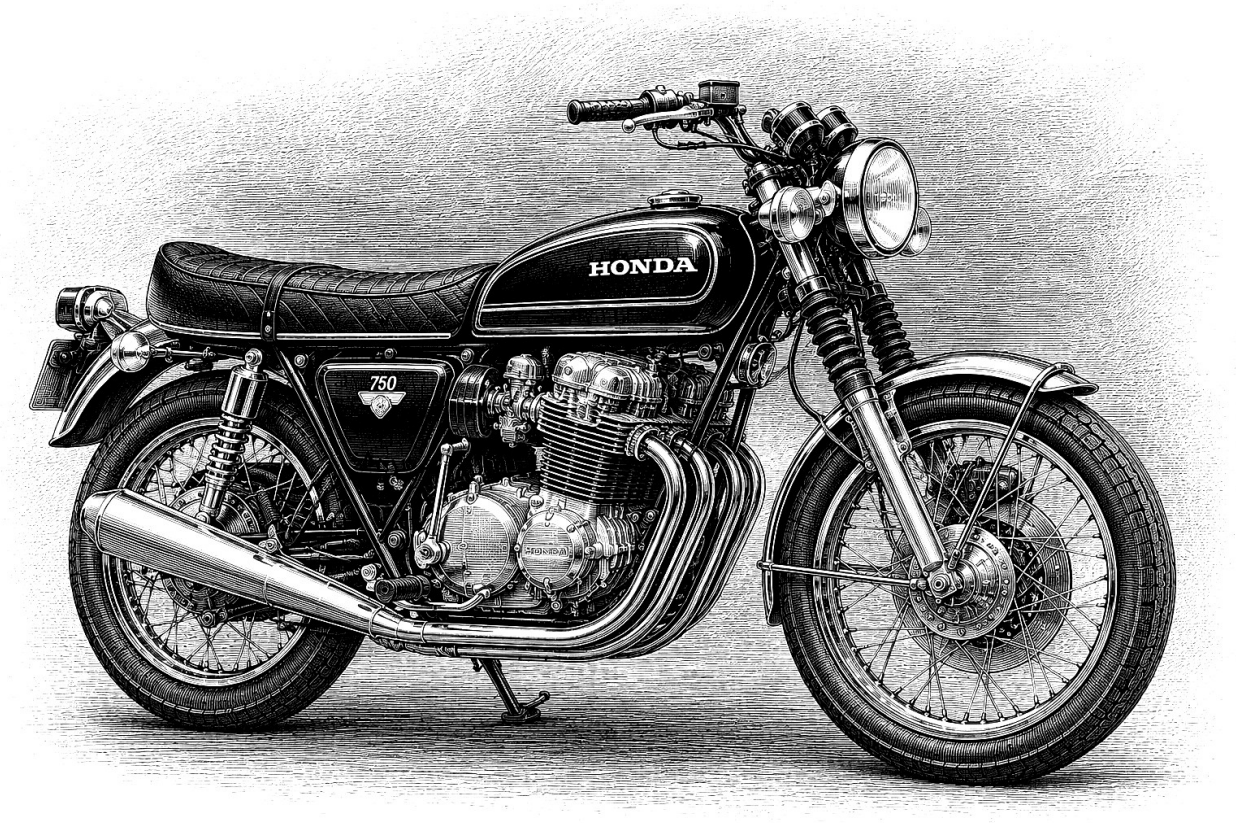
# THE HONDA FOUR

In the late nineteen-sixties Honda Motor Co. introduced a machine that would permanently alter the public perception of the motorcycle.



# A NEW STANDARD

The CB750, quickly known among enthusiasts simply as the “Honda Four”, combined reliability, smoothness and engineering refinement in a way previously associated only with expensive European machines.

Its four-cylinder overhead-camshaft engine delivered power with remarkable regularity. Unlike many motorcycles of the period, the Honda Four was designed not merely for speed, but for everyday usability. Electric starting, reduced vibration and exceptional mechanical balance transformed long-distance riding into something practical and accessible.

## THE ENGINE

The Honda Four engine was conceived as a balance between performance, reliability and mechanical refinement. Unlike many contemporary motorcycle engines of the period, the inline four-cylinder configuration provided exceptional smoothness throughout the rpm range while reducing vibration under sustained operation.

