



PROJECT: 9950. - Veolia/Taunton WWTP Improvements Phase 2

DATE: 03/28/2023

SUBMITTAL: 11100-02 - Automatic Algae Cleaning System - O&M Manual

REVISION: 0

STATUS: Eng

SPEC #: 11100

TO:
Enea Mushi
Veolia North America
125 S. 84th Street, Suite 175
Milwaukee, WI 53214
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FROM:
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Item	Revision	Description	Status	Date Sent	Date Returned
11100-02	0	Automatic Algae Cleaning System - O&M Manual	Eng	03/28/2023	
Notes:					

Additional Notes:

Status Codes

- 1-APP – No Exceptions Taken
- 2-ANR – Make Corrections Noted
- 3-R&R – Revise and Resubmit
- 4-REJ – Rejected
- 5-IPO – For Information Purposes Only
- 6-NRR – Not Required for Review
- ENG – Submitted to Engineer

Sincerely,
Hart Engineering Corporation

DATE: _____ 03/28/2023 _____



P.O. Box 2110
Richmond, KY 40476
859-624-1077

LETTER OF TRANSMITTAL

March 27, 2023

Ryan Murphy
rmurphy@hartcompanies.com

Project: Taunton WWTF
Weir-Wolf™ Equipment – clarifier brush system
Ford Hall Job No. A22303, Hart Engineering Corporation PO #9950.120
Specification Section 11100

WE ARE SENDING YOU THE FOLLOWING:

<u>COPIES</u>	<u>DESCRIPTION</u>
1	Electronic Preliminary O&M

THESE ARE TRANSMITTED:

for approval

PREPARED BY:

Sadie Shanks, Ford Hall Company
859-624-1077

COPY
A22303

SIGNED: *Sadie Shanks*
Ford Hall Company, INC.



PRELIMINARY OPERATION & MAINTENANCE MANUAL

WEIR-WOLF™ CLARIFIER BRUSH SYSTEM

CUSTOM DESIGNED AND BUILT FOR:

FOUR (4) CIRCULAR CLARIFIER

AT
Taunton WWTF
Taunton, MA

ENGINEER

Brandon Marini Beta -Inc.

CONTRACTOR

Hart Engineering Corporation

MANUFACTURER:

Ford Hall Company, Inc
PO Box 2110
Richmond, KY 40476
859-624-1077



PO Box 2110
Richmond, KY 40476
Phone 859.624.1077 Fax 859.624.3320

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SECTION 1

DATA SHEETS AND REPORTS TESTING, START-UP



Page 1 of 4
EQUIPMENT DATA FORM

PROJECT NAME	Taunton WWTF		
CONTRACTOR	Hart Engineering Corporation		
EQUIPMENT NO.	SBSWL-001 ASA Dual	Specification Section:	
DESCRIPTION	Weir-Wolf Clarifier Cleaning System		
LOCATION			
MANUFACTURER	Ford Hall Company, Inc		
MANUFCAURER ADDRES	PO Box 2110 Richmond KY 40475	859-624-1077	
MODEL NO.	SBSWL-001 ASA Dual		
NO. OF UNITS	4		

EQUIPMENT DATA FORM

EQUIPMENT NO.			
DESCRIPTION	Weir-Wolf Clarifier Cleaning System		
NAMEPLATE DATA			
ELECTRIC MOTOR – N/a		PUMP / HVAC UNIT – N/a	
MANUFACTURER	N/A	MANUFACTURER	N/A
TYPE	<input type="checkbox"/> AC <input type="checkbox"/> DC	TYPE	
HORSEPOWER		SIZE	
RPM		CAPACITY	
VOLTAGE		PRESSURE	
AMPERAGE		ROTATION	
PHASE		IMPELLER SIZE	
FRAME		IMPELLER MATL.	
DRIVE / REDUCER – N/a		OTHER	
MANUFACTURER	N/A	MANUFACTURER	Ford Hall Company, Inc
TYPE	<input type="checkbox"/> GEAR <input type="checkbox"/> V-BELT <input type="checkbox"/> CHAIN <input type="checkbox"/> VARIDRIVE	US Patent	4,830,748
		Phone	859-624-1077
		Country of Origin	USA
SERVICE FACTOR			
RATIO			



EQUIPMENT DATA FORM

LUBRICATION / RECOMMENDED SPARE PARTS LIST

EQUIPMENT NO.	
DESCRIPTION	Weir-Wolf Clarifier Cleaning System

LUBRICANT LIST

REFERENCE SYMBOL	LUBRICANT TYPE (MILITARY STANDARD)	RECOMMENDED LUBRICANT AND MANUFACTURER
List of symbols in "Maintenance Operation"	List general lubrication type.	List specific lubrication name, viscosity, and manufacturer.
No lubricants are used on the Weir-Wolf System		

RECOMMENDED SPARE PARTS LIST

PART NO.**	DESCRIPTION	QUANTITY	UNIT COST
Complete Set	Complete set of Brushes per Clarifier	1 set per clarifier	Approx \$250.00 per set. After installation price and dimensions will be sent to the Owner.
** Brush dimensions will be sent after installation is completed			

ADDITIONAL DATA AND REMARKS

Due to the variances in elevation of the skimmer arms of clarifiers and thickener as it travels around the tank, the "out of round" of clarifier/ thickeners and variances in individual concrete surfaces within each clarifier/thickener; each Ford Hall Company (FHC) Weir-Wolf™ / Algae Sweep Automation™ Cleaning System is custom designed and field built for the individual application. These systems are not interchangeable, and if the custom designed FHC Brush System is removed for any reason, it is recommended that the Ford Hall Company be contacted to re-install Brush Systems or be contracted to advise the re-installation of Brush Systems. If parties other than FHC re-installs or if FHC is not present to advise re-installation of the Weir-Wolf/ Algae Sweep Automation brush system, then FHC is not responsible for brush system performance nor liable for damage to the brush system, skimmer arm, drive nor any other components of the clarifier/ thickener. Furthermore, any remaining warranties would be nullified if Brush systems are removed and re-installed by parties other than FHC.



PO Box 2110
 Richmond, KY 40476
 Phone 859.624.1077 Fax 859.624.3320

Ford Hall Company, Inc.
Weir-Wolf™ Clarifier Cleaning System
Equipment and Startup Certification

Operation, Maintenance and Startup will include but not be limited to the following:
 Component overview, operation, safety, routine preventative maintenance, troubleshooting, parts, and brush replacement.

PROJECT:	Tauton WWTF		
OWNER:			
ENGINEER:	Brandon Marini Beta -Inc.		
CONTRACTOR:	Hart Engineering Corporation		
MODEL(S):	SBSWL-001 ASA Dual	FHC Job #	A22303
DATE:		REPRESENTATIVE:	
HOURS OF TRAINING REQUIRED:	2 hours maximum – 1 hour typical		
HOURS OF TRAINING RECEIVED:			

ATTENDEES:

NAME	AFFILIATION	SIGNATURE

I, _____(name), _____(title), authorized representative of the _____(plant name) have **refused** to receive classroom and hands on instruction on the operation and maintenance of the Weir-Wolf / Algae Sweep Automation System, I am prepared to assume normal operational responsibility for the above equipment, I understand by refusing training the five (5) year warranty will be nullified and Ford Hall will not be responsible for any operating/damage to the unit since proper maintenance care has not been trained to the City.

Due to the variances in elevation of the skimmer arms of clarifiers and thickener as it travels around the tank, the "out of round" of clarifier/ thickeners and variances in individual concrete surfaces within each clarifier/thickener; each Ford Hall Company (FHC) Weir-Wolf™ / Algae Sweep Automation™ Cleaning System is custom designed and field built for the individual application. These systems are not interchangeable, and if the custom designed FHC Brush System is removed for any reason, it is recommended that the Ford Hall Company be contacted to re-install Brush Systems or be contracted to advise the re-installation of Brush Systems. If parties other than FHC re-installs or if FHC is not present to advise re-installation of the Weir-Wolf/ Algae Sweep Automation brush system, then FHC is not responsible for brush system performance nor liable for damage to the brush system, skimmer arm, drive nor any other components of the clarifier/ thickener. Furthermore, any remaining warranties would be nullified if Brush systems are removed and re-installed by parties other than FHC.



START-UP TESTING

Electrical: There are no electrical components or electrical wiring on the Weir-Wolf™ clarifier cleaning system. The system operates off the existing clarifier drive motor.

Utilities: There are no utilities required for the operation of the Weir-Wolf™ clarifier cleaning system.

Lubrication: There is no lubrication required for the operation of the Weir-Wolf™ clarifier cleaning system.

Adjustments: All the adjustments have been made to the Weir-Wolf™. It is working to peak performance.

Date of Field Testing: _____

Ford Hall Representative on-site to witness Field Testing: _____

I, _____, authorized representative of Ford Hall Company, Inc hereby states that the Weir-Wolf has been shop, field-tested, and meets all the requirements for performance.

Certified By: _____

Date: _____

Witnessed: _____



SECTION 2

GENERAL INFORMATION

Warranty

THE WEIR-WOLF™ EQUIPMENT IS WARRANTED AGAINST DEFECTS FOR A PERIOD OF FIVE (5) YEARS TO INCLUDE ALL PARTS AND LABOR (EXCLUDING BRUSHES).

FOR A PERIOD OF FIVE (5) YEARS AFTER INSTALLATION, THE FORD HALL COMPANY WILL GUARANTEE ALL METAL PARTS AGAINST FAILURE DUE TO CORROSION AND WORKMANSHIP. IN CASE OF FAILURE OF THE UNIT DUE TO EITHER OF THE ABOVE, FORD HALL COMPANY WILL REMEDY THE FAILURE TO THE CUSTOMERS SATISFACTION, AT NO COST TO THE OWNER/CUSTOMER.

THIS WARRANTY SHALL NOT APPLY TO EQUIPMENT OR PARTS WHICH HAVE BEEN ALTERED OR REPAIRED OUTSIDE OF A FORD HALL FACTORY, DAMAGED BY IMPROPER INSTALLATION OR APPLICATION, SUBJECTED TO MISUSE, ABUSE, NEGLIGENCE OR ACCIDENT.

THIS WARRANTY APPLIES ONLY TO EQUIPMENT MADE OR SOLD BY FORD HALL COMPANY, INC.

FORD HALL COMPANY, INC. MAKES NO WARRANTY WITH RESPECT TO PARTS, ACCESSORIES, OR COMPONENTS MANUFACTURED BY OTHERS. IF ANY OTHER PARTS, ACCESSORIES, OR COMPONENTS ARE USED OTHER THAN FORD HALL RECOMMENDED PARTS, THE FHC WARRANTY WILL BE VOIDED.

DUE TO THE VARIANCES IN ELEVATION OF THE SKIMMER ARMS OF CLARIFIERS AND THICKENER AS IT TRAVELS AROUND THE TANK, THE "OUT OF ROUND" OF CLARIFIER/ THICKENERS AND VARIANCES IN INDIVIDUAL CONCRETE SURFACES WITHIN EACH CLARIFIER/THICKENER; EACH FORD HALL COMPANY (FHC) WEIR-WOLF™ / ALGAE SWEEP AUTOMATION™ CLEANING SYSTEM IS CUSTOM DESIGNED AND FIELD BUILT FOR THE INDIVIDUAL APPLICATION. THESE SYSTEMS ARE NOT INTERCHANGEABLE, AND IF THE CUSTOM DESIGNED FHC BRUSH SYSTEM IS REMOVED FOR ANY REASON, IT IS RECOMMENDED THAT THE FORD HALL COMPANY BE CONTACTED TO RE-INSTALL BRUSH SYSTEMS OR BE CONTRACTED TO ADVISE THE RE-INSTALLATION OF BRUSH SYSTEMS. IF PARTIES OTHER THAN FHC RE-INSTALLS OR IF FHC IS NOT PRESENT TO ADVISE RE-INSTALLATION OF THE WEIR-WOLF/ ALGAE SWEEP AUTOMATION BRUSH SYSTEM, THEN FHC IS NOT RESPONSIBLE FOR BRUSH SYSTEM PERFORMANCE NOR LIABLE FOR DAMAGE TO THE BRUSH SYSTEM, SKIMMER ARM, DRIVE NOR ANY OTHER COMPONENTS OF THE CLARIFIER/ THICKENER. FURTHERMORE, ANY REMAINING WARRANTIES WOULD BE NULLIFIED IF BRUSH SYSTEMS ARE REMOVED AND RE-INSTALLED BY PARTIES OTHER THAN FHC.



