



SPONGE-JET[®]

70P Recycler[™]

70E Recycler[™]

USER MANUAL



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IMPORTANT NOTE: While parts, systems, components, operational procedures may be the same between equipment models, the images provided in this manual may vary from model to model.

This manual represents the following models:

Model: 70E **Weight:** 295 kg (650 lb)

Model: 70P **Weight:** 295 kg (650 lb)

English Language is Original Instructions.

Translated from Original Instructions.

Safety Labels



User Manual



Caution/Danger



Ear protection



Safety Gloves



Hazardous Voltage



Two Man Lift



Protective Earth Ground



Do Not Operate with
Guards Removed



Lockout/Tagout
Electrical Power



Eye Protection
Respiratory Protection

Failure to follow all Instructions in manual and any alterations made to equipment following shipment from Sponge-Jet will void warranty. Direct attachment, such as welding or bolting of any additional chutes or hoppers, etc., to vibrating equipment other than those supplied by Sponge-Jet, Inc. will automatically void warranty.

Any connection made to the unit must be flexible.

Before starting unit, operator must be certain unit is free to follow the movement produced by the vibrating equipment.

In general, the feeding and discharge connections must have sufficient clearance to prevent any contact.

Before Starting Unit:

The base must have a substantial foundation around the entire bottom of the unit base ring. The base must be secured to floor or adequate support structure unless on casters. If, after unit has been started, there are secondary vibrations to foundation or to separator base, unit must be reinforced. With further questions, consult Sponge-Jet, Inc.).

The frames must be attached to the table.

Shipping lugs must be removed.



All guards and service doors must be In place.



2. Risks:

- a. Operating equipment with guards removed
- b. Hazardous voltage



3. Required Personal Protective Equipment:

- a. Wear eye protection
- b. Wear ear protection
- c. Wear safety gloves
- d. Wear respiratory protection



4. Unit should only be operated and maintained by trained personnel.

- a. Read and follow all maintenance instructions and guidelines.
 - i. User should not operate without reading all guidelines.
- b. Licensed electrician for wiring of any electrical equipment is required.

5. Unit must not be used:

- a. Do not operate with explosive products or products at elevated temperatures.
- b. Do not operate without all guards and covers in place.
- c. Lockout/tagout procedures must be followed before any inspection, maintenance or cleaning is undertaken.
- d. Lockout/tagout procedures must be followed before adjustments are made to eccentric weight mechanism.
- e. User must ensure any cables, hoses or pipes do not present a slip, trip or fall hazard.
- f. Unit should not be climbed on.
- g. User is responsible for taking all necessary precautions dependent on material being screened (e.g. additional PPE etc.).
- h. Be careful when moving. Move with help.



2.0

INTRODUCTION

This unit is a series of vibratory sieves powered by an electric motor. The motor connects to a variable speed pulley, and is mounted to a motor mount that allows the motor to be adjusted by a crank for various RPM changes.

Please study this manual carefully and keep it handy for reference.

3.0

RECEIPT & INSPECTION

Upon receipt of your shipment, immediately check for damage; open all boxes and crates to look for missing parts, and/or any abnormality, promptly notify your appropriate carrier and Sponge-Jet, Inc.

4.0

INSTALLATION AND STARTUP

The 70E (electric model) is supplied with a single phase (PH-1), 115/230V, 1 HP TEFC, 1725 RPM, 60Hz Electric Motor.

It is energized by a standard 2-pole electric switch.

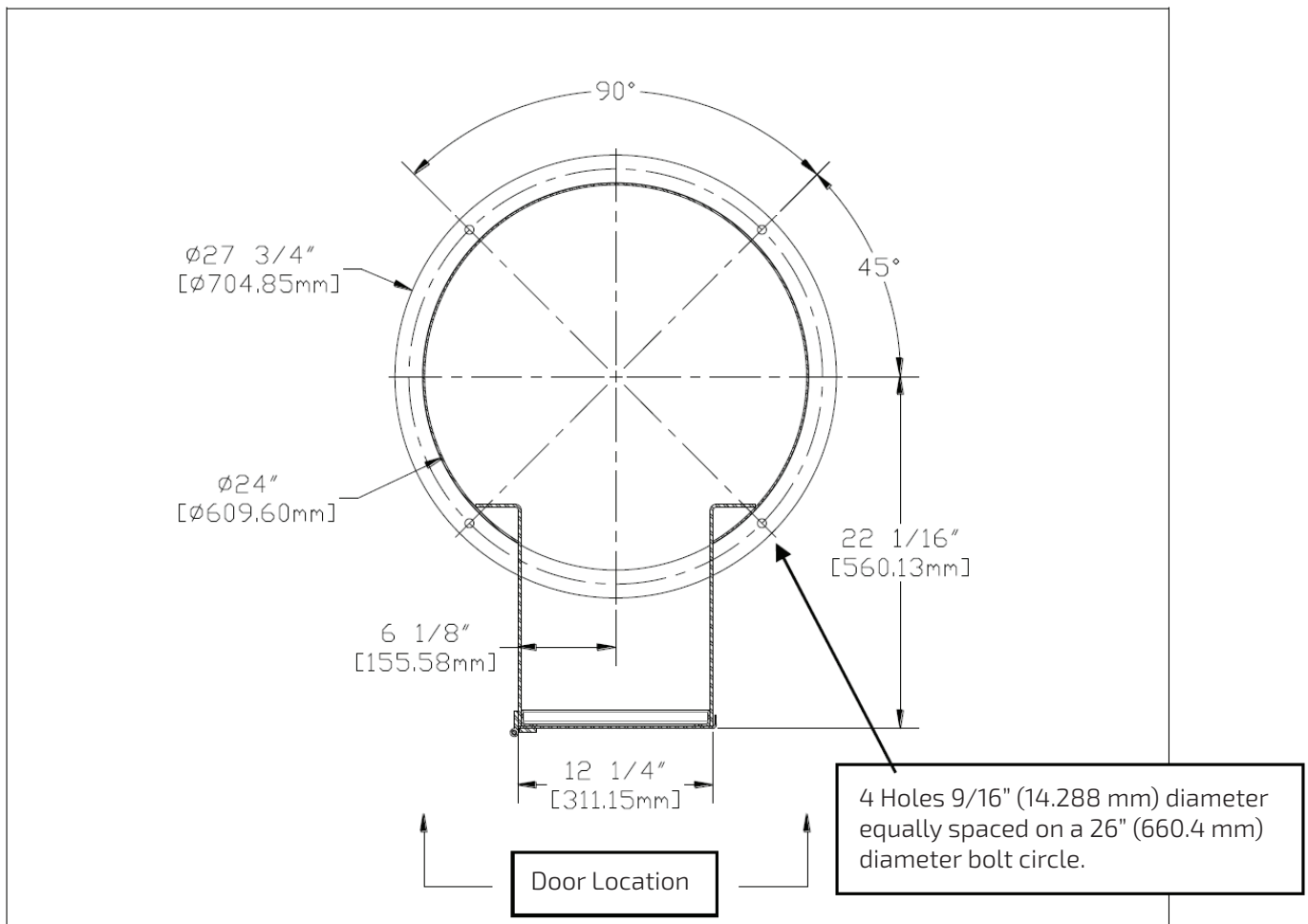
The 70P (pneumatic model) is supplied with a variable speed, vane-style pneumatic motor.

Maximum inbound pressure is 7 Bar (100 psi) with maximum 3539 Liters Per Minute (125 Cubic Feet Per Minute) of clean Dry Compressed Air.

INSTALLATION AND STARTUP (CONTINUED)

1) Each unit should be installed on a substantial foundation around the entire bottom of the unit's base ring or mounted on casters. After following installation procedures and unit has been started - if there appears to be secondary vibrations transmitted to the foundation or to the separator base, the structure must be reinforced. (With further questions contact Sponge-Jet, Inc.)

Figure 1



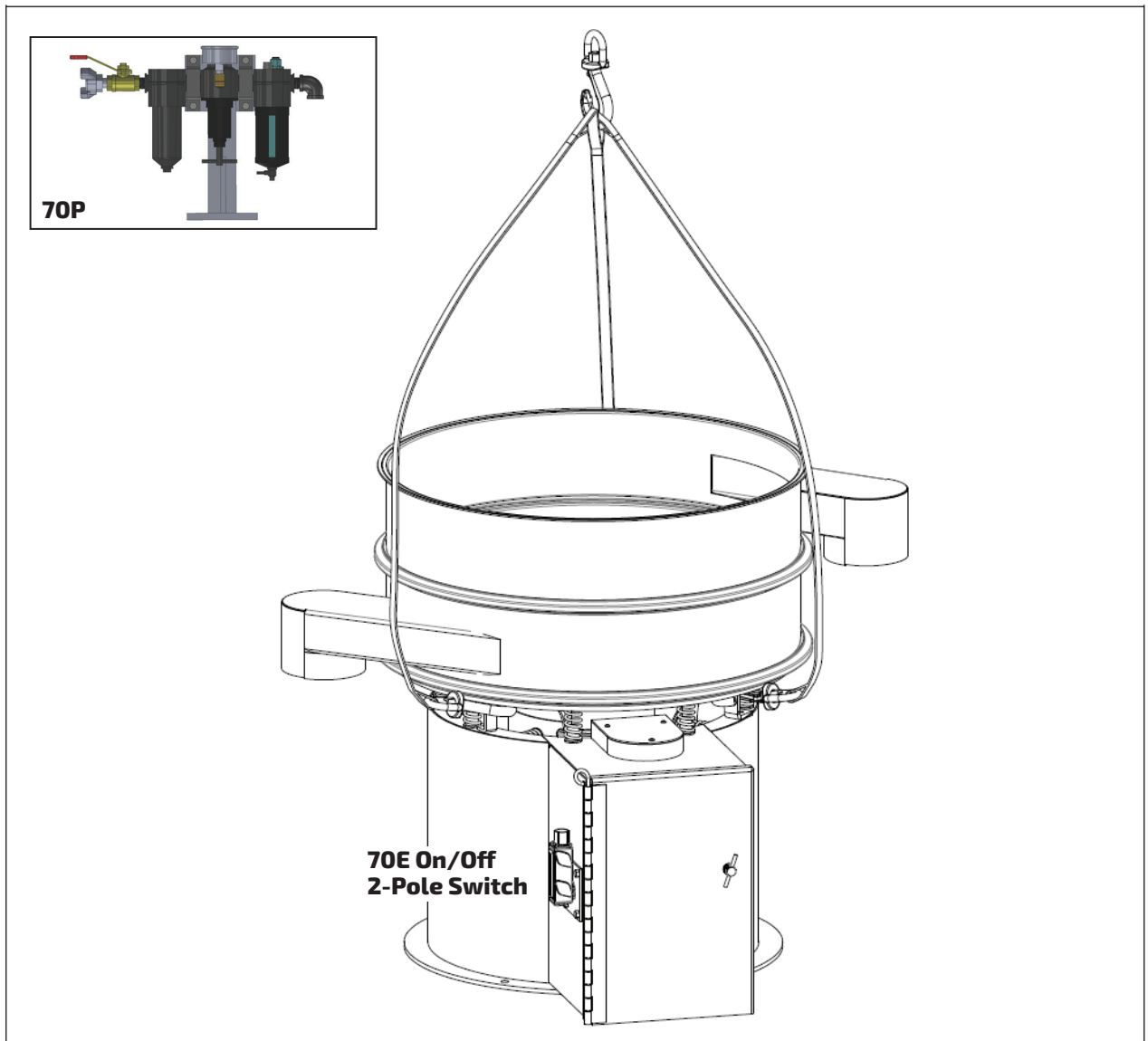
2) Make certain unit is level and in a position for easy access to motor and lubrication points. Refer to maintenance section for proper greasing and greasing locations.

