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› [Pioneer TS-M650PRO 6-3/4" PRO Series High Efficiency Mid-Range Car Speakers User Manual](#)

PIONEER TS-M650PRO

Pioneer TS-M650PRO 6-3/4" PRO Series High Efficiency Mid-Range Car Speakers User Manual

Model: TS-M650PRO

1. INTRODUCTION

The Pioneer TS-M650PRO is a 6-3/4 inch high-efficiency mid-bass driver designed for car audio systems. Part of the P.R.O. Series (Pioneer Reference for Open Show), these speakers are engineered for high sensitivity and robust power handling, delivering clear and impactful mid-range frequencies. This manual provides essential information for the proper installation, operation, and maintenance of your TS-M650PRO speakers.

2. SAFETY INFORMATION

- **Professional Installation Recommended:** Due to the complexity of car audio systems, professional installation is highly recommended to ensure proper wiring and optimal performance.
- **Disconnect Battery:** Always disconnect the vehicle's negative battery terminal before beginning any electrical work to prevent short circuits and electrical damage.
- **Proper Wiring:** Ensure all wiring is correctly connected according to the polarity markings (+/-) to avoid damage to the speakers or amplifier. Incorrect wiring can lead to poor sound quality or component failure.
- **Avoid Overpowering:** While these speakers are designed for high power handling, exceeding their maximum power rating (500W Max / 110W Nominal) can cause permanent damage.
- **Secure Mounting:** Mount speakers securely to prevent them from becoming loose during vehicle operation, which could cause injury or damage.
- **Ventilation:** Ensure adequate ventilation around the speakers and amplifier to prevent overheating.

3. PACKAGE CONTENTS

Verify that your package contains the following items:

- (2) 6-3/4" Mid-Bass Driver Component Speakers
- (2) Grilles
- (8) Mounting screws
- Warranty Card

4. SETUP

4.1 Mounting

The TS-M650PRO speakers feature a robust design with large magnets, which may require careful consideration for installation. Ensure sufficient mounting depth and clearance behind the speaker. In some vehicle applications, custom mounting adapters or spacers may be necessary to achieve a proper fit and prevent interference with window mechanisms or other components. The speaker size is 6-3/4 inches, with a product dimension of 4.13"D x 6.88"W x 6.88"H.



Figure 1: Front view of the Pioneer TS-M650PRO mid-range car speaker, showcasing its black cone and red bullet tweeter.



Figure 2: An angled view of the Pioneer TS-M650PRO speaker, highlighting the robust construction and terminal connections.

4.2 Wiring

Connect the speaker wires from your amplifier to the terminals on the TS-M650PRO speakers. Observe correct polarity: connect the positive (+) terminal of the speaker to the positive (+) output of the amplifier, and the negative (-) terminal of the speaker to the negative (-) output of the amplifier. The speakers have an impedance of 4 Ohms.

4.3 Amplifier Connection

These speakers are designed to be powered by an external amplifier. They have a nominal power handling of 110 Watts RMS and a maximum power handling of 500 Watts. Ensure your amplifier is capable of providing adequate power without exceeding the speaker's ratings to prevent damage and achieve optimal sound quality.

5. OPERATING

5.1 Mid-Range Focus

The TS-M650PRO speakers are specifically designed as mid-bass drivers, excelling in the mid-range frequency spectrum. They are not intended to produce deep bass or high treble frequencies on their own. For a full-range audio experience, it is recommended to integrate these speakers into a complete car audio system that includes dedicated tweeters for high frequencies and a subwoofer for low frequencies.

5.2 Audio Settings and Crossover

To optimize the performance and longevity of your TS-M650PRO speakers, proper crossover settings are crucial. Utilize your amplifier's or head unit's High-Pass Filter (HPF) to prevent low-frequency signals from reaching these mid-range drivers. A recommended starting point for the HPF is between 80Hz and 100Hz. Adjust the equalizer (EQ) settings on your head unit or amplifier to fine-tune the sound to your preference, ensuring a balanced audio output across all components of your system.

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Video 1: Official sound demonstration and comparison video for the Pioneer TS-M650PRO speakers against DS18 speakers, showcasing their audio performance and characteristics.

6. MAINTENANCE

- **Cleaning:** Gently wipe the speaker cones and grilles with a soft, dry cloth. Avoid using harsh chemicals or abrasive cleaners, as these can damage the speaker materials.
- **Regular Inspection:** Periodically check all wiring connections to ensure they are secure and free from corrosion. Inspect the speaker cones and surrounds for any signs of damage or wear.
- **Environmental Protection:** While not waterproof, protect the speakers from excessive moisture and direct sunlight to prolong their lifespan.

7. TROUBLESHOOTING

- **No Sound:**
 - Check all wiring connections between the speakers, amplifier, and head unit.
 - Ensure the amplifier is powered on and receiving a signal.
 - Verify that the head unit's volume is up and not muted.
- **Distorted Sound:**
 - Reduce the volume level on your head unit or amplifier.
 - Check amplifier gain settings; they may be set too high.
 - Ensure proper crossover settings are applied to prevent the speakers from playing frequencies outside their optimal range.
- **Weak or Unbalanced Sound:**
 - Check speaker polarity; reversed polarity on one speaker can cause phase issues.
 - Adjust the balance and fader settings on your head unit.
 - Ensure all speakers in the system are functioning correctly.

8. SPECIFICATIONS

Feature	Specification
Model Name	P.R.O. Series

Feature	Specification
Speaker Type	Component (Mid-Bass Driver)
Speaker Size	6.75 Inches (6-3/4")
Max Power	500 W
Nominal Power (RMS)	110 W
Impedance	4 Ohms
Sensitivity (Signal-to-Noise Ratio)	90 dB
Frequency Response	50 Hz - 50,000 Hz (Note: Optimized for mid-range)
Product Dimensions	4.13"D x 6.88"W x 6.88"H
Item Weight	6 Pounds
Material	Alloy Steel
Color	Black
Mounting Type	Flush Mount
UPC	884938171267, 823019876042

9. WARRANTY AND SUPPORT

The Pioneer TS-M650PRO speakers come with a **1-year limited warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use. For warranty claims, technical support, or further assistance, please contact Pioneer customer service or visit the official Pioneer website.

Pioneer Support: www.pioneerelectronics.com/PUSA/Support