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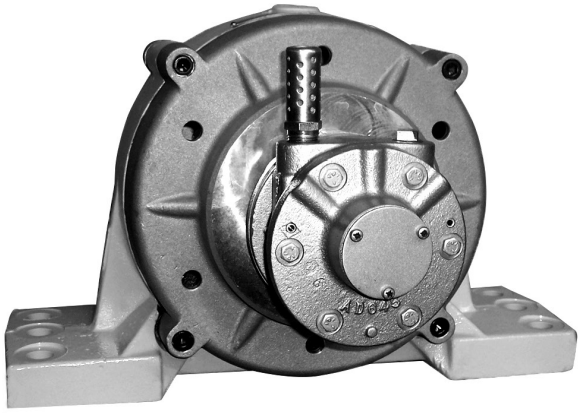
Design Series®

Operating Instructions

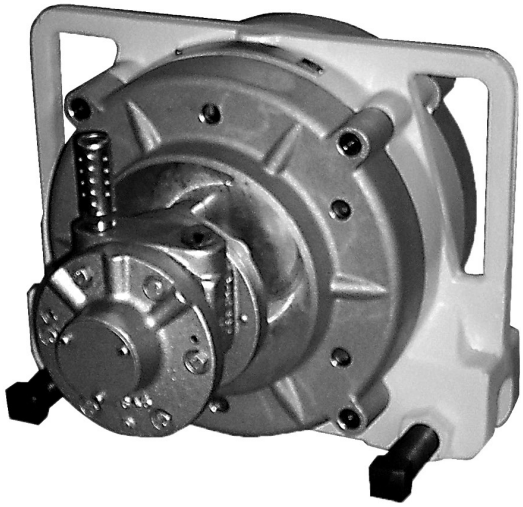
Global® Pneumatic Vibrators

MODELS

CC7-12-6AC	D7-12-6AC
CC7-18-6AC	D7-18-6AC
CC7-25-6AC	D7-25-6AC
CC7-50-6AC	D7-50-6AC



D7 Series Permanent Mount



CC7 Series Portable Mount Clamp-On

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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

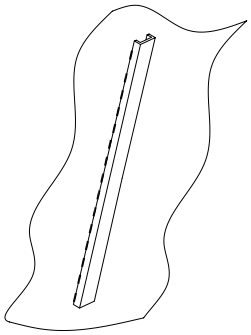
- Follow all mounting instructions.
- Always use a safety cable or chain for support.
- Do not operate vibrators when structure is empty.
- Do not operate vibrators when gate is closed or conveyor is stopped unless consolidation of material is desired.
- Wear ear protection for 90+ decibel levels.
- Do not operate vibrators without side covers.
- Do not operate the pneumatic vibrators above 100 psi.
- To prevent explosive hazard, do not use combustible gases to drive the pneumatic motor.
- Always operate pneumatic vibrator with a regulator, filter, and lubricator.
- Always disconnect air 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

Channel Irons - Size & Mounting

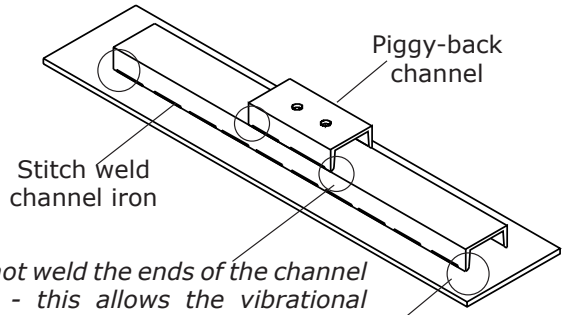
Important!

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
D7-12-6AC	C8" x 18.7 lb/ft	96"
	200 x 27.9 kg/m	2438 mm
D7-18-6AC D7-25-6AC	C10" x 25 lb/ft	96"
	C250 x 37.2 kg/m	2438 mm
D7-50-6AC	C12" x 30 lb/ft	96"
	C310 x 45.5 kg/m	2438 mm

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.

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.

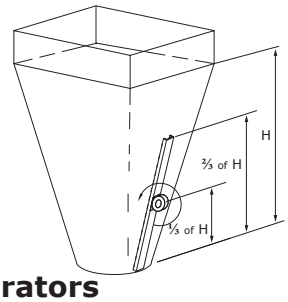
Secure the vibrator to the channel iron with SAE coarse thread grade 8 plated bolts with lock washers or an adhesive such as Loctite® 262. Tighten bolts in a sequential process. At least two passes are required in most situations. Give all bolts the same torque value. Grade 8 bolts can handle more torque 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.

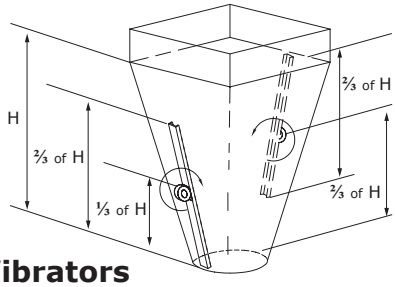


Multiple Vibrators

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.

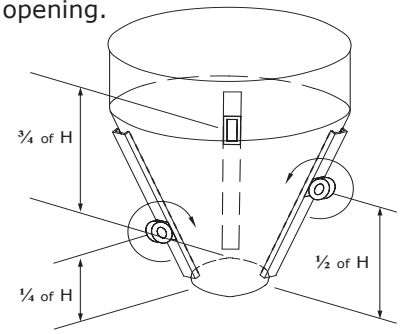
Two Vibrators on Round or Square Hoppers

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.



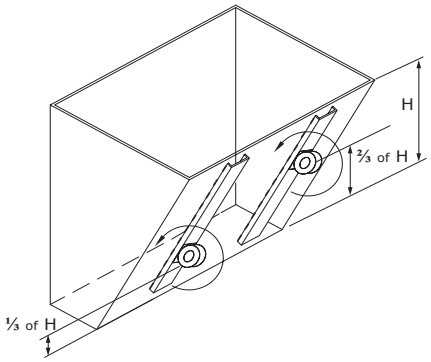
Three Vibrators

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.