3) End User must address the hazard of reaching the eccentric weight mechanism when the separator is mounted on an elevation as to which it can be reached from the underside. Provide a plate or screen to prevent this from happening.

INSTALLATION AND STARTUP (CONTINUED)

4) When lifting unit, use hooks or straps around shipping lugs. Utilize properly rated lifting hooks and straps; to determined proper rating refer to specification section under the unit model number. This will help avoid possible damage or injury (Figure 2).

Figure 2



5) If lower frame spout must be rotated into proper position, this can be done by removing V-clamp ring. (See screen changing section for proper steps for clamp ring.)

6) Upper spacing frame spouts can be rotated by removing V-clamp ring. (See screen changing section for proper steps for clamp ring and screen removal and installation.)

INSTALLATION AND STARTUP (CONTINUED)



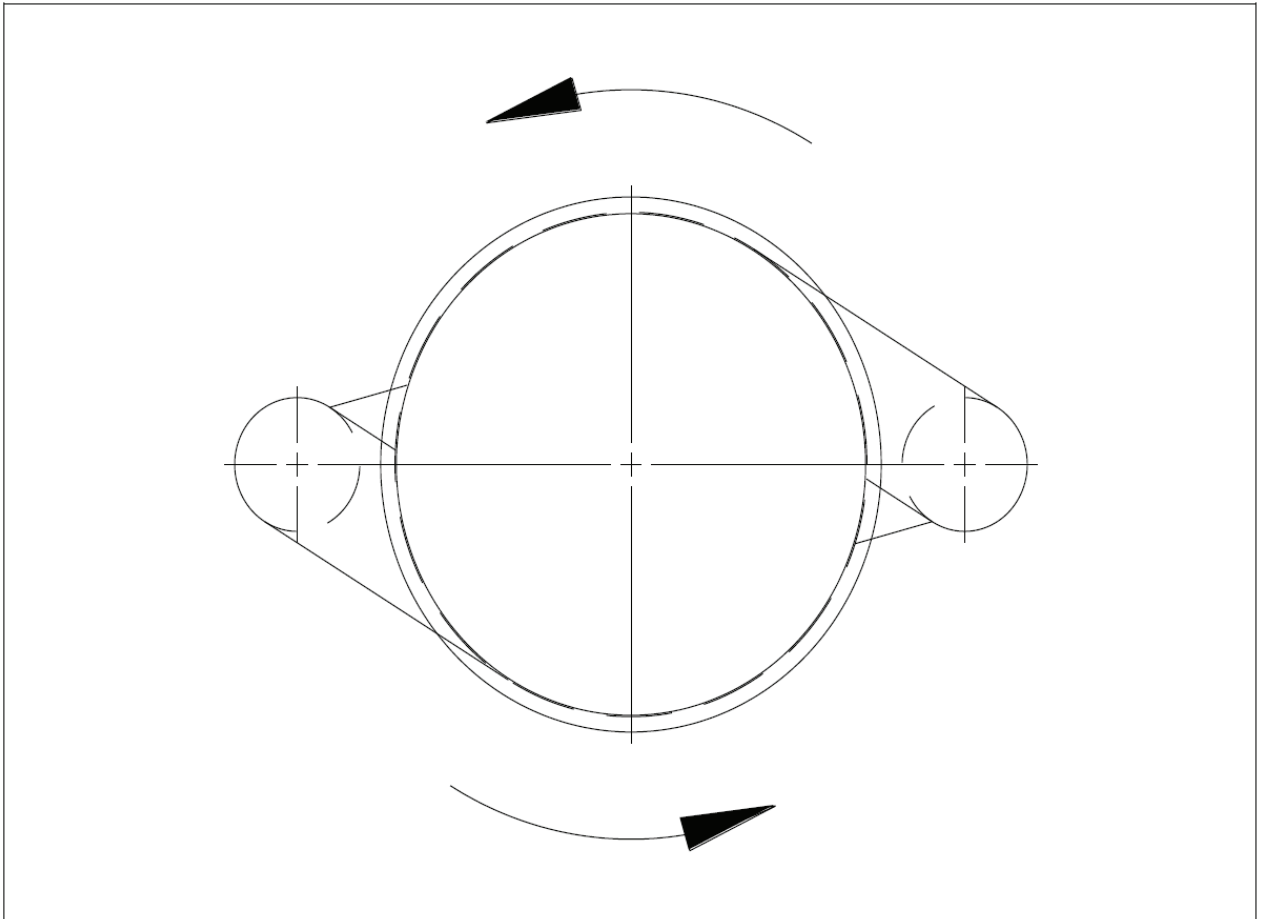
Warnings

- 7)** This unit should not be operated without all Guards and Covers in place.
- 8)** Before starting, unit should be entirely free to follow movement produced by the Drive System. Screen frame must be free from hindrance or burden of secondary chutes and hoppers.
- 9)** User is responsible for incorporating unit such that all relevant requirements of Machinery Directive are met.
- 10)** User is responsible for incorporating suitable access; providing Stairs & Walkways in accordance with the EN 14122 Series of Standards and all other Machinery Directive regulations.
- 11)** User is responsible for Electromagnetic Compatibility of unit.
- 12)** User is responsible for incorporating unit such that it does not present an Ergonomic Hazard to the operator.
- 13)** User is responsible for installing unit such that there are no hazards due to poor visibility.
- 14)** User is responsible for incorporating unit such that the electrical circuit complies with relevant Machinery Directive Essential Health & Safety Requirements & EN 60204-1, including Main Isolating Disconnect, Over current & Overload Protection, E-Stop & Controls etc.
- 15)** After unit is secure and in place remove all shipping lugs.
- 16)** The standard unit has a single 2-pole on/off switch located on the motor housing cabinet.
- 17)** Momentarily energize motor to check that rotation is in proper direction. Rotation is counter-clockwise. Refer to Figure 3 for shaft direction.

INSTALLATION AND STARTUP (CONTINUED)

18) If motor is three-phase type, user can reverse rotation by interchanging any two of three power leads. If motor is two-phase, user can interchange stator leads of either phase, being careful not to interchange leads from one phase to the other.

Figure 3



19) If the lower frame spout must be rotated into proper position, this can be done by removing V-clamp ring. (See screen changing section for proper steps for clamp ring.)

20) Upper spacing frame spouts can be rotated by removing V-clamp ring. (See screen changing section for proper steps for clamp ring and screen removal and installation.)

FEEDING AND DISCHARGING CONNECTIONS

Feed material... Sponge Media™ must be fed in the center of screening surface. This is one of key factor in utilizing the unit to its full potential. Failure to do so will result in excessive wear to a particular section of the screen which will result in premature screen failure. Failure to feed Sponge Media in center of screening surface will result in poor efficiency and reduce production.

Depth of feed material... If Sponge Media is being fed to the unit at too fast a rate, some is apt to "ride over". The result can be poor efficiency. To make most efficient use of vibrating screen, limit feed rate to where the greatest amount of material can be placed in a position of direct contact with screen (at which point there is the most concentrated vibratory impulse). Further, a heavy feed can pound near-size particles into screen, making it difficult for vibration to dislodge them. Eventually, overloading unit this will result in plugging of screen openings and drastically reduce efficiency.

Discharge chute or hopper should be located to receive every particle from the unit. In general, feeding and discharge connections should have minimum of 2" (51 mm) clearance to frame of unit to prevent any contact.

BASIC FEED CRITERIA:

1. Material is fed to center of screen at a continuous rate.
2. On no account should a column of material be allowed to form, or material be allowed to drop from any height greater than 12" (305 mm) onto screen.
3. Stop feed and allow material to run through before turning it off. This helps to prevent strain on unit.

SCREEN INSTALLATION

Screen installation is one of the most important aspects of any screening equipment. Incorrect screen installation causes not only poor separation but can destroy a screen.

