NICHE 519-KPS2217T

NICHE Stock Piston Kit Instruction Manual

Model: Cyclone 250x, Scrambler 250, Trail Boss 250R

Brand: NICHE

1. Product Overview

This NICHE Stock Piston Kit (Part Number: 519-KPS2217T) is engineered as a direct replacement component for various Polaris powersports vehicles. It is designed to meet or exceed OEM specifications, ensuring reliable performance and durability for engine rebuilds or maintenance.

The kit includes essential components for a complete piston replacement, featuring a standard 72mm bore size and constructed from high-quality aluminum alloy. It is compatible with a range of Polaris models and OEM part numbers, providing a precise fit and function.

2. Safety Information

WARNING:

- Always wear appropriate personal protective equipment (PPE), including safety glasses and gloves, when handling engine components.
- Ensure the engine is cool and disconnected from any power source before beginning installation.
- Work in a well-ventilated area.
- Refer to your vehicle's specific service manual for detailed disassembly and reassembly procedures. This manual provides general instructions for the piston kit installation.
- Keep all parts and tools away from children and pets.
- This product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

3. Parts List

The NICHE Stock Piston Kit typically includes the following components:

- Piston (Standard 72mm Bore, Aluminum Alloy, Dome Type)
- Piston Rings (Set)
- Wrist Pin

- Circlips (2)
- Wrist Pin Bearing (Needle Bearing)

Figure 3.1: Contents of the NICHE Stock Piston Kit.

Figure 3.2: Detailed view of the NICHE Piston.

