OIL AND LUBRICATION AT-A-GLANCE

Note: The following procedures are included in the contents of this manual. This section provides these instructions at-a-glance for convenience purposes:

- Oil Specifications
- Oil Change Procedures
- Seal Plate Lubrication Procedures
- Motor Base Lubrication Procedures

Conn-Weld recommends the operating oil for the vibrating screen meet the following specifications:

- The mechanism must be lubricated with an EP Gear Oil (extreme pressure) compound with paraffinic base oils.
- Effective additives to provide corrosion, oxidation, & extreme pressure protection
- **Base Oil Viscosity @ 40°C – 150 CST**
- **Minimum Viscosity Index 90**
- **Timken OK Load – 60lbs minimum**
- **Use ISO EP150 or AGMA EP4 Gear Oil with ambient temperature range of 40°F – 100°F (5°C - 38°C)**

For extreme temperatures that are *below* 40°F (5°C) or *above* 100° F (38 ° C) –

Use EP 4 synthetic gear oils in colder climates and environments where there are drastic changing climates, a low pour point, and a high viscosity index rating as seen below.

cSt @ 40ºC	150
Viscosity Index, ASTM D2270	166
Pour Point, ºC, ASTM D5950	-42

The mechanism is shipped from the factory with a corrosion inhibitor in the oil for the protection of internal parts during storage. This oil should be replaced with proper operating oil before starting the machine.

Change oil every 800 hours.

Ambient temperature is the temperature of the surrounding environment.

Failure to use the above specified oil or the use of an additive not approved by Conn-Weld *will void any warranty*.

For any questions contact Conn-Weld.

INCLINE OIL CHANGE

- Remove belt guards.
- Connect quick drain hose
- Once system drained completely, remove drain hose(hold and pull back on coupling housing)
- Attach pump bucket hose to breather assembly.
- As one person pumps oil in, another will be the on opposite side of the screen.
- On the opposite side, remove check plug.
- As oil is pumped, watch for a consistent pencil led stream of oil to exit the check plug.
- Reinstall check plug.
- Remove pump, reinstall breather, & reinstall belt guards.

NOTE: CHECK SHELF LIFE OF OIL (If oil has been stored a long time, contact Conn-Weld before proceeding)

Seal Plate

Grease seal plate at every oil change
6” ribbon (3 pumps normally)

GREASING A MOTOR BASE

- Pillow block bearings on motor base assembly comes pre-lubed from factory.
- Frequency: Grease unit once a month
- Three pumps of grease needed to lubricate motor base. (6-inch ribbon)
- Once a year, purge unit:
    - Over a period, as grease is added it builds up in the box and compacts around the bearing.
    - Remove one plug from each side on bottom of unit.
    - With cap on, pump grease until a color change at bottom of unit. Color will go from dark color to color of new grease.

OPERATION
INSTALLATION
MAINTENANCE MANUAL

SECTION 1: Installation & Start Up
SECTION 2: Assembly & Disassembly of Mechanism
SECTION 3: Maintenance

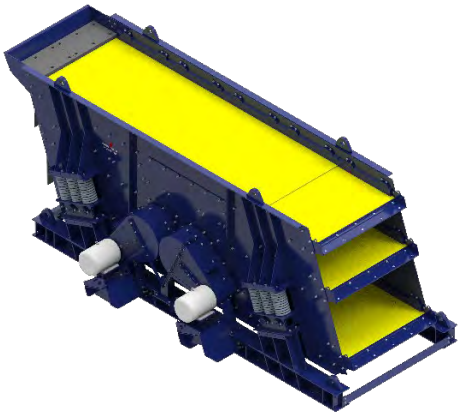
315 Wabash Road | Princeton, WV 24740 | 304-487-1421
www.Conn-Weld.com

Section 1
Installation & Start Up

Contents

INTRODUCTION

Conn-Weld Industries, LLC. welcomes you to the high-performance Circular Motion Incline Vibrating Screen and Mechanism. Innovative engineering, modern manufacturing techniques, high quality materials, and fine craftsmanship have been combined to manufacture this outstanding product. When properly installed and maintained, the Circular Motion Vibrating Screen will provide many years of trouble-free, cost-effective service.



This manual has been prepared to provide you with field tested and proven methods for the installation, operation, and maintenance of your assembled vibrating screen. In preparing this manual we have attempted to provide complete, detailed instructions for normal installation, operation, and maintenance situations. However, should a unique situation arise that is inadequately discussed in this manual, please contact your Conn-Weld sales representative, or contact Conn-Weld directly and ask to speak to a vibrating screen installation and maintenance specialist.

BEFORE PROCEEDING, PLEASE NOTE THE FOLLOWING:

- Consult and comply with national and local codes relating to specific information not included in this manual.
- Safe and efficient operation of equipment depends on proper installation.
- Improper installation, operating equipment under capacities not designed for, or maintenance negligence could result in unsafe conditions and impaired warranty.
- **DO NOT** weld or modify equipment in any way.
- Conn-Weld recommends customers to consult with authorized agents regarding national or state laws. In the event any portion of this manual conflicts with applicable state or federal regulations, those state or federal regulations will prevail and supersede all information contained herein.

SYMBOLS USED IN MANUAL

Safety

DANGER - Immediate hazard. If not avoided will result in death or serious injury.

CAUTION - Potential hazard. If not avoided may result in minor or moderate injury.

WARNING - KEEP HANDS, FEET, COTHING CLEAR OF STEEL COIL SPRINGS.

Instructional

CAUTION - Potential Hazard. If not avoided may result in minor or moderate injury.

QUESTION- When in doubt, ask.

INFORMATION - Important information to note.

RECEIVING AND STORAGE INSTRUCTIONS

Inspect For Damage During Shipment

Conn-Weld Circular Motion Incline Vibrating Screens are thoroughly inspected prior to shipment.

All components and quantities are checked with shipping documents to ensure order arrives complete (unless alternative arrangements have been made prior to shipping).
However, loss or damage may occur during shipping. Therefore, it is important to do the following upon receiving:

- Check shipment for visible damage.
- Account for all items listed on shipping documents.
- Report damages or shortages immediately to carrier.
- Damages or shortages must be noted on the carrier's bill of lading.

SPECIAL TOOLS

Installation of assembled equipment does not require special tools. Standard mechanics tools are all that is required.

- Rubber mallet
- Sockets
- Wrenches
- Hammers
- Pry bar with chisel point end.

Conn-Weld does not supply but recommends a Huck Gun and Hydraulic Wrench Power Unit Assembly for replacement and installation of major components. Contact Conn-Weld for purchasing information on where to obtain it.

Conn-Weld Specialty Maintenance Tools

Contact Conn-Weld to obtain pricing on the following tools specially designed for testing and ease of maintenance.

- Flywheel Puller
- Shaft Roller
- Oil Pump Bucket
- Timing Tool (for triple drive)
- Bearing Housing Lifting Eye

Testing

- 4-corner throw cards
- Magnetic throw card holder

For more information on their benefits and how to use these specialty tools, refer to the maintenance section of this manual. Also see the video demonstration resource page.

STORAGE

Circular Motion Incline Mechanisms: 4400, 5500, 6500

The mechanism is shipped from the factory with a corrosion inhibitor in the oil for the protection of internal parts during storage. This oil should be replaced with proper operating oil before starting the machine.

NOTE: If mechanism(s) need longer than four weeks before start-up, completely drain each mechanism of all oil and refill with a corrosion inhibiting oil. If unable to locate corrosion inhibiting oil, please contact Conn-Weld Industries.
When ready to commission, drain oil completely and follow Conn-Weld's standard oil specification- supplied in this manual.

Refer to maintenance section for oil change schedule.

Circular Motion Inclines shipped with mechanism(s) installed, should not set idle for more than a 6-month period.
This may impact internal components jeopardizing the warranty.
Should unforeseen delays in start-up occur, contact Conn-Weld for storage recommendations.

Urethane Panels

If your equipment comes installed with urethane panels Conn-Weld recommends the following:

- Up to 8 weeks:
  Cover with weather resistant tarp to divert direct sunlight.
- 8 weeks to 12 months:
  Option 1 - Store equipment inside warehouse
  Option 2 - If storage space is unavailable, then urethane panels should be removed and stored in warehouse until ready to commission.

Rubber Components

Components such as V-Belts and Rubber Buffers should be protected from extreme heat, sunlight, chemicals, oil, and grease that will deteriorate rubber compounds.

Wooden Crates

If crates are not being warehoused, then set crate on a pallet or accommodating platform to keep it from directly setting on ground surface.
Cover with weather resistant tarp.

NOTE: Conn-Weld makes every effort to predetermine conditions that may have any bearing on warranty of equipment, parts, and components. However, it is the responsibility of the customer to take any questionable consideration into account by contacting Conn-Weld personnel and react accordingly.

HOW TO ORDER PARTS

Providing Conn-Weld with the serial number exclusive to your equipment is the most important step in ensuring you get the right part.

The serial number can be found engraved in the tag located on the equipment's side plate.

The serial number can also be found on the following documentation within this manual:

- Equipment & Spring Specification Sheet
- General Arrangement Drawing
- Final Assembly Drawing
- Other Drawings

Conn-Weld makes every effort to keep the information we have on file up to date.
It is important to notify Conn-Weld if any changes have been made after installation, such as, changing to a different screen media.

Conn-Weld maintains a large inventory of spare and replacement parts.
A spare parts list is in the back section of the manual for quick reference.

Conn-Weld recommends customers keep the following parts on site to help minimize down time:

- Screen media; hold down system parts.
- V-Belts; Timing Belt
- Mechanism; mechanism mounting bolts; sheaves; bushing; bearings.
- Steel coil springs; snubber spring; snubber pad

BEFORE OPERATING

Before placing "stored" mechanisms into service, the mechanism must again be completely drained and refilled to the correct operating level with suitable oil based on ambient operating temperatures.

DO NOT ATTEMPT TO OPERATE MECHANISMS WHEN COMPLETELY FILLED WITH OIL!

Refer to OIL CHANGE section of this manual for proper oil change procedures and oil specifications.

Upon start-up, the Conn-Weld District Sales Manager assigned to your project will provide a commissioning sheet to be reviewed with your personnel.

HANDLING ASSEMBLED VIBRATING SCREENS

•EXTREME CAUTION must be used when moving fully assembled vibrating screen.

•Improper or negligent handling could result in damage to the vibrating screen and may not be seen until screen is placed into service.

NOTE: Conn-Weld Industries, LLC is not responsible for damage due to improper or negligent handling.

- All vibrating screens, regardless of suspension type, are equipped with lugs on the top of each side plate. These lugs are designed to handle the weight of the fully assembled screen.
- Conn-Weld recommends that you use properly prepared lifting tackle, of known capacity for handling the screen.
- All lifting apparatuses should be inspected prior to use and replaced if found defective.
- Lifting gear must be sized according to the total weight of the machine, the angle at which they are being used, and an adequate safety factor.
- The total weight of the machine can be located on the General Arrangement Drawing and Equipment Specification Sheet included in the manual.

When in doubt about the proper method of handling components or assemblies, contact your Conn-Weld representative for assistance.

The following illustrates lifting arrangement for handling a fully assembled vibrating screen.

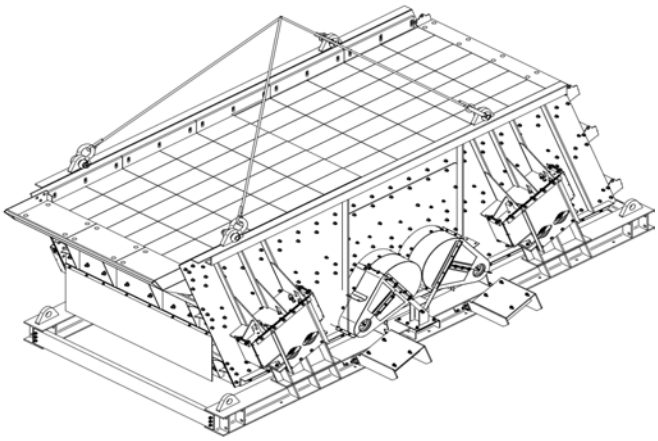


Figure 1

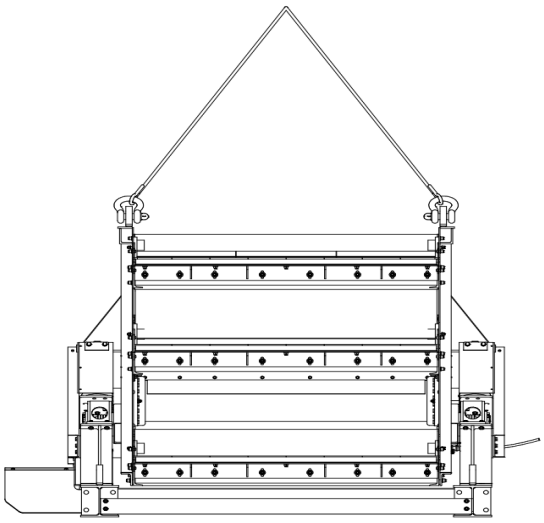
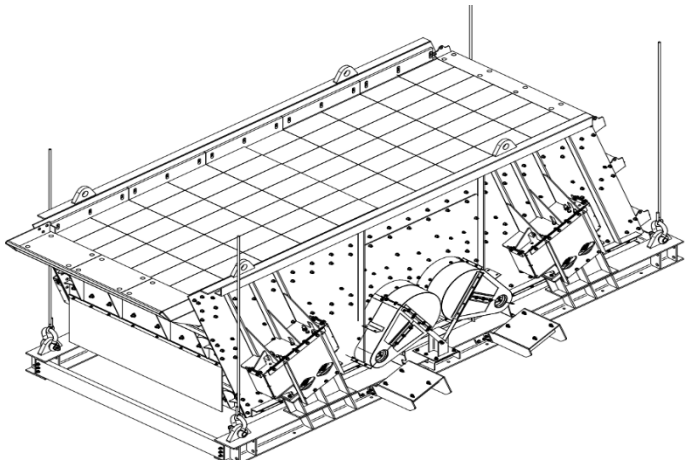


Figure 2

Figure 2 demonstrates lifting points for vibrating screens mounted on a base frame.



SCREEN SUPPORT STRUCTURE

To realize the optimum performance, reliability, and life of your vibrating screen, it is imperative that it be mounted to an adequately designed support structure.

- The support structure must have the capacity to support the static and dynamic loads produced by the vibrating screen, in addition to other plant loads including flooring, piping, and other equipment.
- To avoid excessive vibration, the support beams must be designed with a natural frequency significantly higher than the operating frequency of the screen.
- For use in performing support structure, loading and operating speed data calculations are provided on the Equipment Specification Sheet and General Arrangement drawing, included in manual.

Excessive vibration of the support beams, known as resonance, could produce erratic and unpredictable screen behavior. It could also cause premature failure to screen components and support structure itself.

NOTE: Due to several factors in replacing an existing vibrating screen, such as changes in weights, or possible corrosion of structure. Conn-Weld advises you to consult with a qualified structural engineer.

MOUNTING (VIBRATING SCREEN INSTALLATION)

Before proceeding, refer to the General Arrangement Drawing supplied in the manual to determine the mounting arrangement, as this will impact installation procedures.

NOTE: Conn-Weld makes every effort to provide thorough installation instructions. However, because Conn-Weld customizes equipment to meet the unique needs of end user's structural footprint, it is not possible to provide installation procedures for each unique situation, in this portion of the manual.
It is imperative to refer to the installation drawings specific to *your* equipment.
Please know that Conn-Weld personnel is available to answer questions.
When in doubt, ASK.

Before setting the vibrating screen, it is important to take the following steps.

NOTE: If your vibrating screen comes installed on an H-Beam/Base Frame, skip this section and refer to H-Beam/Base Frame installation.

- Make sure the support structure for the vibrating screen is level and in line.
- The support structure for the vibrating screen to support must be flat, level, and plumb with no obstructions.
- Measuring with a transit is advised to make sure everything is level and heights are the same.
- Shims can be used between the supporting structure and the spring bases if necessary.
- Spring assemblies for each mounting consist of either outer springs and inner springs, or outer springs only.
- Refer to spring specification sheet for placement of springs.
- Springs color coded.
- Locate the screen feed and discharge points relative to existing or planned structural steel, equipment, and chute work.

