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> NGK RC-GMX111 Spark Plug Wire Set Instruction Manual

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Model: RC-GMX111 | Part Number: 51046

1. INTRODUCTION

This manual provides essential information for the proper installation, operation, and maintenance of your NGK RC-GMX111 Spark Plug Wire Set. Please read these instructions thoroughly before beginning any work to ensure safe and correct usage. This set is designed to deliver reliable ignition performance for compatible automotive applications.

1.1 What's Included

- 6 x NGK RC-GMX111 Spark Plug Wires (Coil Lead N/R)



Image 1.1: The NGK RC-GMX111 Spark Plug Wire Set, showing six blue wires with black boots.

This image displays the complete set of six spark plug wires. Each wire is blue, indicating its high-performance silicone jacket, and features black boots designed for secure connections to both spark plugs and the distributor/coil pack.

2. PRODUCT FEATURES

The NGK RC-GMX111 Spark Plug Wire Set incorporates advanced design and materials for optimal ignition system performance.

- **7mm Ultra-Low Resistance Magnetic Core:** Wire wound ignition cables designed for efficient current transfer.
- **OEM or Better Specified Boots:** Spark plug and distributor boots meet or exceed original equipment specifications.
- **Numbered for Identification:** Wires are numbered for easy cylinder identification, and coil wires are color-coded for correct installation.
- **Corrosion-Resistant Terminals:** Positive-locking, stainless steel terminal ends ensure a tight fit and maximum resistance to vibration and separation.
- **High-Temperature Silicone Jacket:** Outer jacket resists moisture, oil, petrol, and cracking, withstanding temperatures up to 250°C (482°F).
- **Premium Fiberglass Braiding:** Reinforcement over EPDM/silicone inner insulation provides superior dielectric strength and excellent cable tensile strength.



Image 2.1: Cross-section diagram of an NGK spark plug wire.

This diagram illustrates the internal construction of an NGK spark plug wire, highlighting its multiple layers: an aramid composite core, ferrite magnetic layer, tight and loose windings, EPDM/silicone inner insulation, fiberglass braiding, and a silicone insulation jacket. This layered design contributes to the wire's durability and performance.

The NGK Difference

Ferrite magnetic layer Enables uniform conductivity and lower resistance than conventional wires (9k ohm/meter v. 16k ohm/meter)	Stainless steel terminal and "C" clip with a chromate retainer Higher durability and corrosion resistance	Aramid fiber core Enhances the strength of the wire by adding voltage protection
Triple crimp connector design Better connection of the core between the terminal and cable	Silicone jacket Prevents water contamination and withstands temperatures up to 482° F	Variable pitch wire winding process Resists RFI by breaking electrical waves created from ignition

Image 2.2: Key features highlighting the NGK difference in spark plug wire technology.

This graphic details six key aspects of NGK spark plug wire design: the ferrite magnetic layer for uniform conductivity, stainless steel terminals with chromate retainers for durability, an aramid fiber core for strength and voltage protection, a triple crimp connector for better connection, a silicone jacket for temperature and contamination resistance, and a variable pitch wire winding process to resist RFI.

3. SAFETY INFORMATION

Working with automotive ignition systems involves electrical components and high voltages. Always prioritize safety.

- **Disconnect Battery:** Before working on any ignition components, disconnect the vehicle's battery to prevent accidental electrical discharge.
- **Allow Engine to Cool:** Ensure the engine is cool to the touch before handling spark plug wires to avoid burns from hot engine components.
- **Wear Protective Gear:** Use appropriate personal protective equipment, including safety glasses and gloves.
- **Avoid Contact with Moving Parts:** Keep hands and tools clear of moving engine parts when the engine is running or could potentially start.
- **Proper Disposal:** Dispose of old spark plug wires and other automotive fluids according to local environmental regulations.

4. SETUP AND INSTALLATION

Proper installation is crucial for the performance and longevity of your spark plug wires. Refer to your vehicle's service manual for specific routing and torque specifications.

4.1 Pre-Installation Checks

1. Verify that the NGK RC-GMX111 set is the correct application for your vehicle.
2. Inspect all new wires for any signs of damage or defects.
3. Gather necessary tools: spark plug wire pliers, dielectric grease, and a clean cloth.

4.2 Installation Procedure

It is recommended to replace one wire at a time to prevent misfiring due to incorrect wire placement.

