

# OPERATOR'S MANUAL

Model WLLB

Hydraulic Pickup Broom



AHP-00177 WLLB



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**PARTS AND ASSEMBLY DRAWINGS LOCATED IN THE BACK OF THE MANUAL**

# INTRODUCTION

## GENERAL

The WLLB Model brooms are hydraulically-driven.  
A quick hitch is used to connect to the prime mover.

## OPERATOR'S MANUAL

You must read, understand and comply with all the safety and operating instructions in this manual before attempting to set-up and operate your power broom.

Failure to comply with the safety and operating instructions can result in loss of machine control, serious personal injury to you and/or bystanders, and risk of equipment and property damage.

## IDENTIFICATION NUMBERS

When contacting your authorized dealer for information, replacement parts or service, you MUST have the model and serial number of your unit.

Record the serial number in the space provided. The serial number plate/decals can be found in the location shown in Figure 1.

Model Name/Number:	
Date Purchased:	Serial #:



Figure 1

# SAFETY

## SAFETY ALERTS

Signal words and alert symbols notify of important safety precautions.

### DANGER!



Indicates a hazardous situation which, if not avoided, will result in serious injury or death.

### WARNING!



Indicates a hazardous situation which, if not avoided, could result in serious injury or death.

### CAUTION!



Indicates a hazardous situation or unsafe practice which, if not avoided, could result in minor or moderate injury or property damage.

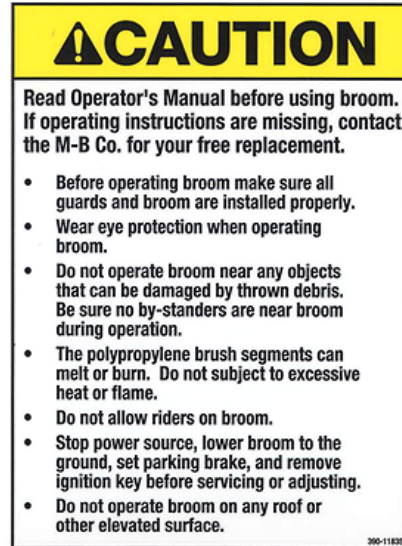
## SAFETY DECALS

Although reading this manual and the safety instructions it contains will provide you with the necessary basic knowledge to operate this equipment safely and effectively, we have placed several safety labels on the unit to remind you of this important information while you are operating your unit.

All DANGER, WARNING, CAUTION, and instructional messages on your unit should be carefully read and obeyed. Bodily injury can result when these instructions are not followed. The information is for your safety and it is important.

These labels will act as a constant visual reminder to you, and others who may use the equipment, to follow the safety instructions necessary for safe, effective operation.

If any of these labels are lost or damaged, replace them at once. See your local dealer for replacements.



## PRE-START GUIDELINES

- Install any covers or guards which may have been removed for shipping purposes.
- Before starting equipment, walk around equipment, making a visual inspection that all safety devices are properly installed and secured.
- Check that all hardware, fasteners, hydraulic fittings, etc. are in good condition and properly fastened. Replace any fatigued or damaged items with proper replacements.
- Personnel who are not required to be in the work area should be kept away. Never start the equipment unless you are absolutely certain that everyone in the area is clear of the machine and aware it is being started.
- Follow the manufacturer's recommended start-up procedure.

## OPERATION GUIDELINES

Read, understand and follow all instructions in the manual and on the unit before starting.

- To avoid serious injury or death, do not modify equipment. Any modifications made to equipment can be dangerous and can void equipment warranty.
- Never defeat a safety device to make a task easier.
- Always wear proper apparel when operating equipment; safety glasses, face shield or goggles, ear protection, and dust mask. Tie hair back. Never wear loose clothing or jewelry that could get caught in moving parts.
- Never operate equipment with covers or guards removed. Rotating parts can cause severe injury. Keep hands, feet, hair, jewelry and clothing away from all moving parts.
- Only allow responsible adults who are familiar with the instructions, to operate the unit (local regulations can restrict operator age).
- Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown.
- Be aware of surroundings. Be sure the area is clear of other people, bystanders or pets. Stop unit if anyone enters the area.
- Always look down and behind before and while traveling in reverse.
- Be aware of discharge direction and do not point discharge at anyone. Do not point the discharge at glass enclosures, automobiles, or windows.

# SAFETY

- Always stand clear of the discharge area when operating this unit.
- Disengage all clutches and PTO's before starting engine.
- Never leave a running machine unattended. Always disengage the attachment and traction controls, lower the attachment, set the park brake, stop the engine and remove the ignition key before leaving the machine.
- Operate only in daylight or good artificial light.
- Never carry passengers.
- Do not operate the unit while under the influence of drugs, alcohol or other medication.
- Watch for traffic when operating near or crossing roadways.
- Use extra care when loading or unloading the unit into a trailer or truck.
- Keep in mind the operator is responsible for accidents occurring to other people or property.
- Data indicates that operators, age 60 years and above, are involved in a large percentage of power equipment-related injuries. These operators should evaluate their ability to operate the unit safely enough to protect themselves and others from injury.
- All operators should seek and obtain professional and practical instruction.
- Protect eyes, face and head from objects that may be thrown from unit. Wear appropriate hearing protection.
- Always wear substantial footwear and appropriate clothing. Wear footwear that improves traction on slippery slopes. DO NOT wear long scarves or loose clothing that could become entangled in moving parts.
- Abnormal Vibrations are a warning of trouble. Striking a foreign object can damage unit. Stop unit and engine. Wait for all moving parts to stop. Inspect unit and make any necessary repairs before restart.
- Never place your hands or any part of your body or clothing inside or near any moving part while unit is running.
- Stop engine before: refueling, cleaning, making adjustments or removing the attachment assembly.
- Follow the drive unit manufacturer's recommendations for wheel weights or counter weights.
- Make any adjustments before operating unit.
- Do not touch parts which may be hot from operation. Allow such parts to cool before attempting to service the unit.
- Before using, always visually check that hardware is present, intact and secure. Replace worn or damaged parts.
- Never operate the machine with damaged guards, or without safety protective devices in place.
- Follow the manufacturer's recommendations for towing weight restrictions and procedures.
- Original purchaser of this unit was instructed by the seller on safe and proper operation. If unit is to be used by someone other than original purchaser; loaned, rented or sold, ALWAYS provide this manual and any needed safety training before operation.
- The Operator must understand the functions and parameters of all controls and how to operate, as well as how to STOP in an Emergency.

NOTE: All reference to left, right, front, or rear are given from the operator position and facing forward.

## MAINTENANCE GUIDELINES

- Maintain or replace safety and instruction decals/labels as necessary.
- Never run a unit in an enclosed area.
- Keep nuts and bolts tight and keep equipment in good condition
- Never tamper with safety devices. Check their proper operation regularly and make necessary repairs if they are not functioning properly.
- Keep unit free of debris and build-up. Clean up any oil spillage.
- Never make adjustments or repairs with the engine running unless specified otherwise in the engine manufacture's manual.
- Components are subject to wear, damage, and deterioration. Frequently check components and replace with the manufacturer's recommended parts, when necessary.
- Check control operation frequently. Adjust and service as necessary.
- Use only factory authorized parts when making repairs.
- Always comply with factory specifications on all settings and adjustments.
- Only authorized service locations should be utilized for major service and repair requirements.
- Never attempt to make your own repairs on this unit unless you have been properly trained. Improper service procedures can result in hazardous operation, equipment damage and voiding the manufacturer' warranty.
- Stop engine on tractor and set parking brake before performing any adjustments on the machinery.
- Do not disassemble a pressurized system unless properly trained and equipped with adequate tooling.
- Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin, causing serious injury. Before operation, be sure that all hydraulic connections are tight and hoses are not damaged. Relieve pressure in system before making adjustments.
- Oils and fluids can be very hot under pressure. Use caution and allow the system to cool before beginning maintenance work.
- Never operate or pressurize one of these systems with worn or damaged components. Replace hoses, fittings, valves or other components which appear defective.
- Never adjust pressurized systems beyond recommended levels to achieve higher operating pressures.
- NEVER search for hydraulic leaks with only your hands. Use cardboard or a piece of wood.
- For engine equipped models, follow specific engine manufacturer's recommended service intervals for dirty/dusty environments.

# OPERATION

## PRE-START CHECKS

**IMPORTANT!** You must read, understand and comply with all the safety and operating instructions in this manual before attempting to set-up and operate your power broom.

Failure to comply with the safety and operating instructions can result in loss of machine control, serious personal injury to you and/or bystanders, and risk of equipment and property damage.

1. Visually inspect equipment and hardware to ensure that all parts are secure and all hardware is tightened and secure.
2. Check for oil leaks and loose hose connections.
3. Inspect the broom adjustments to ensure that the broom is level, there is proper brush pattern, and the internal deflector position is properly set. Refer to the **SETUP AND ADJUSTMENT** section of this manual for complete information.
4. Inspect the bristle length to determine if replacement segments are needed.

## OPERATION

**CAUTION!** **DO NOT scrape with the hopper (bucket) while sweeping. It is for debris collection only and will wear prematurely if used for scraping. Never operate broom with hopper less than 1" from the ground.**

**IMPORTANT!** DO NOT operate the broom in the raised position for extended periods of time. While lifting the broom is acceptable to either clear an object or when reversing the loader/tractor, it is recommended that you stop broom rotation if raising the broom for transporting.

- Sweep at a speed that is appropriate for the conditions and location.

**NOTE:** The front caster wheels support the broom while following ground contours.

- For heavy material such as gravel or stones, drive more slowly with a higher broom rotation speed. For lighter material, drive faster with a lower broom rotation speed.
- It may be necessary to increase broom contact pattern under some conditions. If the surface being swept is uneven and causes the broom to leave upswept patches, increase the pattern size to compensate.
- If the material being swept is dried-on or difficult to remove, such as mud or ice, it may be necessary to drive extremely slow to allow the broom to "scrub" the surface.
- Decrease the loader/tractor's engine speed (rpm) before stopping the hydraulic flow to the broom.
- Using the loader/tractor controls, raise the broom above the dump site or container and depending upon broom configuration, tilt hopper downward or extend its actuation cylinders to open broom and dump debris.

With the lift arms raised, the cylinders are extended to raise the broom housing, opening the broom for debris dumping. The cylinders retract by gravity to close the broom. See Figure 2.



Figure 2

# NOTES

# SETUP AND ADJUSTMENTS

## SETUP

With the lift arms raised, the cylinders are extended to raise the broom housing, opening the broom for debris dumping by reversing hydraulic flow. The cylinders retract by gravity to close the broom. See Figure 2.

Proper setup and adjustment of the broom will increase the life of the brush and produces more efficient movement of material. Visually inspect the broom before each operating session and measure the adjustments once every 10 hours.

The following procedures must be followed in the prescribed sequence in order to be effective.

## LEVELING

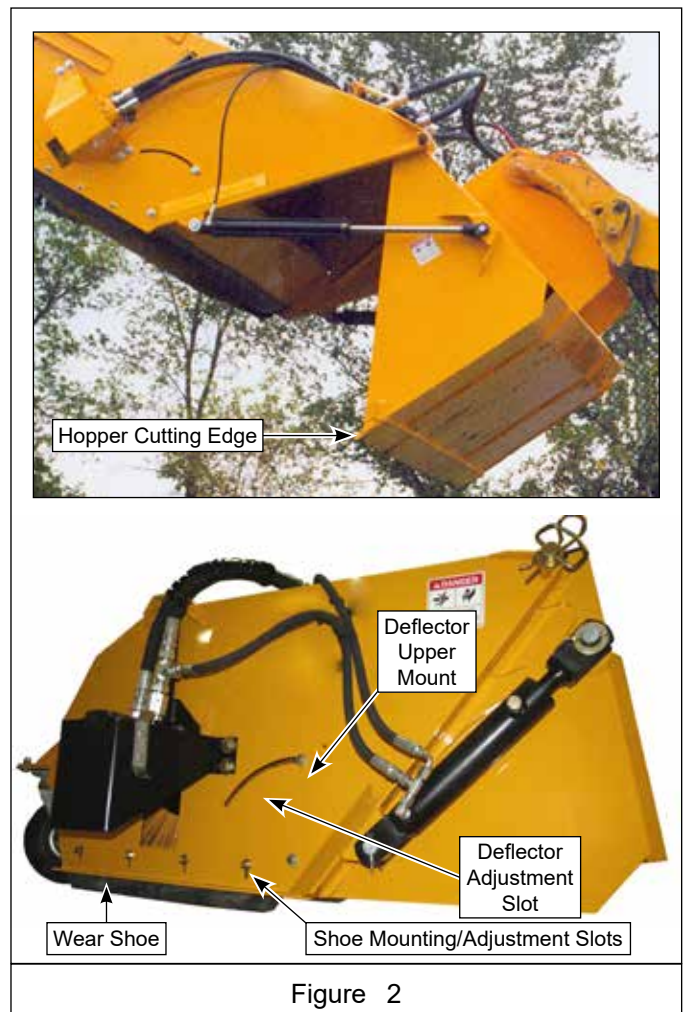
1. After the broom is mounted to the prime mover (skid-steer or loader), park the unit on a flat level surface; preferably concrete or asphalt.
2. Lower the lift arms all the way down.
3. Tilt the quick-attach or bucket cylinders as necessary so the casters contact the ground. If there is a way to set this location on the prime mover hydraulics, do so at this time.

**NOTE:** There must be a minimum of a 1" gap between the ground and the hopper cutting edge. See Figure 3.

4. Adjust the height of the broom housing wear shoes until the broom is level side-to-side. Loosen the (4) 5/16"-18 lock nuts on each wear shoe to adjust it in the vertical slots in the broom housing. See Figure 2.

**IMPORTANT!** Do not allow the hopper or its cutting edge to contact the ground during operation or premature wear will result.

5. Check and adjust the brush pattern.



# SETUP AND ADJUSTMENTS

## PATTERN ADJUSTMENT

1. After the broom has been leveled front to back, set the brush pattern (swept area).
2. With the unit on a flat level surface, run the unit for about 30 seconds in the down position while stationary. Stop the broom and back the unit away. The 'cleaned' (contact patch) should be 2"-4" wide, front to rear, for the entire length of the broom. See Figure 4.
3. If the brush contact patch is not approximately 3" wide, or varies in width from end to end, brush height adjustment is necessary.

NOTE: The brush may create too heavy a pattern on either the left or right side if the support chains are not the same length.

4. If so equipped, verify chain lengths are equal. If necessary, adjust chain lengths.

NOTE: Splined hubs are mounted to each end of the brush core and are supported in bearings mounted indirectly to the brush height adjustment brackets. The brush drive motor(s), mounted directly to the outside of the brush height adjustment brackets, mate with the splined hubs.

5. Raise the broom slightly to create a small gap between the brush and ground.

NOTE: Only one side may require height adjustment to level the brush.

6. Loosen the adjustment jam nut(s) away from the broom housing. See Figure 5.
7. Adjust the brush height until the gap between the brush and the ground is equal for the entire length of the brush.

Turn the height adjustment bolt(s) counterclockwise (CCW) to push the brush height adjustment brackets down, lowering the brush. Turn the height adjustment bolt(s) clockwise (CW) to pull the brush height adjustment brackets up, raising the brush.

8. Tighten the adjustment jam nut(s) against from the broom housing.
9. If necessary, adjust the internal deflector position.

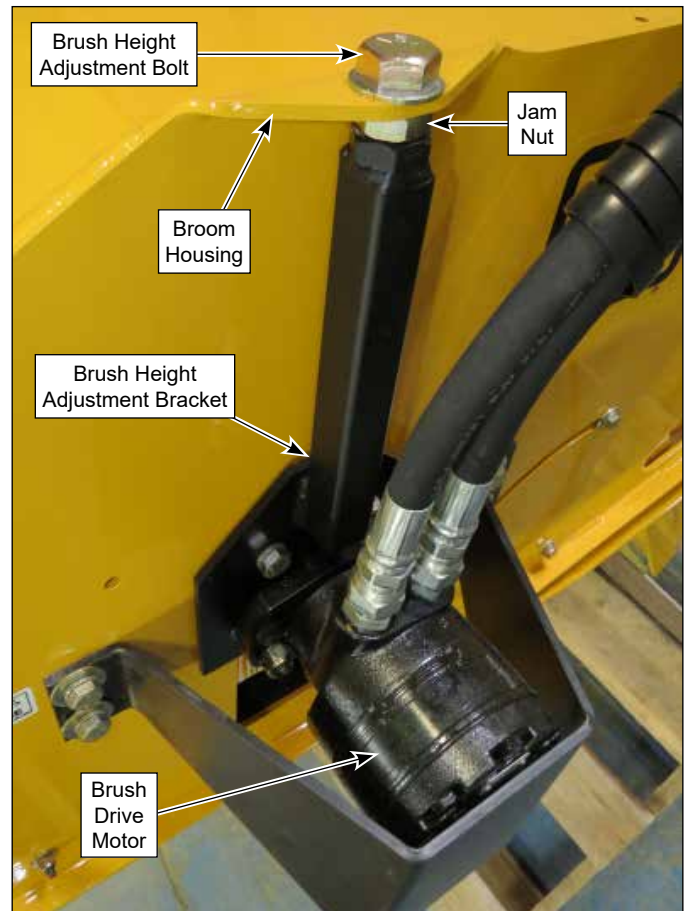


Figure 5

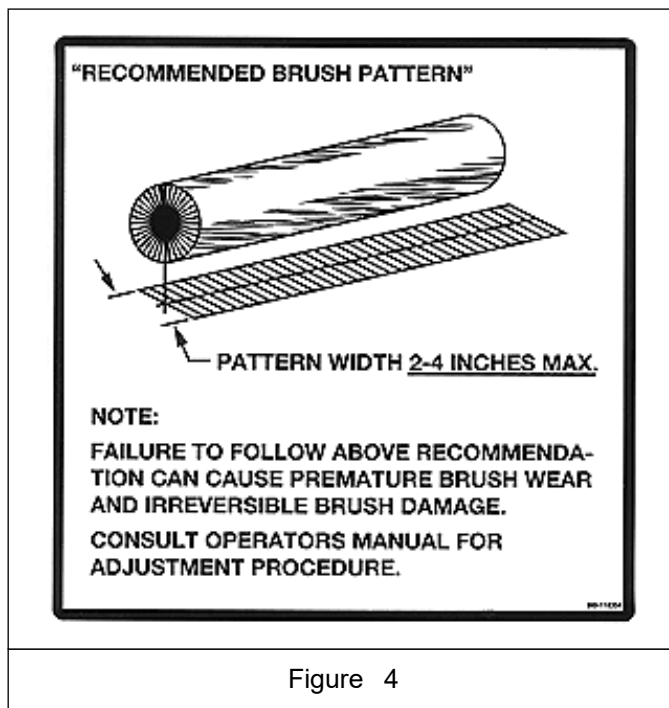


Figure 4

# SETUP AND ADJUSTMENTS

## DEFLECTOR ADJUSTMENT

The deflector is mounted inside the broom housing, to the rear of the brush. It deflects debris from the brush into the hopper. The position of the deflector must be kept near the brush and must be adjusted as the brush wears. The broom must be leveled and the brush pattern (swept area) set before adjusting the deflector position. See Figure 6.



Figure 6

1. Loosen the deflector upper mounting bolt on each side of the broom housing. See Figures 2 and 3.

NOTE: The deflector upper mounting bolts ride in curved slots in the sides of the broom housing.

2. Tip the deflector toward the brush until very close, keeping deflector from contacting bristles. The deflector position can be seen through the curved slots in the sides of the broom housing.
3. Tighten the deflector mounting bolt on each side of the broom housing.

Once the broom has been properly adjusted, a short operation period is recommended for break-in; approximately 15 minutes. After this break-in period, verify that the broom is level and the pattern adjustment is correct.

# MAINTENANCE

## MAINTENANCE SCHEDULE

- Check adjustments – every 10 hours.
- Grease bearings – after initial 10 hours, then every 100 - 200 hours thereafter.
- Grease pivot points – every 50 hours.

NOTE: Grease points are noted with an applicable decal.

- Replace brush filler – as needed.



## LUBRICATION

- Grease bearings and pivot points per the MAINTENANCE SCHEDULE using Chevron Ultra Duty II, Grade 2; or equivalent high-temp grease.
- Grease points on the unit include (2) on the brush end support bearings and (4) on caster wheel pivot mounts and axle shafts.
- Use an ISO 32 or greater hydraulic fluid, dependant upon operating temperatures, for M-B supplied independent hydraulic systems. If the oil is supplied by the prime mover, use the prime mover manufacturer's recommended fluid.

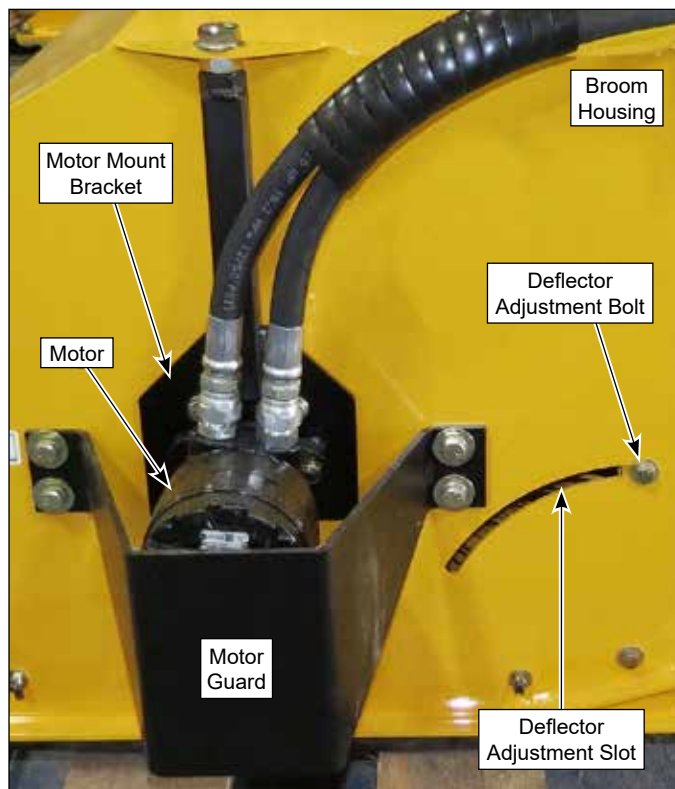


Figure 1

## FILLER REPLACEMENT

### Brush Removal

1. Lower broom until brush contacts the ground.

NOTE: Steps 2 and 3 apply to end with brush drive motor, whether broom is single or dual motor drive.

2. Remove (4) 1/2-13 x 1-1/4" hex head capscrews, flat washers and motor guard from broom housing. Retain guard and mounting hardware. See Figure 1.
3. Remove (2) 1/2"-13 lock nuts and motor from mount bracket. Slide motor out of mating splined hub. Let motor hang on hoses. Retain mounting hardware. See Figure 2.
4. On both sides of broom, remove (3) 1/2-13 x 1" hex head

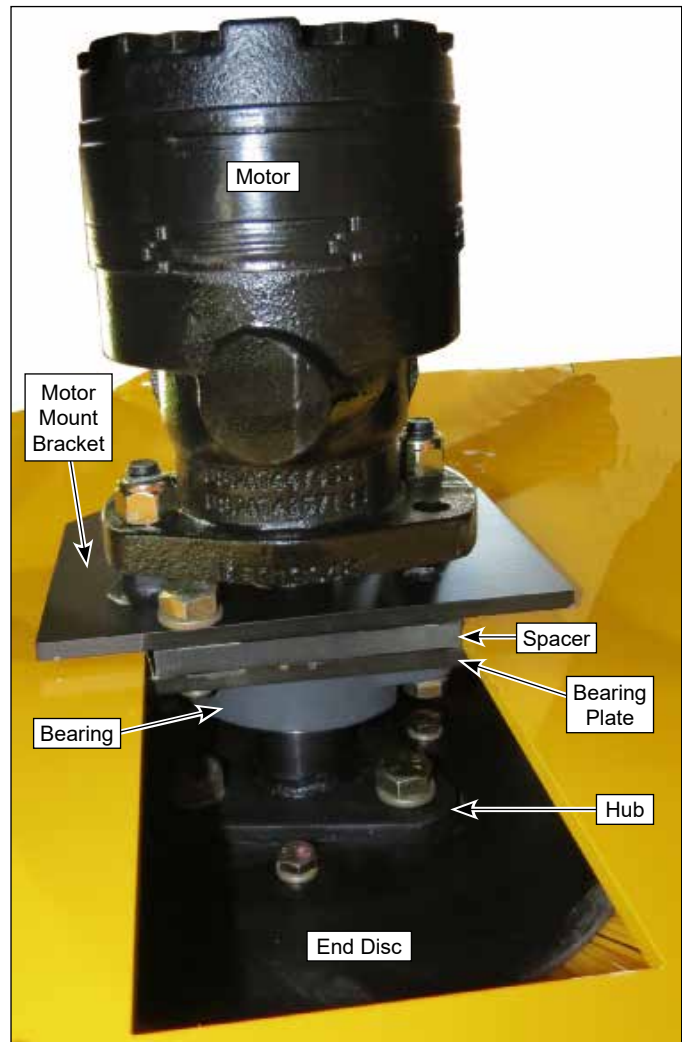


Figure 2 (Bottom View)

capscrews and lock washers attaching outer mount bracket to inner bearing plate. Spacer will fall free when capscrews are removed. See Figure 3.