For proper spring changes, a minimum 8” vertical clearance is required anywhere around the screen.

NOTE: Maintain a minimum clearance of 3” between the moving parts of the vibrating screen and any surrounding equipment or chute work.

At the beginning of installation, please refer to the following drawings that are included in the manual.

Installation Drawings

- General Arrangement
- Spring Box Assembly
- Spring Specification Sheet

Locate the following items in shipment, (then move to an area with easy access, for installation):

	Spring Assembly
1.	Spring Mounts
2.	Polyurethane Spring Retainers
3.	Outer Coil Springs
4.	Inner Coil Springs (if equipped)
5.	Snubber Springs
6.	Polyurethane Snubber Brake Pads
7.	Snubber Spring Mount Spring Caps
8.	Spring Guards (if purchased)
9.	Hardware

Item #2 (spring retainers) will already be assembled onto the side plates.

Figure 3 shows exploded view of all parts used in this step.

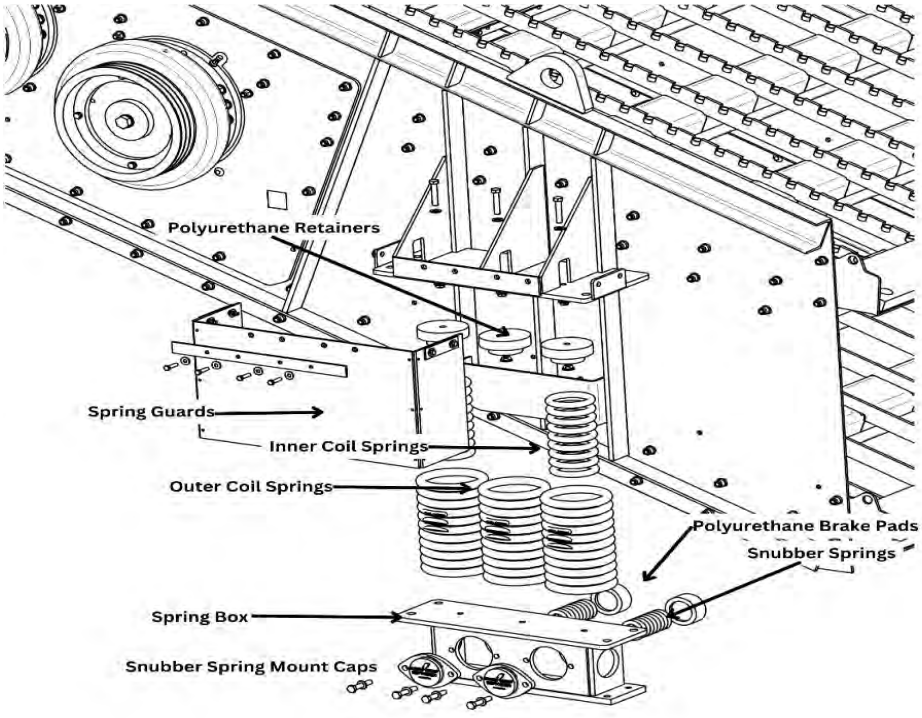


Figure 3 Spring Assembly

Refer to the General Arrangement Drawing and Spring Specification Sheet included in the manual, to determine the locations of the spring mounts, relative to where you have planned to position the feed and discharge points of the vibrating screen.

Remove all dirt and loose scale from the top surfaces of the screen support beams in the areas where the spring mounts will be located.
It is important spring mounts set firmly against support beams.

Having already determined the location, position the spring mounts squarely on the support beams.

Measure diagonally between the spring mount spring retainer holes as shown below to verify that the boxes are square with each other. Within (+/-) 1/8”.
Adjust as required to meet this tolerance.

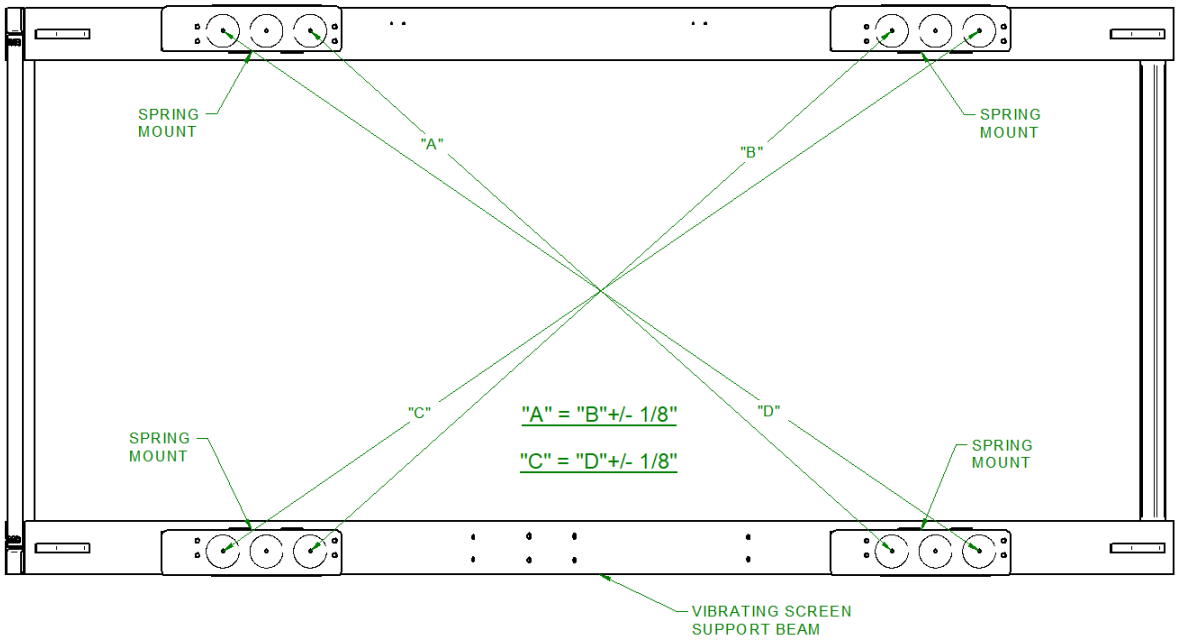


Figure 4 Spring Mount

If the existing holes in the support beams do not comply with the general arrangement specifications, use the spring mounts as guides and mark the locations for the mounting bolts. Remove the spring mounts and drill the support beams. Replace the spring mounts and install the mounting bolts snug tight.

Using a line level, water level, or other suitable means, check the top plates of the spring mounts to determine if they are level with respect to each other within (+/-) 1/8” as shown in figure 5.

If the top plates are not level with each other within (+/-) 1/8” tolerance, determine which spring mount is the highest, and then shim up each of the remaining mounts as necessary to meet tolerance. The shims must be placed between the support beams and the spring mount base plates. They must be approximately the same size as the spring mount base plate, to ensure that the weight of the vibrating screen is distributed over the entire spring mount base plate.

Using a conventional level, check the top surface of each spring mount to ensure that it is level. Adjust with shims as necessary to level the box while maintaining the level relationship of all the boxes.

Once all four of the spring mounts are level within tolerance, recheck the diagonal measurements of the mounts as described above. Adjust as required and fully tighten all mounting bolts.

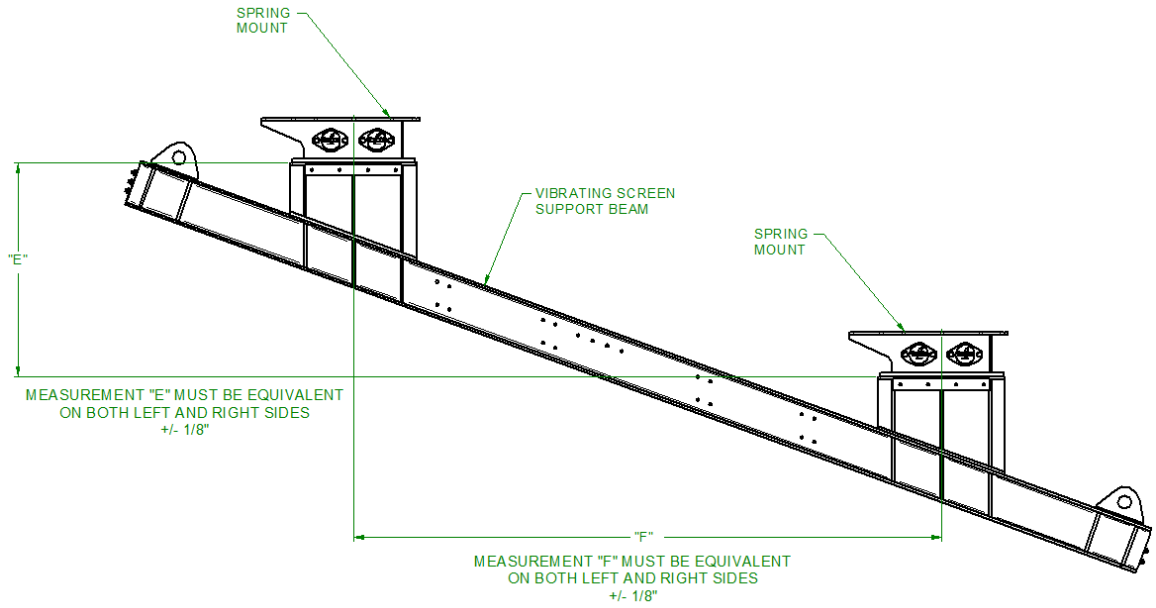


Figure 5

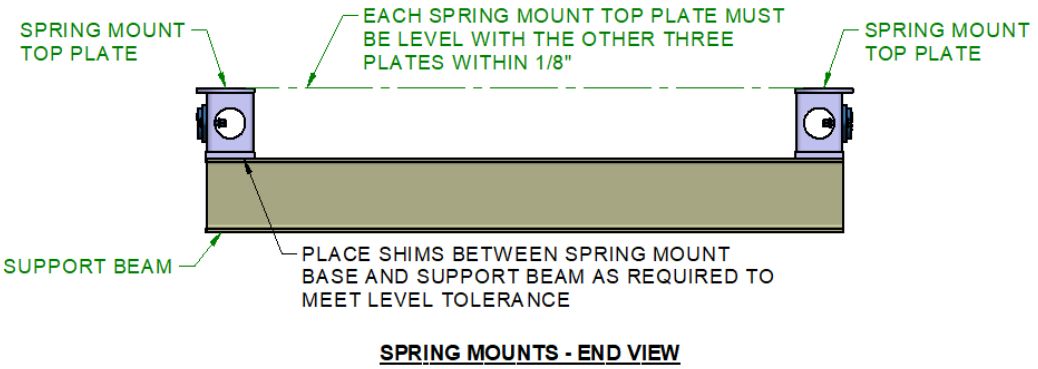


Figure 6

Locate each spring base so that there is ½” clearance between the floor stand and the friction check plate attached to the screen body.

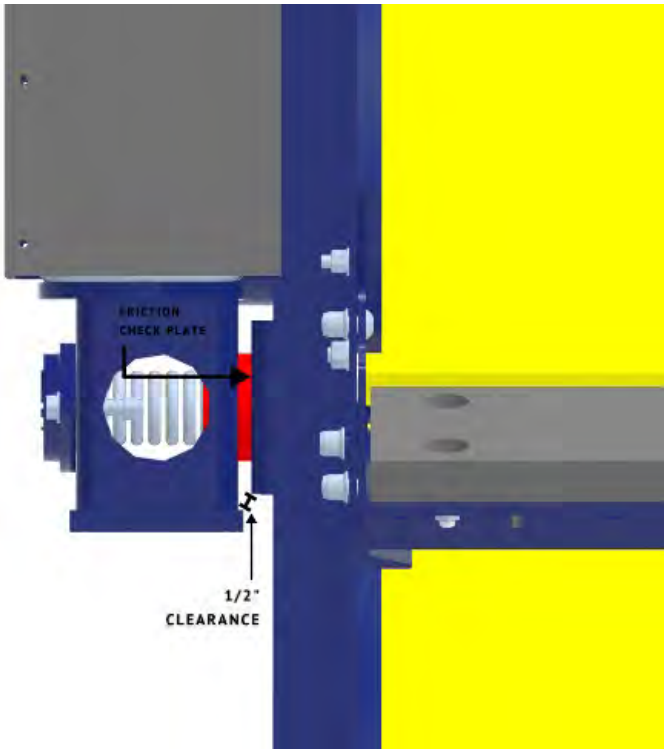


Figure 7

Rig the assembled vibrating screen for lifting as previously shown in Figure 1.

Lift the assembled vibrating screen into position directly above the previously installed spring mounts allowing sufficient vertical clearance for spring installation.

Secure area. Stand clear while positioning. Do not stand directly under suspended load. Work along parameters using caution.

Fixed Bracket & Trunnion Type Mounting with Steel Coil Springs

NOTE: Instructions specific to Trunnion Type Mounting will be highlighted in gray.

Assemble the inner coil springs, if used, on the spring retainer located on the spring bases, and then assemble the outer springs outside the inner springs.

Lower screen onto springs.
Be sure that the springs are set vertically on bottom spring box and parallel with the floor stand.
If the springs are not vertical, shim the spring bases until the springs are vertical.
Lock trunnion bracket onto trunnion pin by tightening bolt.
Bolt spring bases to steel work.
Install snubber springs.
Set the inner coil springs (if equipped) down inside the lower polyurethane spring retainers, making certain that the correct springs are installed on the feed and discharge ends.
Set the outer coil springs down over the lower polyurethane spring retainers, making certain that the correct springs are installed on the feed and discharge ends.
If shipped unassembled, assemble trunnion bracket on screen. Trunnion bracket must be horizontal.

Position at least one person at each of the four spring mounts with a steel bar to guide the inner and outer springs into place as the vibrating screen is lowered into place.

Use only a steel bar or similar tool to assist in guiding and prying the springs into position. Do not under any circumstances allow an individual to guide the springs into position using his or her hands or fingers. Severe injury could result if hands or fingers are trapped between the spring and retainer or between the spring coils.

Slowly lower the vibrating screen onto the springs making certain that the inner springs are guided into the inside of the upper spring retainer, and the outer springs are guided over the outside of the upper spring retainer.

Be sure that the springs are set vertically on bottom spring box, and parallel with the floor stand.
If the springs are not vertical, shim the spring bases until the springs are vertical.

NOTE: The polyurethane spring retainers may be damaged if the springs are not properly guided into place while lowering the vibrating screen.

Once inner and outer springs are aligned, lower screen until springs accept full weight of the vibrating screen, keeping lifting gear intact.

Measure the distance between the upper and lower spring mounts at each of the four spring mounts.

If there is significant variation in the measurements, each spring mount must be inspected to determine why the measurements are not uniform. Check that both inner and outer springs are fully seated in the spring retainers on the top and bottom.

If there is a problem, lift screen off springs and correct before proceeding.

If each of the four corner measurements are approximately the same, remove the lifting gear and proceed to the next step.

Lock trunnion bracket onto trunnion pin by tightening bolt.
Bolt spring bases to steel work.

Assemble the polyurethane snubber spring and spring mount caps to the lower spring mount with the appropriate hardware as shown in Figure 3.

H-BEAM/BASE ASSEMBLY

The H-Beam/Base Assembly comes with prefabricated holes to bolt into structure.
NOTE: Conn-Weld **does not** provide hardware for mounting to end user's structure. However, hardware is provided by Conn-Weld in all remaining steps in this section.

Make sure the support structure for the vibrating screen is level and in line.

The support structure for the vibrating screen must be flat, level, and plumb with no obstructions.

Measuring with a transit is advised to make sure everything is level and heights are the same.
Rig the assembled vibrating screen for lifting as previously shown in Figure_1_.

Lift the assembled vibrating screen into position directly above the location of where the beams are to be mounted to the structure.

Secure area. Stand clear while positioning. Do not stand directly under suspended load. Work along parameters using caution.

Using caution, position vibrating screen above the structure, lower into position, and bolt the beams to structure.

Vibrating Screens installed on H-Beams/Base Frame Assembly are shipped with plates installed *for shipping purposes only*. These plates are to be removed once the vibrating screen has been set/mounted to structure, before startup. Conn-Weld recommends storing these plates and bolts for future use, should the equipment need to be relocated.