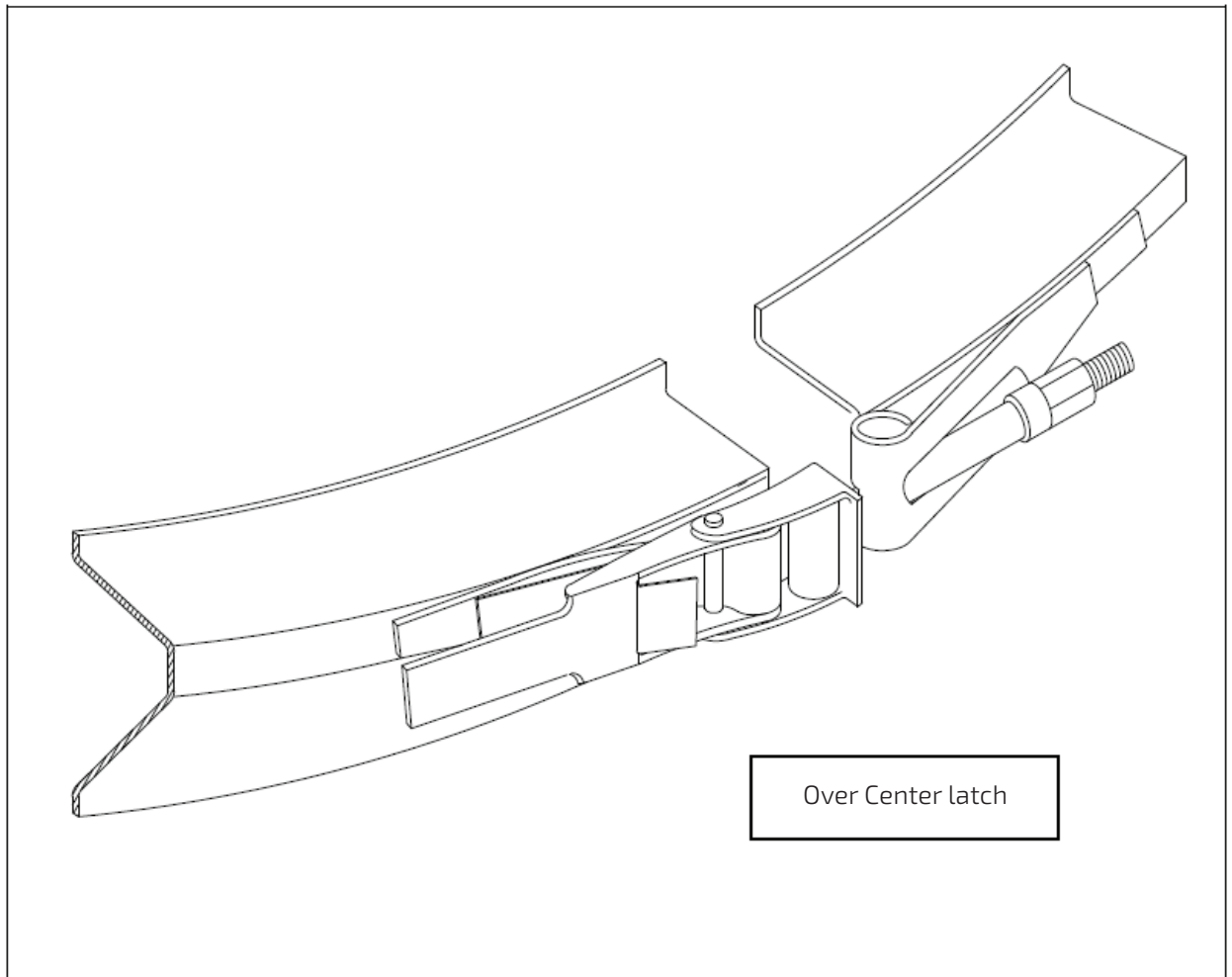
BASIC SCREEN CHANGING STEPS



1. Before starting any screen changing steps be sure to Lockout/Tagout the machine.
2. Loosen and remove the outer "V" clamp ring using a 3/8-inch drive ratchet with a 6-point deep well socket.
3. Take this time to wipe off any excess material or debris left on the screen before removing. Then remove the screen and set it off to the side.
4. To secure the screen properly take the time to thoroughly clean both the spacing frame flanges.
5. Replace the spacing frame. Make sure the screen and frame are centered on the frame below.
6. Install the "V" clamp ring making sure the nut of the clamp ring bolt is on your right-hand side. If your clamp ring has a quick release over the center latch secure before tightening.
7. The Clamp ring should be tapped moderately with a rubber mallet during tensioning to insure it will seat properly.
8. Tighten the two clamp ring bolts equally to ensure even tensioning. (Pass the tools around the separator so nothing accidentally falls onto the new screen.)

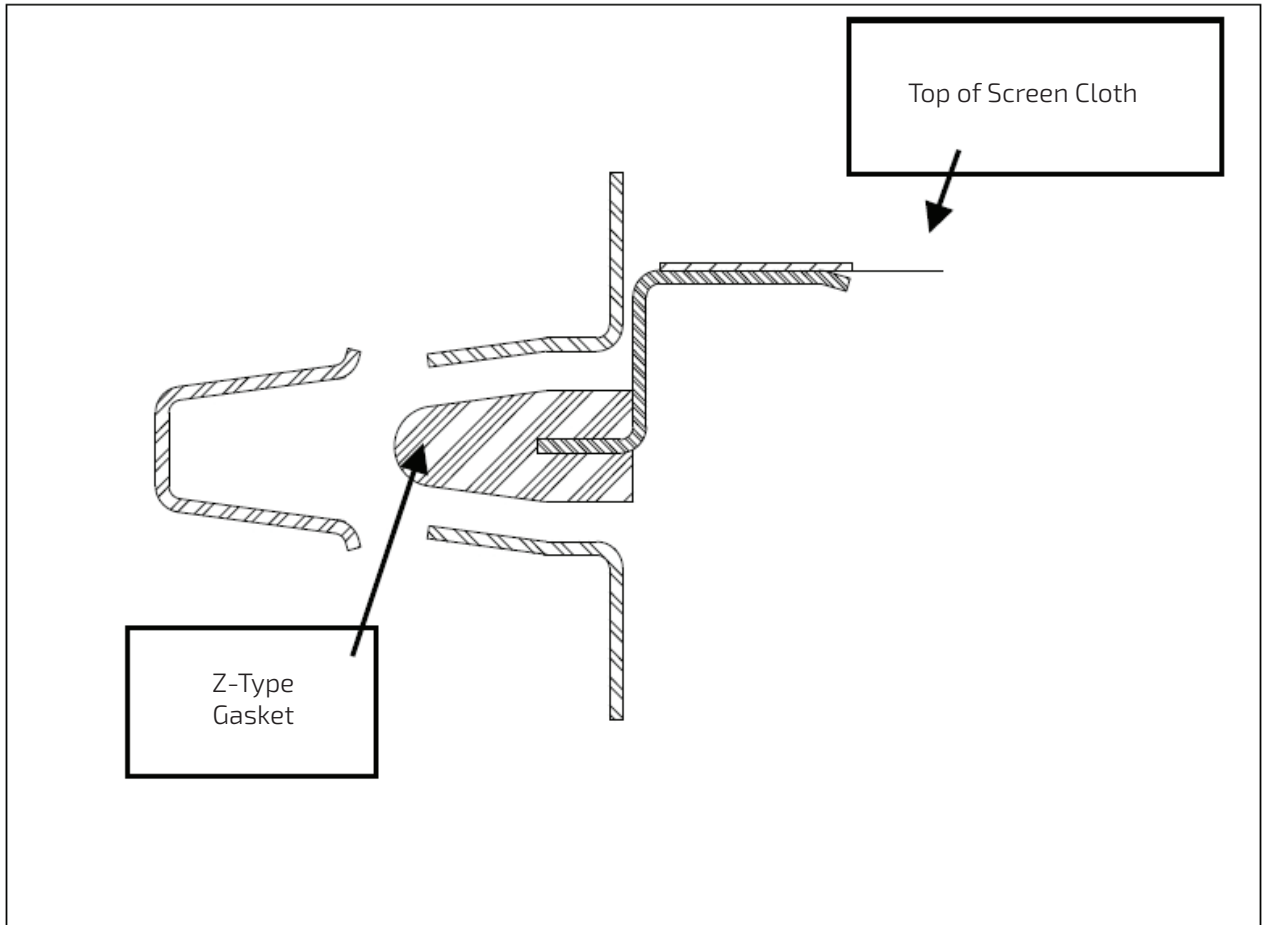
INSTALLATION AND STARTUP (CONTINUED)

Ring Clamp - Figure 4



INSTALLATION AND STARTUP (CONTINUED)

Gaskets - Figure 5



5.0 MAINTENANCE AND REPAIR

5.1 WEIGHT ADJUSTMENTS

The vibratory motion of unit is controlled by addition or subtraction of weights to balance cage pins. The top and bottom balance cages are round plates (much like flywheels) with pins.

Top balance cage is known as horizontal cage. Weights added to this produce horizontal or flat effect of screen. Thus, if you are screening heavy material, more weights would be added to top cage to create inertia necessary to process Sponge Media material. Good screening performance cannot be realized until sufficient horizontal motion is attained first.

Bottom balance cage is known as vertical cage. Weights added to this cage impose a vertical lift on screen which, in combination with horizontal motion, moves material in a fashion suitable for good particle separation and discharge.

Although weights on this unit have been preset at the factory, this is often just a starting point -site fine tuning may be necessary.

Following are four weight arrangements and patterns they are most likely to produce. These diagrams are general aids and should not be depended on as precise adjustments for your application.

Adding excessive weight does not promote faster or better screening. Too many poorly adjusted weights will only shorten unit's life. Acceptable screening is never accomplished by brute force, but by proper adjustment to unit.



Caution:

1. Before starting weight adjustment be sure to Lockout/Tagout the machine each time there is adjustments that need to be made.



2. Feed limited amounts of material to the screen to check the flow pattern and pinpoint what pattern is being illustrated in figures 16 through 19.

If material is moving around screen surface similar to flow pattern in figure 9, and it is preferred to have unit to perform as shown in figure 8. Shut down. (Lockout/Tagout unit, be sure that all moving parts have stopped moving!) Remove weight from bottom balance cage and index clockwise one or two pins. (Example: If weight is located on pins 5 and 6, place on pins 4 and 5) When all hands are clear, start unit and check the flow pattern.

If material is not being retained on screen surface long enough, similar to flow pattern on figure 7. Shut down. (Lockout/Tagout the machine, be sure all moving parts have stopped moving!) Remove weight from bottom balance cage and index counterclockwise one or two pins. (Example: If weight is located on pins 2 and 3, place weight on pins 4 and 5) When all hands are clear start the separator and check flow pattern.

3. If you have tried various tilt convey settings described above and cannot achieve acceptable screening, please contact Sponge-Jet, Inc. for more adjustment assistance.

4. Recommended weight settings for figure 6 are Top mobile weight on pins numbered 1 and 2, Top fixed weight on number 1 and 2, and Bottom mobile weight on pins numbered 2 and 3.

5. Recommended weight settings for figure 7 are Top mobile weight on pins numbered 1 and 2, Top fixed weight on number 1 and 2, and Bottom mobile weight on pins numbered 4 and 5.

Figure 6

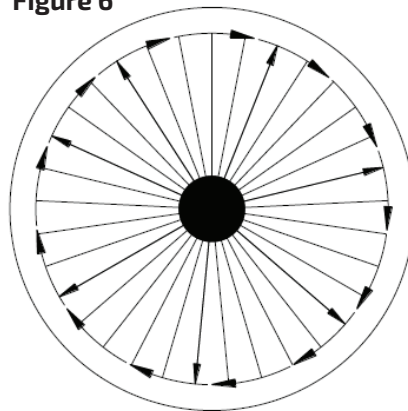
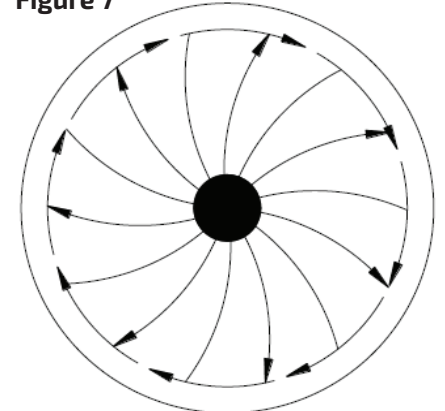


Figure 7



6. Recommended weight settings for figure 8 are Top mobile weight on pins numbered 1 and 2, Top fixed weight on number 1 and 2, and Bottom mobile weight on pins numbered 5 and 6.