5. Lift broom to slide brush out the bottom.

# MAINTENANCE



Figure 3

## Bristle Removal

1. On one end of core, loosen bearing setscrew(s) and slide support bearing with plate off hub.
2. Remove (3) 1/2-13 x 1" capscrews, lock washers and splined hub from end of core. Retain hub and mounting hardware. See Figures 2 and 3.
3. Remove (3) 5/16-18 x 3/4" capscrews, lock washers and end disc (wafer retainer plate) from end of core. Retain end disc and mounting hardware. See Figures 2 and 3.
4. Slide spent brush wafers and spacers off core and discard.

## Bristle Installation

**IMPORTANT!** Proper wafer and spacer position must be followed to ensure proper balance on the core.

1. Stand core in upright position and begin filling by sliding a brush wafer and then a spacer down the full length of the core.
  - a. Note the location of the drive pin on the inside ring of each brush wafer. Position each wafer so its drive pin is positioned between the stop flanges. Rotate each subsequent wafer before installing so the position of its pin is staggered on the core by one stop flange. See Figure 4.



Figure 4

**NOTE:** Brush surface contact during initial operation will set all wafer drive pins up against the core stop flanges. See Figure 5.

- b. The circular spacers have unconnected, overlapped ends. Position the overlap of the first spacer between the stop flanges, rotated one flange ahead of the drive pin location of the immediately preceding brush wafer. All subsequent spacers must follow the same staggered placement pattern.
3. Continue stacking the core in a wafer-spacer, wafer-spacer configuration until it is full, ending with a brush wafer.

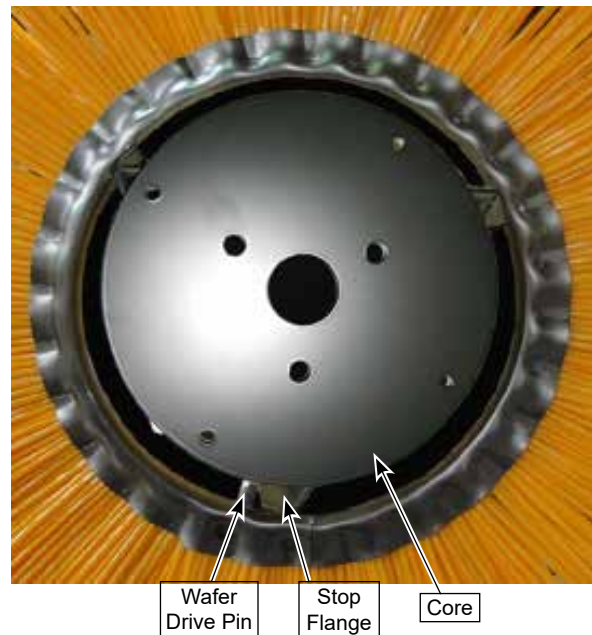


Figure 5

# MAINTENANCE

**NOTE:** Always start and finish with a brush wafer. The last wafer should actually extend beyond the end of the core (Minimum 1/2") so the end disc compresses the spacers onto the core when tightened.

1. Install end disc on core with original hardware. See Figures 2 and 3.
2. Install splined hub on core with original hardware. See Figures 2 and 3.
3. Install support bearing with plate onto hub. Do not tighten bearing setscrew(s) at this time.

## Brush Installation

1. Loosen the deflector upper mounting bolt on each side of the broom housing. See Figure 1.

**NOTE:** The deflector upper mounting bolts ride in curved slots in the sides of the broom housing.

2. Tip the deflector away from the brush position to create clearance. The deflector position can be seen through the curved slots in the sides of the broom housing.
3. Lift broom and position refilled brush below housing. Lower broom down over brush while guiding bearing plates into housing.
4. Align mounting holes in inner bearing plate with holes in outer mount bracket.
5. Insert spacer between inner plate and outer bracket so that all holes align. Install original (3) 1/2-13 x 1" hex head capscrews and lock washers to secure outer bracket and spacer to inner plate. See Figure 2.
6. Tighten setscrew(s) to lock support bearing onto hub.

**NOTE:** Steps 7 and 8 apply to end with brush drive motor, whether broom is single or dual motor drive.

Apply grease to hub splines before installing hydraulic motor(s).

7. Slide motor shaft into mating splined hub and secure motor to outer plate with (2) 1/2"-13 lock nuts. See Figure 2.
8. Install motor guard on broom housing with (4) 1/2-13 x 1-1/4" hex head capscrews and flat washers. See Figure 1.
9. Tip the deflector toward the brush until very close, keeping deflector from contacting bristles. The deflector position can be seen through the curved slots in the sides of the broom housing. See Figure 1.
10. Tighten the deflector mounting bolt on each side of the broom housing.
11. Perform the leveling and the pattern adjustment procedures before placing machine back into service. Refer to the **SETUP AND ADJUSTMENTS** section of the manual.

Once the broom has been properly adjusted, a short operation period is recommended for break-in; approximately 15 minutes. After this break-in period, verify that the broom is level and the pattern adjustment is correct.

# STORAGE

## STORAGE

- Always store the broom in a supported position on blocks with the brush off the ground. If the bristles are stored in a deformed position for extended periods of time the broom will become severely out of balance.
- Store the broom in a location out of the sun and weather to prevent premature failure of plastic bristles. Bristles can become brittle when subjected to sunlight or repeated temperature changes.
- Connect couplers together to prevent contamination from entering hydraulic system.
- Disconnect all electrical connections between the broom and loader/tractor for extended storage to prevent battery drain.
- Properly clean the unit before storage and remove dirt, debris, salt, etc. to extend paint life.
- If the unit is power-washed, all lubrication points should be greased before storage.

## TROUBLESHOOTING

Trouble	Possible Cause	Remedy
Broom does not rotate.	<ol style="list-style-type: none"> <li>1. No/Low hydraulic pressure/flow.</li> <li>2. Hoses disconnected.</li> <li>3. Hoses bent or kinked.</li> <li>4. Air in hydraulic system.</li> <li>5. Worn or damaged broom motor(s).</li> <li>6. Brush support bearings worn or damaged.</li> <li>7. Brush contact area too large.</li> <li>8. Pressure relieving too low.</li> <li>9. Excessive system backpressure.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check loader/tractor operation. Check loader/tractor hydraulic oil level.</li> <li>2. Connect hoses and fittings.</li> <li>3. Remove sharp bends and kinks.</li> <li>4. Raise broom and operate auxiliary controls until air is bled from system.</li> <li>5. Repair or replace broom motor(s).</li> <li>6. Replace brush support bearings.</li> <li>7. Adjust brush pattern/contact area.</li> <li>8. Adjust relief valve.</li> <li>9. Check loader/tractor Operator's manual.</li> </ol>
Broom rotates in wrong direction.	<ol style="list-style-type: none"> <li>1. Hoses installed incorrectly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Switch hydraulic hose connections</li> </ol>
Bristles wearing unevenly.	<ol style="list-style-type: none"> <li>1. Broom not level side to side.</li> <li>2. Pattern adjustment not set.</li> <li>3. Tires on loader/tractor at different pressures or of different sizes.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check loader/tractor lift arms for level.</li> <li>2. Adjust brush height adjustment brackets.</li> <li>3. Check tire pressure, sizes and rating. Adjust and/or correct as necessary.</li> </ol>
Brushes wear very quickly.	<ol style="list-style-type: none"> <li>1. Brush pattern too wide.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust brush pattern to be 2-4" wide. Refer to the <b>Setup and Adjustments</b> section of this manual.</li> </ol>
Broom bounces during sweeping.	<ol style="list-style-type: none"> <li>1. Travel speed too fast and/or brush speed too slow.</li> <li>2. Bristles deformed by improper storage.</li> <li>3. Bent brush core.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust to find correct ground and brush speed for surface.</li> <li>2. Replace brush wafers.</li> <li>3. Replace core.</li> </ol>
Broom sweeping poorly.	<ol style="list-style-type: none"> <li>1. Material is 'caked-on' or frozen.</li> <li>2. Uneven sweeping surface.</li> <li>3. Material is too heavy.</li> <li>4. Broom rotating too slowly.</li> <li>5. Prime mover moving too fast.</li> </ol>	<ol style="list-style-type: none"> <li>1. Slow down and 'scrub' surface.</li> <li>2. Increase brush pattern.</li> <li>3. Slow down loader/tractor speed.</li> <li>4. Increase loader/tractor engine speed (rpm).</li> <li>5. Slow down loader/tractor speed.</li> </ol>
Hopper (bucket) does not open.	<ol style="list-style-type: none"> <li>1. Chains not equal in length or disconnected.</li> <li>2. No/Low hydraulic pressure/flow.</li> <li>3. Hoses disconnected.</li> <li>4. Hoses bent or kinked.</li> <li>5. Air in hydraulic system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect chains and adjust lengths to be equal.</li> <li>2. Check loader/tractor operation. Check loader/tractor hydraulic oil level.</li> <li>3. Connect hoses and fittings.</li> <li>4. Remove sharp bends and kinks.</li> <li>5. Raise broom and operate auxiliary controls until air is bled from system.</li> </ol>

# REPLACEMENT BRUSH GUIDE





Part Number	Description
907-46662	Refill Kit, 32" x 7', Wafer, Poly
907-46663	Refill Kit, 32" x 7', Wafer, Poly/Wire Combo
907-46665	Refill Kit, 32" x 8', Wafer, Poly
907-46666	Refill Kit, 32" x 8', Wafer, Poly/Wire Combo
907-76909	Refill Kit, 32" x 9', Wafer, Poly
907-76910	Refill Kit, 32" x 9', Wafer, Poly/Wire Combo

Please have your serial number (S/N) ready when an Authorized Dealer for replacement parts or service information.

# NOTES

# FASTENER TORQUE RECOMMENDATION

## TORQUE FOR STANDARD FASTENERS

Nominal Dia.	Pitch	 Class 4.6			 Class 8.8			 Class 10.9			 Class 12.9	
		Tightening Torque			Tightening Torque			Tightening Torque			Tightening Torque	
		Lubed	Dry Plated	Dry Plain	Lubed	Dry Plated	Dry Plain	Lubed	Dry Plated	Dry Plain	Lubed	Dry Plain
(mm)		K = 0.15 (ft-lbs)	K = 0.17 (ft-lbs)	K = 0.20 (ft-lbs)	K = 0.15 (ft-lbs)	K = 0.17 (ft-lbs)	K = 0.20 (ft-lbs)	K = 0.15 (ft-lbs)	K = 0.17 (ft-lbs)	K = 0.20 (ft-lbs)	K = 0.15	K = 0.20
3	0.5	0.28	0.32	0.38	0.73	0.82	0.97	1.0	1.2	1.4	1.2	1.6
3.5	0.6	0.44	0.50	0.59	1.1	1.3	1.5	1.6	1.9	2.2	1.9	2.5
4	0.7	0.66	0.74	0.87	1.7	1.9	2.3	2.4	2.7	3.2	2.8	3.8
5	0.8	1.3	1.5	1.8	3.4	3.9	4.5	4.9	5.5	6.5	5.7	7.6
6	1	2.3	2.6	3.0	5.8	6.6	7.7	8.3	9.4	11	9.7	13
6	1.25	2.1	2.3	2.7	5.3	6.0	7.0	7.6	8.6	10	8.8	12
7	1	3.8	4.3	5.0	9.7	11	13	14	16	19	16	22
8	1	5.9	6.6	7.8	15	17	20	22	24	29	25	34
8	1.25	5.5	6.2	7.3	14	16	19	20	23	27	24	31
10	1.25	11	13	15	29	33	39	42	48	56	49	66
10	1.5	11	12	14	28	32	37	40	45	53	47	62
12	1.25	21	23	28	53	60	71	76	86	101	89	119
12	1.5	20	22	26	51	58	68	73	82	97	85	113
12	1.75	19	21	25	49	55	65	70	79	93	81	108
14	1.25	26	29	34	66	75	89	95	106	127	111	148
14	1.5	28	32	37	72	82	96	103	117	138	121	161
14	2	30	34	40	78	88	104	111	126	148	130	173
16	1.5	50	57	67	129	146	171	184	208	245	215	287
16	2	47	53	62	121	137	161	173	196	230	202	269
18	1.5	73	82	97	187	212	249	266	303	357	313	417
18	2.5	65	73	86	167	189	222	239	270	318	279	372
20	2.5	91	104	122	236	267	314	337	382	449	394	525

Clamp load calculated as 75% of the proof load for specified bolts.  
 All Torque values are listed in foot-pounds  
 Torque values calculated from formula  $T=KDF$ , where  
 K = 0.15 for "lubricated" conditions  
 K = 0.17 for zinc plated and dry conditions  
 K = 0.20 for plain and dry conditions  
 D = Nominal Diameter  
 F = Clamp Load

# Warranty/Product Registration

**A Warranty Registration Form must be submitted online to make warranty effective.**

**Warranty Start Date:**

All claims must be submitted using the proper form and emailed to [mbattachments@aebi-schmidt.com](mailto:mbattachments@aebi-schmidt.com).

To be eligible for warranty payment the product must be registered with M-B Companies via

[www.m-bco.com/warranty](http://www.m-bco.com/warranty)

M-B Companies, Inc. reserves the right to decline any claim that does not meet above requirements.

Pre-Approval Required Prior To ANY Work Being Performed.

## LIMITED WARRANTY

Limited Warranty: Subject to the limitations set forth herein, M-B Companies, Inc. ("M-B") warrants its products to be free from defects in material and workmanship for a period of twelve (12) months from the date of delivery of the product to its original owner, except that the warranty is twelve (12) months solely for the following products: Truck Mounted Pavement Marking Equipment, Airport Snow Removal Products, Attachment Products, Brushes. Parts shall have a ninety (90) day warranty. This warranty is not transferable without the written consent of M-B.

Notice: M-B's obligations under this Limited Warranty are conditioned on M-B receiving, within the warranty period, written notice from Buyer specifying the nature of any alleged defect and requesting corrective action by Seller.

Remedies: M-B, at its option, will repair or replace, or provide a credit to Buyer for, defective warranted items. If requested by M-B, products or parts for which a warranty claim is made shall be returned, transportation prepaid, to M-B's factory. Buyer shall not return any product for repair, replacement or credit without M B's advance written consent.

Other Manufacturer's Warranty: On products furnished by M-B, but manufactured by any other manufacturer, the warranty of said manufacturer, if any, will be assigned to Buyer, if the said warranty is assignable. However, M-B does not represent or guarantee that such manufacturer will comply with any of the terms of the warranty of such manufacturer.

Exclusions: Any improper use, operation beyond capacity, or substitution of parts not approved by M-B, or alteration or repair by others in such a manner as in M-B's judgment materially and/or adversely affects the product shall void this warranty. This warranty does not apply to defects caused by damage or unreasonable use while in the possession of the owner, including but not limited to: failure to provide reasonable and necessary maintenance, normal wear, routine tune ups or adjustments, improper handling or accidents, operation at speed or load conditions contrary to published specifications, improper or insufficient lubrication, or improper storage.

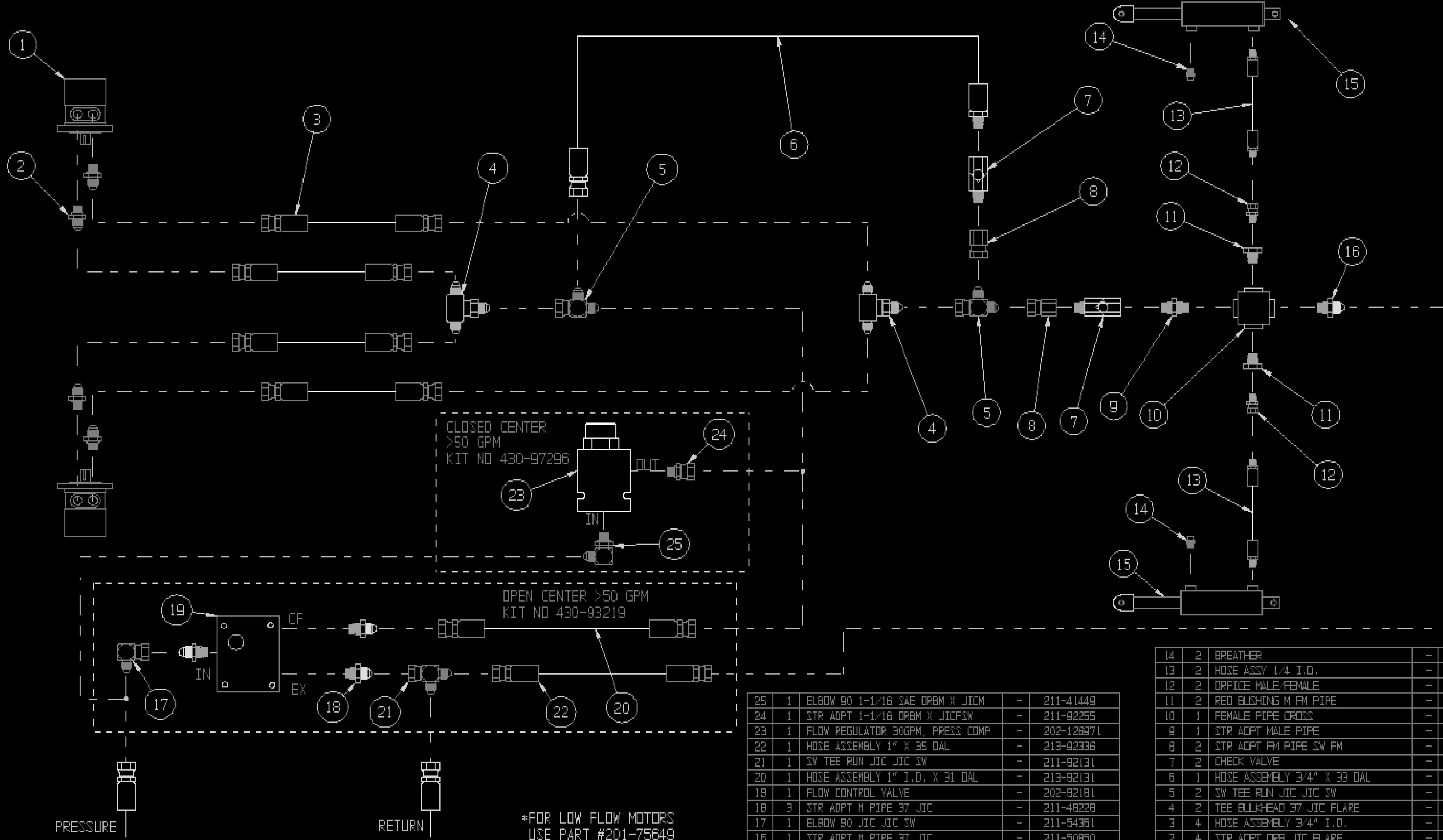
Seller manufactures power brooms that mount to many makes and models of equipment. Seller attempts to ensure that the mounting frames fit correctly. However, the large number of tractor models, types and options currently available, compounded by frequent manufacturer design changes, may prevent Seller from supplying a frame that fits every unit correctly. Therefore, unless Buyer supplies drawing which detail the attachment points on the specific unit to which the broom will be mounted, Seller will not be responsible for the fit of the mounting frame.

The batteries, tires, rubber material, brushes and material normally consumed in operation, and major components such as engines, air compressors, and hydraulic pumps and motors are excluded from this warranty but may be covered to the extent of any warranty received by M-B from its supplier if permitted by the terms of such warranty.

Limitations of liability: M-B shall not be liable for any incidental, consequential, punitive or special damages of any kind, including, but not limited to, consequential labor costs or transportation charges in connection with the repair or replacement of defective parts, or lost time profits or expense which may have accrued because of said defect.

M-B disclaims all other warranties, whether express or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. This warranty is exclusive remedy of buyer. This warranty cannot be extended, broadened or changed in any respect except in writing by an authorized officer of M-B.

Notwithstanding anything in this warranty is to the contrary, in no event shall M-B's total liability hereunder exceed the purchased price of the particular product.



SYM	QTY	NAME / MATERIAL	SIZE	PART NUMBER
	1	ELBOW 90 1-1/16 SAE DRBM X JICM	-	211-41449
	1	STR ADPT 1-1/16 DRBM X JICP3W	-	211-92255
	1	FLOW REGULATOR 30GPM, PRESS COMP	-	202-128971
	1	HOSE ASSEMBLY 1" X 35 DAL	-	213-92336
	1	SW TEE RUN JIC JIC SW	-	211-92131
	1	HOSE ASSEMBLY 1" I.D. X 31 DAL	-	213-92131
	1	FLOW CONTROL VALVE	-	202-92181
	3	STR ADPT M PIPE 3/7 JIC	-	211-48228
	1	ELBOW 90 JIC JIC SW	-	211-54361
	1	STR ADPT M PIPE 3/7 JIC	-	211-50850
	2	HYDRAULIC CYLINDER	-	203-92093

SYM	QTY	NAME / MATERIAL	SIZE	PART NUMBER
	2	BREATHER	-	209-92090
	2	HOSE ASSY 1/4 I.D.	-	SEE CHART
	2	ORFICE MALE/FEMALE	-	211-92106
	2	RED BUSHING M FM PIPE	-	211-66892
	1	FEMALE PIPE CROSS	-	211-2149
	1	STR ADPT MALE PIPE	-	211-27527
	2	STR ADPT FM PIPE SW FM	-	211-66890
	2	CHECK VALVE	-	202-58624
	1	HOSE ASSEMBLY 3/4" X 33 DAL	-	213-92340
	2	SW TEE RUN JIC JIC SW	-	211-66889
	2	TEE BULKHEAD 3/7 JIC FLARE	-	211-64563
	4	HOSE ASSEMBLY 3/4" I.D.	-	SEE CHART
	4	STR ADPT DRB JIC FLARE	-	211-51813
*	1	HYDRAULIC MOTOR	1	201-75209

\*FOR LOW FLOW MOTORS  
USE PART #201-75649

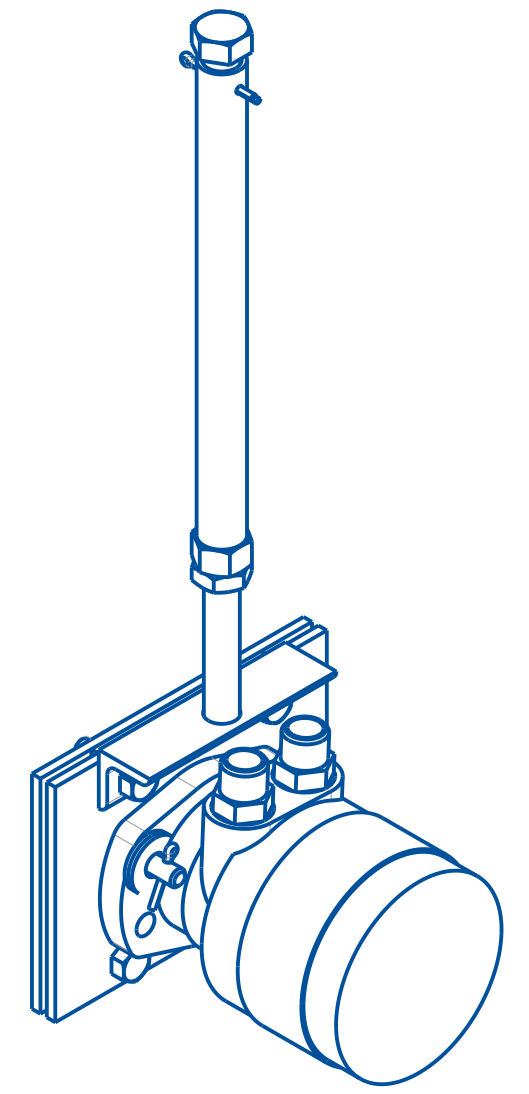
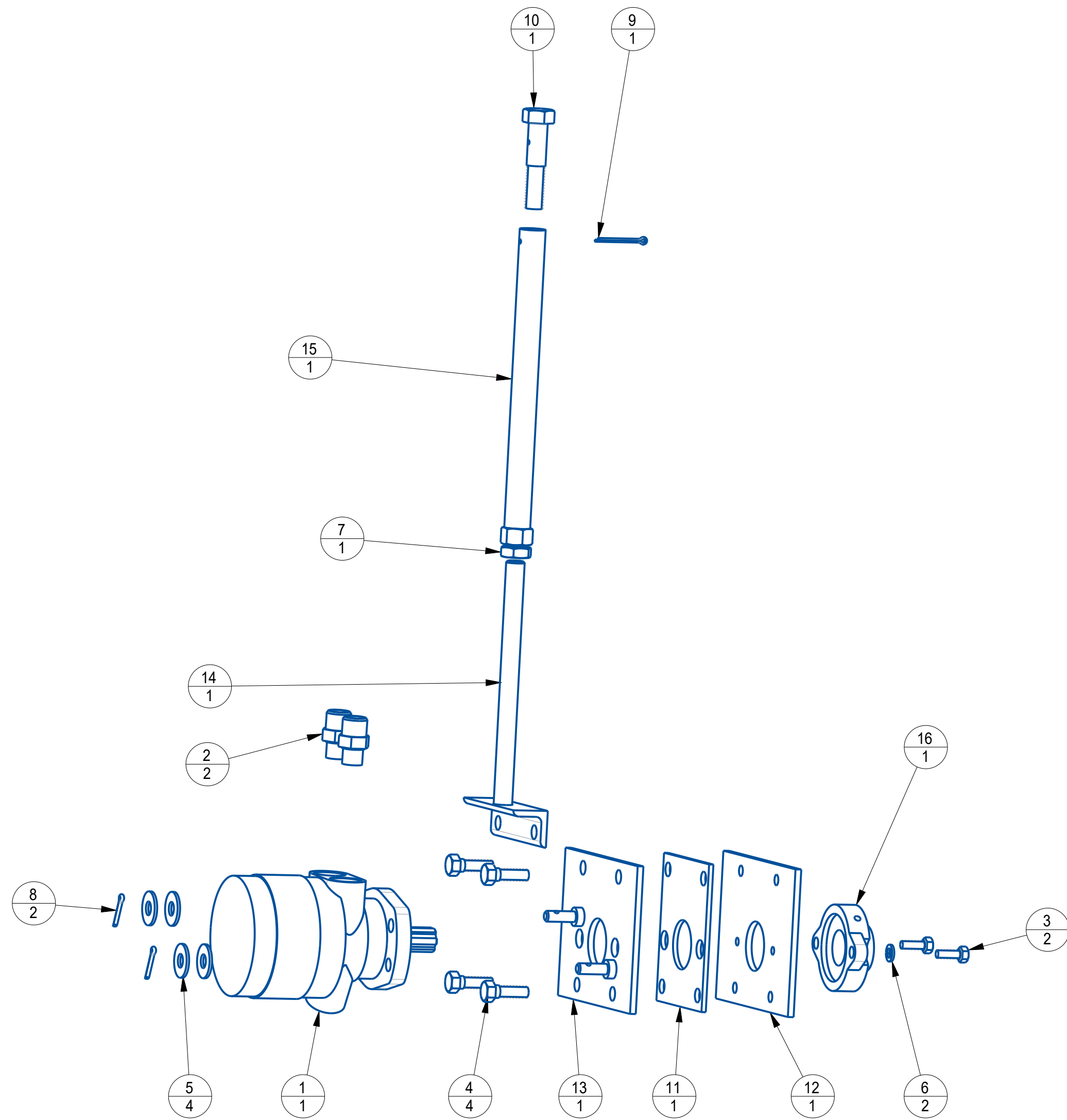
NOTE: HOSES BACK TO TRACTOR ARE CUSTOMER SUPPLIED

