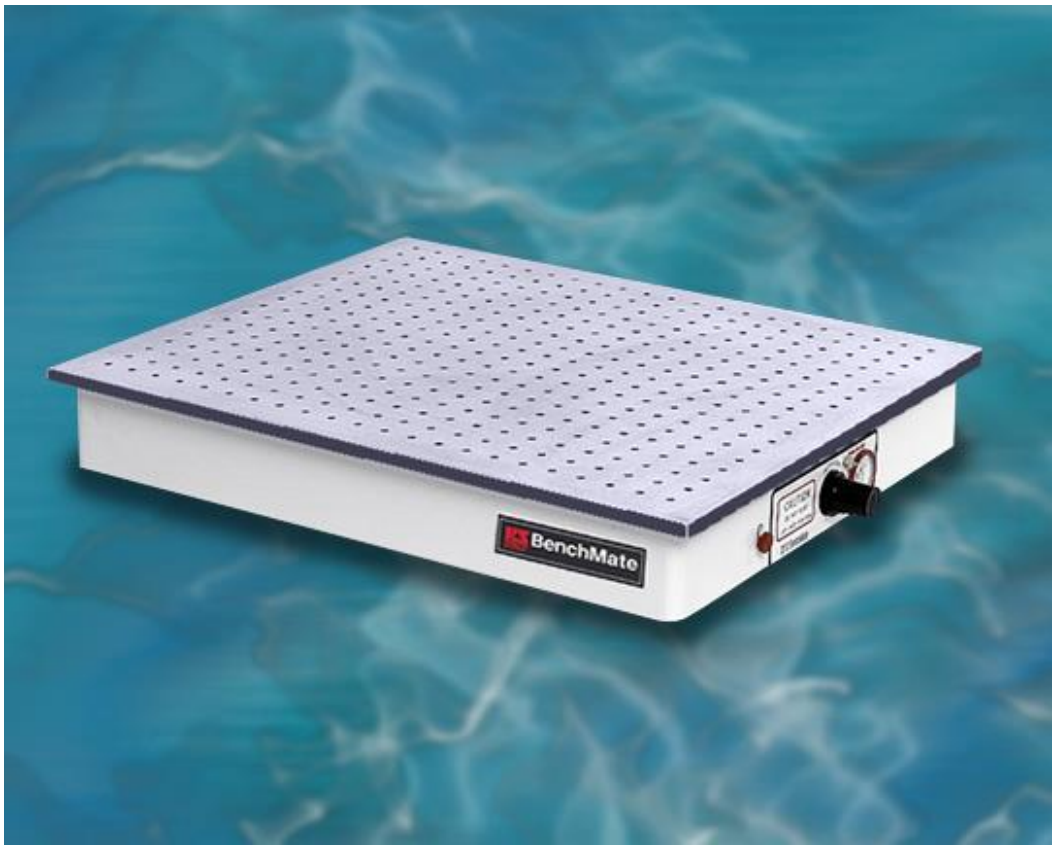

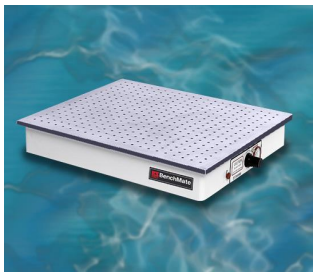

2212/2214 Series

KSI BENCHMATE VIBRATION ISOLATION PLATFORM

ASSEMBLY AND OPERATION INSTRUCTIONS MANUAL

KINETIC SYSTEMS INC.

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Section I

As You Begin:

Congratulations! The VIBRAPLANE Model 2212/2214 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 2212/2214 Platforms feature an active self-leveling isolation system, which when connected to an external low pressure air/gas source, automatically maintains a preset level unaffected by removal or addition of load.

Maximum net load capacity @ 80 psi:

2212-01	200 lbs.	(20x24")
2212-02	450 lbs.	(24x30")
2212-03	450 lbs.	(24x36")
2212-04	150 lbs.	(16x19")
2214-01	150 lbs.	(20x24")

In order to get full benefit from your VIBRAPLANE Model 2212 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 telephone us at (617) 522-8700, or Fax (617) 522-6323 or Email kineticsystems.com.