7. Recommended weight settings for figure 9 are Top mobile weight on pins numbered 1 and 2, Top fixed weight on number 1 and 2, and Bottom mobile weight on pins numbered 7 and 8.

Figure 8

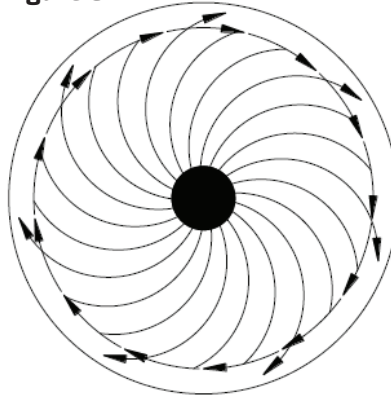
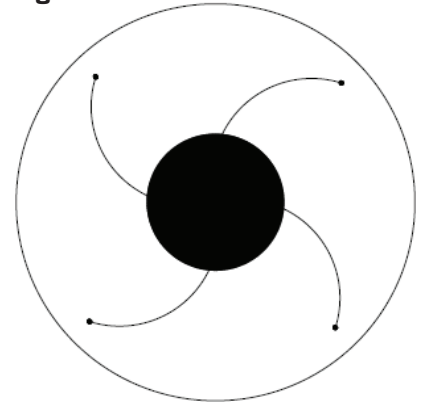


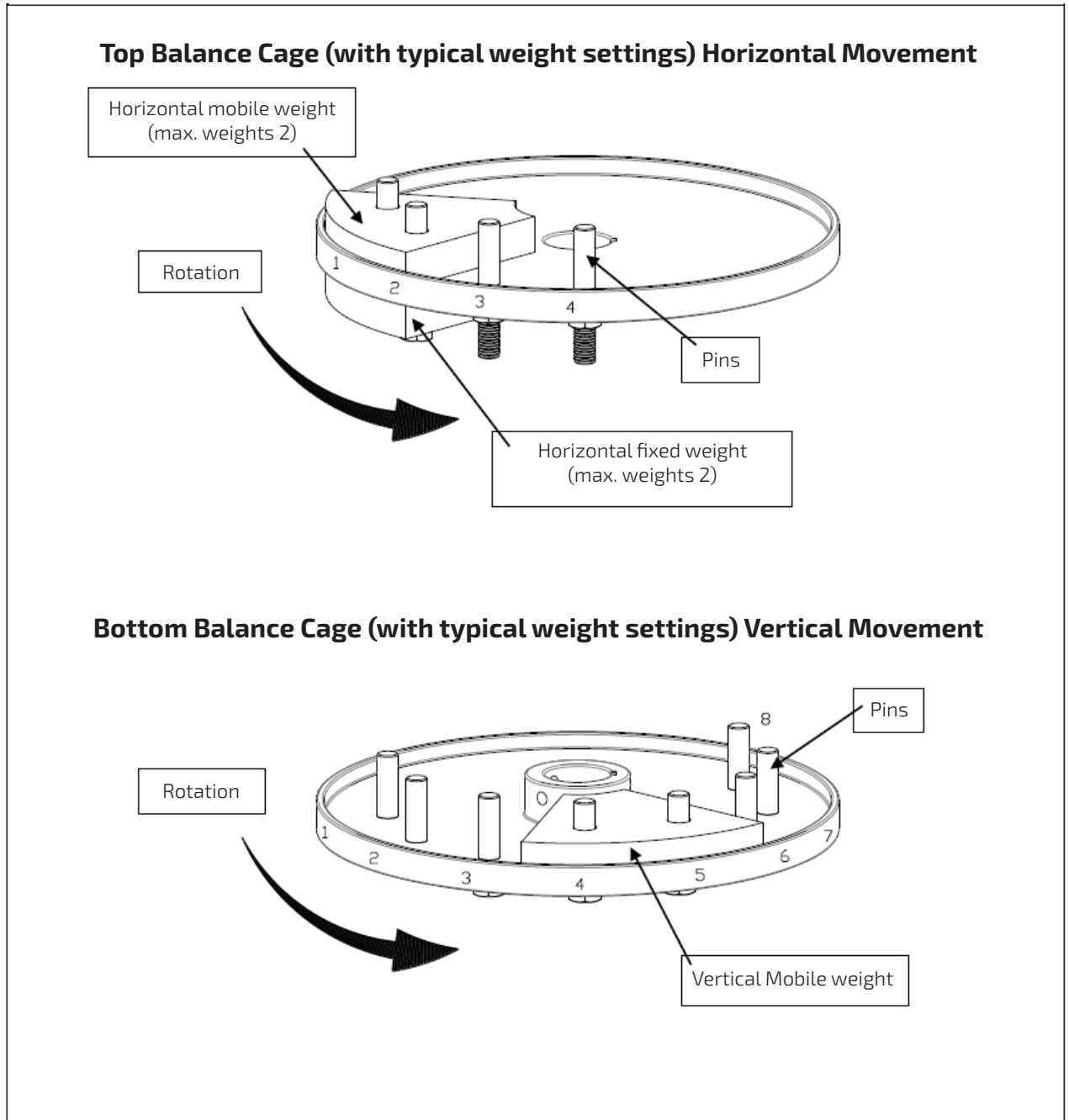
Figure 9



These diagrams are general aids and should not be depended on as precise adjustments for your application.

5.2 BALANCE CAGES

Balance Cages - Figure 10



5.3 RPM ADJUSTMENT:

Another dimension of adjustment incorporated in this unit is variable speed RPM adjustment. This unit can be adjusted from 950 RPM to 1450 RPM. This unit is set at 1250 RPM from the factory.

The lower RPM range produces greater amplitude or stroke length but lower frequency and a moderate rate of material flow. Higher RPM reduces amplitude but increases frequency and the material's rate of travel across the screen.

ADJUSTMENT STEPS:

1. Before starting any RPM Adjustment steps Lockout/Tagout the machine.



2. Loosen RPM control lock (Motor Lock) at top of motor mount next to variable speed pulley (figure 12).



3. To adjust the RPM the unit must be running - so use extreme caution.

4. With the crank supplied with the unit, attach it to the adjustment screw. (figure 12).

5. To increase RPM, rotate crank counterclockwise (inward). To decrease RPM, rotate crank clockwise (outward). One turn of crank is approximately equal to a change of 35 RPM.

Note: RPM stops on motor mount that are factory preset. These motor stops must not be changed.



6. When desired RPM is reached, Lockout/Tagout the unit.

7. Tighten RPM control lock (Motor Lock).



CAUTION: RPM control lock must be tight at all times when motor is running during full production. If unit is operating with a loose RPM control lock this may affect warranty.

FIGURE 11

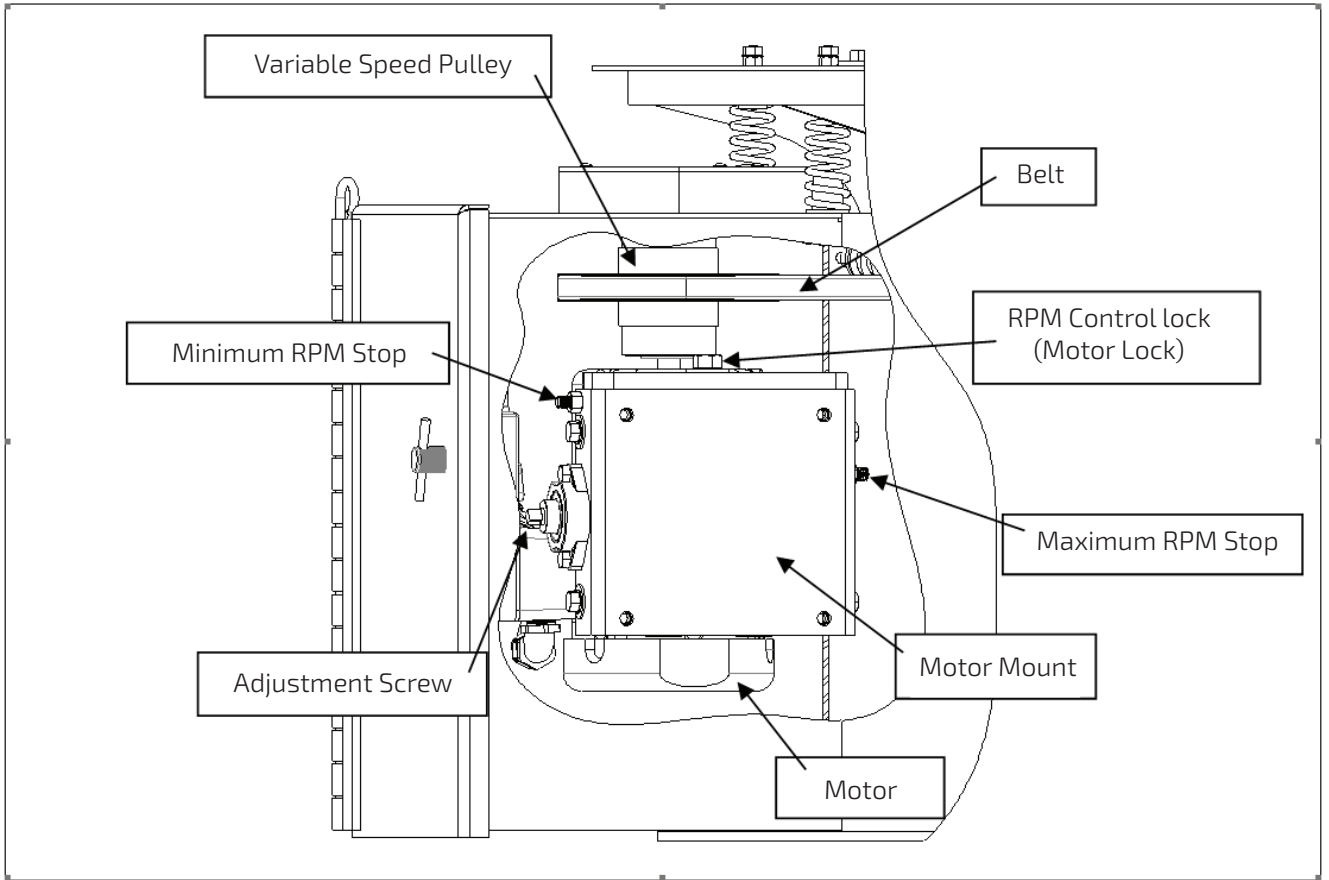
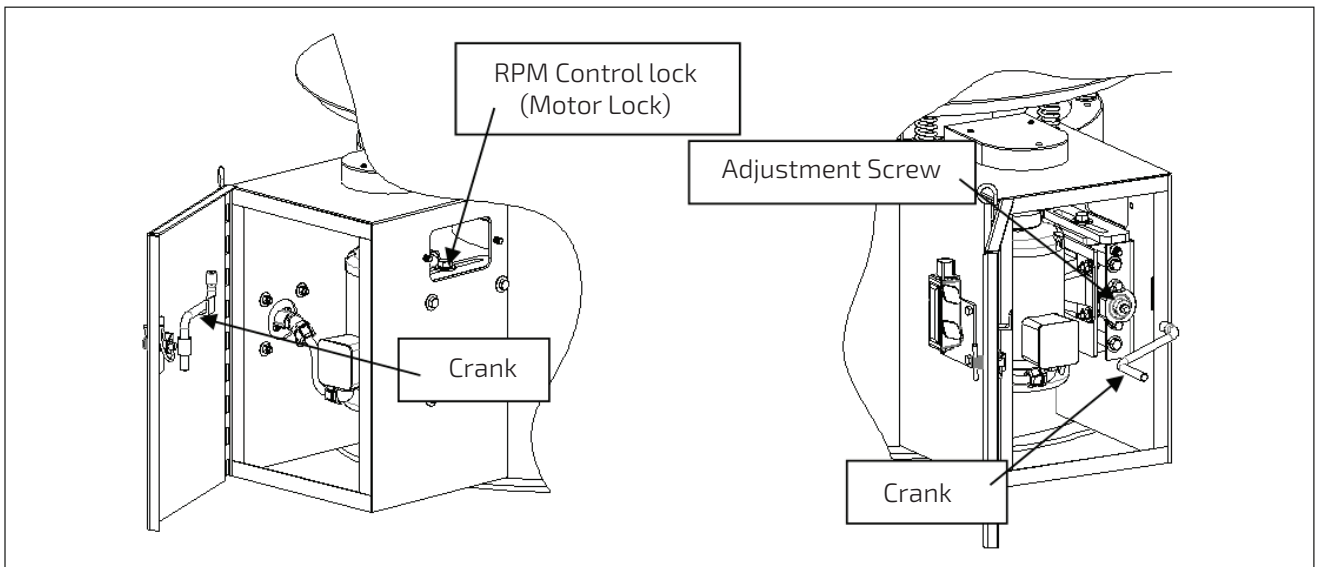


