2210 Series

KSI BENCHMATE VIBRATION ISOLATION PLATFORM

ASSEMBLY AND OPERATION INSTRUCTIONS MANUAL

Information contained in this document is subject to change without notice and does not represent a commitment on the part of Kinetic Systems, Inc. Revisions E in January 2017 to this document, or new editions of it, may be issued to incorporate such changes.

CONTENTS

Section I

As You Begin:

Congratulation! The VIBRAPLANE Model 2210 Benchmate Platform you have purchased has been designed by Kinetic Systems, Inc. for many years of trouble-free user service. It will deliver superior vibration isolation performance for a broad range of research, quality assurance, and production applications.

The maximum gross load capacity of the 2210 Platform is 400 pounds. The net load capacity is approximately 200 pounds at 80 PSI.

In order to get full benefit from your VIBRAPLANE Model 2210 Benchmate Platform, we suggest you follow the easy, step-by-step set up and operation instructions in this Manual.

Technical Assistance:

Need technical assistance? First, refer to the "Troubleshooting" Section of this Manual. If your problem persists, the technical support staff at Kinetic Systems, Inc. will be glad to answer any questions. Just call us at (617) 522-8700 or Fax (617) 522-6323 or Email sales@kineticsystems.com.

Damage due to shipping:

When your VIBRAPLANE Model 2210 Benchmate Platform arrives, inspect it carefully for any damage due to shipping. *If ANY DAMAGE IS DETECTED, NOTIFY THE SHIPPING CARRIER IMMEDIATELY. SAVE ALL PACKING MATERIALS.*

Section II

Set up Procedure:

Fig. 1 provides a top-level view of your VIBRAPLANE Model 2210 Benchmate Platform.

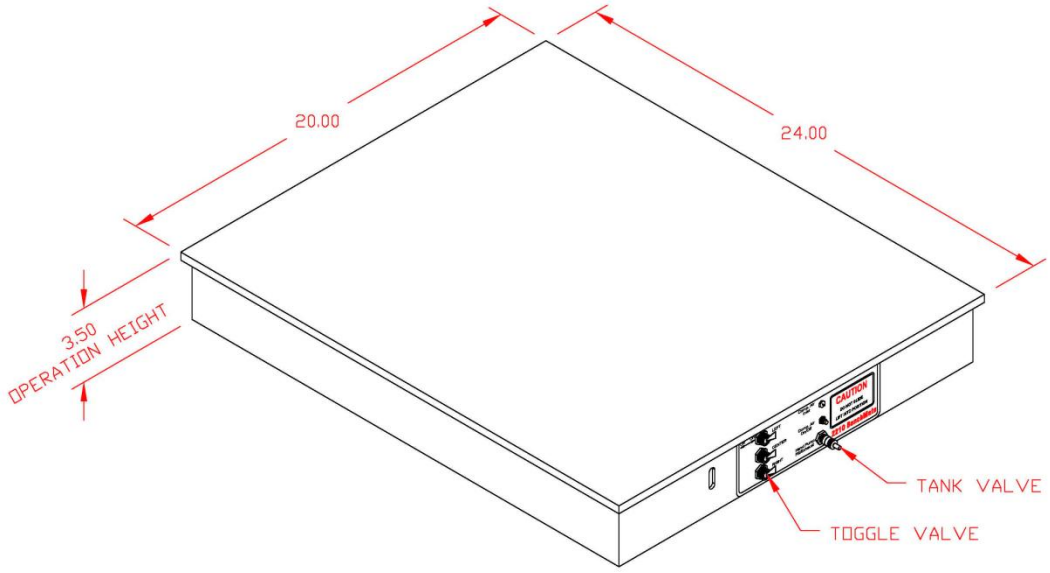

Fig. 1 Outline View of 2210 VIBRAPLANE Platform.

The VIBRAPLANE 2210 has a standing weight (no packing or components) of approximately 100-150 pounds depending on the size. In addition, it has a maximum net load capacity (components) of approximately 200 pounds at 80 PSI.