Damage due to shipping:

When your VIBRAPLANE Model 2212/2214 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:

Refer to Fig. 1 for an outline view of your VIBRAPLANE Model 2212 Platform's size and layout.

No.	Dim.
01	20 x 24"
02	24 x 30"
03	24 x 36"
04	16 x 19"

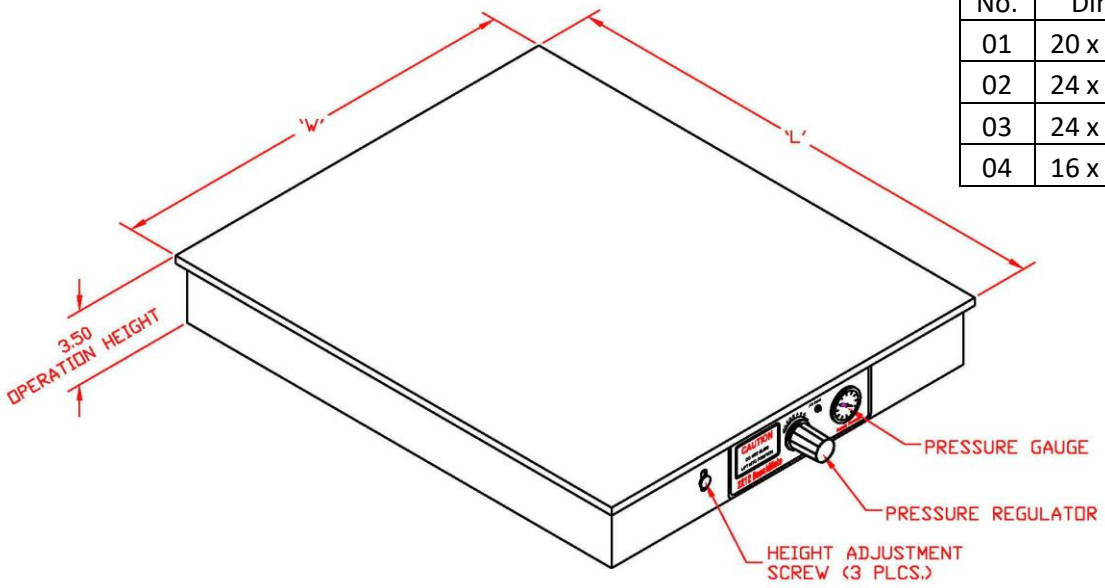

Figure 1, Outline View of 2212 VIBRAPLANE Platform.

Due to its size and weight, you should take care in lifting and moving your Vibraplane 2212 (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.)

A lifting or handling device is recommended for moving the 2212 tabletop platform. Provisions for this are to be made by user.

Place the Vibraplane Model 2212 Platform on top of a sturdy tabletop.

Place and center the equipment to be isolated on the platform. The system is now ready for operation using the compressed air fills; the umbilical assembly must be connected to an air supply.

CAUTION: When setting up your Vibraplane 2212, you should make sure that you **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's internal parts and result in improper inflation and compromised isolation performance.

Section IIa

Setup Procedure for 2214 Benchmate Platforms:

1. The KSI 2214 Benchmate Platform system includes a special KSI 2212 Benchmate Platform along with two stage isolation bases as shown in the picture below.

2. The first stage isolation base has three isolation feet located inside three support holders as shown.

3. The second stage isolation base has three isolation feet located inside support holders on one side and three support holders on the other side.

4. Locate the first stage isolation base on a sturdy support ensuring that the side of the base with one isolation foot is closer to you (the 'front'). The base must be sitting firmly on the three support feet.

5. Align and locate the second stage isolation base on top of the first stage isolation base such that the isolation feet on the second stage sit on top of the support holders on the first stage as shown.

6. Align and locate the Benchtop Platform on top of the second stage such that the three isolation mounts sit inside the three support holders on the second stage.