Figure 8

INSTALLING SPRING GUARDS

Conn-Weld recommends installing spring guards and supplies them as an option for purchase. If purchased, rubber spring guards and bolts will be supplied with shipment.
Install rubber flaps utilizing the predrilled holes with the bolts supplied on front and sides of mounted springs. Refer to spring rubber guard assembly drawing in manual.

Installation Drawing(s):

- Spring Rubber Guard Assembly (Right/Left)

	Parts Used:
1.	Rubber Guards
2.	Rubber retainer bars
3.	Rubber retainer plate
4	Hardware
5.	Zip ties for rubber guard corners

While machine is turned off and locked out, checking under the rubber flaps for buildup and debris should be a part of weekly routine maintenance checks.

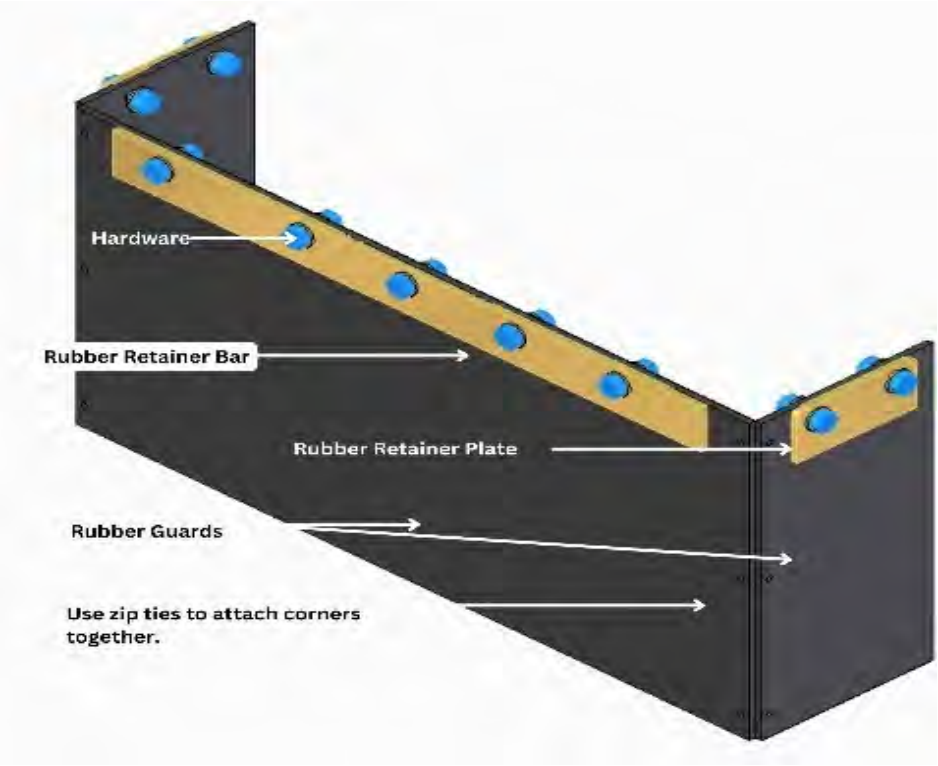


Figure 9

Spring Maintenance

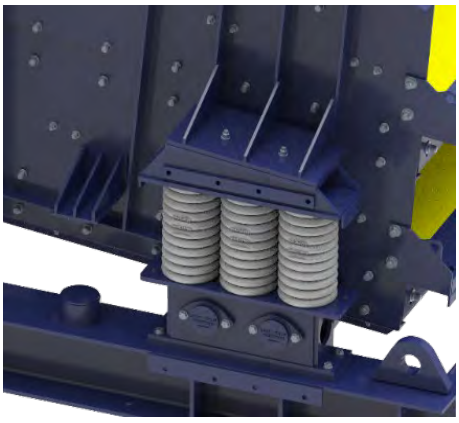


Figure 10

Conn-Weld has tested and proven steel coil springs in every application. Proper routine maintenance will enhance performance of equipment and the life of springs. ***Refer to*** maintenance section of this manual for instructions on how to change steel coil springs and other maintenance tips.

MOTOR AND V-BELT DRIVE INSTALLATION

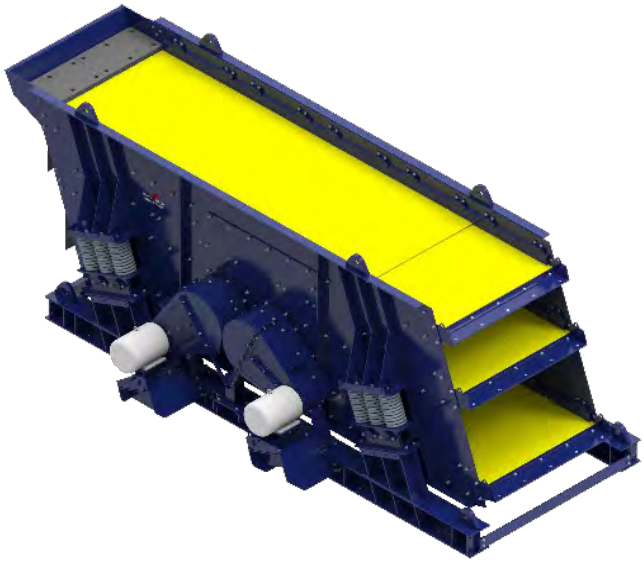


Figure 11

MOTOR INSTALLATION

The vibrating screen is motor driven using a high torque, (quarry duty) motor.

This is accomplished either with a pivoted motor base arrangement or the vibrating screen is cardan shaft driven.

Refer to the general arrangement and drive specification drawings in the manual to determine.

PIVOTED MOTOR AND V-BELT DRIVE

NOTE: If equipment is shipped without the mechanism installed, skip to mechanism installation procedures before proceeding with motor and v-belt installation.

The motor(s) should be installed in a clean, dry, and well-ventilated place and be easily accessible for inspection and maintenance.

Conn-Weld's H-Beam/Sub-base Assembly is prefabricated for installation.

When positioned according to the General Arrangement Drawing, the motor mount(s) will accurately locate the screen drive motor with the vibrating screen, based on the specified sheave location.

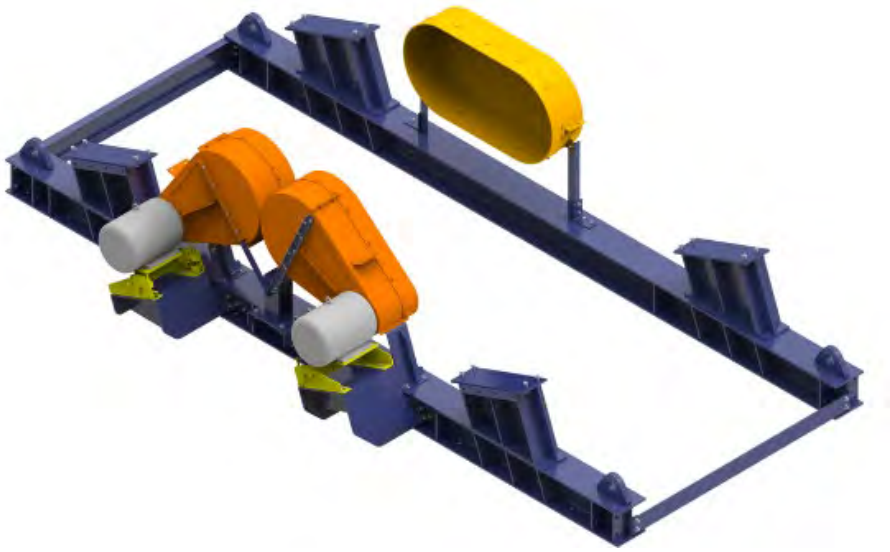


Figure 12

Installation Drawings:

- General Arrangement Drawing
- Sheave Location
- Pivoting Motor Base
- Base Frame Assembly
- Guard Assembly for V-Belt

NOTE: The Motor Base and Sheave Location drawings are referenced in the General Arrangement.

	Parts Used:
1.	Pivoting motor base(s)
2.	Bushing(s) and bolts
3.	Motor mount(s)
4.	Motor Sheave
5.	V-Belts
6.	Guards
7.	Hardware

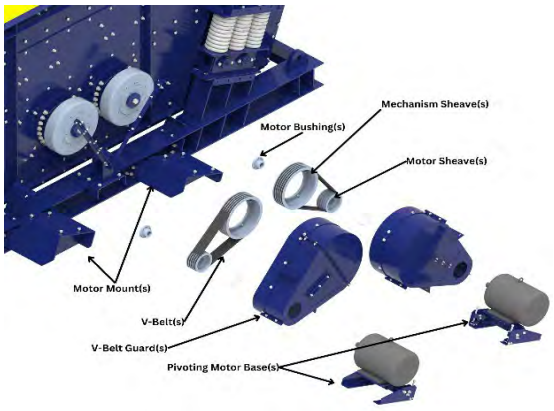


Figure 13

Guided by the prefabricated bolt holes on the H-beam/Base Frame, install motor mount(s) using hardware provided. Fully tighten bolts.

Install pivoted motor base(s) on motor mount(s) using hardware provided. Loosely tighten bolts enough to hold the motor base in place- will be fully tightened in a later step.

Install motor(s) on pivoted motor base(s).

Install motor bushing on motor sheave with hardware provided being sure *not* to over tighten.

Install belts using a rubber mallet. Do not pry the belts onto the sheaves as this can damage the grooves in sheaves compromising warranty.

Now tighten everything properly. Tighten adjustment bolts.

Be sure mechanism(s) and motor sheave(s) are properly aligned and belt(s) properly tightened.

Proper tension is achieved when the middle span of the belt deflects ½" (the thickness of belt) with approximately 20 lbs. of pressure.

USE INDIVIDUAL BELTS ONLY.
Conn-Weld **does not** recommend banded V-Belts. Questions – Contact Conn-Weld.

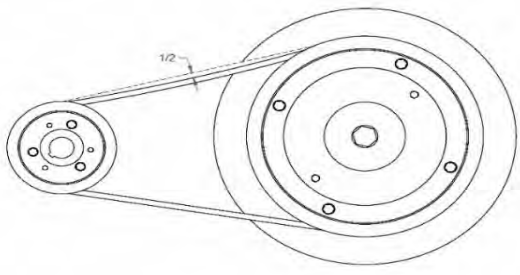


Figure 14

Using caution, stand clear and jog motor to ensure proper belt tension and proper rotation of the motor has been achieved.
In the case of two motors make sure they are rotating in the same direction.

Turn off the motor(s) before further adjustment or installation of guards.

Once proper belt tension is achieved, install guards.
See below for adjustment procedures.

Adjusting Motor Base

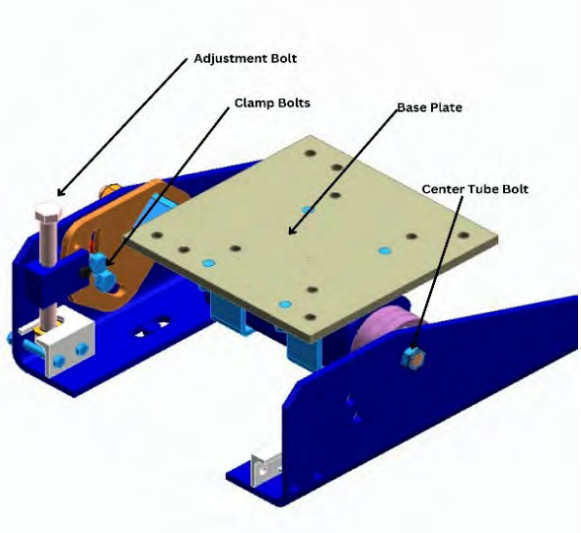
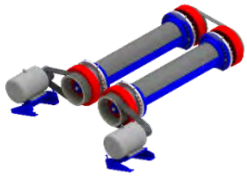


Figure 15

- Loosen center tube bolt.
- Loosen pair of clamp bolts with 15/16 socket and wrench.
- Adjust with 1-1/8" socket. If two adjusting bolts, alternate side to side.
- Once proper tension is met, tighten clamp bolts, and tighten center tube bolt.
- Scan the QR code below for a video demonstration.

INSTALLATION WITHOUT H-BEAM/BASE FRAME

Refer to General Arrangement and Sheave Location Drawing for proper alignment.
NOTE: Pivoted motor base must be installed below the screen mechanism as illustrated below.
Follow the steps above.



For illustration purposes only. Always refer to drawings included with manual.

- See General Arrangement Drawing to identify feed end and discharge end.

Flow Rotation: Rotate With Material Flow

If the screen is running flow rotation (mechanism rotating with material flow), locate the pivoted base towards the feed end of the screen with the pivot of the base towards the screen sheave. The centerline from the motor sheave to the mechanism sheave should make an angle with the horizontal between 10-60° below the horizontal.

NOTE: Flow rotation will increase material flow but slightly decrease separation efficiency.

Counterflow Rotation: Rotate Against Material Flow

If the screen is running counterflow rotation (mechanism rotation against material flow), locate the pivoted base towards the discharge end of the screen with the pivot point of the base towards the screen sheave. The centerline angle would be the same as with flow rotation. The motor must be positioned on the pivoted base a distance away from the pivot point centerline to keep tension on the belts that prevents slippage.

NOTE: Counterflow rotation will decrease flow rate but increase separation efficiency.

CARDAN SHAFT ASSEMBLY

Installation Drawings:

- General Arrangement Drawing
- Motor Support Arrangement
- Bearing/Motor Assembly
- Base Frame Assembly (if supplied)
- Bearing Motor Mount Assembly

	Components needed for installation:
1.	Motor Support Assembly
2.	Cardan Shaft Assembly
3.	Adapter Plate
4.	Bushing(s)
5.	Sheaves
6.	V-Belts
7.	Cardan Shaft Guard
8.	V-Belt Guard Hardware

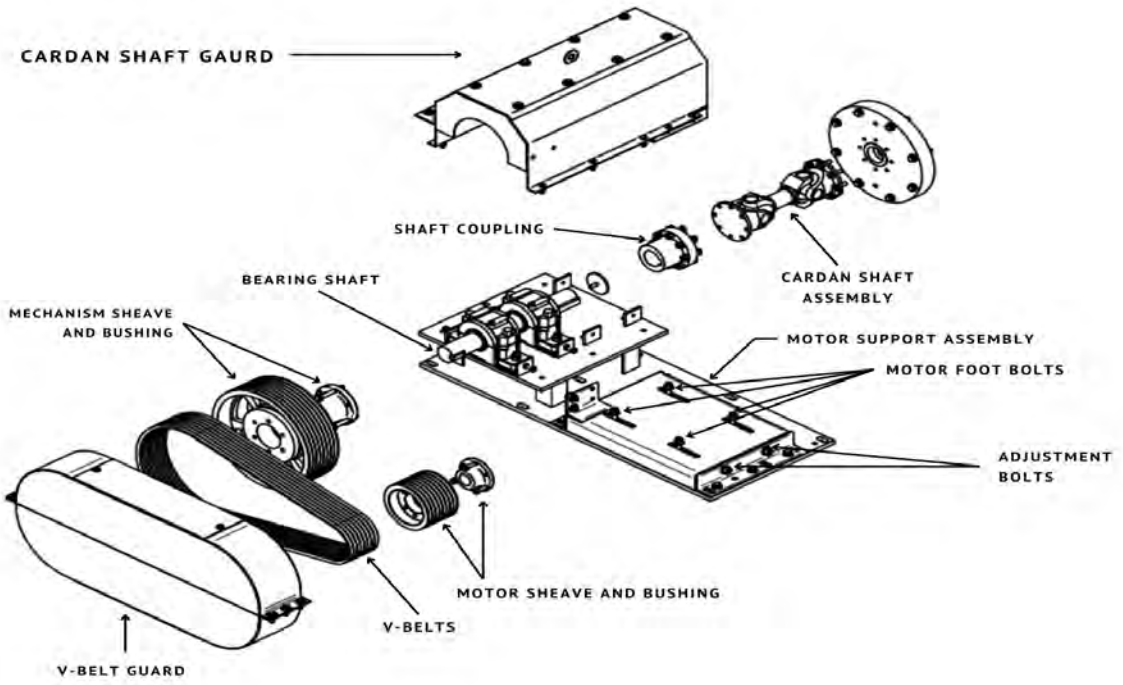


Figure 16

Install the motor support assembly to structure as located on General Arrangement Drawing. **NOTE*:*** Conn-Weld **does not** provide hardware for mounting to end user's structure. However, hardware is provided by Conn-Weld in all remaining steps in this section.