TYPICAL INSTALLATION OUTLINE FOR WEIR-WOLF™ SYSTEM

The total amount of time allocated for installation of the Weir-Wolf System is 2 days per clarifier. Each Weir-Wolf™ System is custom designed. There are installation decisions that must be made on site (due to variations in concentricity of individual clarifiers). Ford Hall Company, Inc. service technician(s) will be on site to provide, advise, fine tune and provide all start up and operations and maintenance training for the Weir-Wolf™ Systems. Ford Hall Co., Inc. factory service technicians are skilled workman who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work specified.

The clarifier must be drained and hosed out to allow for:

1. Attachment of counterweight to the opposite rake arm (or opposite skimmer arm if available) to counter balance approximate 120 lb. weight of the Weir-Wolf System.
1 man hour.
2. Possible reinforcing of skimmer arm to improve structural integrity to allow for additional weight of Weir-Wolf System (as needed). This will be a field decision by our service technician on site during installation,
2 man hours.
3. Weld the stainless steel attachment assembly sleeve, for the Weir-Wolf System, to the existing skimmer arm. This must be level, meet critical dimensional requirements as specified, and not interfere with the wiper blade assembly or any other function of the clarifier mechanism.
1 man hour. The tank may begin to refill at this time.
4. Oversee the fabrication and installation of the stainless steel ramp (brush bridge) over/through effluent discharge hole.
2 man hours.
5. Oversee the fabrication and installation of the stainless steel ramp over/through webbing gusseted scum box supports (as needed). This will allow for easy access and exit of the baffle/weir brush assembly.
2 man hours.
6. Hang the Weir-Wolf System and begin making adjustments and arrangements of various pieces/parts, springs.
 - A. The brush arms are measured and cut for the exact fit of the clarifier surfaces to be cleaned.
 - B. The mainframe collars and mainframe spring collars are all placed upon the mainframe in proper sequence.
 - C. The brush arms are fitted inside the collars and set screwed.
 - D. The brush holders are attached to the brush arms.
 - E. The brushes are cut to fit the clarifier surfaces to be cleaned. (This step may have to be repeated during fine tuning to insure maximum cleaning efficiency.)
 - F. The springs are attached, routed and tensions tested for first run of fine tuning.
During the fine tuning of the system, the clarifier must be on line with the water flowing over the weirs. The clarifier will need to perform in the same capacity as it would under normal plant operations.
 - G. The Weir-Wolf System is monitored for mobility and cleaning efficiency. The skimmer arm and Weir-Wolf System will be observed for several revolutions with periodic stopping and starting of the skimmer arm to make adjustments. After final adjustments are completed, welding and tek screwing the unit into place occurs.
1day per unit.
7. Operations and maintenance training instruction for the plant operators can begin.
30 minutes - 1 hour



TOOLS REQUIRED FOR INSTALLATION OF WEIR-WOLF™ SYSTEM

1. Arc Welder with minimum 200 foot Leads 100 foot ground and 100 foot stinger (304 Unit 308L 3/32, 309L 1/8, 5lbs of each per tank and 316 Unit 316L 3/32, 309L 1/8, 5lbs of each per tank) (Stick (Arc) Welding Rods).
2. Slag Hammer
3. 3Lb Hammer
4. 4 1/2" 90 Degree Grinder with 1 grinding disc 10 cutting disc per tank
5. 14" Electric Chop Saw/Friction Saw with 2 Blades for cutting metal per tank
6. Wrenches (1 of Each)
 - 9/16" 3/8 " drive Combination wrench
 - 9/16" Combination wrench
 - 7/16" Combination wrench
 - 7/16" 3/8" drive deep well socket
 - 12" Crescent
7. Standard Allen Wrenches
 - 3/16"
 - 5/32"
8. 3/8" Hammer Dill 3/8 concrete bit
9. Vice Grips (2 of each)
 - 11R vice Grips
 - 6" Vice Grips
10. 8" C Clamps 2 each
11. 2 Ft Level
12. Torpedo Level
13. Speed Square
14. Heavy Duty Extension Cords (100-150 ft)
15. Ground Fault Breaker
16. Tape Measure 25 ft
17. 50 foot Rope
18. Extension Ladder
19. All required Safety Equipment

*Always check to see if site-specific safety gear is required (Example – fire Resistant Coverall Suits- Safety Orange, Tripod, Wench, etc.)



PO Box 2110
Richmond, KY 40476
Phone 800.928.2070 Fax 859.624.3320

Equipment and Manufacturer Information

Equipment Name: Weir-Wolf™ Clarifier Cleaning System

Equipment Location: Circular Clarifier

Number of Units: FOUR (4) Weir-Wolf™ systems.

Manufacturer/Vendor: Mailing Address:
Ford Hall Company, Inc.
P.O. Box 2110
Richmond, KY 40476

Physical Address:
301 Lower Hines Creek Rd.
Richmond, KY 40475

Ph: 859-624-1077
Fax: 859-624-3320

Manufacturer's Representative: All service representation comes directly from the manufacturer. **For any questions, concerns, requests for information or service please call 859-624-1077.** At Ford Hall Company, Inc. customer satisfaction is our #1 goal. We intend to achieve this by providing superior customer service.

Nameplate Data: FORD HALL COMPANY, INC.
U.S. PATENT # 4,830,748
MADE IN U.S.A.
1-859-624-1077

Nameplate is welded to outer baffle collar on each Weir-Wolf™ system.

Lubrication: There are no components requiring lubrication on the Weir-Wolf™ clarifier cleaning systems.

Electrical: There are no electrical components or electrical wiring on the Weir-Wolf™ clarifier cleaning systems.



ALL EQUIPMENT PARTS SUPPLIER

If a problem is encountered in operating the equipment which cannot be solved by referring to the available material, please contact:

Ford Hall Company, Inc
PO Box 2110
Richmond, KY 40476
859-624-1077
859-624-3320 fax
aftermarket@fordhall.com



PO Box 2110
Richmond, KY 40476
Phone 859.624.1077 Fax 859.624.3320

SPECIAL INSTRUCTIONS

RECEIVING EQUIPMENT

All material has been checked and inspected prior to shipment. We have taken precautions to protect the equipment against damage or lisses during shipment, If the equipment is received in bad conditions or the number of pieces of steel/ crates are not as listed on the bill of lading , make sure you note this on the bill of lading and have the driver sign and acknowledge same. This enables you to place the proper claims against the freight company.

STORAGE

Proper storage of the equipment before and during installation is the responsibility of the contractor. Specific storage requirements are covered elsewhere.

INSTRUCTIONS

Ford Hall will provide a site technician for the installation and erection of the Weir-Wolf equipment, if futher instructions are needed please contact Ford Hall immediately.

FIELD INSTALLATION

Ford Hall will provide a site technician for the installation and erection of the Weir-Wolf equipment, if futher instructions are needed please contact Ford Hall immediately.

GENERAL STORAGE REQUIREMENTS

1. Be sure all material is stored together in a secure place.
2. Outside placement is acceptable, however if temperatures are below freezing please make sure the crates do not get water in them and then freeze. If installation is scheduled all the crates must be unfrozen and thawed before installation can proceed.

SHORT TERM STORAGE

Make sure all material is stored together in a secure place, if material is missing and not noted on the bill of lading when delievered then additional material/charges may apply.

LONG TERM STORAGE

Make sure all material is stored together in a secure place, if material is missing and not noted on the bill of lading when delievered then additional material/charges may apply.



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SECTION 3

OPERATING INSTRUCTIONS

OPERATING INSTRUCTIONS

ALL PRESENT AND FUTURE OPERATORS need to read instructions carefully before attempting to engage, disengage or service the Weir-Wolf™ system in any manner. Failure to comply with instructions could result in personal injury and/or property damage.

CAUTION: NEVER STAND IN FRONT OF THE UNIT TO MAKE REPAIRS. ALWAYS STAND BEHIND THE UNIT. DETERMINE THE DIRECTION OF ROTATION OF THE SKIMMER ARM. STAND BEHIND THE DIRECTION OF ROTATION.

DESCRIPTION

The patented Weir-Wolf system consists of several brushes of various sizes which attach to the skimmer arm of your circular clarifier. As the skimmer arm rotates, the system removes algae and debris from the effluent launder surfaces while producing no significant increase in torque. All brush arms have lock-in/lock-out positions. Each brush arm can be engaged or disengaged with the provided lock-in/lock-out rod.

STEP	HOW TO ENGAGE BRUSHES
1	Advance skimmer arm to approximately two feet past walkway and STOP SKIMMER ARM.
2	Use lock in/lock out rod to remove brush arms from their lock-out positions.
3	Allow brush arms to fall into place.
4	Visually inspect the brushes to make sure they align with the surfaces they are intended to clean.
5	Visually inspect the entire area for obstructions.
6	If obstructions exist, remove before starting skimmer arm.
7	Restart skimmer arm.
8	Return lock-in/lock-out rod to its designated location.

CAUTION: THE LOCK-IN/LOCK-OUT ROD SHOULD AT ALL TIMES BE SECURELY FASTENED TO WALKWAY OR EQUIVALENT TO PREVENT DROPPING IT IN THE TANK.

STEP	HOW TO DISENGAGE BRUSHES
1	Advance skimmer arm approximately two feet past walkway and STOP SKIMMER ARM.
2	Use lock-in/lock-out rod to raise brush arms to their lock-out positions.
3	Double check all brush-arms to assure they are each locked out securely.
4	Visually inspect the ASA system to be certain that it can rotate freely around the tank.
5	Special attention should be given to assure there is adequate clearance for ASA under walkway.
6	Restart skimmer arm.
7	Return lock-in/lock-out rod to its designated location.

BRUSH REPLACEMENT

Required Tools: two 9/16" wrenches, replacement brushes

1. STOP SKIMMER ARM

2. Lock out brush arms (if engaged).
3. Loosen nuts on brush holders enough to slide old brushes out.
4. Replace with new brushes and tighten nuts on brush holders.
IMPORTANT: Brush bristle trim length must stay consistent with each change. Make sure new brushes are in the same position as originally installed. The distance between the brush holder and the edge of the brush must remain constant. **See Figure 1.**
5. Brush holders should be tightened snugly (approximate torque: 3-5 foot pounds).
6. Lock in brush arms.
7. Restart Skimmer Arm.
8. Watch carefully as the system rotates, following the brushes for at least one revolution around the tank to make sure they have been properly installed.