Due to its size and weight, you should take care in lifting and moving your VIBRAPLANE 2210 (two people recommended) and should insure that it is placed on a sturdy tabletop like surface or base. Carefully remove all shipping materials (strapping, cardboard, etc.).

Place, and center the equipment to be isolated on the platform. The system is now ready for operation using the hand pump air fill method. For the compressed air fill method the umbilical assembly must be connected to an air supply.

CAUTION: When setting up your VIBRAPLANE 2210, **do not slide** it into position on its base. Always **lift and place it into position**, even when making small position adjustments. Sliding it into place can damage the isolator boots and result in improper inflation and compromised isolation performance.

Section III

Operation:

- The VIBRAPLANE 2210 Platform airmounts can be inflated by either of two methods.
  - A hand pump air fill method where inflation is done manually.
  - A compressed air fill method where inflation is done by depressing the control valve.
- Choice of air fill method depends on personal preference, installation site and application requirements.
- Refer to Fig. 2 and 3 and follow the appropriate instructions for your method of inflation.

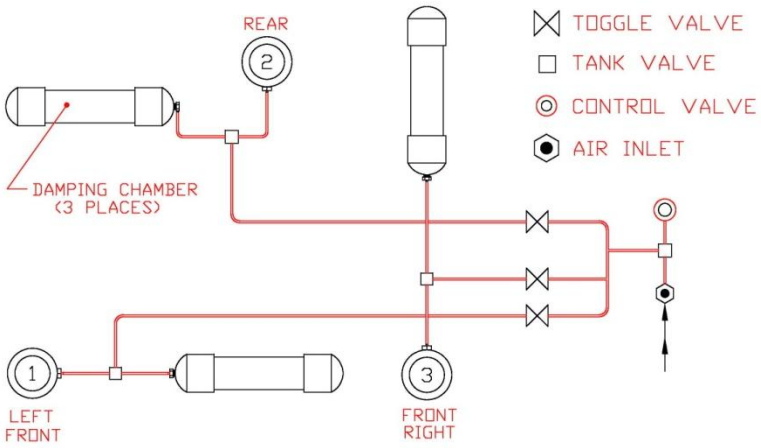

Fig. 2, 2210 Benchmate Airline Schematic.

Manual Inflation:

1. Remove the "Tank Valve" cover.

2. Connect the hand pump or similar air source with a clamp on to tank valve.

3. Open the center toggle valve marked center in Fig. 3 (turn toggle switch to the right) and inflate first airmount until the center rear of the platform rises approximately ¼ to ½ of an inch. Deflate if necessary by lightly tapping or depressing the control valve in.

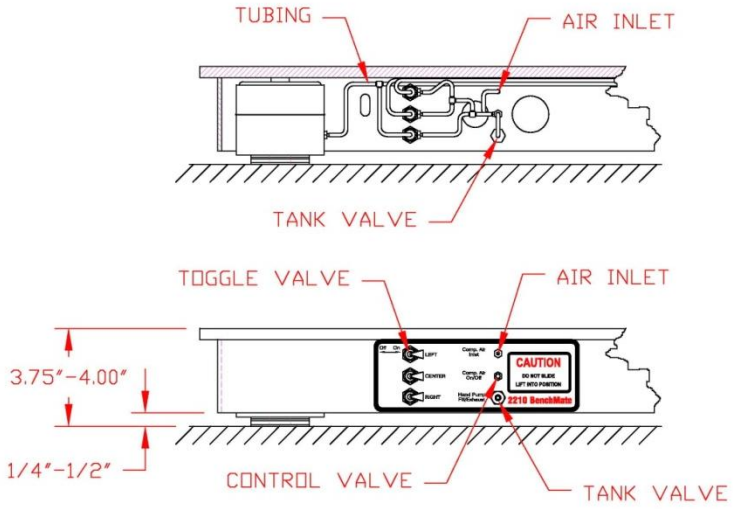

Fig. 3, 2210 Control Panel/Air Fill Illustration.

