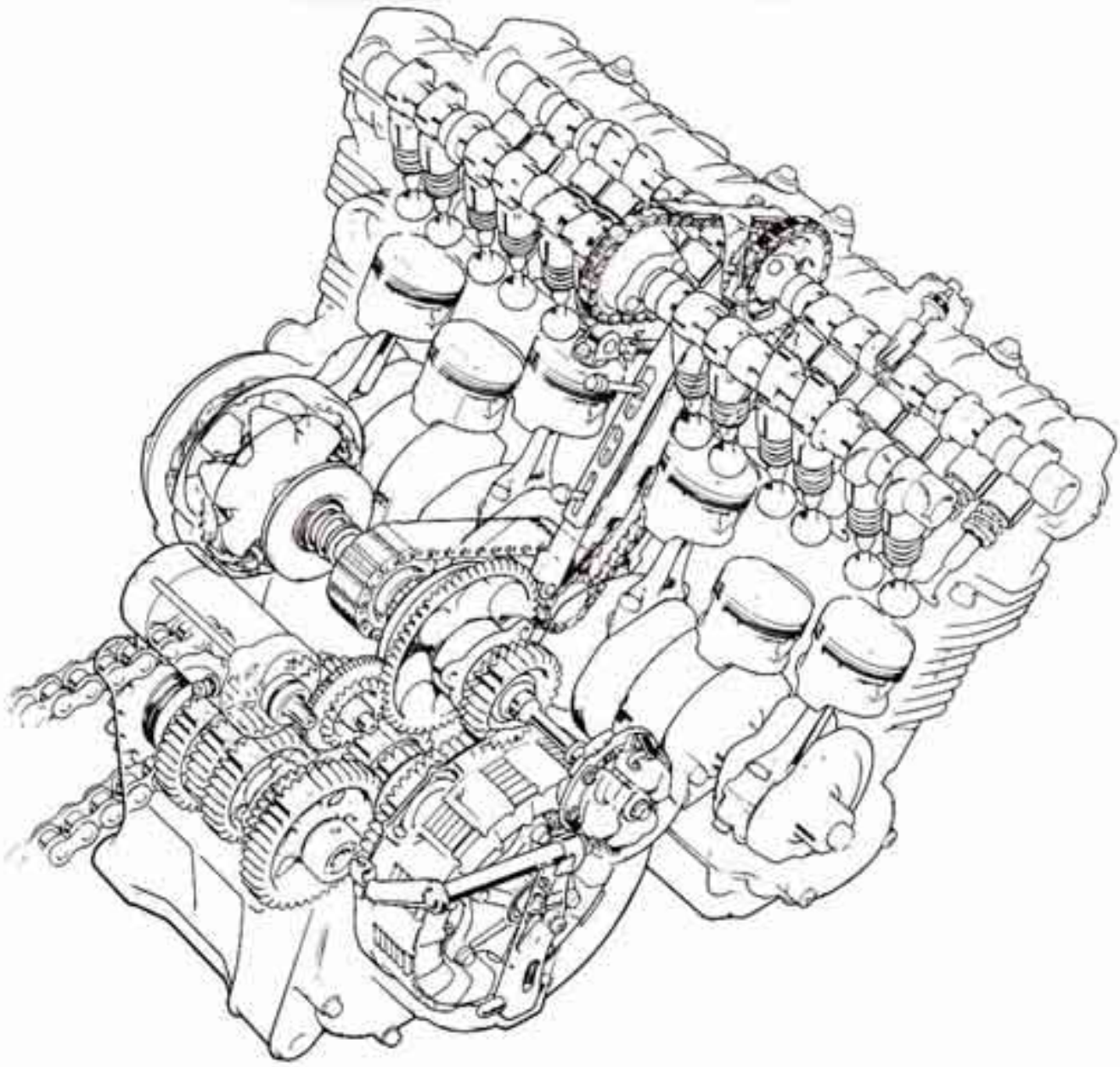
ENGINE CONSTRUCTION



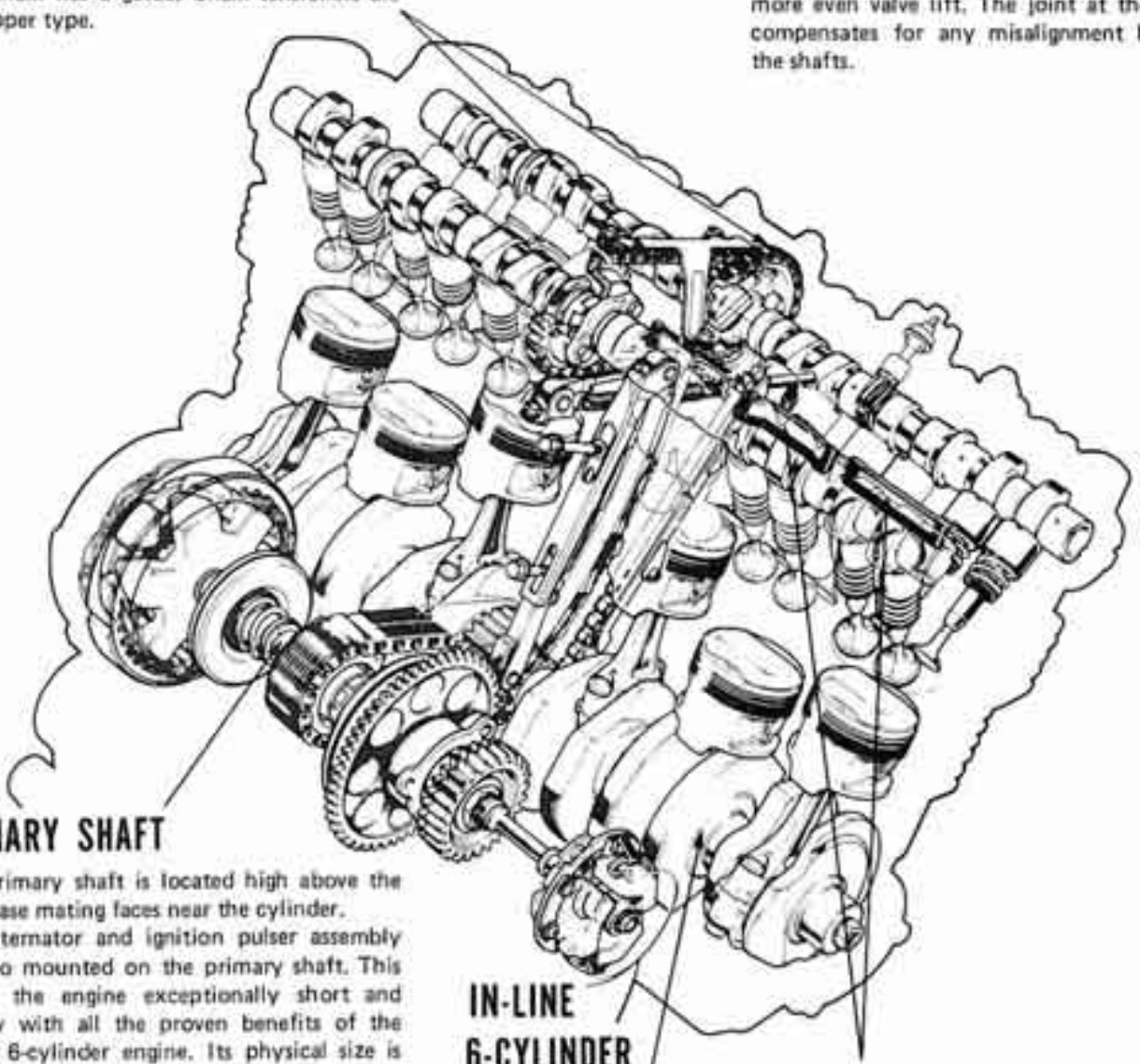
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DUAL CAM CHAINS

Dual cam chains drive the camshafts. Drive is transmitted from the crankshaft to the exhaust camshafts and from there to the intake camshafts. This eliminates a diagonal chain path through the rear of the engine, reducing the distance between the carburetors and cylinders.
The narrow air cleaner and canted carburetors eliminate interference with the rider's legs.
The cam chains are durable silent type.
Each chain has a guide. Chain tensioners are the slipper type.