**Due to the variances in elevation of the skimmer arms of clarifiers and thickener as it travels around the tank, the "out of round" of clarifier/ thickeners and variances in individual concrete surfaces within each clarifier/thickener; each Ford Hall Company (FHC) Weir-Wolf™ / Algae Sweep Automation™ Cleaning System is custom designed and field built for the individual application. These systems are not interchangeable, and if the custom designed FHC Brush System is removed for any reason, it is recommended that the Ford Hall Company be contacted to re-install Brush Systems or be contracted to advise the re-installation of Brush Systems. If parties other than FHC re-installs or if FHC is not present to advise re-installation of the Weir-Wolf/ Algae Sweep Automation brush system, then FHC is not responsible for brush system performance nor liable for damage to the brush system, skimmer arm, drive nor any other components of the clarifier/ thickener. Furthermore, any remaining warranties would be nullified if Brush systems are removed and re-installed by parties other than FHC.

BRUSH HOLDER BOLTS

Do not change the direction of the brush holder bolts. Leave in the exact direction as originally installed.

PERIODIC MAINTENANCE

Inspect the following on a consistent weekly basis:

Brushes

1. Check for missing or worn bristles, warped backings, and chipping. Replace as needed.
2. For optimum performance the ASA brushes should be hosed off at least once a week. Sometimes more often, particularly in Summer months and/or in plants with tremendous algae growth.

Springs

1. Insure springs provide sufficient tension to clean all surfaces. Replace as needed.

Brackets, Brush Arms, Brush Holders, Mainframe

1. Tighten loose nuts.
2. Look for bent brush arms, misaligned parts, etc. Repair or replace as needed.

CAUTION: FAILURE TO COMPLY WITH PERIODIC MAINTENANCE INSTRUCTIONS COULD LEAD TO SERIOUS DAMAGE TO WEIR-WOLF UNIT AND/OR EXISTING EQUIPMENT.

OPERATING TIPS

The Ford W. Hall Co., Inc. **recommends frequent use** of the Weir-Wolf system **for shorter durations** rather than operating the unit on a bi-weekly or monthly basis.

Frequent use:

1. Prevents large masses of algae from accumulating in the brush bristles.
2. Reduces the shock of large quantities of algae suddenly released into the effluent.
3. Provides for a consistently cleaner tank.

On the basis of the rate of algae growth at your particular plant an operating schedule shall be established. We recommend ten to twelve revolutions per week minimum. This schedule will vary greatly from plant to plant.

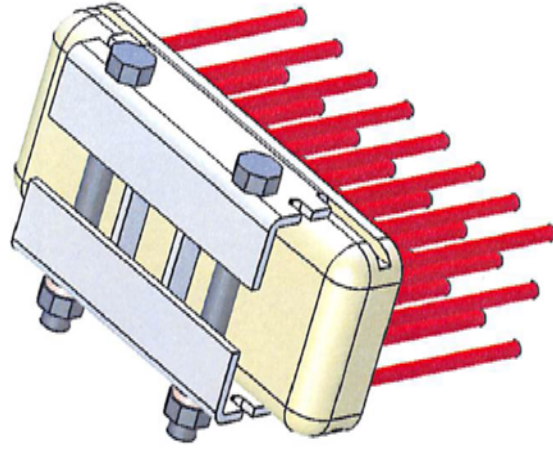
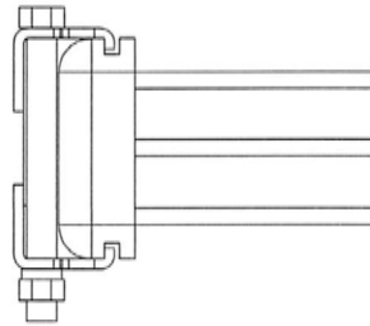
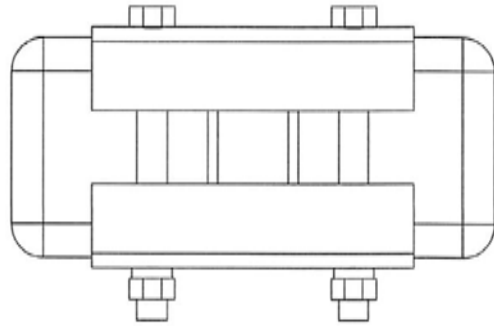
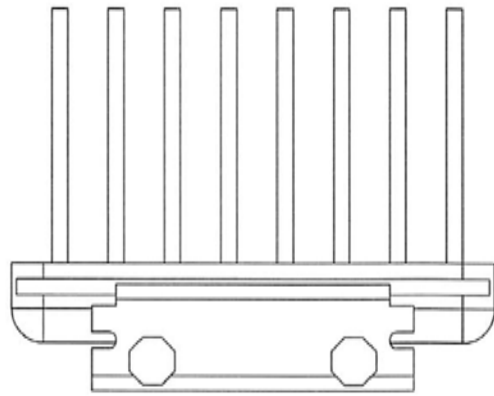
Clarifiers should be in operation when brushes are engaged.

GENERAL SAFETY INFORMATION

- ➔ Always turn power to skimmer arm off when engaging, disengaging, or replacing brushes.
- ➔ Never attempt adjustment or maintenance when skimmer arm is moving. Failure to turn off power to skimmer arm motor could result in serious personal injury.
- ➔ ALWAYS STAND BEHIND THE DIRECTION OF ROTATION WHEN PROVIDING ANY KIND OF MAINTENANCE TO THE ASA UNITS.
- ➔ DO NOT ENGAGE BRUSHES WHEN SKIMMER ARM IS IN "REVERSE POSITION". THIS WILL CAUSE DAMAGE TO THE ASA SYSTEM AND THE CLARIFIER.
- ➔ Always be aware of moving parts, slick surfaces, and weak safety railings when engaging, disengaging, or maintaining the Weir-Wolf system.

TO ORDER REPLACEMENT BRUSHES AND/OR OTHER PARTS OR TO REPORT A CONCERN YOU MAY BE EXPERIENCING PLEASE CONTACT:

**FORD W. HALL CO., INC.
P.O. BOX 2110
RICHMOND, KY 40475
859-624-1077
aftermarket@fordhall.com**



Not Actual Brisile Density



Phone: -
Fax: 859.624.3320
P.O. Box 2110
Richmond KY
40476
www.fordhall.com

Revised Brush Holder

1/14/2014 Sheet of 1



PO Box 2110
Richmond, KY 40476
Phone 859.624.1077 Fax 859.624.3320

EMERGENCY AND FAILURE INSTRUCTIONS

In the event of an Emergency and Failure of the Weir-Wolf please turn power off to the skimmer arm and lock all the brushes out. If unit is still under warranty please call Ford Hall Company at 859.624.1077. Even if units are not under warranty you can still call the above number for more instructions.

If only one brush arm is causing the problem lock that one brush arm out. Then please call the Ford Hall Company.

If someone is standing in the trough working on the Weir-Wolf System always make sure they are standing behind the rotation of the Weir-Wolf System. There could be serious injury if someone is standing in front of the rotation of the Weir-Wolf System.

If there is serious damage to the clarifier and the Weir-Wolf, the Weir-Wolf can be removed but this must be a last resort. Please look at the disassembly instructions in this manual and follow that procedure.

Due to the variances in elevation of the skimmer arms of clarifiers and thickener as it travels around the tank, the "out of round" of clarifier/ thickeners and variances in individual concrete surfaces within each clarifier/thickener; each Ford Hall Company (FHC) Weir-Wolf™ / Algae Sweep Automation™ cleaning system is custom designed and field built for the individual application. These systems are not interchangeable, and if the custom designed fhc brush system is removed for any reason, it is recommended that the ford hall company be contacted to re-install brush systems or be contracted to advise the re-installation of brush systems. If parties other than fhc re-installs or if fhc is not present to advise re-installation of the Weir-Wolf/ Algae Sweep Automation brush system, then FHC is not responsible for brush system performance nor liable for damage to the brush system, skimmer arm, drive nor any other components of the clarifier/ thickener. Furthermore, any remaining warranties would be nullified if brush systems are removed and re-installed by parties other than FHC.



PO Box 2110
Richmond, KY 40476
Phone 859.624.1077 Fax 859.624.3320

WEIR-WOLF SYSTEM 24 HOUR NUMBERS

IF THERE ARE PROBLEMS WITH THE UNIT AND SOMEONE NEEDS TO BE REACHED AFTER HOURS, PLEASE CALL 859-624-1077.



PO Box 2110
Richmond, KY 40476
Phone 859.624.1077 Fax 859.624.3320

SAFETY INSTRUCTIONS

1. Always turn power to skimmer arm off when engaging, disengaging, or replacing brushes.
2. Never attempt adjustment or maintenance when skimmer arm is moving. Failure to turn off power to skimmer arm motor could result in serious personal injury.
3. Never stand in front of the system to make repairs. Always stand behind the unit. Determine the direction of rotation of the skimmer arm. Stand behind the direction of rotation.
4. Do not engage brushes when skimmer arm is in "reverse position". this will cause damage to the Weir-Wolf system and the clarifier.
5. Always be aware of moving parts, slick surfaces, and weak safety railings when engaging, disengaging, or maintaining the Weir-Wolf system.



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WEIR-WOLF™ SYSTEM ADJUSTING SPRING TENSION

To Reduce Spring Tension:

1. Decide which end of the spring you will work with. The spring end attached to the brush arm or the spring end attached to the spring pulling post.
2. If working on the spring end on the brush arm, loosen the set screw with a 3/16" allen wrench, and move the spring end slightly toward the pivot point or top of the brush arm.
3. If working on the spring end on the pulling post, loosen the set screw with a 3/16" allen wrench, and move the spring end slightly toward the collar.
4. Tighten the set screw and observe the contact of the brush with the surface area.
5. Adjust until the tension is to your satisfaction.
6. Watch the Weir-Wolf system rotate for one complete revolution of the skimmer arm. Make sure any changes you made do not adversely affect the smooth passage of the Weir-Wolf brushes as they rotate, and or ride over any and all ramps. If you notice something wrong, lock out the brush arm you were working on and report your concerns to Ford Hall Company, Inc at 859-624-1077.

Adjusting Spring Tension (continued)

Page 2

To Increase Spring Tension:

1. Decide which end of the spring you will work with. The spring end attached to the brush arm or the spring end attached to the spring pulling post.
2. If working on the spring end on the brush arm, loosen the set screw with a 3/16" allen wrench, and move the spring end slightly away from the pivot point or top of the brush arm.
3. If working on the spring end on the pulling post, loosen the set screw with a 3/16" allen wrench, and move the spring end slightly away from the collar in 1/2in increments.
4. Tighten the set screw and observe the contact of the brush with the surface area.
5. Adjust until the tension is to your satisfaction.
6. Watch the Weir-Wolf system rotate for one complete revolution of the skimmer arm. Make sure any changes you made do not adversely affect the smooth passage of the Weir-Wolf brushes as they rotate, and or ride over any and all ramps. If you notice something wrong, lock out the brush arm you were working on and report your concerns to Ford Hall Company, Inc at 859-624-1077.



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WEIR-WOLF™ SYSTEM WRITTEN ASSEMBLY / DISASSEMBLY PROCEDURES

ASSEMBLY / INSTALLATION

The total amount of time allocated for installation of a typical Weir-Wolf System is 2 days per clarifier.

Each Weir-Wolf is custom designed. There are several installation decisions that must be made onsite (due to variations in concentricity of individual clarifiers).

A Ford Hall Company, Inc service technician will be onsite for the installation, fine tune and provide all start up and operation and maintenance training for the Weir-Wolf System.

Ford Hall Co., factory service technicians are skilled workman who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work specified.

