

2003 INDIAN® CHIEF® MOTORCYCLE SERVICE MANUAL



CHIEF, DELUXE, SPRINGFIELD
AND ROADMASTER MODELS

FOREWORD

To stay in peak running condition, Indian™ motorcycles require regular maintenance in accordance with the recommendations of Indian Motorcycle Company. This manual describes all the necessary inspection and maintenance procedures that should be performed at specific intervals. It also provides the detailed troubleshooting and repair procedures necessary when problems arise or are uncovered at the recommended service intervals.

Organization and Content

The organization and content of the manual is formed around the following major sections:

GENERAL INFORMATION provides information about the major features and characteristics of the Indian Chief motorcycle. It also provides general information relating to the maintenance service and repair procedures including an explanation of the types of safety information presented.

TROUBLESHOOTING provides symptom-related diagnostic information and system and component tests. Areas covered include the basic engine, as well as emission control, ignition and fuel systems. In addition, there is coverage for chassis, drive, transmission and chassis electrical.

MAINTENANCE AND REPAIR PROCEDURES are included under the page banner headings for the respective system or component involved, for example, **FRONT SUSPENSION**, **STEERING**, etc. Under each of the respective headings, there are procedures for routine maintenance inspections and adjustments.

Procedures for removal and installation, disassembly, cleaning and inspection of component parts and assembly are included when more extensive repairs or a complete overhaul is required.

SPECIFICATIONS for all systems and components are included in one place near the end of the manual. The section provides assembly clearances and wear limits under Fits and Tolerances, as well as fastener torque values and specified sealants for engine, chassis and electrical systems and components.

SCHEMATICS covering chassis wiring and engine ignition and lubrication systems are included here. In addition, there are power flow diagrams for the transmission.

ASSEMBLY DRAWINGS are included for the major engine sub assemblies. These are detailed exploded views showing the relative position of components and the critical fastener torque values.

TOOLS AND EQUIPMENT provides a listing of all special tools and the corresponding tool numbers that are required to perform specific service and repair procedures in a precise, efficient and safe manner. Most of the required tools are readily available from JIMS® Machining. In addition to the tool listing, there are drawings for fabricating or modifying tools for use in servicing the engine.

Finding the Information You Need

The manual includes a Table of Contents and an alphabetical Index as well. Both listings are based on first and second level headings included in the text.



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FEATURES OF THE 2003 INDIAN CHIEF MOTORCYCLE

The Indian Chief motorcycle is a classic design with its heritage going back to the beginning of the twentieth century. Today, the motorcycle carries forth the tradition and craftsmanship with four models.

- Indian Chief (standard)
- Indian Chief Deluxe
- Indian Chief Roadmaster
- Indian Chief Springfield

Component and System Descriptions

Chassis

Front suspension — The Chief is fitted with a conventional-style front suspension with hydraulic compression and rebound damping. Early-production models were equipped with an ILM-manufactured fork assembly. Current-production models are equipped with Paioli assembly. Both are similar in design. However, on the Paioli fork, the caliper-mounting bracket is an integral part of the fork slider.

The 41 mm upper fork tubes (stanchions) of the Paioli assembly are hard chromed with fork sliders that are forged EN-AW-6082 aluminum. The fork sliders are finished with tri-plate chrome.

Steering — The rake of the front forks is 34 degrees. This rake provides a front-wheel trail dimension of 5.92" with the standard 130/90-16 sized tires.

Rear suspension — The rear swingarm is suspended at the top on a single KW rising-rate spring and shock absorber that provides 4.25" of travel. Spring preload is adjustable.

Brakes — Single-disc brakes are used on both the front and rear wheels at the left and right sides respectively. Both feature Brembo, differential bore, four-piston calipers in combination with 11.5" rotors.

Wheels and tires — The wheels are chrome with 60 spokes and 16" x 3.5" rims. These are fitted with size 130/90-16 tires at both front and rear locations.

Frame — The substantial frame is constructed of high-tensile steel and protected with a black powder-coated finish. Fitted with the standard rear swingarm and front suspension, the frame provides a wheelbase of 68.4".

Engine and Related Systems

Basic engine — At the core of the motorcycle is its engine. The Chief is powered by the Indian POWERPLUS™ engine and is a four-cycle, two-cylinder engine with a 45-degree V-configuration. Its large bore and stroke give it a displacement of 100 cubic inches. The design is also traditional, carrying forward the characteristic "round" cylinders found in early Indian Chief motorcycles. At a compression ratio of 9.2:1, the engine produces 78 foot-pounds of torque at 3800 rpm and 67 hp at 4750 rpm.



Figure 1 — Indian POWERPLUS™ engine

The piston connecting rods are a fork-and-blade style connected to a common crank pin joining two flywheels. The crank pin is set between the pinion shaft flywheel to the right and the sprocket shaft flywheel to the left. The sprocket shaft drives the compensator sprocket in the primary case at the left side of the motorcycle. The sprocket shaft carries the alternator rotor, between the engine crankcase and the compensator. The pinion shaft drives the camshaft, oil pump and breather valve through gearing at the right side of the engine.

The camshaft actuates the intake and exhaust valves through a valve train that includes roller lifters, pushrods and rocker shaft assemblies. The roller lifters, following the cam lobes, raise the pushrods and rocker arms to open the intake and exhaust valves at the appropriate times in the intake and exhaust cycles.

Lubrication system — The lubrication system incorporates a gerotor-type oil pump located at the front of the cam housing. The pump, which is driven by a worm gear fitted on the pinion shaft, provides positive lubrication to the engine. At the rear of the cam housing is a full-flow, spin-on type filter to screen the lubricating oil as it circulates through the system.