7. Place and center the equipment to be isolated on the platform. The system is now ready for operation. Follow the operating instructions for 2212 platform for inflating and using your 2214 enhanced Benchmate platform system.

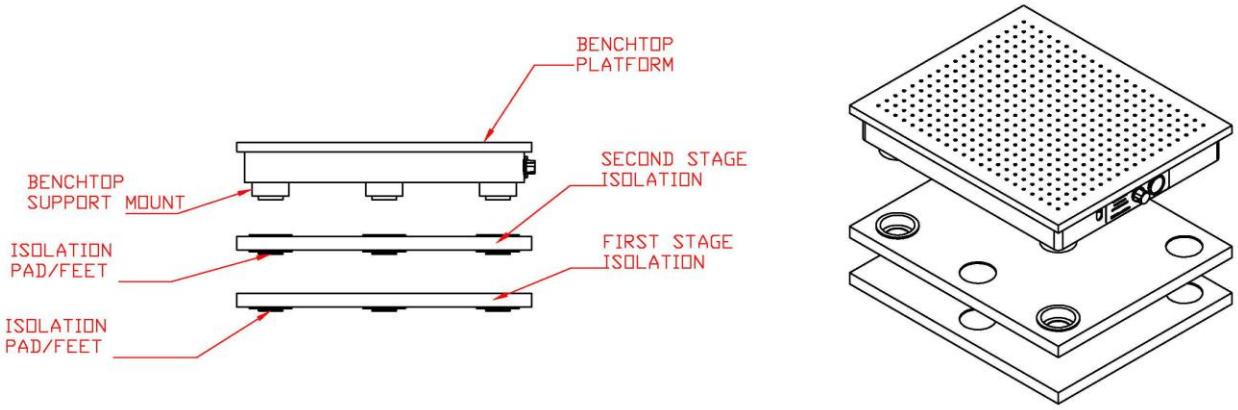

Figure 1a. 2214 Benchmate Platform Setup and Alignment

Section III

Operation/Height Adjustment:

1. The VIBRAPLANE Model 2212 Platform is an Active-Air system, which will automatically adjust itself to the appropriate level after the system is initially adjusted.

2. Connect the VIBRAPLANE 2212 Platform to a clean, dry compressed air supply not exceeding 100 psi. Use the 10 ft. umbilical assembly supplied with the system.

3. For operation of the 2212 Active-Air Isolation system, pull the pressure regulator knob to unlock and turn it clockwise raising the inlet pressure to between 72-80 psi. Push the knob back in to lock its position.

4. Adjust the height of the system by turning the height adjustment screws clockwise to raise the system or counterclockwise to lower the system. There are three height adjustment screws, one for the front to back adjustment and two for the left to right adjustment. (as shown in Fig. 2, 3a and 3b).

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 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. If properly inflated and leveled, floating height should be approximately 3 ¾ inches all around. For those who like to experiment, try different heights from 3 ½ to 4 inches. Sonically, there will be differences depending on height.

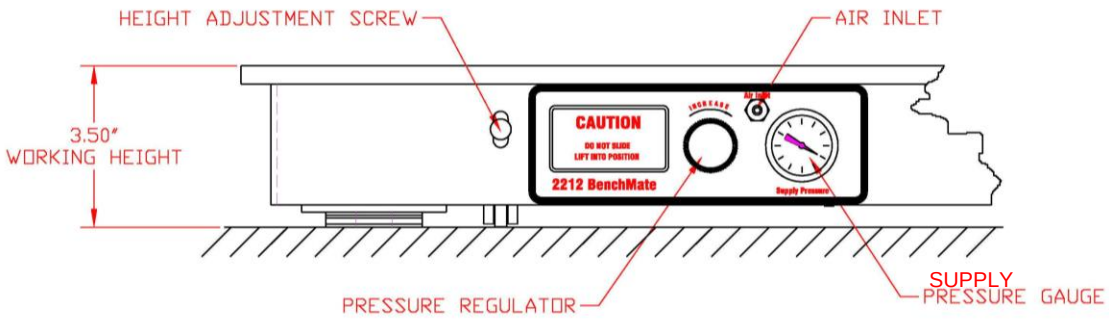

Figure 2, 2212 Control Panel/Air Fill Illustration.