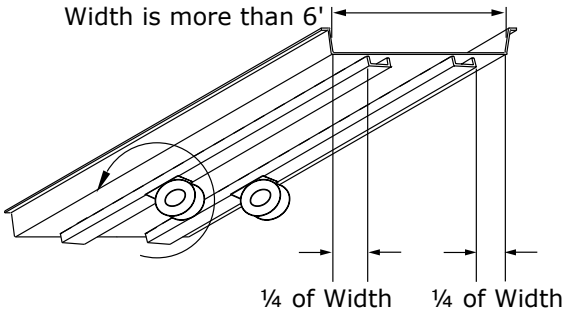
Two Vibrators on Rectangular Hoppers

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.



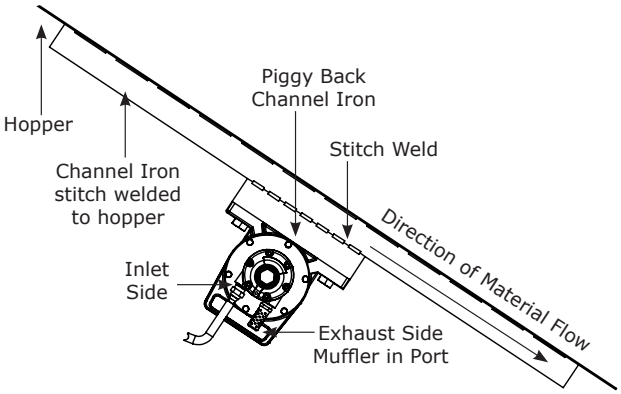
Installation on Chutes and Flow Pipes

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

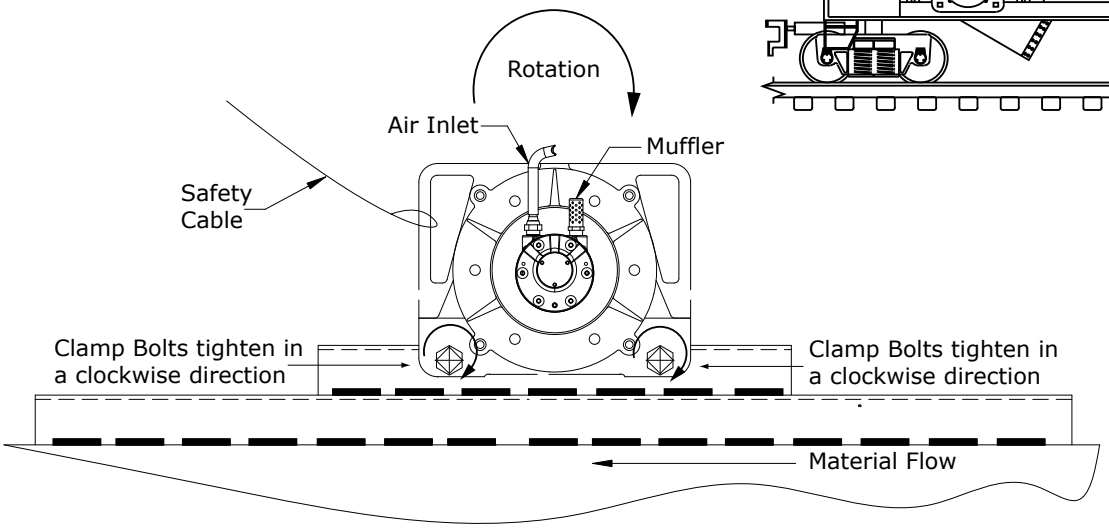
The axis of rotation of the eccentric weights for all rotary vibrators should be oriented in the direction of material flow. The shaft of the vibrator should ideally be in a horizontal position to prolong bearing life.



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

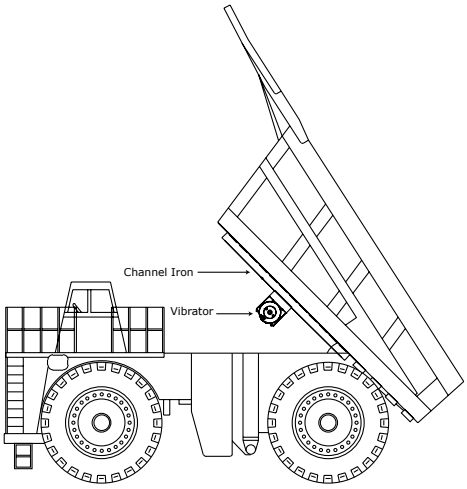
Direction of Rotation - CC7 Series

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.



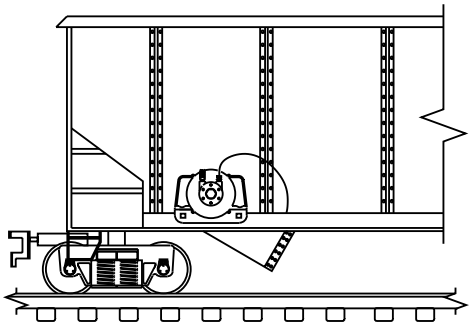
Mounting on Truck Bed

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

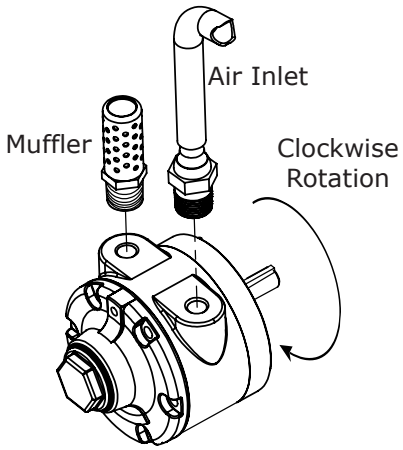
Install clamp-on CC7 model vibrators on the center beam of car or on a corner of the car near the hopper body as shown.



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 and Hose Sizes

Use an air 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 air 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 it from vibration.

Important!

Operate vibrator with a muffler on the exhaust port. The muffler will prevent contaminants form entering into the motor.

Air Connection & Operation Guidelines

Clean the compressed air connection with low pressure air to remove any dirt from the line before connecting to the ports. Connect air line to the highest port, as shown on page 5. Use a muffler to keep contaminants out of the vibrator, especially when vibrator is turned off. The exhaust air may be hosed away from the vibrator to reduce the noise and contamination. The exhaust hose should be at least one size larger than the inlet hose.

