An American Tradition
DENVER CONCRETE VIBRATOR
P. O. Box 27790 Denver, Colorado 80227-0790 USA
www.denverconcretevibrator.com

FIELD MAINTENANCE INSTRUCTIONS

DENVER CONCRETE VIBRATOR
BEARINGLESS PNEUMATIC VIBRATORS

Maintenance Procedure:

It is very important that every effort be made to prevent foreign matter of any description from entering the unit. All malfunctions of the vibrator are detectable by a radical loss of power and effectiveness of the unit. These malfunctions are a result of:

INSUFFICIENT AIR SUPPLY

- Inadequate compressor.
- Too small or restricted air lines.
- Inadequate supply system.
- Clogged air strainer.
- Icing of supply lines.

NON EXISTENT or INADEQUATE OIL SUPPLY

- Wrong grade of oil – Use Air Tool Oil, or winter grade Air Tool Oil.
- Unit being operated without oiler or with defective oiler.

INTERIOR DAMAGE TO MOTOR

- Dirt being allowed to enter unit by use without strainer components.
- Dirt having entered unit while disconnected from air supply lines.

On-the-job maintenance required to the vibrator includes the cleaning of the air strainer. To do this, regularly remove the air strainer plug and thoroughly blast air through the strainer cavity by opening the throttle valve.

Cover the exhaust ports and throttle valve opening when storing the unit to ensure that dirt cannot enter the air line.

In humid conditions, the unit may occasionally need to be hung upside down with the valve open to drain fluid from the head.

Under no circumstance should any attempt be made to remove the motor / vibrator assembly from the barrel and nose assembly without the special tools and instructions required for this operation. Unless such tools are available, the head assembly, including the barrel, must be replaced as a unit.

COLD WEATHER OPERATION:

In cold weather, moisture in the air supply system may form ice in the vibrator's air passages. This will result in poor performance and even stoppage of the equipment. Where this condition is encountered or anticipated, we recommend the use of Winter Grade Air Tool Lubricant. The air supplied also should be dehydrated.

IMPORTANT:

From time to time, or if the unit becomes sluggish or loses speed after hard usage, we recommend the vibrator be flushed out with diesel fuel or kerosene.

With the unit disconnected from the air line, open the throttle and pour one pint of diesel fuel or kerosene into the unit at the hose connector. Close the throttle valve. Reconnect the vibrator to the air supply line. Protect yourself and others from discharge from the exhaust, open the throttle valve and blast thoroughly to clean interior parts.

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SERVICE INSTRUCTIONS

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It is imperative that disassembly and repairs to motor / vibrator assemblies be performed in a clean location by personnel with experience on precision machinery. Proper tools should be available for this service. Such tools will include:

- A chain type vise, RIDGID 810-BC or equivalent.
- A large pipe wrench, RIDGID 36" or equivalent.
- A heavy crescent type adjustable wrench, 18".
- A leather or plastic head mallet.
- Snap ring pliers.
- Feeler gauge.
- Depth gauge.

SPECIAL TOOLS are required for EACH MODEL of Denver Bearingless Pneumatic Vibrators.
These tools include:

- A threaded locknut rod.
- A service barrel and plate.

The threaded locknut rod is used to replace the intake tube when dismantling the motor.
The service barrel and plate is used to permit the motor / vibrator assembly to be pulled from its barrel.

Special tool part numbers:

- Models A250R, A250F: Special Tool part number A250ST
- Model A300R: Special Tool part number A300ST
- Model A350R, A350F, A350S: Special Tool part number A350ST

- Models A450R, A450S: Special Tool part number A450ST
- Model A600S: Special Tool part number A600ST

The proper use of these tools is explained in the following dismantling and loading procedures.

To Dismantle:

Place the vibrator head assembly in a chain vise. Being careful not to crush or distort the barrel or threads, use a large pipe wrench to unscrew the vibrator barrel from the connector (left hand thread) exposing the intake hose connection at the axle. The application of heat to break down the thread locker and tapping (without damaging the thread area) with a hammer may help unscrew these two parts.
Note: A swivel connector is installed in the intake line to ease disassembly.