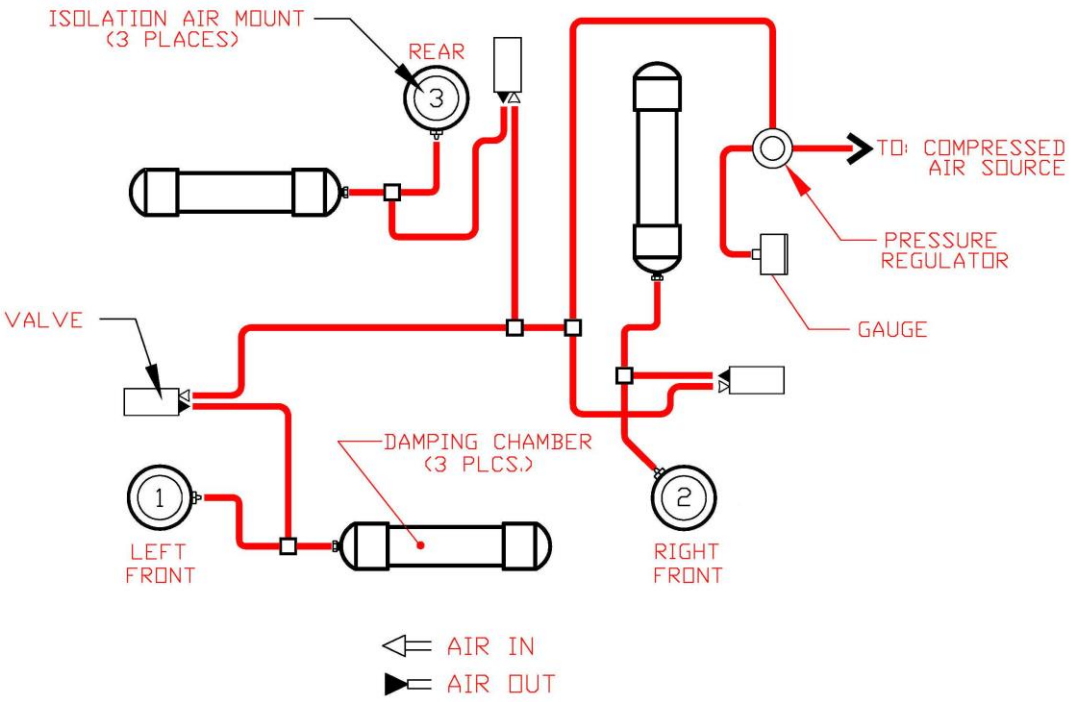

Figure 3a, 2212-01/04 Airline Schematic.