Install a 5-micron filter in the air line before the connection to the motor. Drain the airline filter regularly and examine the element for signs of clogging. For excessive moisture, install an after cooler and moisture separator between the compressor and air receiver.

Next install a pressure regulator or needle valve to control the air flow, which controls the speed. Use a ball valve or solenoid valve to turn the vibrator on and off. A regulator provides constant speed control even as the plant air pressure varies. Alternatively, a needle valve will control the speed as long as the plant air pressure does not change. Do not connect the vibrator directly to plant air.

Check all connections before starting motor. If you remove the air motor from the vibrator, do not run the motor at high speeds with no load. This will result in excessive internal heat and cause motor damage.

Will operate in temperatures of 32°F (0°C) to 250°F (120°C).

The vibrator may run continuously at speeds up to the rated running conditions shown in our performance data.

Lubrication

Install an automatic air line lubricator as close as possible to the air motor, but no further than 18" (1/2 m). Install the lubricator level with or above the motor, so that the oil mist will blow directly into or fall down into the motor.

Fill oil reservoir with detergent SAE# 10W automotive engine oil. Lubrication is necessary to prevent rust on all moving parts. For food applications use White Rex 425 food grade motor oil. Adjust lubricator to feed 1 drop of oil for every 50 scfm of air while the unit is running. For continuous duty use 1 drop of oil per minute of run time. Do not overfeed oil or exhaust air may become contaminated. The airline lubricator should be replenished as required.

Airline Lubricator Drop Rate	
Automatic Lubrication	**Manual Lubrication**
1 drop of oil per minute for every 50 scfm of air. Or 1 drop of oil per continuous minute of run time.	Shut motor off every 8 hours of operation and add 10 - 20 drops of oil to the air motor intake port.

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).

Hex Key

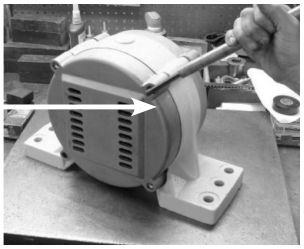
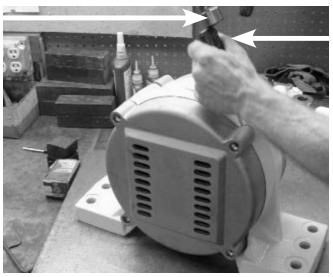


Figure a

Hammer



Pry Bar

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.

Casting Mark

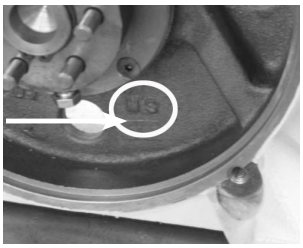
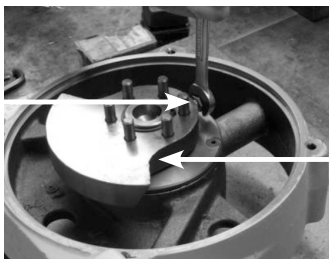


Figure c

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.

Set Screw



Eccentric Weight

Figure d

Retaining Ring Pliers

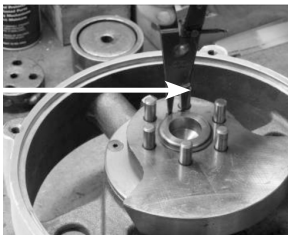


Figure e

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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.

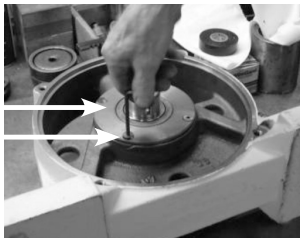


Figure g

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

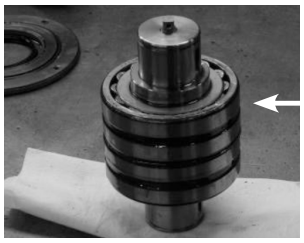


Figure k

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.

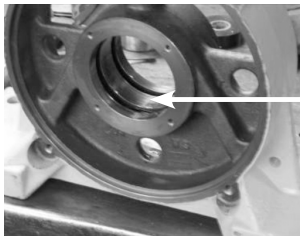


Figure l

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).

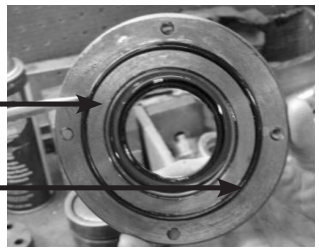


Figure o

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

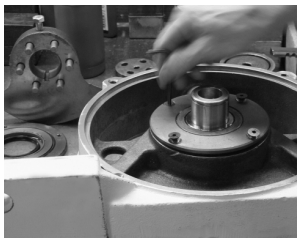


Figure q

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).

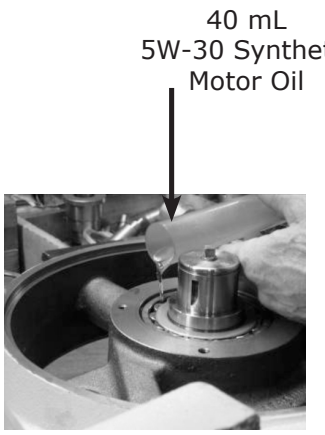


Figure r

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

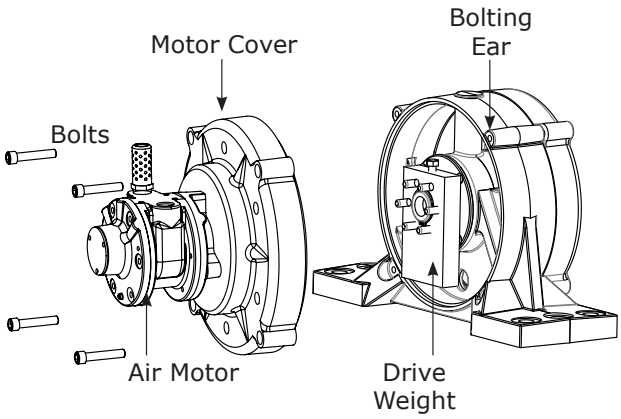
14. Re-install weights on their correct sides, with drive pins on motor side of the casting.