4. Close the toggle valve (turn toggle switch to the left).

5. Repeat steps 2 and 3 for the front left and right airmounts respectively, until the platform floats freely.

6. Check to see if the platform is floating freely by pressing down and pulling up by hand on the platform top at each airmount location and then releasing. If the platform does not float freely, inflate or deflate as necessary. Check for and remove any obstructions that may inhibit platform movement.

7. The recommended floating height for your VIBRAPLANE 2210 when it is properly inflated and leveled is approximately 3 ¾ inches to 4 inches. For sonic and audio applications, there will be performance differences depending on height. Note that you should not set the floating height to less than 3 ½ or more than 4 inches. Settings outside these boundaries can compromise the effectiveness of the vertical isolation.

8. Replace the "Tank Valve" cover to minimize seal leakage during operation.

Compressed Air Inflation:

1. Connect the VIBRAPLANE 2210 platform to a clean, dry compressed air supply not exceeding 100 PSI. Use the 10 ft. umbilical cord assembly furnished with the system (1/16 ID tube and barb).

2. Open the toggle valve by turning toggle switch to the right and inflate the center rear airmount by depressing the control valve until the center rear of the platform rises approximately ¼ to ½ of an inch. Deflate if necessary by pushing the tank valve core in.

3. Close the toggle valve (turning toggle switch to the left).

4. Repeat the previous two steps for the front left and right airmounts, respectively, until the platform floats freely.

5. Check to see if the platform is floating freely by pressing down and pulling up by hand on the platform top at each airmount location and then releasing. If the platform does not float freely inflate or deflate as necessary. Check for and remove any obstructions that may inhibit platform movement.

6. Replace the "Tank Valve" cover if removed.

Portable Air Compressor (PAC) Set Up

1. Remove your Portable Air Compressor (PAC) from its packaging and check for any damages. Do not dispose of the packing material right away, as it may be needed to return to the provider if any repairs or maintenance are needed.

2. Do not plug in PAC until set up is complete

3. Install PAC on a flat surface in a dry room with good ventilation, where the temperature is not likely to rise above 94° Fahrenheit (35 C°)

4. Check that the automatic ON/OFF-Pressure Switch is in the OFF-position (or turned fully counter-clockwise, Fig. 4).

5. Remove and store the cap from the suction tube

6. Fill oil from the supplied bottle containing a special oil for the PAC. Fill the oil through suction tube (Fig. 5) until the filled-in oil reaches the mid-point level of the oil sight glass in the housing of the PAC pump. Store the rest of the oil for the next oil change.
7. **Note:** Never use oil different from the recommended oil by the manufacturer, as this will void all warranties. Overfilling with oil and turning the PAC upside down will cause the oil to spill out of the compressor.

8. Remove the Air-Intake Filter (Fig. 7) from the supplied plastic bag and insert it into the suction tube, ensuring a tight fit (Fig. 5)

9. Connect the equipment for your application to the outgoing 1/4" male fitting on the Filter/Regulator (Fig. 8). To keep the connecting fitting from leaking air you should always apply Teflon Tape to the thread of the fitting.

Figure 4.

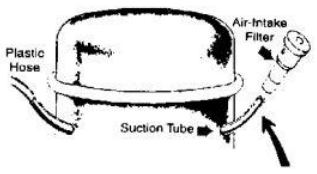

Figure 5.

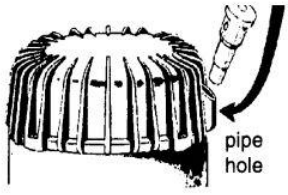

Figure 6.

Operating Instructions

1. Plug the cord into a properly installed and grounded outlet of electric supply corresponding to the electric version of your purchased compressor (for your own safety, the unit should be grounded; in the event of a short this reduces the risk of an electric shock). If you need an extension cord to operate the unit, only use a heavy duty extension cord, no longer than 20 feet or 6 meters (no household cord; it might cause a loss of power and the damage of electrical components).
   Note: Tampering with the Power Cord or Grounding Terminal will void all warranties.