FIGURE 12



WARNING:



Lockout/Tagout unit before performing maintenance.

Checklist:

It is user's responsibility to set up a schedule for maintenance. Listed below is a general check list.

1. Grease Bearings and motor. (Follow provided lubrication schedule.)
2. Inspect belt condition.
3. Check to see variable speed pulley is operating properly. (Open and close both sides evenly during operation.)
4. Inspect RPM control lock is tight.
5. Inspect screens for holes in mesh.
6. When checking screens check clamp rings for proper seating.
7. If ball trays are installed check to see if balls are in place. (They may fall out if screen has a puncture or a tear.)
8. Inspect rubber products, such as V-gaskets and discharge connectors.
9. Inspect nuts and bolts. (See torque specification.)

Nuts and Bolts

All nuts and bolts used to assemble unit are high grade and have been set to proper torque at Sponge-Jet, Inc. Due to unit being under constant vibration it is suggested that nuts and bolts be checked periodically during scheduled maintenance.

BOLT SIZE	TORQUE (DRY)		TORQUE (LUBED)	
	<i>lb-ft</i>	<i>N·m</i>	<i>lb-ft</i>	<i>N·m</i>
1/4"-20 grade 5	8	11	6.3	8.5
5/16"-18 grade 5	17	24	13	18
3/8"-16 grade 5	30	41	23	32
1/2"-13 grade 9	106	144	94	127

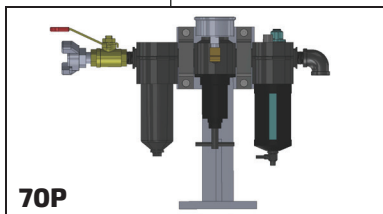
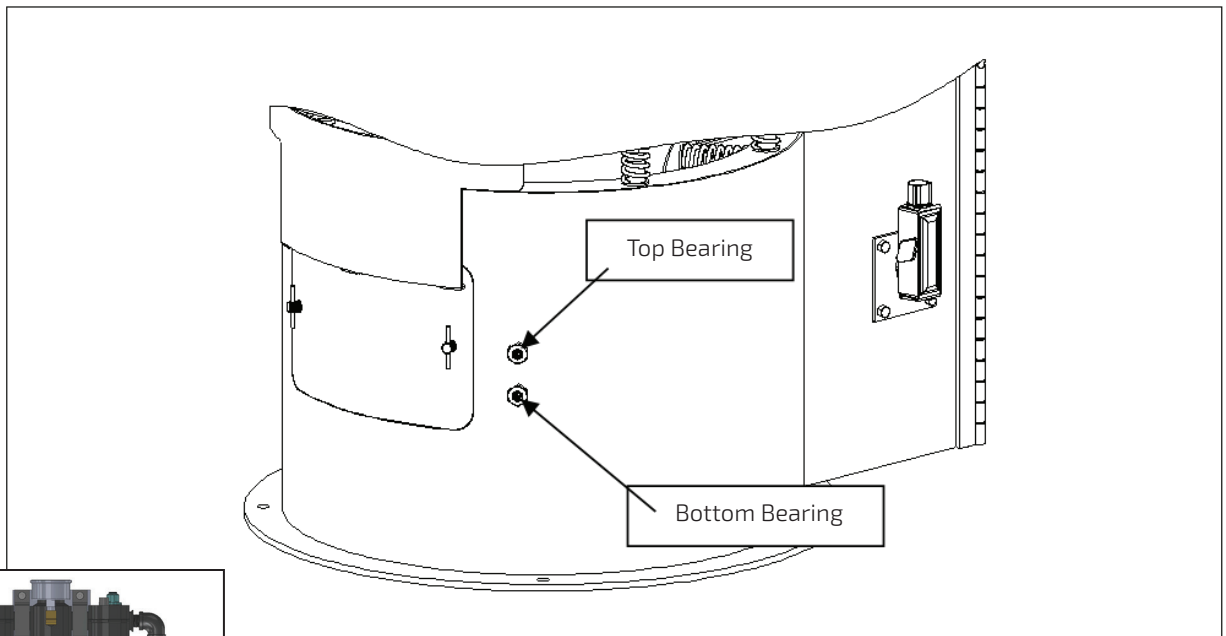
5.4 LUBRICATION

Bearing lubrication is extremely critical due to heavy loading and vibration. Be sure to follow greasing instructions. Unit is pre-greased at Sponge-Jet, Inc. with Shell Gadus S2 V220 2 for Balance cage shaft bearings. Blending of greases of a different detergent base is likely to result in a marked deterioration of lubricity with risk of premature bearing failure. It is recommended Shell Gadus S2 V220 2 be used for Balance cage shaft bearings, in the event that a different grease is used bearing must be flushed and cleaned completely. Then bearing must be repacked with new grease. Remember, when lubricating, excessive lubrication may be as destructive as none at all. Smaller amount of grease at more frequent intervals is best.

Grease type installed at factory:

- Shell Gadus S2 V220 2 for Balance cage shaft bearings
- Lubrication of bearing is critical. Failure to adhere exactly with the following lubrication schedule may result in a voided warranty.
- This unit was greased before shipment. Add grease using 1 to 2 pumps every 200–300 hours of operation. If the unit has not been used for one year, add 1 to 2 pumps of grease.

GREASING POINT - FIGURE 13



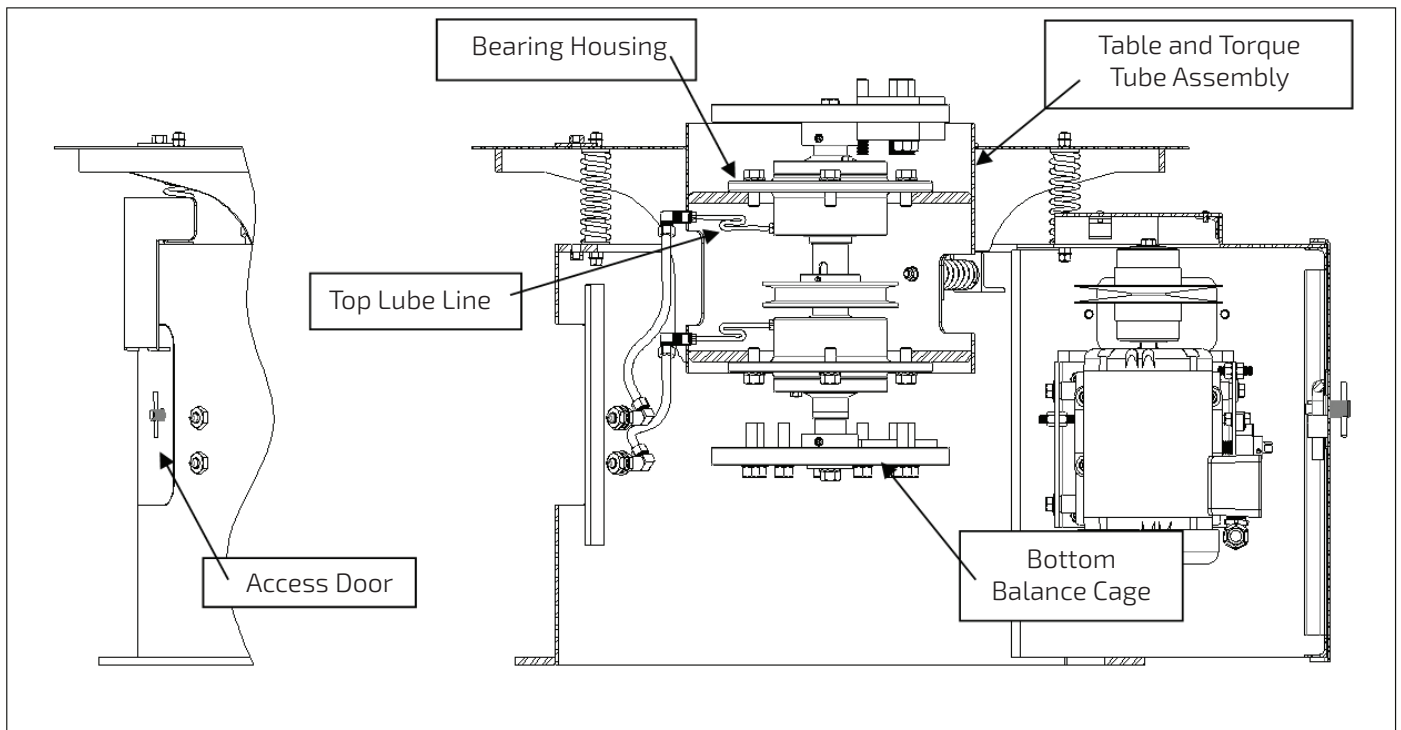
IN ADDITION TO ABOVE GREASE LUBRICATION, 70P UNITS REQUIRE PNEUMATIC GRADE TOOL OIL, INSTALLED OR REPLENISHED IN THE AUTOMATIC LUBRICATOR.