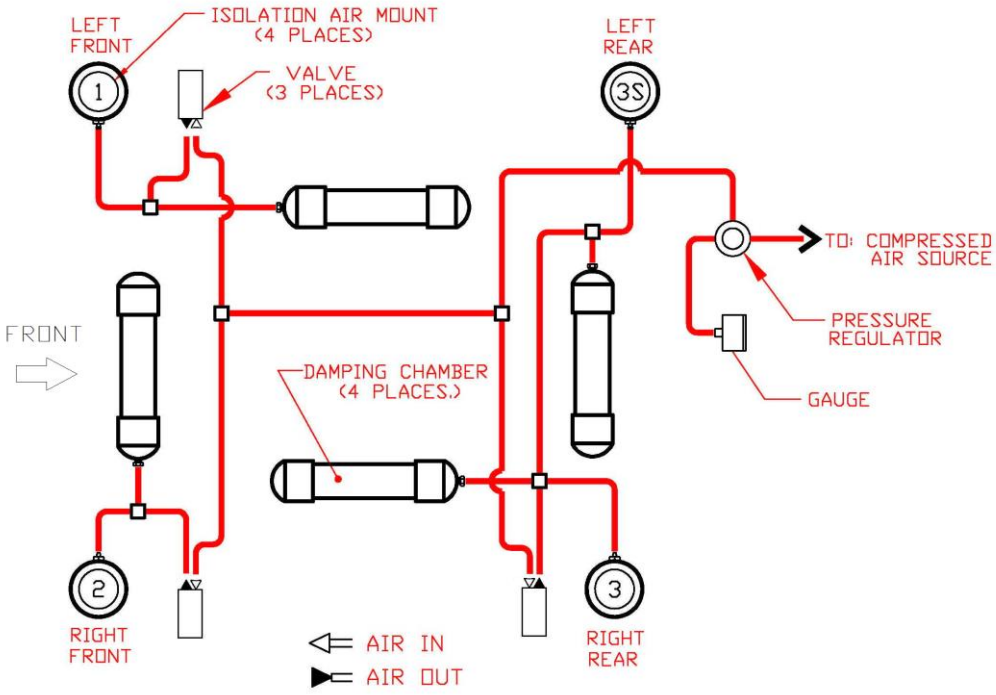

Figure 3b, 2212-02/03 Airline Schematic.

Section VI

Compressor 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 degrees Fahrenheit (35 deg. 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 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.
   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.

7. 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)

8. 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.

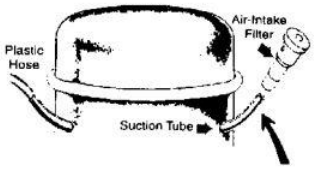

Figure 5.

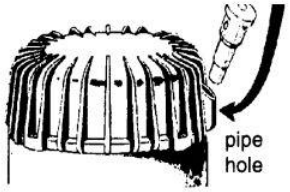

Figure 6.

PAC 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, only use a heavy duty extension cord no longer than 20 feet (6 meters). Do not use household cord, as 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.

PAC 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.

PAC 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 special oil from Kinetic Systems Inc.

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.