	72" LLB	84" LLB	96" LLB	108" LLB
ITEM NO. 3 HOSE ASSEMBLY	PART NO. 213-92294 69" OVERALL LENGTH	PART NO. 213-92117 75" OVERALL LENGTH	PART NO. 213-92297 81" OVERALL LENGTH	PART NO. 213-147237 87" OVERALL LENGTH
ITEM NO. 13 HOSE ASSEMBLY	PART NO. 213-91854 72" OVERALL LENGTH	PART NO. 213-92216 78" OVERALL LENGTH	PART NO. 213-92329 84" OVERALL LENGTH	PART NO. 213-147238 90" OVERALL LENGTH

Tolerances: Unless Otherwise Specified				NAME: HVD, SCHEMATIC, LLB	
Fractional Tol. ±				DATE: 8/27/1994	
Decimal Tol. ±				SCALE: AS SHOWN	
Angle Tol. ±				MATERIAL: MACHINE LLB	
REV B ADDED FLOW REGULATOR KIT				REQ'D	
REV A REDRAWN CORRECTLY				PART NUMBER: 210-92135	
SYM REVISION				DATE: 10-15-95	
EDN BY				DATE: 05-23-10	
NJD				MB COMPANY, INC.	
359				SPECIAL PRODUCTS DIVISION	
10-15-95				NEW HOLLAND, PA. 19300	

ZONE	REV	CN	DESCRIPTION	BY	DATE

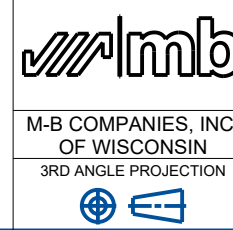
432-215643



16	1	BEARING, BALL 1.438 ID 2 BOLT FLANGE	X	600-90327
15	1	BOLT ADJUSTMENT W.U. LLB BROOM	B	410-93144
14	1	ANGLE, ADJUSTING, W.U., BROOM, LLB	A	410-93143
13	1	PLATE/STUD W.U. LLB BROOM	B	410-93142
12	1	PLATE	B	401-94998
11	1	PLATE, SPACER	B	401-94997
10	1	BOLT, MODIFIED 3.500	A	401-126407
9	1	PIN, COTTER 3/16 X 1-3/4		380-90145
8	2	PIN, COTTER .3125		380-83647
7	1	NUT, HEX, UNC, JAM 3/4-10	A	371-83958
6	2	WASHER, LOCK -3/8 YLW ZINC PL	-	351-30000
5	4	WASHER, FLAT -1/2 STD ZINC PL	-	341-50000
4	4	HHCS 1/2-13 UNC X 1.500	A	311-51500
3	2	HHCS 3/8-16 UNC X 1.000	A	311-31000
2	2	STR ADPT, MALE 1 1/16 JIC X 7/8 ORB	X	211-51813
1	1	MOTOR, HYDRAULIC 18.3 CU IN	A	201-75209
SYM	QTY	DESCRIPTION	SIZE	PART NUMBER

MATERIAL: SEE BOM		DESCRIPTION: MOTOR ASSEMBLY, LLB, STD FLOW, WHITE	
TOLERANCE UNLESS OTHERWISE SPECIFIED	ENG	JAM	DATE
	DRN	JAM	DATE
	CHKD	SNT	DATE
	APRVD	SNT	DATE
.XX± .03			28-Mar-23
.XXX± .010			28-Mar-23
X/Y ± 1/32			28-Mar-23
ANGLE ± 2°			28-Mar-23
SCALE: 0.250	SHEET 1 OF 1		REV
SIZE	PART NUMBER:	0	
C	432-215643	0	

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WT (±2%):N/A

A

B

C

D

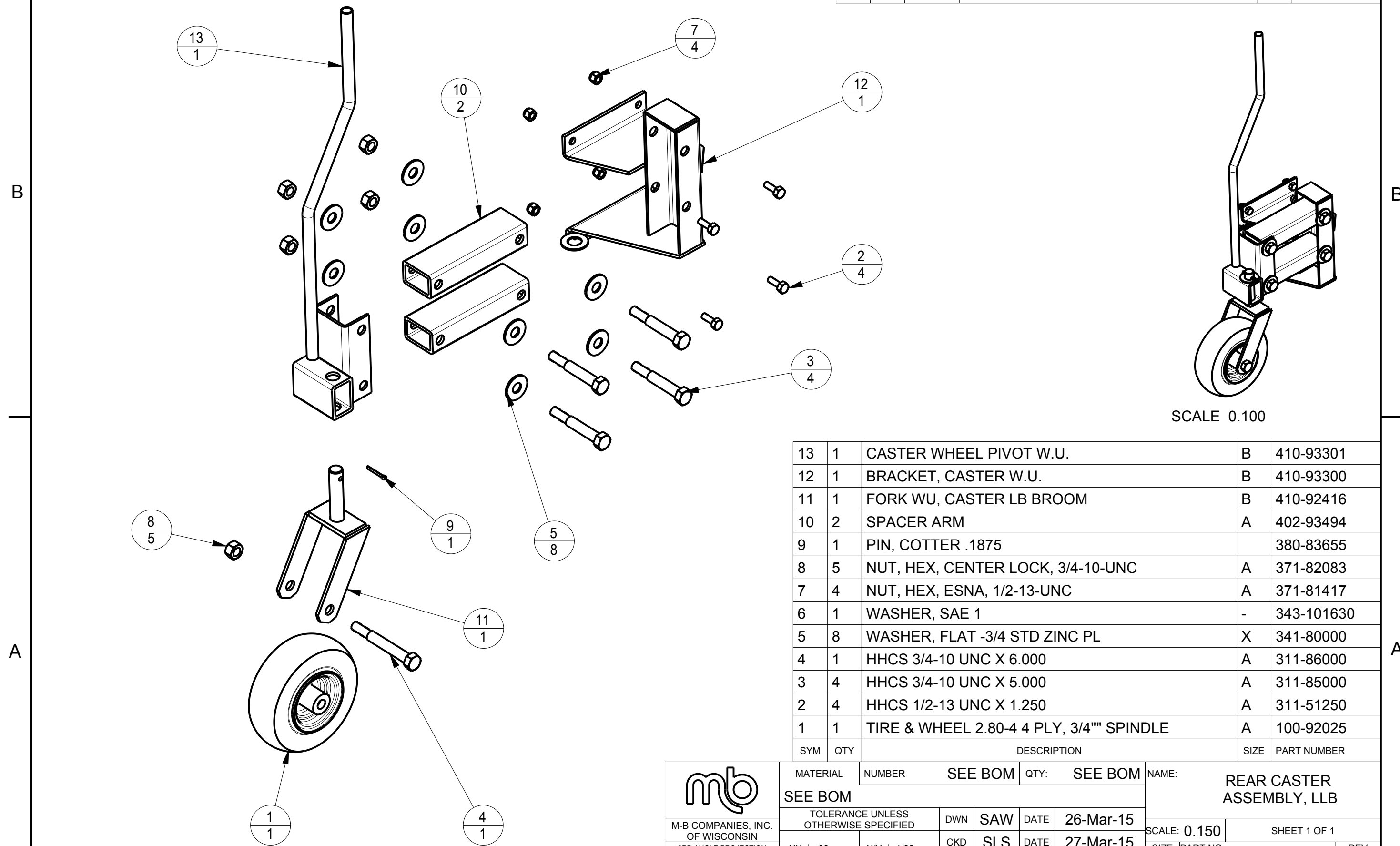
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ZONE	REV	CN	DESCRIPTION	BY	DATE



SCALE 0.100

13	1	CASTER WHEEL PIVOT W.U.	B	410-93301
12	1	BRACKET, CASTER W.U.	B	410-93300
11	1	FORK WU, CASTER LB BROOM	B	410-92416
10	2	SPACER ARM	A	402-93494
9	1	PIN, COTTER .1875		380-83655
8	5	NUT, HEX, CENTER LOCK, 3/4-10-UNC	A	371-82083
7	4	NUT, HEX, ESNA, 1/2-13-UNC	A	371-81417
6	1	WASHER, SAE 1	-	343-101630
5	8	WASHER, FLAT -3/4 STD ZINC PL	X	341-80000
4	1	HHCS 3/4-10 UNC X 6.000	A	311-86000
3	4	HHCS 3/4-10 UNC X 5.000	A	311-85000
2	4	HHCS 1/2-13 UNC X 1.250	A	311-51250
1	1	TIRE & WHEEL 2.80-4 4 PLY, 3/4" SPINDLE	A	100-92025
SYM	QTY	DESCRIPTION	SIZE	PART NUMBER

<p>M-B COMPANIES, INC. OF WISCONSIN 3RD ANGLE PROJECTION</p>	MATERIAL	NUMBER	SEE BOM	QTY:	SEE BOM	NAME:	REAR CASTER ASSEMBLY, LLB			
	SEE BOM						SCALE:	0.150	SHEET 1 OF 1	
	TOLERANCE UNLESS OTHERWISE SPECIFIED			DWN	SAW	DATE	26-Mar-15			
	.XX ± .03 .XXX ± .010			CKD	SLS	DATE	27-Mar-15	SIZE	PART NO.	REV
			APP	SLS	DATE	27-Mar-15	B	432-200011	0	

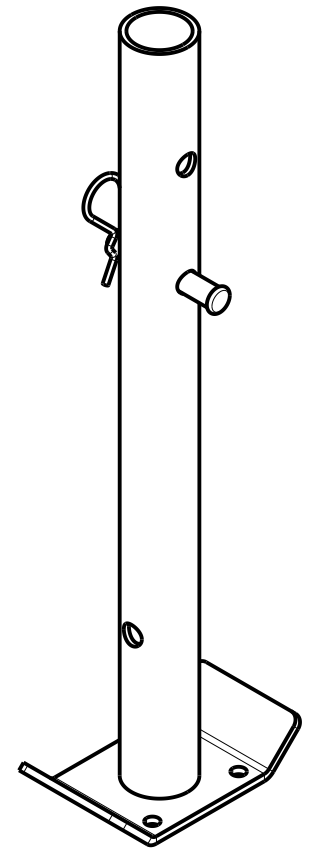
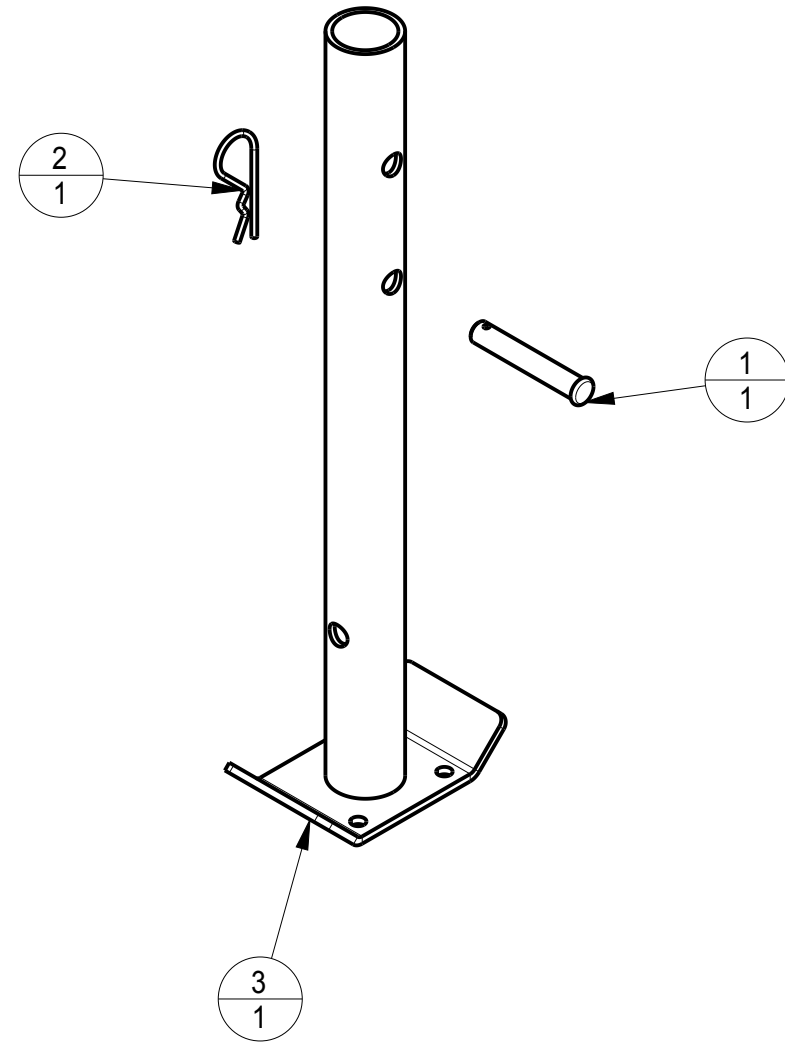
2

1

ZONE	REV	CN	DESCRIPTION	BY	DATE

B


B



A

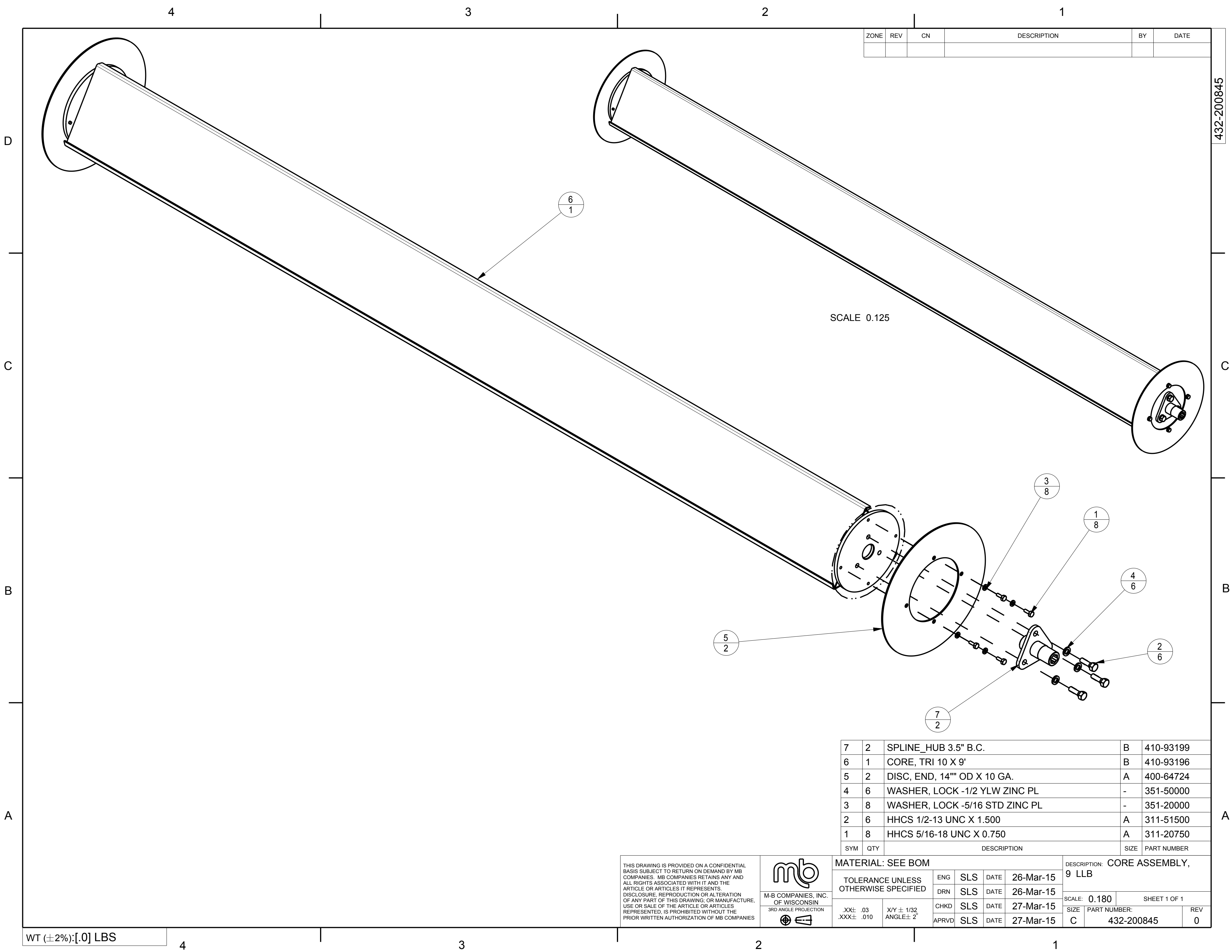
A

3	1	SUPPORT STAND W.U. LLB BROOM	B	410-92404
2	1	CLIP, HAIRPIN .125" DIA SHAFT 7/16"-3/4"	X	380-84739
1	1	PIN, CLEVIS 1/2 X 3	A	380-76379
SYM	QTY	DESCRIPTION	SIZE	PART NUMBER

 M-B COMPANIES, INC. OF WISCONSIN 3RD ANGLE PROJECTION	MATERIAL	NUMBER	SEE BOM	QTY:	SEE BOM	NAME:	STORAGE STAND ASSEMBLY, LLB			
	SEE BOM						SCALE:	0.250	SHEET 1 OF 1	
	TOLERANCE UNLESS OTHERWISE SPECIFIED		DWN	SAW	DATE	26-Mar-15	SIZE	PART NO.	REV	
	.XX ± .03	X/Y ± 1/32	CKD	SLS	DATE	27-Mar-15				
.XXX ± .010	ANGLE ± 1/2°	APP	SLS	DATE	27-Mar-15	B	432-200013	0		

2

1



ZONE	REV	CN	DESCRIPTION	BY	DATE

432-200845

SCALE 0.125

7	2	SPLINE_HUB 3.5" B.C.	B	410-93199
6	1	CORE, TRI 10 X 9'	B	410-93196
5	2	DISC, END, 14" OD X 10 GA.	A	400-64724
4	6	WASHER, LOCK -1/2 YLW ZINC PL	-	351-50000
3	8	WASHER, LOCK -5/16 STD ZINC PL	-	351-20000
2	6	HHCS 1/2-13 UNC X 1.500	A	311-51500
1	8	HHCS 5/16-18 UNC X 0.750	A	311-20750
SYM	QTY	DESCRIPTION	SIZE	PART NUMBER

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MATERIAL: SEE BOM

TOLERANCE UNLESS OTHERWISE SPECIFIED		ENG	SLS	DATE	26-Mar-15
.XX± .03	XY ± 1/32	DRN	SLS	DATE	26-Mar-15
.XXX± .010	ANGLE ± 2°	CHKD	SLS	DATE	27-Mar-15
		APRVD	SLS	DATE	27-Mar-15

DESCRIPTION: CORE ASSEMBLY, 9 LLB

SCALE: 0.180	SHEET 1 OF 1
SIZE: C	PART NUMBER: 432-200845
	REV: 0

WT (±2%):[.0] LBS

4

3

2

1

ZONE	REV	CN	DESCRIPTION	BY	DATE
	A	12664	WAS 311-22000, IS 311-22250	YY	18-Apr-17

D

C

B

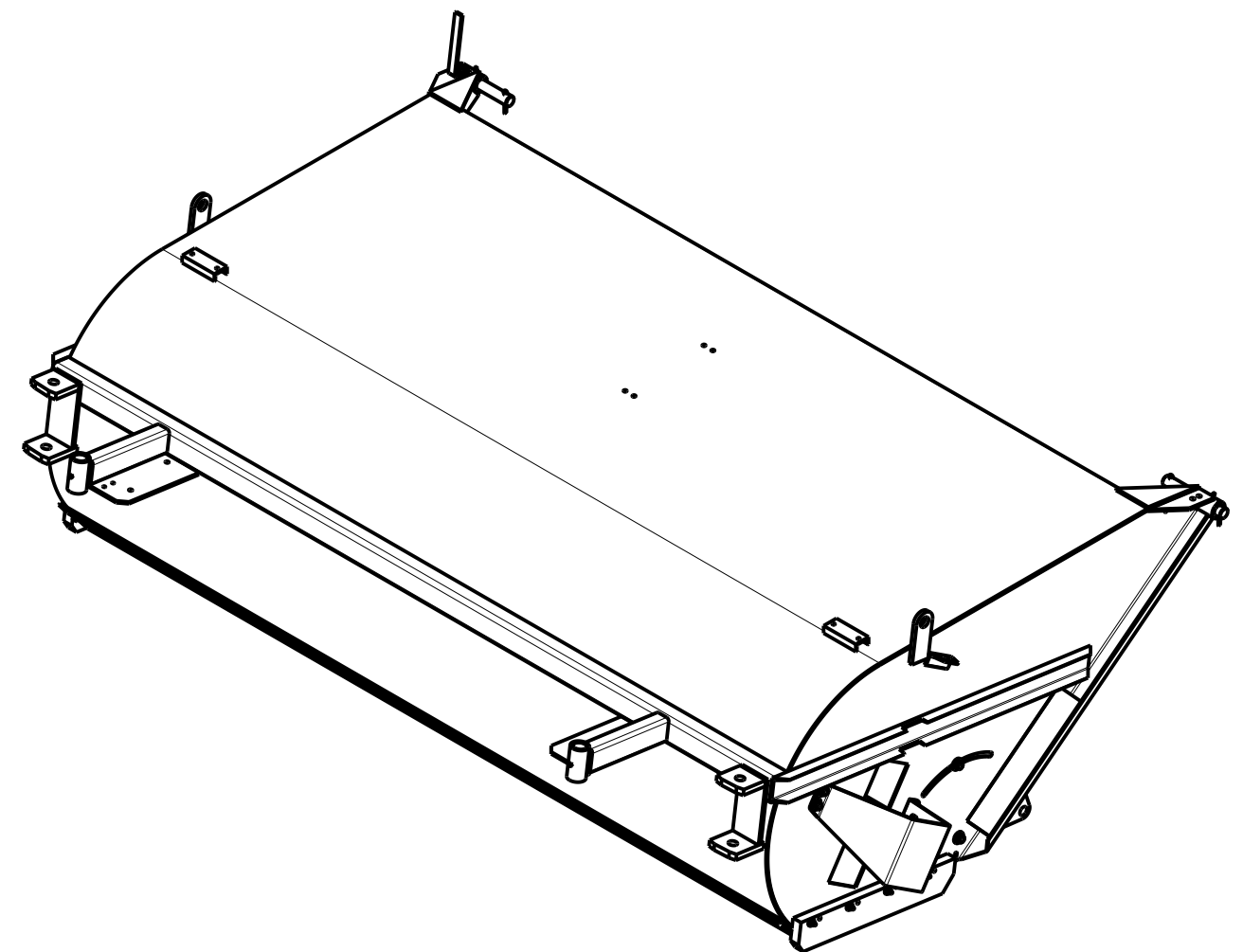
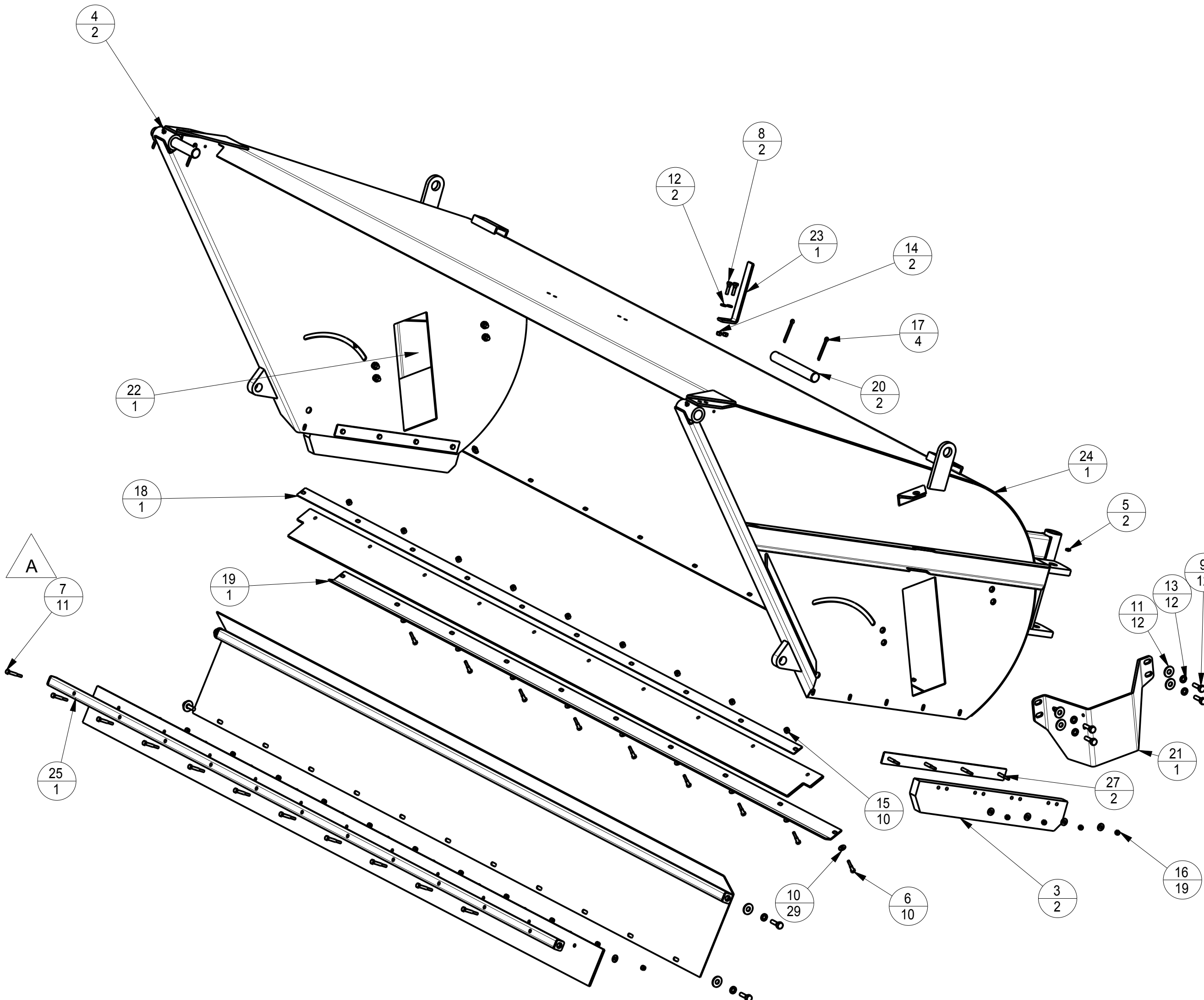
A

