GRAVITY ROLLER CONVEYOR
STRAIGHT, CURVE, STRAIGHT SPUR
AND CURVE SPUR

TECHNICAL HANDBOOK

Maintenance, Start Up and Troubleshooting for Your Omni Metalcraft Corp. Equipment

DO NOT OPERATE BEFORE READING

DO NOT DISCARD

GRAVITY ROLLER TECHNICAL HANDBOOK 2011.1
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To ensure this quality product is safely and correctly utilized, all instructions within this manual must be read and understood prior to equipment start-up. Be aware of all safety labels on machinery. If you do not understand any of the safety instructions or feel there may be safety labels missing, contact your supervisor or product supplier immediately!

Para garantizar que este producto de calidad se utilice correctamente y con seguridad, es necesario leer y comprender las instrucciones incluidas en este manual, antes de comenzar a utilizar el equipo. Esté atento a todas las etiquetas de seguridad que se encuentran en las máquinas. Si no entiende alguna de las instrucciones de seguridad o considera que faltan algunas etiquetas de seguridad, ¡comuníquese inmediatamente con su supervisor o proveedor del producto!

COMPLIANCE WITH SAFETY STANDARDS
Compliance with safety standards, including federal, state and local codes or regulations is the responsibility of the conveyor purchaser(s). Placement of guards, safety labels and other safety equipment is dependent upon the area and use to which the system is applied. A safety study should be made of the conveyor application by the purchaser(s). It is the purchaser’s responsibility to provide any additional guards, safety labels or other safety equipment deemed necessary based on this safety study.

The information contained in this safety manual is correct at the time of printing. Due to the continuing development of product lines, changes in specifications are inevitable. The company reserves the right to implement such changes without prior notice.

If you suspect fire hazards, safety hazards, dangers towards health or any other job safety concerns, consult your federal, state or local codes.

Certain safety information in this document was reprinted from ASME B20.1-2000 by permission of The American Society of Mechanical Engineers. All rights reserved. Inspect equipment for safety labels. Make sure personnel are aware of and follow safety instructions.

Maintain an orderly environment in the vicinity of the conveyor at all times. Clean up spilled materials or lubricants immediately.

All personnel shall be instructed regarding the necessity for continuous care and attention to safety during the operation of a conveyor. They must be trained to identify and immediately report all unsafe conditions or practices relating to the conveyor and its operation.

Know your company’s machine specific Lockout / Tagout procedure. Do Not perform maintenance until electrical disconnect has been turned off!

Replace all safety devices, guards and guarding prior to equipment start-up.

References used for safety instructions in this manual are from: Conveyor Equipment Manufacturers Association (CEMA) and The American Society of Mechanical Engineers (ASME)
Safety labels have been placed at various points on the equipment to alert everyone of potential dangers. Inspect equipment for proper position of safety labels and make sure all personnel are aware of the labels and obey their warnings. As mentioned in the previous section, a safety study should be made of the conveyor application by the purchaser(s). It is the purchaser’s responsibility to provide any additional guards, safety labels or other safety equipment deemed necessary based on this safety study. The following pages contain typical safety labels that may have been attached to your equipment.

#110479 (5” x 2 1/2”)
Placed on terminating ends (both ends) where there are exposed moving parts which must be unguarded to facilitate function, i.e. rollers, pulleys, shafts, chains, etc.

#111744 (5” x 2 1/2”)
General warning to personnel that the equipment’s moving parts, which operate unguarded by necessity or function, i.e., air cylinders, etc., create hazards to be avoided.

#111752 (5” x 2 1/2”)
Placed on max. of 20’ centers (both sides) along conveyors which provide surfaces and profiles attractive, but hazardous, for climbing, sitting, walking or riding.

#113513 (5” X 2 1/2”)
Placed on chain guard base so label is visible when guard cover is removed.

#113528 (5” X 2 1/2”)
Placed next to drive (both sides) to warn personnel that conveyors must be shut off and locked out prior to servicing. Examples: drives, take-ups, and lubrication points, which require guard removal.

#113529 (5” X 2 1/2”)
Placed next to drive (both sides) to warn personnel that the lineshaft conveyor utilizes a rotating shaft which may be hazardous if hair or loose clothing become entangled around the rotating shaft. Also used on any other conveyors where the exposed shaft may create similar hazards.

