

MDJ-1200K

Generic MDJ-1200K Precious Metal Tester User Manual

Accurate Densimeter for Gold, Silver, Platinum, and Palladium

1. INTRODUCTION

The Generic MDJ-1200K Precious Metal Tester is a precision instrument designed for accurate density and purity verification of various precious metals, including gold, silver, platinum, and palladium. This device is an essential tool for jewelers, banks, pawn shops, and research laboratories requiring reliable material analysis. It provides a straightforward method to determine the authenticity and purity of precious metal items by measuring their density and specific gravity.

2. PRODUCT FEATURES

- **High Accuracy Measurement:** Accurately measures the purity of gold, silver, palladium, platinum, and other precious metals.
- **Advanced Technology:** Utilizes advanced density and specific gravity analysis for high detection accuracy.
- **Digital Display:** Features a clear digital display showing measured density, weight, purity, and K number of the tested material.
- **Wide Applicability:** Suitable for evaluating the purity of gold, silver, platinum, karat gold, and palladium.
- **Portable Design:** Equipped with a built-in rechargeable battery for portability and extended standby time, ideal for various environments.

3. SAFETY INFORMATION

Please read and understand all safety instructions before operating the MDJ-1200K Precious Metal Tester. Failure to follow these instructions may result in injury or damage to the device.

- Ensure the device is placed on a stable, level surface away from vibrations.
- Do not expose the device to extreme temperatures, humidity, or direct sunlight.
- Avoid dropping or subjecting the device to strong impacts.
- Keep liquids away from the electronic components.
- Only use the provided power adapter for charging the built-in battery.
- Do not attempt to disassemble or repair the device yourself. Contact qualified service personnel for assistance.

4. PACKAGE CONTENTS

Upon unpacking, please verify that all components are present and in good condition. The standard package for the MDJ-1200K Precious Metal Tester typically includes:

- MDJ-1200K Precious Metal Tester Unit
- Weighing Platform/Accessories for air and water measurements
- Power Adapter/Charging Cable
- User Manual (this document)



Image 1: The Generic MDJ-1200K Precious Metal Tester. This image shows the main unit with its digital display and the integrated weighing platform used for density measurements.

5. SETUP

1. **Unpacking:** Carefully remove the tester and all accessories from the packaging.
2. **Placement:** Place the tester on a firm, level, and vibration-free surface. Ensure it is away from direct sunlight, drafts, and heat sources.
3. **Power Connection:** Connect the power adapter to the tester and plug it into a suitable power outlet. The built-in rechargeable battery allows for portable operation once charged.
4. **Initial Calibration:** Follow the on-screen instructions for initial calibration, if prompted. This typically involves zeroing the scale with no load.
5. **Water Tank Setup:** For density measurements, fill the designated water tank (if included or required) with distilled water to the indicated level. Ensure no air bubbles are present.

6. OPERATING INSTRUCTIONS

The MDJ-1200K utilizes a two-step measurement process to determine the density and purity of precious metals.

6.1 Basic Measurement Procedure

1. **Power On:** Press the power button to turn on the device. Allow a few moments for it to stabilize.
2. **Zeroing:** Ensure the weighing platform is empty and press the "TARE" or "ZERO" button to set the display to 0.00g.
3. **Step 1: Weight in Air:** Carefully place the precious metal sample on the dry weighing platform. Record the weight displayed (W1).
4. **Step 2: Weight in Water:** Submerge the sample completely in the water tank using the provided accessories (e.g., suspension wire, basket). Ensure no air bubbles are clinging to the sample. Record the weight displayed while submerged (W2).
5. **Result Display:** The device will automatically calculate and display the density, purity (e.g., % or Karat), and specific gravity based on W1 and W2.
6. **Printer Connection (Optional):** If a compatible printer is connected, you can print the measurement results for record-keeping. Refer to the printer's manual for connection and operation details.

6.2 Important Considerations

- **Hollow Items:** This tester may not yield accurate results for hollow precious metal items due to air pockets affecting density calculations.
- **Gold-Plated Items:** The device can measure gold-plated items, providing insights into their overall density, but specific plating thickness or base metal composition may require additional testing methods.
- **Temperature:** Maintain a consistent water temperature for optimal accuracy, ideally around 20-25°C (68-77°F).

7. MEASUREMENT PRINCIPLES

The MDJ-1200K operates on the principle of Archimedes' principle, which states that the buoyant force on a submerged object is equal to the weight of the fluid displaced by the object. By measuring the weight of a sample in air (W1) and its apparent weight when fully submerged in water (W2), the device can calculate its density (ρ) using the formula:

$$\rho = (W1 / (W1 - W2)) * \rho_{\text{water}}$$

Where ρ_{water} is the density of water (approximately 1 g/cm³ at 4°C). The calculated density is then compared against known densities of pure precious metals to determine the sample's purity and Karat value.

8. MAINTENANCE

- **Cleaning:** Gently wipe the exterior of the device with a soft, dry cloth. For stubborn dirt, use a slightly damp cloth with mild soap, then dry thoroughly. Do not use abrasive cleaners or solvents.
- **Water Tank:** Regularly clean the water tank and replace the water with distilled water to prevent mineral buildup and ensure accurate readings.
- **Storage:** When not in use, store the tester in a clean, dry, and stable environment, away from dust and extreme temperatures.
- **Battery Care:** For models with a rechargeable battery, avoid fully discharging the battery frequently. Charge it regularly to maintain battery health.

9. TROUBLESHOOTING

Problem	Possible Cause	Solution
Inaccurate Readings	Unstable surface, air bubbles on sample, incorrect water temperature, calibration needed.	Ensure stable surface. Remove air bubbles. Use distilled water at room temperature. Perform calibration.
Device Not Powering On	Low battery, power adapter not connected, faulty power outlet.	Charge the battery. Check power adapter connection. Try a different power outlet.
Display Error Message	Overload, internal error.	Remove sample if overloaded. Power off and restart the device. If error persists, contact support.

10. SPECIFICATIONS

Feature	Detail
Model	MDJ-1200K
Weighing Range	Up to 1200g (Specific to MDJ-1200K variant)
Accuracy	0.01g (for larger models like 1200K)
Density Resolution	Enhances measurement accuracy
Applicable Metals	Gold, Silver, Platinum, Palladium, Karat Gold
Display	Digital (shows Density, Weight, Purity, K Number)
Power Source	Built-in rechargeable battery, AC adapter
Item Weight	2.2 pounds
Package Dimensions	3.15 x 3.15 x 3.15 inches
Manufacturer	Generic
ASIN	B0GDWZVJGL

11. WARRANTY AND SUPPORT

This product comes with a standard manufacturer's warranty against defects in materials and workmanship. The specific terms and duration of the warranty may vary. Please retain your proof of purchase for warranty claims. For technical support, troubleshooting assistance, or warranty inquiries, please contact the retailer or manufacturer directly. Refer to your purchase documentation for contact information. For further information or to register your product, visit the manufacturer's official website (if available).

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