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

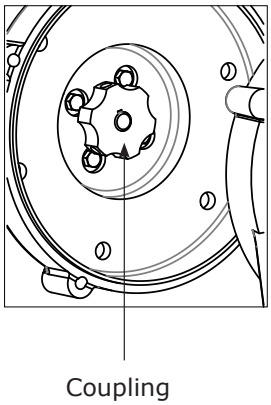
Removing the Coupling

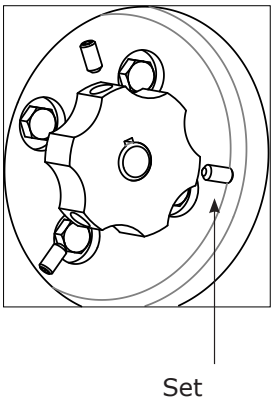
1. Remove the motor cover / motor assembly from the vibrator housing by removing the four 3/8" cover bolts using a 5/16" hex key. Break the cover loose from housing with a pry bar inserted between housing and the bolting ear on the cover.



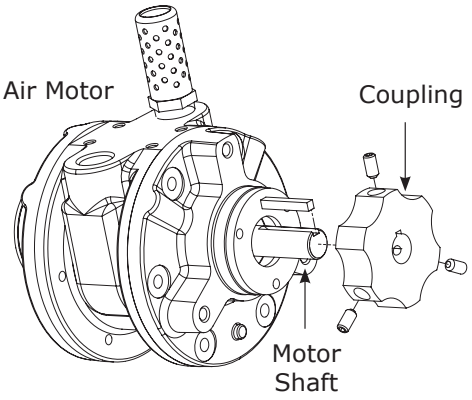
2. Inspect the coupler for signs of excessive wear. If holes are worn out of round (style prior to January 2014) or locking ramps show significant grooving (Star coupling style - new in January 2014) the coupler should be replaced.

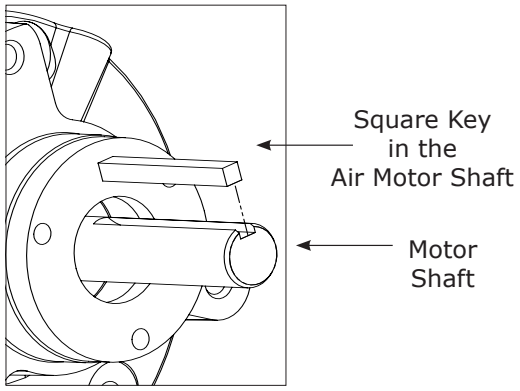
3. To remove the coupling, use a 1/8" hex key to loosen the three 1/4" - 20 X 1/2" set screws securing it to the shaft.





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

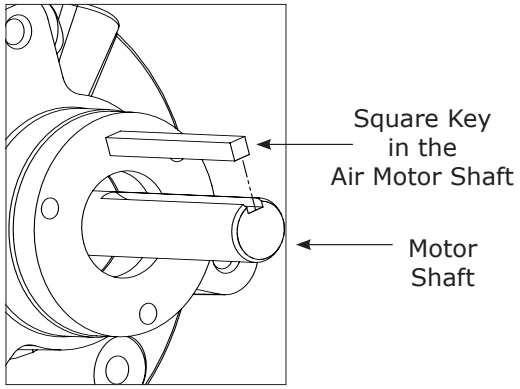




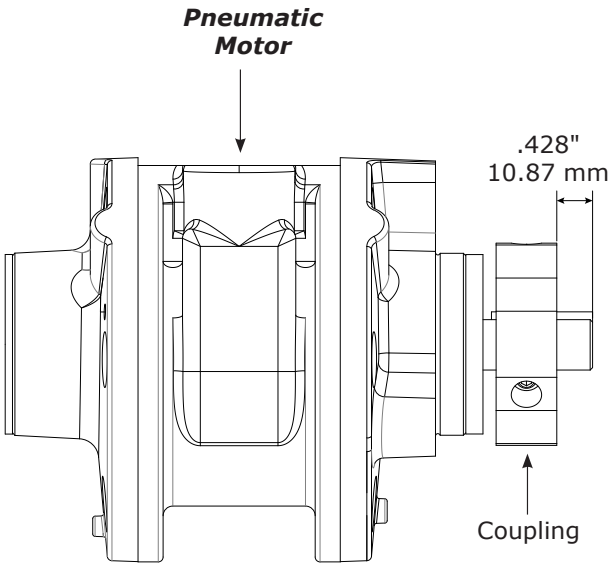
Installation

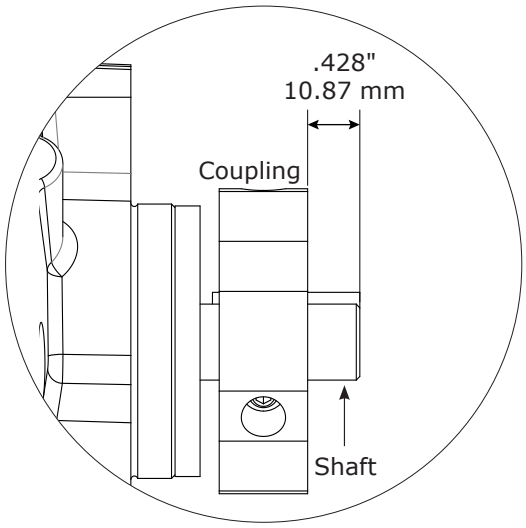
5. Stone any burrs from the motor shaft, the shaft hole, and keyway grooves.

6. Install square key in pneumatic motor shaft.



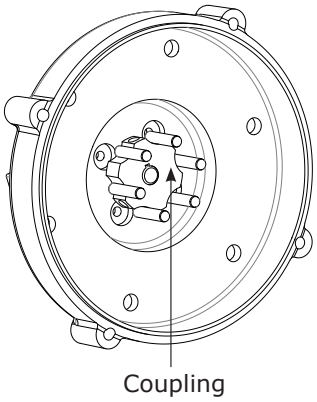
7. Install coupling onto motor shaft engaging the square key until the motor shaft protrudes about .0428" through the coupling. **The coupling should clear the motor cover without rubbing**.