Referring to the Motor Support Arrangement Drawing, assemble the cardan shaft to the flywheel by securing bolts to the adapter plate located on the front of the flywheel. After tightening bolts once, repeat the process, as some of the bolts will loosen themselves when initially tightened.

Install the opposite end of cardan shaft assembly to the motor mount support assembly.

CHECK DISTANCE

The distance between the coupling on the Motor Support Assembly and the Adapter Plate on the Flywheel is critical as the shaft only allows for 1 ¾" to 1-1/4" travel.
Refer to Motor Support Arrangement to ensure location of dimensions.

Set the motor specified for application on the motor mount support as indicated on arrangement drawing. Using the four-foot bolts, loosely secure motor to hold in place. The four-foot bolts will be secured once the V-belt has been installed. Note the belt size specified on arrangement drawing.

Secure bushing to the motor, then assemble the motor sheave to the motor.
Assemble the sheave by installing the bushing to the shaft on the motor assembly.

Check alignment sheave to sheave. Ensure the sheave on the motor is parallel with the sheave on the assembly.

Install the V-belt onto sheaves, as indicated on Motor Support Arrangement Drawing, using a rubber mallet. Do not pry the belts onto the sheaves as this can damage the grooves in the sheaves compromising warranty.

Using the two adjustment bolts on the motor mount assembly adjust belt tension. This is achieved by snugging the bolts alternatively while maintaining even alignment.
Tightening the bolts will increase tension.
Loosening the bolts will loosen tension.

Proper tension is achieved when the middle span of the belt deflects ½" (the thickness of belt) with approximately 20 lbs. of pressure.

Now securely fasten the motor with the four foot-bolts.

Using caution, stand clear and jog motor to ensure proper belt tension and proper rotation of the motor has been achieved.
In the case of two motors make sure they are rotating in the same direction.

Turn off the motor(s) before further adjustment or installation of guards.

Once proper belt tension is achieved, install guards.

For instructions on greasing a motor base assembly, refer to the maintenance section of this manual.

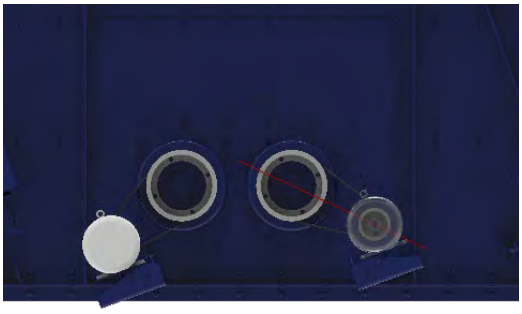
V-BELT ALIGNMENT & ADJUSTMENT

V-belt alignment and tension should be carefully checked. Tensioning the V-belts will avoid excessive slippage.

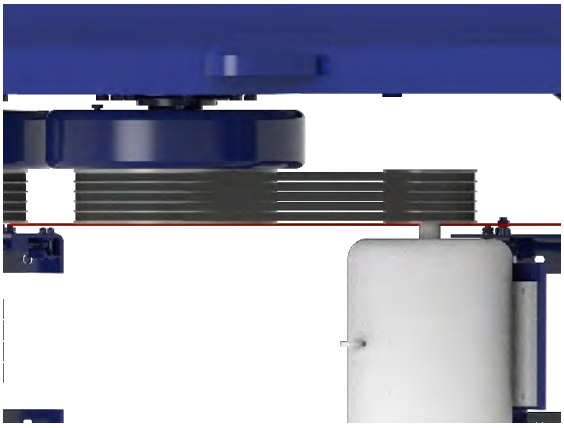
If the belts tend to squeal during start-up or in operation, it is a sign that they are slipping. Apply tension until the slip is eliminated.

The tension will most likely need to be adjusted again after the first 48 hours of operation.

Alignment is checked by pulling a string across the front face of the screen sheave and back face of the motor sheave.



Alignment is checked by pulling a string across the front face of the screen sheave and back face of the motor sheave.
Do Not Use Banded V-Belts. Individual Belts ONLY.



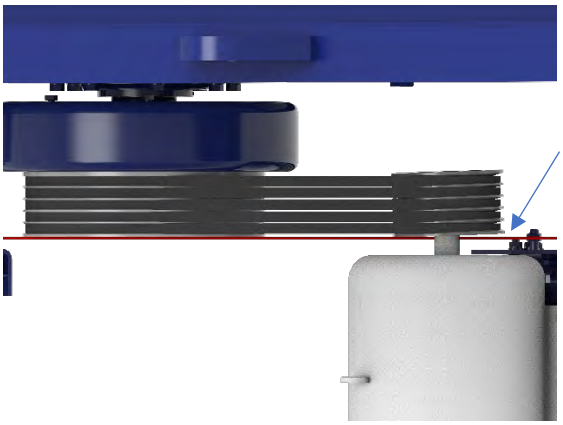


Figure 17

CORRECT

INCORRECT

If they are aligned properly, all four corners will touch.

The V-belts should be inspected at least once a month and tension adjusted as needed. The bolts holding the motor to the base and sheave bolts should be checked periodically to ensure they are tight.

V-belts should never be pried over a groove with a bar or other objects.

When replacing V-belts, sufficient slack must be obtained in the drive to permit the new V-belts to be placed easily in the proper groove.

For further instructions, refer to the maintenance section of this manual.

SCREEN MEDIA INSTALLATION

Conn-Weld offers a variety of screen media and hold-down systems:

Profile Wire	Urethane	Perforated Plate

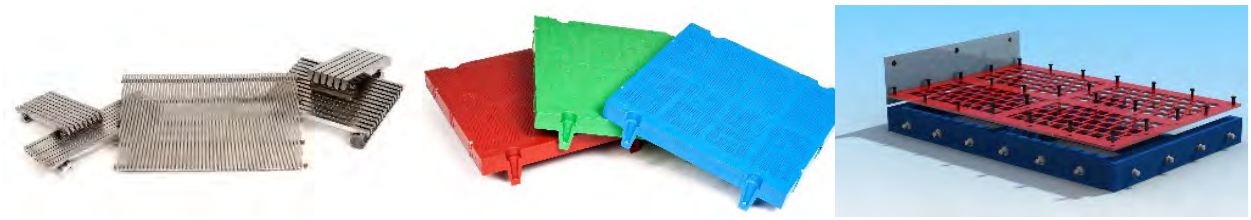


Figure 18

Screen media may also be supplied by other customer preferred vendor(s) and installed by customer or installed by Conn-Weld.

Screen media arrangement(s) per deck will vary according to application.

Reference the following documents specific to your equipment in this manual:

- Specification Sheet,
- General Arrangement
- Wearing Part(s) Drawing(s)

The wearing part(s) drawing(s) will specify the media and installation configuration for each deck(s).

For questions regarding installation contact your Conn-Weld District Sales Manager or the Conn-Weld Engineering Department.

Refer to the maintenance section of this manual regarding trouble shooting tips and routine care of screen media.

SPRAY PIPE MANIFOLD INSTALLATION

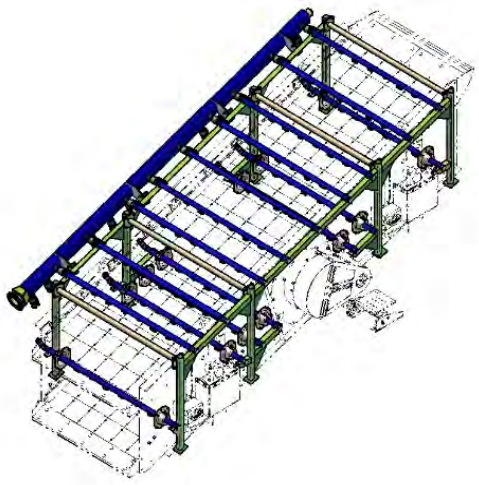


Figure 19

Conn-Weld Circular Motion Incline Vibrating Screens in wash applications have spray pipes manifold systems designed per customer's specification.

Refer to the following drawings designed for your equipment in this manual:

- General Arrangement
- Final Assembly
- Base Frame Assembly (if purchased)
- Manifold Assembly
- Spray Assembly

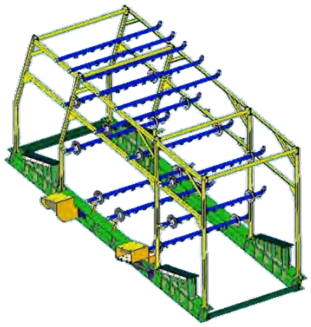


Figure 20

If purchased, the base frame assembly drawing will provide location of spray pipe rack, and pipe support.

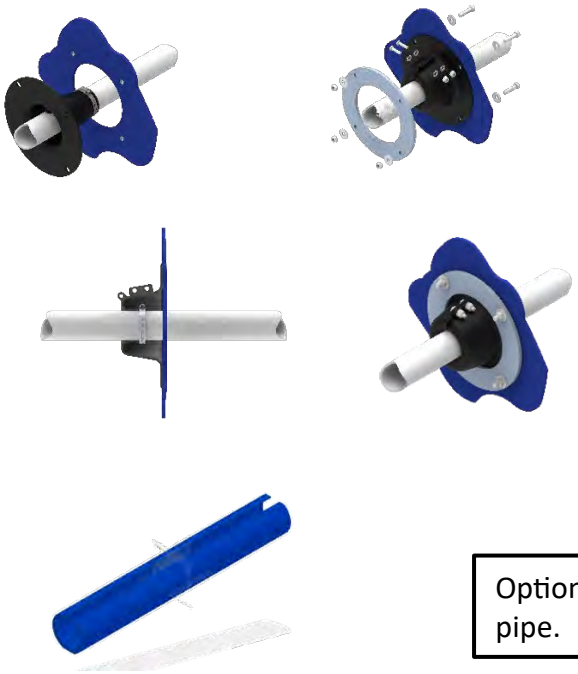
Install the pipes referring to the spray/manifold assembly drawings.

Install nozzles in pipes cross-sectionally based on material flow.

Angle the nozzles closest to the side plate so that water does not spray against the side plate.

The flow rate of the spray pipe is determined by the type and number of spray nozzles.
Water volume is 3 to 5 GPM / TPH.

Conn-Weld provides specially designed components for spray systems to help prevent premature wear of the spray bars.



Spray Bar Boot(s) are installed to create a seal to keep water and material inside the screen.

Optional Wear Liners for spray pipe.

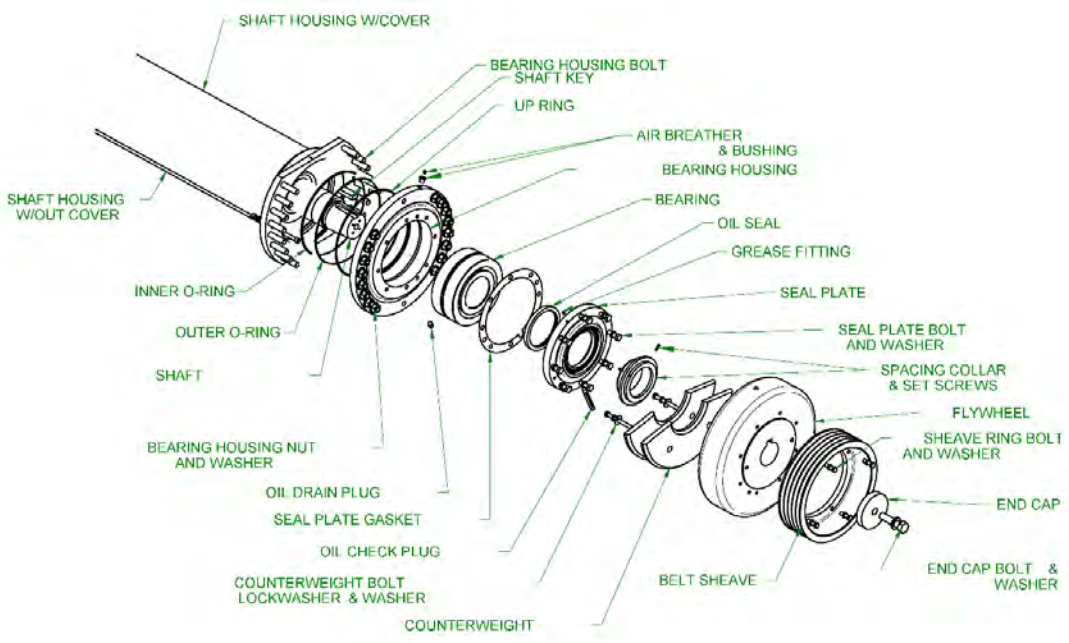
Figure 21

For questions regarding installation and operation contact your Conn-Weld District Sales Manager or the Conn-Weld Engineering Department.

CIRCULAR MOTION INCLINE MECHANISM(S)

The mechanism is shipped from the factory with a corrosion inhibitor in the oil for the protection of internal parts during storage. This oil should be replaced with proper operating oil before starting the machine.
NOTE: If mechanism(s) need longer than four weeks before start-up, completely drain each mechanism of all oil and refill with a corrosion inhibiting oil. If unable to locate corrosion inhibiting oil, please contact Conn-Weld Industries. When ready to commission, drain oil completely and follow Conn-Weld's standard oil specification supplied in this manual. Refer to maintenance section for oil change schedule.

Conn-Weld Circular Motion Incline Vibrating Screens are equipped with mechanism(s) based on the size, capacity, and application of your vibrating screen. An exploded view like the one below is provided in this manual with part numbers specific to your vibrating screen's mechanism.



Conn-Weld offers a mechanism rebuild program. Contact your District Sales Manager or Conn-Weld's Engineering Department for more information regarding this and Conn-Weld's Technical Support Team services.

Step-by-step instructions on assembly and disassembly of incline mechanisms are included in the following section of this manual.

Conn-Weld makes every effort to provide thorough instructions however, WHEN IN DOUBT – ASK.

OPERATION OF THE SCREEN

Before initial start-up, several things should be checked.

Oil Level

The oil level should be checked because too high an oil level will cause the machine to run at too high a temperature. Too low an oil level will not give enough lubrication to the bearings. The proper way to determine the oil level is when the mechanism is installed- remove the aluminum plug located on the seal plate behind the counterweight, and make sure that a steady drip comes. That is when the oil is at the right level. Also check to see that the mechanism vents are working properly.

Bolts

All bolts need to be double-checked to make certain that they are torqued properly. The proper settings can be determined according to the torque chart in the maintenance section of this manual.

Screen Surface

A final check of all the bolts of the screen cloth clamping bar. Improper tension to the surface will cause premature failure in the screening surface.

Left/Right-Hand Driven

The way to determine the hand of drive of the machine is to look in the feed end and look at the direction of flow of material. The side where the drive belts are will tell if the machine is right-hand or left-hand drive.

Rotation

The rotation and the screen slope are determined by the application of the machine. The slope will obviously influence the travel of material across the length of the screen, but the rotation direction will also. A flow rotation (rotation with the material flow) will increase material flow but slightly decreases separation efficiency. Counterflow rotation does the opposite, it decreases flow rate but increases efficiency.

Throw

Another aspect of this is the throw of the screen. The throw can be changed for field requirements by adding or taking away the counterweights in the flywheel (see mechanism assembly view).

NOTE: It is important to contact Conn-Weld Engineering before taking this step.

Speed

Along with the rotation and throw, the proper motion must be achieved by having the proper speed.
To check for critical speed, take (4)-3x5” cards and place one at the same position on both the feed and discharge corners. With the screen running use a pencil securely perpendicular to the card, touch the card once, on the four corners of the card. The screen must be running at full speed and the pencil held perpendicular to the screen. If the marks made on the cards are not similar, it is possible that a critical condition may exist. This will be evident if the throw of two diagonal corners is different than the other two. If this does exist, the machine will have slight side vibration.

If a critical speed condition does exist, a check of the following items should be made:

1. The compression and suspension of the feed and discharge end springs to ensure they are similar.
2. Tightness of the entire screen surface clamping bar bolt.
3. Check all bolts for proper tightness.
4. The screen surface is not covered over in excess with material.