5.5 BELT REPLACEMENT



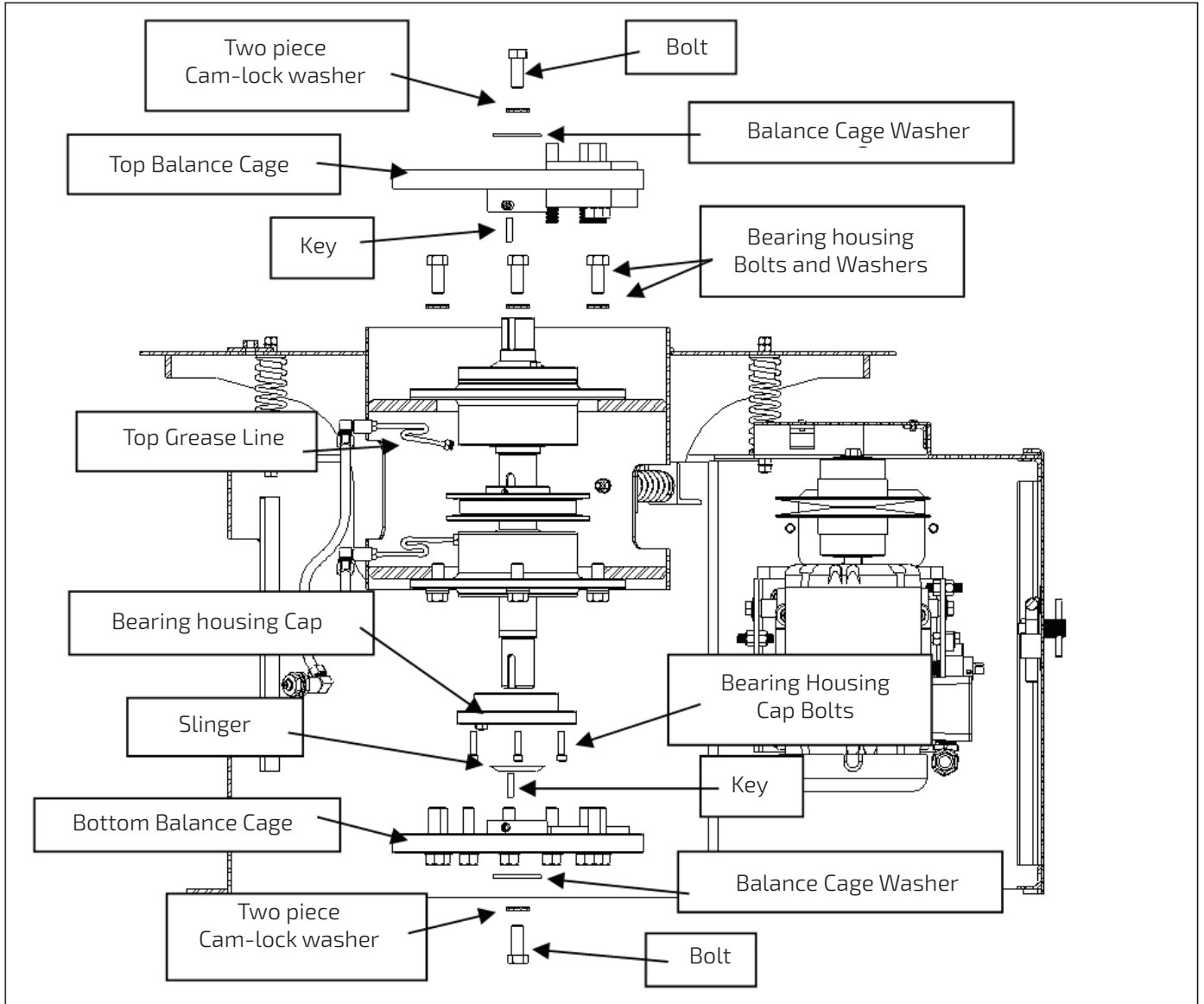
1. Before starting be sure to Lockout/Tagout the machine.
2. Remove all frames and screens. (See screen removal as to how to remove them.)
3. Clean table and inside torque tube so no contaminants will fall into inside of bearing.

FIGURE 14



4. Disconnect top lube line at bearing housing.
5. On both balance cages mark weights and there locations then remove them.
6. Remove bolt, two piece cam-lock washer and balance cage flat washers on both balance cages.
7. On balance cages loosen set screw then slide balance cages off and remove the keys
8. Take bottom bearing housing cover off by removing 6 bolts. (Making sure there no contaminants fall into inside of bottom bearing housing cover.)
9. Remove the 6 bolts holding top bearing housing to the table.

FIGURE 15

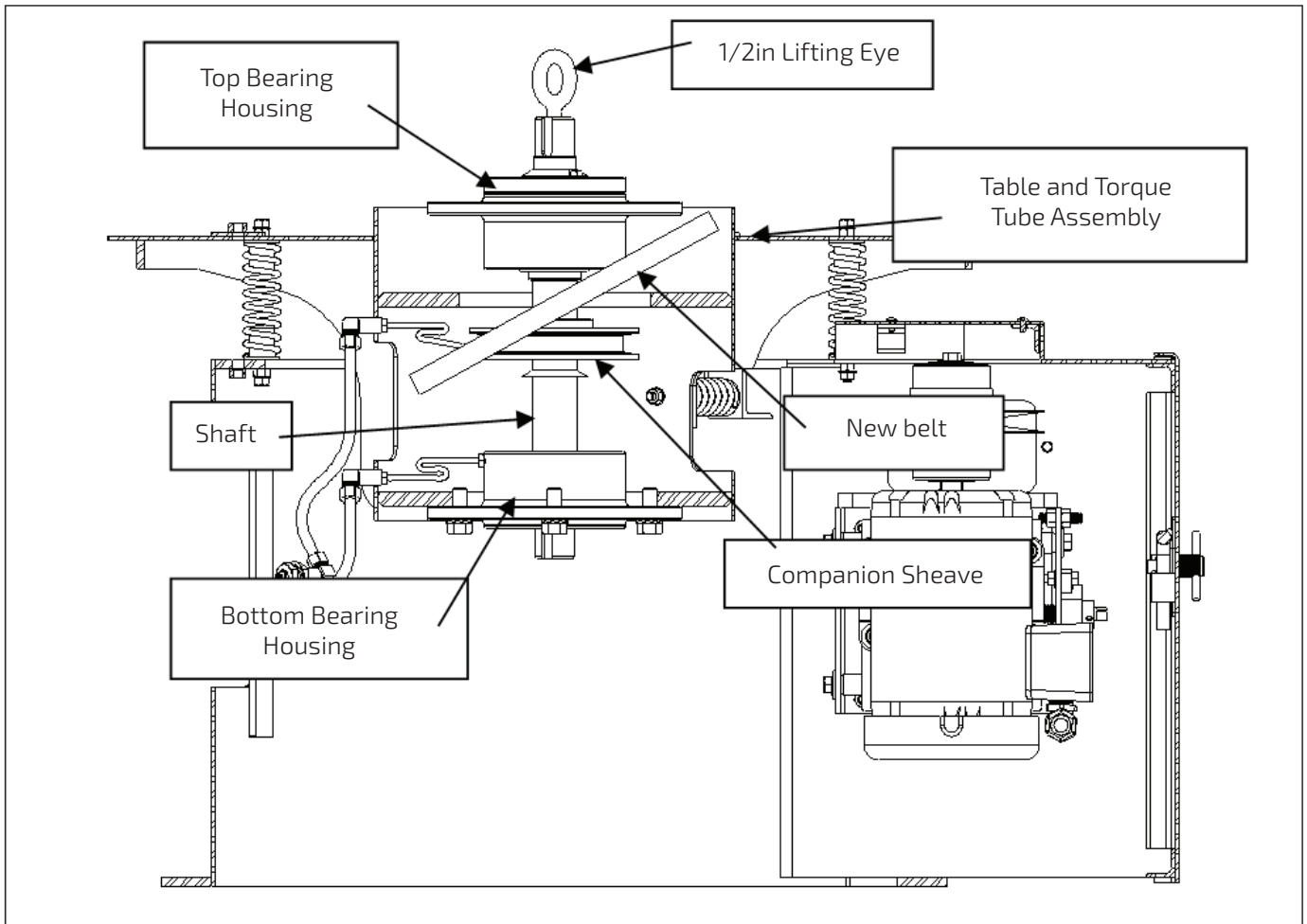


10. Set new belt around the shaft and bearing housing.

11. Install a 1/2"-13 lifting eye into the shaft center hole on top. (Be sure not to cross thread the bolt so the balance cage bolt can be reinstalled.)

12. Carefully lift shaft assembly until there is just enough clearance between bearing housing and table assembly to slide belt through. (Make sure no contaminants fall into inside of bottom bearing housing.)

FIGURE 16

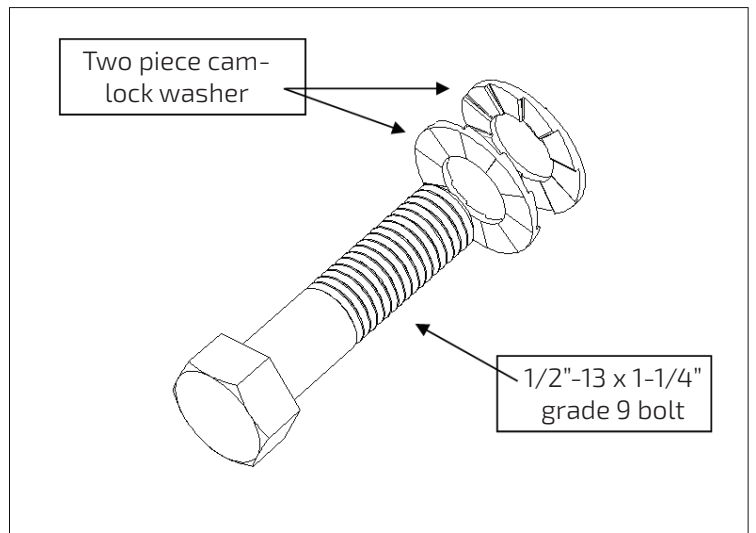


- 13.** Slide new belt through, between bearing housing and table assembly and leave it there.
- 14.** Carefully lower shaft assembly allowing shaft to slide back into bottom bearing and housing. (Remember to making sure no contaminants fall into the inside of the bottom bearing housing.)
- 15.** Remove 1/2" lifting eye.
- 16.** Bolt top bearing housing to table with 1/2"-13 x 1-1/4" grade 9 bolts and cam-lock washers, make sure all bolts are tensioned properly.

