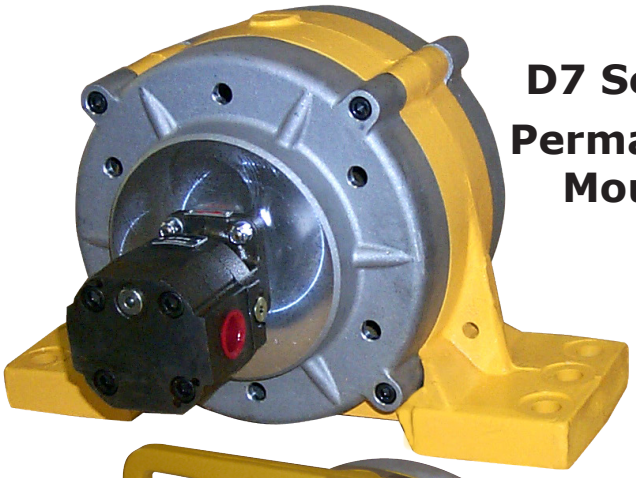
Design Series

Operating Instructions

Global® Hydraulic Vibrators

MODELS

CC7-12-8HC	D7-12-8HC
CC7-18-8HC	D7-18-8HC
CC7-25-8HC	D7-25-8HC
CC7-50-8HC	D7-50-8HC



D7 Series
Permanent Mount

CC7 Series
Portable Mount
Clamp-On

Global® VIBRATORS | Viber® VIBRATORS | Global® AIR BLASTERS

www.GlobalManufacturing.com

Global Manufacturing Inc.®
1801 East 22nd St
Little Rock, Arkansas 72206
501.374.7416 TEL
800.551.3569 TOLL FREE USA & CANADA
501.376.7147 FAX

Table of Contents

I. Introduction

For optimum performance, cycle the vibrator on and off. The vibrator acts as a friction reducer and once the bulk solid is set into motion, gravity should do the rest. Do not operate the vibrator on an empty hopper as this may cause structural damage to the hopper.

Vibrators should be operated only when discharge gates are open. Operating the vibrator with the discharge gate closed will cause the material inside the structure to compact.

Vibration has two important elements – Frequency and Amplitude. Frequency is the speed (rpm) or the number of vibrations per minute. It is controlled by the oil flow to a hydraulic vibrator or the air flow to a pneumatic vibrator. Amplitude is the unbalance or amount of force produced by the eccentric weight. The faster the eccentric weights turn the more force output generated. Force and frequency work together. It is not necessary to use a lot of force when you have adequate frequency.

SAFETY PRECAUTIONS

Follow all mounting instructions.

Always use a safety cable or chain for support.

Do not operate vibrators when structure is empty.

Do not operate vibrators when gate is closed or conveyor is stopped unless consolidation of material is desired.

Wear ear protection for 90+ decibel levels.

Do not operate vibrators without side covers.

Do not operate the hydraulic vibrators above the maximum pressure (psi) or flow (gpm).

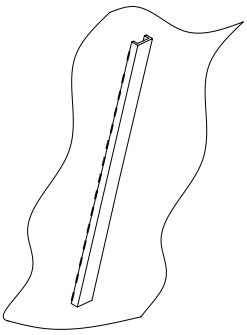
Never use your hands to check for hydraulic leaks. Hydraulic fluid can be extremely hot. Always disconnect hydraulic line before maintenance.

II. Installation Procedures

⚠ Caution!

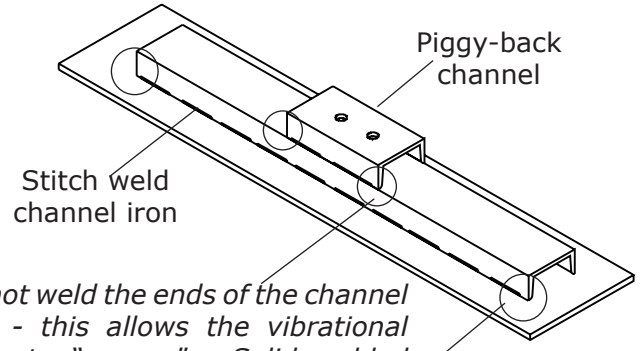
Do not mount the vibrator directly to the structure wall. Use a channel iron stiffener for proper mount rigidity and as the transducer of the vibrational energy.

The key to successful vibration is a proper mount because rotary vibration resonates the material inside the structure, when the vibrator is mounted correctly. The vibrator should appear motion-less. There should not be a large amount of motion or noise.



Stitch Weld the Channel Iron

Attach the vibrator to the channel iron. Stitch weld nuts to the back of the channel iron or the channel iron may be drilled and tapped to accept the mounting bolts. An alternate method is to cut a second channel iron slightly longer than the footprint of the vibrator. Stitch weld the second channel iron to the first. Do not weld the ends. Mount the vibrator to the second channel iron.



Do not weld the ends of the channel iron - this allows the vibrational force to "escape". Solid welded ends trap the force which can cause stress cracks.

Channel Irons - Size & Mounting

Important!

The channel iron should be at least two-thirds of the height of the sloped portion of the hopper but no greater than 10 feet (3 m).

The channel iron should be at least two-thirds the height of the sloped portion of the hopper, but not less than 6 feet (1.83 m) in length. The channel iron width should not be less than the base width of the vibrator. See chart below for recommended channel sizes. DO NOT install more than one vibrator on the same channel iron or use a channel iron shorter than the recommended length. A short channel may flex the bin wall.

Model	Channel Iron Size	Minimum length
D7-12-8HC	C8" x 18.7 lb/ft	96"
	200 x 27.9 kg/m	2438 mm
D7-18-8HC, D7-25-8HC	C10" x 25 lb/ft	96"
	C250 x 37.2 kg/m	2438 mm
D7-50-8HC	C12" x 30 lb/ft	96"
	C310 x 45.5 kg/m	2438 mm

Stitch weld the channel iron vertically to the sloped portion of the bin wall. Weld 3 inches (7.5 cm), skip 1 inch (2.5 cm), weld 3 inches (7.5 cm), etc... Leave 1 inch (2.5 cm) un-welded on the ends and corners. This allows the vibration to dissipate out the ends of channel without causing stress cracks to the hopper or bin. By doing so, should the weld fail, the entire mount will not fall off. Do not mount the channel iron horizontally.

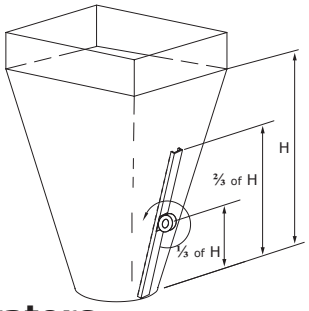
Secure the vibrator to the channel iron with SAE coarse thread grade 8 plated bolts with lock washers or an adhesive such as Loctite® 262. Tighten bolts in a sequential process. At least two passes are required in most situations. Give all bolts the same torque value. Grade 8 bolts can handle more torque than standard bolts. If Loctite® is not used, retorque the bolt after the vibrator has operated for a few minutes and check tightness often. If Loctite® is used do not retorque the bolts as this will break the Loctite® bond.

Attach a safety cable to a stronghold (not the channel iron mount), which is higher than the mounted vibrator and capable of holding the vibrator's weight.

III. Mounting

Single Vibrator

Install a channel iron stiffener on the outside of the sloping wall 1/3 the distance above the discharge opening.

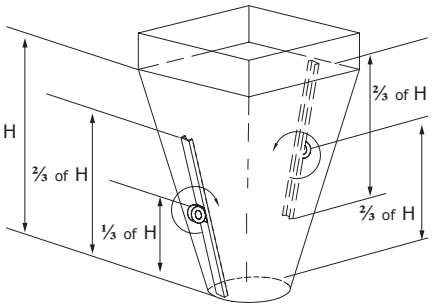


Multiple Vibrators

Use more than one vibrator when the diameter or width of any wall is greater than 12 feet (3.66 m). Always mount the vibrators on different planes.

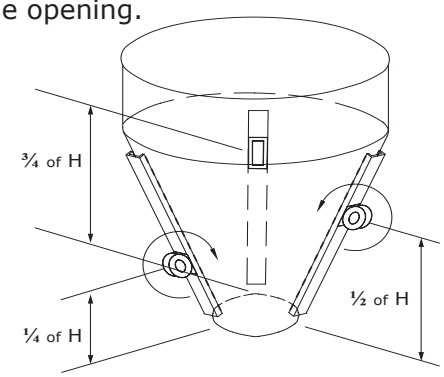
Two Vibrators on Round or Square Hoppers

Install channel iron stiffeners 180° apart. Install one vibrator on the outside of the sloping wall 1/3 the distance above the discharge opening. Install the second vibrator on the outside of the opposite sloping wall 2/3 the distance above the discharge opening.



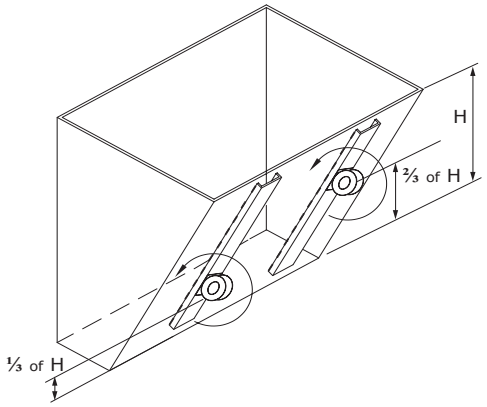
Three Vibrators

Install channel iron stiffeners mounted 120° apart. Install the first vibrator on the outside of the sloping wall 1/4 the distance above the discharge opening. Install the second vibrator on a separate channel iron at 1/2 the distance above the discharge opening. Install the third vibrator on the remaining channel iron at 3/4 the distance above the discharge opening.