When all these items have been checked, repeat the procedure with the cards. If the critical speed condition still exists, Conn-Weld Industries should be notified. Note that running the machine under a critical speed condition could cause serious damage to the machine.

Scan the QR code for a video demonstration.

QR REFERENCE

FOUR CORNER CARD TEST

SYNCHRONIZING BAR

PIVIOTING MOTOR BASE

FLYWHEEL PROCEEDURE

OIL PUMP BUCKET

QUALITY CONTROL

GREASING MOTOR BASE ASSEMBLY

SHAFT ROLLER

SHAFT HOUSING

INCLINE OIL CHANGE

SPRING INSPECTION

SPRING MAINTENANCE

Section 2
Assembly & Disassembly of Mechanism

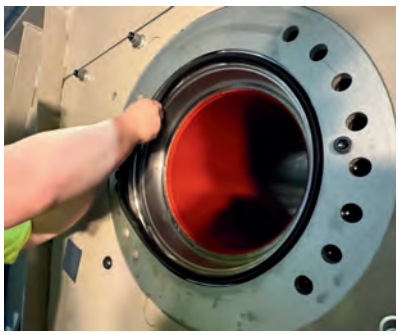
Note: The following photos were taken with two vibrating screens for instructional purpose.

Install Bearing Housing

Using cloths or mop, swab the inside of the tube of debris.

Apply silicone between shaft housing and side plate using white MS 5570 Teroson Silicone to prepare for O-ring installation.

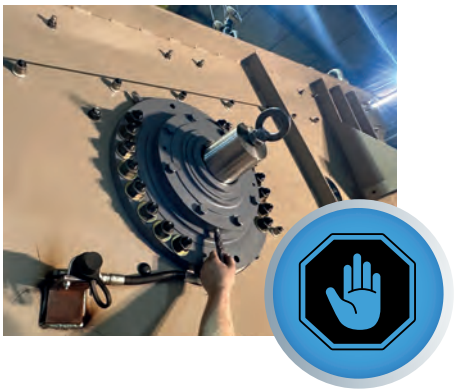
Before starting installation, flip O-ring so that it will seat inside bearing housing. Install O-ring pressing firmly into groove as you go. The silicone will hold in place.



Now repeat these steps installing O-Rings on the opposite side where bearing housing will be installed. For multiple drives do so at each location where a bearing housing will be installed. There will be 2 O-rings per drive installation.

Apply Clear 732 Dow Corning Silicone around side plate making two circles to seal out water and contaminants preparing for bearing housing installation.

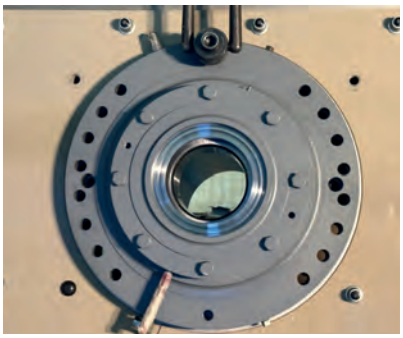
Prior to installing the bearing housing kit on the machine, install elbow making sure the hose fitting points in direction of the hand of drive. Left hand driven point left, right hand driven point right.



THIS PHOTO DEMONSTRATES WHY PREVIOUS STEP IS IMPORTANT. IF NOT DONE CORRECTLY, THE BEARING HOUSING WILL HAVE TO BE REMOVED AND REINSTALLED WITH THE ELBOW POINTING IN DIRECTION OF DRIVE!

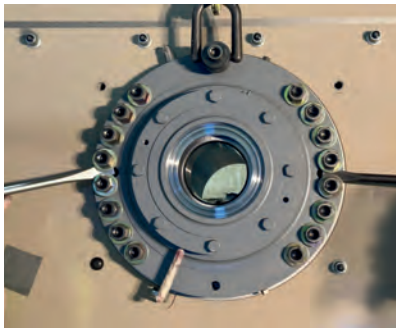
Hoist bearing housing using proper lifting gear. Clean the back of bearing housing before placing where silicone has been applied. Using a bar to keep bearing housing parallel with side plate. See special lifting eye tool that eliminates the need bar in this step.

With 2 pry bars, work bearing housing back and forth to fit properly into shaft housing.



After seated install bolts, washers, and nuts but do not tighten yet.


(Continued procedure.)
After seated install bolts, washers, and nuts but do not tighten yet.




Place a bar between 2 washers on each side of bearing housing. It is important for placement to be in the middle to ensure housing is seated properly. Now push in as far as it will go. This will push the housing all the way in. Using the washers and nuts to pry against, finish pushing the bearing housing against the side plate.


Tighten bolt on top left, then bottom right. Repeat top left, bottom right.


Now tighten remaining bolts in an alternating pattern.


INSTALL DRIVE SHAFT

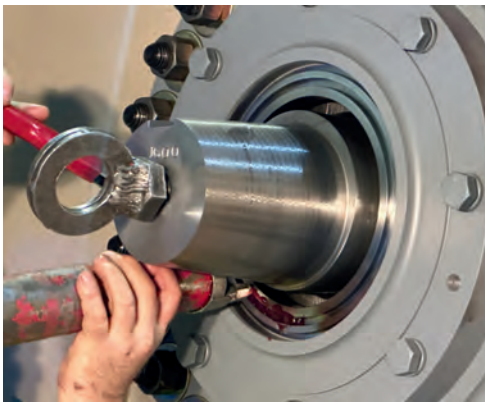
Hoist shaft at center with straps.

Before installing in shaft housing clean all the way around with cloths and cleaner such as WD 40.

The shaft spacer must be flush against the shoulder of the shaft with NO GAP!

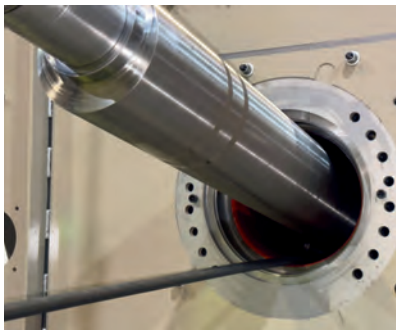
Using same type oil that goes into machine (EP150) oil bearing race inside bearing housing to create a film. This can be done using a cloth or with bare hand.

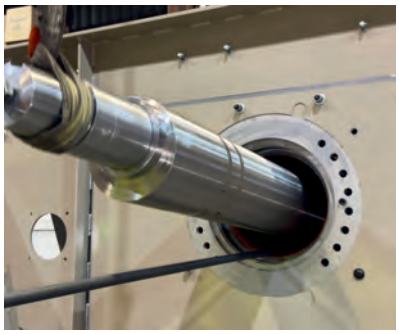
Now do the same to bearing fit of the shaft. Using hand/cloth oil shaft creating a film.



BEFORE PROCEEDING, make sure to install eyebolt on the end of shaft in preparation to pull the drive shaft through shaft housing!

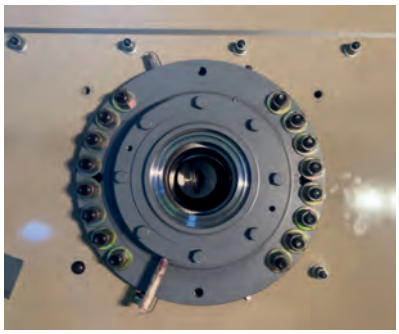
With a person positioned at receiving end, you are now ready to install the drive shaft into the shaft housing.
The shaft is hoisted into position at the center of the bearing housing.



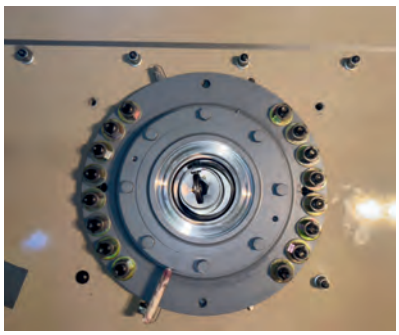


Adjust strap on shaft as it enters into the shaft housing accordingly. Using a shaft roller, guide the drive shaft into the shaft housing.

More information on shaft roller in maintenance section of manual.



From the suspended end of the shaft, keep guiding the drive shaft with roller until the person on receiving end is able to grab the eyebolt.



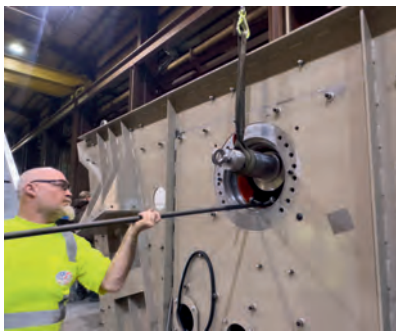
The person on receiving end, while pulling the drive shaft, instructs the installer to lift up or down in order to keep the drive shaft centered in the bearing housing.

Once drive shaft is through the bearing housing, insert a bar through the eyebolt to hold pressure on the drive shaft.

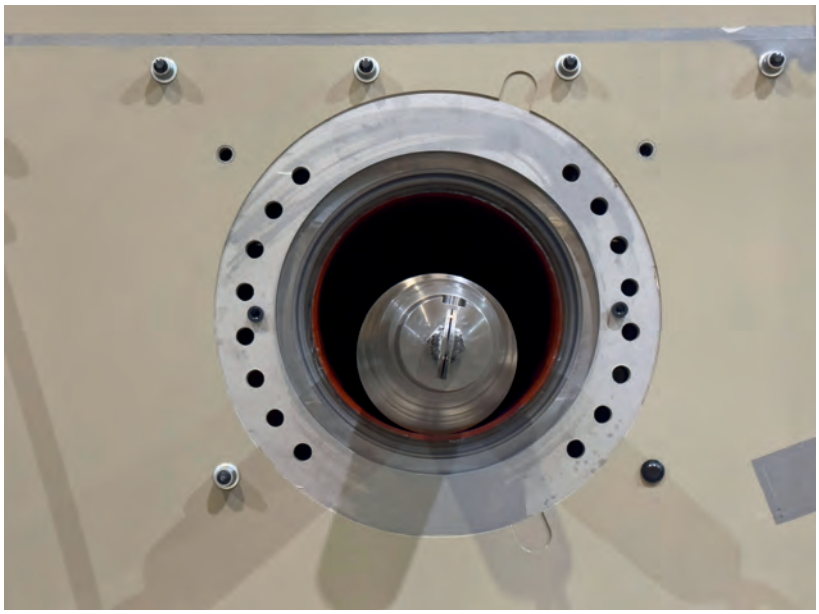
Using a small pry bar, align the inner race of the bearing on the shaft to ensure the shaft is seated properly. This is done by working the bar above the shaft, then below the shaft, repeating gently little by little until the shaft is able to slide freely through the bearing.

The drive shaft is now centered in bearing housing.

Using bar pull the shaft snug.



Installer may now remove the shaft roller and the hoisting strap.

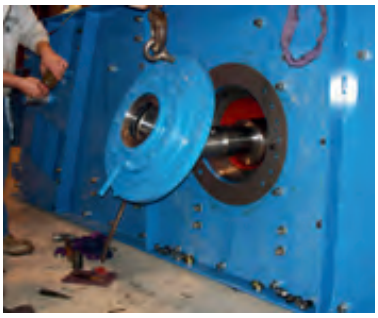


INSTALL BEARING HOUSING ON INSTALL SIDE

Now you are ready to install the bearing housing on the install side.

The O-Ring should already be installed per previous instructions.


Using same type oil that goes into machine (EP150) oil bearing race inside bearing housing to create a film. This can be done using a cloth or with bare hand.




Now oil the bearing fit of the shaft using hand/cloth oil shaft creating a film.

Using proper lifting apparatus, hoist the bearing housing so that is positioned to go over the drive shaft. Then slide bearing housing onto end of the shaft.


Install eyebolt onto the drive shaft. Then lift shaft until centered to push the bearing housing into position.


After bearing housing is seated, install four nuts, bolts, and washers in the corners of the bearing housing.


Slowly tighten the four corner bolts only, top right, bottom right, top left, bottom left until the bearing housing is seated in position.

Install remaining nuts, bolts, and washers.
Do not torque.

Check end float.

End float is a procedure done to check axial movement of the drive shaft. A measurement of 1/8" to 3/16" movement is needed. This is important to allow for the expansion of metal as the shaft will heat up as a result of operation.

Pulling drive shaft all the way to one side, take a measurement

Repeat the process on the opposite side.

Once a measurement of 1/8" to 3/16" is confirmed, grease seal plate.

Note: If end float measurements are not met, contact Conn-Weld.

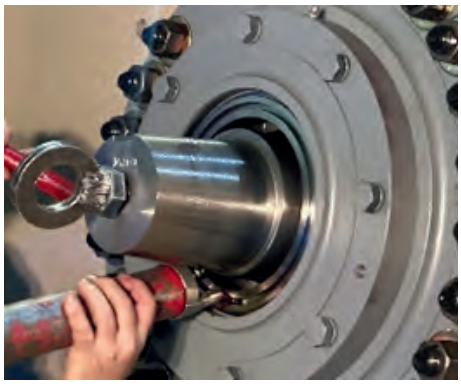
Pull end float all to one side of the screen that the spacing collar was just installed on.

Now install spacing collar on opposite side exercising the same procedure

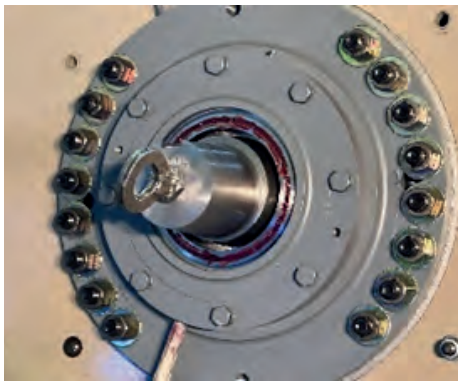
If end float measurements are met, referring to torque chart, now torque all bolts.

GREASE SEAL PLATE on both sides.

Thoroughly clean around the seal plate.



Apply grease around the seal plate by applying grease inside the grooves.



Using soft cloths, wipe off the excess grease.

(Continued procedure.)
Using soft cloths, wipe off excess grease.

Install spacing collar on both sides of machine.


Apply clear 732 Dow Corning silicone inside lip of spacing collar preparing it for installation.

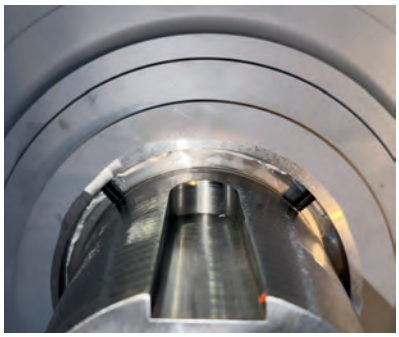

Pull shaft end float all to one side of the screen.

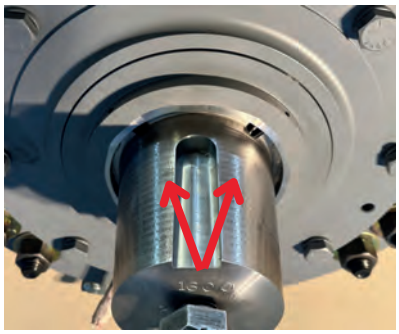
Install spacing collar on the opposite side.


Continue to work the spacing collar over the drive shaft pressing it into place.


The two set screws should be positioned at the top. 10 & 2


Make sure set screws are tight against the drive shaft.





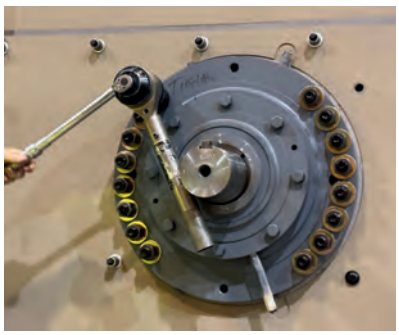
See set screws installed at 10 and 2.

Checking seal plate alignment.

This step, also referred to as sweeping the seal plate, measures to ensure the bearing housing and seal plate is parallel with the drive shaft.

Using a square and tape measure, check bottom and top measurements adjusting with bar as needed.

If unable to achieve parallel measurements, contact Conn-Weld.