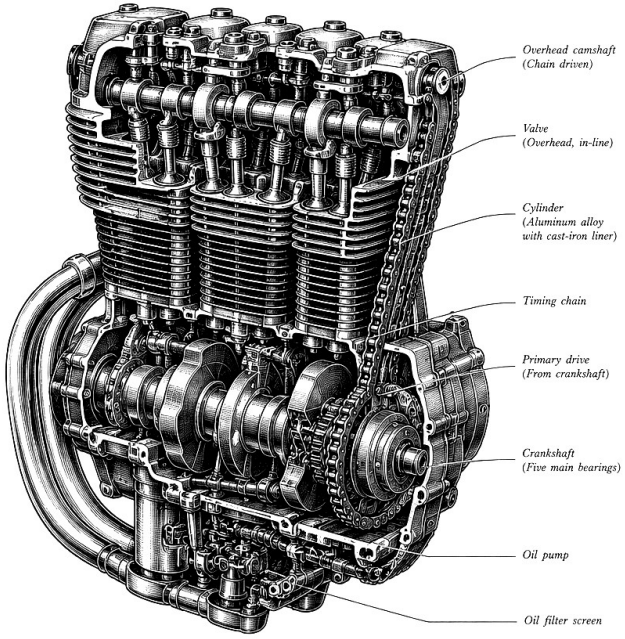



*Fig. 3 — Longitudinal section of engine (right side)*

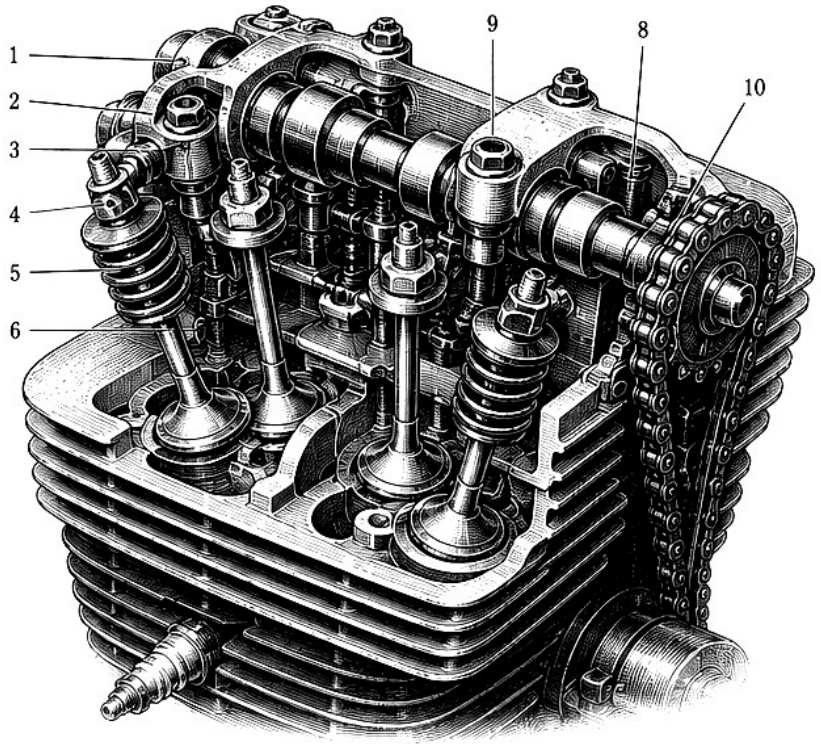
## GENERAL DESCRIPTION

Type: Inline four-cylinder Valve train: Single overhead camshaft (SOHC) Cooling system: Air-cooled Lubrication: Wet sump, pressurized Primary drive: Chain-driven Ignition system: Battery and coil Starting system: Electric starter

The cylinders are cast in aluminum alloy with integrated cast-iron liners. Cooling fins are arranged to maximize airflow across the engine block during operation.