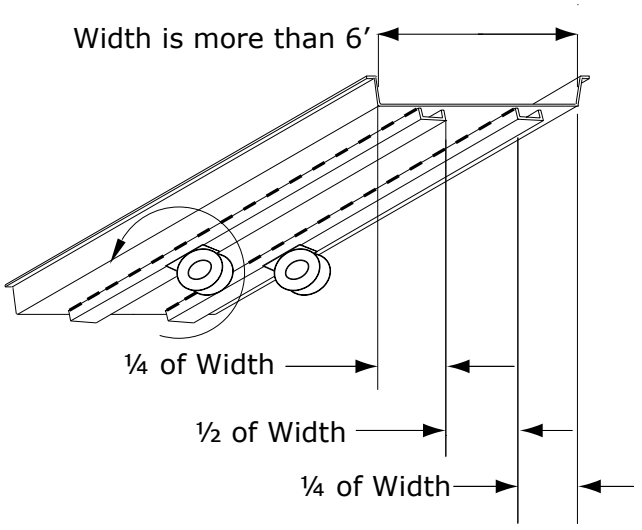
Two Vibrators on Rectangular Hoppers

Install channel iron stiffeners on opposite sides of the long walls. Install one vibrator on the outside of the sloping wall 1/3 the distance from the discharge opening. Install the second vibrator on the outside of the opposite sloping wall 2/3 the distance above the discharge opening. When only one wall slopes, mount both stiffeners on it. Equally space the stiffeners on the wall. Place one vibrator 1/3 above the discharge opening on one channel iron and the other vibrator 2/3 above the bin's discharge opening on the second channel.



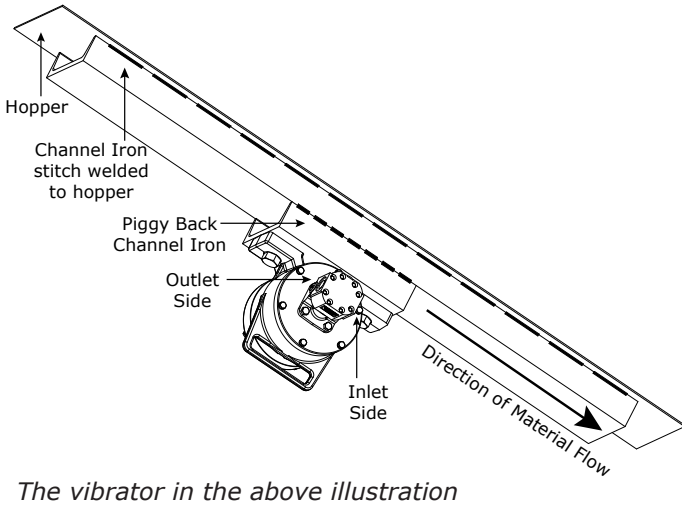
Installation on Chutes and Flow Pipes

Mount channel iron stiffeners vertically or in the direction of material flow. Center the channel if the chute is less than 6 feet (1.83 m) in width. If the chute is greater than 6 feet in width, use two vibrators on separate channel irons. To maximize each vibrator's radius of influence; center each channel iron in each half of the chute. Each channel iron should be located ¼ of the chute width from the edge and ½ of the chute width apart. (e.g. – for a chute 8' wide, the channel iron locations would be 2' from each edge and 4' apart.) When wall thickness is less than 1/8", additional reinforcement may be required.



Placement on Channel Iron

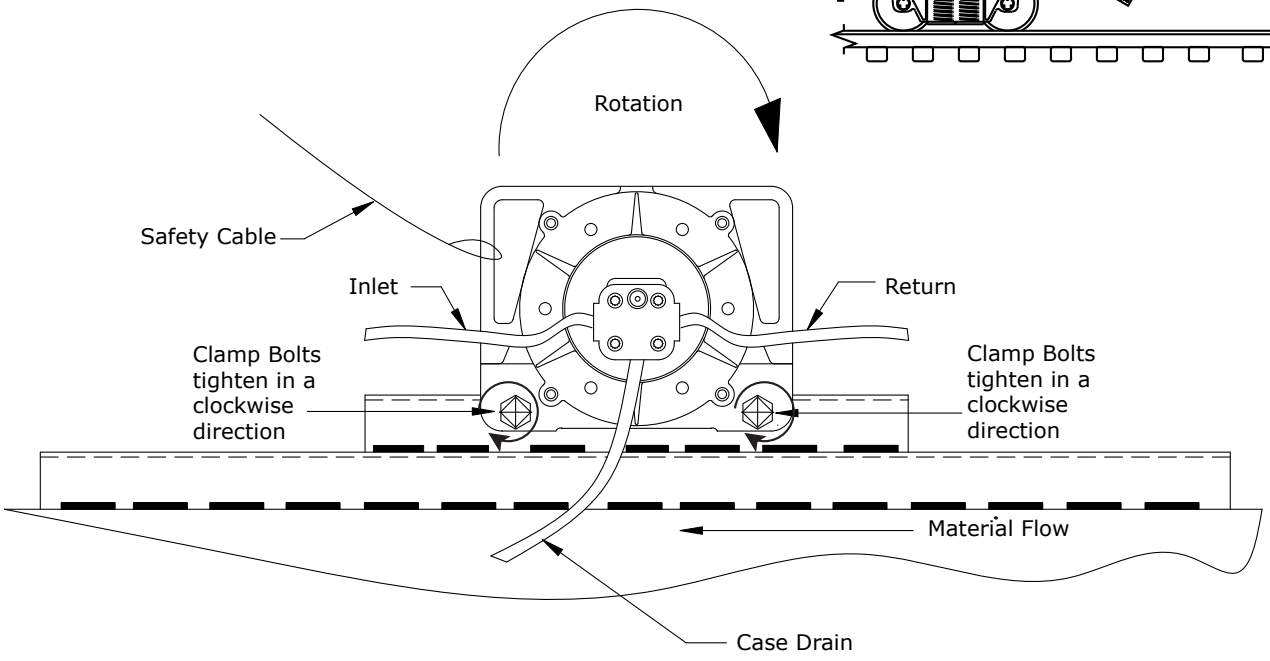
The axis of rotation of the eccentric weights for all rotary vibrators should be oriented in the direction of material flow. The shaft of the vibrator should ideally be in a horizontal position to prolong bearing life.



The vibrator in the above illustration is a C3 Hydraulic vibrator. Follow the same mounting configuration for your D7 Hydraulic vibrator.

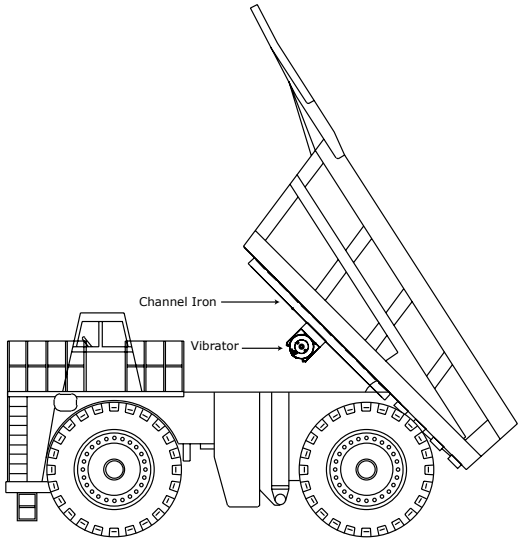
Direction of Rotation - CC7 Series

The eccentric weights of the vibrator must rotate in the same direction as the tightening of the clamp bolts. See illustration below. The clamp bolts turn (tighten) in a clockwise direction. Facing the motor side of the vibrator, install the inlet on the left side of hydraulic motor. If the inlet and outlet are reversed it will cause the clamp bolts to loosen upon vibration.



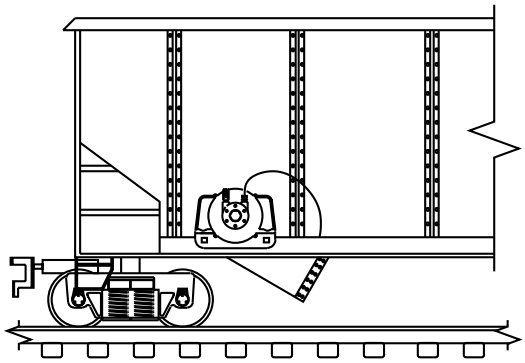
Mounting on Truck Bed

Mount each vibrator on an independent channel iron. Locate the channel iron as close as possible to the material flow problem area. The most common problem areas are in the corners of the dump body.



Installation on Railcars

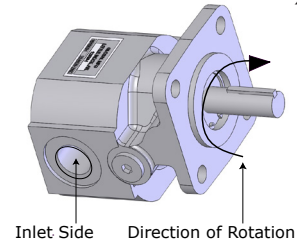
Install clamp-on CC7 model vibrators on the center beam of car or on a corner of the car near the hopper body as shown.