#110478 (5” X 2 1/2”)
Placed on all chain guards to warn that operation of the machinery with guards removed would expose chains, belts, gears, shafts, pulleys, couplings, etc. which create hazards.

#111870 (5” X 3”)
General warning of pinch point hazards.

#113513 (5” X 2 1/2”)
Placed on chain guard base so label is visible when guard cover is removed.
SAFETY INFORMATION: SAFETY LABELS (Continued)

#111750 (1 3/4” x 1 1/4”)
Generally placed on smaller guards to alert personnel of potential danger if guard is removed and power is not locked out.

#111749 (3” x 1 1/4”)
Placed on shipping brace which stabilizes equipment during shipping. Brace must be removed before operating! May cause severe injury if not removed.

#110491 (10” x 7”)
Placed on equipment where conveyors may start without warning.
1) **LOADING / UNLOADING**
   Have trained personnel load or unload equipment. The conveyor must be properly handled when transferring from the unloading area to final site location to prevent damage.

2) **ANCHORING**
   **DO NOT** operate conveyor unless it is properly anchored. Serious injury or death may result.

3) **SAFETY WARNING**
   Install all safety devices prior to equipment start-up.
Only trained, qualified personnel shall be permitted to operate a conveyor. Training shall include instruction in operation under normal conditions and emergency situations.

Where safety is dependent upon stopping / starting devices, they shall be kept free of obstructions to permit access.

The area around loading and unloading points shall be kept clear of obstructions that could endanger personnel.

Do not ride the load-carrying element of a conveyor under any circumstances, unless the conveyor is designed and equipped with safety and control devices intended to carry personnel. For no reason shall a person ride any element of a vertical conveyor. Warning labels reading “DO NOT RIDE CONVEYOR” shall be affixed by the owner of the conveyor.

Personnel working on or near a conveyor shall be instructed as to the location and operation of pertinent stopping devices.

A conveyor shall be used to transport only a load that it is designed to handle safely.

Under no circumstances shall the safety characteristics of the conveyor be altered.

Routine inspections and preventative and corrective maintenance programs shall be conducted to ensure that all safety features and guards are retained and function properly. Inspect equipment for safety labels. Make sure personnel are aware of and follow safety label instructions.

Alert all personnel to the potential hazard of entanglement in conveyors caused by items such as long hair, loose clothing and jewelry.

**SAFETY WARNING**
Replace all safety devices prior to equipment start-up.
1) MAINTENANCE (REPAIR)

Maintenance and service shall be performed by trained, qualified personnel only.

Where lack of maintenance and service would cause a hazardous condition, the user shall establish a maintenance program to ensure that conveyor components are maintained in a condition that does not constitute a hazard to personnel.

No maintenance or service shall be performed when a conveyor is in operation. See “Lubrication” and “Adjustment or Maintenance During Operation” for exceptions.

When a conveyor is stopped for maintenance or service, the starting devices, prime mover, powered accessories or electrical must be locked / tagged out in accordance with a formalized procedure designed to protect all persons or groups involved with the conveyor against an unexpected restart. Personnel should be alerted to the hazard of stored energy, which may exist after the power source is locked out. All safety devices and guards shall be replaced before starting equipment for normal operation.

2) ADJUSTMENT OR MAINTENANCE DURING OPERATION

When adjustments or maintenance must be done while equipment is in operation, only trained, qualified personnel who are aware of the hazards of the conveyor in motion shall be allowed to make adjustments, perform maintenance or service.

Conveyors shall NOT be maintained or serviced while in operation unless proper maintenance or service requires the conveyor to be in motion. If conveyor operation is required, personnel shall be made aware of the hazards and how the task may be safely accomplished.

3) LUBRICATION

Conveyors shall NOT be lubricated while in operation unless it is impractical to shut them down for lubrication. Only trained and qualified personnel who are aware of the hazards of the conveyor in motion shall be allowed to lubricate a conveyor that is operating.

Where the drip of lubricants or process liquids on the floor constitutes a hazard, drip pans or other means of eliminating the hazard must be provided by purchaser(s).

4) MAINTENANCE OF GUARDS AND SAFETY DEVICES

Guards and safety devices shall be maintained in a serviceable and operational condition. Warning signs are the responsibility of the owner of the conveyor and must be maintained in a legible / operational condition.

