

## TIMKEN PB21

# Timken PB21 Clutch Pilot Bearing User Manual

MODEL: PB21

## 1. Introduction

This user manual provides essential information for the Timken PB21 Clutch Pilot Bearing. It is designed to assist users in understanding the product's function, proper installation considerations, maintenance, and troubleshooting. Adhering to these guidelines will help ensure the optimal performance and longevity of your pilot bearing.

## 2. Product Overview

The Timken PB21 is a high-quality clutch pilot bearing designed for automotive applications. Its primary function is to support the input shaft of the transmission as it enters the crankshaft, ensuring smooth engagement and disengagement of the clutch. This bearing is crucial for preventing vibrations and wear in the transmission and engine components.



Image: A cylindrical metal component, the Timken PB21 Clutch Pilot Bearing. It has a smooth, metallic gray finish, indicating its robust construction for automotive use.

Key features include:

- Supports the transmission input shaft.
- Reduces friction and wear between the crankshaft and transmission.
- Contributes to smooth clutch operation.
- Durable construction for reliable performance.

### 3. Setup and Installation

The Timken PB21 Clutch Pilot Bearing is an internal component of a vehicle's drivetrain and requires professional installation. Incorrect installation can lead to premature failure of the bearing, damage to the transmission, or other critical vehicle components. It is highly recommended that installation be performed by a certified automotive technician.

General installation considerations:

1. **Vehicle Preparation:** Ensure the vehicle is safely lifted and supported. Disconnect the battery.
2. **Transmission Removal:** The transmission must be removed from the vehicle to access the pilot bearing.
3. **Old Bearing Removal:** Carefully remove the old pilot bearing from the crankshaft. Specialized tools may be required to extract the bearing without damaging the crankshaft bore.
4. **Crankshaft Inspection:** Inspect the crankshaft bore for any damage, corrosion, or debris. Clean the bore thoroughly.
5. **New Bearing Installation:** Gently tap the new Timken PB21 bearing into the crankshaft bore using an appropriate bearing installation tool. Ensure it is seated squarely and fully. Do not use excessive force, as this can damage the bearing.
6. **Reassembly:** Reinstall the transmission and other components according to the vehicle manufacturer's specifications.

Refer to your vehicle's specific service manual for detailed, model-specific installation procedures.

### 4. Operating Principles

Once installed, the Timken PB21 pilot bearing operates continuously whenever the engine is running. Its primary role is active during clutch engagement and disengagement:

- **Clutch Engaged:** When the clutch is fully engaged, the transmission input shaft and the crankshaft rotate at the same speed. The pilot bearing experiences minimal relative motion and primarily supports the shaft.
- **Clutch Disengaged:** When the clutch pedal is pressed, the clutch disc separates from the flywheel, allowing the transmission input shaft to slow down or stop independently of the crankshaft. During this period, the pilot bearing facilitates the differential rotation between the crankshaft and the transmission input shaft, reducing friction and preventing wear.

Proper operation of the pilot bearing is critical for smooth gear shifts and to prevent damage to the transmission's input shaft and the crankshaft.

### 5. Maintenance

The Timken PB21 Clutch Pilot Bearing is designed to be a maintenance-free component once installed. However, its lifespan is directly related to proper installation and the overall health of the clutch system. Regular vehicle maintenance and prompt attention to clutch-related issues can indirectly extend the life of the pilot bearing.

Considerations for longevity:

- **Professional Installation:** As noted, correct installation is paramount.
- **Clutch System Health:** Ensure the entire clutch system (pressure plate, clutch disc, throw-out bearing, master/slave cylinders) is in good working order. A failing component elsewhere can put undue stress on the pilot bearing.
- **Fluid Leaks:** Address any engine or transmission fluid leaks promptly, as contamination can degrade

bearing performance.

The pilot bearing is typically replaced as part of a complete clutch job, as it is easily accessible when the transmission is removed for clutch disc or pressure plate replacement.