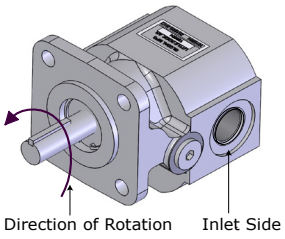


IV. Operation

Bidirectional Motors

The motors of the Design Series vibrators are bidirectional; therefore the eccentric weight rotation can be reversed by changing the hose connections. (Change the inlet to the outlet and the outlet to the inlet.)





Pipes & Hose Sizes

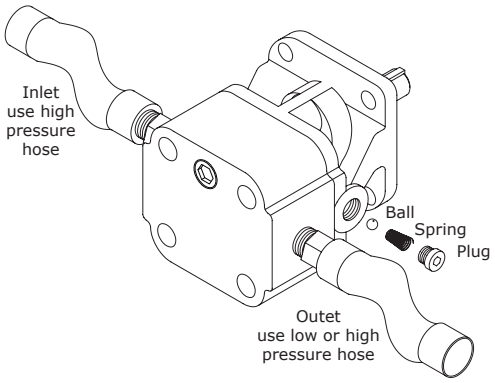
Use an inlet hose that is the same size or larger in diameter as the inlet port of the vibrator. Use a short, flexible hose between the vibrator and the main hydraulic line if the main line is metal to avoid strain on the vibrator motor ports. Allow a loose bend of 9" to 16" (23 cm to 41 cm) to be formed by the hose to prevent cracking from vibration. Use a return hose at least one size larger than the inlet hose. Using a larger hose will minimize back pressure which can blow the shaft seal. In applications where the vibrator hoses are frequently disconnected, use in-line filters to keep contaminants out of the vibrators.

Important!

Overrunning Condition

The heavy eccentric weights act like a fly wheel that continue rotating the motor shaft when the hydraulic flow is shut off. It is important to allow the vibrator to wind down slowly to prevent damage to the motor and to prolong the life of the vibrator. This can be done by removing the ball and spring (check valve) on the return side (outlet) of the motor. For clockwise rotation remove the plug from the return side of the motor as shown in the diagram below using a 3/16" allen wrench. Remove the ball and spring and replace the plug. For counter clockwise rotation remove the ball and spring from the opposite side and switch the inlet and return hoses. **A check valve must always be installed on the inlet side of the motor.**

When the outlet check valve is removed, the motor is not bi-rotational. If the vibrator must be run in the opposite direction, the inlet check valve (ball & spring) must be moved to the opposite side, so that, there is always a check valve on the inlet side.

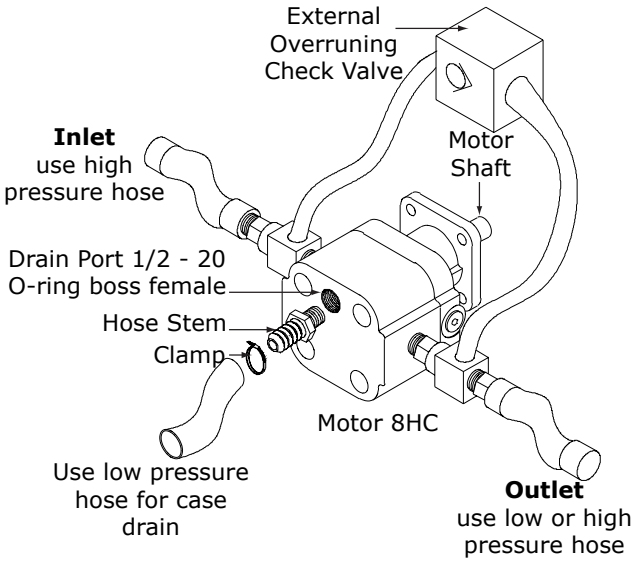


Case Drain

In most applications a case drain is not required, because the case pressure is relieved through the check valve connected to the outlet port. However, the VITON shaft seal in the motor will fail if the case pressure exceeds 400 psi. If the case pressure exceeds 400 psi, the back pressure on the seal will exceed 400 psi and the seal will blow. The seal is rated for a maximum back pressure of 400 psi Therefore, if the back pressure or pressure spikes at the outlet port exceed 400 psi a case drain must be run back to the tank.

We often find the motor has been given too much flow (gpm), which causes the motor seal to blow. Check the inlet flow and adjust accordingly.

To install case drain, remove the case drain plug and install a hose stem that has 1/2 - 20 threads and an o-ring. Clamp a low pressure hose to the stem and run it directly back to the tank. **Do not remove either of the check valves when a case drain is installed.** Instead install an external overrunning check valve to allow the vibrator to wind down slowly.



V. Maintenance

Regular Bearing Maintenance

The oil for the bearings should be changed at least once a year. Use 40 mL (approximately 8 U.S. teaspoons) of a Mobil SHC626 synthetic oil lubricant, or equivalent. The synthetic oil is compatible with mineral oil, but the synthetic oil has a greater load carry capacity and it improves the spherical roller bearing life. If mineral oil is added to the synthetic oil, the synthetic will degrade to the quality of the mineral oil, but it will still provide lubrication.

To Change Bearing Oil

Tools Required:

1. Arbor or hydraulic press of at least 5 ton capacity
2. Two large common flat blade screwdrivers or other pry bars
3. 5/16" hex key
4. 5/32" hex key
5. 9/16" wrench
6. External retaining ring pliers

1. Disconnect power source from vibrator.

2. Disconnect hydraulic lines from vibrator. Note and mark the high pressure line and return to the same port on motor to maintain directional integrity.

3. Dismount vibrator.

4. Remove cover bolts with 5/16" hex key (Figure a). Break covers loose from housing with a pry bar inserted between housing and bolting ear on cover (Figure b).

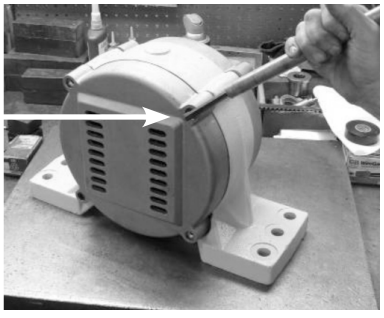


Figure a

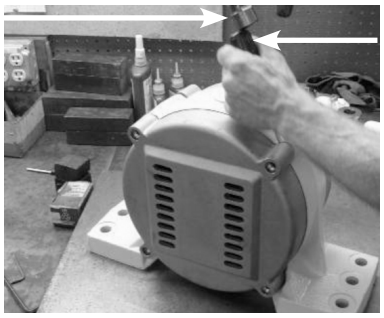


Figure b

NOTE: The casting has a "MS" cast into the bearing web (Figure c). This is the motor side, which is not interchangeable with the cover side. Observe there are cutouts on the motor shaft coupling that engage the drive pins on the drive weight.

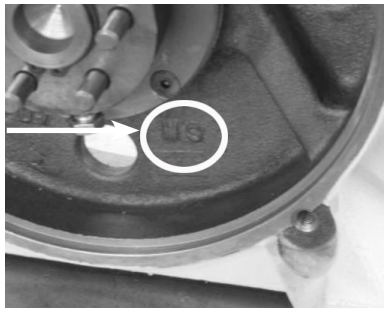


Figure c

5. Loosen the weight set screw with a 9/16" wrench (Figure d). Remove the retaining ring from the shaft end (Figure e) and pry the weight from each end of the shaft (Figure f). Keep the weights with the drive pins for the motor side. Retain the Woodruff Keys for reassembly.

Figure d

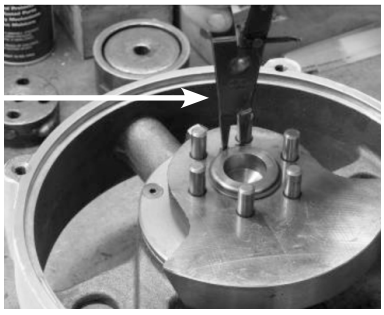


Figure e

Figure f

NOTE: Do not pry against shaft seals

6. Using the 5/32" hex key, remove the flat head screws (Figure g) securing the bearing caps. Remove bearing caps. It may take a simple tap of screwdriver to loosen. Oil will escape from the bearings and will need to be caught in waste towels. Allow old oil to drain 15 minutes. Compressed air will expedite oil draining.

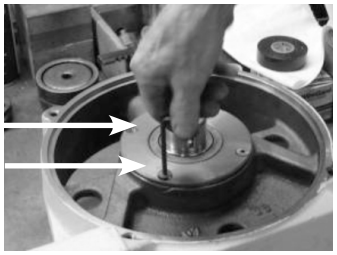


Figure g

Figure h

6a. **If only changing the bearing oil proceed to Step 11 on page 9.**

...continue

Replacing Bearing-Shaft Assembly

7. Use a press ring with a slightly smaller diameter than the bearings and long enough to push both bearings out of the housing (Figure i). Place press ring over shaft/bearing assembly and press out the assembly using a Press (Figure j).

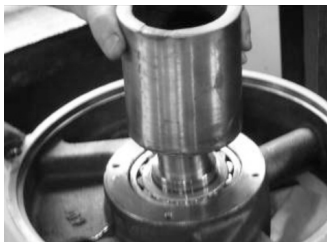


Figure i

Figure j

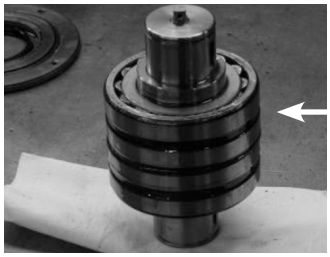


Figure k

NOTE: Must purchase a new assembly if replacing this part because it is not field serviceable.