432-200846

C

B

A



SCALE 0.050

27	2	BAR, W.U.	A	410-94482
26	1	DEFLECTOR WU, 9 FT LLB	B	410-147232
25	1	BAFFLE, DEFL. WU .	X	410-147230
24	1	FRAME, W.U. 9 FT LLB	D	410-147221
23	1	HEIGHT INDICATOR	A	402-95867
22	1	GUARD, MOTOR, HYD, RH	B	402-93740
21	1	GUARD, MOTOR, HYD, LH	B	402-93739
20	2	PIN	A	402-93051
19	1	STRAP, FORMED 9 FT LLB	B	401-147227
18	1	STRAP, FRONT 9 FT LLB	B	401-147226
17	4	PIN, COTTER .25 x 2.25		380-83957
16	19	NUT, HEX, ESNA, 5/16-18-UNC	A	371-81620
15	10	NUT, HEX, ESNA, 3/8-16 UNC	A	371-81297
14	2	NUT, HEX 3/8-16 UNC	A	361-30000
13	12	WASHER, LOCK -1/2 YLW ZINC PL	-	351-50000
12	2	WASHER, LOCK -3/8 YLW ZINC PL	-	351-30000
11	12	WASHER, FLAT -1/2 STD ZINC PL	-	341-50000
10	29	WASHER, FLAT -5/16 STD ZINC PL	-	341-20000
9	12	HHCS 1/2-13 UNC X 1.500	A	311-51500
8	2	HHCS 3/8-16 UNC X 1.250	A	311-31250
7	11	HHCS 5/16-18 UNC X 2.250	A	311-22250
6	10	HHCS 5/16-18 UNC X 1.500	A	311-21500
5	2	GREASE ZERK 1/4-28	X	206-72100
4	2	ZERK, GREASE, 1/8 IN. NPT .	X	206-05000
3	2	DIRT SHOE, LB/LLB SIDE MODIFIED	B	101-92117
2	1	DEFLECTOR, RUBBER INTERIOR BAFFLE, 9'	A	101-147235
1	1	DEFLECTOR, RUBBER 9' LLB	B	101-147228
SYM	QTY	DESCRIPTION	SIZE	PART NUMBER

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MATERIAL: SEE BOM

TOLERANCE UNLESS OTHERWISE SPECIFIED	ENG	SLS	DATE
			04-Dec-15
	DRN	SLS	DATE
			04-Dec-15
.XX± .03	CHKD	YY	DATE
.XXX± .010			11-Dec-15
X/Y ± 1/32	APRVD	YY	DATE
ANGLE± 2°			11-Dec-15

DESCRIPTION: BUCKET ASSEMBLY, 9 LLB	
SCALE: 0.090	SHEET 1 OF 1
SIZE	PART NUMBER: 432-200846
C	REV A

WT (±2%):[.0] LBS

4

3

2

1

ZONE	REV	CN	DESCRIPTION	BY	DATE

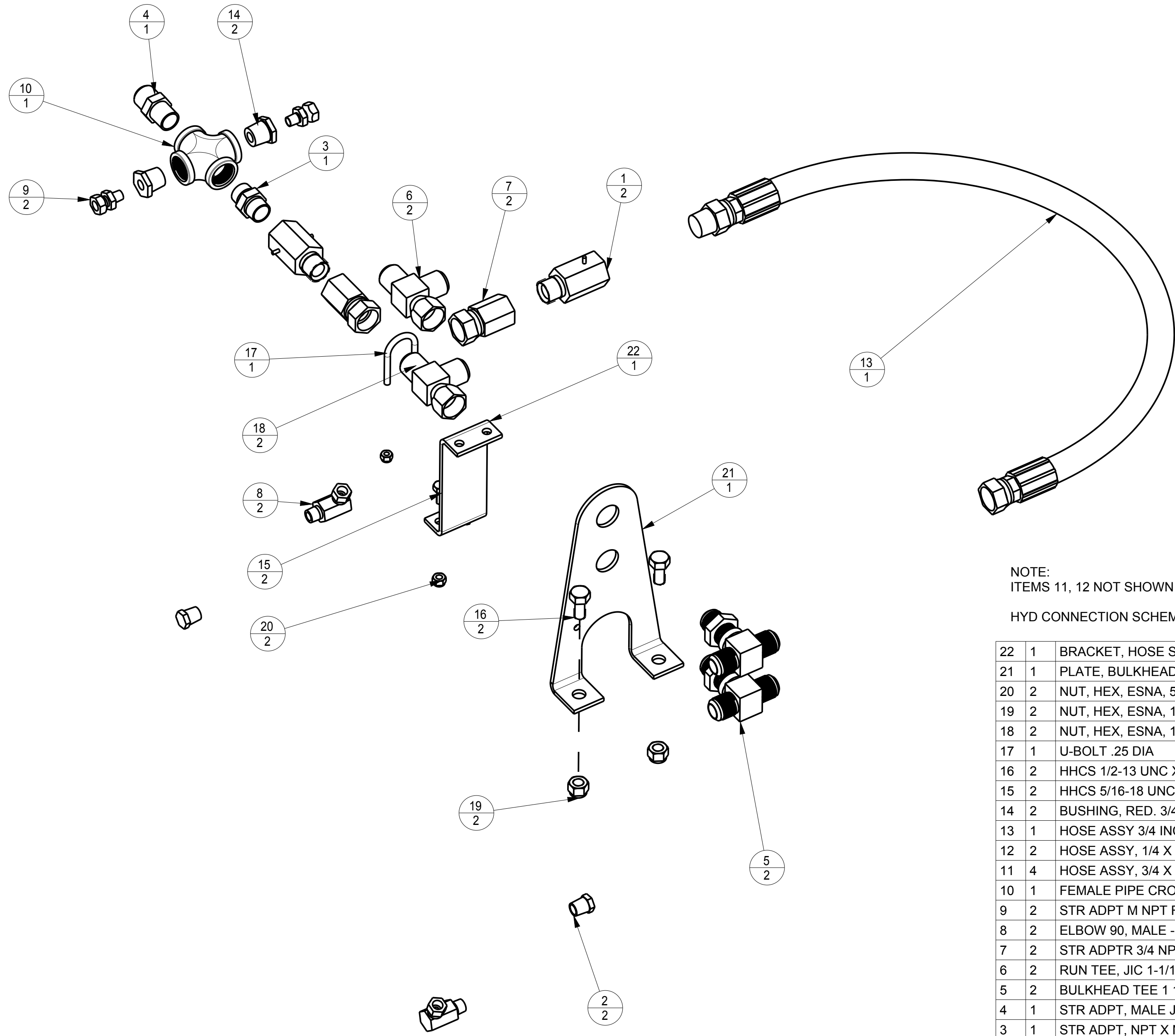
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432-202758



NOTE:  
ITEMS 11, 12 NOT SHOWN IN DRAWING

HYD CONNECTION SCHEMATIC SEE DRAWING 210-92135

22	1	BRACKET, HOSE SUPPORT	B	402-95583
21	1	PLATE, BULKHEAD	B	400-76404
20	2	NUT, HEX, ESNA, 5/16-18-UNC	A	371-81620
19	2	NUT, HEX, ESNA, 1/2-13-UNC	A	371-81417
18	2	NUT, HEX, ESNA, 1/4-20 NC	A	371-81299
17	1	U-BOLT .25 DIA	A	370-74138
16	2	HHCS 1/2-13 UNC X 1.000	A	311-51000
15	2	HHCS 5/16-18 UNC X 0.750	A	311-20750
14	2	BUSHING, RED. 3/4 X 1/4 SCH 40 GALV	X	217-97164
13	1	HOSE ASSY 3/4 INCH 33 OAL M 3/4 NPT-SWFM 1 1/16 .	X	213-92340
12	2	HOSE ASSY, 1/4 X 90 OAL, 1/4 NPTM BOTH, 3000PSI		213-147238
11	4	HOSE ASSY, 3/4 X 87 OAL, 1-1/16 JIC-FSW BOTH, 3000PSI		213-147237
10	1	FEMALE PIPE CROSS 3/4 NPT		211-92149
9	2	STR ADPT M NPT FM SW FITTING ENDS	A	211-92106
8	2	ELBOW 90, MALE - FEMALE SW 3/4 NPT X 1/4 SW	X	211-72556
7	2	STR ADPTR 3/4 NPTF - 1 1/16 JIC SWFM	-	211-66890
6	2	RUN TEE, JIC 1-1/16 JIC X SW	-	211-66889
5	2	BULKHEAD TEE 1 1/16 JIC	X	211-64563
4	1	STR ADPT, MALE JIC - NPT 1 1/16 M X 3/4 M	A	211-50850
3	1	STR ADPT, NPT X NPT 3/4 M X 3/4 M	A	211-27527
2	2	VENT BREATHER 3/8 NPT	X	209-92090
1	2	VALVE, CHECK .	-	202-58624

SYM	QTY	DESCRIPTION	SIZE	PART NUMBER

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MATERIAL: SEE BOM

TOLERANCE UNLESS OTHERWISE SPECIFIED	ENG	YY	DATE
.XX± .03	DRN	YY	DATE
.XXX± .010	CHKD	TMJ	DATE
X/Y ± 1/32	APRVD	TMJ	DATE
ANGLE ± 2°			

DESCRIPTION: HYD. ASSY, LLB BULKHEAD DUAL MOTOR, 9 MOTOR HOSE

SCALE: 0.300 SHEET 1 OF 1

SIZE	PART NUMBER:	REV
C	432-202758	0

WT (±2%):27 LBS

ZONE	REV	CN	DESCRIPTION	BY	DATE

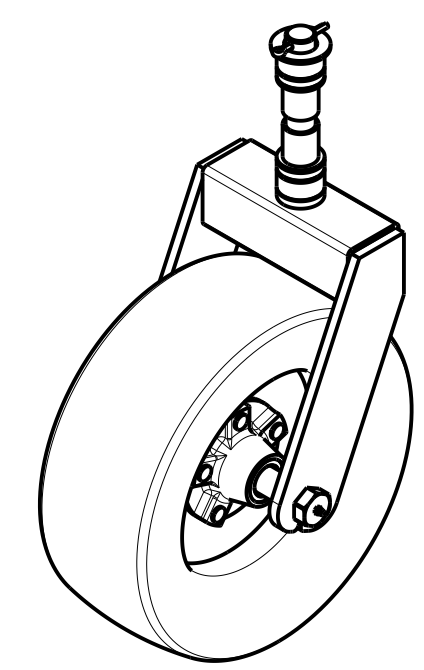
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C

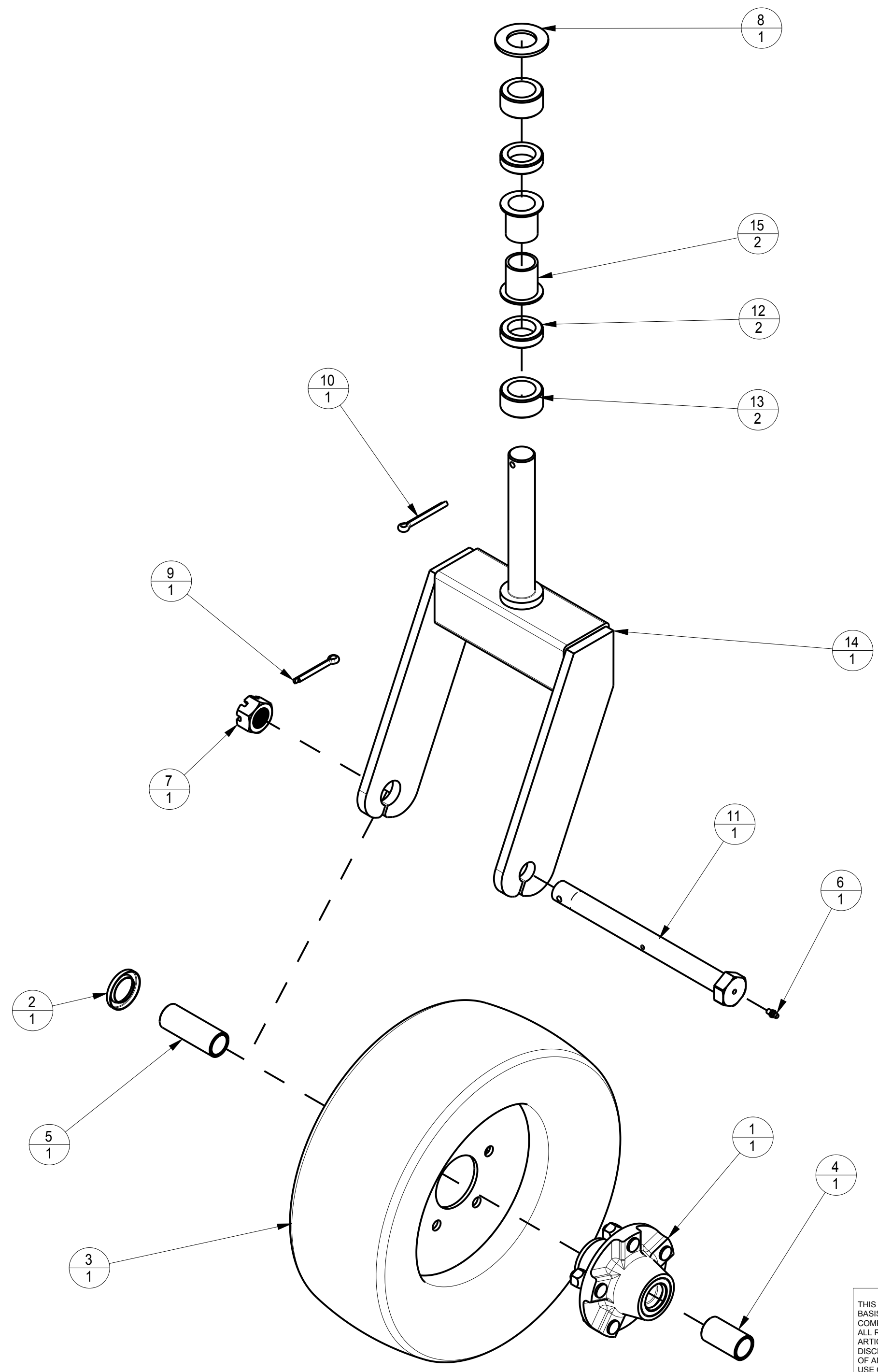
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A

432-202806



SCALE 0.125



**NOTES:**  
 1. TORQUE RECOMMENDATIONS PER WORK INSTRUCTIONS WIAS 0071  
 1-14 UNF 10 FT\*LBS & 50 FT\*LBS  
 1/2-13 WHEEL NUTS 80-90 FT\*LBS  
 1-1/4-7 CASTER FORK NUT 840 FT\*LBS

15	2	FLANGED OILITE BEARING TK-H	A	603-75914
14	1	FORK, LLB CASTER, SOLID RUBBER	B	410-202803
13	2	SPACER	A	402-93164
12	2	SPACER	A	402-93163
11	1	CASTER WHEEL BOLT	A	401-176753
10	1	PIN, COTTER .25 x 2.25		380-83957
9	1	PIN, COTTER .25 x 2		380-83943
8	1	WASHER, FLAT 1.25 SAE STD ZINC PL	X	372-92010
7	1	NUT, SLOTTED HEX 1-14NF		371-172372
6	1	GREASE ZERK 1/4/2028	X	206-72100
5	1	BUSHING 1 X 1-1/4 X 3-3/8 LG	A	100-176765
4	1	BUSHING 1 X 1-1/4 X 2.6 LG	A	100-176764
3	1	TIRE 16.5x6.5-8 C/6		100-147334
2	1	SEAL, GREASE 1.25 ID X 1.98 OD	X	100-140383
1	1	Taper Bearing Cone 2 Inch Bore	B	100-140381
SYM	QTY	DESCRIPTION	SIZE	PART NUMBER

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MATERIAL: SEE BOM

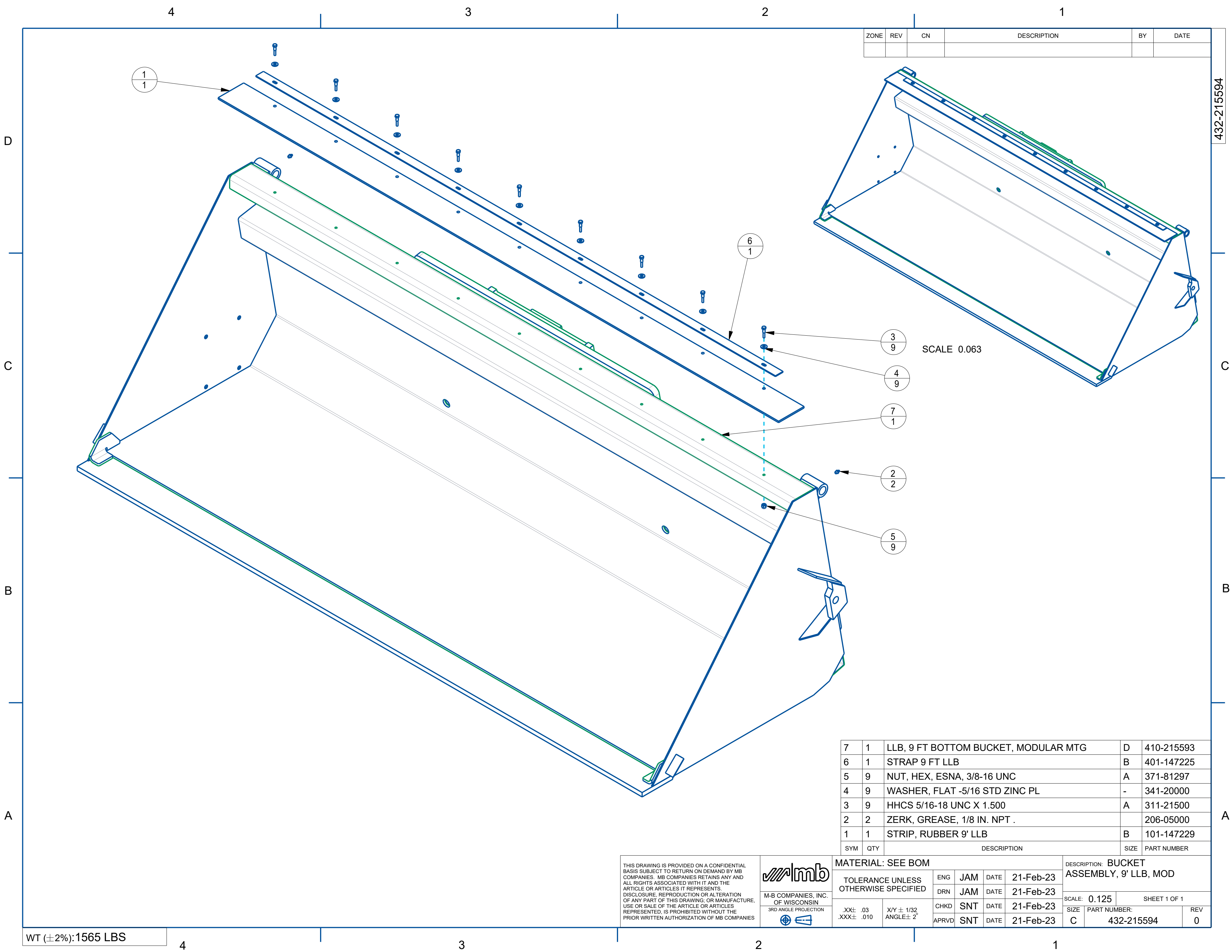
TOLERANCE UNLESS OTHERWISE SPECIFIED	ENG	YY	DATE
	DRN	YY	DATE
.XX± .03	CHKD	TMJ	DATE
.XXX± .010	APRVD	TMJ	DATE

DESCRIPTION: CASTER ASSY, SOLID RUBBER, LLB

SCALE: 0.230 SHEET 1 OF 1

SIZE	PART NUMBER:	REV
C	432-202806	0

WT (±2%):290 LBS



ZONE	REV	CN	DESCRIPTION	BY	DATE

432-215594

SCALE 0.063

7	1	LLB, 9 FT BOTTOM BUCKET, MODULAR MTG	D	410-215593
6	1	STRAP 9 FT LLB	B	401-147225
5	9	NUT, HEX, ESNA, 3/8-16 UNC	A	371-81297
4	9	WASHER, FLAT -5/16 STD ZINC PL	-	341-20000
3	9	HHCS 5/16-18 UNC X 1.500	A	311-21500
2	2	ZERK, GREASE, 1/8 IN. NPT .		206-05000
1	1	STRIP, RUBBER 9' LLB	B	101-147229
SYM	QTY	DESCRIPTION	SIZE	PART NUMBER

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MATERIAL: SEE BOM

TOLERANCE UNLESS OTHERWISE SPECIFIED		ENG	JAM	DATE	21-Feb-23
.XX± .03	XY ± 1/32	DRN	JAM	DATE	21-Feb-23
.XXX± .010	ANGLE ± 2°	CHKD	SNT	DATE	21-Feb-23
		APRVD	SNT	DATE	21-Feb-23

DESCRIPTION: BUCKET ASSEMBLY, 9' LLB, MOD	
SCALE: 0.125	SHEET 1 OF 1
SIZE: C	PART NUMBER: 432-215594
	REV: 0

WT (±2%): 1565 LBS

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ZONE	REV	CN	DESCRIPTION	BY	DATE
			SEE PAGE 2		

AHP-00177

AHP-00177

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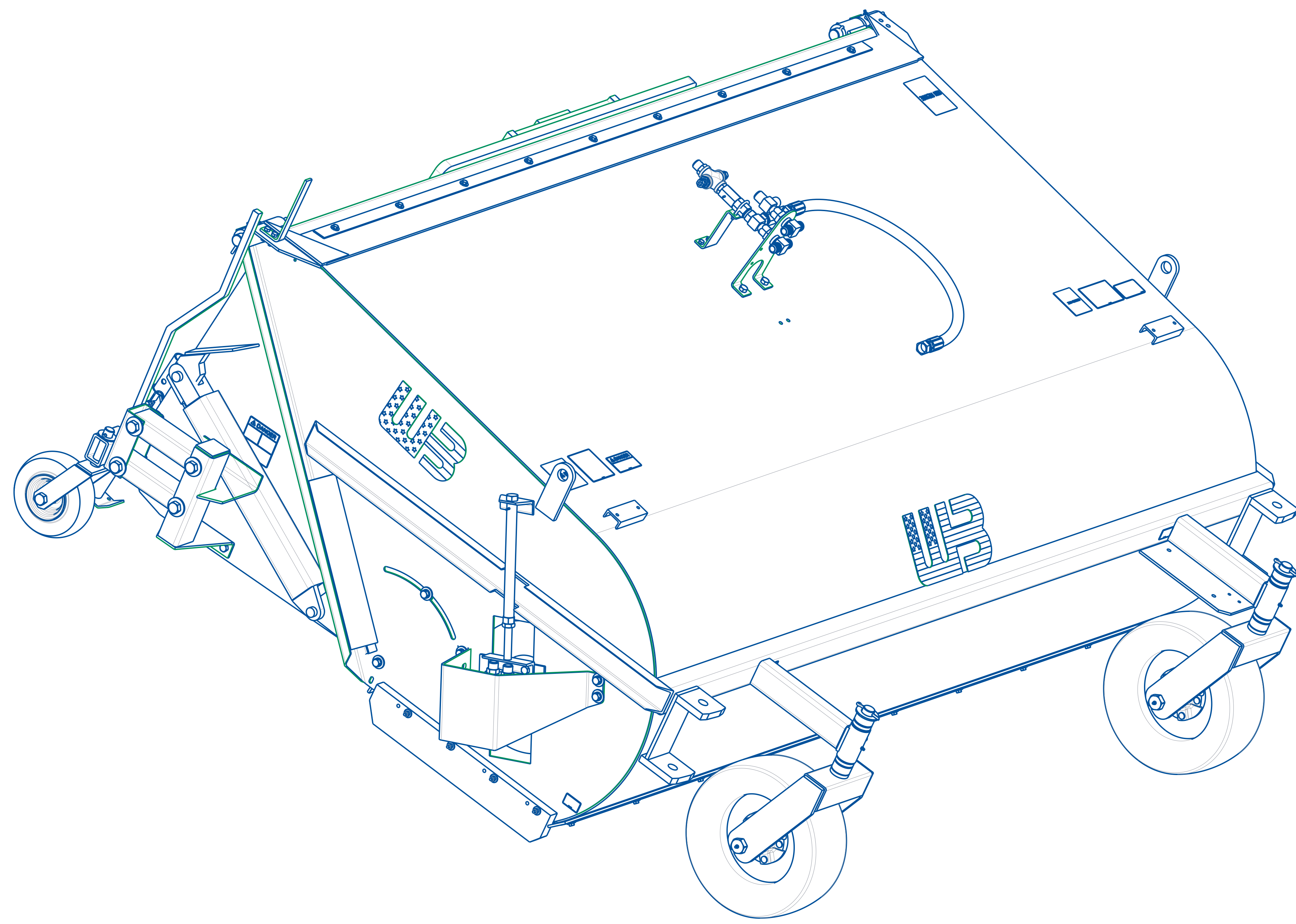
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WT (±2%):3500 LBS