1. **Identify Cylinder:** Locate the spark plug wire for the first cylinder you intend to replace. Note its routing and connection points.
2. **Remove Old Wire:** Grasp the old spark plug wire boot firmly and twist slightly while pulling to remove it from the spark plug. Repeat for the distributor or coil pack end. Avoid pulling on the wire itself.
3. **Compare Lengths:** Select a new NGK wire that matches the length of the old wire you just removed. The wires are numbered for easy cylinder identification.
4. **Apply Dielectric Grease:** Apply a small amount of dielectric grease to the inside of both new wire boots. This aids in sealing and prevents corrosion.
5. **Install New Wire:** Firmly push the spark plug end of the new wire onto the spark plug until you feel a positive click, ensuring it is fully seated. Route the wire correctly and connect the other end to the corresponding terminal on the distributor or coil pack, again ensuring a secure connection.
6. **Repeat for Remaining Wires:** Continue this process for each spark plug wire, one at a time, until all old wires have been replaced with the new NGK RC-GMX111 wires.
7. **Final Check:** Double-check all connections to ensure they are secure and that wires are routed away from hot or moving engine components.
8. **Reconnect Battery:** Reconnect the vehicle's battery.
9. **Test:** Start the engine and listen for any misfires or unusual noises.

5. OPERATING PRINCIPLES

Spark plug wires are a critical component of a vehicle's ignition system. Their primary function is to transfer high voltage from the ignition coil or distributor to the spark plugs. This high voltage creates a spark across the spark plug gap, igniting the air-fuel mixture in the engine's combustion chamber.

The NGK RC-GMX111 wires are designed with an ultra-low resistance magnetic core and robust insulation to ensure efficient and consistent energy delivery, minimizing voltage loss and radio frequency interference (RFI). This results in a strong, consistent spark for optimal engine performance and fuel efficiency.

6. MAINTENANCE

Regular inspection and proper maintenance can extend the life of your spark plug wires and ensure consistent engine performance.

- **Visual Inspection:** Periodically inspect the wires for cracks, fraying, burns, or any signs of damage to the insulation or boots. Check for corrosion on the terminals.
- **Cleaning:** Keep the wires clean and free from oil, grease, and dirt, which can degrade the insulation over time. Use a clean cloth and a mild, non-abrasive cleaner if necessary.
- **Routing:** Ensure wires remain properly routed and secured away from hot exhaust manifolds, moving belts, and other engine components that could cause damage.
- **Replacement Interval:** While NGK wires are built for durability, they are wear items. Consult your vehicle's service manual for recommended spark plug wire replacement intervals, or replace them if signs of degradation or performance issues arise.

7. TROUBLESHOOTING

If you experience engine performance issues after installing or while using your NGK spark plug wires, consider the following common troubleshooting steps:

Symptom	Possible Cause	Solution
Engine Misfire / Rough Idle	Loose connection, damaged wire, incorrect wire routing.	Check all wire connections for tightness. Inspect wires for visible damage. Verify correct wire routing to cylinders.
Reduced Fuel Economy	Degraded wire insulation, internal resistance increase.	Inspect wires for cracks or burns. Consider replacing the wire set if wires are old or show signs of wear.
Engine Hesitation / Lack of Power	Insufficient voltage delivery due to wire issues.	Ensure wires are fully seated. Check for proper spark plug gap.
Visible Sparking Around Wires	Damaged insulation, arcing.	Replace the affected wire immediately. This indicates a severe insulation breakdown.

If troubleshooting steps do not resolve the issue, it is recommended to consult a qualified automotive technician.

8. SPECIFICATIONS

- **Brand:** NGK
- **Model:** RC-GMX111
- **Part Number:** 51046

- **Wire Diameter:** 7mm
- **Core Type:** Ultra-low resistance magnetic core, wire wound
- **Outer Jacket Material:** High-temp silicone (resists up to 250°C / 482°F)
- **Inner Insulation:** EPDM / Silicone with premium fiberglass braiding
- **Terminal Material:** Stainless Steel
- **Item Weight:** Approximately 1.42 Pounds (0.64 kg)
- **Product Dimensions (L x W x H):** 7.99 x 5.98 x 4.06 inches (20.3 x 15.2 x 10.3 cm)
- **UPC:** 087295510469

9. WARRANTY AND SUPPORT

NGK spark plug wire sets are manufactured to high standards and typically come with a limited lifetime warranty. Please refer to the product packaging or the official NGK website for specific warranty terms and conditions.

For technical assistance, warranty claims, or further inquiries, please contact NGK customer support through their official website or the contact information provided with your product.

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