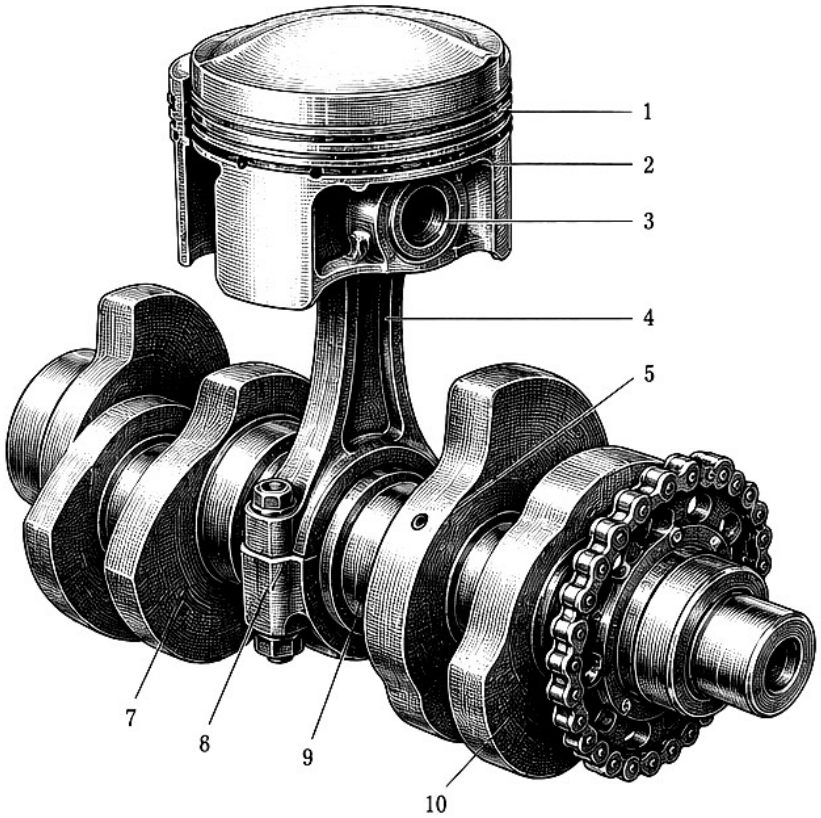
The frame geometry emphasized stability without sacrificing agility. Combined with a low center of gravity and a carefully tuned suspension system, the motorcycle inspired confidence both in urban traffic and on open roads. More than a motorcycle, the CB750 represented a

philosophical transition in industrial design: precision manufacturing made available to ordinary riders.




## FIG. 7 — CYLINDER HEAD AND VALVE GEAR

The single overhead camshaft is driven by the timing chain from the crankshaft. Rocker arms transmit the cam motion to the valves through hardened adjustment screws and lock nuts. Proper valve clearance is essential for smooth operation, reduced mechanical wear and efficient combustion at sustained engine speeds. Cooling fins integrated into the cylinder head dissipate thermal energy generated during combustion. Regular inspection of the timing chain and valve train components is recommended to maintain correct synchronization and engine




## FIG. 12 — PISTON, CONNECTING ROD AND CRANKSHAFT

The crankshaft assembly is supported by five main bearings and balanced to reduce vibration throughout the rpm range. Pressurized oil passages drilled through the crankshaft supply continuous lubrication to the connecting rod bearings during operation. The forged connecting rod transfers piston movement to the crankshaft journals, converting reciprocating motion into rotational force. The primary drive sprocket mounted at the crankshaft end transmits engine power to the clutch and

## RESTORATION NOTES

Original Honda Four engines frequently exhibit oxidation on external aluminum surfaces due to age and prolonged exposure to humidity. Care should be taken to preserve original casting marks and factory finishes during restoration procedures.

Many surviving motorcycles retain non-original carburetors or aftermarket exhaust systems. Whenever possible, original Keihin carburetors and factory exhaust assemblies should be preserved for historical accuracy and correct engine tuning.

## CYLINDER HEAD AND VALVE GEAR

The cylinder head assembly of the Honda Four employs a single overhead camshaft driven by a centrally positioned timing chain. This configuration permits accurate valve timing while maintaining compact engine dimensions and excellent mechanical balance.

Rocker arms transfer camshaft motion directly to the intake and exhaust valves through hardened adjustment screws. Valve clearance is regulated by threaded adjusters secured with lock nuts positioned above the rocker assembly.

The combustion chamber was designed to promote efficient airflow and stable combustion across a wide rpm range. Combined with hemispherical chamber geometry and carefully angled valves, the engine delivers smooth acceleration and exceptional thermal efficiency for its period.

Cooling fins cast into the cylinder head dissipate heat generated during sustained operation. Proper airflow across these fins is essential for maintaining stable engine temperature and preserving valve-seat integrity.