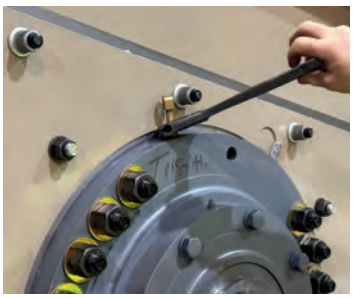


Now bolts are ready to be torqued.
Refer to torque chart in this manual for proper torque measurements specific to your machine's mechanism.

FILL MECHANISM WITH OIL

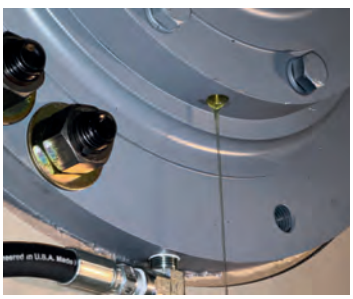













SITE GLASS OPTION

Now it is time to fill mechanism(s) with oil. This procedure is demonstrated with Conn-Weld's Oil Pump Bucket. Contact Conn-Weld for purchasing information.

<u>Refer to Oil Specification Chart!</u>

This procedure may be executed on either side of the equipment you choose.

Clean around the breather to prevent debris from entering the oil bath.

Remove breather.

Install the hose fitting into the breather opening.

Remove check plug on opposite side Position a container to catch oil as it begins to stream out of check plug opening.

Now pump oil.

Look for pencil led thick stream coming out of check plug.

Once pencil led stream of oil coming out of check plug opening is achieved, install check plug.

Remove hose from breather.
Install breather.

The mechanism is now at proper oil level.
This bearing housing is equipped with Conn-Weld's quick drain system.

A site glass is another option Conn-Weld provides.

A site glass is a quick visual ONLY to show if oil is in mechanism.

The only way to ensure the mechanism has proper oil level is to pull the check plug and check for the pencil led stream.

Disassembly of Mechanism

First, remove the sheave, and if a dual drive remove the timing gear from flywheel by removing by removing 4 bolts.

Next, install flywheel fixture. Tighten the large center bolt halfway.

In clockwise motion tighten push bolts. The flywheel will release making a popping noise.

The center bolt will hold flywheel in place until removed

NOTE: If flywheel doesn't release from shaft, contact Conn-Weld.

With flywheel released, remove center bolt first, then remove the four push bolts. Now remove flywheel from shaft.

Install Special lifting eye on top of the bearing housing.

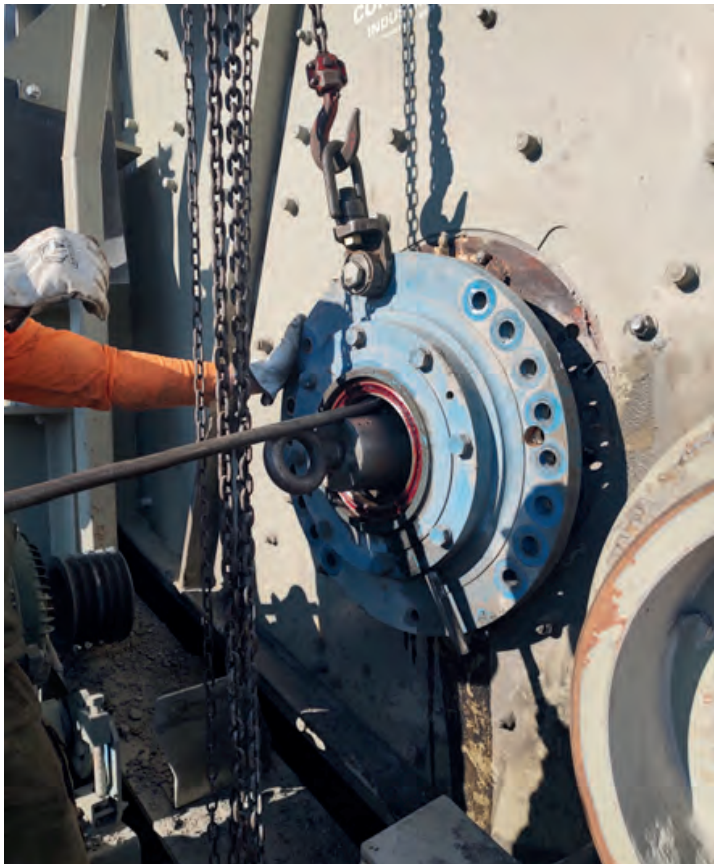
Then, install eyebolt to the end of shaft.

With a chain fall hooked to the eyebolt, very slightly lift shaft up enough to get tension off the bearing.

Using a pry bar with a chiseled end, pry bearing housing from side plate removing it from shaft.

Pull bearing house out so that it clears the side plate.

Transfer come along/chain fall from shaft eyebolt to the lifting eye on the bearing housing.



With the chiseled end of the pry bar, work the race up and down allowing it to slide off the bearing fit of shaft.

Continue working bearing race, pulling the bearing housing while prying up and down.

Once the bearing housing has been removed from bearing fit of shaft, it is ready to be removed.

Clean bearing fits on shaft.

Mic the bearing fits - this will indicate if shaft is good or bad.

If the inspection shows shaft is good, then visually inspect tube for gouges or cracks.

If the visual inspection is good, then clean shaft and inside of the tube.

Once done install new kit

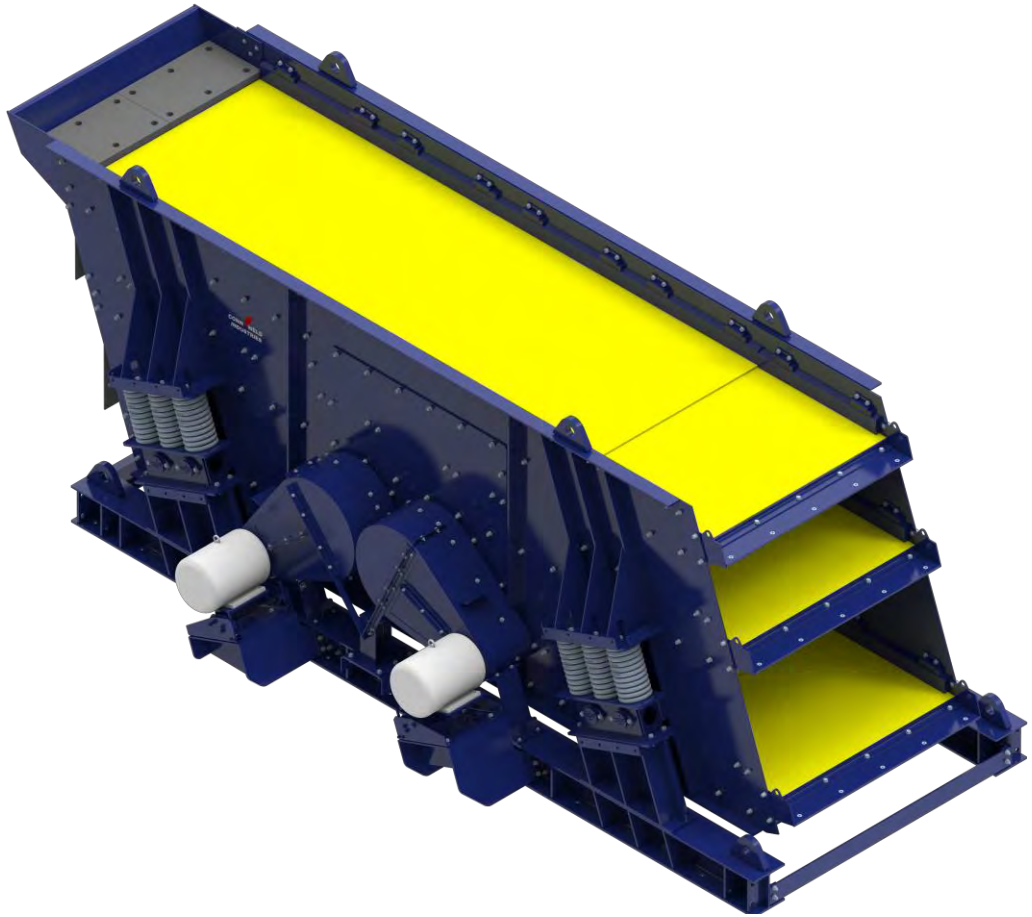
See installation instructions.

If any of these inspections deliver bad results, then contact Conn-Weld.

VIDEO DEMO

Section 3
Maintenance

CIRCULAR MOTION INCLINE



INCLINE OIL CHANGE

- Remove belt guards.
- Connect quick drain hose
- Once system drained completely, remove drain hose(hold and pull back on coupling housing)
- Attach pump bucket hose to breather assembly.
- As one person pumps oil in, another will be the on opposite side of the screen.
- On the opposite side, remove check plug.
- As oil is pumped, watch for a consistent pencil led stream of oil to exit the check plug.
- Reinstall check plug.
- Remove pump, reinstall breather, & reinstall belt guards

NOTE: CHECK SHELF LIFE OF OIL (If oil has been stored a long time, contact Conn-Weld before proceeding)

Conn-Weld Drive Mechanism Oil Specifications

Conn-Weld recommends the operating oil for the vibrating screen meet the following specifications:

- The mechanism must be lubricated with an EP Gear Oil (extreme pressure) compound with paraffinic base oils.
- Effective additives to provide corrosion, oxidation, & extreme pressure protection
- **Base Oil Viscosity @ 40°C – 150 CST**
- **Minimum Viscosity Index 90**
- **Timken OK Load – 60lbs minimum**
- **Use ISO EP150 or AGMA EP4 Gear Oil with ambient temperature range of 40°F – 100°F (5°C - 38°C)**

For extreme temperatures that are *below* 40°F (5°C) or *above* 100° F (38 ° C) –

Use EP 4 synthetic gear oils in colder climates and environments where there are drastic changing climates, a low pour point, and a high viscosity index rating as seen below.

cSt @ 40ºC	**150**
cSt @ 100ºC	**21.1**
Viscosity Index, ASTM D2270	**166**
Pour Point, ºC, ASTM D5950	**-42**

The mechanism is shipped from the factory with a corrosion inhibitor in the oil for the protection of internal parts during storage. This oil should be replaced with proper operating oil before starting the machine.

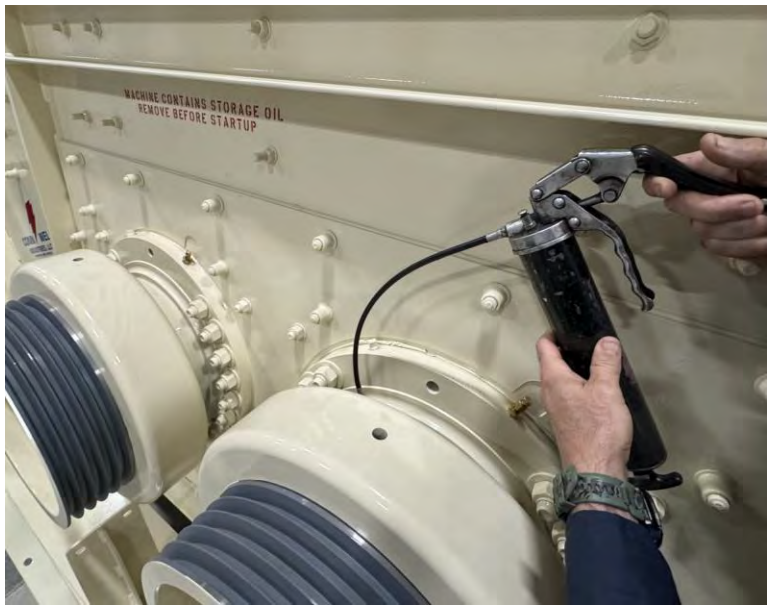
Change oil every 800 hours.

Ambient temperature is the temperature of the surrounding environment.

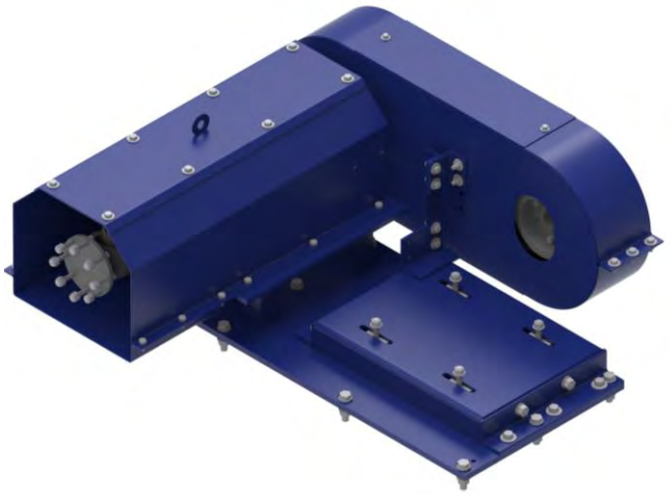
Failure to use the above specified oil or the use of an additive not approved by Conn-Weld *will void any warranty.*

For any questions contact Conn-Weld.

- **<u>Seal Plate</u>**
- Grease seal plate at every oil change
- 6” ribbon (3 pumps normally)



GREASING A MOTORBASE

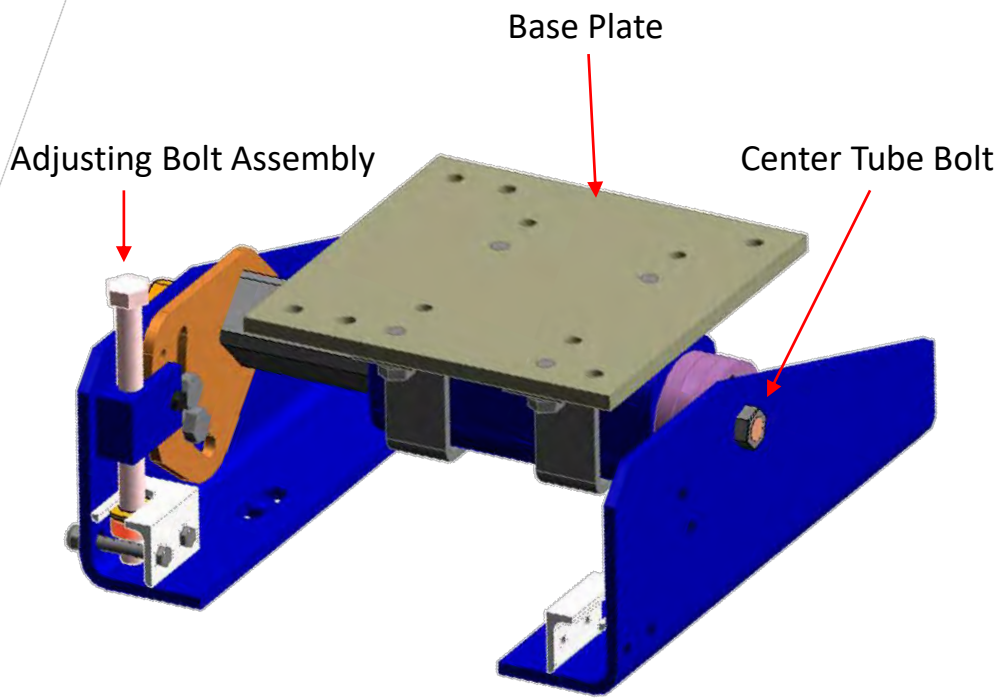


- Pillow block bearing on motor base assembly comes pre-lubed from factory.
- Greasing Frequency: Grease unit every month.
- Grease Amount: Three pumps of grease or 6-inch ribbon is needed to lubricate motor base.
- Once a year, purge unit:
  - Over a period, as grease is added it builds up in the box and compacts around the bearing.
  - Remove one plug from each side on bottom of unit.
  - With cap on, pump grease until a color change at bottom of unit. Color will go from dark color to color of new grease.