8. Clean the bearing bore with solvent and lint free towels.

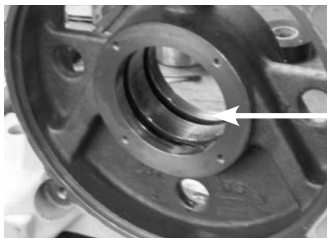


Figure l

9. Press new bearing/shaft (must purchase a new assembly if replacing this part because it is not field serviceable) assembly into the housing (Figure m) from the motor side until the bearings are below the bearing cap sealing surface - .045" - .055" (Figure m & n). Use the press ring to press on the bearing outer race. **Do not press against the shaft.** The motor side of the shaft is drilled for motor shaft end clearance.

Figure m

Figure n

10. Press new seals into the bearing covers (Figure o).

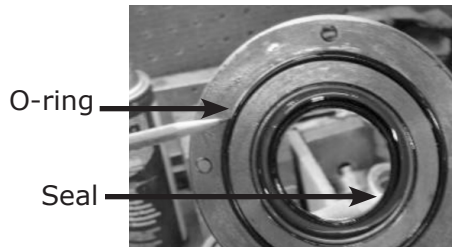


Figure o

11. Re-install one of the bearing covers onto the housing (Figure p), being careful not to let the sealing o-ring slip out of its groove (Figure p). Clean the screw threads and use a drop of thread adhesive on the bearing cap screws. Re-install screws into the housing tightening evenly and in sequential stages until tight and secure (Figure q).

Figure p

Figure q

12. Turn the housing over and pour 40 mL of 5W-30 Synthetic Motor Oil into the bearing cavity through the exposed bearings (Figure r).

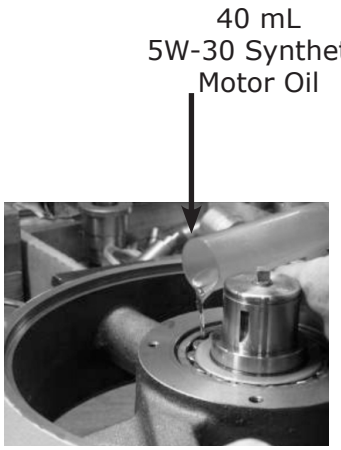


Figure r

13. Re-install the remaining bearing cover following directions in step 11.

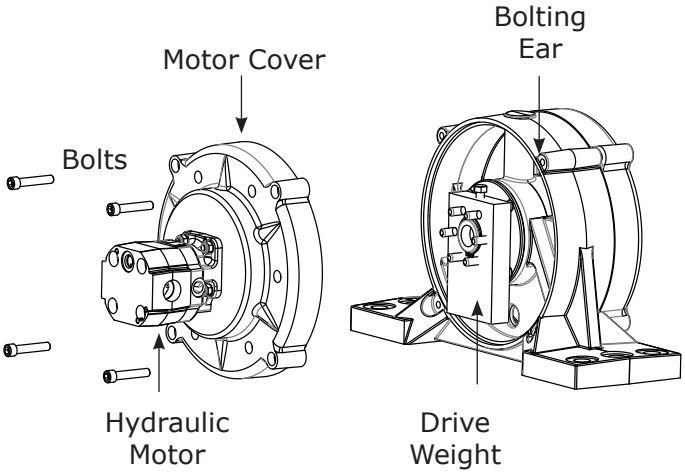
14. Re-install weights on their correct sides, with drive pins on motor side of the casting.

15. Re-install cover. Make sure the drive pins on the drive weight engages the holes in the motor coupling.

VI. Removal and Replacement of the D7 or CC7 Coupling

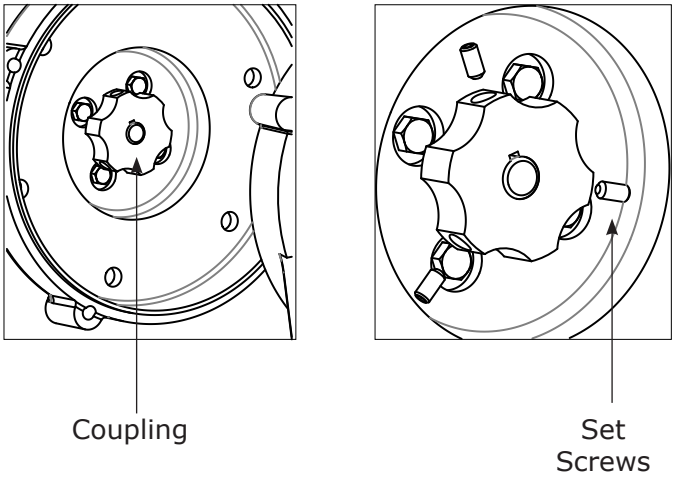
Removing Coupling

1. Remove the motor cover / motor assembly from the vibrator housing by removing the four 3/8" cover bolts using a 5/16" hex key. Break the cover loose from housing with a pry bar inserted between housing and the bolting ear on the cover. See page 7, Figure a, for photo.

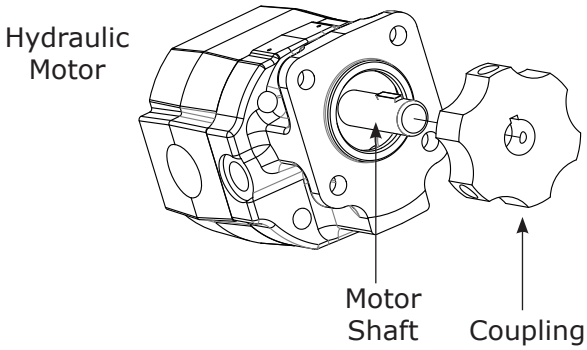


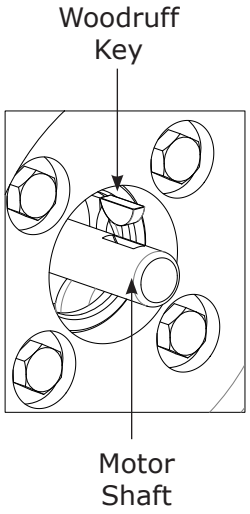
2. Inspect the coupler for signs of excessive wear. If holes are worn out of round (style prior to January 2014) or locking ramps show significant grooving (Star coupling style - new in January 2014) the coupler should be replaced.

3. To remove the coupling, use a 1/8" hex key, to loosen the three 1/4" - 20 X 1/2" set screws securing it to the shaft.



4. Carefully pry the coupling from the motor shaft. Retain the woodruff key in the shaft to use again.

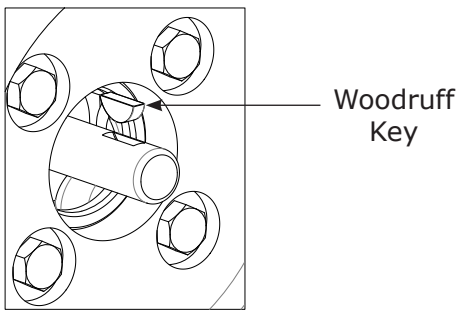




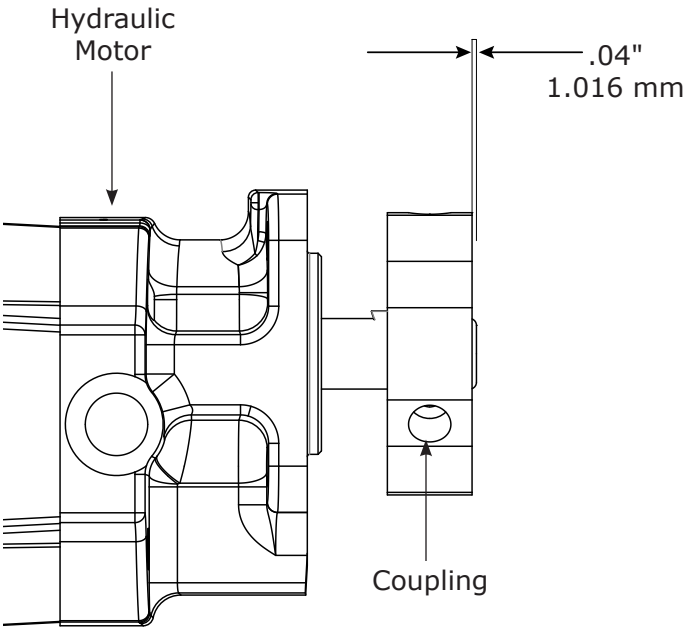
Installation

5. Stone any burrs from the motor shaft, the shaft hole, and keyway grooves.

6. Install woodruff key in motor shaft.

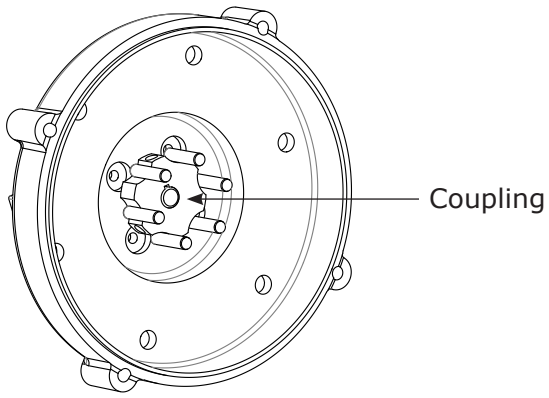


7. Install coupling onto motor shaft engaging the woodruff key until the motor shaft protrudes about .040" through the coupling. That is approximately the thickness of 4 business cards. **The coupling should clear the motor cover without rubbing**.



