

# RX™ 22/22XT Replacement Kit Instructions



## Instructions for Use with RX 22:

Before continuing, make sure this package contains the following:

- One (1) ferrofluid filled packet
- This instruction sheet/ Material Safety Data Sheet
- RX 22 replacement diaphragm
- XT Spacer Shim (for use with 22XT only)
- 8-32 screws (for use with 22XT only)

## Procedure:

- 1) Remove the diaphragm assembly from the driver by removing the six screws in the top cover.
- 2) Remove the old ferrofluid by inserting a strip of filter paper into the gap, allowing it to sit for one (1) minute. Remove the strip and repeat the process using a fresh piece of paper until no ferrofluid remains in the gap. If you run out of filter paper, any absorbent paper can be used to complete the job.
- 3) Inspect the magnetic air gap for the presence of any debris. If necessary, clean the gap with a piece of folded masking tape (sticky side out).
- 4) Using the notch in the side of the packet as a locating guide, unscrew the fluid-filled bottle. Pour out the contents of the bottle into the magnet structure gap.  
**Note:** It is not necessary to rotate the magnet; the ferrofluid is self-distributing. Attempting to dispense the remaining ferrofluid may over fill the air gap, which has no benefit.  
**Note:** Remove and discard the enclosed Spacer Shim if using the RX22.
- 5) Replace the diaphragm assembly and firmly tighten the six screws. Word of advice: When tightening the screws try to tighten them down evenly, the same amount as you go around the cover. This will help eliminate any mechanical distortion in the diaphragm. Thank you for choosing Peavey as your musical instrument supplier.

## Instructions for 22XT+™ Diaphragm

### Replacement Kit

These instructions are broken into three sections:

1. Driver Inspection, 2. Diaphragm Replacement Procedure, 3. Failure Analysis. In most cases, following this order will assure your success.

\*Interchangeable with all Model 22A and Model 22 Drivers.

### DRIVER INSPECTION

1. Driver Dead: With an Ohm meter (or in a pinch, a flashlight battery), determine if the driver is open circuited by measuring at the driver terminals. D.C. resistance should be in the range of 4.25 Ohms to 4.75 Ohms. Unless you have a precision-calibrated meter or a bridge, consider the driver to be okay if you're in the ballpark. If using a battery, no "click" when connecting and disconnecting the battery means the driver is open.

2. Driver Noisy or Distorted: If you have a sine wave oscillator, sweep the driver with 4 Volts from 500 Hz to 2,000 Hz. Any buzzing or distortion will indicate that the diaphragm must be removed. An intermittent noise could be a metal particle in the gap. Check the gap carefully and clean before you replace the diaphragm to rule out this possibility. A flashlight is a great help. If an oscilloscope is available, look at the waveform at the driver to rule out an electronic malfunction if high distortion is your symptom.

### DIAPHRAGM REPLACEMENT PROCEDURE (see Figures A and B on reverse side)

1. Clean the front plate and environment of all metal particles.
2. Remove the six 8-32 screws holding the diaphragm assembly to the front plate. These will be replaced with a longer screw, included (71500875).
3. Remove the failed diaphragm assembly to a safe place to prevent damage so that we can inspect it. (You might want to look closely at it, too.) Please return the failed diaphragm assembly to your dealer or directly to Peavey using the box in which the new assembly arrived. Describe the operating conditions surrounding the failure with as much detail as possible. This information will help immeasurably in improving the performance of our products.
4. Fold a piece of 3/4" wide masking tape into a triangle shape with the adhesive side out. Using a flashlight to see into the gap in the magnet structure, slide tape around the entire gap to clean out all metal chips and dirt.
5. Install the included XT spacer shim.
6. Make certain the rubber gasket is properly seated on the new cover assembly, exposing the entire aluminum ring. The ring must sit flat on the front plate when in place.
7. By eye, line up the locating pins on the cover with the untapped holes on the front plate. These holes are easy to locate since they are between tapped holes for the 8-32 screws. If the gasket will not stay on the cover, tilt the driver past vertical and let gravity help you.
8. Gently push the diaphragm assembly onto the driver, making certain that the locating pins are going into their holes.
9. With the cover in place, carefully check the gasket to be sure it hasn't slipped under the ring. (If it has, start over or use tweezers to reposition the gasket.)
10. Now that you have assured yourself that the diaphragm assembly is seated solidly on the front plate, put the new, longer 8-32 screws into the holes and tighten. A tightening sequence is not necessary.