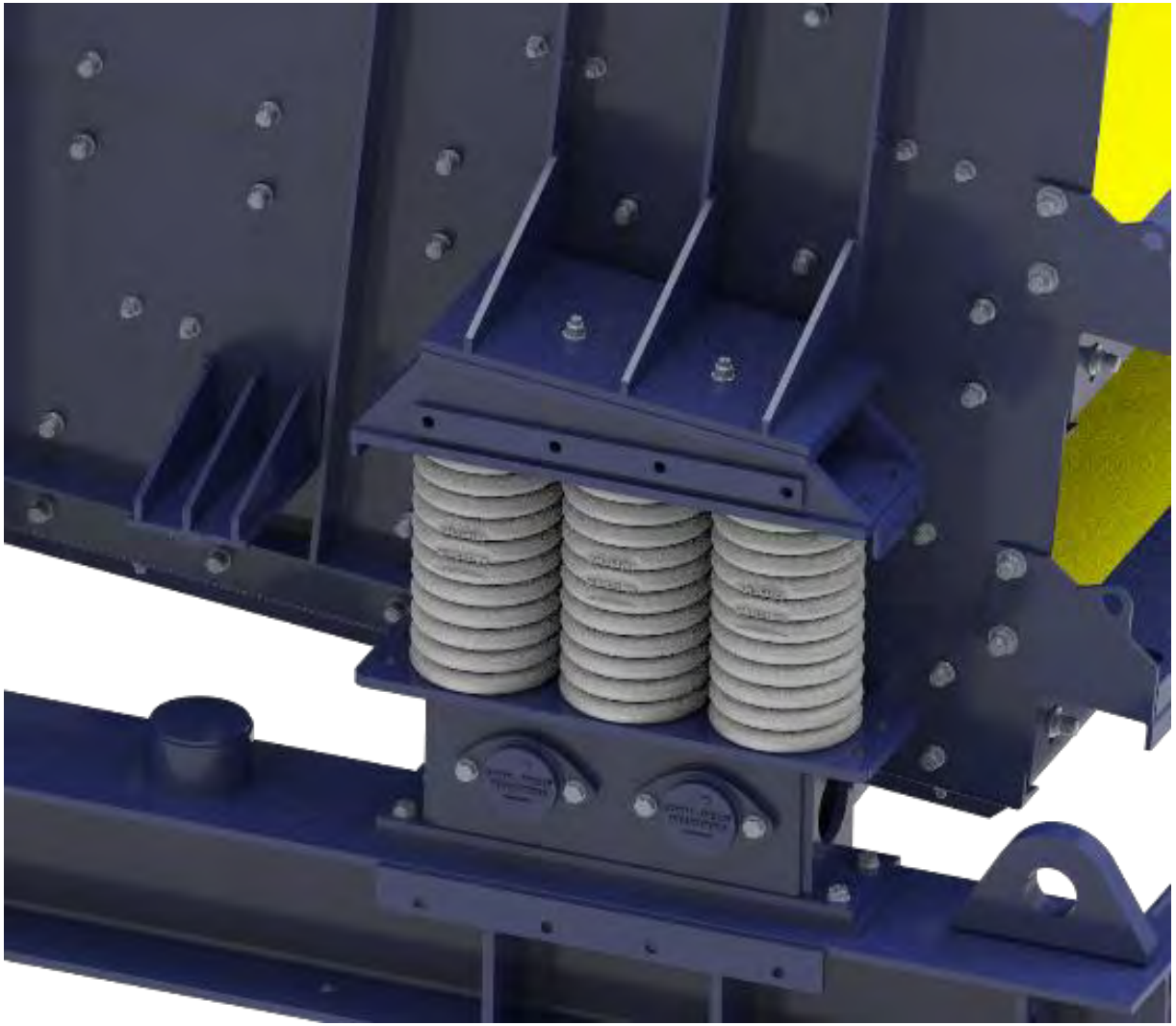
NOTE: CHECK THE SHELF LIFE OF GREASE

ADJUSTING A MOTORBASE

- Loosen center tube bolt.
- Loosen pair of clamp bolts with 15/16 socket and wrench.
- Adjust with 1-1/8in socket (if two adjusting bolts, alternate side to side).
- Once proper tension is met, tighten clamp bolts, and tighten center tube bolt.



Suspension



Steel Coil Springs
have been tested & proven to perform better in *every* application

Comparison- rubber buffers & air bags:

- Rubber buffers have a limited shelf life
- Air bags are expensive & difficult to maintain
- If air bag leaks, it can cause failure quickly

Maintenance Tips:

- Spring Compression Inspection
- Routine Spring Maintenance

Spring Inspection

Spring Maintenance

DAILY BREATHER CHECK

Look at the breather on the bearing housing:

- Make sure there's no buildup of dust or debris.
- A rag or small brush can be used to clean the breather from any buildup.

STEEL COIL SPRING INSPECTION

- Spring compression should be checked once per quarter.
- Make sure there are no signs of breakage or wear.
- Check to make sure springs are level.
- Measure height of springs.
- Repeat steps on both sides of screen.
- If variances are noticed, contact distributor or Conn-Weld Industries.

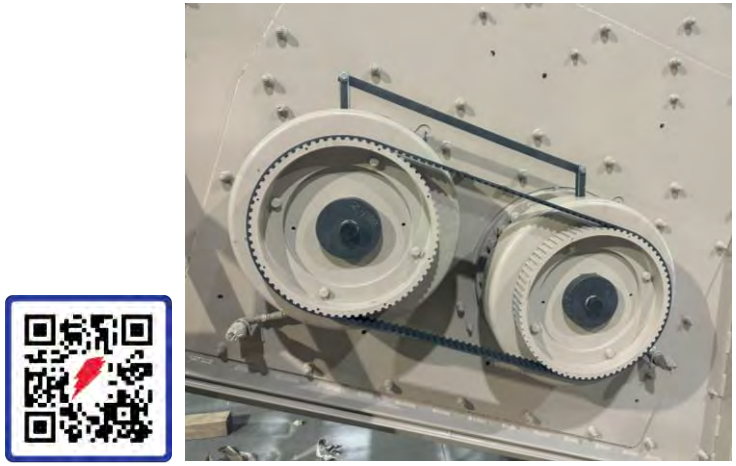
STEEL COIL SPRING HOUSEKEEPING

- Make sure steel coil springs are free of material build up.
- Material buildup will make it corrode much faster and can cause premature failure.
- Every two weeks, inspect steel coils springs.
- To inspect spring itself, make sure no cracks or breakage issues are on the spring.
- Friction check springs located below the steel coil springs, helps maintain side-to-side motion and helps slow down screen.
- Keep friction check springs clear, free of debris and material.

SPECIALTY TOOLS

Fly Wheel Remover

Conn-Weld supplies a line of tools that assist with the ease of maintenance, while providing an added measure of safety.



Synchronizing Bar

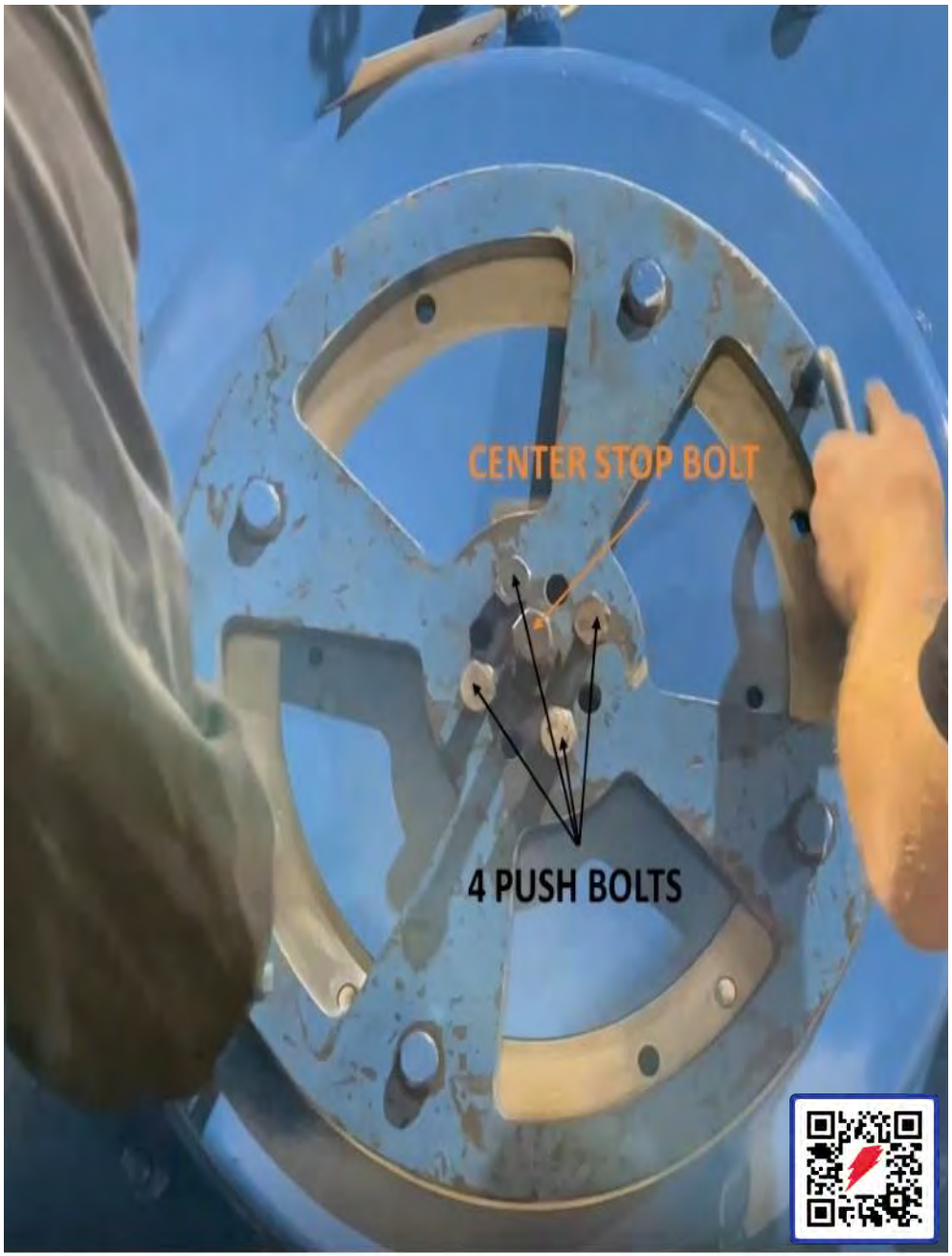
Oil Pump Bucket

Lifting Eye to Lift Bearing Housings

Shaft Roller

FLYWHEEL PROCEDURE

- Secure sheave and remove sheave bolts.
- Secure flywheel and remove shaft endcap bolt.
- Attach flywheel tool installing center safety stop bolt.
- Replace four sheave bolts, tightening equally.
- Tighten four push bolts in an X-pattern.
- Once flywheel released, loosen center stop bolt and leave in place.
- Remove sheave bolts, stop bolt, and release the flywheel.



SYNCHRONIZING BAR/TIMING BELT

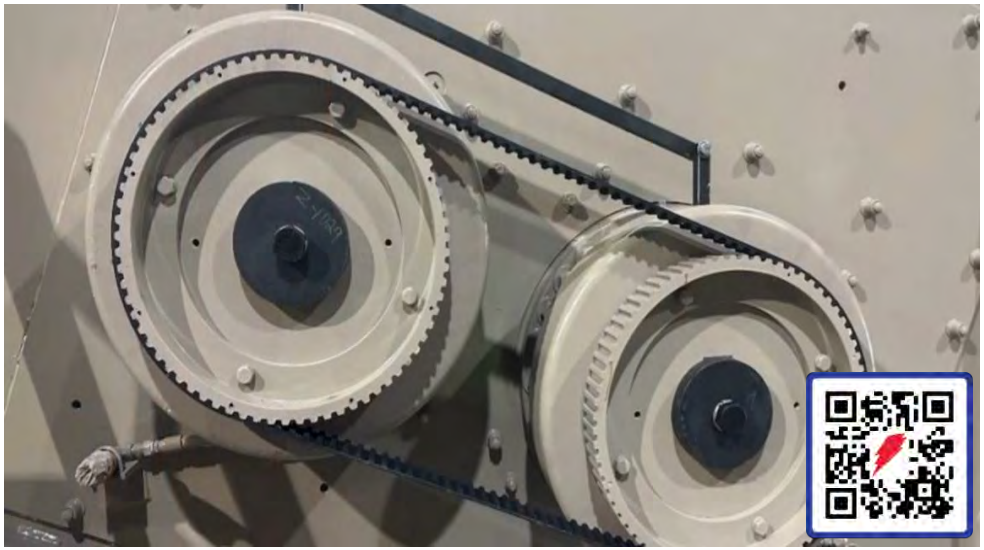
The synchronizing bar is used on incline screens to help align the flywheels and keep them aligned while installing the timing belt.

Synchronizing Bar:

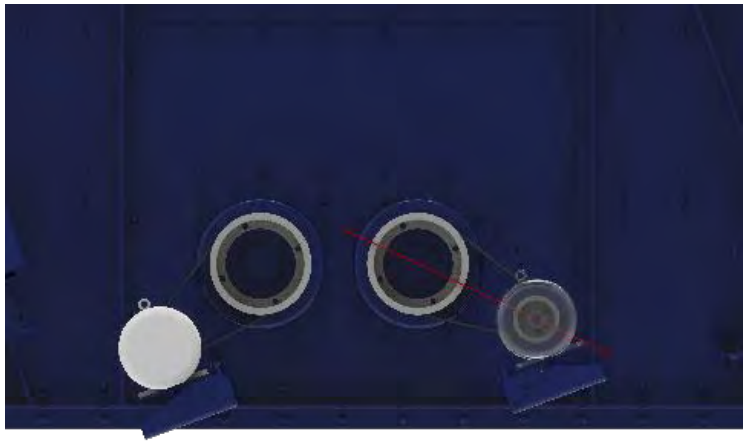
- Install timing fixture onto fly wheel above.

Timing Belt:

- Place belt onto sheave one side at a time.
- Gently work belt onto timing sheave.
- Continue working belt until fully seated on both timing sheaves.

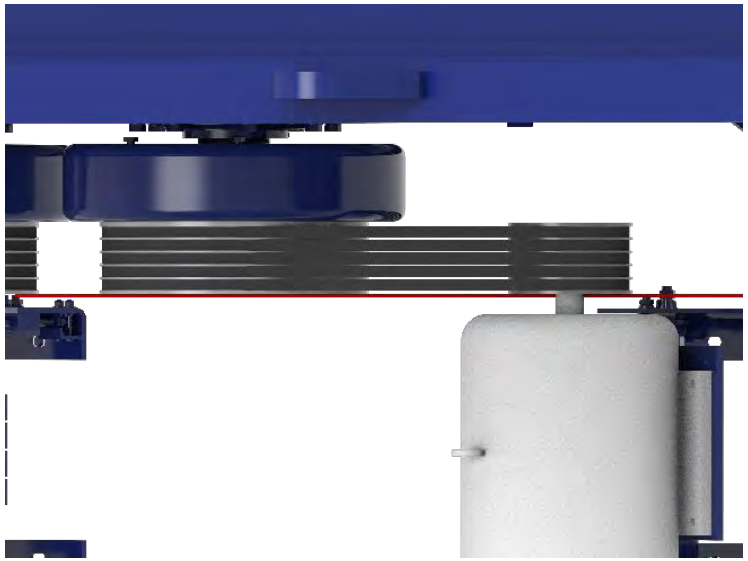


V-BELT ALIGNMENT & ADJUSTMENT

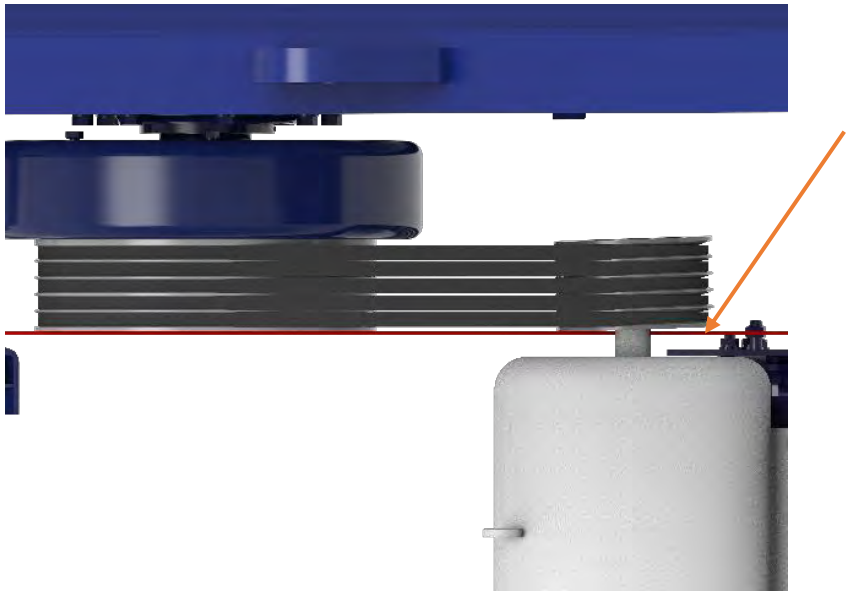


Alignment is checked by pulling a string across the front face of the screen sheave and back face of the motor sheave.