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**mb**  
M-B COMPANIES, INC.  
OF WISCONSIN  
3RD ANGLE PROJECTION

MATERIAL: SEE BOM

TOLERANCE UNLESS OTHERWISE SPECIFIED	ENG	JAM	DATE
.XX±: .03			27-Feb-23
.XXX±: .010	DRN	JAM	DATE
			27-Feb-23
	CHKD	SNT	DATE
			27-Feb-23
	APRVD	SNT	DATE
			27-Feb-23

DESCRIPTION:  
LLB/9/PW/2/S/H/N/T/B/WERK-BRAU  
DIN PLATE

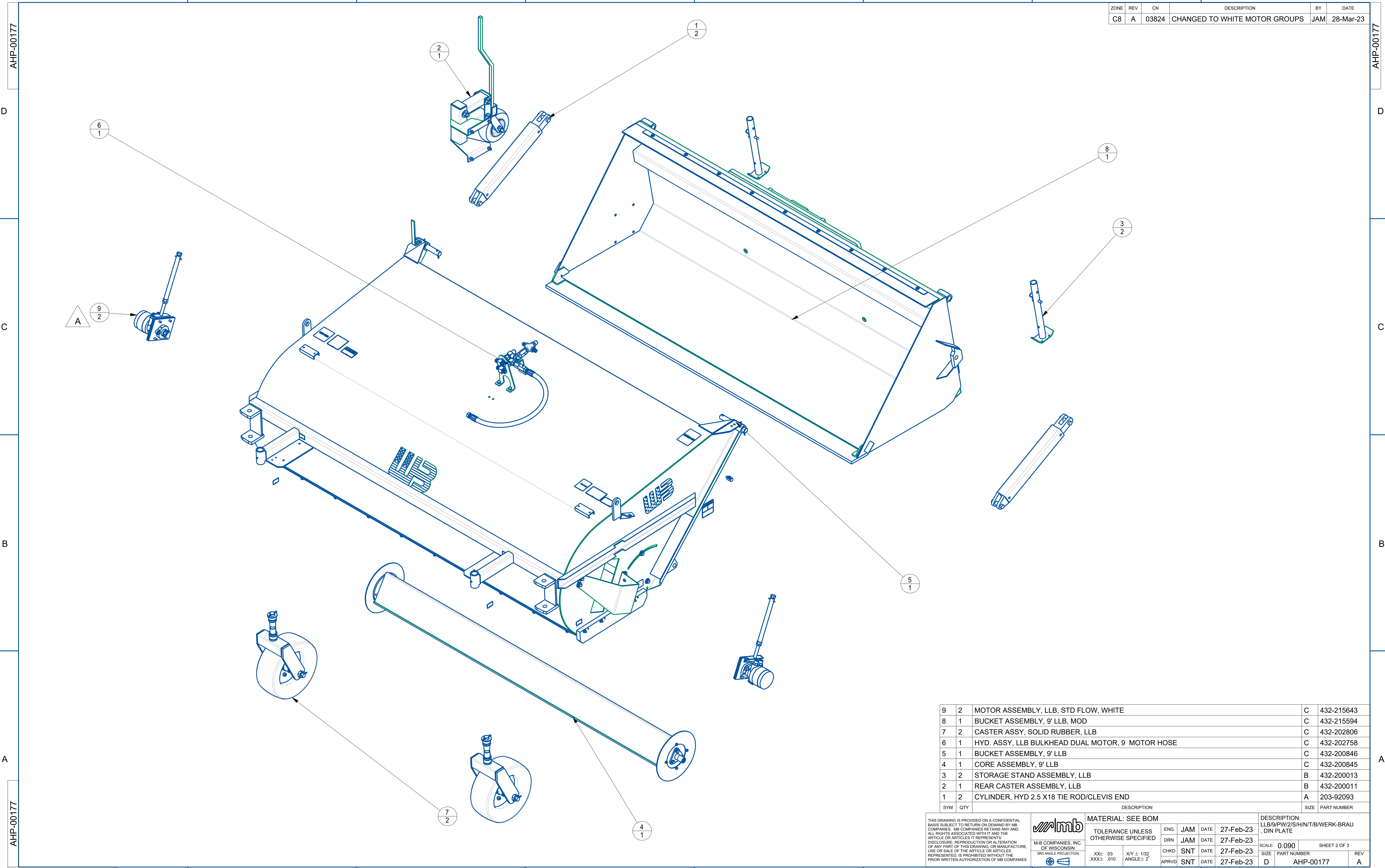
SCALE: 0.150 SHEET 1 OF 3

SIZE PART NUMBER: REV

D AHP-00177 A

8 7 6 5 4 3 2 1

ZONE	REV	CN	DESCRIPTION	BY	DATE
C8	A	03824	CHANGED TO WHITE MOTOR GROUPS	JAM	28-Mar-23



9	2	MOTOR ASSEMBLY, LLB, STD FLOW, WHITE	C	432-215643
8	1	BUCKET ASSEMBLY, 9' LLB, MOD	C	432-215594
7	2	CASTER ASSY, SOLID RUBBER, LLB	C	432-202806
6	1	HYD. ASSY, LLB BULKHEAD DUAL MOTOR, 9' MOTOR HOSE	C	432-202758
5	1	BUCKET ASSEMBLY, 9' LLB	C	432-200846
4	1	CORE ASSEMBLY, 9' LLB	C	432-200845
3	2	STORAGE STAND ASSEMBLY, LLB	B	432-200013
2	1	REAR CASTER ASSEMBLY, LLB	B	432-200011
1	2	CYLINDER, HYD 2.5 X18 TIE ROD/CLEVIS END	A	203-92093
SYM	QTY	DESCRIPTION	SIZE	PART NUMBER

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---	--	---	--	--	---	----------------------------------

WT (±2%):3500 LBS 8 7 6 5 4 3 2 1

AHP-00177

AHP-00177

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C

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AHP-00177

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ZONE	REV	CN	DESCRIPTION	BY	DATE
			SEE PAGE 2		

AHP-00177

AHP-00177

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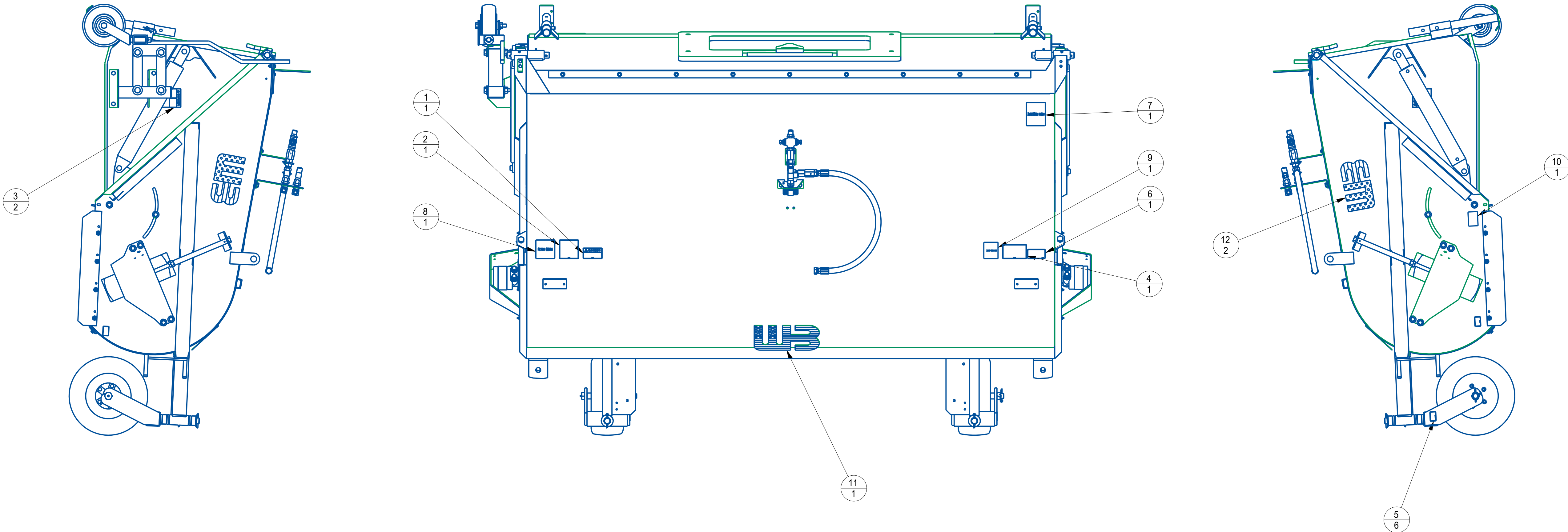
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AHP-00177



SYM	QTY	DESCRIPTION	SIZE	PART NUMBER
12	2	WERK BRAU USA DECAL MEDIUM	B	390-215208
11	1	WERK BRAU USA DECAL LARGE	B	390-215207
10	1	WERK BRAU SERIAL NUMBER DECAL	A	390-215202
9	1	DECAL INTERNATIONAL BRUSH PATTERN		390-190609
8	1	WARNING LABEL FLYING DEBRIS	A	390-169222
7	1	WARNING LABEL HIGH PRESSURE FLUID	A	390-169221
6	1	DECAL, MADE IN THE USA	A	390-140501
5	6	DECAL GREASE POINT	A	390-118356
4	1	DECAL BRUSH REFILL	A	390-118355
3	2	DECAL DANGER PINCHING	A	390-118353
2	1	DECAL WARNING GUARDS	X	390-118352
1	1	DECAL DANGER NO RIDERS	A	390-118349

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**mb** M-B COMPANIES, INC. OF WISCONSIN 3RD ANGLE PROJECTION

TOLERANCE UNLESS OTHERWISE SPECIFIED: .XX± .03, .XYY ± 1/32, .XXX± .010, ANGLE± .2°

ENG	JAM	DATE	27-Feb-23
DRN	JAM	DATE	27-Feb-23
CHKD	SNT	DATE	27-Feb-23
APRVD	SNT	DATE	27-Feb-23

DESCRIPTION: LLB/9/PW/2/S/H/NT/B/WERK-BRAU, DIN PLATE

SCALE: 0.080 SHEET 3 OF 3

SIZE	PART NUMBER:	REV
D	AHP-00177	A

WT (±2%):3500 LBS

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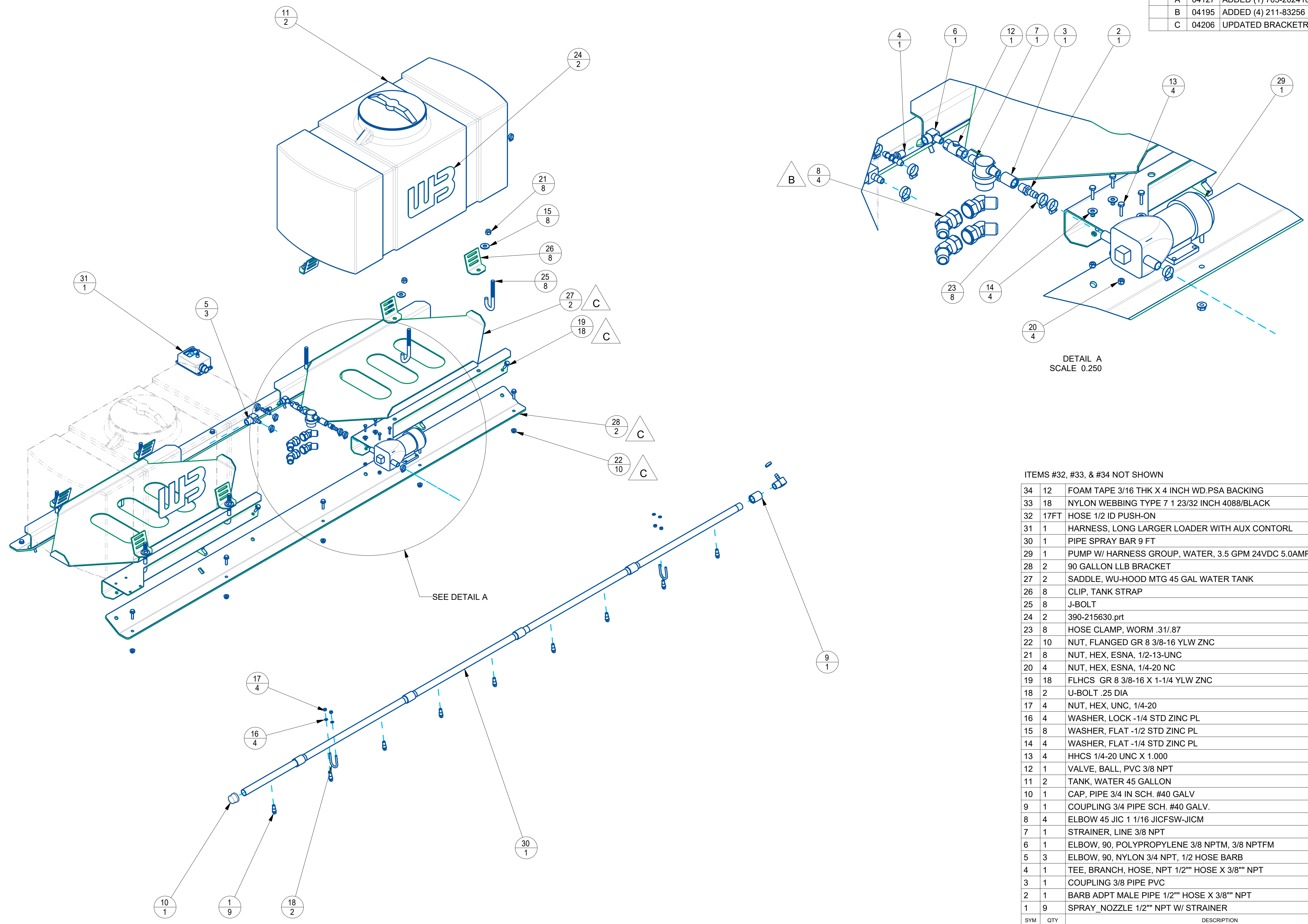
4

3

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1

ZONE	REV	CN	DESCRIPTION	BY	DATE
A	04127		ADDED (1) 703-202410	SNT	20-Feb-24
B	04195		ADDED (4) 211-83256	JAM	02-May-24
C	04206		UPDATED BRACKETRY	JAM	10-May-24



ITEMS #32, #33, & #34 NOT SHOWN

SYM	QTY	DESCRIPTION	SIZE	PART NUMBER
34	12	FOAM TAPE 3/16 THK X 4 INCH WD.PSA BACKING	-	488-72394
33	18	NYLON WEBBING TYPE 7 1 23/32 INCH 4088/BLACK	-	488-72288
32	17FT	HOSE 1/2 ID PUSH-ON	-	204-92011
31	1	HARNES, LONG LARGER LOADER WITH AUX CONTORL	B	703-202410
30	1	PIPE SPRAY BAR 9 FT	D	432-208401
29	1	PUMP W/ HARNES GROUP, WATER, 3.5 GPM 24VDC 5.0AMP 45PSI MAX	D	432-203134
28	2	90 GALLON LLB BRACKET	D	410-218304
27	2	SADDLE, WU-HOOD MTG 45 GAL WATER TANK	B	410-147575
26	8	CLIP, TANK STRAP	A	400-72219
25	8	J-BOLT	A	400-72218
24	2	390-215630.pt	B	390-215630
23	8	HOSE CLAMP, WORM .31/.87	A	387-00493
22	10	NUT, FLANGED GR 8 3/8-16 YLW ZNC	A	371-173181
21	8	NUT, HEX, ESNA, 1/2-13-UNC	A	371-81417
20	4	NUT, HEX, ESNA, 1/4-20 NC	A	371-81299
19	18	FLHCS GR 8 3/8-16 X 1-1/4 YLW ZNC	X	370-173180
18	2	U-BOLT .25 DIA	A	370-74138
17	4	NUT, HEX, UNC, 1/4-20	A	361-10000
16	4	WASHER, LOCK -1/4 STD ZINC PL	-	351-10000
15	8	WASHER, FLAT -1/2 STD ZINC PL	-	341-50000
14	4	WASHER, FLAT -1/4 STD ZINC PL	-	341-10000
13	4	HHCS 1/4-20 UNC X 1.000	A	311-11000
12	1	VALVE, BALL, PVC 3/8 NPT	A	261-132245
11	2	TANK, WATER 45 GALLON	A	221-92021
10	1	CAP, PIPE 3/4 IN SCH. #40 GALV		217-97161
9	1	COUPLING 3/4 PIPE SCH. #40 GALV.	X	217-97153
8	4	ELBOW 45 JIC 1 1/16 JICFSW-JICM	-	211-83256
7	1	STRAINER, LINE 3/8 NPT		209-72385
6	1	ELBOW, 90, POLYPROPYLENE 3/8 NPTM, 3/8 NPTFM	-	206-163076
5	3	ELBOW, 90, NYLON 3/4 NPT, 1/2 HOSE BARB	A	206-132367
4	1	TEE, BRANCH, HOSE, NPT 1/2" HOSE X 3/8" NPT	A	206-132249
3	1	COUPLING 3/8 PIPE PVC	A	206-92080
2	1	BARB ADPT MALE PIPE 1/2" HOSE X 3/8" NPT	-	206-74410
1	9	SPRAY_NOZZLE 1/2" NPT W/ STRAINER	A	206-74292

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**MATERIAL: SEE BOM**

TOLERANCE UNLESS OTHERWISE SPECIFIED

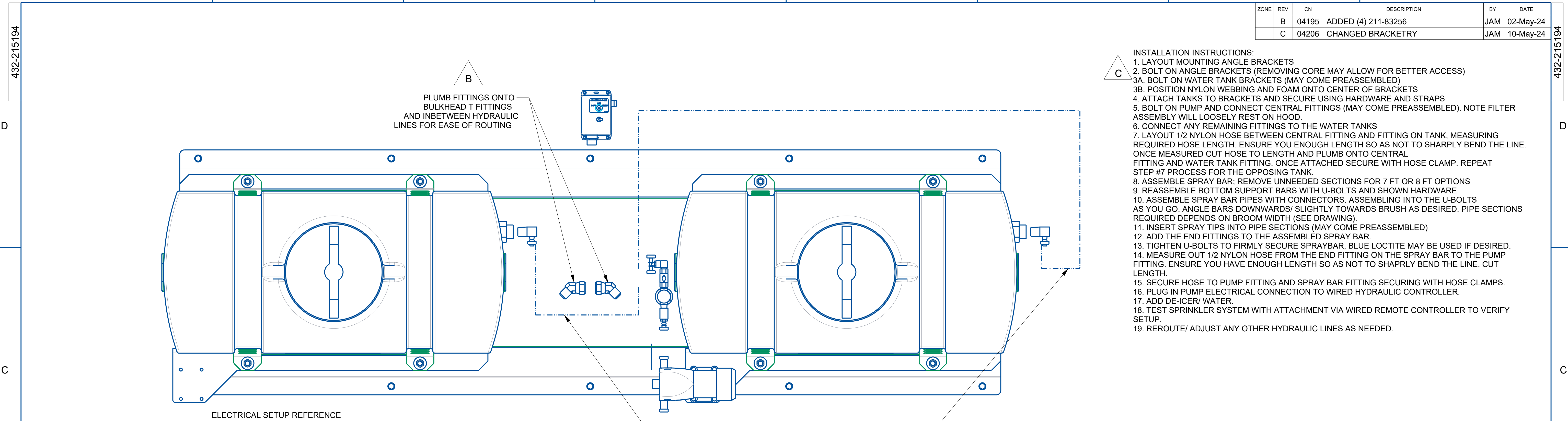
ENG: JAM DATE: 03-Jan-24  
 DRN: JAM DATE: 03-Jan-24  
 CHKD: SNT DATE: 03-Jan-24  
 APRVD: SNT DATE: 03-Jan-24