The clarifier must be drained and hosed out to allow for:

1. Attachment of counterweight to the opposite rake arm (or opposite skimmer arm if available) to counter balance approximate 120 lb. weight of the Weir-Wolf System.
1 man hour.
2. Possible reinforcing of skimmer arm to improve structural integrity to allow for additional weight of Weir-Wolf System (as needed). This will be a field decision by our service technician on site during installation,
4 - 6 man hours.
3. Weld the stainless steel attachment assembly sleeve, for the Weir-Wolf System, to the existing skimmer arm. This must be level, meet critical dimensional requirements as specified, and not interfere with the wiper blade assembly or any other function of the clarifier mechanism.
1-2 man hours. The tank may begin to refill at this time.
4. Oversee the fabrication and installation of the stainless steel ramp (brush bridge) over/through effluent discharge hole.
4 man hours.
5. Oversee the fabrication and installation of the stainless steel ramp over/through webbing gusseted scum box supports (as needed). This will allow for easy access and exit of the baffle/weir brush assembly.
2 man hours.

6. Hang the Weir-Wolf System and begin making adjustments and arrangements of various pieces/parts, springs.
 - A. The brush arms are measured and cut for the exact fit of the clarifier surfaces to be cleaned.
 - B. The mainframe collars and mainframe spring collars are all placed upon the mainframe in proper sequence.
 - C. The brush arms are fitted inside the collars and set screwed.
 - D. The brush holders are attached to the brush arms.
 - E. The brushes are cut to fit the clarifier surfaces to be cleaned. (This step may have to be repeated during fine tuning to insure maximum cleaning efficiency.)
 - F. The springs are attached, routed and tensions tested for first run of fine tuning.
During the fine tuning of the system, the clarifier must be on line with the water flowing over the weirs. The clarifier will need to perform in the same capacity as it would under normal plant operations.
 - G. The Weir-Wolf System is monitored for mobility and cleaning efficiency. The skimmer arm and Weir-Wolf System will be observed for several revolutions with periodic stopping and starting of the skimmer arm to make adjustments. After final adjustments are completed, welding and tek screwing the unit into place occurs.
1-1½ days per unit.
7. Operations and maintenance training instruction for the plant operators can begin.
30 minutes - 1 hour

Disassembly Procedures

Only in the most extreme circumstances will the Weir-Wolf cleaning system ever have to be completely disassembled. If problems occur, each individual brush arm on the system can be locked out to the disengaged mode, to enable part or all of the system to ride idle (with skimmer) without cleaning.

Tools required for complete disassembly and removal of the system:

- 1 Permanent Marker
- 2 9/16" Wrenches
- 1 3/16" Allen Wrench
- 1 Cutting torch (for the attachment assembly)

STOP SKIMMER ARM

Always refer to and follow safety procedures listed in this manual.

Note: Before removing anything use a permanent marker to make marks onto the mainframe showing the placement for all of the mainframe collars. Label the assemblies as you remove them to aid when re-installing the unit. The mainframe collar and brush arm layout in the parts list section at the end of this manual can be used as reference.

Starting from the assembly closest to the outer wall:

Loosen all set screws/bolts only as far as needed to remove the collars, brush arms, springs, and brush holders. (Secure fasteners into removed parts as needed for temporary storage).

Remove all collars and brush assemblies.

Remove mainframe from attachment assembly sleeve.

Remove counterweight (as applicable).



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Phone 859.624.1077 Fax 859.624.3320

SECTION 4

MAINTENANCE AND TROUBLESHOOTING



WEIR-WOLF™ SYSTEM PREVENTATIVE MAINTENANCE

Inspect the following on a consistent weekly basis:

Brushes

1. Check for missing or worn bristles, warped backings, and chipping. Replace as needed.
2. For Optimum performance the Weir-wolf brushes should be hosed off at least once a week. Sometimes more often, particularly in Summer months and/or in plants with tremendous algae growth. In Winter if icing conditions occur please lock the brushes into the disengaged position.

Springs

1. Insure springs provide sufficient tension to clean all surfaces. Visibly inspect for broken springs. If a spring looks distorted or over stretched disengage applicable brush assembly until spring can be replaced.
2. Replace as needed.

Brackets, Brush Arms, Brush Holders, Mainframes

1. Check all nuts/bolts on Weir-Wolf system to be sure each are tight.
2. Look for bent brush arms, misaligned parts, etc. Replace as needed.

Preventative Maintenance

Page 2

General

1. Visibly inspect wiper blade assembly from clarifier skimmer arm to be sure proper performance across scum beach and no interference with inner baffle brush assembly.
2. Check all weirs and baffle pieces to be sure all weir, baffle, splice plates, bolts, etc are intact.

Please note:

Pay particular attention as brush assemblies traverse over/around ramps and scum beach to be sure of smooth transition. (The brushes should travel over the ramps in a consistent manner each revolution. If you notice something unusual that concerns you please document and disengage applicable brush assemblies. Notify Ford Hall Company, Inc ASAP with detailed description, to receive instruction on how to proceed.)

Caution:

FAILURE TO COMPLY WITH PREVENTATIVE MAINTENANCE INSTRUCTIONS COULD LEAD TO SERIOUS DAMAGE TO WEIR-WOLF UNIT AND/OR EXISTING EQUIPMENT.



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WEIR-WOLF™ SYSTEM ROUTINE MAINTENANCE

Routine Maintenance to be done (please refer to Data Sheets for time frame):

1. Check Brushes for Worn Bristles.
2. Hose Bushes off.
3. Check Spring Tension
4. Check for loose nuts on Brush Holders.
5. Check Shear-Pins, to see if replacing is needed. (Not on all Models)
6. Check overall condition of unit.
7. Watch brushes as they pass over effluent discharge.
8. Engage / Disengage.
9. Disengage Unit in Icing Conditions.

****Due to the variances in elevation of the skimmer arms of clarifiers and thickener as it travels around the tank, the "out of round" of clarifier/ thickeners and variances in individual concrete surfaces within each clarifier/thickener; each Ford Hall Company (FHC) Weir-Wolf™ / Algae Sweep Automation™ Cleaning System is custom designed and field built for the individual application. These systems are not interchangeable, and if the custom designed FHC Brush System is removed for any reason, it is recommended that the Ford Hall Company be contacted to re-install Brush Systems or be contracted to advise the re-installation of Brush Systems. If parties other than FHC re-installs or if FHC is not present to advise re-installation of the Weir-Wolf/ Algae Sweep Automation brush system, then FHC is not responsible for brush system performance nor liable for damage to the brush system, skimmer arm, drive nor any other components of the clarifier/ thickener. Furthermore, any remaining warranties would be nullified if Brush systems are removed and re-installed by parties other than FHC.**



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TOOLS REQUIRED FOR MAINTENANCE

The following tools are required to provide maintenance on the Weir-Wolf™ clarifier cleaning systems.

- 2 9/16" Wrenches
- 1 3/16" Allen Wrench
- 1 Measuring Tape
- 1 Lock-in / Lock-out Rod
[Provided with the Weir-Wolf™ clarifier cleaning system(s)]
- 1 Water Hose for hosing off accumulated algae stuck on the brushes.



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BRUSH MAINTENANCE

THE WEIR-WOLF™ EQUIPMENT REQUIRES THAT THE BRUSHES BE HOSED OUT FREQUENTLY AND THE BRUSHES MUST BE REPLACED (TYPICALLY BRUSHES LAST 12 MONTHS).

IF THE BRUSHES ARE UNCHANGED AND WEAR DOWN INTO THE BRUSH HOLDER THEN THE OWNER WILL BE RESPONSIBLE FOR THE PARTS AND LABOR TO REPAIR THE WEIR-WOLF SYSTEM.

FORD HALL COMPANY, INC. DOES OFFER A PREVENTIVE MAINTENANCE PLAN TO HAVE OUR FACTORY REPRESENTATIVES MAKE REGULAR VISITS TO THE PLANT TO CHANGE BRUSHES AND CHECK THE PERFORMANCE OF THE SYSTEM AND MAKE ANY NEED ADJUSTMENTS. IF YOU ARE INTERESTED IN THIS PROGRAM PLEASE CALL AFTERMARKET SALES FOR A QUOTE AT 859-624-1077 or aftermarket@fordhall.com.



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WEIR-WOLF™ SYSTEM TROUBLESHOOTING GUIDE

<u>PROBLEM</u>	<u>POSSIBLE CAUSES</u>	<u>CORRECTIVE ACTION</u>
Unit not cleaning properly	Brushes need to be hosed out	Hose brushes out
	Brushes worn down	Replace worn brushes with new ones
	Spring tension less/more	Adjust spring tension
	Broken Springs	Replace Broken Springs or lockout that applicable brush till spring can be replaced
	Nuts and bolts loose	Check nuts and bolts and tighten if needed



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SECTION 5

BRUSH DIMENSIONS SPARE PARTS PARTS LIST



P.O. Box 2110
 Richmond, KY 40476
 859-624-1077

Packing Slip
FOUR (4) Algae Sweep Automation™ System(s)
MDL – SBSWL-001 ASA Dual

Pre Install Brush Dimensions

Ship To: Tauton WWTF

Clarifier #

Surface Area	Length	Color	Trim	Model	Qty.		
Inner Baffle	18	BLACK	3"	B183B	1		
Outer Baffle	16	BLACK	3"	B163B	1		
Inner Weir	12	BLACK	3"	B123B	1		
Outer Weir	8	BLACK	3"	B83B	1		
Outer Weir	8	RED	3"	B83R	1		
Angled Top Spillway	16	BLACK	3"	B163B	1		
Angled Top Spillway	16	RED	3"	B163R	1		
Vertical Spillway	18	RED	3"	B183R	1		
Vertical Launder #1	18	RED	3"	B183R	1		
Bottom Launder #1	18	RED	3"	B183R	1		
Bottom Launder #2	18	RED	3"	B183R	1		
Vertical Launder #1	24	RED	3"	B243R	1		
Vertical Launder #2	24	RED	3"	B24R			

PLEASE ALLOW THREE WEEKS FOR DELIVERY
 TO PLACE AN ORDER CALL 859-624-1077 or email
aftermarket@fordhall.com



PO Box 2110
Richmond, KY 40476
Phone 859.624.1077 Fax 859.624.3320

ORDER SPARE OR REPAIR PARTS

To assure the correct parts are received it is important that the following information is included:

MODEL NUMBER & SITE INFORMATION

The model number will be a 4 or 5 letters followed by a 3 digit number, ex, SBSWL-001. Also we will need the name of the site and the city and state it is located in.

PART NUMBERS

The part numbers will be listed on the parts list or on the brush dimension sheet once the installation has been completed.

SIZES

The size and length of brushes will be found on the brush dimension sheet once installation has been completed.

ADDRESSES

Include "bill to" and "ship to" addresses. Also include a phone number and person to contact should further information be needed.