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.

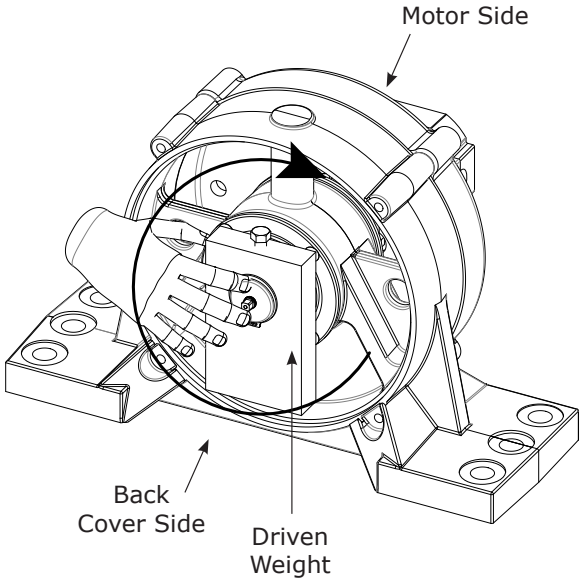
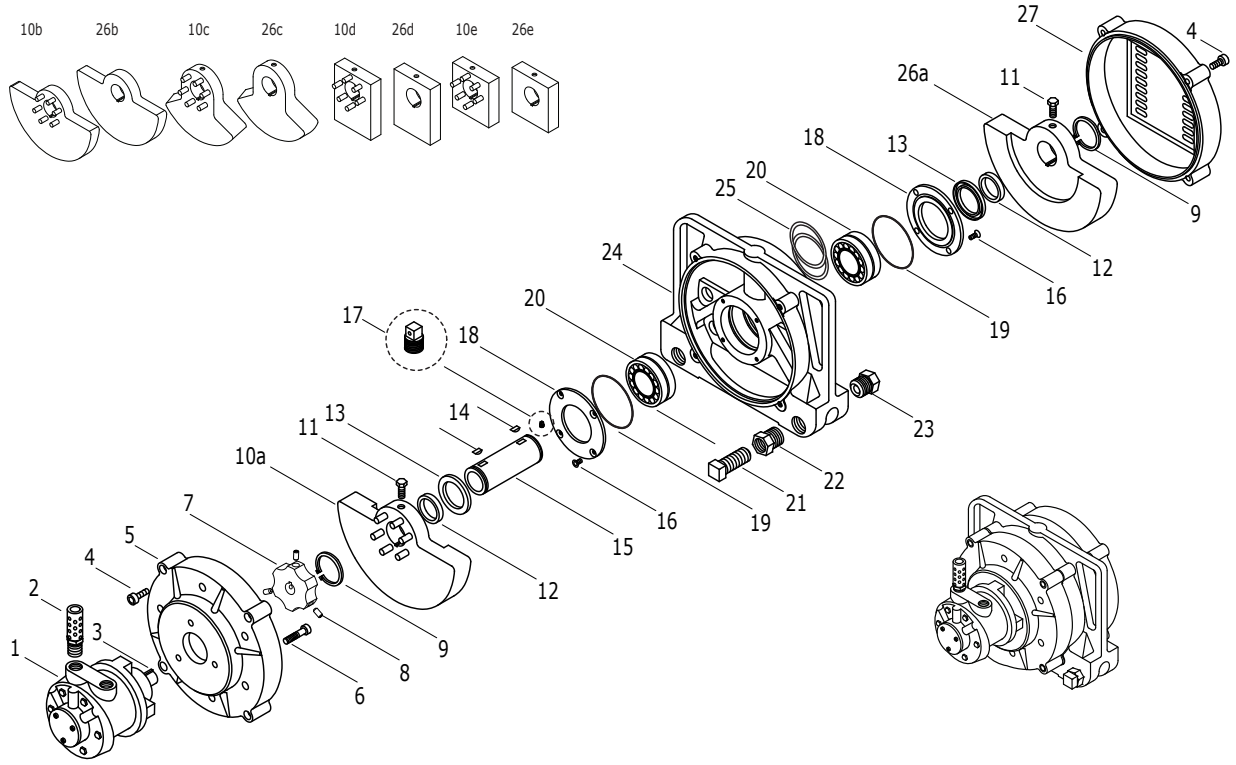


Illustration shows Back Cover removed.

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. CC7 Pneumatic Vibrator Parts Explosion