## 6. Troubleshooting

A failing pilot bearing can manifest in several ways, often mistaken for other clutch or transmission issues. If you experience any of the following symptoms, it may indicate a worn or damaged pilot bearing:

- **Squealing or Chirping Noise:** A common symptom is a high-pitched squealing or chirping sound when the clutch pedal is depressed, especially when the vehicle is in neutral. The noise may disappear when the clutch is fully engaged or disengaged.
- **Grinding Noise:** A grinding noise when shifting gears, particularly into first or reverse, can indicate that the transmission input shaft is not slowing down properly due to a seized or worn pilot bearing.
- **Difficulty Shifting:** Hard shifting, especially into lower gears, can occur if the pilot bearing is not allowing the transmission input shaft to spin freely relative to the crankshaft.
- **Vibrations:** Excessive vibrations felt through the clutch pedal or gear shifter, particularly during clutch engagement or disengagement, could be a sign of a failing pilot bearing.

If these symptoms are present, it is advisable to have your vehicle inspected by a qualified mechanic. Early diagnosis and replacement can prevent more extensive and costly damage to your transmission or crankshaft.

## 7. Specifications

Attribute	Value
Manufacturer	Timken
Brand	TIMKEN
Item Model Number	PB21
Manufacturer Part Number	PB21
Item Weight	1.6 ounces
Package Dimensions	3.97 x 2.76 x 1.17 inches
Country of Origin	China
ASIN	B00H512TDI
Date First Available	October 10, 2007

## 8. Warranty Information

Specific warranty details for the Timken PB21 Clutch Pilot Bearing are provided by the manufacturer, Timken. Please refer to the official Timken website or contact their customer service directly for the most accurate and up-to-date warranty policy regarding this product. Retain your proof of purchase for any warranty claims.



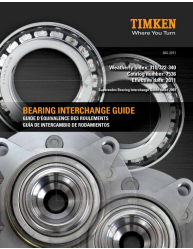


## 9. Support

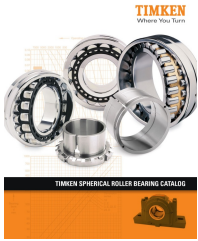
For technical assistance, product inquiries, or support regarding the Timken PB21 Clutch Pilot Bearing, please contact Timken customer service or visit their official support channels. If you purchased this product from a specific retailer, you may also contact their customer support for assistance.

**Timken Official Website:** [www.timken.com](http://www.timken.com) (Please verify the exact URL as it may change)

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Related Documents - PB21

	<p><a href="#">Timken Engineering Manual: Comprehensive Guide to Bearing Selection and Application</a></p> <p>This Timken Engineering Manual provides in-depth information on bearing types, selection processes, fitting practices, operating conditions, lubrication, and storage. Essential resource for engineers and professionals in mechanical power transmission.</p>
	<p><a href="#">Timken Bearing Specification Guide: Comprehensive Catalog for Automotive &amp; Industrial Applications</a></p> <p>The official Timken Bearing Specification Guide provides detailed information on a wide range of bearings, seals, and hub assemblies. Essential for identifying and selecting the correct components for automotive and industrial applications.</p>
	<p><a href="#">Timken Bearing Interchange Guide</a></p> <p>Comprehensive guide from Timken providing bearing interchange information, including manufacturer part numbers and corresponding Timken part numbers. Available in English, French, and Spanish.</p>
	<p><a href="#">Timken® SNT Plummer Block Catalog: Industrial Bearing Solutions</a></p> <p>Explore the Timken® SNT Plummer Block Catalog, featuring robust industrial bearing solutions. Discover detailed specifications, installation guides, and application information for high-performance bearings designed for demanding environments.</p>
	<p><a href="#">Timken® SAF Split-Block Mounted Spherical Roller Bearing Catalog</a></p> <p>Comprehensive catalog detailing Timken® SAF Split-Block Mounted Spherical Roller Bearings, including engineering specifications, mounting instructions, lubrication guidelines, and product dimensions for various series and applications.</p>



### [Timken Spherical Roller Bearing Catalog](#)

Comprehensive catalog detailing Timken's range of spherical roller bearings, offering detailed technical specifications, engineering data, mounting practices, and lubrication guidelines for industrial applications.