24 VALVES, SEPARATED CAMSHAFTS

Each cylinder has two intake and two exhaust valves. The arrangement insures effective breathing at high speed without valve float. Four valves instead of two allow a large overall port area with a low reciprocating weight for each valve spring.
The camshafts are of a two-piece forging. The separated shafts provide rigidity with more even valve lift. The joint at the center compensates for any misalignment between the shafts.



PRIMARY SHAFT

The primary shaft is located high above the crankcase mating faces near the cylinder.
The alternator and ignition pulser assembly are also mounted on the primary shaft. This makes the engine exceptionally short and narrow with all the proven benefits of the in-line 6-cylinder engine. Its physical size is equal to the standard in-line 4-cylinder motorcycles in its cc class.

IN-LINE 6-CYLINDER ARRANGEMENT

The in-line ultra short 53.4 mm stroke 6-cylinder arrangement reduces the vehicle's height. It also reduces piston speed and minimizes wear.

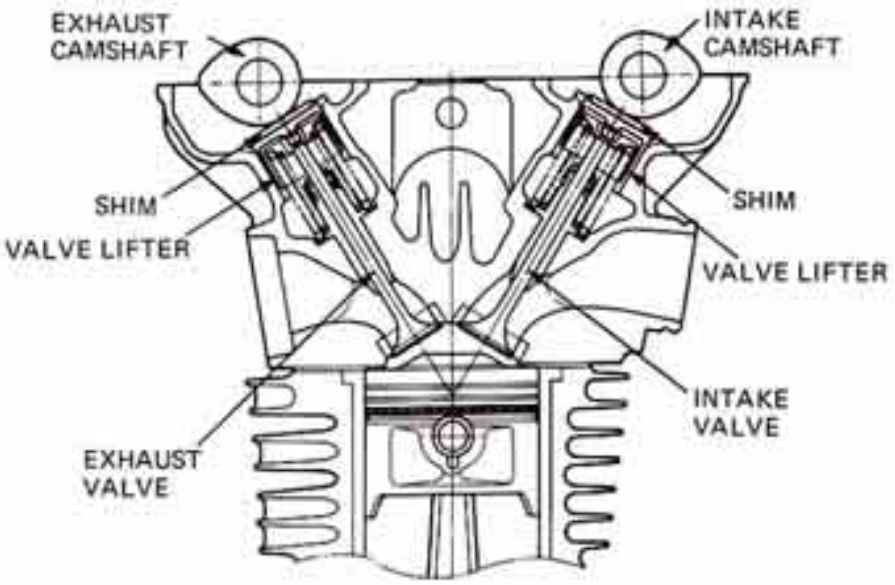
CAMSHAFT OIL POOL PLATES

The engine oil is collected in the camshaft troughs by oil pool plates for positive lubrication of the valve lifters and cams.
The plates also contribute to quieter valve operation.

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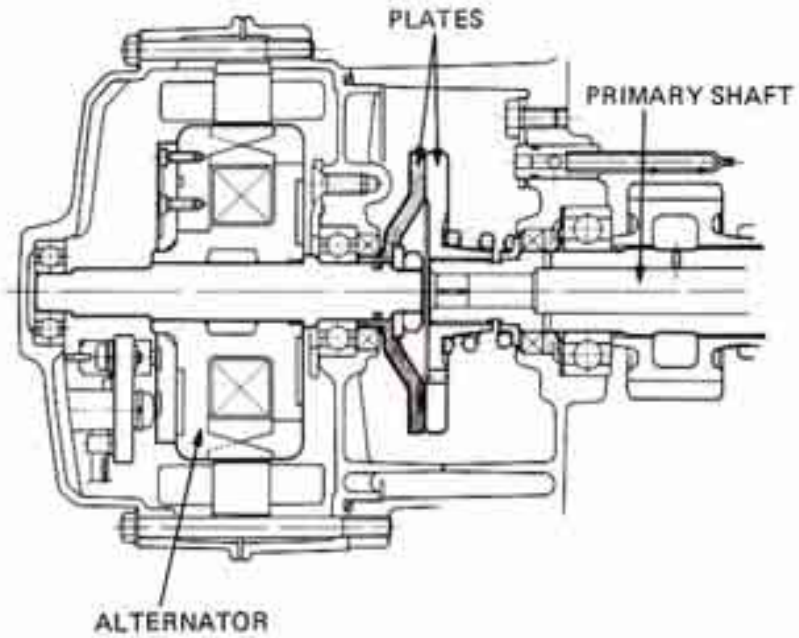
VALVE MECHANISM