ORDER OPTIONS

You may call 859-624-1077 to speak to an AfterMarket Sales Representative to place an order/get a quote or email your order to:

aftermarket@fordhall.com

REQUEST FOR QUOTATION

For current pricing and availability:

Send your inquires and purchase orders to:

Ford Hall Company, Inc
PO Box 2110
Richmond, KY 40476
859.624.1077
859-624-3320 fax
Attn: Aftermarket Sales



PO Box 2110
Richmond, KY 40476
Phone 859.624.1077 Fax 859.624.3320

WEIR-WOLF™ SYSTEM RECOMMENDED SPARE PARTS

**ONE (1) COMPLETE SET OF REPLACEMENT BRUSHES PER SYSTEM.
NO OTHER SPARE PARTS ARE RECOMMENDED FOR THE SYSTEMS.**

TO ORDER REPLACEMENT BRUSHES/PARTS:

**FORD HALL COMPANY, INC
ATTN: AFTERMARKET SALES
PO BOX 2110
RICHMOND KY 40476**

859-624-1077

859-624-3320 FAX

aftermarket@fordhall.com



WEIR-WOLF™ SYSTEM SPARE PARTS PROVIDED

FURNISHED:

QUANTITY

ITEM

0

Complete Set of Brushes per Clarifier

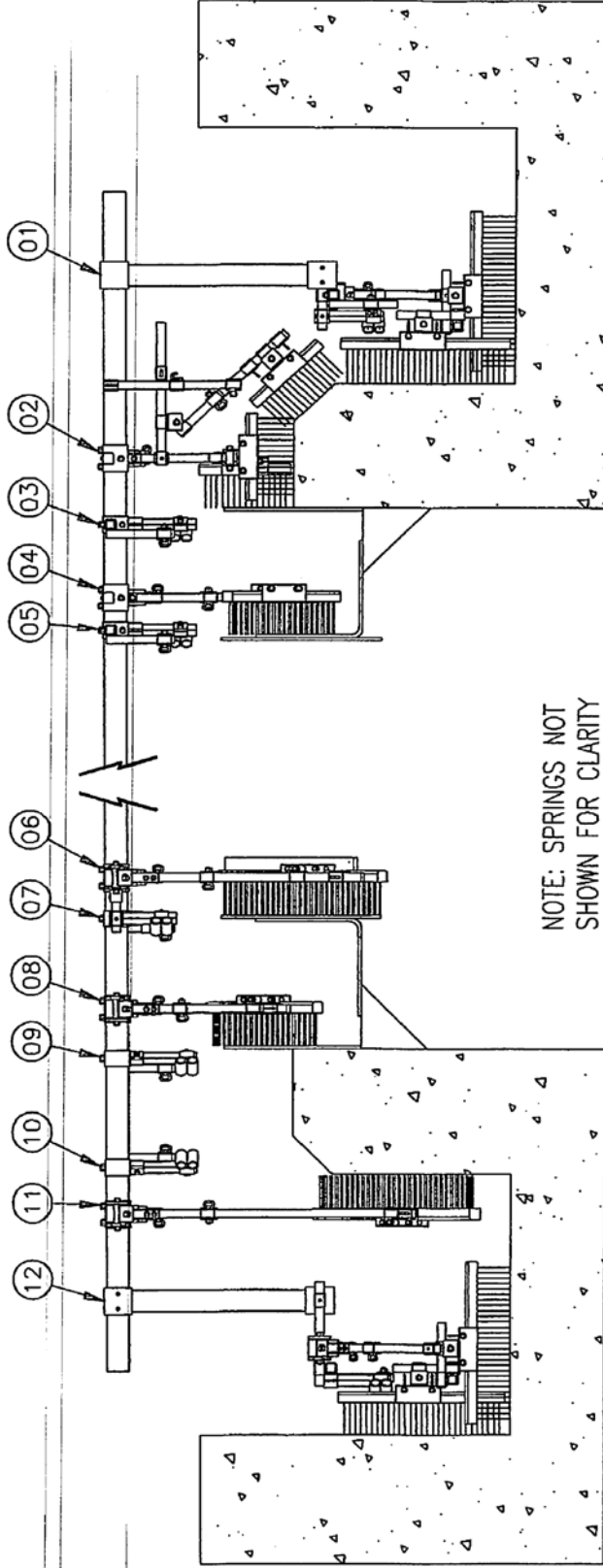


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Phone 859.624.1077 Fax 859.624.3320

WEIR-WOLF™ SYSTEM PARTS LIST

MODEL SBSWL-001 ASA DUAL
INNER BAFFLE BRUSH ASSEMBLY
SPRING COLLAR #1
OUTER BAFFLE BRUSH ASSEMBLY
INNER WEIR BRUSH ASSEMBLY
SPRING COLLAR #2
ANGLED TOP SPILLWAY/ OUTER WEIR BRUSH ASSEMBLY
SPRING COLLAR #3
VERTICAL SPILLWAY BRUSH ASSEMBLY
RIGHT LAUNDER BRUSH ASSEMBLY
LEFT LAUNDER BRUSH ASSEMBLY
26" SPRING ASSEMBLY
30" SPRING ASSEMBLY

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RIGHT SIDE UNIT

LEFT SIDE UNIT

NOTE: SPRINGS NOT SHOWN FOR CLARITY

01	INNER LAUNDRER BRUSH	08	INNER WEIR BRUSH
02	TOP & ANGLE SPILLWAY ASSY.	09	SPRING COLLAR
03	SPRING COLLAR	10	SPRING COLLAR
04	OUTER BAFFLE BRUSH	11	VERTICAL SPILLWAY BRUSH
05	SPRING COLLAR	12	OUTER LAUNDRER BRUSH
06	INNER BAFFLE BRUSH		
07	SPRING COLLAR		

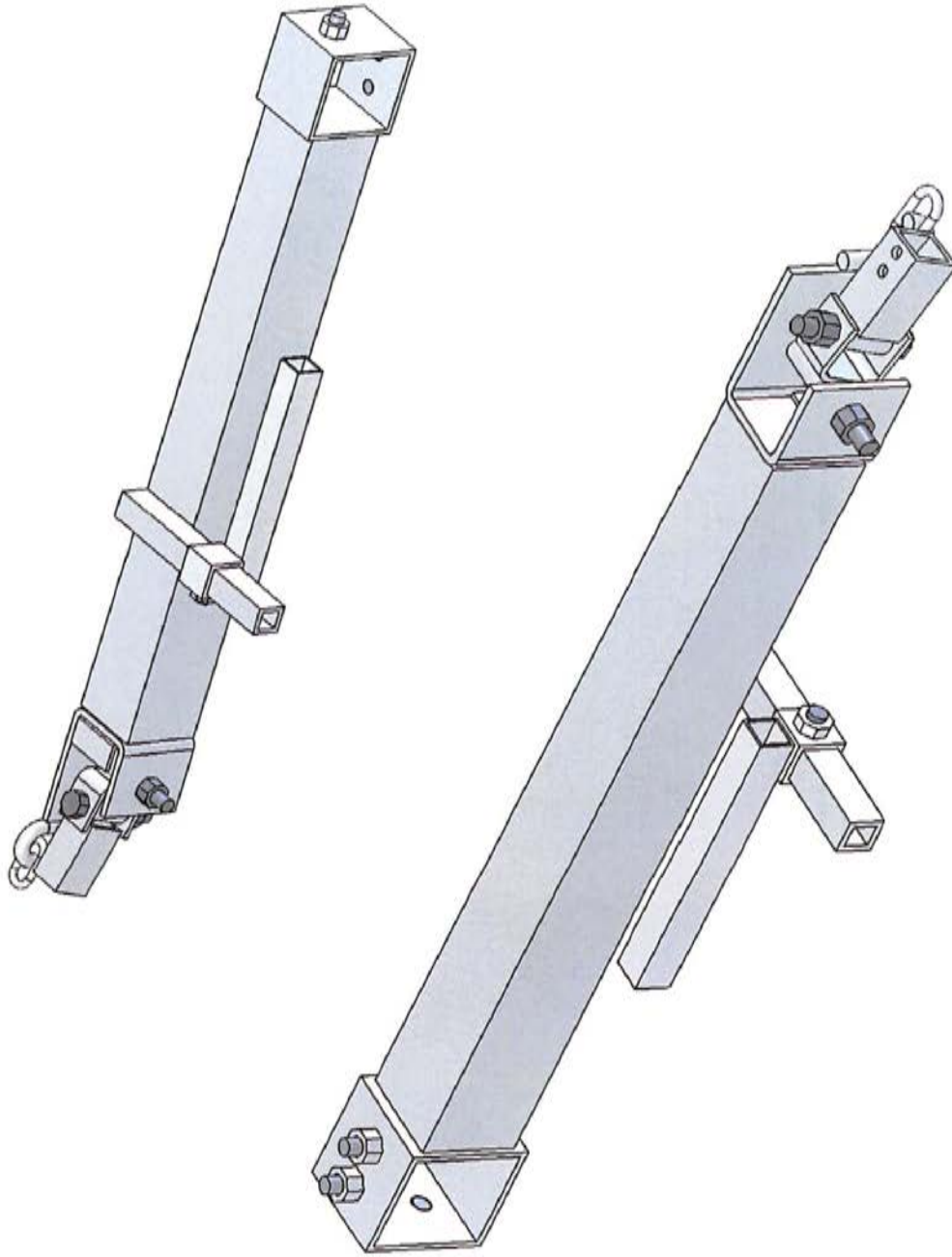


FORD HALL CO.

TEL. (606) 624-1077
DRAWN BY: JLA
6/5/00

WEIR-WOLF
AUTOMATED BRUSH
WEIR CLEANING SYSTEM

UNIT INVOICED BETWEEN (2) SEPARATE SKIDWAYS
SYSTEM DESIGNED FOR EQUAL WEIGHT
SBSW-001-S
SBSW-001 SPLIT UNIT

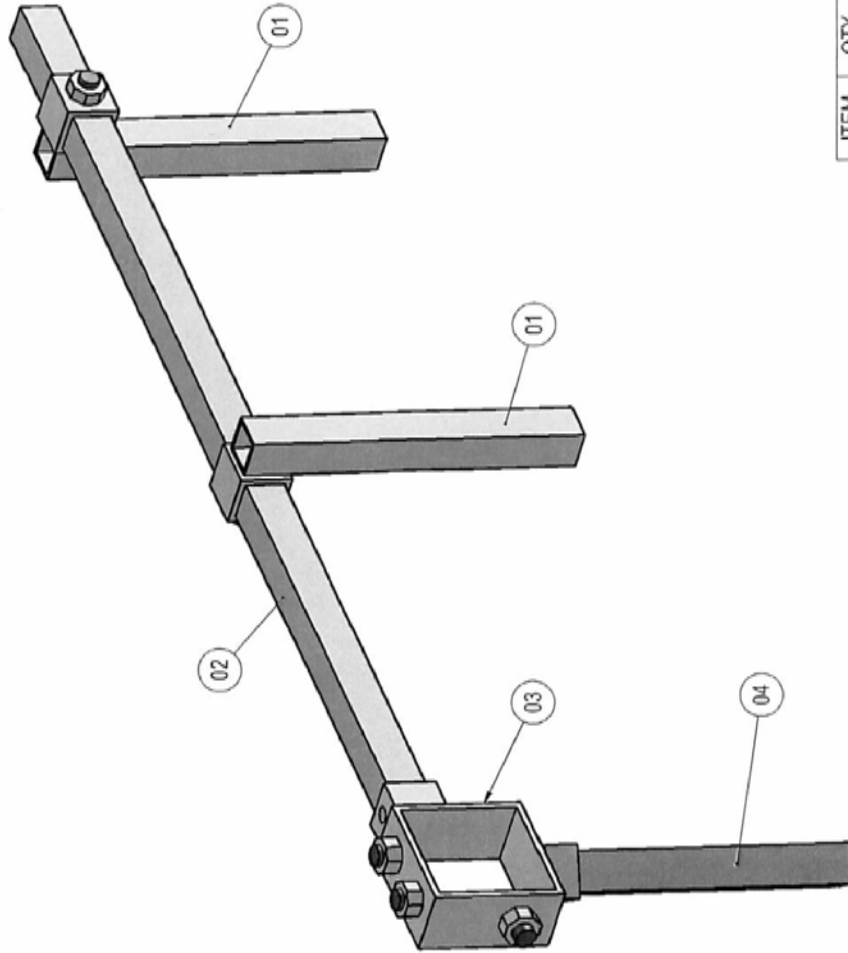


Inner Baffle
Collar Assembly

Phone:
Fax: *
P.O. Box 2110
Richmond KY
40476
www.fordhall.com



Ford Hall
Company Inc.