1/2"-13 Grade 9 Bolts, torque to:

106 lb-ft (dry) / 144 N·m (dry) / 94 lb-ft (lubed) / 127 N·m (lubed)

FIGURE 17



- 17.** Reinstall top lube line to the bearing housing.
- 18.** Reinstall bottom bearing cover and o-ring.
- 19.** Install key and then slide bottom balance cage back on with hub facing up and tighten set screw. Then place washer, cam-lock washers and 1/2"-13 bolt back on.
- 20.** Install top key and top balance cage with hub facing down and tighten set screw. Then place washer, cam-lock washers and 1/2"-13 bolt back on.
- 21.** Place all weights back in their original locations you have marked.
- 22.** Remove side cover to RPM control lock (Motor Lock).
- 23.** Remove RPM control lock (Motor Lock) for access to variable speed pulley.
- 24.** Mark location of motor mount to help relocate it back to desired RPM setting, then crank motor in all the way.
- 25.** Remove variable speed pulley cover for easier access.
- 26.** Take belt and start it onto the companion sheave and rotating shaft assembly by hand until belt completely seats into place.



CAUTION: Do not pinch fingers between belt and companion sheave.

- 27.** Now crank motor mount back to mark and reinstall and tighten RPM control lock (Motor Lock).

-
- 28.** Replace variable speed pulley cover and RPM control lock side cover.
 - 29.** Install angle filler ring and gasket.
 - 30.** Replace lower spacing frame. Make sure filler ring and frame are centered on table.
 - 31.** Install "V" clamp ring; assure nut of clamp ring bolt is on right-hand side. If clamp ring has a quick-release over center latch, secure before tightening.
 - 32.** Clamp ring should be tapped moderately with rubber mallet during tensioning to insure it will seat properly.
 - 33.** Tighten two clamp ring bolts equally to ensure even tensioning.
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5.6 MOTOR & VARIABLE SPEED PULLEY REPLACEMENT

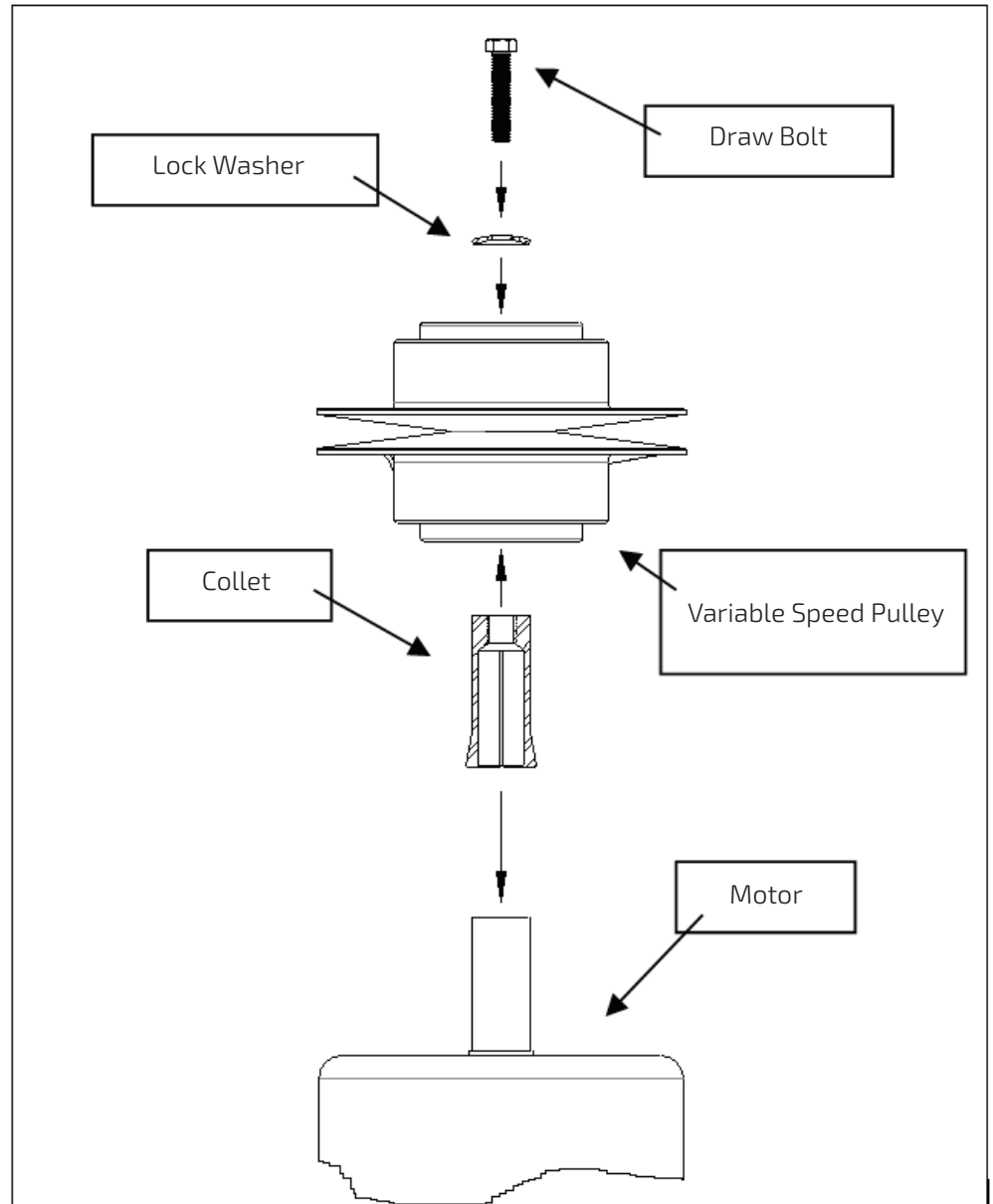


- 1.** Before starting Lockout/Tagout unit.
- 2.** Remove variable speed pulley cover and RPM control lock (Motor Lock) side cover for easier access.
- 3.** Loosen RPM control lock (Motor Lock).
- 4.** Mark location of motor mount to help relocate it back to desired RPM setting, then crank motor in all the way.
- 5.** Remove belt.
- 6.** Remove variable speed pulley; loosen/remove draw bolt located on top.
- 7.** If replacing motor, lift table off base and safely set aside. This allows full access to all bolts, wiring and ability to safely lift motor out of place. When lifting table, disconnect flexible grease lines.
- 8.** Disconnect wiring at conduit box on the outside of the base.
- 9.** Loosen nut components inside of base and pull wire through.
- 10.** Unbolt motor from motor mount.
- 11.** Bolt up new motor to motor mount.
- 12.** For wiring, fish wire through nut components and tighten. Keep wire away from moving parts.

13. Whether replacing motor or variable speed pulley inspect collet, draw bolt and motor shaft for burrs and remove them. New variable speed pulleys come with a collet. If installing new motor, key on motor shaft is not needed. (Note: when properly installed, pulley does not require a key to drive the unit.)

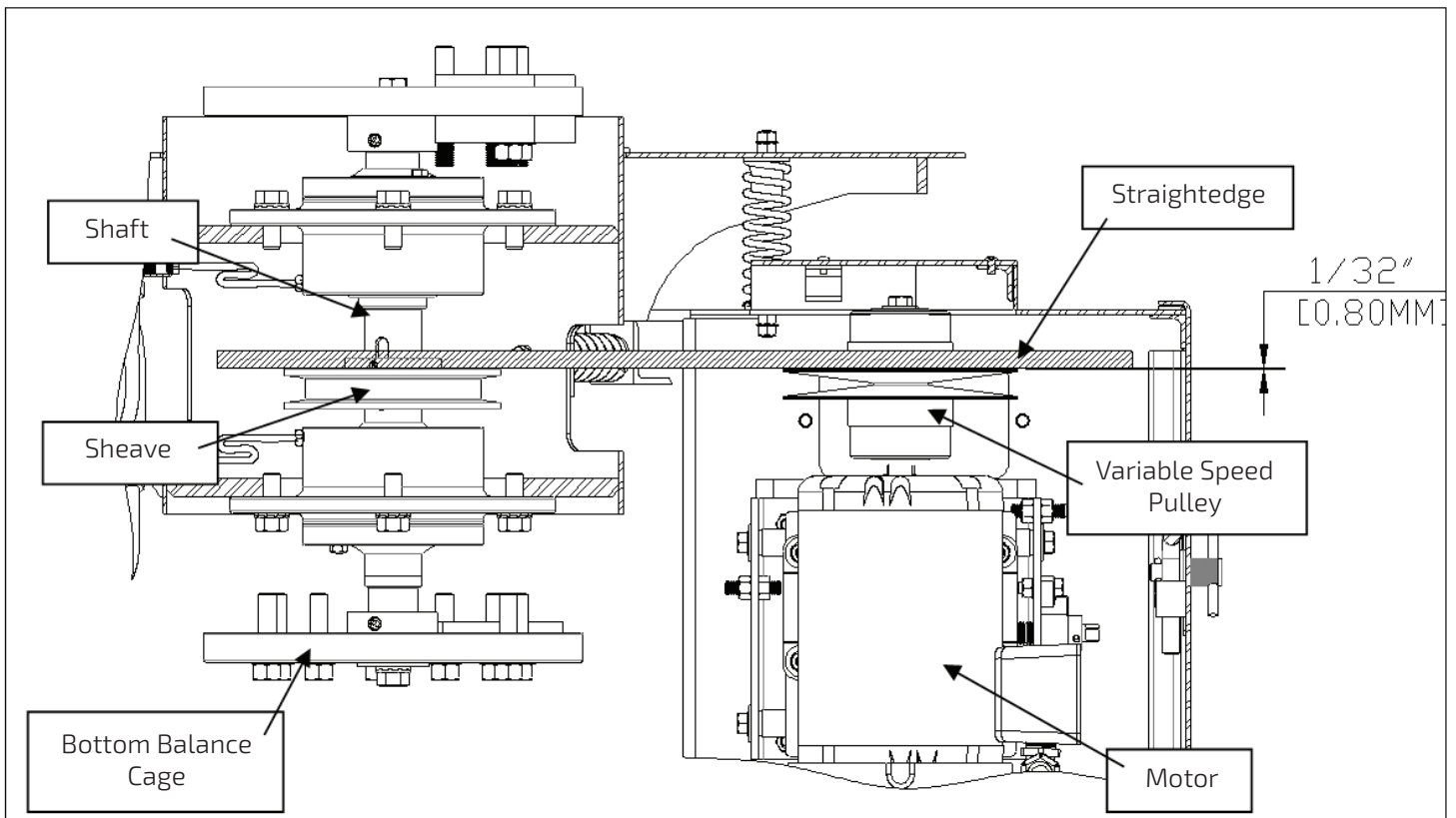
14. Before installing pulley onto shaft check to see collet, lock washer and draw bolt are assembled properly.