DESCRIPTION: WERK BRAU 90 GALLON SPRINKLER SYSTEM LLB

SCALE: 0.125 SHEET 1 OF 3

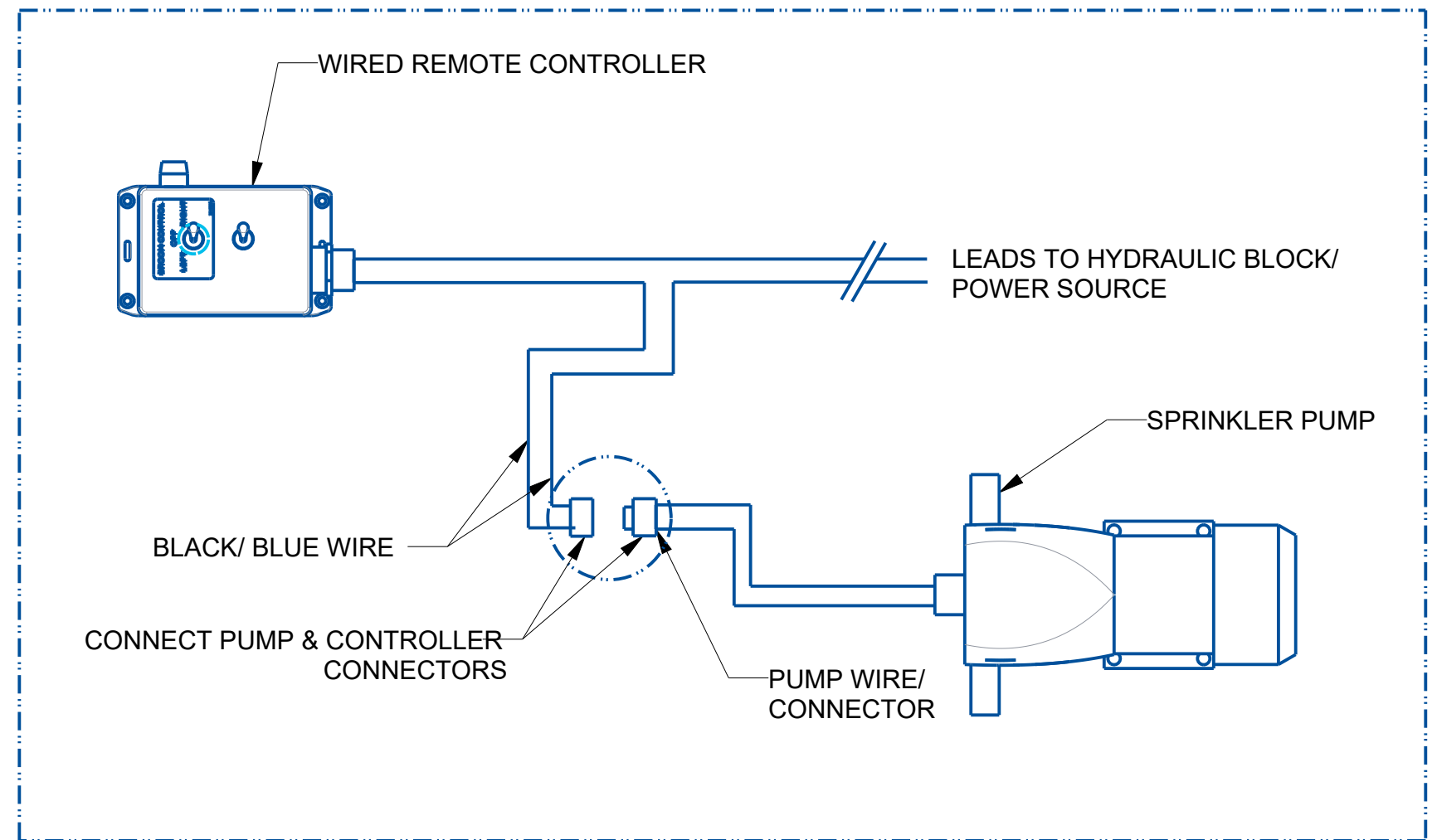
SIZE: PART NUMBER: 432-215194 REV: C

ZONE	REV	CN	DESCRIPTION	BY	DATE
B	04195		ADDED (4) 211-83256	JAM	02-May-24
C	04206		CHANGED BRACKETRY	JAM	10-May-24

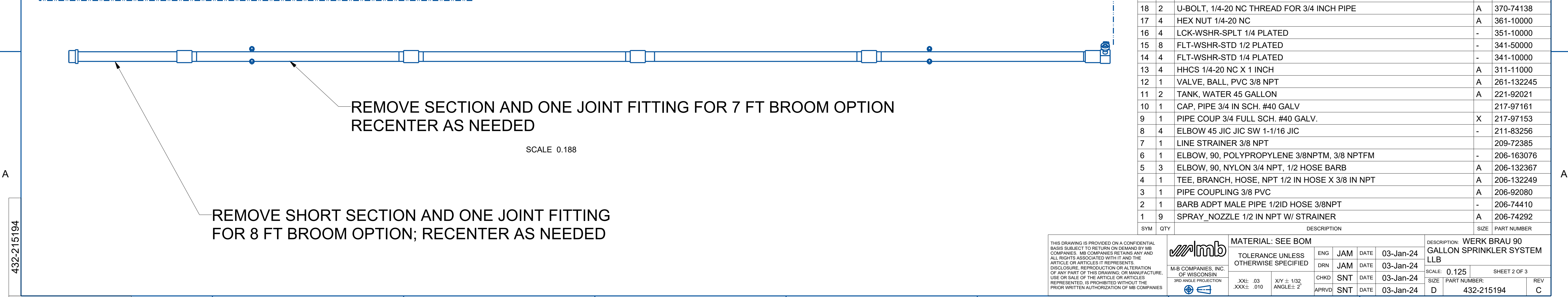


- INSTALLATION INSTRUCTIONS:**
- LAYOUT MOUNTING ANGLE BRACKETS
  - BOLT ON ANGLE BRACKETS (REMOVING CORE MAY ALLOW FOR BETTER ACCESS)
  - BOLT ON WATER TANK BRACKETS (MAY COME PREASSEMBLED)
  - POSITION NYLON WEBBING AND FOAM ONTO CENTER OF BRACKETS
  - ATTACH TANKS TO BRACKETS AND SECURE USING HARDWARE AND STRAPS
  - BOLT ON PUMP AND CONNECT CENTRAL FITTINGS (MAY COME PREASSEMBLED). NOTE FILTER ASSEMBLY WILL LOOSELY REST ON HOOD.
  - CONNECT ANY REMAINING FITTINGS TO THE WATER TANKS
  - LAYOUT 1/2 NYLON HOSE BETWEEN CENTRAL FITTING AND FITTING ON TANK, MEASURING REQUIRED HOSE LENGTH. ENSURE YOU ENOUGH LENGTH SO AS NOT TO SHARPLY BEND THE LINE. ONCE MEASURED CUT HOSE TO LENGTH AND PLUMB ONTO CENTRAL FITTING AND WATER TANK FITTING. ONCE ATTACHED SECURE WITH HOSE CLAMP. REPEAT STEP #7 PROCESS FOR THE OPPOSING TANK.
  - ASSEMBLE SPRAY BAR; REMOVE UNNEEDED SECTIONS FOR 7 FT OR 8 FT OPTIONS
  - REASSEMBLE BOTTOM SUPPORT BARS WITH U-BOLTS AND SHOWN HARDWARE
  - ASSEMBLE SPRAY BAR PIPES WITH CONNECTORS. ASSEMBLING INTO THE U-BOLTS AS YOU GO. ANGLE BARS DOWNWARDS/ SLIGHTLY TOWARDS BRUSH AS DESIRED. PIPE SECTIONS REQUIRED DEPENDS ON BROOM WIDTH (SEE DRAWING).
  - INSERT SPRAY TIPS INTO PIPE SECTIONS (MAY COME PREASSEMBLED)
  - ADD THE END FITTINGS TO THE ASSEMBLED SPRAY BAR.
  - TIGHTEN U-BOLTS TO FIRMLY SECURE SPRAYBAR, BLUE LOCTITE MAY BE USED IF DESIRED.
  - MEASURE OUT 1/2 NYLON HOSE FROM THE END FITTING ON THE SPRAY BAR TO THE PUMP FITTING. ENSURE YOU HAVE ENOUGH LENGTH SO AS NOT TO SHAPRLY BEND THE LINE. CUT LENGTH.
  - SECURE HOSE TO PUMP FITTING AND SPRAY BAR FITTING SECURING WITH HOSE CLAMPS.
  - PLUG IN PUMP ELECTRICAL CONNECTION TO WIRED HYDRAULIC CONTROLLER.
  - ADD DE-ICER/ WATER.
  - TEST SPRINKLER SYSTEM WITH ATTACHMENT VIA WIRED REMOTE CONTROLLER TO VERIFY SETUP.
  - REROUTE/ ADJUST ANY OTHER HYDRAULIC LINES AS NEEDED.

ELECTRICAL SETUP REFERENCE



HOSE LENGTHS TO BE DETERMINED AT TIME OF INSTALLATION



SYM	QTY	DESCRIPTION	SIZE	PART NUMBER
31	1	HARNES, LONG LARGER LOADER WITH AUX CONTORL	B	703-202410
30	1	PIPE SPRAY BAR 9 FT	D	432-208401
29	1	PUMP W/ HARNES GROUP, WATER, 3.5 GPM 24VDC 5.0AMP 45PSI MAX	D	432-203134
28	2	90 GALLON LLB BRACKET	D	410-218304
27	2	TANK SADDLE-MTG, BRUSH HOOD	B	410-147575
26	8	CLIP, TANK STRAP	A	400-72219
25	8	J-BOLT	A	400-72218
24	2	WERK BRAU BLACK DECAL MEDIUM	B	390-215630
23	8	HOSE CLAMP 1/2 DIA HOSE #10, STD BAND WIDTH	A	387-00493
22	10	NUT, FLANGED GR 8 3/8-16 YLW ZNC	A	371-173181
21	8	ESNA NUT 1/2-13 NC	A	371-81417
20	4	ESNA NUT, 1/4-20 NC	A	371-81299
19	18	FLHCS GR 8 3/8-16 X 1-1/4 YLW ZNC	X	370-173180
18	2	U-BOLT, 1/4-20 NC THREAD FOR 3/4 INCH PIPE	A	370-74138
17	4	HEX NUT 1/4-20 NC	A	361-10000
16	4	LCK-WSHR-SPLT 1/4 PLATED	-	351-10000
15	8	FLT-WSHR-STD 1/2 PLATED	-	341-50000
14	4	FLT-WSHR-STD 1/4 PLATED	-	341-10000
13	4	HHCS 1/4-20 NC X 1 INCH	A	311-11000
12	1	VALVE, BALL, PVC 3/8 NPT	A	261-132245
11	2	TANK, WATER 45 GALLON	A	221-92021
10	1	CAP, PIPE 3/4 IN SCH. #40 GALV		217-97161
9	1	PIPE COUP 3/4 FULL SCH. #40 GALV.	X	217-97153
8	4	ELBOW 45 JIC JIC SW 1-1/16 JIC	-	211-83256
7	1	LINE STRAINER 3/8 NPT		209-72385
6	1	ELBOW, 90, POLYPROPYLENE 3/8NPTM, 3/8 NPTFM	-	206-163076
5	3	ELBOW, 90, NYLON 3/4 NPT, 1/2 HOSE BARB	A	206-132367
4	1	TEE, BRANCH, HOSE, NPT 1/2 IN HOSE X 3/8 IN NPT	A	206-132249
3	1	PIPE COUPLING 3/8 PVC	A	206-92080
2	1	BARB ADPT MALE PIPE 1/2ID HOSE 3/8NPT	-	206-74410
1	9	SPRAY_NOZZLE 1/2 IN NPT W/ STRAINER	A	206-74292

REMOVE SECTION AND ONE JOINT FITTING FOR 7 FT BROOM OPTION  
RECENTER AS NEEDED

REMOVE SHORT SECTION AND ONE JOINT FITTING  
FOR 8 FT BROOM OPTION; RECENTER AS NEEDED

SCALE 0.188

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MATERIAL: SEE BOM

TOLERANCE UNLESS OTHERWISE SPECIFIED

ENG	JAM	DATE	03-Jan-24
DRN	JAM	DATE	03-Jan-24
CHKD	SNT	DATE	03-Jan-24
APRVD	SNT	DATE	03-Jan-24

DESCRIPTION: WERK BRAU 90 GALLON SPRINKLER SYSTEM LLB

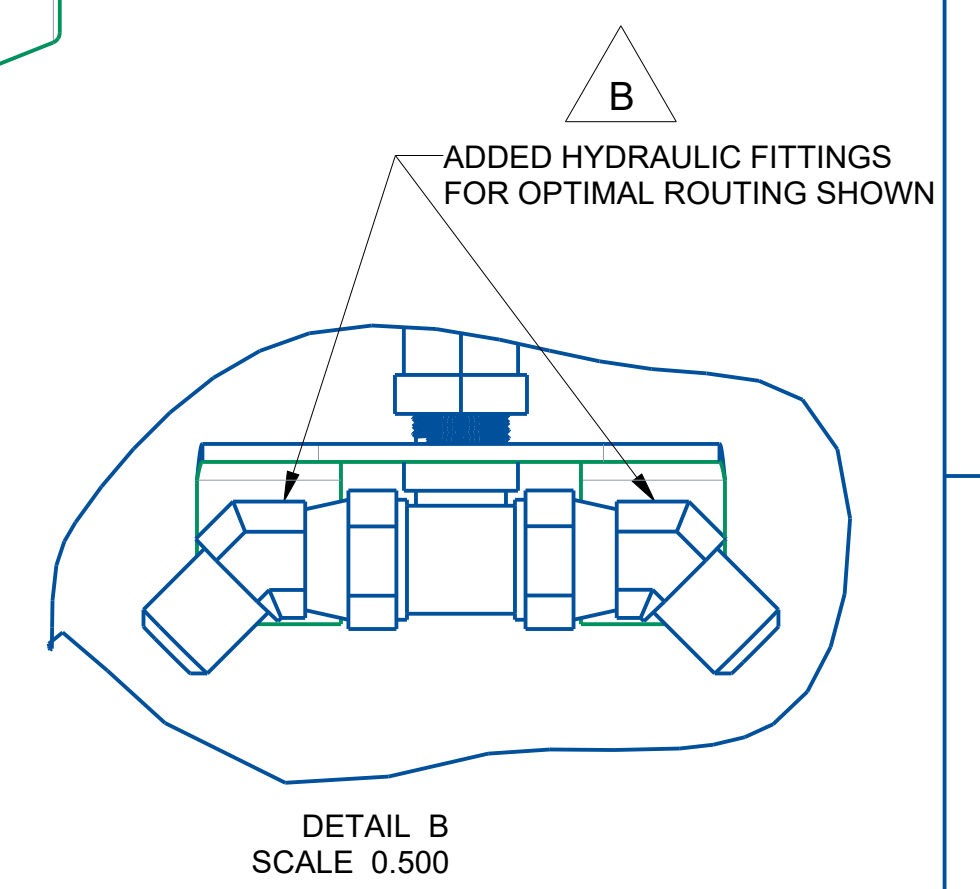
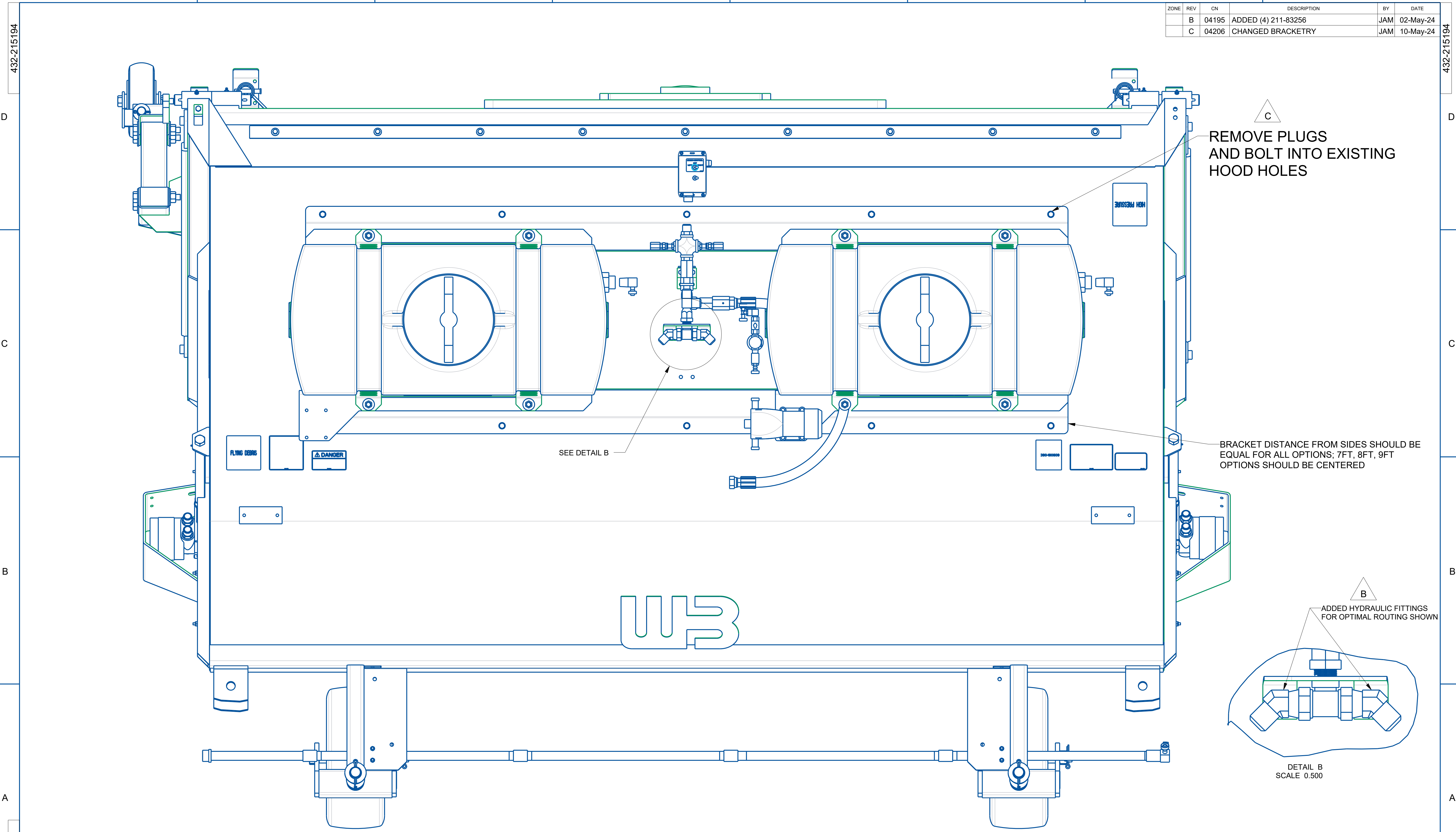
SCALE: 0.125

SIZE: PART NUMBER: 432-215194

REVISION: REV C

8 7 6 5 4 3 2 1

ZONE	REV	CN	DESCRIPTION	BY	DATE
B	04195		ADDED (4) 211-83256	JAM	02-May-24
C	04206		CHANGED BRACKETRY	JAM	10-May-24



432-215194

WT (±2%):N/A

8 7 6 5 4 3 2 1

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**mb** M-B COMPANIES, INC. OF WISCONSIN 3RD ANGLE PROJECTION

MATERIAL: SEE BOM

TOLERANCE UNLESS OTHERWISE SPECIFIED	ENG	JAM	DATE	03-Jan-24
	DRN	JAM	DATE	03-Jan-24
	CHKD	SNT	DATE	03-Jan-24
	APRVD	SNT	DATE	03-Jan-24

SCALE: 0.188 SHEET 3 OF 3

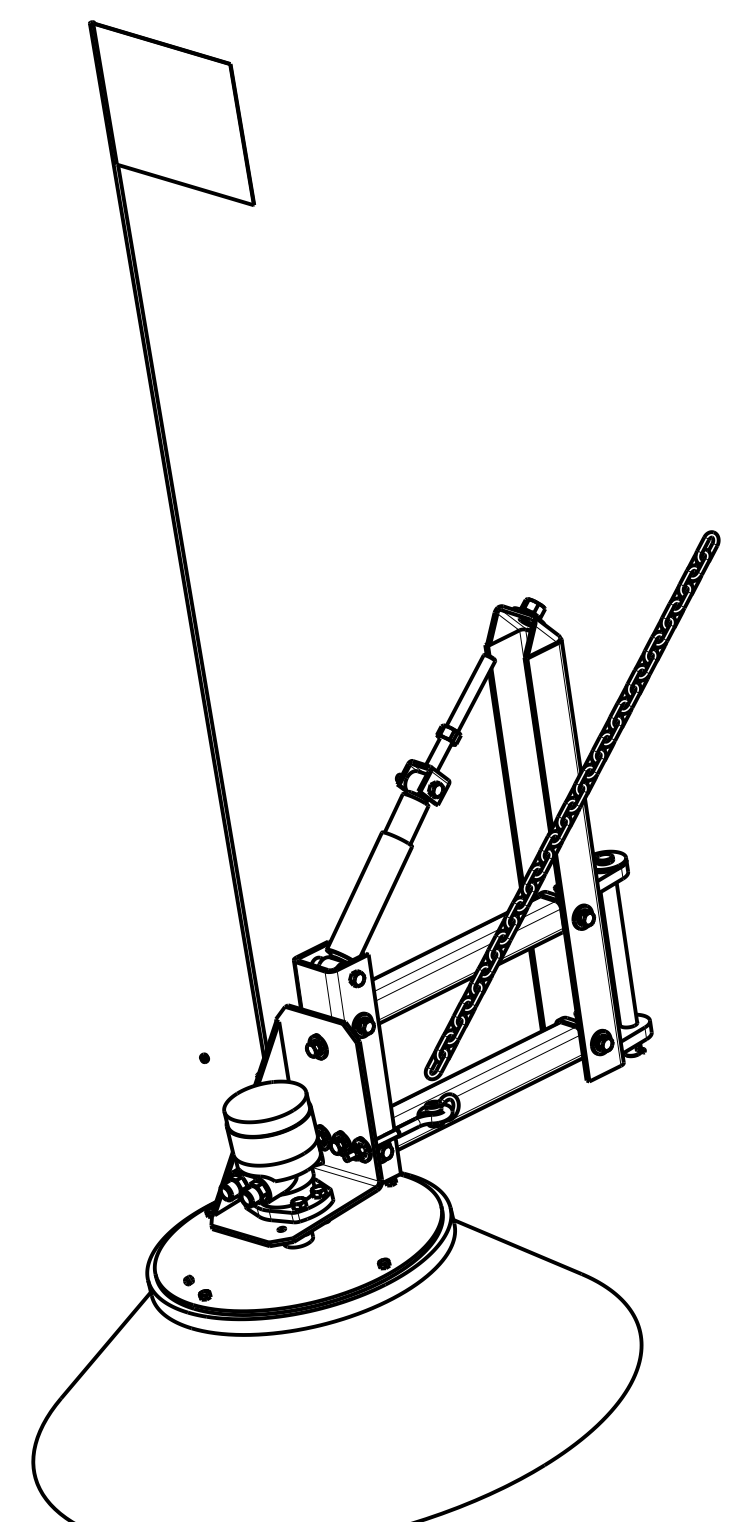
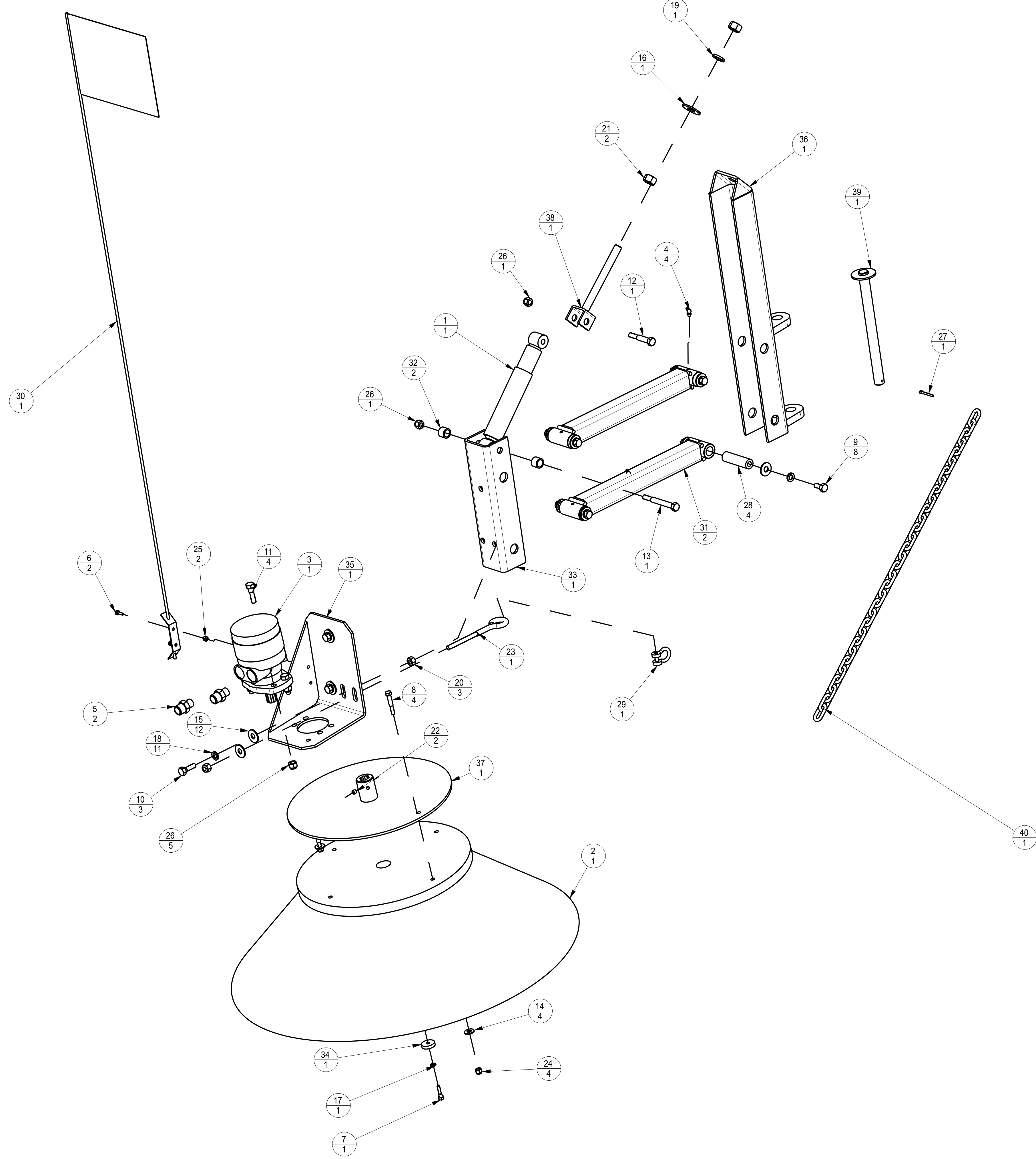
SIZE	PART NUMBER:	REV
D	432-215194	C

D

C

B

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SCALE 0.090

SYM	QTY	DESCRIPTION	SIZE	PART NUMBER
40	1	CHAIN 5/16 X 32 LINKS .	X	509-90329
39	1	PIN W.U.	A	410-94058
38	1	FORK - W.U.	B	410-93493
37	1	DISK, SLEEVE W.U.	B	410-93304
36	1	BRACKET, PIVOT - W.U.	A	410-93169
35	1	BRACKET W.U.	B	410-93128
34	1	WASHER, HEAVY DUTY	A	402-98674
33	1	CHANNEL	B	402-93052
32	2	SPACER	A	402-92732
31	2	SWING ARM W.U. SHT/SHL	B	400-55107
30	1	FLAG, SAFETY, 6 FT .	X	390-92000
29	1	SHACKLE, ANCHOR 5/16" DIA SCREW PIN	X	385-75846
28	4	PIN, 3/8-16	A	383-92050
27	1	PIN, COTTER .1875		380-83655
26	7	NUT, HEX, ESNA, 1/2-13-UNC	A	371-81417
25	2	NUT, HEX, ESNA, 1/4-20 NC	A	371-81299
24	4	NUT, HEX, ESNA, 3/8-16 UNC	A	371-81297
23	1	EYEBOLT, 1/2-13 NC X 6 .	-	370-92155
22	2	SET SCREW 3/8-16 X .375	A	370-90146
21	2	NUT, HEX, UNC, 3/4-10	A	361-80000
20	3	NUT, HEX, UNC, 1/2-13	A	361-50000
19	1	WASHER, LOCK -3/4 YLW ZINC PL	X	351-80000
18	11	WASHER, LOCK -1/2 YLW ZINC PL	-	351-50000
17	1	WASHER, LOCK -5/16 STD ZINC PL	-	351-20000
16	1	WASHER, FLAT -3/4 STD ZINC PL	X	341-80000
15	12	WASHER, FLAT -1/2 STD ZINC PL	-	341-50000
14	4	WASHER, FLAT -3/8 STD ZINC PL	-	341-30000
13	1	HHCS 1/2-13 UNC X 4.500	A	311-54500
12	1	HHCS 1/2-13 UNC X 3.000	A	311-53000
11	4	HHCS 1/2-13 UNC X 1.750	A	311-51750
10	3	HHCS 1/2-13 UNC X 1.500	A	311-51500
9	8	HHCS 1/2-13 UNC X 1.000	A	311-51000
8	4	HHCS 3/8-16 UNC X 2.250	A	311-32250
7	1	HHCS 5/16-18 UNC X 1.250	A	311-21250
6	2	HHCS 1/4-20 UNC X 0.750	A	311-10750
5	2	STR ADPT, MALE 1 1/16 JIC X 7/8 ORB	X	211-51813
4	4	GREASE ZERK 1/4-28, 45?	X	206-91152
3	1	MOTOR, HYDRAULIC 18.3 CU IN	A	201-75209
2	1	CURB BROOM 18" DIA WIRE	A	101-92023
1	1	SCHOCK ABSORBER	B	100-92073