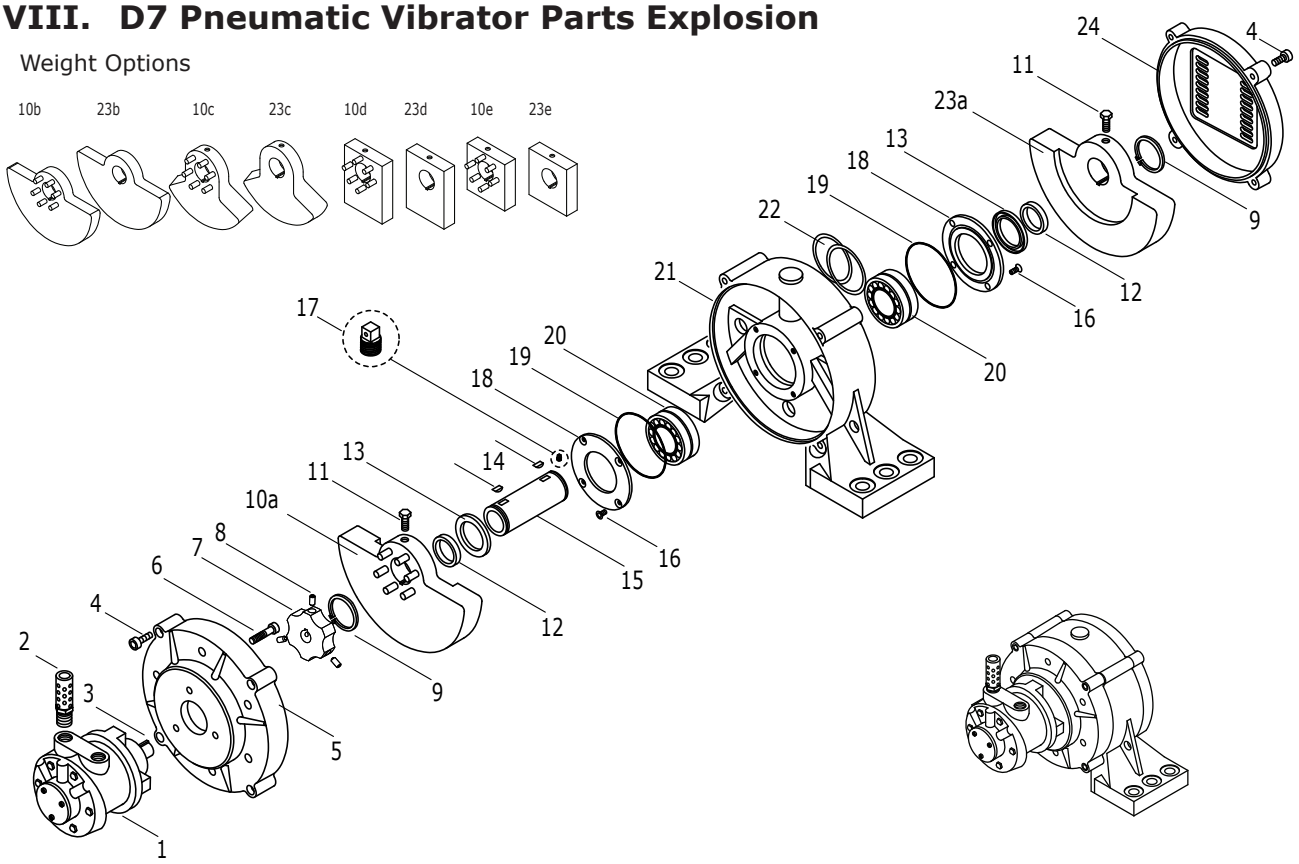
Weight Options



Parts List for CC7 Pneumatic Vibrator							
CC7-12-6AC (pn 586012) CC7-25-6AC (pn 586025)				CC7-18-6AC (pn 586018) CC7-50-6AC (pn 586050)			
#	Description	Part #	Qty	#	Description	Part #	Qty
1	Motor 6AC Pneumatic	240460	1	14	Key, 606 Woodruff	345609	2
2	Muffler ½"	270008	1	15	Shaft, Vented	202570	1
3	Key, 505 Woodruff	(1)	1	16	Soc Flathead Scr ¼ - 20 X ½"	334905	8
4	SCS ⅜ - 16 X 2"	337120	8	17	Pipe Plug, ⅛" NPT, Vented	295002	1
5	Motor Cover, Pneumatic	116670	1	18	Bearing Cap	388070	2
6	SCS 5/16 - 18 x 1"	337010	3	19	O-Ring 568 - 239	385239	2
7	Coupling	203070	1	20	Bearing 22308	384308	2
8	SCS ¼ - 20 X ½"	336105	3	21	Bolt, Clamp	333516	2
9	Retaining Ring 5100-156	349156	2	22	Bolt, Bushing	333501	2
10a	Drive Weight - 50 lb-in	194250	1	23	Bolt, Static	333503	2
10b	Drive Weight - 35 lb-in	194235	1	24	Housing	143070	1
10c	Drive Weight - 25 lb-in	194225	1	25	Spacer, Bearing	387077	2
10d	Drive Weight - 18 lb-in	194217	1	26a	Driven Weight - 50 lb-in	194350	1
10e	Drive Weight - 12 lb-in	194212	1	26b	Driven Weight - 35 lb-in	194335	1
11	Bolt Hex ⅜ - 16 X 1 ¼"	330212	2	26c	Driven Weight - 25 lb-in	194325	1
12	Seal Ring	386770	2	26d	Driven Weight - 18 lb-in	194317	1
13	Seal	386730	2	26e	Driven Weight - 12 lb-in	194312	1
Notes: (1) Key included with motor.				27	Cover, Back	115070	1

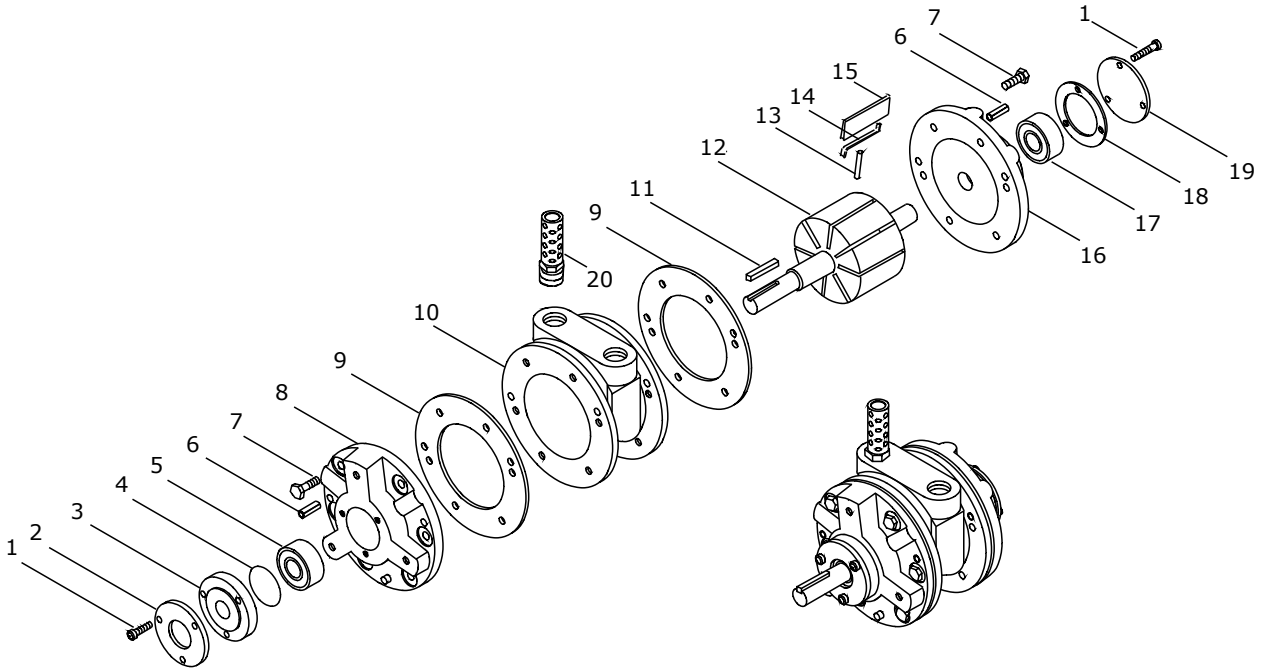
VIII. D7 Pneumatic Vibrator Parts Explosion