2. Turn the knob on the automatic ON/OFF-Pressure Switch to the On-position (clockwise) until it stops (Fig. 4). The Pressure Switch has been set to automatically start and stop the compressor at the preset pressure level. Leave it in the ON-position until you want to turn off your compressor.
   Note: Never remove or repair the ON/OFF switch while the compressor is connected to the electric outlet!

3. After the compressor has run for a complete cycle to pressurize the tank and then shut off, you set the desired pressure with the Filter/Regulator (Fig. 8). Simply lift the knob on it until it unlocks, then turn it clockwise to increase the pressure until the Pressure Gauge on the Filter/Regulator shows the desired pressure. To reduce the pressure also lift the knob on the Filter/ Regulator and turn it counterclockwise.
   Note: Never open the Filter/Regulator completely, as it would ruin your compressor in a short period of time. If you notice that your compressor is running with a cycle of more than 50% of the time, this indicates that you might have an air-leak in your system or that your compressor is too small for your application.

4. To turn off your compressor, simply turn the knob on the Pressure Switch (Fig. 4) to the OFF-position (counterclockwise). If the electrical power is interrupted while the compressor is in operation and it fails to restart after the power comes back on, turn the knob on the Pressure Switch to the OFF- position; this will release any pressure in the line and enable the compressor to restart again.
   Note: The Safety Relief Valve is a standard feature on your compressor. This valve opens automatically if the tank pressure goes beyond a safe level. Do not attempt to adjust or remove this device!

Figure 7.

Figure 8.

Maintenance

On your PAC, there are a few parts that need your attention for proper maintenance:

1. Air Intake Filter
    - Unplug Power Cord.
    - Pull Air Intake Filter out of the suction tube (Fig. 5) or the hole in the cover of the pump (Fig. 6) and remove the insert from the inside of the filter.
    - If the insert is dirty, wash it properly with soapy water or replace it.
    - Reinstall the Air Intake Filter at its place.

2. Moisture Trap
    - If you use your compressor properly, the Moisture Trap (built into the Filter/Regulator, Fig. 8) will trap the moisture and dirt particles before releasing air into the line. Periodic checks for moisture should be done on a routine basis by looking at the clear bowl at the bottom side of the Filter/Regulator. Moisture can be removed by pressing up the valve core at the bottom of the bowl. If it should be necessary to remove the clear bowl for cleaning, you should be careful that the clear bowl doesn't contain any air under pressure at the moment you unscrew the clear bowl.

3. Pressure Tank
    - Check the Pressure Tank daily for water inside.
    - Unplug the compressor and release all compressed air from the tank by opening the Drain Plug.
    - Tilt the unit towards the plug to allow the water to drain.
    - Air Hose and other accessories should also be drained on a regular basis

4. Oil Change
    - Unplug Power Cord
    - Drain Tank by slowly opening drain valve
    - Remove Air Intake Filter and plastic hose.
    - Tilt compressor and drain all oil into a container.
    - Return the compressor into the normal upright position.
    - Refill new oil through suction tube (Fig. 5)
    - Verify that the oil level is at mid level mark in the oil sight glass.
    - Reinstall the Air Intake Filter and the plastic hose (Fig. 5).
    - Plug Power Cord in again and continue using the Compressor.

Troubleshooting

For any kind of repair or replacement only use original spare parts! They are available at every authorized service center. Imitation spare parts may irreparably damage your compressor. When asking for information or service, please always quote the Model, Type and Serial-Number of your compressor. This information is on a label of your compressor.