PAC Exploded View

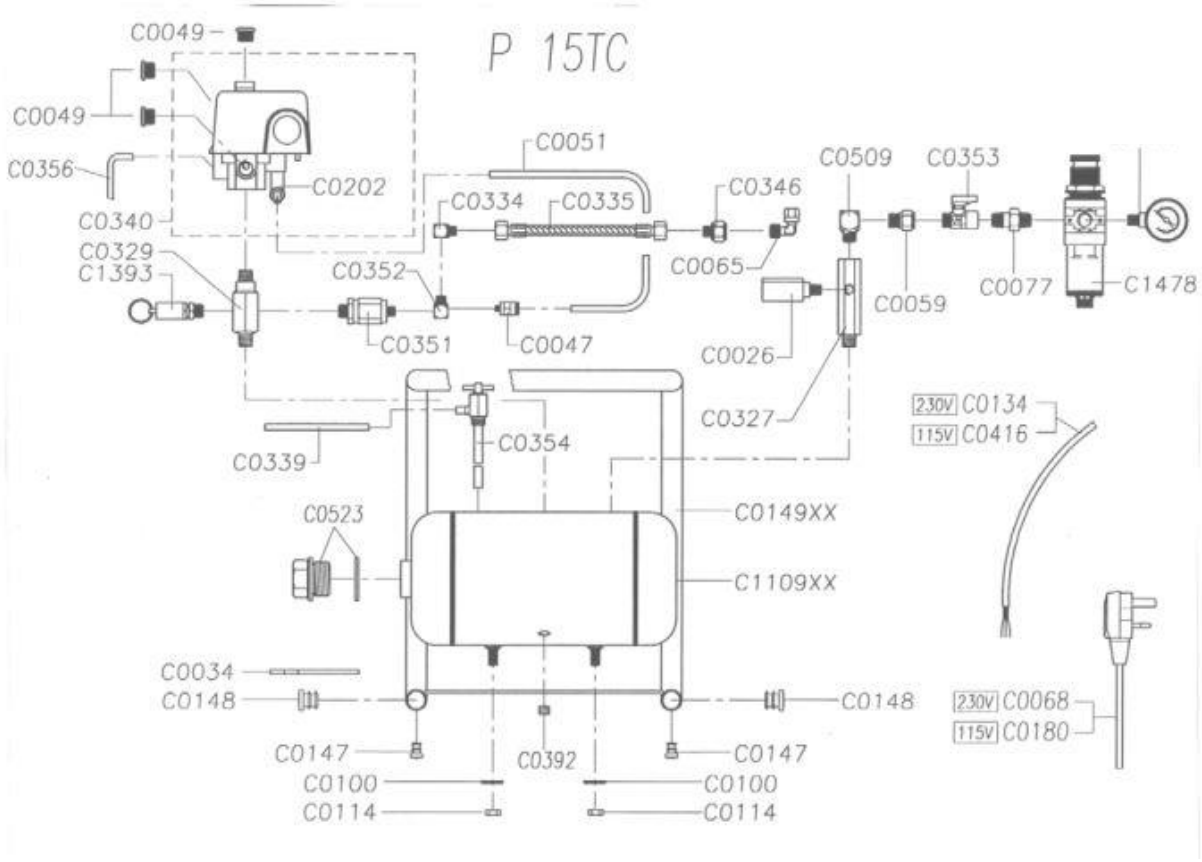

Figure 9. Portable Air Compressor Exploded View

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: Platform 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: Platform "Floats" 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 turning height adjustment screws counterclockwise (see Fig. 2).
Piston or pistons too low.	Raise the piston(s) by turning height adjustment screw and adding air. (see Fig. 2).

Section V

Recommended Spare Parts:

While maintenance requirements for the VIRBAPLANE Model 2212 Platform are minimal, some parts can be damaged if the system is improperly moved. In order to avoid any inconvenience, Kinetic Systems, Inc. recommended that user maintain a spare parts inventory of possible replacement items. These items are listed below:

Model No.	Quantity	Part No.	Description
2212-01/04	3	123126-03	Isolator (airmount) Assembly.
2212-02/03	4	123126-03	Isolator (airmount) Assembly.
2212-01/02/03/04	3	123206-01	Valve. Assembly.

Section VI

Replacement Isolator Installation:

The following instructions explain how to install a replacement isolator for your 2212 Platform.

Required Materials:

-- Replacement isolator (as per specification).

Required Tools:

-- Wrench supplied with Vibraplane.

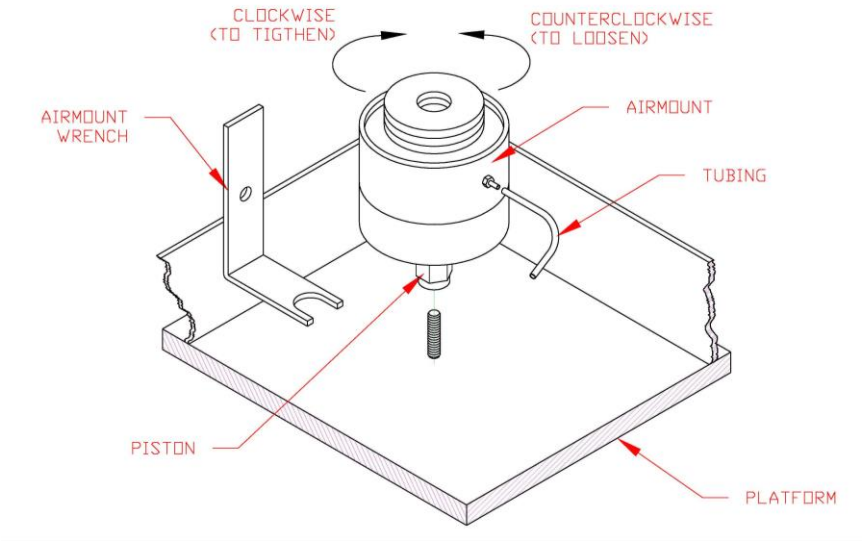

Figure. 10 Isolator (Airmount) Replacement.

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 condition.
5. Attach the airline to the new airmount.
6. The VIBRAPLANE Model 2212 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 Mother Freight (truck), KSI will furnish the proper commodity rate classification for lowest shipping cost.