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› SUNSTAR Rear Sprocket 428-43T for YAMAHA TW200/E, TW225E, TW125 (RY-005-43)

SUNSTAR RY-005-43

SUNSTAR Rear Sprocket 428-43T Instruction Manual

Model: RY-005-43

1. PRODUCT OVERVIEW

The SUNSTAR RY-005-43 rear sprocket is an aluminum component designed to optimize the performance of compatible motorcycles. Unlike standard steel sprockets, this aluminum sprocket offers a significant weight reduction, approximately one-third the weight of a steel equivalent. This weight reduction is crucial for components that rotate at high speeds, contributing to improved vehicle dynamics. The design prioritizes performance and precision, offering both functional enhancement and an aesthetic upgrade for your motorcycle.

Compatible Models:

- YAMAHA TW225E
- YAMAHA TW200/E
- YAMAHA TW125



Figure 1: Full view of the SUNSTAR RY-005-43 aluminum rear sprocket. This image displays the entire sprocket, highlighting its lightweight aluminum construction and precision-machined teeth.

2. INSTALLATION INSTRUCTIONS

Installation of the rear sprocket requires mechanical aptitude and appropriate tools. If you are unsure about any step, it is recommended to seek assistance from a qualified motorcycle mechanic.

1. **Preparation:** Ensure the motorcycle is securely supported on a stand. Remove the rear wheel according to your motorcycle's service manual.
2. **Sprocket Removal:** Carefully remove the old rear sprocket from the wheel hub. Note the orientation and any spacers.
3. **New Sprocket Installation:** Install the SUNSTAR RY-005-43 sprocket onto the wheel hub. Ensure it seats correctly and all mounting bolts are aligned.
4. **Torque Specifications:** Tighten the sprocket mounting bolts to the torque specifications provided in your motorcycle's service manual. Use a torque wrench for accuracy.
5. **Chain Compatibility:** This sprocket is designed for a 428 chain size. Ensure your chain is compatible and in good condition.
6. **Chain Length Adjustment:** If changing the number of teeth from the original sprocket, the chain length may need adjustment. A chain that is too long or too short can cause improper tension, premature wear, or damage.
7. **Clearance Check:** After installation, rotate the wheel manually to check for any interference between the sprocket, chain, and other vehicle components. Pay close attention to clearance with the swingarm and chain guard.
8. **Final Assembly:** Reinstall the rear wheel, adjust chain tension, and ensure all components are properly secured before riding.

Important Precaution: Changing the number of teeth on the sprocket can affect vehicle body clearance and chain

length. The manufacturer's specified tooth count does not guarantee universal fitment for all vehicle modifications or chain setups. Always verify proper fitment and clearance before operation.



Figure 2: The SUNSTAR rear sprocket installed on a motorcycle. This image shows the sprocket mounted on the rear wheel, connected to the drive chain, illustrating a typical installation scenario.

3. OPERATION AND PERFORMANCE CHARACTERISTICS

The SUNSTAR RY-005-43 rear sprocket, with its 43 teeth, influences the motorcycle's gearing ratio. A change in the number of teeth on the rear sprocket directly impacts acceleration and top speed.

- **Fewer Teeth (compared to stock):** Generally results in higher top speed but reduced acceleration.
- **More Teeth (compared to stock):** Generally results in quicker acceleration but a lower top speed.

This 43-tooth sprocket is designed to provide a balanced performance profile for the compatible YAMAHA TW series, potentially enhancing the motorcycle's overall drive feel. Users have reported that this sprocket can lead to a higher effective speed at a given engine RPM, for example, increasing the speed from 60 km/h to approximately 68 km/h at the same engine sound level on a TW200. However, this may also mean that lower speeds in top gear (e.g., 50 km/h) might feel less smooth or cause the engine to lug.

4. MAINTENANCE

Proper maintenance extends the life of your sprocket and chain, ensuring safe and efficient operation.

- **Regular Cleaning:** Clean the sprocket and chain regularly to remove dirt, grime, and old lubricant. Use a suitable chain cleaner and brush.
- **Lubrication:** After cleaning, lubricate the chain with a high-quality chain lubricant. Ensure the lubricant reaches all parts of the chain, including the O-rings (if applicable).

- **Inspection for Wear:** Periodically inspect the sprocket teeth for signs of wear. Worn teeth may appear hooked or pointed. Replace the sprocket if significant wear is observed. It is recommended to replace both the front sprocket and chain when replacing the rear sprocket for optimal performance and longevity.
- **Chain Tension:** Maintain correct chain tension as specified in your motorcycle's service manual. Incorrect tension can lead to premature wear of both the chain and sprockets.
- **Alignment:** Ensure the front and rear sprockets are properly aligned. Misalignment causes uneven wear and reduces component life.



Figure 3: Close-up view of the SUNSTAR sprocket teeth. This image highlights the precision machining and the "SUNSTAR JAPAN" engraving, which are indicators of product quality and authenticity. Regular inspection of these teeth for wear is crucial for maintenance.

5. TROUBLESHOOTING

This section addresses common issues that may arise with sprockets and the drive chain system.

Symptom	Possible Cause	Solution
Excessive Noise from Drive System	Dry or dirty chain, incorrect chain tension, worn sprocket teeth, misaligned sprockets.	Clean and lubricate chain, adjust chain tension, inspect and replace worn components, check sprocket alignment.
Premature Sprocket/Chain Wear	Lack of lubrication, incorrect chain tension, misaligned sprockets, worn chain, riding conditions (e.g., heavy loads, aggressive riding).	Regular cleaning and lubrication, adjust chain tension, ensure proper alignment, replace chain and sprockets as a set if wear is significant.
Chain Slippage or Skipping	Severely worn sprocket teeth, stretched chain, incorrect chain pitch.	Inspect and replace worn sprockets and chain. Ensure correct chain size (428 for this sprocket).

Symptom	Possible Cause	Solution
Vibration or Roughness	Bent sprocket, unevenly worn chain, loose wheel or sprocket mounting.	Inspect sprocket for damage, check chain for stiff links, verify all mounting bolts are torqued correctly.

Always consult your motorcycle's service manual for specific troubleshooting steps and recommended maintenance intervals.

6. SPECIFICATIONS

Feature	Detail
Product Number	RY00543
Chain Size	428
Number of Teeth	43
Material	Aluminum (A7075-T6 Super Duralumin)
Representative Compatible Models	YAMAHA TW225E, TW200/E, TW125
Product Dimensions (D x W x H)	23 x 23 x 0.7 cm (Approx. 9.06 x 9.06 x 0.28 inches)
Product Weight	Approximately 18.1 g (0.64 oz)
Manufacturer	SUNSTAR

7. WARRANTY AND SUPPORT

SUNSTAR guarantees this product only against defects found prior to installation or use. This warranty covers manufacturing defects that prevent proper installation or initial function. Claims for defects found after installation or during use are not covered unless explicitly stated otherwise.

For further support or inquiries regarding this product, please contact your authorized SUNSTAR dealer or the point of purchase. Always refer to your motorcycle's official service manual for detailed information on drive system components and maintenance.

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

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