Symptom: Compressor will not run
Potential Causes:

- No electric power supply, bad cord connection or incorrect extension cord
- Tank is fully pressurized
- Thermal Overload ProTector Relay has tripped

Potential Solutions

- Check outlet voltage, fuse and circuit breaker. Check cord connection for visible damage. If using an extension cord, check that it is for Heavy duty, grounded and UL-approved.
- Use your equipment to lower pressure in tank.
- Wait 15 minutes and try starting again. If this solved the problem, make sure the compressor is in well ventilated area. Check for air leaks in your system. Set the pressure on the Filter/Regulator to the minimum pressure required for your equipment

Symptom: Compressor runs but will not supply air
Potential Causes:

- Pressure on the Filter/ Regulator not set properly
- Air Intake Filter clogged or not installed
- Air leaks

Potential Solutions:

- Reset Filter/Regulator to pressure required for your equipment.
- Clean Air Intake Filter or replace it.
- Check all the fittings, connectors and equipment for air leaks and repair. Close the pressure to your equipment by turning the knob on the Filter/Regulator all the way counterclockwise - if the tank holds the pressure, the leak is in your equipment, if the pressure on the Pressure Gauge at the Pressure Switch drops, the leak is somewhere on the compressor.

Symptom: Rattling noise during operation
Potential Cause:

- Compressor Motor inside touching housing

Potential solution:

- Surface under compressor not leveled. Check oil level of pump and adjust if it's Necessary.

Symptom: Milky oil in compressor
Potential Cause:

- Oil has been contaminated with moisture or other foreign matter

Potential Solution:

- Change oil – oil needs to be replaced every 150 hours of use. Use only the special oil from Werther International.

Symptom: Air Tank not holding pressure when compressor is not running
Potential Cause:

- Check-Valve defective

Potential Solution:

- Disconnect pressure hose at pump and check For leaking back into pump – clean or replace The Check-Valve. Spray all connections and manifold with soap solution, reseal connections or replace defective parts.

Symptom: No pressure shows up on the Pressure Gauge of the Filter/Regulator
Potential Causes:

- No equipment connected to compressor
- Filter/Regulator has not been adjusted

Potential Solutions:

- Connect equipment.
- Lift knob on the Filter/Regulator and turn it clockwise until the pressure on the Pressure Gauge shows the required pressure for your equipment (pressure should be set at the minimum pressure required).

Symptom: Compressor operates very hot
Potential Causes:

- Oil level is incorrect
- Too small non ventilated Area
- Undersized Model
- Leaks in installation

Potential Solutions:

- Fill compressor pump with oil until mid level on the oil sight glass.
- Install the compressor in a bigger area with better ventilation.
- Duty cycle of compressor should not exceed 50 % - if pump is running for 1 minute, it should stay off at least 1 minute before restarting.
- Check for air leaks in your installation. Check if the setting of the pressure on the Filter/Regulator corresponds to the minimum requirement of your equipment.

If your PAC has a different symptom of a fault from the above troubleshooting list, please contact a specialized technician.