8. Apply thread adhesive (like Loctite® High Strength) to the 3 set screws in the coupling. Tighten screws against the motor shaft securely. NOTE: Proceed through steps 9 and 10 immediately in case the placement of coupling needs changed. The adhesive will still be pliable at this point.

9. Engage the coupling with the drive weight pins on the vibrator. Align the mounting holes in the cover with the bolt holes in the housing. Apply thread adhesive (like Loctite® High Strength) to the cover bolts and re-install into cover assembly tightening evenly and securely.



10. To check for proper installation, remove back cover by removing the four 3/8" cover bolts using a 5/16" hex key. Rotate the assembly via the driven weight to verify free rotation of the shaft with no interferences.

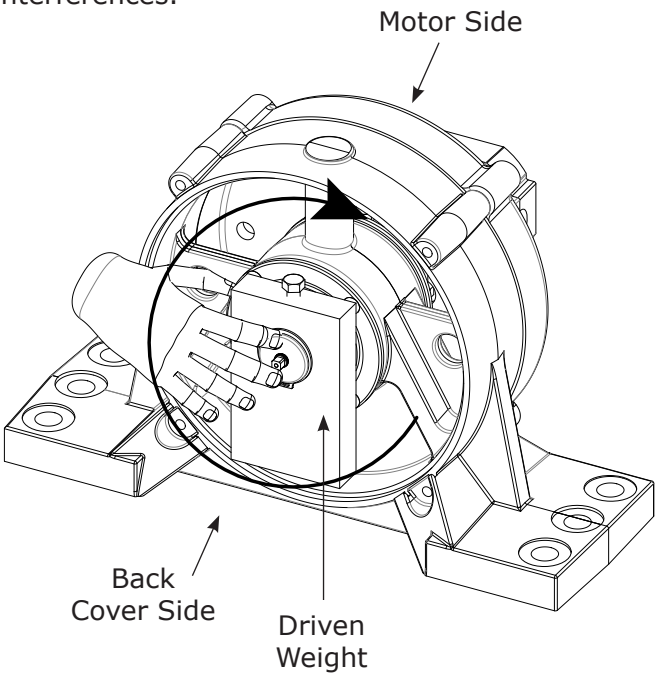


Illustration shows Back Cover removed.

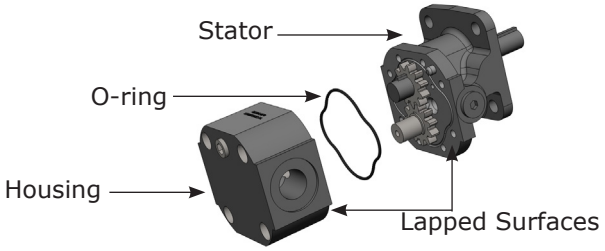
11. Replace the back cover. Align the mounting holes in the cover with the bolt holes in the housing. Apply thread adhesive (like Loctite® High Strength) to the cover bolts and re-install into cover assembly tightening evenly and securely.

VII. Hydraulic Motor Seal Replacement

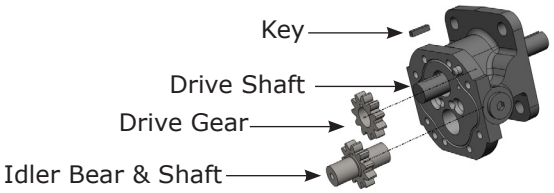
1. Remove motor from the vibrator.

2. Remove four 7/16 - 14 x 2.5" socket head cap screws from the motor housing using a 3/8" Hex Key.

3. Separate the housing from the stator. **Note: Do not damage the lapped surfaces of the housing and stator.** Do not damage the o-ring if not replacing. Discard used o-ring if new one is available.

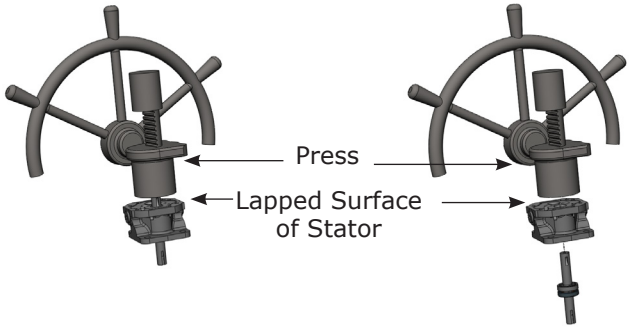


4. Remove the idler gear and shaft. Slide the drive gear off the shaft and remove the key.



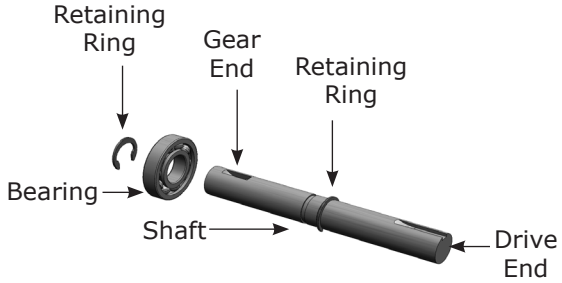
5. Turn the stator around and remove the retaining ring from the shaft seal bore using the retaining ring pliers.

6. Support the stator on its flange and press the shaft out of the stator with an arbor press. **Note: Do not allow press to contact the lapped surface of the stator.** When the seal has been pressed out of the bore, the shaft and bearing should fall out of the stator. Discard damaged shaft seal.

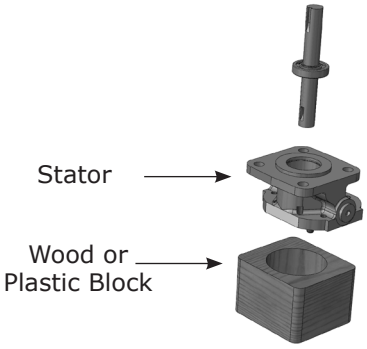


7. Slide the seal off the drive end of the shaft. To replace ball bearing, remove retaining ring. The ball bearing **must** be pressed off the **gear end** of the shaft to avoid scratching the shaft. Replace shaft if it is scratched.

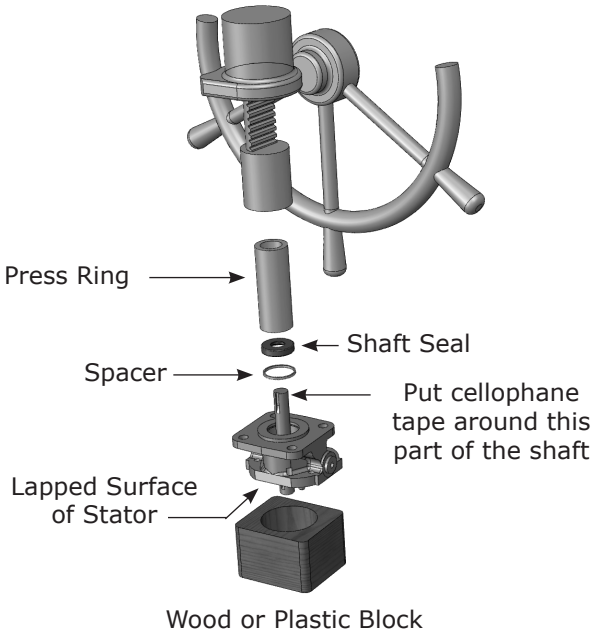
8. Install a retaining ring in the groove nearest the drive end. The ball bearing **must** be pressed onto the shaft from the **gear end**. **Be careful not to scratch shaft especially seal area. (Even the smallest scratch can cause a leak under high pressure.)** Press only against the inner race of the bearing, using a 5/8" ID X 3" long pipe.



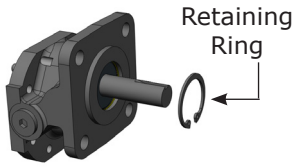
9. Support the lapped surface of the stator with a block of soft material. Slide the shaft and ball bearing into the stator. This is a close fit and may require a very light press.



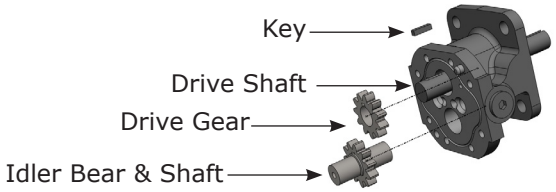
10. The shaft seal is **very delicate** and if damaged the motor will leak. Thoroughly clean the shaft and bore in the stator. **Wrap thin cellophane tape around the end of the shaft completely covering the keyway (this is very important because the keyway can nick the shaft seal if not covered).** Spread a little oil around the lip of the seal and slide the seal down the shaft. Use a 1 3/8" OD X 2" long pipe to press the seal into the bore deep enough so that the retaining ring can be installed.



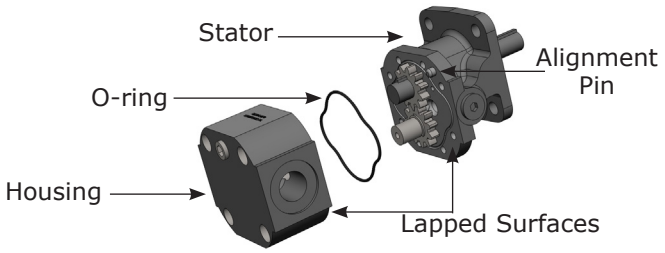
11. Install a retaining ring in the bore of the shaft seal.



