BOLT GRADE 8
16	BON-000321	4	1/2" HEX LOCK NUT
17	BON-001964	1	AXLE BOLT ONLY
17,23,24	BON-003042	1	AXLE BOLT ASSEMBLY
18	BON-000346	AR	1-1/8" FLAT WASHER
19	BON-000799	1	10" STEEL WHEEL ONLY
20	RACE-14276	2	RACE
21	BRG-14120	2	BEARING
22	C/R-17617	2	SEAL
23	BON-000331	1	1-1/8" HEX SLOTTED NUT
24	BON-000380	1	5/32"X2 COTTER PIN
25	BON-004006L	1	OFFSET ADAPTER BRACKET FOR STEEL WHEEL (LEFT HAND SHOWN: R/H IS BON-004006R)
26	BON-000986		10" STEEL WHEEL WITH RACES
27	BON-000986.1		10" STEEL WHEEL WITH RACES, BEARINGS, AND SEALS



# WARRANTY

Issued: January 1, 1998

Bonnell Industries, Inc. warrants to the original purchaser that if any part of the product proves to be defective in workmanship or material within one year of the date of original installation and is returned to us freight prepaid within 30 days after such defect is discovered and notification thereof is provided Bonnells, we will either replace or repair the defective part (our option). This warranty does not apply to damage resulting from neglect, misuse, accident or improper installation or maintenance. Charges for field service, labor, or other expenses not previously authorized and approved in writing by Bonnells Industries, Inc. will not be accepted. This warranty is exclusive and in lieu of all other warranties whether expressed or implied. Bonnells Industries, Inc. neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with this warranty, and will not be liable for consequential damages. This warranty applies only to products made and/or supplied by Bonnells Industries, Inc. and does not apply to other products not made or supplied by us and to which our products may be attaches, such as trucks. We accept no responsibility for damages to such other products, even if our product is alleged to have contributed to the damage of the other product.

Hydraulic, electrical, or other components furnished by other manufacturers and used with our products are warranted by that manufacturer and not by Bonnells Industries, Inc. the manufacturer's own warranty will apply to these parts. Hydraulic or electrical components are not to be disassembled without the express written permission of Bonnells Industries, Inc.

All defective parts returned from an end user must include the unit model, serial number, date installed, and dealer from whom purchased.

Bonnells Industries, Inc. reserves the right to make changes or improvements to its products without incurring any liability or obligation and without being required to make corresponding changes or improvements to products manufactured or sold prior to those changes or improvements.

The Bonnells Industries, Inc. Warranty Policy is subject to change without notice.

## Product Information

When ordering parts, please refer to the information below.

INSTALLATION DATE:

## Certificate of Origin

This product was manufactured at Bonnells Industries, Inc.,  
located at 1385 Franklin Grove Rd.,  
in the city of Dixon, Illinois, U.S.A.

MADE IN THE USA 