**mb** M-B COMPANIES, INC. OF WISCONSIN 3RD ANGLE PROJECTION

**SEE BOM**  
TOLERANCE UNLESS OTHERWISE SPECIFIED  
XX ± .03  
XXX ± .010

MATERIAL NUMBER	QTY:	NAME:
DWN	SLS	DATE
CKD	SNT	DATE
APP	SNT	DATE

05-Aug-15  
06-Aug-15  
06-Aug-15

SCALE: 0.180  
SIZE PART NO.  
D 432-200436

CURB BROOM RH, LLB  
SHEET 1 OF 1  
REV 0

8 7 6 5 4 3 2 1

ZONE	REV	CN	DESCRIPTION	BY	DATE

432-218179

432-218179

D

D

C

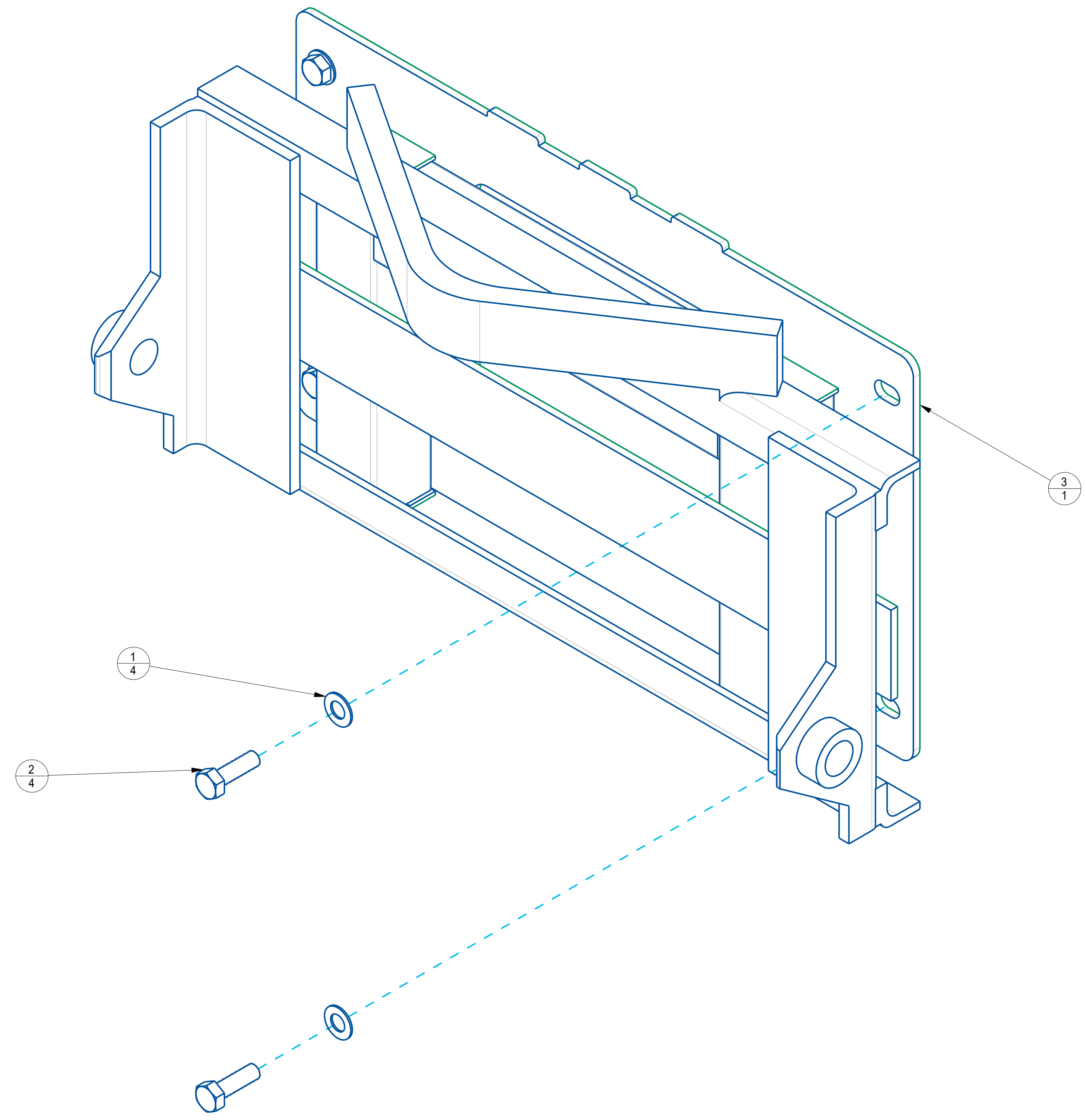
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B

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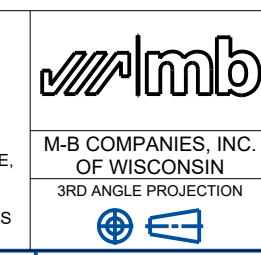
A



432-218179

3	1	WERK BRAU LLB MOUNT WU ACS PDOT	D	410-218178
2	4	HHCS 1-8 UNC X 3.000	A	370-92009
1	4	WASHER, SAE 1	-	343-101630
SYM	QTY	DESCRIPTION	SIZE	PART NUMBER
MATERIAL: SEE BOM				
DESCRIPTION: WERK BRAU LLB MOUNT ASSY ACS PDOT				
SCALE: 0.250 SHEET 1 OF 1				
SIZE PART NUMBER: D 432-218179				
REV 0				

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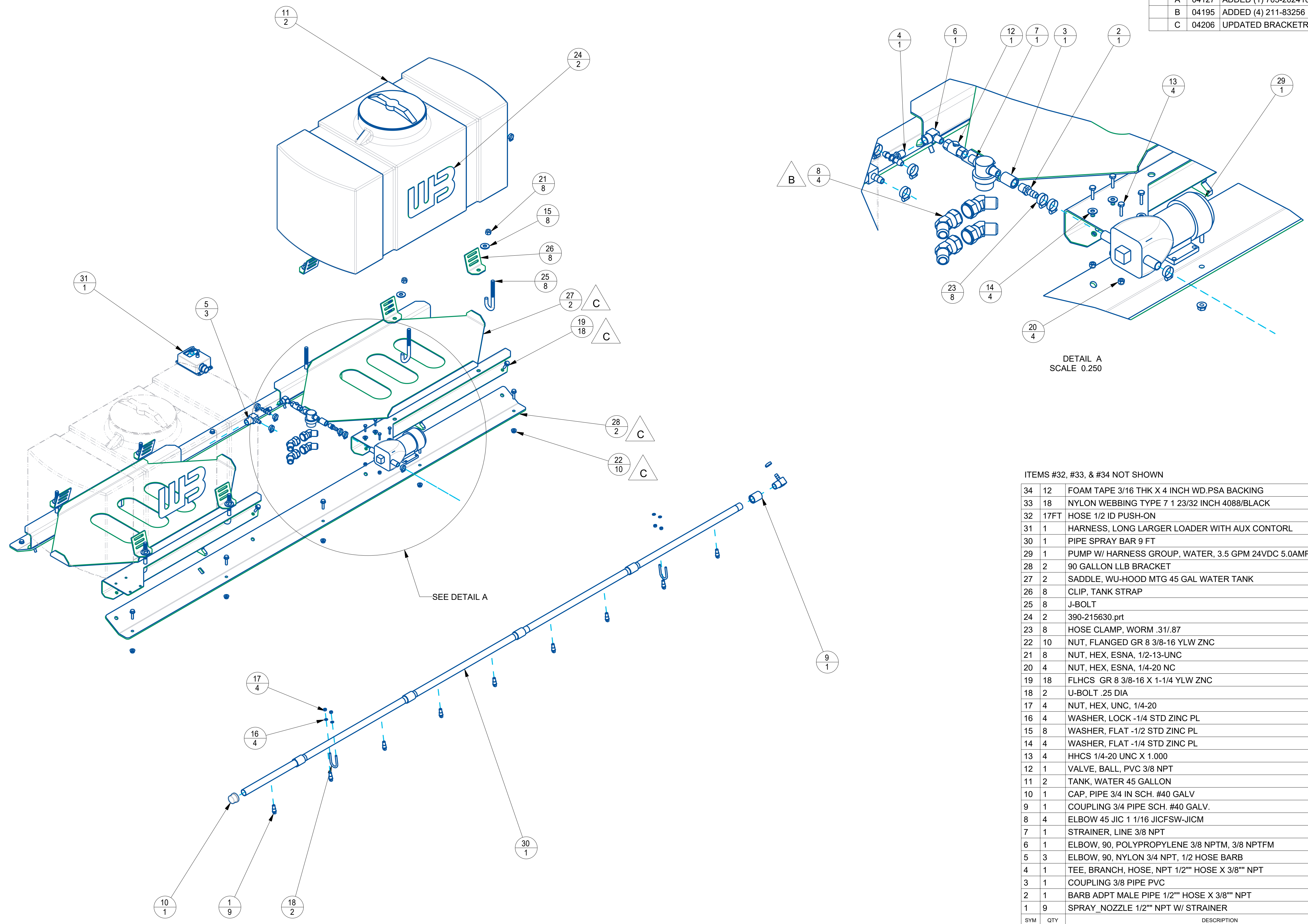


TOLERANCE UNLESS OTHERWISE SPECIFIED	ENG	SNT	DATE
.XX± .03	JAM	JAM	09-May-24
.XXX± .010	APRVD	JAM	09-May-24

WT (±2%): 731 LBS

8 7 6 5 4 3 2 1

ZONE	REV	CN	DESCRIPTION	BY	DATE
A	04127		ADDED (1) 703-202410	SNT	20-Feb-24
B	04195		ADDED (4) 211-83256	JAM	02-May-24
C	04206		UPDATED BRACKETRY	JAM	10-May-24



ITEMS #32, #33, & #34 NOT SHOWN

SYM	QTY	DESCRIPTION	SIZE	PART NUMBER
34	12	FOAM TAPE 3/16 THK X 4 INCH WD.PSA BACKING	-	488-72394
33	18	NYLON WEBBING TYPE 7 1 23/32 INCH 4088/BLACK	-	488-72288
32	17FT	HOSE 1/2 ID PUSH-ON	-	204-92011
31	1	HARNES, LONG LARGER LOADER WITH AUX CONTORL	B	703-202410
30	1	PIPE SPRAY BAR 9 FT	D	432-208401
29	1	PUMP W/ HARNES GROUP, WATER, 3.5 GPM 24VDC 5.0AMP 45PSI MAX	D	432-203134
28	2	90 GALLON LLB BRACKET	D	410-218304
27	2	SADDLE, WU-HOOD MTG 45 GAL WATER TANK	B	410-147575
26	8	CLIP, TANK STRAP	A	400-72219
25	8	J-BOLT	A	400-72218
24	2	390-215630.pt	B	390-215630
23	8	HOSE CLAMP, WORM .31/.87	A	387-00493
22	10	NUT, FLANGED GR 8 3/8-16 YLW ZNC	A	371-173181
21	8	NUT, HEX, ESNA, 1/2-13-UNC	A	371-81417
20	4	NUT, HEX, ESNA, 1/4-20 NC	A	371-81299
19	18	FLHCS GR 8 3/8-16 X 1-1/4 YLW ZNC	X	370-173180
18	2	U-BOLT .25 DIA	A	370-74138
17	4	NUT, HEX, UNC, 1/4-20	A	361-10000
16	4	WASHER, LOCK -1/4 STD ZINC PL	-	351-10000
15	8	WASHER, FLAT -1/2 STD ZINC PL	-	341-50000
14	4	WASHER, FLAT -1/4 STD ZINC PL	-	341-10000
13	4	HHCS 1/4-20 UNC X 1.000	A	311-11000
12	1	VALVE, BALL, PVC 3/8 NPT	A	261-132245
11	2	TANK, WATER 45 GALLON	A	221-92021
10	1	CAP, PIPE 3/4 IN SCH. #40 GALV		217-97161
9	1	COUPLING 3/4 PIPE SCH. #40 GALV.	X	217-97153
8	4	ELBOW 45 JIC 1 1/16 JICFSW-JICM	-	211-83256
7	1	STRAINER, LINE 3/8 NPT		209-72385
6	1	ELBOW, 90, POLYPROPYLENE 3/8 NPTM, 3/8 NPTFM	-	206-163076
5	3	ELBOW, 90, NYLON 3/4 NPT, 1/2 HOSE BARB	A	206-132367
4	1	TEE, BRANCH, HOSE, NPT 1/2" HOSE X 3/8" NPT	A	206-132249
3	1	COUPLING 3/8 PIPE PVC	A	206-92080
2	1	BARB ADPT MALE PIPE 1/2" HOSE X 3/8" NPT	-	206-74410
1	9	SPRAY_NOZZLE 1/2" NPT W/ STRAINER	A	206-74292

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**MATERIAL: SEE BOM**

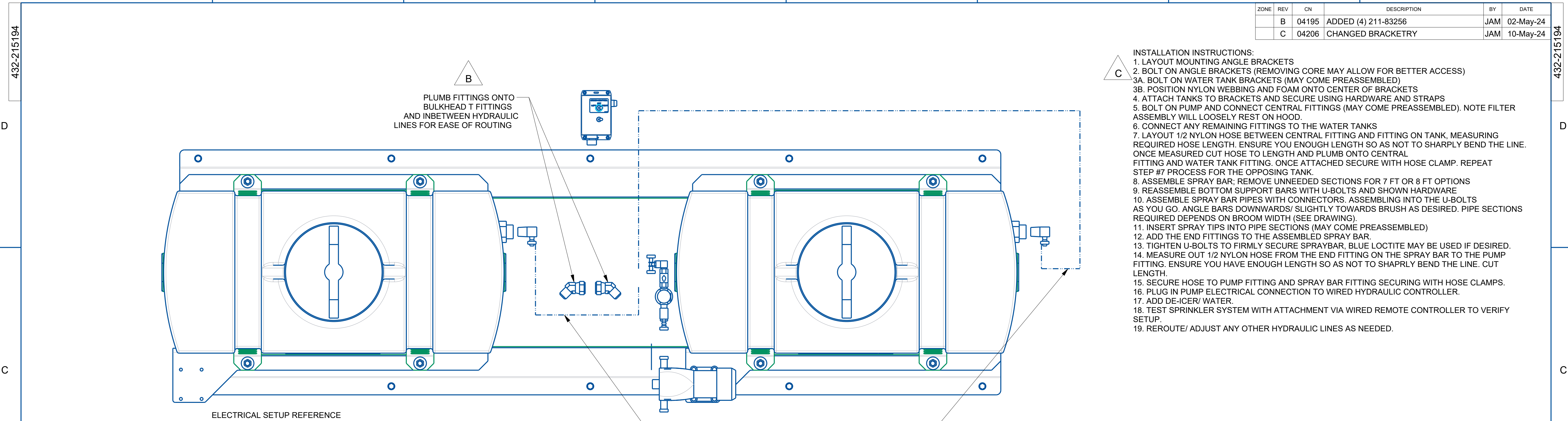
TOLERANCE UNLESS OTHERWISE SPECIFIED

ENG	JAM	DATE	03-Jan-24
DRN	JAM	DATE	03-Jan-24
CHKD	SNT	DATE	03-Jan-24
APRVD	SNT	DATE	03-Jan-24

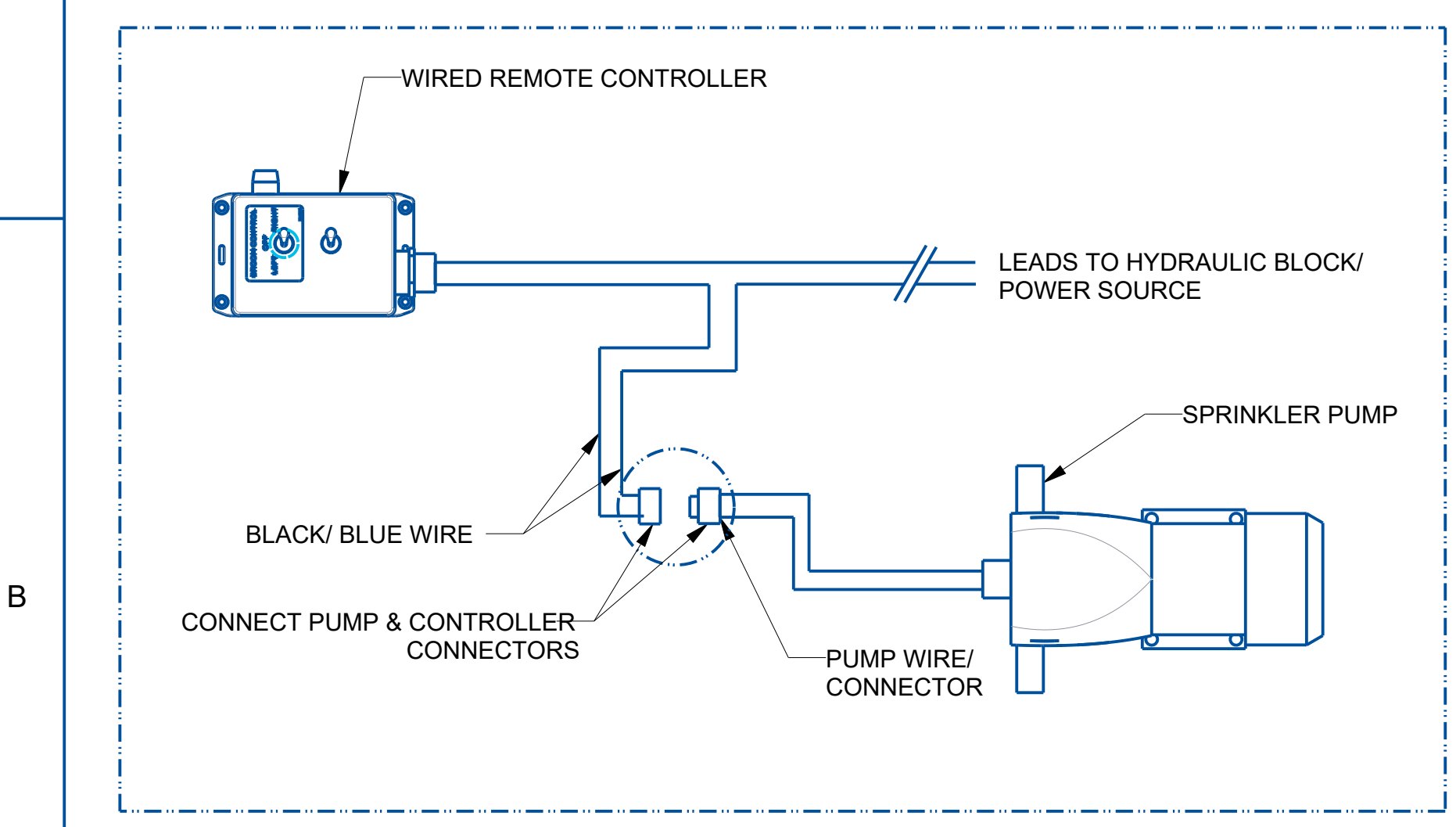
3RD ANGLE PROJECTION  
 .XXL: 03  
 .XXXL: 010  
 XY ± 1/32  
 ANGLE: 2

DESCRIPTION: WERK BRAU 90 GALLON SPRINKLER SYSTEM LLB  
 SCALE: 0.125  
 SHEET 1 OF 3  
 SIZE PART NUMBER: 432-215194  
 REV C

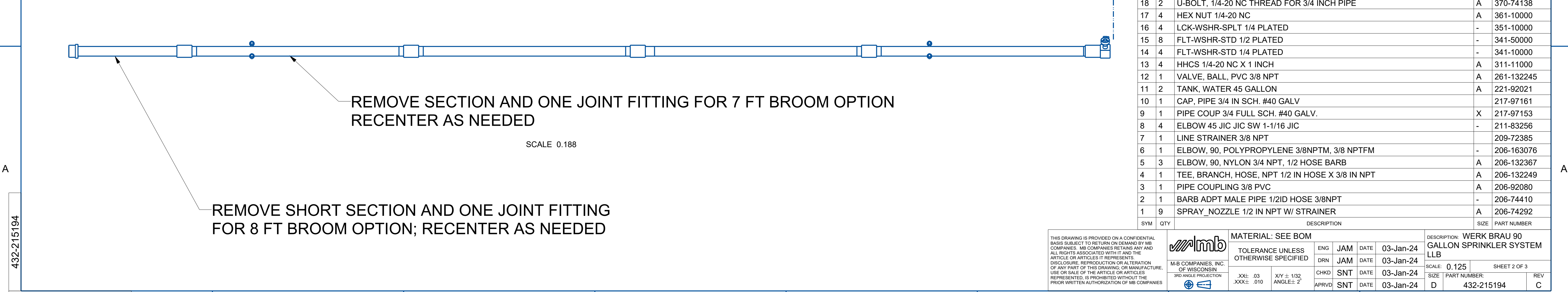
ZONE	REV	CN	DESCRIPTION	BY	DATE
B	04195		ADDED (4) 211-83256	JAM	02-May-24
C	04206		CHANGED BRACKETRY	JAM	10-May-24



- INSTALLATION INSTRUCTIONS:**
- LAYOUT MOUNTING ANGLE BRACKETS
  - BOLT ON ANGLE BRACKETS (REMOVING CORE MAY ALLOW FOR BETTER ACCESS)
  - BOLT ON WATER TANK BRACKETS (MAY COME PREASSEMBLED)
  - POSITION NYLON WEBBING AND FOAM ONTO CENTER OF BRACKETS
  - ATTACH TANKS TO BRACKETS AND SECURE USING HARDWARE AND STRAPS
  - BOLT ON PUMP AND CONNECT CENTRAL FITTINGS (MAY COME PREASSEMBLED). NOTE FILTER ASSEMBLY WILL LOOSELY REST ON HOOD.
  - CONNECT ANY REMAINING FITTINGS TO THE WATER TANKS
  - LAYOUT 1/2 NYLON HOSE BETWEEN CENTRAL FITTING AND FITTING ON TANK, MEASURING REQUIRED HOSE LENGTH. ENSURE YOU ENOUGH LENGTH SO AS NOT TO SHARPLY BEND THE LINE. ONCE MEASURED CUT HOSE TO LENGTH AND PLUMB ONTO CENTRAL FITTING AND WATER TANK FITTING. ONCE ATTACHED SECURE WITH HOSE CLAMP. REPEAT STEP #7 PROCESS FOR THE OPPOSING TANK.
  - ASSEMBLE SPRAY BAR; REMOVE UNNEEDED SECTIONS FOR 7 FT OR 8 FT OPTIONS
  - REASSEMBLE BOTTOM SUPPORT BARS WITH U-BOLTS AND SHOWN HARDWARE
  - ASSEMBLE SPRAY BAR PIPES WITH CONNECTORS. ASSEMBLING INTO THE U-BOLTS AS YOU GO. ANGLE BARS DOWNWARDS/ SLIGHTLY TOWARDS BRUSH AS DESIRED. PIPE SECTIONS REQUIRED DEPENDS ON BROOM WIDTH (SEE DRAWING).
  - INSERT SPRAY TIPS INTO PIPE SECTIONS (MAY COME PREASSEMBLED)
  - ADD THE END FITTINGS TO THE ASSEMBLED SPRAY BAR.
  - TIGHTEN U-BOLTS TO FIRMLY SECURE SPRAYBAR, BLUE LOCTITE MAY BE USED IF DESIRED.
  - MEASURE OUT 1/2 NYLON HOSE FROM THE END FITTING ON THE SPRAY BAR TO THE PUMP FITTING. ENSURE YOU HAVE ENOUGH LENGTH SO AS NOT TO SHAPRLY BEND THE LINE. CUT LENGTH.
  - SECURE HOSE TO PUMP FITTING AND SPRAY BAR FITTING SECURING WITH HOSE CLAMPS.
  - PLUG IN PUMP ELECTRICAL CONNECTION TO WIRED HYDRAULIC CONTROLLER.
  - ADD DE-ICER/ WATER.
  - TEST SPRINKLER SYSTEM WITH ATTACHMENT VIA WIRED REMOTE CONTROLLER TO VERIFY SETUP.
  - REROUTE/ ADJUST ANY OTHER HYDRAULIC LINES AS NEEDED.