12. Place the key in the drive shaft and slide the drive gear on to the shaft. Install the idler gear and shaft.



13. Carefully place o-ring onto lapped surface of housing or stator.



14. Place the housing on the stator using the alignment pins for alignment. Insert the four socket cap screws into the housing and tighten to 50 ft lb (68 Nm) in a crisscross pattern. If the screws are too tight the gears will bind, and if the screws are too loose oil will leak around the gears.

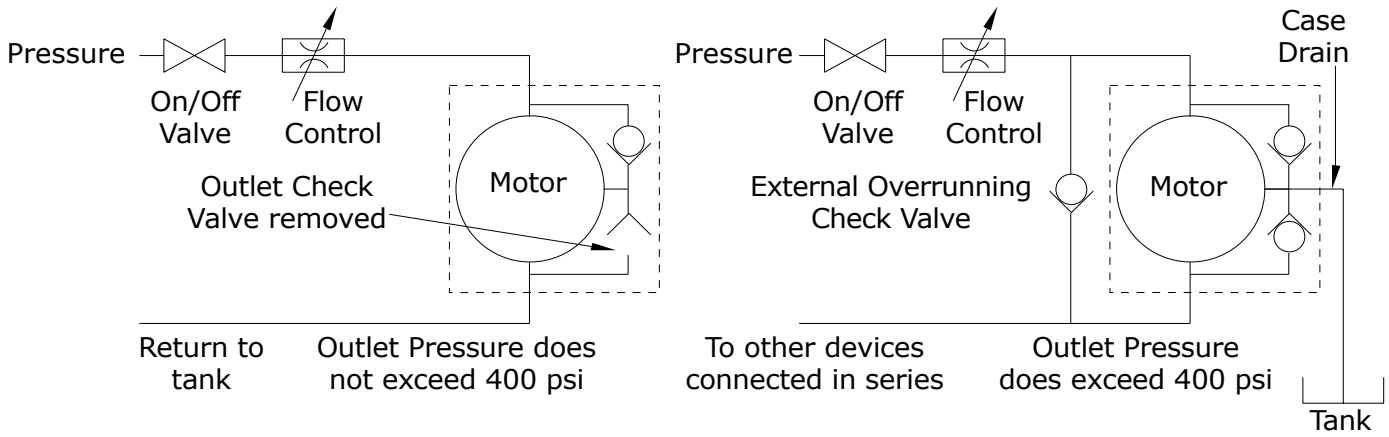
15. Attach the motor to the cover and reassemble the vibrator.

VIII. Performance Charts - Vibrator and Hydraulic Motor

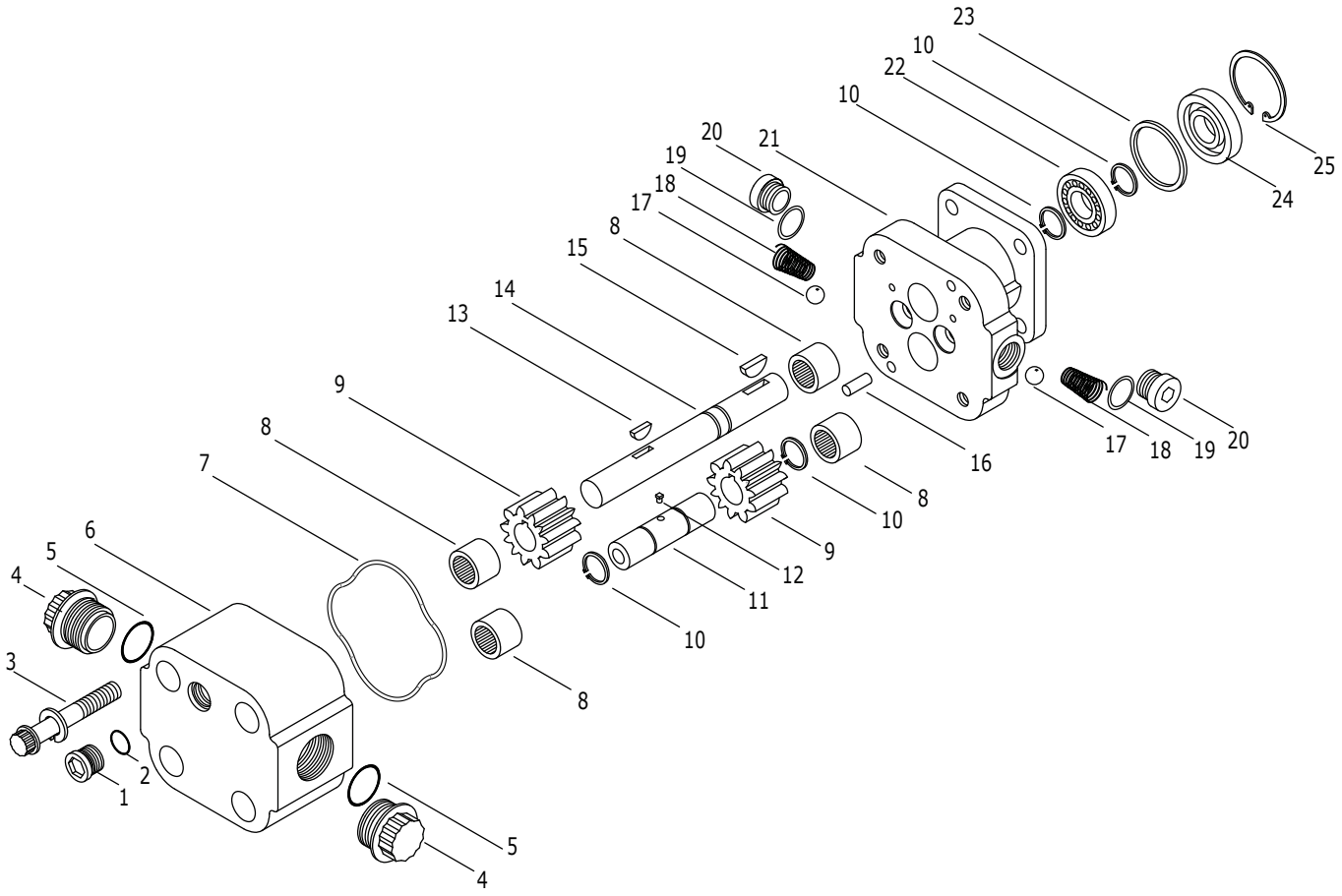
D7 & CC7 Hydraulic Design Series Vibrator Performance Data											
Model	Unbalance lbf-in Unbalance kgf-mm	Start psi Start bar	Speed rpm	Flow gpm Lpm	Force pounds kN	Speed rpm	Flow gpm Lpm	Force pounds kN	Speed rpm	Flow gpm Lpm	Force pounds kN
D7-12-8HC **CC7-12-8HC**	12.0 138	120 8.3	3,000	9.1 34	3,070 13.7	4,000	12.1 46	5,450 24.2	5,000	15.1 57	8,520 37.9
D7-18-8HC **CC7-18-8HC**	18.0 207	180 12.4	3,000	9.1 34	4,600 20.5	4,000	12.1 46	8,180 36.4	5,000	15.1 57	12,780 56.8
D7-25-8HC **CC7-25-8HC**	25.0 288	250 17.2	3,000	9.1 34	6,390 28.4	4,000	12.1 46	11,360 50.5	5,000	15.1 57	17,750 79.0
D7-50-8HC **CC7-50-8HC**	50.0 576	490 33.8	3,000	9.1 34	12,780 56.8	4,000	12.1 46	22,720 101.1	5,000	15.1 57	35,500 157.9

Hydraulic Motor Performance Data - 8HC							
Port Size Inlet and Outlet	Minimum Hose Size	Displacement Per Revolution	Maximum Speed	Flow Rate at Maximum Speed	Maximum Continuous Pressure	Maximum Intermittent Pressure	Maximum Back Pressure
7/8" - 14 SAE	3/4" I.D.	.698 cu in 11.4 cc	5,000	15.1 gpm 69 Lpm	2000 psi 138 bar	3000 psi 207 bar	400 psi 27 bar