Exploded View

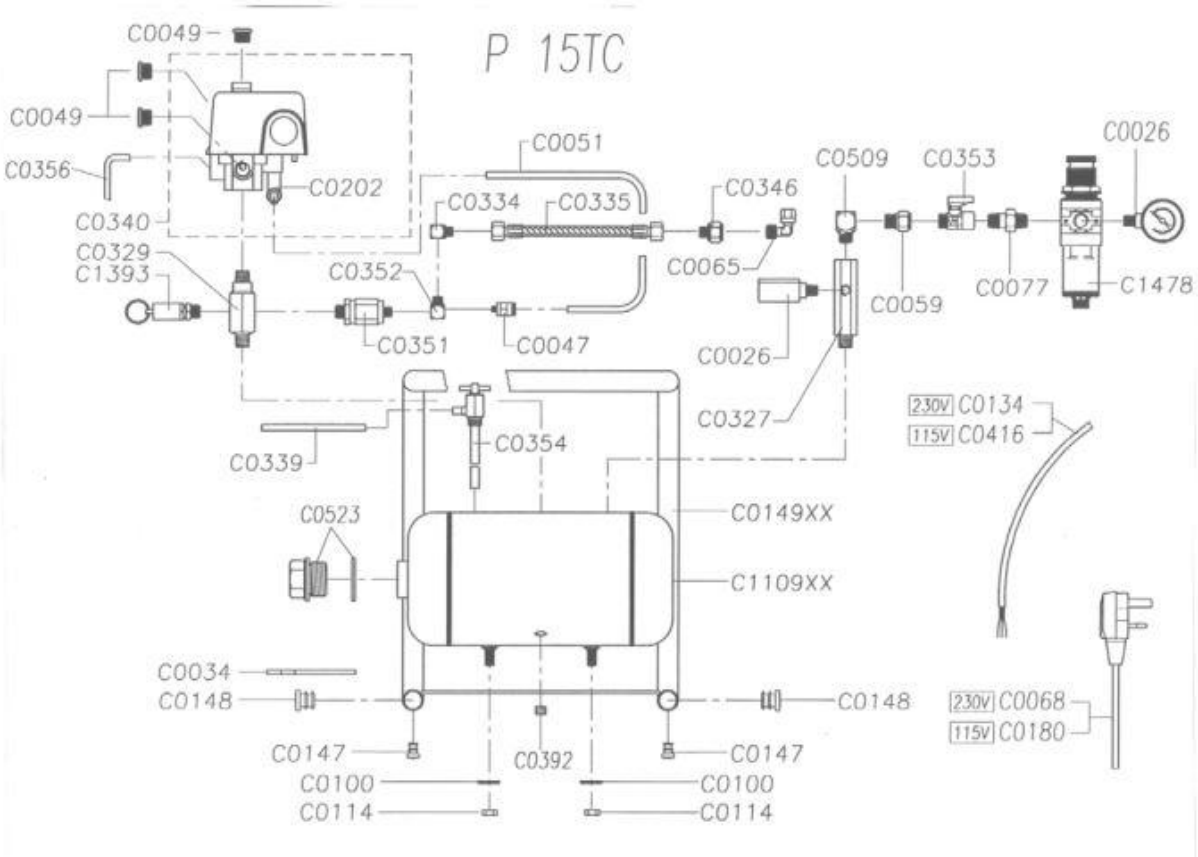

Figure 9. Portable Air Compressor Exploded View

Compressor Parts List

C0026	Gauge Pressure M1/8"-side 10 Bar d=40mm
C0034	Strain Relief
C0047	Fitting M5 d=6mm
C0048	Switch Pressure 4-P 230V MDR 2/11
C0049	Plug 1/4"
C0051	Hose Nylon 6/4mm
C0059	Fitting Extension M1/4"-F1/4"
C0065	Fitting L Rotating M1/4"-6, 3mm
C0068	Power Cord 230V Euro-Plug
C0077	Fitting Swivel Connector M1/4"
C0100	Washer 8, 4x16x1, 5mm UNI 6592 ZB
C0114	Nut M8 UNI 5589
C0134	Cable Electric 230V 500mm
C0147	Rubber Foot
C0148	Plug for Frame
C0149XX	Frame / Chassis Tubular
C0180	Power Cord 115V Am.-Plug 2000mm
C0202	Valve Head Pressure Release
C0327	Elbow MF 1/4"-F 1/8" DIS.327/00
C0329	Fitting M-M-F-F1/4" Cross
C0334	Fitting L M1/8"-F1/8"
C0335	Hose Air F1/8"-F1/8" 140mm
C0339	Tube Nylon 8/6mm
C0340	Switch Press. 4-P 115V MDR 21-EA/11 UL-Approved
C0346	Fitting Reduction F1/4"-M1/8"
C0351	Valve Check M1/4"-M1/8"
C0352	Fitting T M-F-F1/8"
C0353	Valve Inline M1/4"-F1/4"
C0354	Drain-Cock tanktop
C0356	Tube Plastic 6/4mm blue
C0392	Plug M1/8"
C0416	Cable Electric 115V 600mm
C0509	Fitting L M1/4"-F1/4"
C0523	Kit Plug 1"
C1109XX	Tank 3, 5lt. D=130mm
C1393	Valve SafetyM1/4" 10 Bar
C1478	Filter Regulator EAW 111

Section IV

Troubleshooting:

The purpose of this section is to aid the user in the diagnosis and repair of any minor problems that may occur. If your difficulty persists, call Kinetic Systems, Inc.'s technical support staff for assistance.