Weight Options



Parts List for D7 Pneumatic Vibrator							
D7-12-6AC (pn 576012) D7-25-6AC (pn 576025)				D7-18-6AC (pn 576018) D7-50-6AC (pn 576050)			
#	Description	Part #	Qty	#	Description	Part #	Qty
1	Motor 6AC Pneumatic	240460	1	14	Key, 606 Woodruff	345609	2
2	Muffler ½"	270008	1	15	Shaft, Vented	202570	1
3	Key, 505 Woodruff	(1)	1	16	Soc Flathead Scr ¼ - 20 X ½"	334905	8
4	SCS ⅜ - 16 X 2"	337120	8	17	Pipe Plug, ⅛" NPT, Vented	295002	1
5	Motor Cover, Pneumatic	116670	1	18	Bearing Cap	388070	2
6	SCS 5/16 - 18 x 1"	337010	3	19	O-Ring 568 - 239	385239	2
7	Coupling	203070	1	20	Bearing 22308	384308	2
8	SCS ¼ - 20 X ½"	336105	3	21	Housing	144070	1
9	Retaining Ring 5100-156	349156	2	22	Spacer, Bearing	387077	2
10a	Drive Weight - 50 lb-in	194250	1	23a	Driven Weight - 50 lb-in	194350	1
10b	Drive Weight - 35 lb-in	194235	1	23b	Driven Weight - 35 lb-in	194335	1
10c	Drive Weight - 25 lb-in	194225	1	23c	Driven Weight - 25 lb-in	194325	1
10d	Drive Weight - 18 lb-in	194217	1	23d	Driven Weight - 18 lb-in	194317	
10e	Drive Weight - 12 lb-in	194212	1	23e	Driven Weight - 12 lb-in	194312	1
11	Bolt Hex ⅜ - 16 X 1 ¼"	330212	2	24	Cover, Back	115070	1
12	Seal Ring	386770	2	**Notes:** (1) Key included with motor.			
13	Seal	386730	2				

IX. 6AG Pneumatic Motor Parts Explosion



6AG Pneumatic Motor Parts List - Part Number 240460							
#	Description	Part #	Qty	#	Description	Part #	Qty
1	10 -32 x ½" Phillips Rd Hd Scr	N/A	6	11	Key - 3/16" Square	N/A	1
2	End Cap, Drive End	N/A	1	12	Rotor Assembly	N/A	1
3	Shaft Seal	(1)	1	13	Push Pin	(1)	2
4	O-Ring	(1)	1	14	Vane, Spring	(1)	4
5	Bearing, Drive End	(1)	1	15	Vane	(1)	4
6	Dowel Pin	N/A	4	16	End Plate, Dead End	N/A	1
7	¼" - 28 x ¾" Hex Hd Cap Scr	N/A	12	17	Bearing, Dead End	(1)	1
8	End Plate, Drive End	N/A	1	18	End Cap, Gasket	(1)	1
9	Body Gasket	(1)	2	19	End Cap, Dead End	N/A	1
10	Body	N/A	1	20	Muffler ½"	N/A	1
Note: (1) Parts included in repair kit #240960.							

X. Performance Charts - Vibrator and Pneumatic Motor

CC7 & D7 Pneumatic Design Series Vibrator Performance Data											
			40 psi			60 psi			80 psi		
			2.8 bar			4.1 bar			5.5 bar		
Model	Unbalance lbf-in Unbalance kgf-mm	Start psi Start bar	Speed rpm	Flow scfm Lpm	Force pounds kN	Speed	Flow scfm LPm	Force pounds kN	Speed	Flow scfm Lpm	Force pounds kN
D7-12-6AC CC7-12-6AC	12.0 1383	15 1.0	4,000	55 1,557	5,450 24	5,250	85 2,407	9390 42	Not recommended running at pressures above 60 psi. It will run too fast and damage the bearings.		
D7-18-6AC CC7-18-6AC	18.0 2074	18 1.2	3,500	54 1,529	6,440 29	4,650	82 2,322	11050 49	5,400	114 3,228	14,910 66
D7-25-6AC CC7-25-6AC	25.0 2880	20 1.4	3,300	52 1,472	7,730 34	4,400	81 2,294	13750 61	5,050	109 3,087	18,110 81
D7-50-6AC CC7-50-6AC	50.0 5761	25 1.7	2,700	48 1,359	10,350 46	3,750	67 1,897	19970 89	4,350	93 2,633	26870 120

The table above represents the vibrator's performance at various speeds. It is important to note that with any rotary vibrator the load on the bearings increases as the speed increases therefore, the life of the bearings is very sensitive to the speed. Increasing the speed by just 10% will cut the bearing life in half. Likewise, reducing the speed 10% will double the bearing life. Please remember that the speed is controlled by the flow or volume of air (scfm/Lpm) in relation to the pressure (psi/bar). The pressure across the motor will vary according to the rigidity of the vibrator mount and the type of material being resonated.

Pneumatic Motor Performance Data					
Port Size Inlet and Outlet	Minimum Hose Size	Maximum Continuous Speed RPM	Maximum Intermittent Speed RPM	Maximum Pressure	Maximum Flow
½" - 14 NPT	¾" I.D.	3,000	5,000	100 psi 6.9 bar	150 scfm 207 bar

Pneumatic Motor Filter & Lubrication Requirements		
Filtration Required	Lubrication Required for Automatic Operation	Lubrication Required for Manual Operation
5 Micron	1 drop of oil per minute for every 50 scfm of air. Or 1 drop of oil per continuous minute of run time.	Shut motor off every 8 hours of operation and add 10 - 20 drops of oil to the air motor intake port.