HOSE LENGTHS TO BE DETERMINED AT TIME OF INSTALLATION



SYM	QTY	DESCRIPTION	SIZE	PART NUMBER
31	1	HARNES, LONG LARGER LOADER WITH AUX CONTORL	B	703-202410
30	1	PIPE SPRAY BAR 9 FT	D	432-208401
29	1	PUMP W/ HARNES GROUP, WATER, 3.5 GPM 24VDC 5.0AMP 45PSI MAX	D	432-203134
28	2	90 GALLON LLB BRACKET	D	410-218304
27	2	TANK SADDLE-MTG, BRUSH HOOD	B	410-147575
26	8	CLIP, TANK STRAP	A	400-72219
25	8	J-BOLT	A	400-72218
24	2	WERK BRAU BLACK DECAL MEDIUM	B	390-215630
23	8	HOSE CLAMP 1/2 DIA HOSE #10, STD BAND WIDTH	A	387-00493
22	10	NUT, FLANGED GR 8 3/8-16 YLW ZNC	A	371-173181
21	8	ESNA NUT 1/2-13 NC	A	371-81417
20	4	ESNA NUT, 1/4-20 NC	A	371-81299
19	18	FLHCS GR 8 3/8-16 X 1-1/4 YLW ZNC	X	370-173180
18	2	U-BOLT, 1/4-20 NC THREAD FOR 3/4 INCH PIPE	A	370-74138
17	4	HEX NUT 1/4-20 NC	A	361-10000
16	4	LCK-WSHR-SPLT 1/4 PLATED	-	351-10000
15	8	FLT-WSHR-STD 1/2 PLATED	-	341-50000
14	4	FLT-WSHR-STD 1/4 PLATED	-	341-10000
13	4	HHCS 1/4-20 NC X 1 INCH	A	311-11000
12	1	VALVE, BALL, PVC 3/8 NPT	A	261-132245
11	2	TANK, WATER 45 GALLON	A	221-92021
10	1	CAP, PIPE 3/4 IN SCH. #40 GALV		217-97161
9	1	PIPE COUP 3/4 FULL SCH. #40 GALV.	X	217-97153
8	4	ELBOW 45 JIC JIC SW 1-1/16 JIC	-	211-83256
7	1	LINE STRAINER 3/8 NPT		209-72385
6	1	ELBOW, 90, POLYPROPYLENE 3/8NPTM, 3/8 NPTFM	-	206-163076
5	3	ELBOW, 90, NYLON 3/4 NPT, 1/2 HOSE BARB	A	206-132367
4	1	TEE, BRANCH, HOSE, NPT 1/2 IN HOSE X 3/8 IN NPT	A	206-132249
3	1	PIPE COUPLING 3/8 PVC	A	206-92080
2	1	BARB ADPT MALE PIPE 1/2ID HOSE 3/8NPT	-	206-74410
1	9	SPRAY_NOZZLE 1/2 IN NPT W/ STRAINER	A	206-74292

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MATERIAL: SEE BOM

TOLERANCE UNLESS OTHERWISE SPECIFIED

ENG	JAM	DATE	03-Jan-24
DRN	JAM	DATE	03-Jan-24
CHKD	SNT	DATE	03-Jan-24
APRVD	SNT	DATE	03-Jan-24

DESCRIPTION: WERK BRAU 90 GALLON SPRINKLER SYSTEM LLB

SCALE: 0.125

SIZE: PART NUMBER: 432-215194

REVISION: REV C

8 7 6 5 4 3 2 1

ZONE	REV	CN	DESCRIPTION	BY	DATE
B	04195		ADDED (4) 211-83256	JAM	02-May-24
C	04206		CHANGED BRACKETRY	JAM	10-May-24

432-215194

432-215194

D

D

C

C

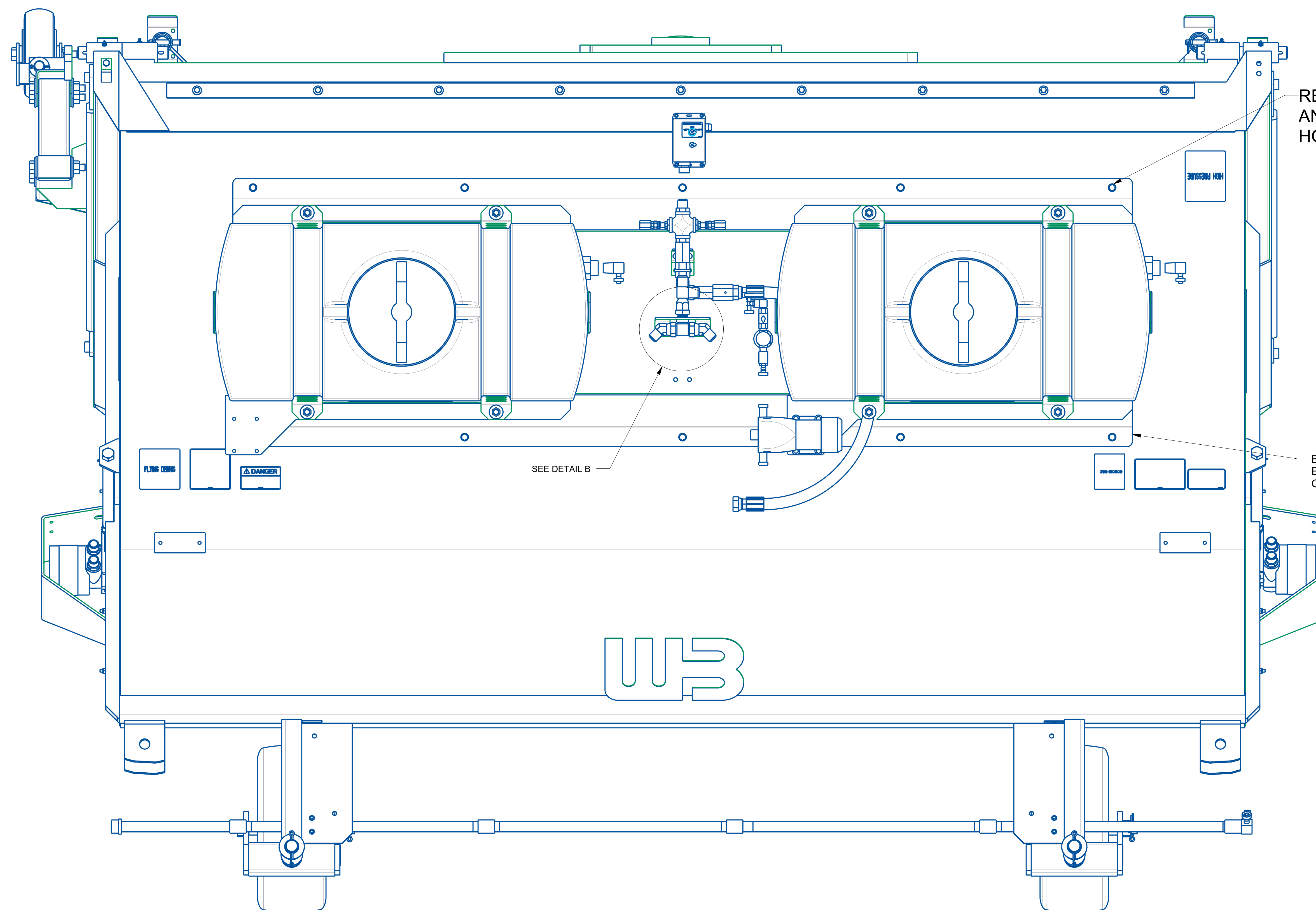
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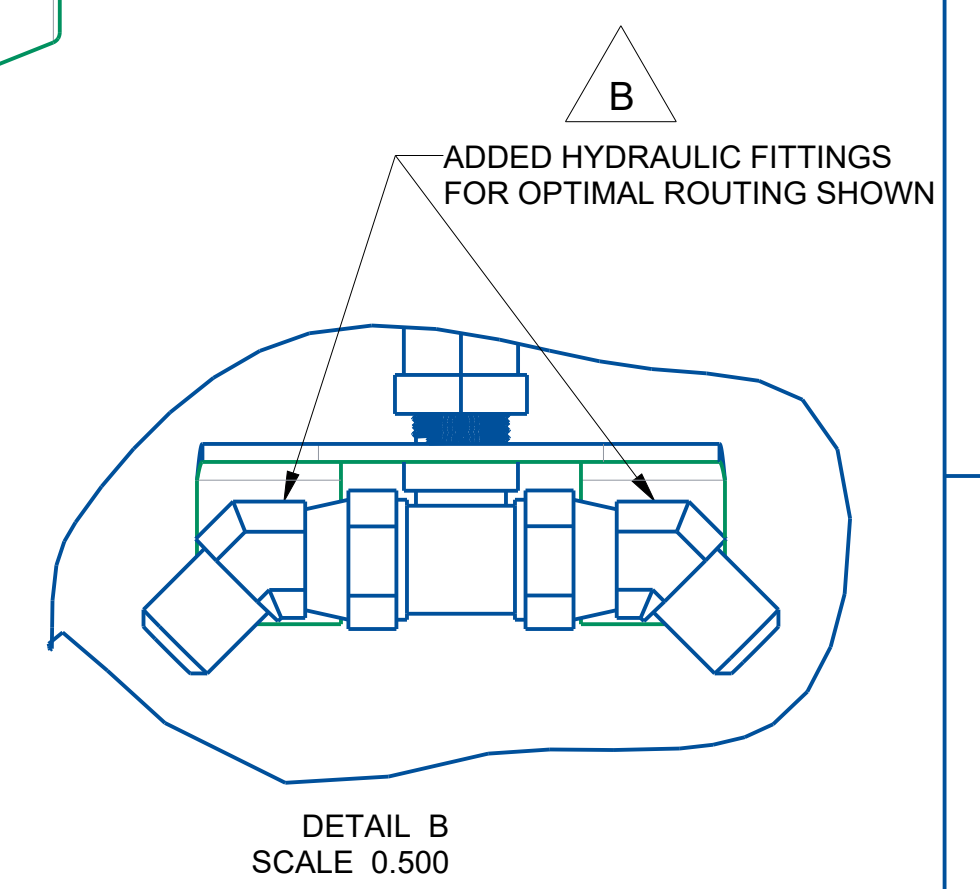
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432-215194



REMOVE PLUGS AND BOLT INTO EXISTING HOOD HOLES

BRACKET DISTANCE FROM SIDES SHOULD BE EQUAL FOR ALL OPTIONS; 7FT, 8FT, 9FT OPTIONS SHOULD BE CENTERED



DETAIL B  
SCALE 0.500

WT (±2%):N/A

8 7 6 5 4 3 2 1

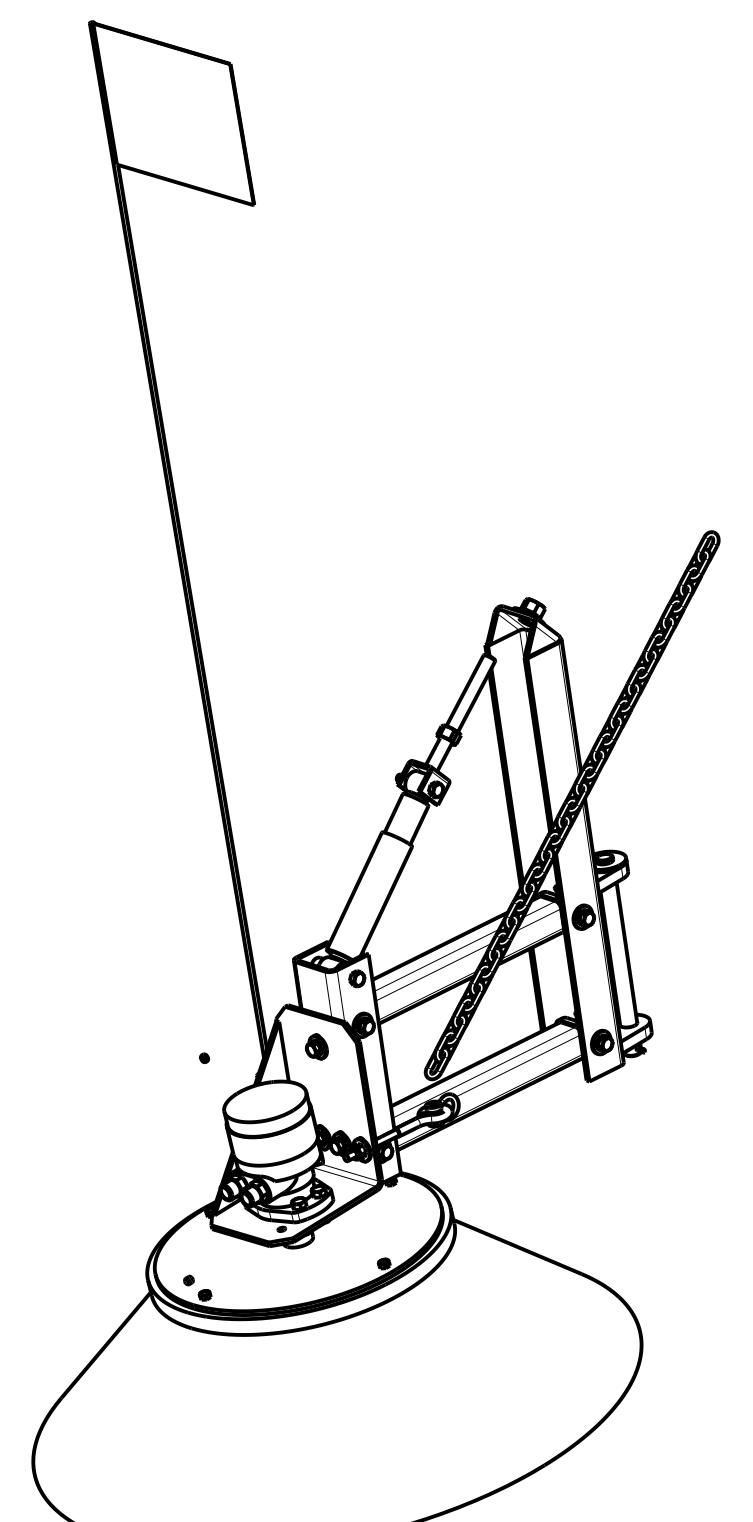
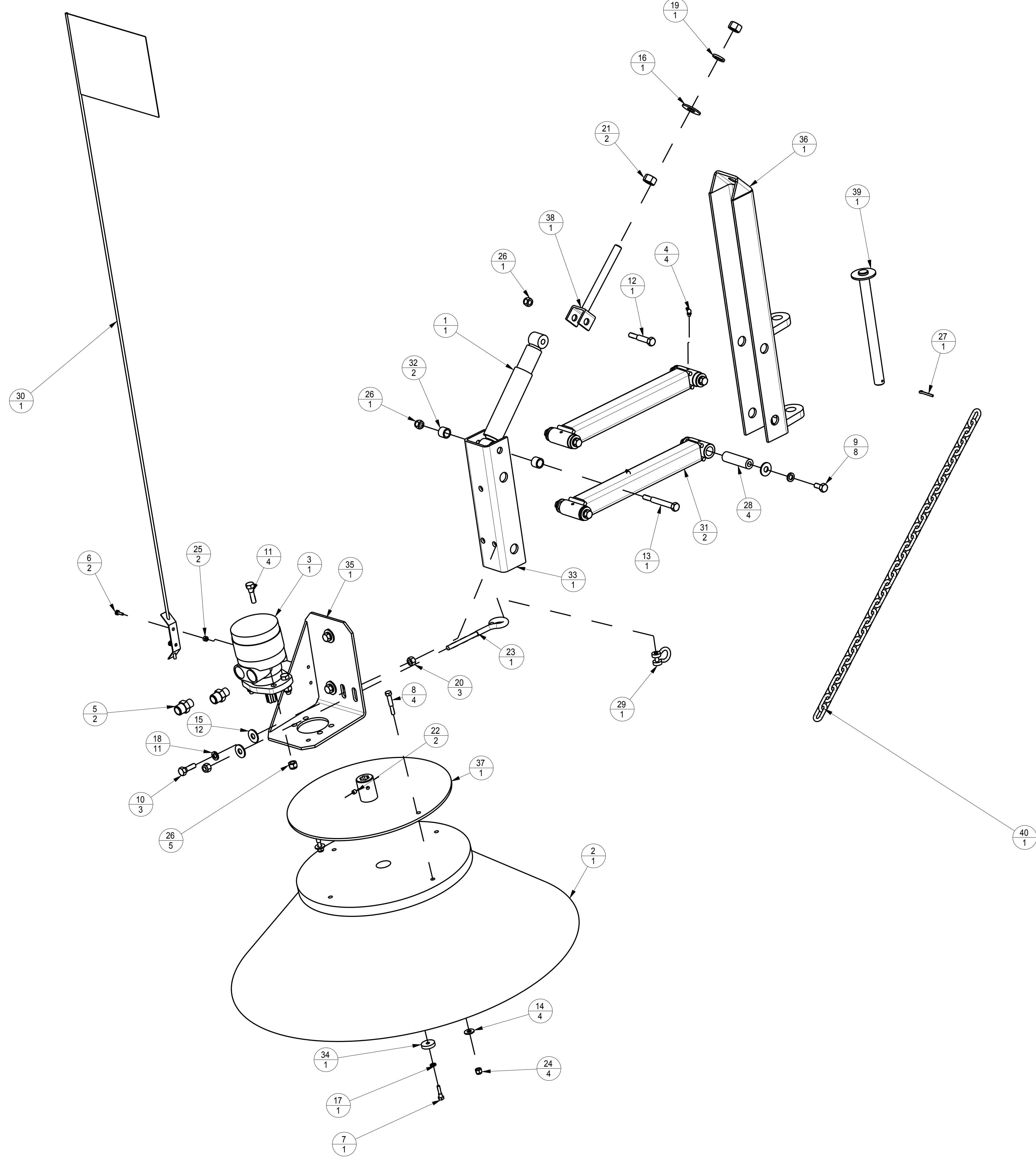
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		ENG	JAM	DATE	03-Jan-24																										
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SIZE	PART NUMBER: 432-215194																														
D	REV C																														
TOLERANCE UNLESS OTHERWISE SPECIFIED																															
.XX± .03	X,Y ± 1/32																														
.XXX± .010	ANGLE± .2°																														

D

C

B

A



SCALE 0.090

SYM	QTY	DESCRIPTION	SIZE	PART NUMBER
40	1	CHAIN 5/16 X 32 LINKS .	X	509-90329
39	1	PIN W.U.	A	410-94058
38	1	FORK - W.U.	B	410-93493
37	1	DISK, SLEEVE W.U.	B	410-93304
36	1	BRACKET, PIVOT - W.U.	A	410-93169
35	1	BRACKET W.U.	B	410-93128
34	1	WASHER, HEAVY DUTY	A	402-98674
33	1	CHANNEL	B	402-93052
32	2	SPACER	A	402-92732
31	2	SWING ARM W.U. SHT/SHL	B	400-55107
30	1	FLAG, SAFETY, 6 FT .	X	390-92000
29	1	SHACKLE, ANCHOR 5/16" DIA SCREW PIN	X	385-75846
28	4	PIN, 3/8-16	A	383-92050
27	1	PIN, COTTER .1875		380-83655
26	7	NUT, HEX, ESNA, 1/2-13-UNC	A	371-81417
25	2	NUT, HEX, ESNA, 1/4-20 NC	A	371-81299
24	4	NUT, HEX, ESNA, 3/8-16 UNC	A	371-81297
23	1	EYEBOLT, 1/2-13 NC X 6 .	-	370-92155
22	2	SET SCREW 3/8-16 X .375	A	370-90146
21	2	NUT, HEX, UNC, 3/4-10	A	361-80000
20	3	NUT, HEX, UNC, 1/2-13	A	361-50000
19	1	WASHER, LOCK -3/4 YLW ZINC PL	X	351-80000
18	11	WASHER, LOCK -1/2 YLW ZINC PL	-	351-50000
17	1	WASHER, LOCK -5/16 STD ZINC PL	-	351-20000
16	1	WASHER, FLAT -3/4 STD ZINC PL	X	341-80000
15	12	WASHER, FLAT -1/2 STD ZINC PL	-	341-50000
14	4	WASHER, FLAT -3/8 STD ZINC PL	-	341-30000
13	1	HHCS 1/2-13 UNC X 4.500	A	311-54500
12	1	HHCS 1/2-13 UNC X 3.000	A	311-53000
11	4	HHCS 1/2-13 UNC X 1.750	A	311-51750
10	3	HHCS 1/2-13 UNC X 1.500	A	311-51500
9	8	HHCS 1/2-13 UNC X 1.000	A	311-51000
8	4	HHCS 3/8-16 UNC X 2.250	A	311-32250
7	1	HHCS 5/16-18 UNC X 1.250	A	311-21250
6	2	HHCS 1/4-20 UNC X 0.750	A	311-10750
5	2	STR ADPT, MALE 1 1/16 JIC X 7/8 ORB	X	211-51813
4	4	GREASE ZERK 1/4-28, 45?	X	206-91152
3	1	MOTOR, HYDRAULIC 18.3 CU IN	A	201-75209
2	1	CURB BROOM 18" DIA WIRE	A	101-92023
1	1	SCHOCK ABSORBER	B	100-92073

**mb** M-B COMPANIES, INC. OF WISCONSIN 3RD ANGLE PROJECTION

**SEE BOM**  
TOLERANCE UNLESS OTHERWISE SPECIFIED  
XX ± .03  
XXX ± .010

MATERIAL NUMBER	QTY:	NAME:
DWN	SLS	DATE
CKD	SNT	DATE
APP	SNT	DATE

05-Aug-15  
06-Aug-15  
06-Aug-15

SCALE: 0.180  
SIZE PART NO.  
D 432-200436

CURB BROOM RH, LLB  
SHEET 1 OF 1  
REV 0

8 7 6 5 4 3 2 1

ZONE	REV	CN	DESCRIPTION	BY	DATE

432-218179

432-218179

D

D

C

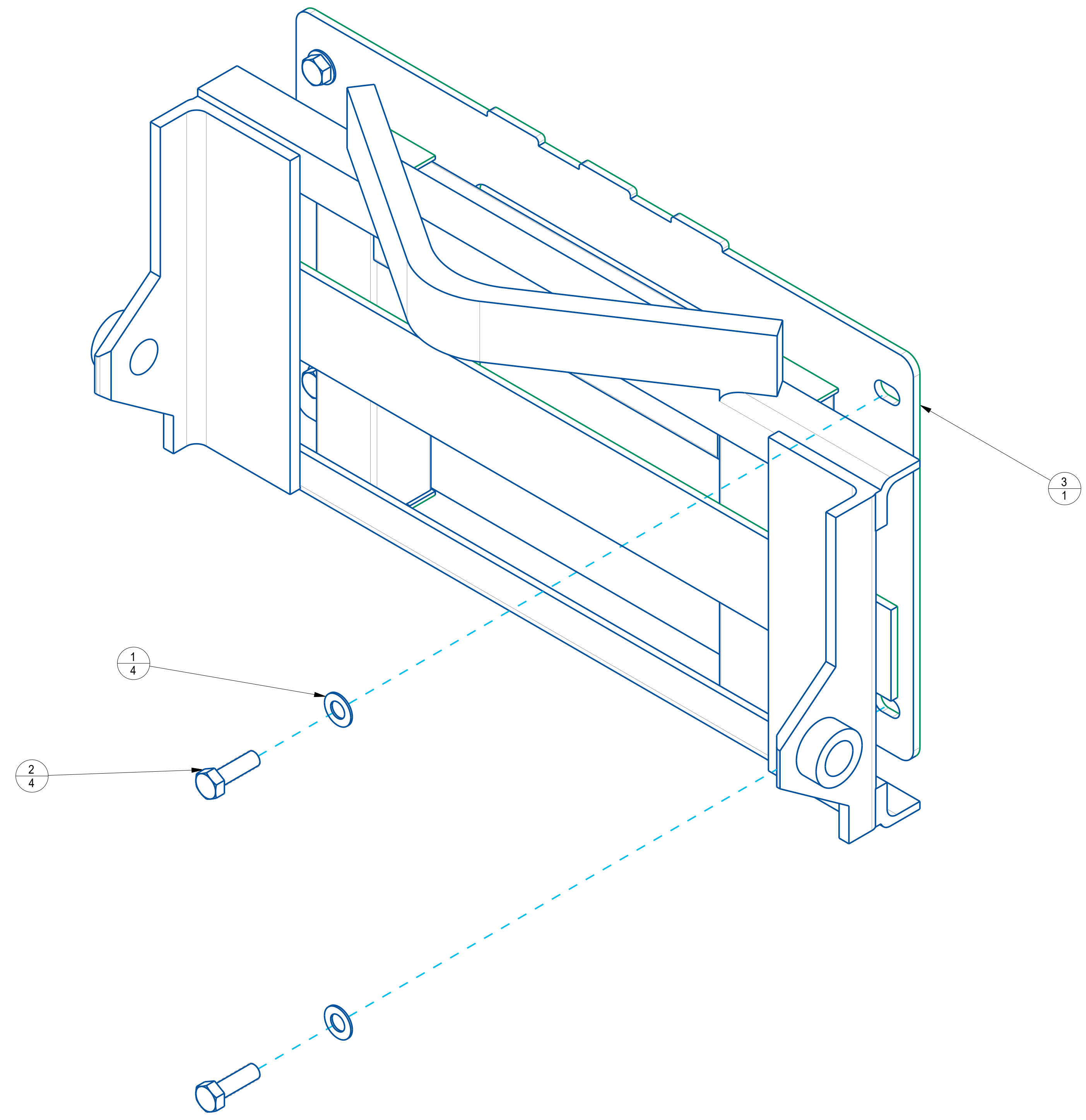
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B

B

A

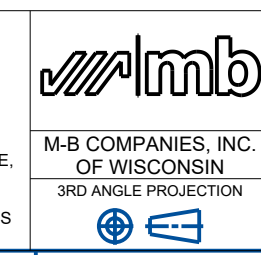
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432-218179

SYM	QTY	DESCRIPTION	SIZE	PART NUMBER
3	1	WERK BRAU LLB MOUNT WU ACS PDOT	D	410-218178
2	4	HHCS 1-8 UNC X 3.000	A	370-92009
1	4	WASHER, SAE 1	-	343-101630

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TOLERANCE UNLESS OTHERWISE SPECIFIED	ENG	SNT	DATE	28-Dec-23
	DRN	SNT	DATE	28-Dec-23
.XX± .03	CHKD	JAM	DATE	09-May-24
.XXX± .010	APRVD	JAM	DATE	09-May-24

DESCRIPTION: WERK BRAU LLB MOUNT ASSY ACS PDOT	
SCALE: 0.250	SHEET 1 OF 1
SIZE	PART NUMBER:
D	432-218179
REV	0

WT (±2%): 731 LBS

8 7 6 5 4 3 2 1