**WARNING**

Guard Removed
Risk of severe injury
DO NOT OPERATE
Without guard
5) **INSPECTIONS**
   Routine inspections with preventative and/or corrective maintenance programs shall be conducted to ensure that all safety features and devices are maintained and function properly.

   All personnel shall inspect for hazardous conditions at all times. Remove sharp edges or protruding objects. Repair or replace worn or damaged parts immediately.

6) **CLEANING**
   Where light cleaning and/or casing cleaning are required, they shall be performed by trained personnel. The conveyor electrical power must be turned off and locked / tagged out following your company’s machine specific procedures. Special attention may be required at feed and discharge points.

7) **SAFETY WARNING**
   Replace all safety devices, guards and guarding prior to equipment start-up.
SAFETY INFORMATION: GRAVITY ROLLER CONVEYOR SAFETY INSTRUCTIONS

PARTICULAR DANGER AND PINCH POINTS
1) Interface between powered conveyor and gravity roller conveyor can produce a “wringer” effect.
2) Any point where accessories are located that also have moving parts.
3) Product is free flowing.
UNCRATING CHECKLIST
1) Compare the bill of lading with what you have received (including accessories).
2) Examine the equipment for damage.
3) Immediately report shortage or damages to the vendor and carrier.
4) Obtain a signed damage report from the carrier and send a copy to the vendor.

**Note:** Do not attempt to modify or repair damaged equipment without authorization from vendor.

Do not return equipment to the factory without a written return authorization. Returns without written authorization will not be accepted.

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RECEIVING AND INSPECTION: REMOVAL OF CRATING

AFTER COMPLETING THE “UNCRATING CHECKLIST”
1) Remove crating and packaging.
2) Look for boxes, accessories, bags or components such as fasteners, manuals, guard rails etc. that may be banded or fastened to the crating material.

**Note:** Make sure all fasteners, guards and essential components are not discarded.
GENERAL INSTALLATION: CHECKING UNIT SQUARENESS

SQUARING
Frame squareness can be checked by using a simple right angle square as shown or by measuring from the same points diagonally, corner to corner.

Note:
Make sure frames are square (as shown) or products will skew and tumble from the conveyor. Failure to square frames may also cause premature conveyor wear and failure.

GENERAL INSTALLATION: SQUARING

USING TURNBUCKLES TO SQUARE CONVEYOR
Bolt-together conveyor frames may be brought square by means of attaching turnbuckles to each corner and turning them down appropriately until square.

Note:
Only trained professionals should attempt to square up a conveyor. If frames have been damaged in freight, follow the “returns, damages and shortages” protocol on page 11.
COUPLING
Couple the sections using bolts provided per the drawing below.

Note:
For ease of installation, mount legs on each conveyor section prior to coupling.
LEG SUPPORTS AND INSTALLATION: BOLT-TOGETHER

PERMANENT INSTALLATION OF LEGS
Secure leg supports to the floor utilizing the lag holes in the adjustable leg boot.

Note:
Make sure the conveyor is level by placing a level on the conveyor side frames. If the conveyor is not level, adjust the legs appropriately as shown below.

LEG ADJUSTMENT: BOLT-TOGETHER LEGS
1) The conveyor electrical power must be turned off and locked / tagged out following your company’s machine specific procedures.
2) Remove all load from the conveyor.
3) Position conveyor in the location to be installed.
4) Support conveyor section with jack, hoist or forklift.
5) Carefully loosen the fasteners within the slots.
6) Lift or lower conveyor until it is at the desired height.
7) Ensure that the conveyor is completely level. (reference leveling note below)
8) Tighten fasteners using torque appropriate for each fastener’s size and grade. (grade 5 fasteners provided)

Note:
Only qualified installation professionals should level and install conveyor.
**GRAVITY ROLLER CONVEYOR STRAIGHT, CURVE, STRAIGHT SPUR AND CURVE SPUR TECH HANDBOOK**

**LEG SUPPORTS AND INSTALLATION: WELDED**

### WELDED LEG ADJUSTMENTS

**WELDED LEG ADJUSTMENT: JACK-BOLT**

1. The conveyor electrical power must be turned off and locked / tagged out following your company’s machine specific procedures.
2. Remove all load from the conveyor.
3. Position conveyor in the location to be installed.
4. Support conveyor section with jack, hoist or forklift.
5. Carefully loosen the retaining bolt.
6. Carefully loosen the jam nut holding the jack-bolt in position on the jack-bolt plate.
7. Adjust the boot position by turning the jack-bolt.
8. Ensure that the conveyor is completely level. (reference leveling note above)
9. Tighten the jam nut securely against the jack-bolt plate using torque appropriate for each fastener’s size and grade. (grade 5 fasteners provided)
10. Tighten the retaining bolt using torque appropriate for each fastener’s size and grade. (grade 5 fasteners provided)