Do Not Use Banded V-Belts.
Individual Belts ONLY.



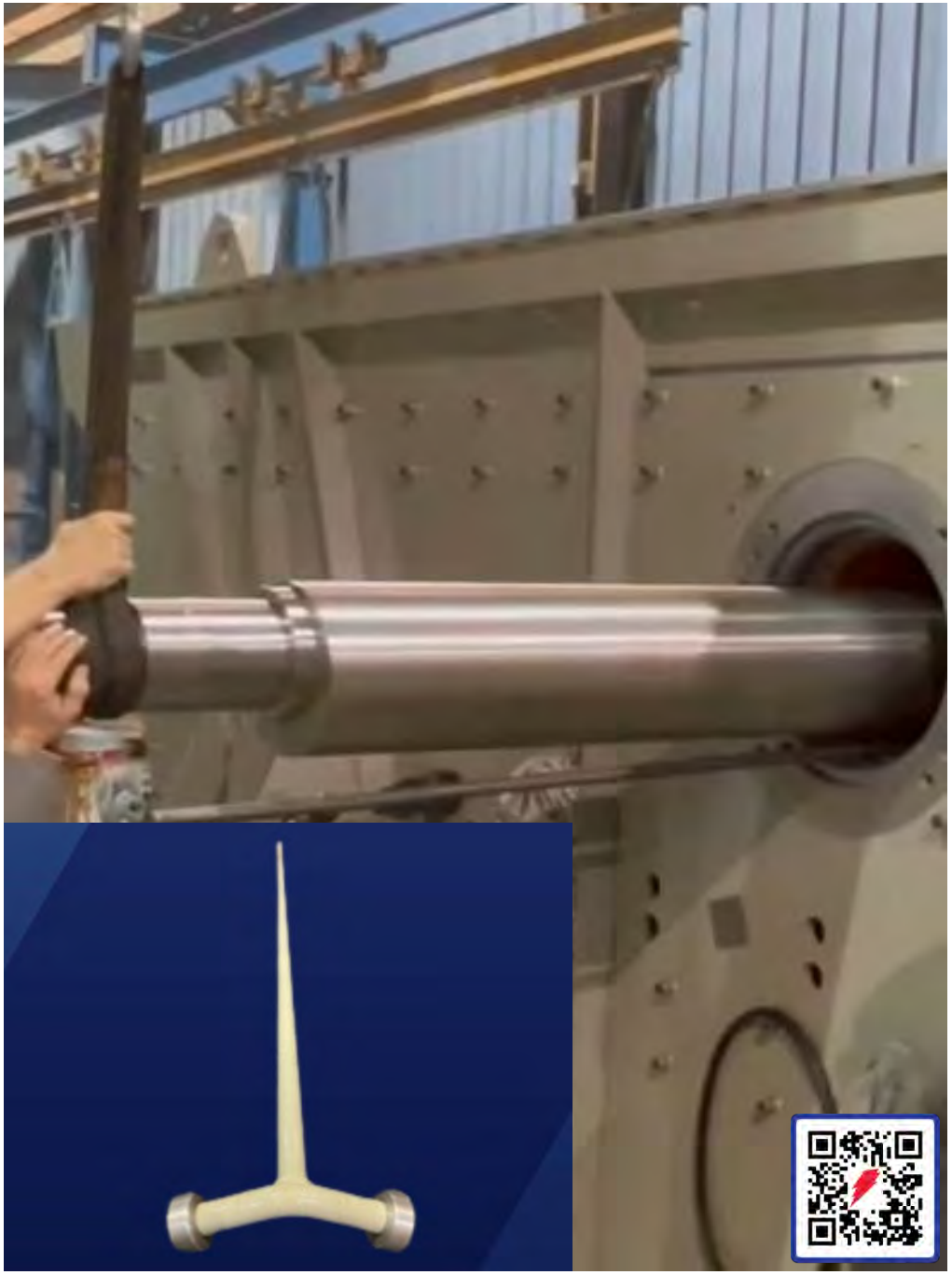
CORRECT



INCORRECT

SHAFT ROLLER INSTALLATION

- The drive shaft is lifted into place.
- Pulley is reposition & shaft roller is put into position to roll drive shaft through housing.
- The drive shaft is pulled through from the opposite side of the screen.
- Then the drive shaft is aligned and secured.
- The Shaft Roller is now removed from the housing.



FOUR CORNER CARD TEST

- A pencil throw card test checks the motion of the vibrating screen to see if it is running evenly on all four corners.
- While machine is operating, affix a throw card to machine, using a pencil touch points on the card:
  - Feed Right
  - Feed Left
  - Discharge Right
  - Discharge Left
- The marks made show the stroke of the machine.

This is a quick test to see if the equipment is running uniformly on all for corners.

Conn-Weld Industries, Inc.

CONN WELD INDUSTRIES INCORPORATED

Date: _____ Analysis By: _____

Customer: _____

Machine: 6 x 20 Triple Deck **Conn-Weld®** Circular Motion Incline Screen

Unit Number: Unknown Serial Number: _____

Application: Sizing

R.P.M. of Machine: 818.11 Machine was: Loaded

Hz of Machine: 13.63

Glossary of Technical Terms

X-Axis = Refers to the Horizontal Motion of Screen
Y-Axis = Refers to the Vertical Motion of Screen
Z-Axis = Refers to the Side to Side Motion of the Screen
G-Force = Refers to the Unit of Acceleration
Amplitude = Refers to the Amplitude or "Stroke" from Peak to Peak
Angle = Refers to the Operating Angle of Motion of the Screen

Feed Left

	G-Force	Mil's	In/Sec
X-Axis =	2.5199	265.0495	11.3529
Y-Axis =	3.2815	345.1627	14.7843
Z-Axis =	0.0577	6.0640	0.2597

G-Force =	4.1374
Amplitude =	0.4352
Angle =	52.48

Feed Right

	G-Force	Mil's	In/Sec
X-Axis =	2.5314	266.2588	11.4047
Y-Axis =	3.3491	352.2702	15.0888
Z-Axis =	0.0463	4.8670	0.2085

G-Force =	4.1981
Amplitude =	0.4416
Angle =	52.92

Discharge Left

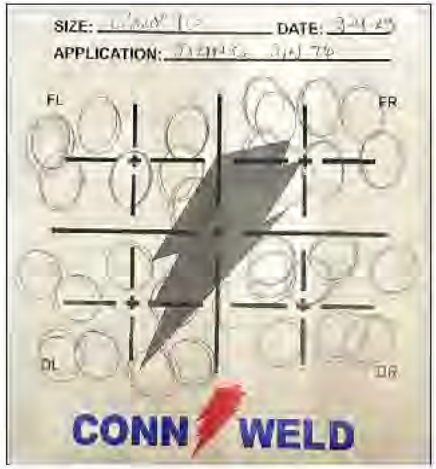
	G-Force	Mil's	In/Sec
X-Axis =	2.7770	292.1004	12.5115
Y-Axis =	2.8667	301.5276	12.9153
Z-Axis =	0.0730	7.6780	0.3289

G-Force =	3.9912
Amplitude =	0.4198
Angle =	45.91

Discharge Right

	G-Force	Mil's	In/Sec
X-Axis =	2.8210	296.7185	12.7093
Y-Axis =	2.7763	292.0226	12.5082
Z-Axis =	0.0713	7.4970	0.3211

G-Force =	3.9580
Amplitude =	0.4163
Angle =	44.54



	G-Force Difference	G-Force % Difference	Amplitude Difference	Amplitude % Difference	Angle Difference	Angle % Difference	Z-Axis % Difference
FL to FR:	0.0607	1.45	0.0064	1.45	0.44	0.83	19.74
DL to DR:	0.0332	0.83	0.0035	0.83	1.37	2.98	2.36
FL to DR:	0.1794	4.34	0.0189	4.34	7.94	15.12	19.11
FR to DL:	0.2069	4.93	0.0218	4.93	7.01	13.24	36.61

	G-Force	Amplitude	Angle
Average on 4 Corners:	4.0712	0.4282	48.96

Comments: _____

Model	Bolt	Dry Torque	Wet Torque	Socket Size
6500	Housing Bolt 1" – 8 x 5 ½" long, grade 5	644 ft/lbs.		1 5/8
6500	Shaft Bolt 1 ¼" – 7 x 5" long, grade 5		840 ft/lbs.	1 ⅞
5500	Housing Bolt ⅞" – 9 x 5" long, grade 5	430 ft/lbs.		1 5/16
5500	Shaft Bolt 1 ¼"– 7 x 5" long, grade 5		840 ft/lbs.	1 ⅞
4400	Housing Bolt ⅞" – 9 x 4" long, grade 5	430 ft/lbs.		1 5/16
4400	Shaft Bolt ¾" - 10 x 3½" long socket head bolt grade 5	200 ft/lbs.		⅝ (Allen)

NOTE: All Torque Values Are For Plain Coated Bolts

WEEKLY MAINTENANCE SCHEDULE		
1.	Breather	Clear away any material build up that could potentially clog the breather.
2.	Screen Media	Check for build-up, wear, change in opening, etc..
3.	Springs	Check for breakage and that there is no build-up around base of springs.
4.	Body	Check for material build-up around screen that could cause impact during operation, start-up, or shut-down.
5.	V-Belts	Inspect for loosening, slipping, and wear.
MONTHLY MAINTENANCE SCHEDULE		
1.	Bolts	Inspect fasteners on the body, media clamping bolts, mechanism mounting bolts, and cardan shaft flange bolts (where applicable).
2.	Belt Sheave	Inspect for wearing of the grooves.
3.	Guards	Inspect for build-up inside or any part of guard that may be compromised.
4.	Pillow Block Bearings	Grease pillow block bearings (where applicable). Shell Alvania EP2 or equivalent grease is recommended.
5.	Springs	Check spring compression on all four corners.
6.	Friction Check	Check for breakage and wear on the urethane pad.
SIX MONTH MAINTENANCE SCHEDULE		
1.	Motor	Follow motor manufacturer's maintenance procedures.
2.	Breather	Replace the mechanism breather.
3.	Screen Body	Check the main components of the screen body for points of excessive wear, damage, or cracking.
YEARLY MAINTENANCE SCHEDULE		
1.	Cardan Shaft	Sparingly grease the cardan shaft bearings and the spline (where applicable).

TROUBLE SHOOTING

TROUBLE	PROBABLE CAUSE	POSSIBLE REMEDY
Screen Will Not Start	Power failure	Check power supply
	Drive mechanicals damaged	Remove belts & check vibrator mechanism is free to rotate
	Material interference	Make screen body or motor clear from material build-up

TROUBLE	PROBABLE CASUE	POSSIBLE REMEDY
Vibrator Overheating	Too much or too little oil	Check by oil check plug as indicated on mechanism & follow manual oil instructions
	Motor not working	Refer to motor mfg. recommendations

TROUBLE	PROBABLE CASUE	POSSIBLE REMEDY
Vibrator Will Not Rotate	Loose belts	Tighten belts
	Vibrator assembled incorrectly	Review instructions

TROUBLE	PROBABLE CASUE	POSSIBLE REMEDY
Leakage	Excessive oil	Restore to proper level by checking oil check plugs
	Damaged or worn seal(s)	Contact Conn-Weld for instruction on seal replacement

TROUBLE	PROBABLE CASUE	POSSIBLE REMEDY
Bearing Failure	CONN-WELD DOEN NOT RECOMMEND CUSTOMER REPAIR!	CONTACT CONN-WELD INDUSTRIES
	Noisy bearing due to normal fatigue or wear	Listed to help identify cause ONLY
	Overloading, excessive stroke, or speed combination	Listed to help identify cause ONLY
	Dirt, water, or improper oil levels	Listed to help identify cause ONLY

TROUBLE	PROBABLE CASUE	POSSIBLE REMEDY
Excess of erratic screen vibration	Worn or damaged suspension	Replace parts
	Improper feeding	Adjust proper feed of material
	Material build-up	Remove build-up
	Addition of chute work	Remove additions
	Counterweight settings do not match	Contact mfg. to match settings
	Drive belts slipping or over tension	Replace worn or frayed belts. Adjust belts to specific tension.
	Throwing drive belts	Inspect alignment & lengths

TROUBLE	PROBABLE CASUE	POSSIBLE REMEDY
Screen cloth breaking	Improper feed distribution	Distribute feed evenly across screen
	Screen tension	Periodically check tension of screen hold down system
	Worn wearing parts	Replace
	Loose bolts	Tighten or replace screen media bolts

TROUBLE	PROBABLE CASUE	POSSIBLE REMEDY
Insufficient Screening	**Listed to help identify cause ONLY**	CONTACT CONN-WELD INDUSTRIES
	Screen blinding or plugging	**CONTACT CONN-WELD INDUSTRIES**
	Feed rate over exceeding design capacity	**CONTACT CONN-WELD INDUSTRIES**
	Open area	**CONTACT CONN-WELD INDUSTRIES**
	Excessive fines in oversize due to material traveling too fast	**CONTACT CONN-WELD INDUSTRIES**
	Excessive fines in oversize due to operating below recommended speed	**CONTACT CONN-WELD INDUSTRIES**
	Excessive near particle size	**CONTACT CONN-WELD INDUSTRIES**
	Loose screen media	Check tension

TROUBLE	PROBABLE CASUE	POSSIBLE REMEDY
Material travels diagonally across the screen	Drive belts are too tight	Adjust tension as specified
	Screen not level	Level side to side
	Loose body components	Tighten or replace bolts
	Damaged suspension	Replace damaged parts
	Unevenly balanced vibrator weights	Match vibrator weights

TROUBLE	PROBABLE CASUE	POSSIBLE REMEDY
Fatigue failure of screen body	Field modifications by user	Replace failed components as initially designed
	Corrosion & wear	Replace damaged parts
	Operating neat critical speed	**CONTACT CONN-WELD INDUSTRIES**
	Interference w/ structure or material build-up	Eliminate interference or build-up

START UP CHECK LIST

Mechanism & Drive Assembly

1. Drain storage oil and replace with oil as specified.
2. Twin/Triple mechanism installations inspect coupling to ensure properly assembled and cover fasteners are tight.
3. Check oil level by oil check plug.
4. Inspect for oil leaks.
5. Inspect V-Belts are evenly tightened. Should have maximum deflection of $^{1}/_{2}$ inch.
6. Make sure belt guard is in place.

DO NOT OPERATE THE SCREEN WITHOUT BELT GUARD

Suspension

1. Inspect for loose hardware.
2. Verify springs are in correct locations.
3. If applicable, make sure guards are installed.

Screen Body

1. Inspect all adjacent equipment and structures to ensure the screen has a minimum of three inches of clearance at all locations.
2. Remove all loose items from screen and screen deck.

Screen Media

1. Confirm installed correctly with drawings.
2. Clear decks of any loose installation tools/supplies
3. Make sure hardware is properly tightened. But *do not over tighten* to the point of damaging panels or edges.

Safety

1. Clear all personnel from the screen area.
2. Clear all personnel from the area adjacent to the feed end and discharge ends of screen.

Start-up

1. Jog the motor to inspect the direction of rotation (rotation arrows are cast in mechanism).
2. Adjust the motor electrical connections as needed to obtain correct rotation.
3. Start screen and allow to run unloaded for approximately 10 minutes.
4. Look and listen for any indication of loose parts or surrounding structure interference.
5. Shut the screen down by turning off the power, and follow proper LOCK-OUT and TAG-OUT procedures designated by your company.
6. Repeat inspection and adjust as needed.

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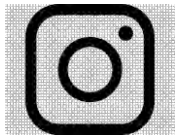

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