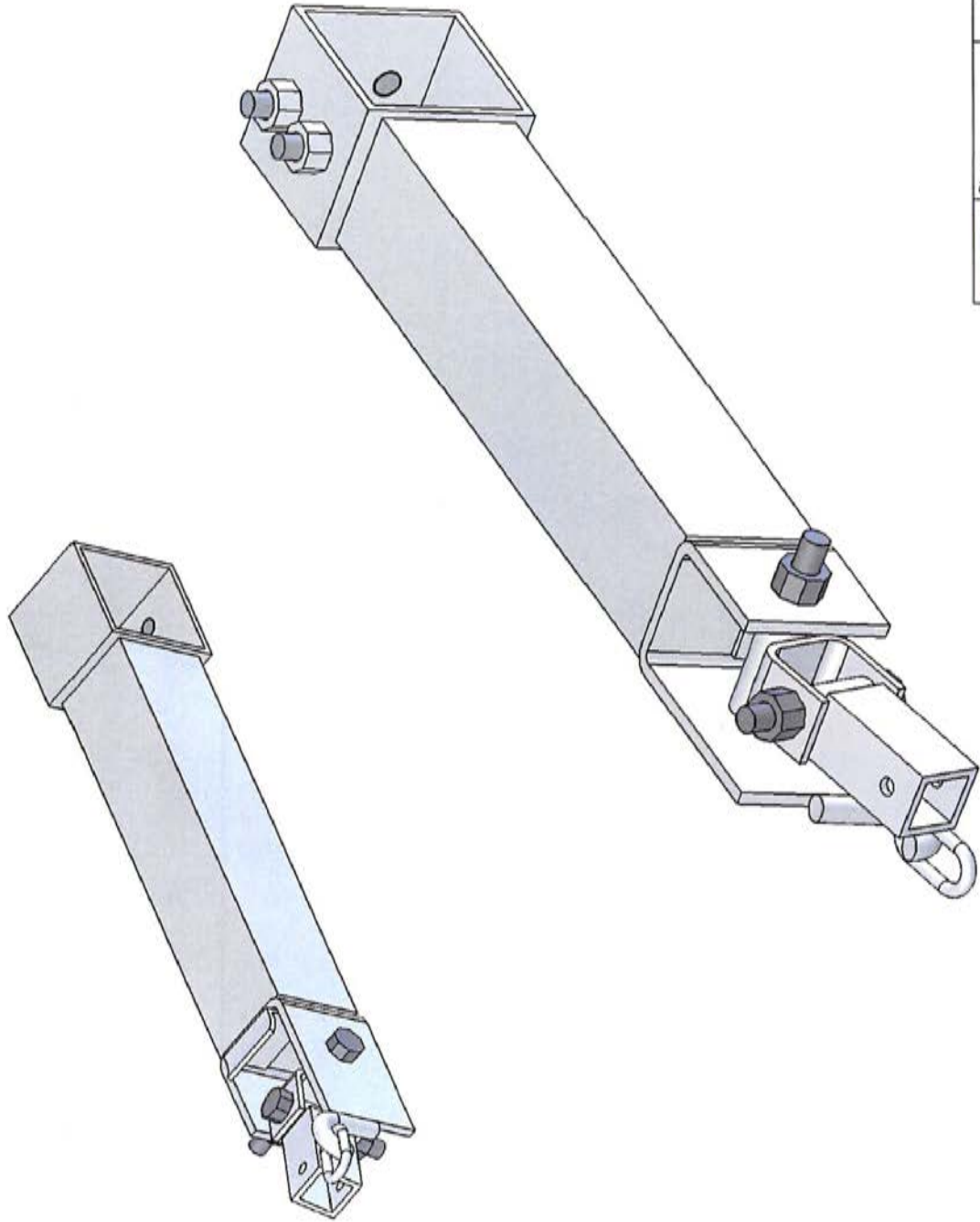


ITEM	QTY	Part #	ASSEMBLY DESCRIPTION
01	2	904A6	Vertical Spring Post
02	1	A26	26.0 x .75 Sq. Tube .0625 Wall
03	1	903	Spring Collar
04	1	A6	6.0 x .75 Sq. Tube .0625 Wall

Phone	Weir - Wolf
Fax	Automated Brush
	Weir Cleaning System
	Spring Collar # 1 Assembly

 Ford Hall Company, Inc.	P.O. Box 2110 Richmond KY 40476 www.fordhall.com
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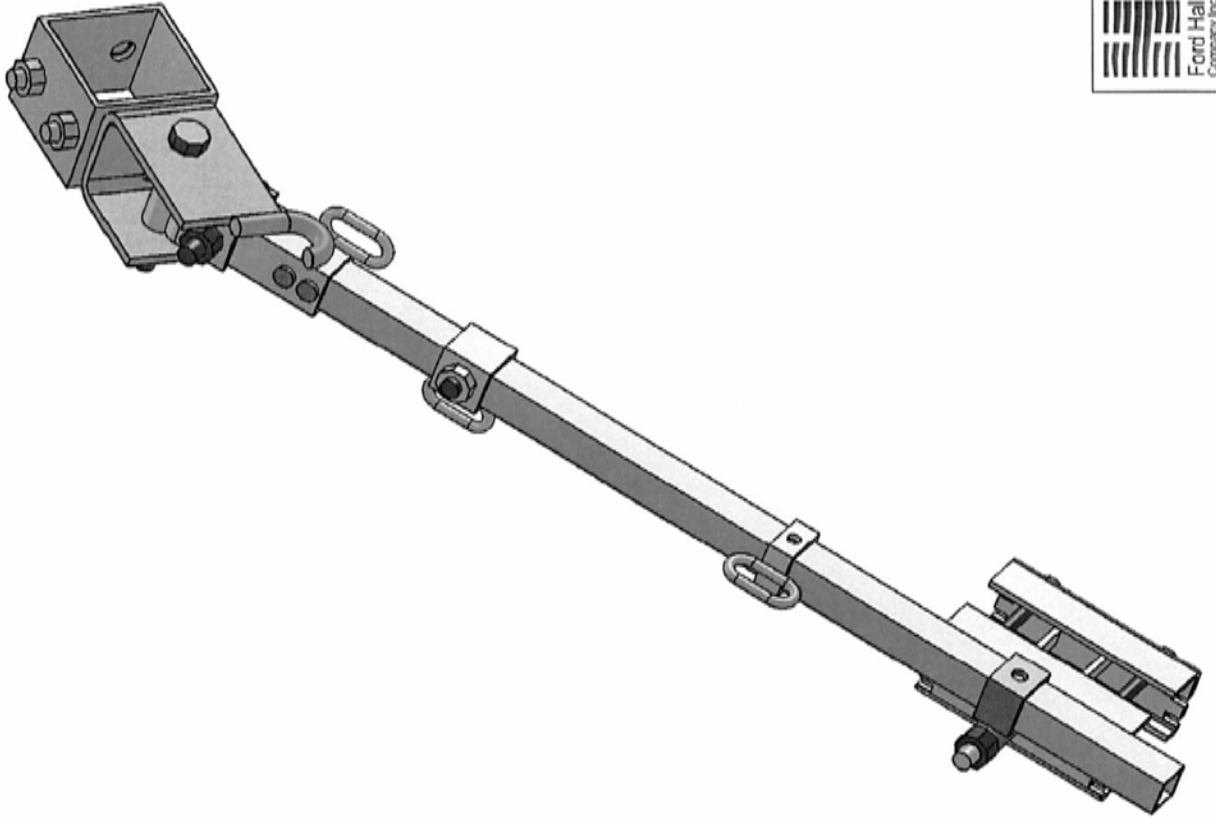
2/20/2015	Sheet 1 of 1
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Outer Baffle
Collar Assembly

Phone:
Fax:
P.O. Box 2110
Richmond KY
40476
www.fordhall.com

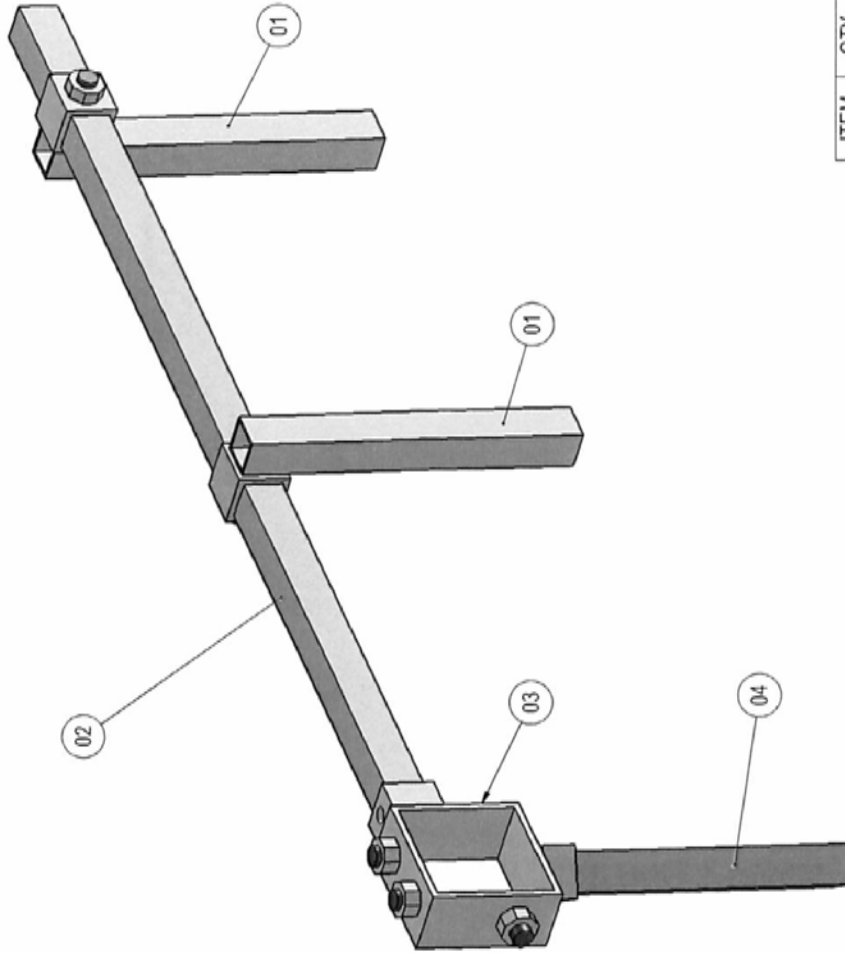




Inner Weir Assembly

Phone:
Fax:
P.O. Box 2110
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40476
www.fordhall.com