**WELDED LEG ADJUSTMENT: NON-JACK-BOLT**

1. The conveyor electrical power must be turned off and locked / tagged out following your company’s machine specific procedures.
2. Remove all load from the conveyor.
3. Position conveyor in the location to be installed.
4. Support conveyor section with jack, hoist or forklift.
5. Carefully loosen the retaining bolt.
6. Lift or lower conveyor until it is at the desired height.
7. Ensure that the conveyor is completely level. (reference leveling note above)
8. Tighten fasteners using torque appropriate for each fastener’s size and grade. (grade 5 fasteners provided)
9. Secure the leg boot to the upright by either of the methods listed below:
   A) Weld the boot into place.
   B) Drill through boot and upright and bolt the boot securely into place.

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**Note:**
Only qualified installation professionals should level and install conveyor.
PERMANENT INSTALLATION OF LEGS
Secure leg supports to the floor utilizing the lag holes in the adjustable leg boot.

Note:
Make sure the conveyor is level by placing a level on the conveyor side frames. If the conveyor is not level, adjust the legs appropriately as shown on page 15.
KNEE BRACES, CASTERS AND CEILING HANGERS: INSTALLING KNEE BRACES

**INSTALLING KNEE BRACES**

1) After leg supports are set in place, attach the brace bracket.
2) Attach knee brace angle to the leg support and brace bracket.

(Note: Knee brace angle may need to be cut, drilled and trimmed for proper fit and to eliminate interference with adjacent equipment)

**Note:**
Knee braces are recommended when the conveyor height exceeds 36” and/or when additional stability is needed.

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**KNEE BRACES, CASTERS AND CEILING HANGERS: INSTALLING CASTERS**

**INSTALLING CASTERS**

Once in position, casters should be locked until conveyor needs to be moved again.

**Note:**
Leg supports with casters follow similar installation instructions as standard leg supports and knee braces.

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**Legend:**

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<thead>
<tr>
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<th>DESCRIPTION</th>
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<tr>
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<tr>
<td>2</td>
<td>SPREADER</td>
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<tr>
<td>3</td>
<td>BRACE BRACKET</td>
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<tr>
<td>4</td>
<td>KNEE BRACE ANGLE</td>
</tr>
<tr>
<td>5</td>
<td>PIVOT BRACKET</td>
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<td>6</td>
<td>FOOT</td>
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<td>7</td>
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<td>BRACE BRACKET</td>
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<td>KNEE BRACE ANGLE</td>
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<td>PIVOT BRACKET</td>
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</tr>
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</table>
INSTALLING KNEE BRACES

1) After leg supports are set in place, attach the brace bracket.
2) Attach knee brace angle to the leg support and brace bracket.

Note:
Knee braces are recommended when the conveyor height exceeds 36” and/or when additional stability is needed.
**INSTALLING CEILING HANGERS**
When using conveyors in an overhead scenario, mount hangers at section joints.

![Diagram of conveyor section]

**Note:**
When installing ceiling hangers, refer to local building codes to ensure that materials comply. Only experienced material handling installers should attempt to install conveyors.

<table>
<thead>
<tr>
<th>DETAIL</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>HANGER CHANNEL</td>
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<tr>
<td>2</td>
<td>PIPE SPREADER</td>
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<tr>
<td>3</td>
<td>THREADED ROD</td>
</tr>
<tr>
<td>4</td>
<td>U-BOLT</td>
</tr>
<tr>
<td>5</td>
<td>WHIZ NUT</td>
</tr>
<tr>
<td>6</td>
<td>HEX HEAD CAP SCREW</td>
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<tr>
<td>7</td>
<td>HEX NUT</td>
</tr>
<tr>
<td>8</td>
<td>LOCK WASHER</td>
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</table>
INSTALLING MULTI-TIER SUPPORTS
1) Remove the upper spreader (detail 2) from support.
2) Lower the conveyor section onto the lower spreader (detail 2) and attach using supplied fasteners.
3) Check for appropriate elevation and attach the knee bracket assembly (detail 3,4,6,7,8).
4) For upper conveyor assembly, replace upper spreader and repeat steps 2 and 3.
5) Make sure all multi-tier supports are in line and square prior to conveyor start-up.