IX. Plumbing Diagram



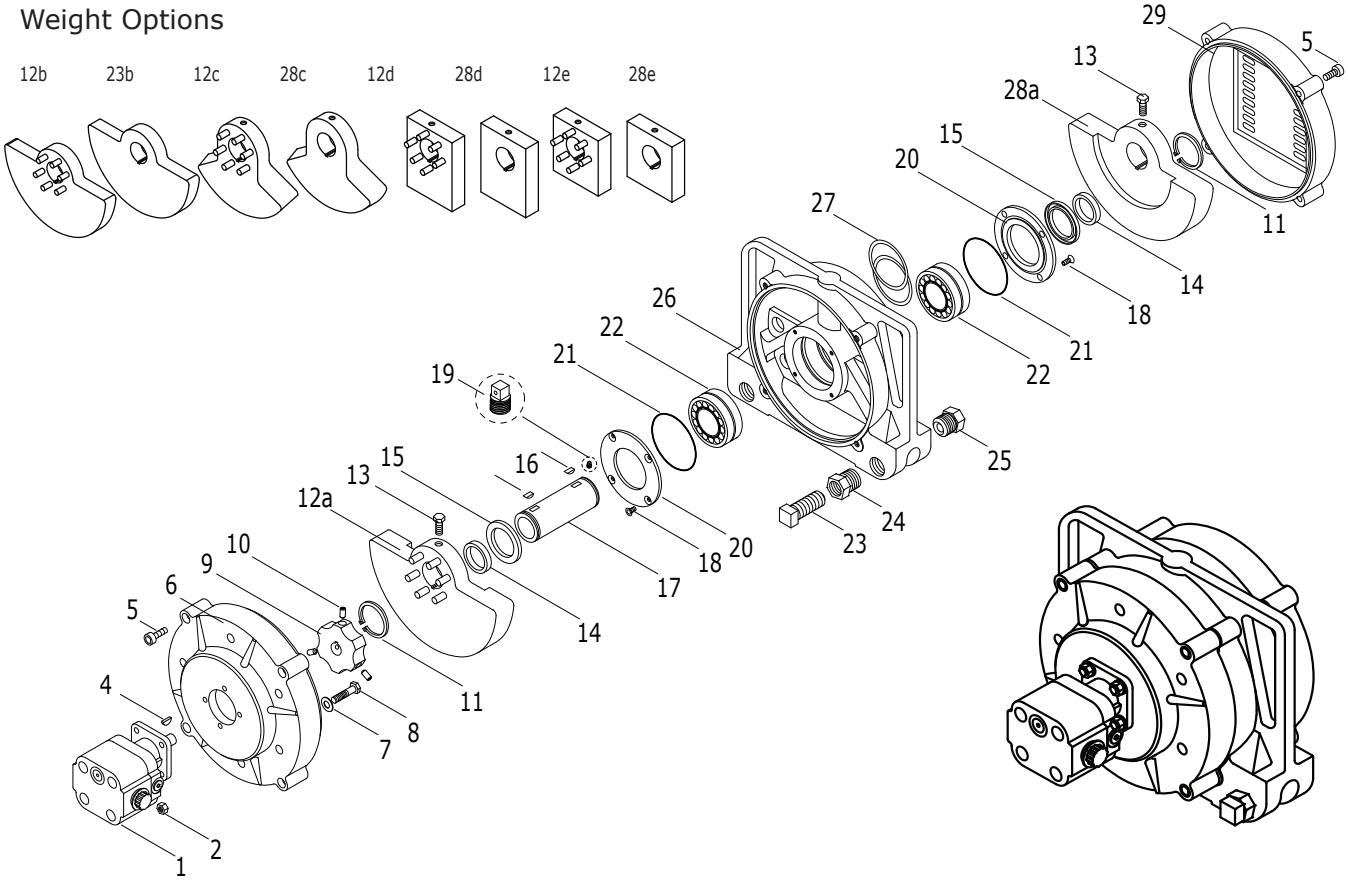
X. 8HC Hydraulic Motor Parts Explosion



Parts List for 8HC Hydraulic Motor (pn 251082)							
#	**Description**	**Part #**	**Qty**	**#**	**Description**	**Part #**	**Qty**
1	Steel Plug Hex ½ - 20" O-Ring Boss	N/A	1	14	Drive Shaft	N/A	1
2	O-Ring	N/A	1	15	Key - 505 Woodruff	N/A	1
3	Screw ⅜ - 16 x 2 ½"	N/A	4	16	Pin, Shear	N/A	2
4	Plug, Plastic ⅞ - 14" SAE	N/A	2	17	Ball, .312 Diameter Steel	N/A	2
5	O-Ring	N/A	2	18	Spring	N/A	2
6	Gear Housing	N/A	1	19	Copper Gasket	N/A	2
7	O-Ring	**K1**	1	20	Cap	N/A	2
8	Bearing, Needle	**K1**	4	21	Stator	254088	1
9	Gear	N/A	2	22	Ball Bearing	N/A	1
10	Retaining Ring, External	N/A	4	23	Spacer	N/A	1
11	Idler Shaft	N/A	1	24	Oil Seal	**K1** or 254080	1
12	Drive Pin	N/A	1	25	Retaining Ring, Internal	347137	1
13	Key - 404 Woodruff	N/A	1	**K1**	**Repair Kit**	251180	1

XI. CC7 Hydraulic Vibrator Parts Explosion

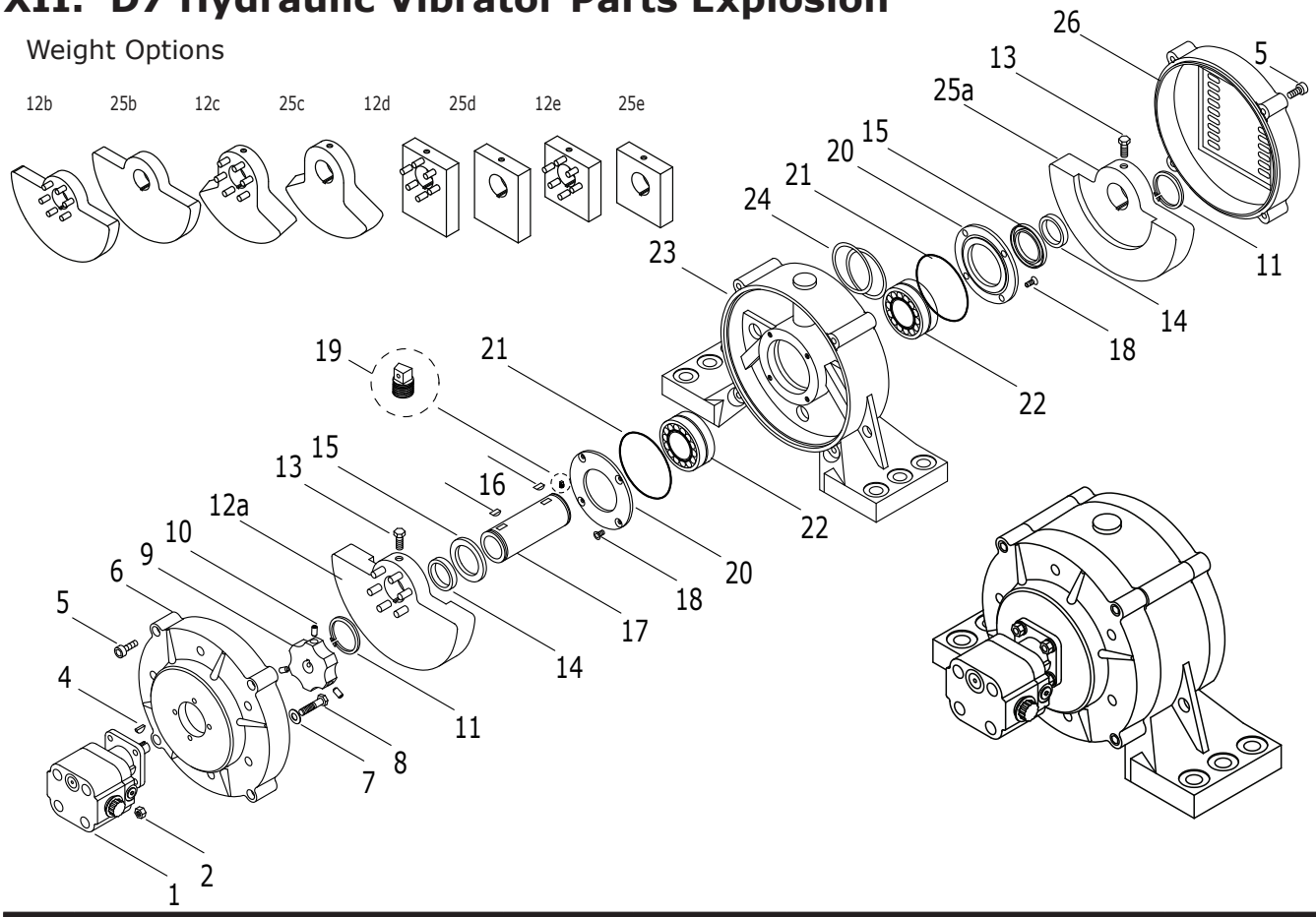
Weight Options



Parts List for CC7 Hydraulic Vibrator							
CC7-12-8HC (pn 588012) CC7-18-8HC (pn 588018) CC7-25-8HC (pn 588025) CC7-50-8HC (pn 588050)							
#	**Description**	**Part #**	**Qty**	**#**	**Description**	**Part #**	**Qty**
1	Motor 8HC Hydraulic	251082	1	16	Key, 606 Woodruff	345609	2
2	Lock Nut 5/16 - 18"	334205	4	17	Shaft, Vented	202570	1
3	Part Obsolete	N/A	0	18	Soc Flathead Scr ¼ - 20 X ½"	334905	8
4	Key - 505 Woodruff	(1)	1	19	Pipe Plug, ⅛" NPT, Vented	295002	1
5	SCS 3/8 - 16 X 2"	337120	8	20	Bearing Cap	388070	2
6	Motor Cover, Hydraulic	115270	1	21	O-Ring 568 - 239	385239	2
7	Flat Washer 5/16"	338205	4	22	Bearing 22308	384308	2
8	Bolt Hex 5/16 - 18 X 1 ¼"	330112	4	23	Bolt, Clamp	333516	2
9	SSS ¼ - 20 X ½"	336105	3	24	Bolt, Bushing	333501	2
10	Coupling	203070	1	25	Bolt, Static	333503	2
11	Retaining Ring 5100-156	349156	2	26	Housing	143070	1
12a	Drive Weight - 50 lb-in	194250	1	27	Spacer, Bearing	387077	2
12b	Drive Weight - 35 lb-in	194235	1	28a	Driven Weight - 50 lb-in	194350	1
12c	Drive Weight - 25 lb-in	194225	1	28b	Driven Weight - 35 lb-in	194335	1
12d	Drive Weight - 18 lb-in	194217	1	28c	Driven Weight - 25 lb-in	194325	1
12e	Drive Weight - 12 lb-in	194212	1	28d	Driven Weight - 18 lb-in	194317	1
13	Bolt Hex ⅜ - 16 X 1 ¼"	330212	2	28e	Driven Weight - 12 lb-in	194312	1
14	Seal Ring	386770	2	29	Cover, Back	115070	1
15	Seal	386730	2	**Notes:** (1) Key included with motor.			