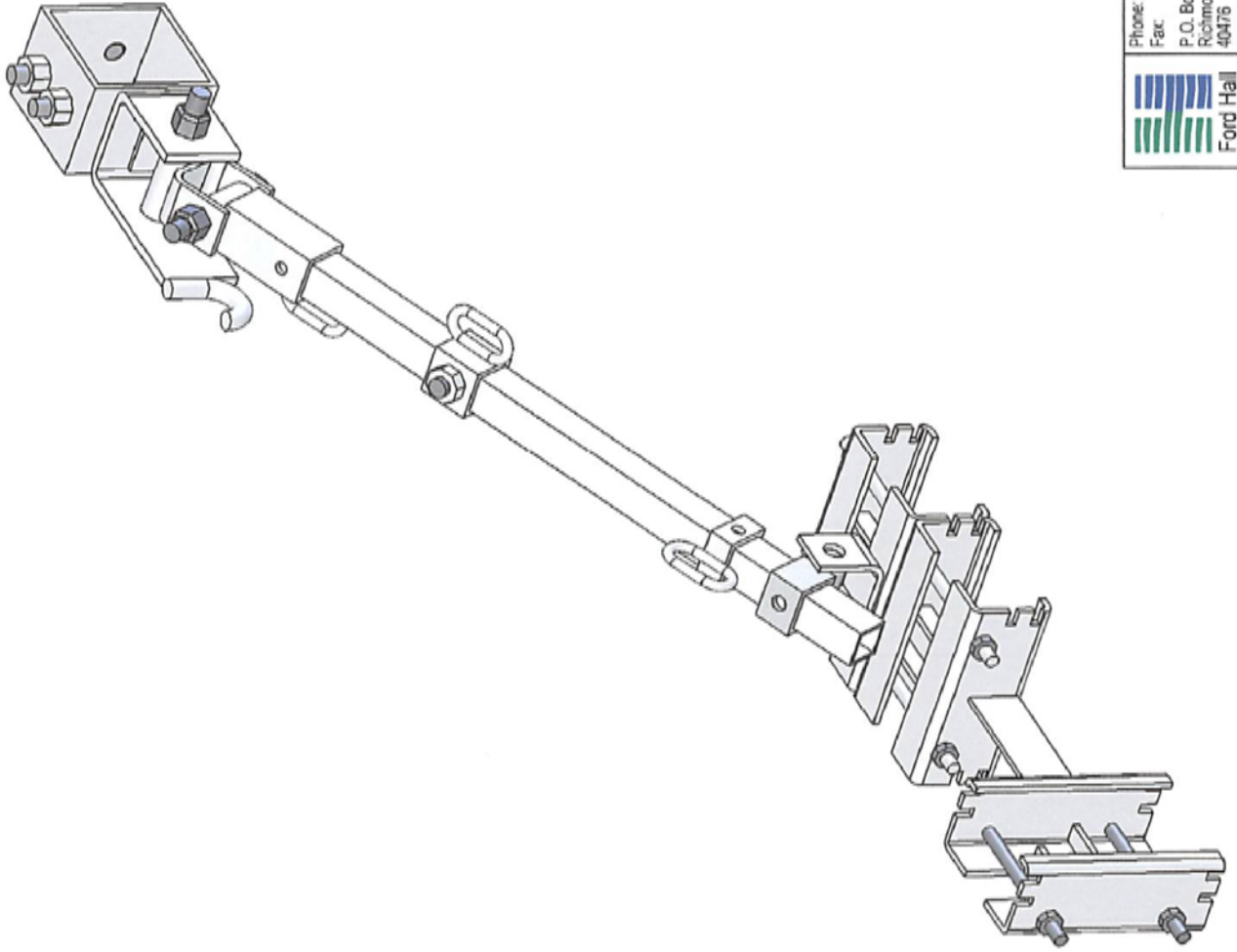




ITEM	QTY	Part #	ASSEMBLY DESCRIPTION
01	2	904A5	Vertical Spring Post
02	1	A25	26.0 x .75 Sq. Tube .0625 Wall
03	1	903	Spring Collar
04	1	A6	6.0 x .75 Sq. Tube .0625 Wall

 Ford Hall Company, Inc.	Phone: Fax: P.O. Box 2110 Richmond KY 40476 www.fordhall.com	Weir - Wolf Automated Brush Weir Cleaning System Spring Collar # 2 Assembly
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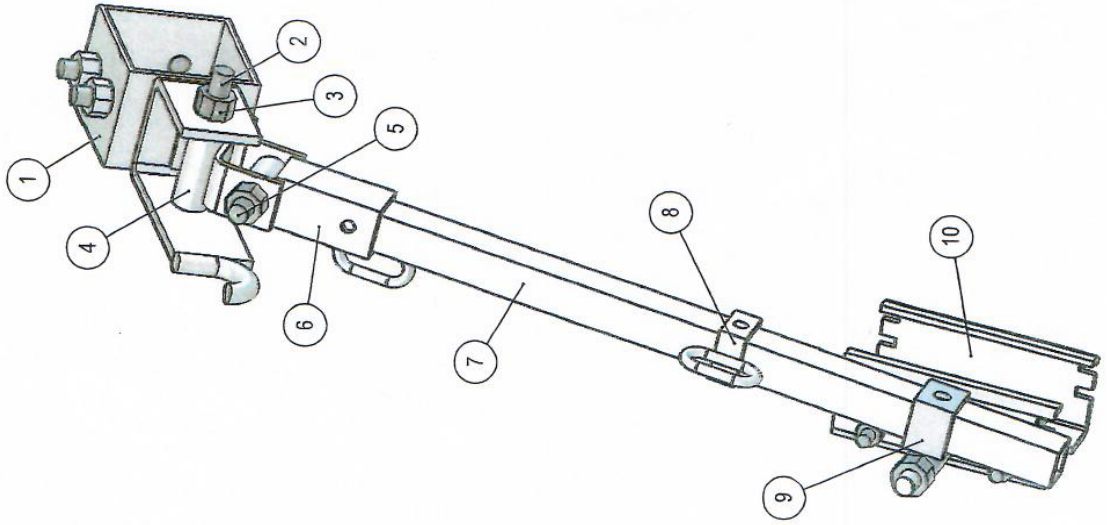
2/17/2015	Sheet 1 of 1
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Top Spillway / Outer Weir
Assembly


Phone:
Fax:
P.O. Box 2110
Richmond KY
40476
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All Parts Stainless Steel Unless Shown Otherwise

ITEM	QTY.	SHT	A-Description	LENGTH
1	1	300L	LH Lockout Collar	
2	1		3/8-16 x 3.5 Bolt	
3	3		3/8-16 Locknut	
4	1	999	Collar Swivel	
5	1		3/8-16 x 2.5 Bolt	
6	1	908L	LH Collar Boss	
7	1	A36	Outer Weir #2 Brush Arm	Varies
8	1	805	Lock Out Ring	
9	1	906	Swivel	
10	1	200BH	Outer Weir Brush Holder Assembly	

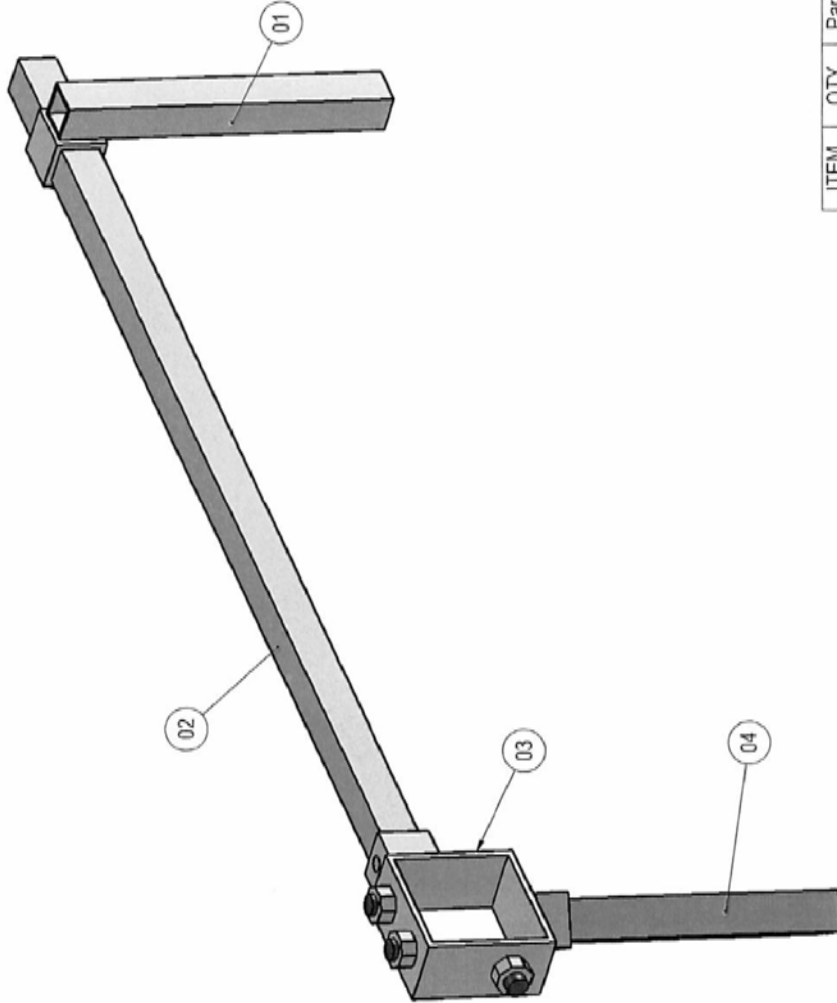


Ford Hall
Company Inc

Phone: 1 800 928 2070
 Fax: 859 624 3320
 P.O. Box 2110
 Richmond KY
 40476
www.fordhall.com

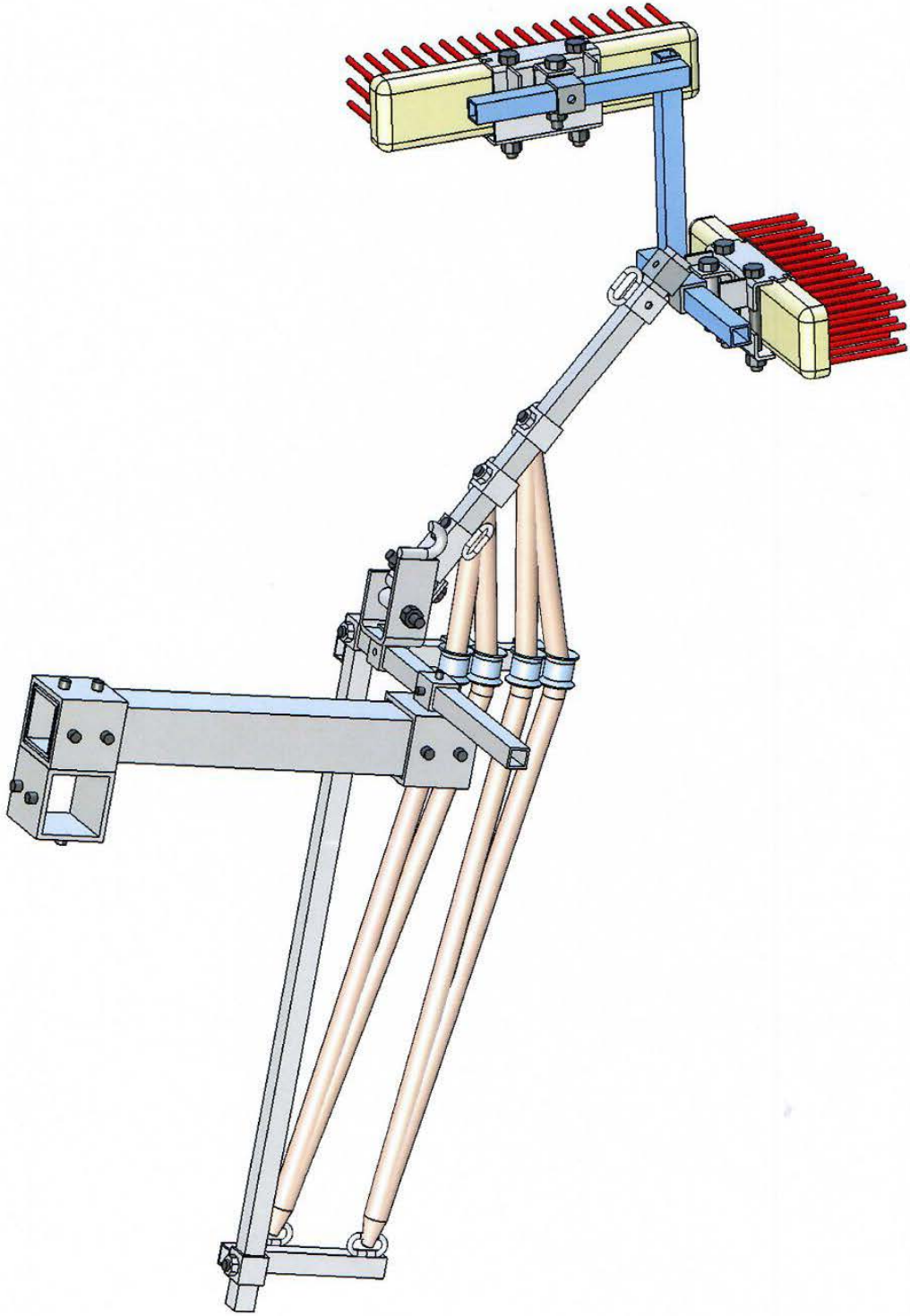
Weir-Wolf Automated Brush System
 Vertical Spillway