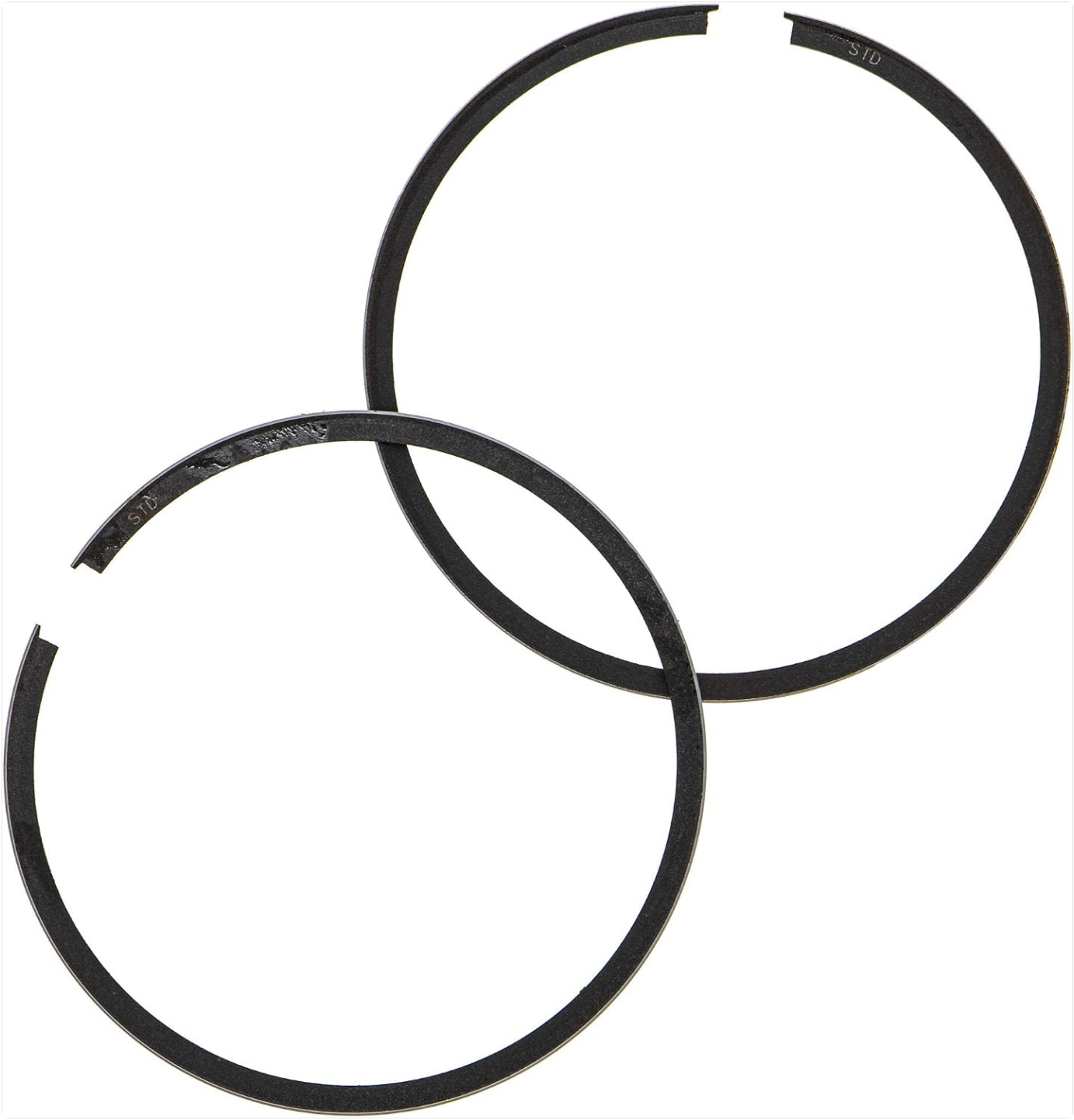

Figure 3.3: Piston Rings.

Figure 3.4: Wrist Pin.