XII. D7 Hydraulic Vibrator Parts Explosion

Weight Options



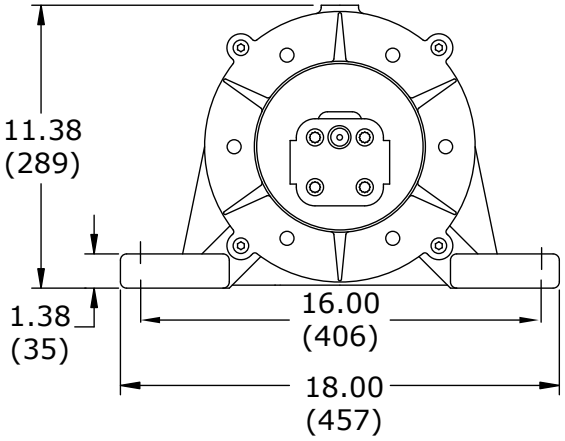
Parts List for D7 Hydraulic Vibrator							
D7-12-8HC (pn 578012) D7-18-8HC (pn 578018) D7-25-8HC (pn 578025) D7-50-8HC (pn 578050)							
#	**Description**	**Part #**	**Qty**	**#**	**Description**	**Part #**	**Qty**
1	Motor 8HC Hydraulic	251082	1	14	Seal Ring	386770	2
2	Lock Nut 5/16 - 18"	334205	4	15	Seal	386730	2
3	Part Obsolete	N/A	0	16	Key, 606 Woodruff	345609	2
4	Key - 505 Woodruff	(1)	1	17	Shaft, Vented	202570	1
5	SCS ⅜ - 16 x 2"	337120	8	18	Soc Flathead Scr ¼ - 20 X ½"	334905	8
6	Motor Cover, Hydraulic	115270	1	19	Pipe Plug, ⅛" NPT, Vented	295002	1
7	Flat Washer 5/16"	338205	4	20	Bearing Cap	388070	2
8	Bolt, Hex 5/16 - 18 x 1 ¼"	330112	4	21	O-Ring 568 - 239	385239	2
9	Coupling	203070	1	22	Bearing 22308	384308	2
10	SSS ¼ - 20 X ½"	336105	3	23	Housing	144070	1
11	Retaining Ring 5100-156	349156	2	24	Spacer, Bearing	387077	2
12a	Drive Weight - 50 lb-in	194250	1	25a	Driven Weight - 50 lb-in	194350	1
12b	Drive Weight - 35 lb-in	194235	1	25b	Driven Weight - 35 lb-in	194335	1
12c	Drive Weight - 25 lb-in	194225	1	25c	Driven Weight - 25 lb-in	194325	1
12d	Drive Weight - 18 lb-in	194217	1	25d	Driven Weight - 18 lb-in	194317	
12e	Drive Weight - 12 lb-in	194212	1	25e	Driven Weight - 12 lb-in	194312	1
13	Bolt Hex ⅜ - 16 X 1 ¼"	330212	2	26	Cover, Back	115070	1
Notes: (1) Key included with motor.							

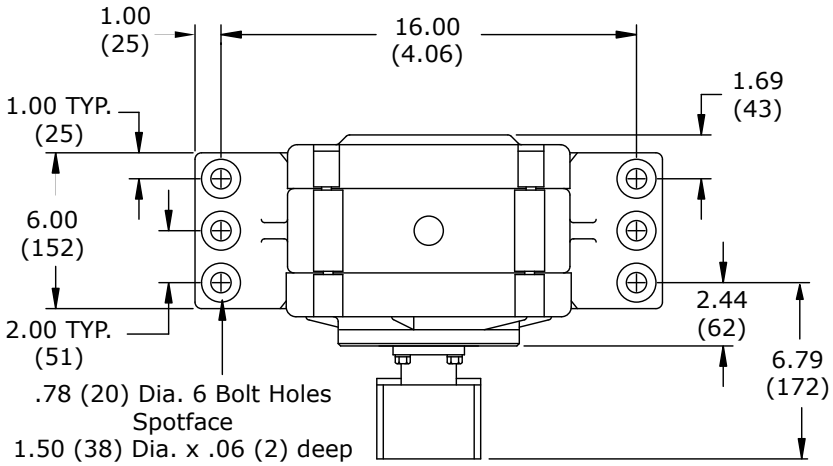
XIII. CC7 and D7 Dimensions

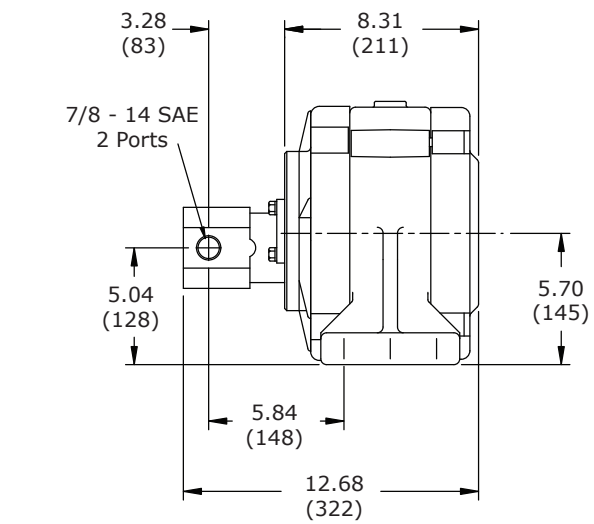
Dimensions are in inches (mm).

D7 Series

Mount with 3/4" - 10 unc Grade 8 plated bolts.
Torque to 282 ft-lb (382 Nm).
Vibrator weighs approximately 110 lb (50 kg).

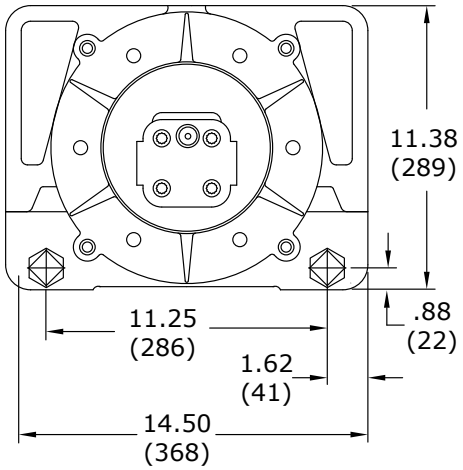


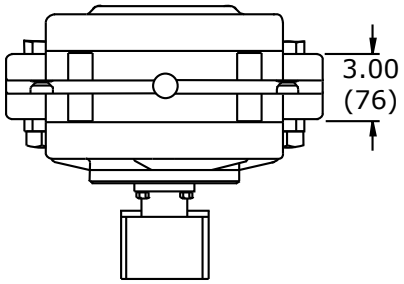


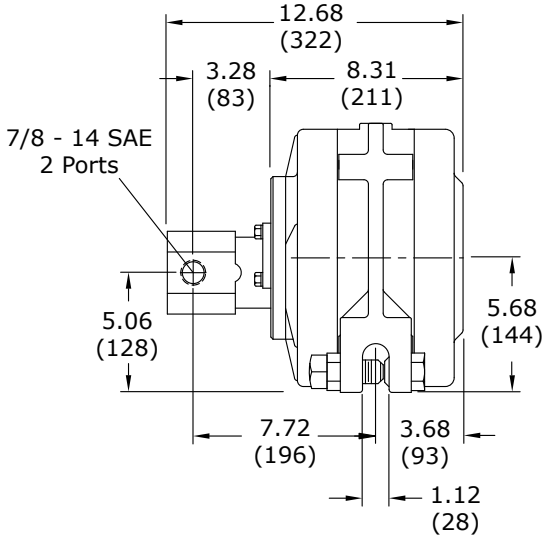


CC7 Series

Mount with Clamp bolts supplied with unit.
Torque to 893 ft-lb (1210 Nm)
Vibrator weighs approximately 98 lb (45 kg).







XIV. Troubleshooting

Problem	Probable Cause	Solution
Vibrator will not operate	Not enough starting pressure.	Increase pressure.
	Check valve is missing from inlet side of motor.	Install a check valve on the inlet side of the motor.
Hydraulic shaft seal blows	Excessive back pressure or pressure spikes.	Reduce back pressure below 400 psi. Use a transducer to detect pressure spikes. If they are present, eliminate them. If back pressure cannot be reduced or pressure spikes eliminated, install a case drain to prevent damage to the shaft seal.
	Too much oil flow	Reduce oil flow. Check performance data on page 14.
	Oil temperature over 400°F (204°C).	Reduce oil temperature.
Excessive noise	Bearing failure (squealing sound).	Replace the bearings.
	Insufficient mount.	Replace with stronger mounting apparatus. See recommendation on pages 3 - 5.
	Damaged housing or covers.	Replace the housing or covers.
Premature bearing failure	Operating the vibrator too fast.	Reduce speed by reducing psi and gpm. (These vibrators can take a high psi load. It is usually too much flow that causes the vibrator to run too fast.)
	Excessive oil temperature.	Reduce temperature to 130°F to 160°F (54°C to 71°C).