**Note:** The XT spacer shim (gasket) is only used on the 22XT+ and all other older 22 drivers. RX22 does not use the spacer.

**Note:** While a necessary component for the RX 22, the ferrofluid is optional for the 22xt+ kit. Using the ferrofluid, however, would be an added benefit for the 22xt+ kit, by reducing the heating of the voice coil, improving the power rating and smoothing the frequency response in the mid region of the driver.

## FAILURE ANALYSIS

You may be able to learn why your driver failed by inspecting the failed diaphragm assembly. We povertest and rigorously analyze each diaphragm assembly. Consequently, there is more than an even chance that the diaphragm assembly failed because of too much power input.

1. The voice coil is copper in color initially and turns dark brown, even black, under hard use. This is due to a color change in the epoxy adhesive on the wire (occurs at 300° F).

Any charring on the wire is a sign of too much power. If some turns have come off the coil and the wire is shiny, most likely the coil was rubbing on the gap walls before failure.

2. Diaphragm Broken, Cracked or Dented: When the driver is driven with high amplitude, low frequency signals at or below the low frequency limit of 500 Hz, the diaphragm bottoms on the loading plug, causing the above mentioned damage; also, input power above the design limit within the passband of the driver can cause this damage.

3. Determining Power Input to the Driver: This is an extremely difficult proposition with program material even with very sophisticated measuring instruments. The formula that applies is  $\text{power} = (\text{voltage} \times \text{voltage}) / \text{impedance}$ . Assume the impedance listed on the diaphragm assembly label and use either a calibrated oscilloscope or Voltmeter to determine Voltage. The driver is capable of withstanding many times rated power for short duration but average long term power (measuring RMS Voltage) is 40 Watts. If your amplifier is oscillating or your P.A. is operated in feedback, unusually high Voltage could be applied to the driver causing failure.

We appreciate your interest in our product; if you require further assistance, please contact your dealer or our factory.

Figure A

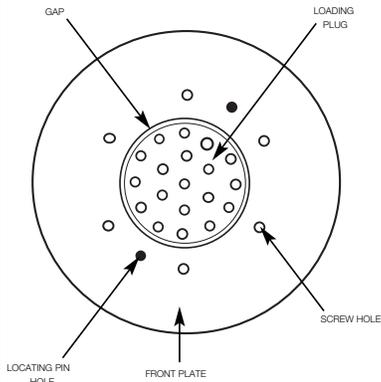
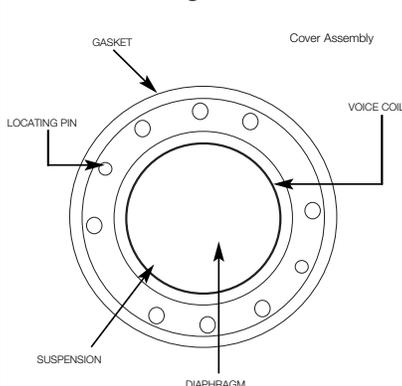


Figure B



\*see Ferrofluid Safety Information on Reverse side of this sheet.



Logo referenced in Directive 2002/96/EC Annex IV (OJL157/38, 13.02.05 and defined in EN 50419: 2005  
The bar is the symbol for marking of new waste and is applied only to equipment manufactured after 13 August 2005

# Ferrofluid

## Material Safety Data Sheet

### 1. PRODUCT IDENTIFICATION

**Manufactured by:** Ferrofluidics Corporation  
40 Simon St.  
Nashua, NH 03061

**Emergency Telephone:** (603)883-9800 (x212)

**Chemical Name:** Proprietary Product

**Trade Name and Synonyms:** APG S Series

**Chemical Family:** Colloidal Dispersion

**Formula:** Mixture

### 2. COMPONENTS – the precise nature of this mixture is proprietary information. A more complete disclosure will be provided to a physician or nurse in the event of a medical emergency.