Symptom: Tabletop Will Not "Float"	
Possible Causes	Probable Solutions
Supported load too heavy.	Reduce load to system capacity
Supported load uneven	Redistribute load evenly
Gross air leak	Locate leak and repair.

Symptom: Tabletop "Float" but will not Isolate	
Possible Causes	**Probable Solutions**
Rubbing between Platform Airmount.	Reposition Platform.
Foreign object between Platform and Airmount.	Remove foreign object.
Piston or pistons too high.	Lower the piston(s) by pushing the "Tank Valve" core in (see Fig. 3).
Piston or pistons too low.	Raise the piston(s) by turning the mounts toggle valve on and adding air. (see Fig. 3).

Section V

Recommended Spare Parts:

While maintenance requirements for the VIBRAPLANE Model 2210 Platform are minimal, some parts can be damaged if the system is improperly moved. In order to avoid any inconvenience, Kinetic Systems, Inc. recommends that user maintain a spare parts inventory of possible replacement items, these items are listed below:

Model No.	Quantity	Part No.	Description
2210	3	123126-03	Isolator (airmount) Assembly.

Section VI

Replacement Airmount Installation:

The following instructions explain how to install a replacement isolator for your 2210 Platform.

Required Material: Wrench supplied with Vibra-Plane

Replacement isolator (as per specification).

Required Tools:

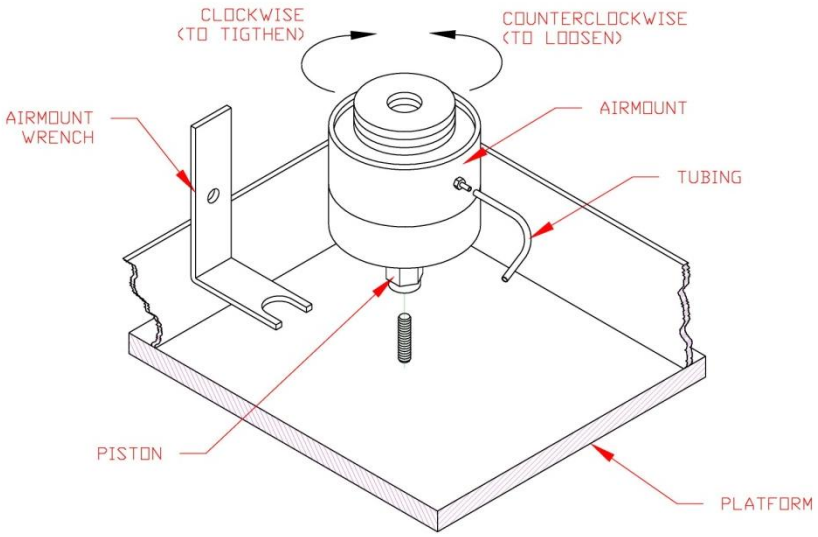

Fig. 10 Isolator (Airmount) Replacement.

1. Turn the platform over.
2. Remove the airline (tubing) attached to the airmount (isolator).
3. Using the wrench provided, remove the damaged airmount by unscrewing it from the platform.
4. Replace the new airmount by screwing it onto the platform, then check for level conditions.
5. Attach the airline to the new airmount.
6. The VIBRAPLANE Model 2210 Platform is now ready for operation.

APPENDIX

WARRANTY

Equipment manufactured by Kinetic Systems, Inc. (KSI) is warranted against defective workmanship and materials for one (1) year from date of delivery. Defective material or items will be replaced at no charge.

This warranty does not include labor to remove and install the material or item in question. Material returned under Warranty will not be accepted without the prior approval and assignment of a Return Authorization Number by KSI. All returns must be shipped Freight Prepaid unless KSI authorizes otherwise. In those instances where returns must be by Motor Freight (truck), KSI will furnish the proper commodity rate classification for lowest shipping cost.