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› King Engine Bearings TW247AM Thrust Washer Set Installation and Maintenance Guide

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1. INTRODUCTION

This manual provides essential information for the proper installation, function, and maintenance of the King Engine Bearings TW247AM Thrust Washer Set. These thrust washers are designed for specific Mitsubishi 6G71/6G72/6G72T/6G73 V6 and Hyundai G6AV V6 engines. Adhering to these instructions will help ensure optimal performance and longevity of the product and the engine components.

2. PRODUCT OVERVIEW

The King Engine Bearings TW247AM is a set of thrust washers critical for managing crankshaft end play in compatible V6 engines. Thrust washers prevent excessive axial movement of the crankshaft, which is vital for maintaining proper engine clearances and preventing premature wear of other engine components.



Image 2.1: King Engine Bearings TW247AM Thrust Washer Set. The image displays the thrust washers both inside their clear plastic packaging, labeled "KING THRUST WASHERS," and four individual washers laid out beside the package. These crescent-shaped components are made of aluminum and are essential for crankshaft end play management.

2.1. Components Included

- King Engine Bearings TW247AM Thrust Washer Set (typically multiple washers per set)

2.2. Compatibility

This thrust washer set is compatible with the following engine types:

- Mitsubishi 6G71 V6
- Mitsubishi 6G72 V6
- Mitsubishi 6G72T V6
- Mitsubishi 6G73 V6
- Hyundai G6AV V6

3. SAFETY INFORMATION

Working on engine components requires caution. Always observe the following safety guidelines:

- **Professional Installation Recommended:** Engine work should ideally be performed by certified mechanics or individuals with extensive experience in engine assembly.
- **Personal Protective Equipment (PPE):** Wear appropriate safety glasses, gloves, and other protective gear to prevent injury.
- **Engine Cool-Down:** Ensure the engine is completely cool before beginning any work to prevent burns.
- **Vehicle Stability:** If working on a vehicle, ensure it is securely supported on jack stands or a lift. Never rely solely

on a jack.

- **Cleanliness:** Maintain a clean work environment. Contaminants can severely impact engine component performance and lifespan.
- **Tool Usage:** Use the correct tools for each task. Improper tool usage can damage components or cause injury.
- **Disposal:** Dispose of old parts and fluids responsibly according to local regulations.

4. INSTALLATION

The installation of thrust washers is an integral part of an engine rebuild or repair. Precise measurements and careful handling are crucial.

4.1. Pre-Installation Checks

1. **Inspect Components:** Carefully inspect the new thrust washers for any manufacturing defects, scratches, or damage.
2. **Cleanliness:** Thoroughly clean the crankshaft and engine block surfaces where the thrust washers will be seated. Any debris can cause premature wear.
3. **Lubrication:** Apply a compatible engine assembly lubricant (such as grease, as specified for this product) to both sides of the thrust washers before installation. This aids in initial startup protection.

4.2. Installation Steps (General Guidelines)

Note: Always refer to the specific engine service manual for detailed, model-specific installation procedures, torque specifications, and clearances.

1. **Crankshaft Preparation:** Ensure the crankshaft journals and thrust surfaces are clean and free from burrs or damage.
2. **Washer Placement:** Install the thrust washers into their designated locations in the engine block and/or main bearing caps. Ensure the lubricated side faces the crankshaft thrust surface.
3. **Crankshaft Installation:** Carefully lower the crankshaft into position, ensuring it seats correctly without dislodging the thrust washers.
4. **Main Bearing Cap Installation:** Install the main bearing caps, ensuring the thrust bearing cap (if applicable) is correctly oriented.
5. **Torque Specifications:** Tighten all main bearing cap bolts to the manufacturer's specified torque values in the correct sequence.
6. **Check Crankshaft End Play:** After installation and torquing, measure the crankshaft end play using a dial indicator. Compare this measurement to the engine manufacturer's specifications. If the end play is outside the specified range, re-evaluate the installation and components.

5. OPERATING CONSIDERATIONS

Once installed, thrust washers operate continuously within the engine. Proper engine operation and maintenance are key to their longevity.

- **Initial Engine Start-up:** Ensure adequate oil pressure is achieved quickly during the first start-up after an engine rebuild.
- **Engine Break-in:** Follow the engine manufacturer's recommended break-in procedure to allow all new components, including thrust washers, to seat properly.
- **Monitor Engine Performance:** Pay attention to any unusual noises, vibrations, or changes in engine performance that could indicate issues with internal components.

6. MAINTENANCE

Thrust washers themselves do not require direct maintenance, but their lifespan is heavily dependent on overall engine health and maintenance practices.

- **Regular Oil Changes:** Adhere to the engine manufacturer's recommended oil change intervals using the specified oil type and viscosity. Clean engine oil is crucial for bearing and washer lubrication.
- **Maintain Oil Pressure:** Ensure the engine's oil pressure system is functioning correctly. Low oil pressure can lead to premature wear of all engine bearings, including thrust washers.
- **Fluid Levels:** Regularly check and maintain all engine fluid levels, especially engine oil.
- **Avoid Excessive Clutch Use (Manual Transmissions):**For vehicles with manual transmissions, excessive or prolonged depression of the clutch pedal can put continuous thrust load on the crankshaft, potentially accelerating thrust washer wear.

7. TROUBLESHOOTING

Issues with thrust washers typically manifest as excessive crankshaft end play, which can lead to other engine problems. Diagnosis usually requires engine disassembly.

7.1. Symptoms of Thrust Washer Failure

- **Excessive Crankshaft End Play:** The most direct symptom, detectable by measuring crankshaft movement.
- **Unusual Engine Noises:** A knocking or clunking sound, especially when the clutch is depressed or released (in manual transmissions), or during acceleration/deceleration, could indicate excessive end play.
- **Damage to Other Components:** Severe thrust washer wear can lead to damage to the crankshaft, engine block, or other bearings due to improper alignment and contact.

7.2. Potential Causes of Premature Wear

- **Improper Installation:** Incorrect seating, lack of lubrication during assembly, or contamination.
- **Insufficient Lubrication:** Low oil pressure, incorrect oil type, or extended oil change intervals.
- **Excessive Thrust Loads:** Often caused by issues with the clutch or transmission, or improper engine balance.
- **Manufacturing Defects:** Though rare, defects in the washer material or dimensions can lead to early failure.
- **Contamination:** Abrasive particles in the engine oil can accelerate wear.

If any of these symptoms are observed, it is recommended to consult a qualified mechanic for diagnosis and repair.

8. SPECIFICATIONS

Attribute	Detail
Brand	King Engine Bearings
Model Number	TW247AM
Material	Aluminum
Compatible Lubricant	Grease (for assembly)
UPC	611500387197
Manufacturer Part Number	TW247AM

Attribute	Detail
Engine Compatibility	Mitsubishi 6G71/6G72/6G72T/6G73 V6, Hyundai G6AV V6

9. WARRANTY AND SUPPORT

For specific warranty information regarding the King Engine Bearings TW247AM Thrust Washer Set, please refer to the documentation provided with your purchase or contact King Engine Bearings directly. Warranty terms typically cover manufacturing defects and do not extend to damage caused by improper installation, misuse, or normal wear and tear. For technical support or inquiries, please visit the official King Engine Bearings website or contact their customer service department. Always provide your product model number (TW247AM) and purchase details when seeking support.

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