Using caution not to crush or distort the barrel or threads, reposition the vibrator barrel in the chain vise placing the chain over the barrel (near the center) and, with the crescent wrench remove the intake hose fitting and hose from the axle (right hand thread). It is not necessary to unclamp the intake hose from the fitting since the intake hose is equipped with a swivel fitting which permits the hose to be rotated without twisting. The entire hose assembly and connector can now be removed from the vibrator.

Install the threaded locknut rod where the intake hose fitting was removed. Place the loading barrel and plate over the rod. Tighten the rod nut to full pressure with the crescent wrench.

Apply heat from an acetylene or gas torch evenly around the barrel where the motor end plates would be, just above the angle where the nose breaks and just below where the internal threading for the connector stops, while further tightening the rod nut until the motor assembly breaks free and can be removed completely from the barrel.

Remove the motor assembly from the barrel and take the locknut rod from the axle. Tap the end of the axle with a soft head mallet, or push through, driving the axle through the top end plate. Sometimes the addition of some heat to the top end plate will facilitate this removal. With the end plate removed, the vane is exposed and may be removed, inspected and replaced, if necessary.

No further dismantling is required unless it is determined that dirt or other foreign material has entered the unit and damage to other parts is suspected.

The bottom end plate is a shrink-fit on the axle. If it is necessary to remove this part, remove the snap ring and apply heat to the end plate (300° - 350°F) while pushing on the axle.

To Re-assemble:

- Apply grease to the journals of the axle.
- Chill the axle.
- Heat the end plates to 300 - 350° F.
- Be sure that the alignment keys are on the axle.
- Protecting the axle's threaded ends and journal areas and bearing only on the axle shoulder, press the bottom end plate onto the axle.
- Install the vane, the edge with the straight side out, angled side in.
- Install the rotor cylinder
- Protecting the axles threaded end and journal area and bearing only on the top end plate, press the top end plate onto the axle, install the snap ring and allow the assembly to cool.
- Install the intake hose fitting to the axle.

With a feeler gauge, check the clearance between the end plates and the rotor cylinder.

This measurement is:

	A250	**A300**	**A300**	**A350**	**A450**	**A600**
GO	.004	.004	.004	.004	.004	.004
NO GO	.012	.012	.012	.012	.012	.010

If assembly is correct when measured, it is ready to be installed into the barrel.

- Chill the motor assembly.
- Place the vibrator barrel in an upright position .

- Heat the vibrator barrel to 300 - 350°F in the areas of the lands, just above the angle where the nose breaks and just below where the internal threading for the connector stops.

- Allow the vibrator motor assembly to drop straight into the vibrator barrel.

- Tap the nose of the assembly lightly on a hard surface to seat the motor.

- Check for proper position using a depth gauge.

The proper depth reading from barrel edge to the top outside edge of the end plate is:

A250	**A250F**	**A300**	**A350**	**A350F**	**A450**	**A600**
1-3/16"	19/32"	1-1/32"	1-33/64"	½"	2-9/32"	1-3/16"

Usually this measurement will be correct if the above procedure is followed. Should the assembly not be seated, the motor can be positioned by dropping the entire barrel assembly on its nose. If necessary, you may push on the ENDPLATE only, not on the axle end.

When depth gauge measurement is correct, remove the intake hose fitting from the axle.

Place the hose assembly in the chain vise with the chain over the exhaust hose connector. Engage the intake hose and fitting to axle. Tighten securely (right-hand thread).

Add thread locker to the connector threads and engage the vibrator barrel to the exhaust hose connector (left-hand thread).

Reposition the assembly in the chain vise with the chain over the barrel, using caution not to crush or distort the barrel.

Tighten the exhaust hose connector securely.

Attach a working oiler; remove blow plug(s) on the strainer. Blast air through the strainer to clean. Then replace the plug(s).

The unit is ready for use. If the unit is not to be used immediately, cover the intake and exhaust ports to prevent dirt from entering the unit.