9/7/2016 Sheet: 1 of 1



ITEM	QTY	Part #	ASSEMBLY DESCRIPTION
01	2	904A6	Vertical Spring Post
02	1	A-25	26.0 x .75 Sq. Tube .0625 Wall
03	1	903	Spring Collar
04	1	A-5	6.0 x .75 Sq. Tube .0625 Wall

 Ford Hall Company, Inc.	Phone: Fac: P.O. Box 2110 Richmond KY 40476 www.fordhall.com	Weir - Wolf Automated Brush Weir Cleaning System Spring Collar #3 Assembly
		2/17/2015
		Sheet: 1 of 1

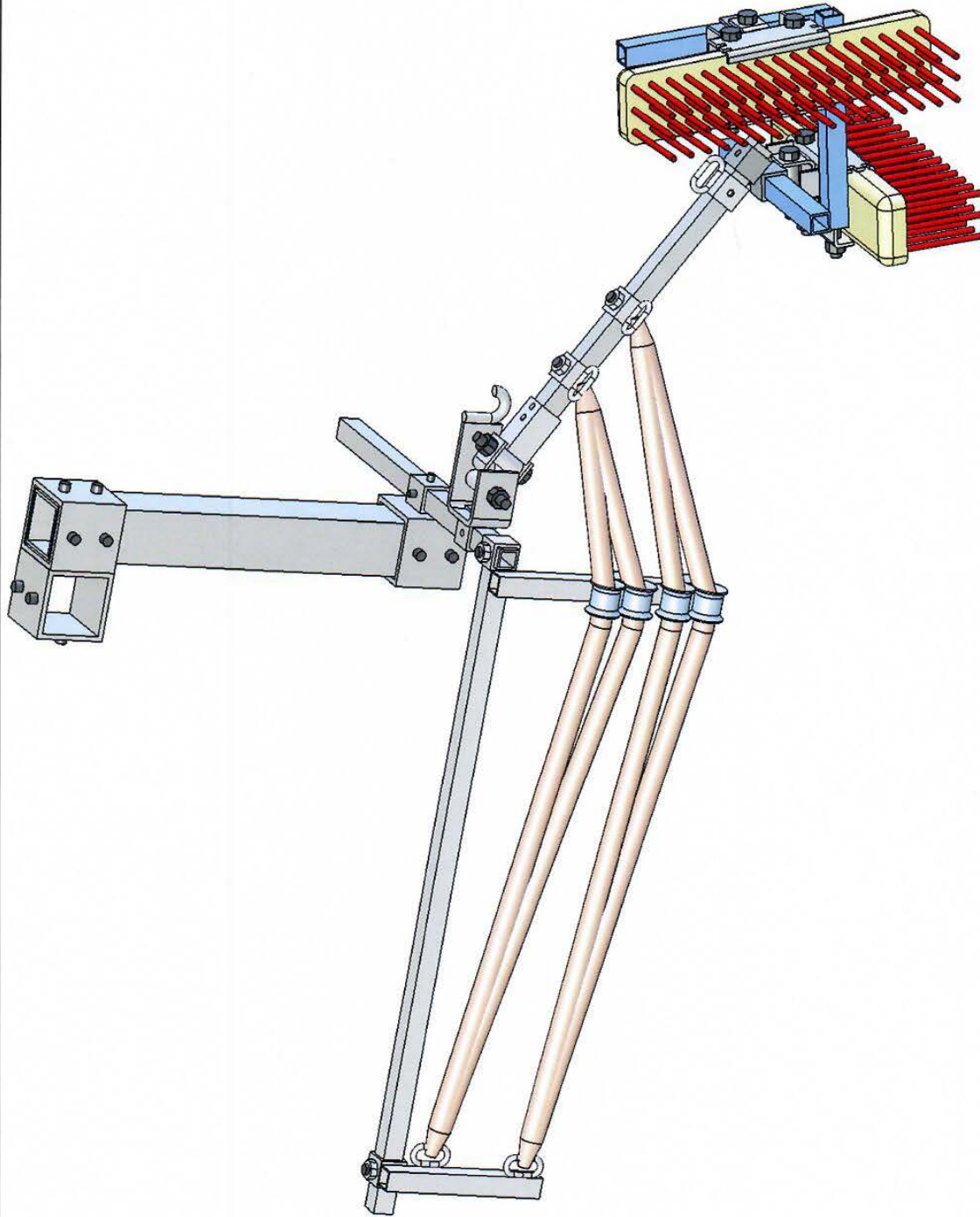


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Weir Wolf™
RH Launder Assembly

1/23/2017 Sheet: 1 of 1



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Fax: 859 624 3320

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40476

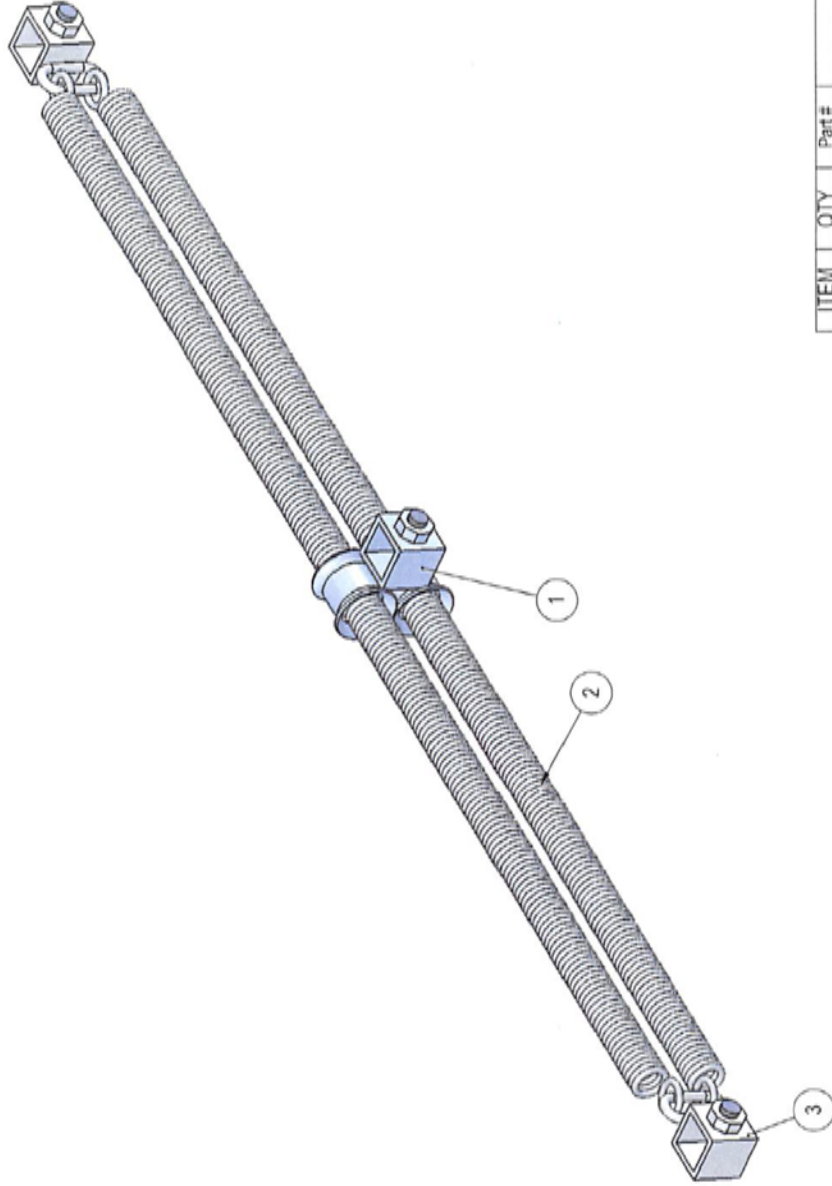
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Weir Wolf™

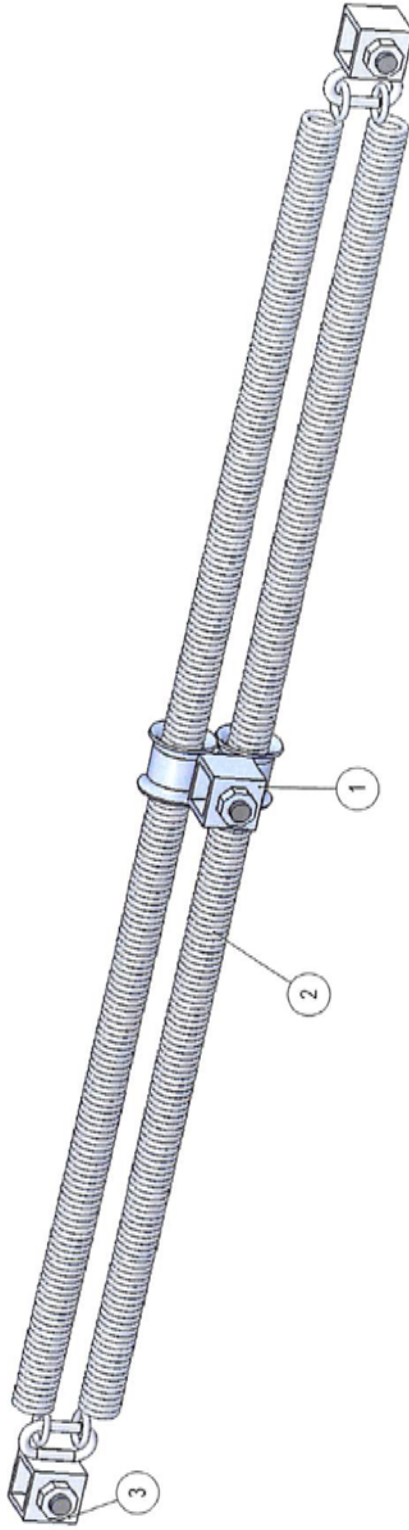
LH Launder Assembly

1/23/2017 Sheet: 1 of 1




ITEM	QTY	Part #	DESCRIPTION
1	2	905N	Adjustable Spring Ring
2	2	SP25	25.00" Spring
3	1	909	Spring Guide

 Ford Hall Company, Inc.	Phone: Fax:	Weir - Wolf™ Automated Brush Weir Cleaning System
	P.O. Box 2110 Richmond KY 40476 www.fordhall.com	
		2/11/2014
		Sheet 1 of 1



ITEM	QTY	Part #	DESCRIPTION
1	2	905N	Adjustable Spring Ring
2	2	SF30	30.00" Spring
3	1	909	Spring Guide

 Ford Hall Company Inc.	Weir • Wolf™ Automated Brush Weir Cleaning System 30.00" Spring Assembly P.O. Box 2110 Richmond KY 40476 www.fordhall.com	2114/2014 Sheet: 1 of 1
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