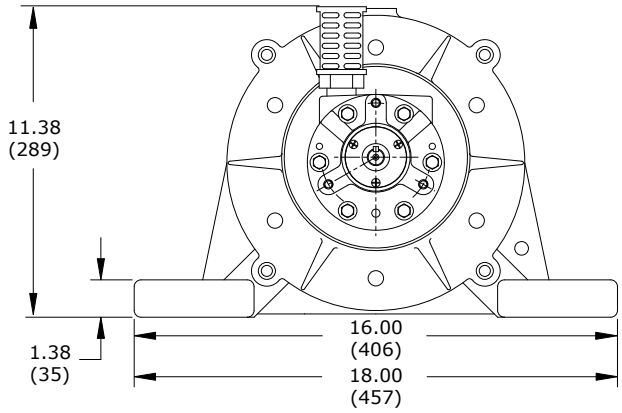
XI. CC7 & D7 Dimensions - Dimensions are in inches (mm)

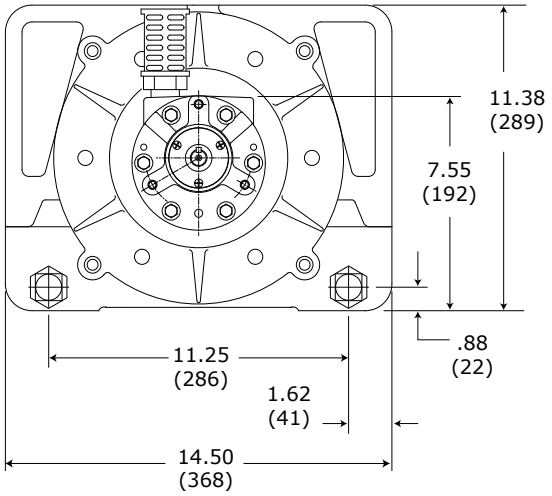
D7 Series

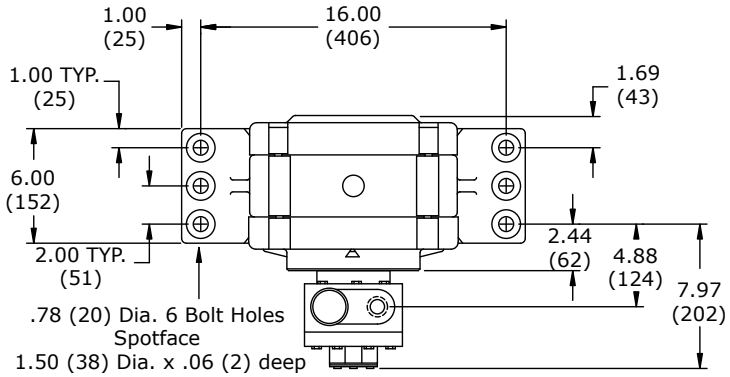
Mount with ¾" - 10 unc Grade 8 plated bolts.
Torque to 282 ft lb (382 N-m).
Vibrator weight approximately 98 lb (44 kg).

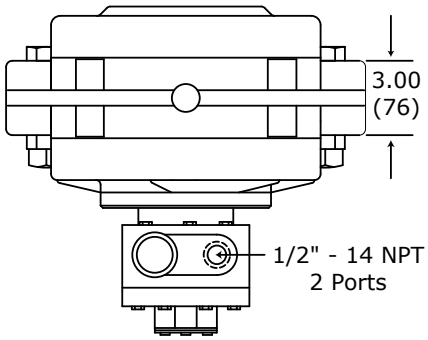
CC7 Series

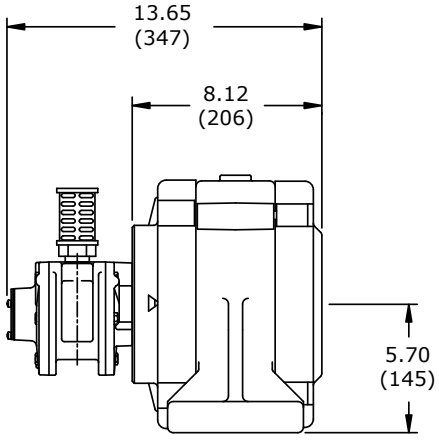
Mount with clamp bolts supplied with unit.
Torque to 893 ft lb (1210 N-m).
Vibrator weight approximately 90 lb (41 kg).

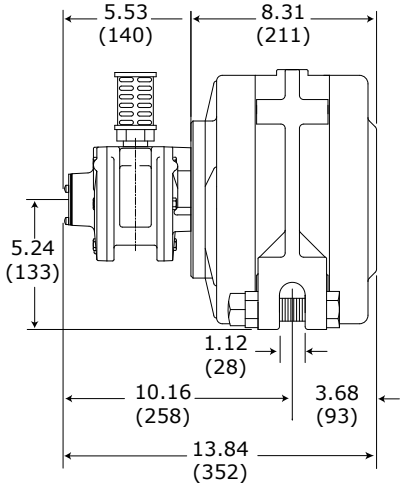












XII. Troubleshooting

Problem	Probable Cause	Solution
Vibrator will not operate	Air line blocked	Locate obstruction and remove. Check for kinked air line. Check filter.
	Inadequate air supply	Increase regulator setting or reduce number of units in use at same time. Check capacity of compressor.
	Air line too small for distance used	Use larger air line.
	Contamination in vibrator motor	Disassemble and clean motor. Check filter element.
	Faulty valve or air line couplings	Clean, repair, or replace.
	Clogged filter	Clean or replace filter.
Excessive noise	Bearing failure (squealing sound)	Replace the bearings.
	Insufficient mount	Replace with stronger mounting apparatus.
	Damaged housing or covers	Replace the housing or covers.
Vibrator operates slowly	Air line leaking or constricted	Replace air line, valve, or filter.
	Air line too small for distance used	Replace air line with larger size air line.
	Filter or muffler clogged	Clean, repair, or replace.
	Contamination in vibrator	Disassemble and clean.
	Lubricant too thick in cold weather	Use a lighter weight lubricant.
Premature bearing failure	Operating the vibrator too fast	Reduce speed by reducing psi and cfm.