FIGURE 18



15. Slide pulley onto motor shaft as far as possible and then slide it back about 1/8" (4mm). This will allow pulley to spin with motor shaft freely.
16. Tighten draw bolt down to lock pulley in place. The torque setting is 112 lb-in (13 N·m). If a torque wrench is not available, an alternate procedure is to tighten draw bolt until lock washer is flat. This will be approximately the correct torque.
17. If table was removed at this time, reassemble table to base making sure to line up all springs onto spring lugs and reattach grease lines.
18. Now check alignment of sheave and variable speed pulley.
19. Place a straightedge on sheave as shown in Figure 19.
20. Since two outside dimensions of sheave and pulley are not equal, it is necessary to have a 1/32" (1mm) gap as shown.
21. Refer to Belt Replacement for how to install belt.

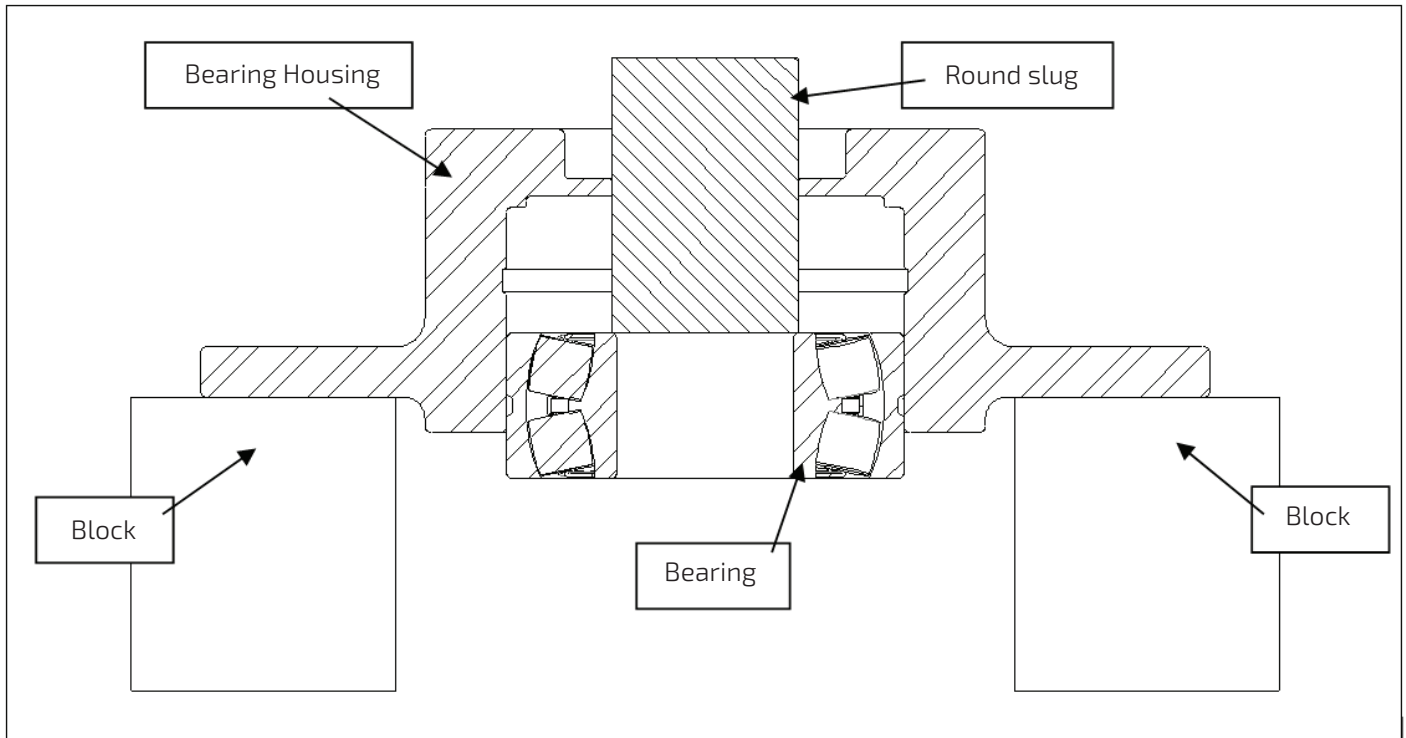
FIGURE 19



5.7 BEARING REPLACEMENT

1. Turn housing upside down. The bearing can be removed by using a round slug thru bore, and applying pressure. The seal should be removed at this time.

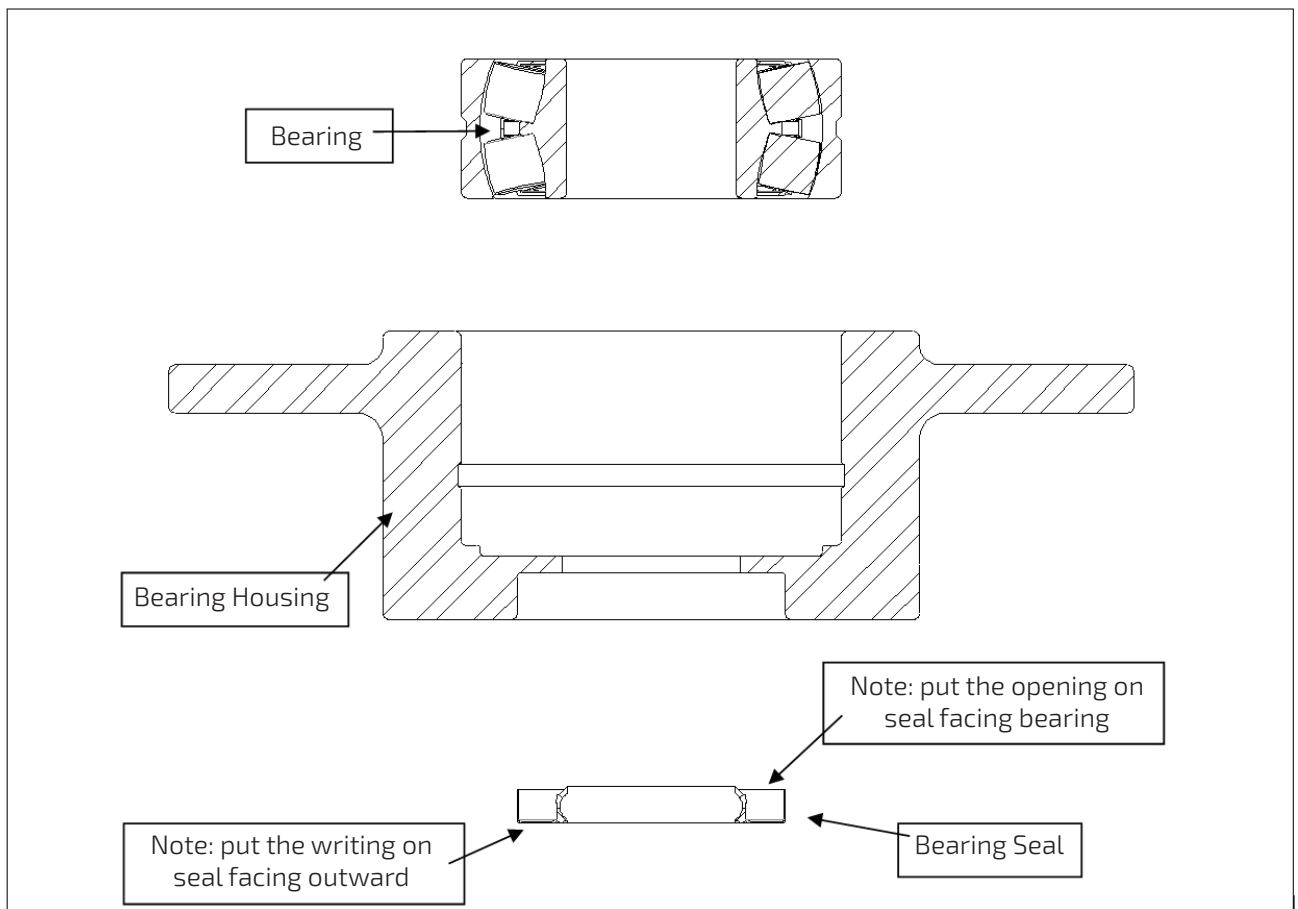
FIGURE 20



2. The housing needs to be inspected. If bearing spins in housing, or if there are other signs of severe damage, such as heavy gouging or cracks, housing needs to be replaced. Bearing housing bore tolerance is 3.5426in-3.5417in (89.9820mm-89.9592mm).

3. Housing must be cleaned, all burrs removed, and grease holes cleaned out.
4. Install a new seal in housing, seal is to be installed with writing on the seal facing outward, away from the bearing and opening facing the bearing.
5. Lay housing face up, start bearing in as straight as possible. Apply some pressure to outer race of bearing, NEVER PUSH ON INNER RACE, as this will damage bearing. If bearing comes out of alignment, it can be aligned by rotating bearing. Do not force bearing into alignment by pounding, as this will damage bearing.
6. Bearing must be packed with new grease. This can be done by installing a grease fitting into housing, where relief fitting is located. As grease is pumped in, rotate inner race until bearing is full of grease. Remove grease fitting and reinstall relief fitting.

FIGURE 21



6.0 REPLACEMENT PARTS

When ordering any parts, please clarify the following information for prompt service:

The Machine Model Number

The Machine Serial Number

Description of Part

Quantity

Shipping method

Destination

Purchase order Number

7.0 RECOMMENDED SPARE PARTS

(1) Each of Screen Cloth being used

(1) V-Clamp Ring Assembly

(1) Screen tensioning assembly (same type supplied with original equipment)

(8) Springs (One set)

(1) Motor

(1) Drive Belt

(1) Variable Speed Pulley

(4) Stainless steel clamp ring bolts

NOTES

MODEL

SERIAL