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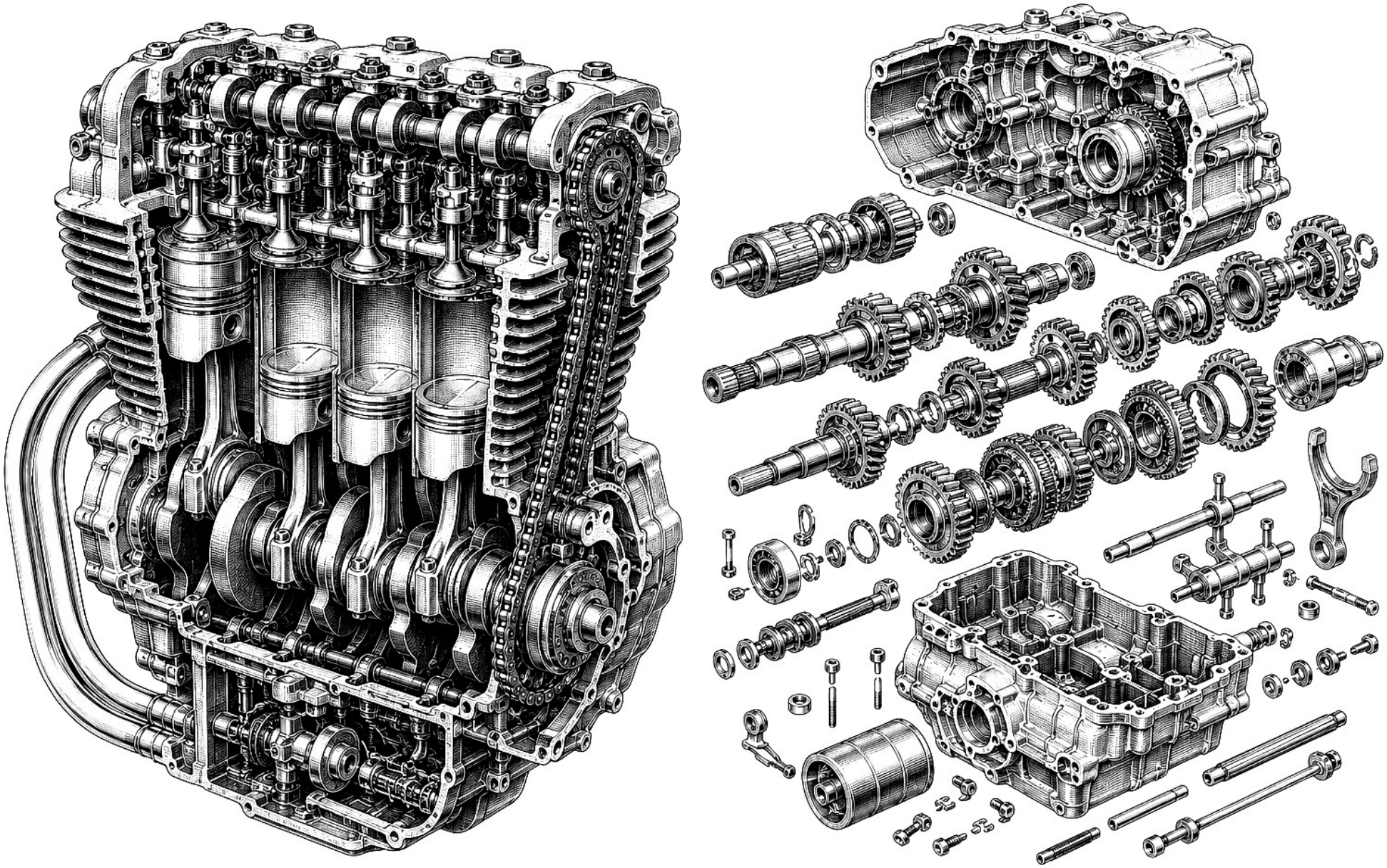
## VALVE CLEARANCE ADJUSTMENT

Valve adjustment must always be performed with the engine completely cold.

Recommended clearances:

Intake valves: 0.05 mm
Exhaust valves: 0.08 mm



# PISTON, CONNECTING ROD AND CRANKSHAFT

The Honda Four crankshaft assembly is supported by five main bearings to ensure stability at elevated engine speeds. Oil passages drilled through the crankshaft distribute pressurized lubrication directly to the connecting rod bearings during operation.

Each forged connecting rod is coupled to an aluminum-alloy piston fitted with multiple compression and oil-control rings. The piston crown shape was developed to optimize combustion efficiency while reducing detonation under heavy load.

Primary engine balance is achieved through a 180-degree crankshaft arrangement. This design minimizes vibration and contributes significantly to the smooth operating characteristics for which the Honda Four became renowned.

The primary drive sprocket mounted at the end of the crankshaft transfers rotational force to the clutch assembly through a chain-driven transmission system.

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# LUBRICATION NOTES

Engine oil serves not only as lubrication, but also as a critical cooling and cleaning medium. Frequent oil replacement is essential for preserving camshaft journals, crankshaft bearings and timing-chain components.

Machines subjected to long periods of inactivity should be inspected for hardened seals, sludge deposits and corrosion inside oil passages before attempting operation.

Recommended service interval:

Oil replacement: every 3,000 miles
Valve inspection: every 6,000 miles
Timing-chain inspection: every major service cycle