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## Bentley 4 1/2 Litre

# Bentley 4 1/2 Litre Owners' Workshop Manual: 1927 Onwards

For all models, including 'Blower' variants.

## INTRODUCTION

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The Bentley 4 1/2 Litre stands as a highly iconic pre-war automobile. Its supercharged counterpart, the "Blower" Bentley, is particularly sought after by collectors today due to its historical significance and value. The "Bentley Boys" achieved notable victories in various high-profile races using Bentley vehicles, with Woolf Barnato and Bernardo Rubini securing a win in a 4 1/2 Litre car in 1928. While five supercharged "Blower" Bentleys were constructed for competition at Le Mans, the car's inherent reliability challenges prevented it from winning the 24-hour race.

This manual offers comprehensive details on both the unsupercharged and "Blower" 4 1/2 Litre Bentley racing cars. It covers their period racing history, intricate anatomy, and engineering principles.

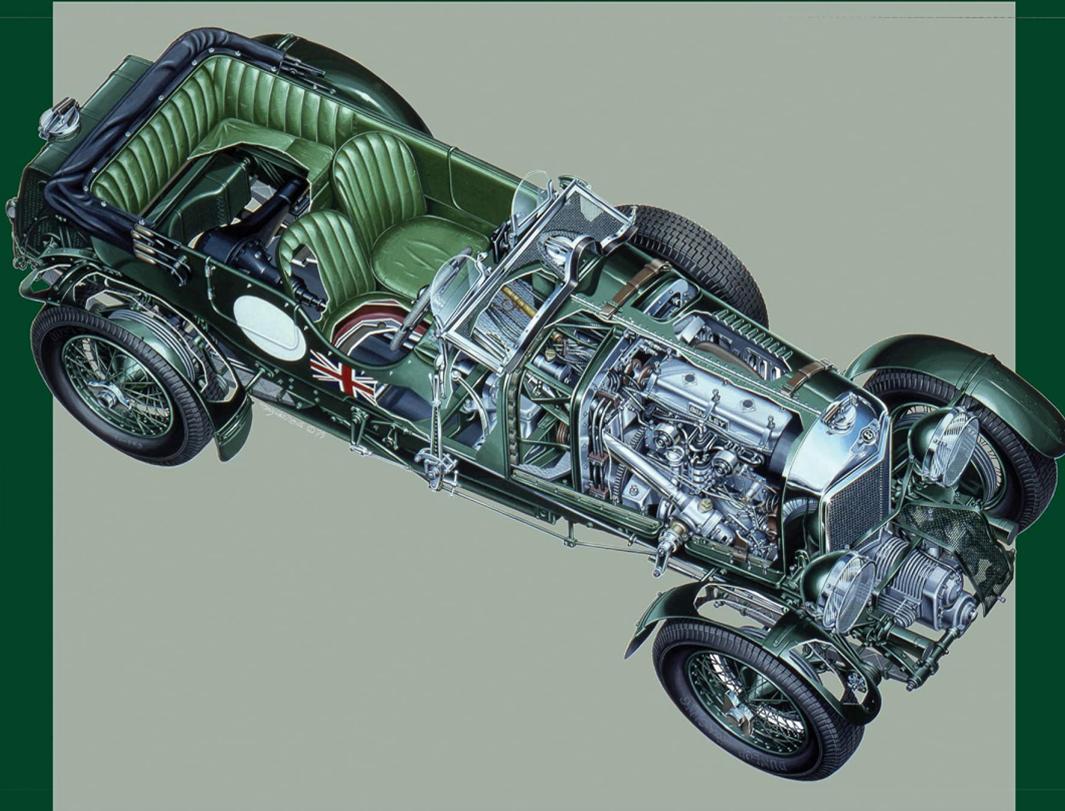
Furthermore, it provides valuable insights into the ownership, maintenance, and operational aspects of these iconic vehicles in the present day. The content is richly illustrated with historical photographs, original design and engineering materials, and contemporary images of restored examples.

# BENTLEY 4 1/2 LITRE



1927 onwards (all models, including 'Blower')

## Owners' Workshop Manual



An insight into the design, engineering, maintenance and ownership of W.O. Bentley's legendary Le Mans winner

**Figure 1:** Cover of the Bentley 4 1/2 Litre Owners' Workshop Manual. This image displays a classic green Bentley racing car, highlighting its distinctive supercharger, a key feature of the 'Blower' models.

### INITIAL CONSIDERATIONS AND PREPARATION

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For owners or restorers of a Bentley 4 1/2 Litre, understanding the vehicle's original configuration and historical context is crucial for proper setup. This section outlines general considerations for preparing the vehicle, whether for display, light use, or comprehensive restoration.

#### Documentation Review

Before any physical work, thoroughly review all available documentation, including period manuals, service records, and historical photographs. This helps in identifying the specific model year, factory specifications,

and any modifications made over time. Pay close attention to engine numbers, chassis numbers, and body configurations.