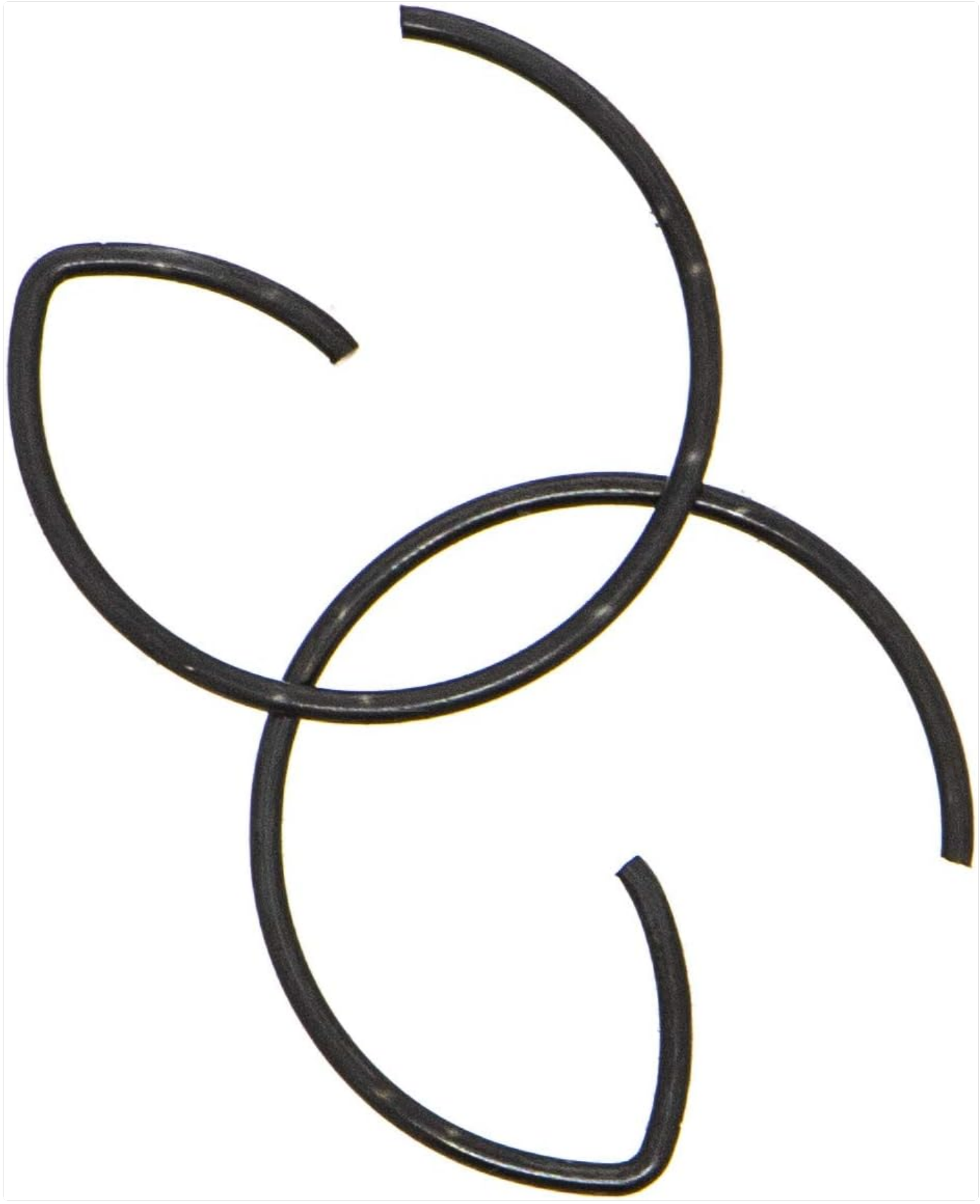

Figure 3.5: Circlips.