**Magnetite:** 1 – 7% by volume  
**Oil Soluble Dispersant:** 7 - 50% by volume  
**Carrier Liquid:** 41 - 92% by volume  
**Aromatic Amine:** 0 – 2% by volume

### 3. CHEMICAL AND PHYSICAL PROPERTIES

**Boiling Point (°F)** >300 with decomposition  
**Specific Gravity** 1.0 to 1.4  
**Vapor Pressure (mm Hg.)** Negligible at 20°C  
**% Volatile by Volume** Negligible  
**Vapor Density (Air=1)** >Air  
**Solubility in Water** Negligible  
**Evaporation Rate (175°C)**  $1.5 \times 2.8 \times 10^{-7}$  gm/cm<sup>2</sup> sec  
**Appearance and Odor** Black fluid – Mild Odor

### 4. FIRE AND EXPLOSION HAZARD AREA

**Flash Point:** >200°F  
**Method** PMCC  
**Flammable Limits** uel and lel Not Determined  
**Extinguishing Media** CO<sub>2</sub>, Foam Dry Chemical, Water Spray  
**Special Fire Fighting Procedure:** Avoid smoke  
Water may cause frothing  
**Unusual Fire or Explosion Hazard:** None

### 5. HEALTH HAZARD AREA

THRESHOLD Limit Value: 5mg/M<sup>3</sup> for oil mist in air (OSHA Regulations 29 CFR 1910-1000).  
Effects of Overexposure: No experience with overexposure.  
Prolonged or repeated contact with skin or eye contact may cause irritation. Inhalation of mist or vapor at high temperature may irritate respiratory passages.  
**Emergency and First Aid Procedures:** treatment.  
**Skin Contact:** Wash with soap and water.  
**Eyes:** Flush with water, consult physician for treatment.  
**Inhalation of Smoke or Mist:** Move to fresh air and refer to physician for treatment.

### 6. REACTIVITY DATA

**Stability:** Stable  
**Conditions to avoid:** Pyrolysis  
**Incompatibility (materials to avoid):** Strong oxidizing materials, heat, and flame.  
**Hazardous Decomposition** Burning may produce  
**Products:** carbon monoxide and nitrogen oxides.  
**Hazardous Polymerization:** Will not occur.

### 7. SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Remove free liquid. Add absorbent (sand, earth, sawdust) to spill area. After removing absorbent, wash surface with soap and water to reduce possible slipping hazard.

**Waste disposal Method:** Consult federal, state, and local regulations applicable to the disposal of waste oils.

### 8. SPECIAL PROTECTION INFORMATION

**Respiratory Protection (specific Type):** None required unless smoke, mists or vapors are produced.  
**Ventilation:** No special ventilation required.  
**Protective gloves:** If required to prevent prolonged or repeated skin contact.  
**Eye protection:** Safety glasses, if splash is possible.  
**Other protective equipment:** Not needed.

### 9. SPECIAL PRECAUTIONS

**Precautions to be taken in handling and storing:** Wash hands after handling.

**Other precautions:** Avoid contamination of tobacco products. Users should be aware that a very small percentage of the population may experience unexpected allergic skin reactions to otherwise innocuous industrial chemicals and raw materials.

### 10. COMMENTS

\*This product DOES NOT contain any materials considered to be carcinogenic by any recognized sources.

\*\*This material is not sold for use in products for which prolonged contact with skin or implantation in the human body is intended. Ferrofluidics Corporation does not recommend this material as safe and effective for such uses and assumes no liability for any such use.

\*\*\*This product does not contain any chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.