## Component Identification

Familiarize yourself with the major components of the 4 1/2 Litre Bentley. This includes the engine (especially distinguishing between unsupercharged and 'Blower' variants), transmission, chassis, suspension, and braking systems. Understanding the original design intent for each component is vital for correct assembly and function.

- **Engine Type:** Identify if the engine is naturally aspirated or fitted with a supercharger (e.g., Amherst Villiers or Arnott).
- **Chassis Integrity:** Inspect the chassis for signs of fatigue, damage, or previous repairs that deviate from original specifications.
- **Electrical System:** Note the original 12-volt positive earth system and its components.

## OPERATION GUIDELINES

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Operating a vintage Bentley 4 1/2 Litre requires a distinct approach compared to modern vehicles. This section provides general guidance on starting, driving, and stopping these classic automobiles, emphasizing techniques appropriate for their period engineering.

### Starting Procedure

1. **Fuel Supply:** Ensure adequate fuel in the tank and that the fuel tap is open.
2. **Ignition:** Set the ignition timing lever (advance/retard) to a retarded position for starting.
3. **Choke:** Apply the choke as necessary, especially for cold starts.
4. **Starting Handle/Starter Motor:** Engage the starting handle or use the electric starter motor cautiously. Avoid over-cranking.
5. **Warm-up:** Allow the engine to warm up sufficiently before driving, monitoring oil pressure and temperature.

### Driving Techniques

Driving a 4 1/2 Litre Bentley involves mastering its non-synchromesh gearbox and powerful engine. Smooth gear changes and anticipation are key.

- **Gear Shifting:** Practice double-declutching for upward and downward gear changes to prevent gear clash and wear.
- **Braking:** The mechanical brakes require firm and progressive application. Anticipate stops well in advance.
- **Steering:** The steering is direct but heavy at low speeds. Maintain a firm grip and be aware of road feedback.
- **Supercharger Operation (Blower models):** Understand the characteristics of the supercharger, which provides a significant boost in power. Avoid prolonged high-RPM operation without proper lubrication and cooling.

## MAINTENANCE PROCEDURES

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Regular and meticulous maintenance is essential for preserving the Bentley 4 1/2 Litre. This section outlines critical maintenance tasks to ensure longevity and reliable operation.

## Routine Checks

- **Oil Level:** Check engine oil level before each use. Use appropriate vintage-specific lubricants.
- **Coolant Level:** Verify coolant levels in the radiator.
- **Tire Pressure:** Maintain correct tire pressures for optimal handling and safety.
- **Brake Fluid:** Inspect brake fluid levels and condition (if hydraulic brakes are fitted, or mechanical linkages for earlier models).
- **Greasing Points:** Regularly lubricate all chassis and suspension greasing points as specified in period service manuals.

## Scheduled Servicing

Adhere to a strict servicing schedule, typically every 1,000 to 2,000 miles or annually, whichever comes first.

- **Oil and Filter Change:** Replace engine oil and filter.
- **Ignition System:** Inspect and adjust spark plugs, distributor points, and ignition timing.
- **Fuel System:** Clean fuel filters and inspect fuel lines for leaks.
- **Valve Clearances:** Check and adjust valve clearances to factory specifications.
- **Brake Adjustment:** Adjust mechanical brake linkages for even and effective braking.

## TROUBLESHOOTING COMMON ISSUES

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This section addresses common operational problems encountered with Bentley 4 1/2 Litre vehicles and provides initial steps for diagnosis and resolution.

Symptom	Possible Cause	Action
Engine Fails to Start	No fuel, weak spark, incorrect ignition timing, flat battery.	Check fuel supply, inspect spark plugs and ignition leads, verify battery charge, adjust timing.
Overheating	Low coolant, blocked radiator, faulty water pump, incorrect ignition timing.	Check coolant level, clean radiator fins, inspect water pump, verify timing.
Poor Braking Performance	Worn brake linings, maladjusted linkages, contaminated drums.	Inspect brake components, adjust linkages, clean drums and linings.
Excessive Oil Consumption	Worn piston rings, valve guides, or oil leaks.	Conduct compression test, inspect valve seals, check for external leaks.

For complex issues, consulting a specialist in vintage Bentley automobiles is highly recommended.

## SPECIFICATIONS

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This section provides key specifications for the Bentley 4 1/2 Litre Owners' Workshop Manual.

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## WARRANTY AND SUPPORT

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As this document is a published book, a traditional product warranty or direct technical support from the publisher for the vehicle itself is not applicable. For inquiries regarding the book's content or publication, please refer to the publisher, Haynes Publishing UK.

For support related to the Bentley 4 1/2 Litre automobile, it is recommended to consult specialized vintage car mechanics, Bentley enthusiast clubs, or historical automotive resources.