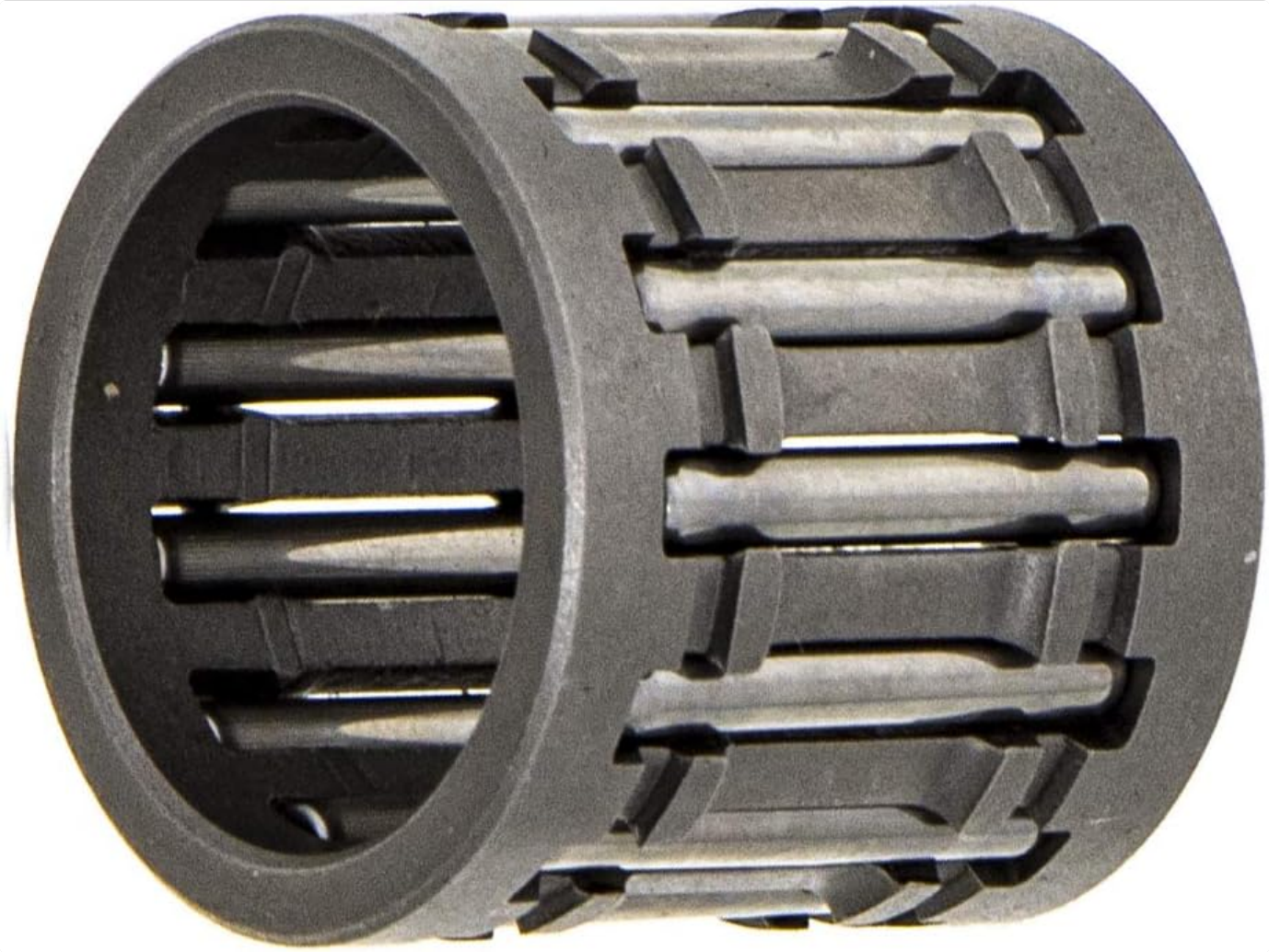

Figure 3.6: Wrist Pin Bearing.

4. Installation Instructions

This section provides general guidance for installing the NICHE Stock Piston Kit. For precise, model-specific instructions, always consult your vehicle's official service manual.

4.1 Pre-Installation Checks

1. **Cylinder Inspection:** Thoroughly inspect the cylinder bore for any scoring, wear, or damage. The cylinder should be honed or re-bored to the correct size if necessary to ensure proper ring seating and piston clearance.
2. **Cleanliness:** Ensure all engine components, especially the cylinder, crankshaft, and connecting rod, are meticulously clean and free of debris, old gasket material, or carbon deposits.
3. **Ring Gap:** Check the piston ring end gap according to your vehicle's service manual specifications. Adjust if necessary by carefully filing the ring ends.
4. **Lubrication:** Apply a thin coat of clean two-stroke oil (for 2-stroke engines) or engine assembly lube to the piston skirt, piston rings, cylinder bore, wrist pin, and wrist pin bearing before assembly.

4.2 Piston Assembly

1. **Install Circlips:** Install one circlip into one of the piston's wrist pin bores. Ensure it is fully seated in its groove.
2. **Install Wrist Pin Bearing:** Insert the wrist pin needle bearing into the small end of the connecting rod.
3. **Attach Piston to Connecting Rod:** Align the piston with the connecting rod. The piston typically has an arrow or mark indicating the exhaust side; ensure this is oriented correctly as per your service manual. Insert the wrist pin through the piston, wrist pin bearing, and connecting rod.

4. **Install Second Circlip:** Install the second circlip into the remaining wrist pin bore on the piston, securing the wrist pin in place. Double-check that both circlips are properly seated.
5. **Install Piston Rings:** Carefully install the piston rings onto the piston, starting with the bottom ring. Ensure the ring end gaps are positioned correctly, typically away from the intake and exhaust ports, and aligned with any locating pins on the piston. Use a piston ring expander tool to prevent damage.

4.3 Cylinder Installation

1. **Position Piston:** Position the piston at Top Dead Center (TDC) in the cylinder.
2. **Compress Rings:** Use a piston ring compressor tool to carefully compress the piston rings, allowing the piston to slide smoothly into the cylinder bore.
3. **Lower Cylinder:** Gently lower the cylinder over the piston and onto the crankcase studs, ensuring the connecting rod aligns properly with the crankshaft.
4. **Secure Cylinder:** Install the cylinder head and tighten all fasteners to the torque specifications provided in your vehicle's service manual, following the recommended tightening sequence.

Note: *Proper torque and assembly sequence are critical for engine longevity and performance. Incorrect installation can lead to premature wear or engine failure.*

5. Operating Considerations (Break-in Procedure)

After installing a new piston kit, a proper engine break-in procedure is crucial to ensure optimal performance and longevity of the engine. This allows the piston rings to seat correctly against the cylinder walls.