Note: Make sure that the conveyor is stable prior to multi-tier assembly. Use of a forklift or crane may be required to ensure safe handling. Only experienced installation professionals should install conveyor.
Note: Review pages 8 and 9 prior to maintaining any equipment. If equipment repair or replacement is required during inspections, thoroughly review the manufacturer’s specific product information for correct procedure.

**WEEKLY, MONTHLY, QUARTERLY, SEMI-ANNUAL AND ANNUAL MAINTENANCE**

- Inspect conveyor for loose bolts.
- Inspect rollers to ensure that they rotate freely.
REPORT ON MISCELLANEOUS MAINTENANCE PERFORMANCE

Date___________

Maintenance Performed:__________________________________________________________________________________________________
__________________________________________________________________________________________________

Date___________

Maintenance Performed:__________________________________________________________________________________________________
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Date___________

Maintenance Performed:__________________________________________________________________________________________________
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Date___________

Maintenance Performed:__________________________________________________________________________________________________
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Date___________

Maintenance Performed:__________________________________________________________________________________________________
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<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>SOLUTION</th>
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<tbody>
<tr>
<td>Product Doesn’t Flow</td>
<td>Insufficient decline</td>
<td>Raise infeed height or lower discharge height</td>
</tr>
<tr>
<td></td>
<td>Rollers don’t rotate freely</td>
<td>Replace damaged rollers</td>
</tr>
<tr>
<td></td>
<td>Poor bottoms on product</td>
<td>Improve conveyability</td>
</tr>
<tr>
<td>Product Skews as It Travels Down the Line</td>
<td>Rollers not square in frame</td>
<td>Loosen connecting bolts. Square the frames. Tighten the connecting bolts.</td>
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<tr>
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<td>DESCRIPTION</td>
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<tr>
<td>1</td>
<td>SIDEFRAME</td>
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<tr>
<td>2</td>
<td>GRAVITY ROLLER</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>BOLT-IN SPREADER</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>END COUPLER</td>
<td></td>
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<td>HEX HEAD CAP SCREW</td>
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### GRAVITY ROLLER CURVE

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<td>4</td>
<td>BOLT-IN SPREADER</td>
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<td>END COUPLER</td>
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<td>HEX HEAD CAP SCREW</td>
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<td>7</td>
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PARTS LISTS: GRAVITY ROLLER STRAIGHT SPUR

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<tr>
<td>1</td>
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<td>SHORT RAIL</td>
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<td>GRAVITY ROLLER</td>
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<td>BOLT-IN SPREADER</td>
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<td>SHELF BRACKET</td>
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<td>6</td>
<td>ROLLER SUPPORT</td>
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<td>SHELF SUPPORT BRACKET</td>
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<td>FLAT WASHER</td>
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## Parts Lists: Gravity Roller Curve Spur

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<thead>
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<td>1</td>
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<tr>
<td>2</td>
<td>Inside Rail</td>
</tr>
<tr>
<td>3</td>
<td>Gravity Roller</td>
</tr>
<tr>
<td>4</td>
<td>Bolt-In Spreader</td>
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<td>Shelf Bracket</td>
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<td>Roller Support</td>
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<td>Shelf Support Bracket</td>
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<td>End Coupler</td>
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<td>Hex Head Cap Screw</td>
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<td>10</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>11</td>
<td>Hex Nut</td>
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Omni Metalcraft Corp. warrants that the Equipment will be free of defects in workmanship and material (if properly installed, operated and maintained) for a period of one year or 2080 hours of use, whichever is sooner, from date of shipment to Customer, subject to the limitations hereunder set forth. If within the one year warranty period, Omni receives from the Customer written notice of any alleged defects in the Equipment and if the Equipment is not found to be in conformity with this warranty (the Customer having provided Omni a reasonable opportunity to perform any appropriate tests thereon) Omni will, at its option, either repair the Equipment or supply a replacement therefore.

*The above stated information is in reference to a section of Omni Metalcraft’s full Terms and Conditions of sale. This information does not constitute an agreement, but simply reference information. To obtain a full copy of Omni Metalcraft’s Terms and Conditions of Sale, please contact your Sales Representative.