General Break-in Guidelines:

- **Initial Start-up:** Allow the engine to warm up gradually. Avoid prolonged idling.
- **Vary RPMs:** For the first few hours of operation (typically 5-10 hours, consult your vehicle manual), vary the engine RPMs. Avoid constant throttle positions.
- **Avoid Full Throttle:** Do not operate at full throttle or high RPMs for extended periods during the break-in period.
- **Load Variation:** If applicable, operate the vehicle under varying loads, but avoid excessive strain.
- **Oil Mixture (2-Stroke):** For 2-stroke engines, some mechanics recommend a slightly richer oil mixture during break-in, but always follow the manufacturer's recommendations.
- **First Oil Change:** Perform an oil change (and filter change if applicable) after the initial break-in period to remove any metallic particles from the seating process.

Important: *Refer to your specific vehicle's service manual for detailed and precise break-in recommendations, as procedures can vary by engine type and model.*

6. Maintenance

Proper maintenance of your engine, including the piston and related components, is essential for long-term performance and reliability.

- **Regular Oil Changes:** Adhere to the manufacturer's recommended oil change intervals and use the specified type of oil.
- **Air Filter Maintenance:** Regularly clean or replace the air filter to prevent contaminants from entering the engine and causing premature wear to the piston and cylinder.
- **Fuel Quality:** Use high-quality fuel appropriate for your vehicle. Stale or contaminated fuel can lead to carbon buildup and affect piston performance.
- **Engine Tuning:** Ensure your engine is properly tuned (carburetor or fuel injection settings) to prevent rich or lean

conditions that can damage the piston.

- **Compression Checks:** Periodically perform a compression test to monitor the health of your piston and rings. A significant drop in compression can indicate wear.

7. Troubleshooting

If you experience issues after installing the NICHE Stock Piston Kit, consider the following common troubleshooting steps:

Symptom	Possible Cause	Solution
Low Compression	Improper ring seating, damaged rings, worn cylinder, incorrect installation.	Ensure proper break-in. Re-check ring gap and installation. Inspect cylinder for damage.
Excessive Smoke (2-Stroke)	Rings not seated, incorrect oil mixture, worn valve seals (4-stroke, not applicable here).	Continue break-in. Verify oil mixture ratio.
Engine Noise (e.g., Piston Slap)	Incorrect piston-to-cylinder clearance, worn wrist pin bearing, improper assembly.	Verify correct piston size and cylinder bore. Re-check wrist pin bearing installation.
Overheating	Lean fuel mixture, improper ignition timing, insufficient cooling.	Check fuel system and ignition timing. Ensure cooling system is functioning correctly.

If issues persist, it is recommended to consult a qualified powersports mechanic.

8. Specifications

Attribute	Detail
Brand	NICHE
Manufacturer	Mishon Inc
Item Model Number	519-KPS2217T
Piston Bore Size	72mm (Standard)
Material	Aluminum Alloy
Piston Type	Dome
Surface Coating	None
Compatible OEM Part Numbers	3083942, 3083546, 3083512, 3083839, 3083626

Attribute	Detail
Compatible Models	Polaris 1987 Cyclone 250x, 1989-1992 Big Boss 250, 1996-1997 Sport 400L, 1985-1986 Scrambler 250, 2000-2002 Xplorer, 1985-1999 Trail Boss 250, 1990-2006 Trail Blazer; 1996 1999 2003 Trail Blazer 250
Item Weight	1.6 ounces
Product Dimensions	4.3 x 4 x 4 inches
Safety Rating	DOT Certified

9. Warranty Information

NICHE Industries offers a **2-Year Warranty** on this product. For specific terms and conditions, please refer to the official NICHE Industries warranty policy or contact customer support.

Figure 9.1: NICHE Industries 2-Year Warranty.

10. Customer Support

For further assistance, technical support, or warranty claims, please visit the official NICHE Industries website or contact their customer service department.
You can find more information and products from NICHE by visiting their official store: NICHE Industries Store.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for

conversion attribution. Privacy details.

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question