The valves are operated by the cams through the valve lifters. The shims can be removed and installed easily without removing the camshafts by pushing down on the lifters with a special tool.



ALTERNATOR COUPLING

Power from the primary shaft is transmitted to the alternator through a frictional coupling. The coupling consists of two steel discs pressed against each other by a spring. Relative movement between the discs prevents excessive inertia from being transmitted directly from the alternator to the primary chain when snapping the throttle.



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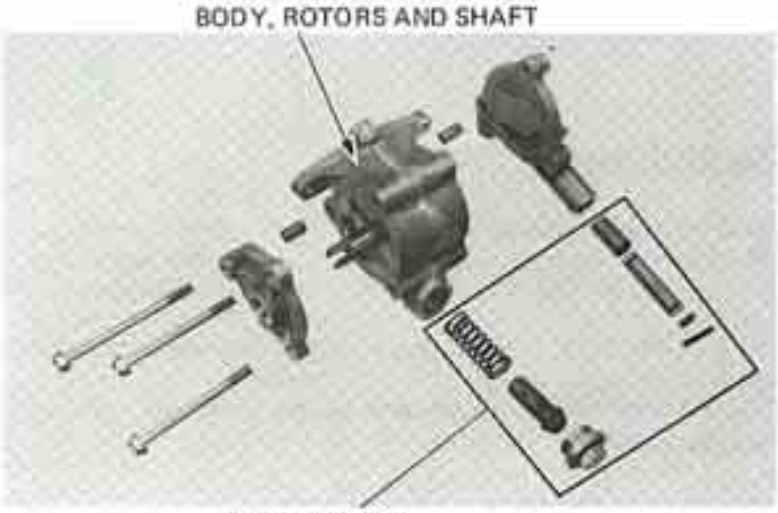
OIL COOLER, OIL PUMP

The lubricating system uses a wet sump with the sump at the crankcase bottom. The oil is cooled by an oil cooler.



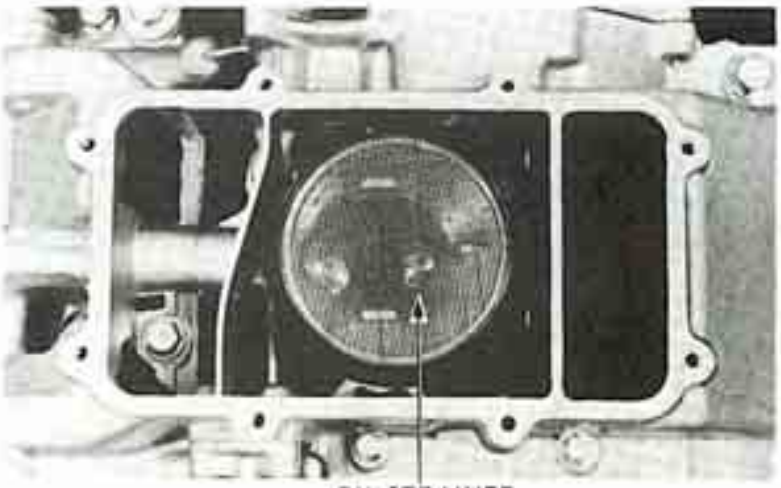
OIL COOLER

A tandem trocoid pump supplies oil to the bearings and other moving parts of the engine. Oil from the oil sump is forced by the main pump into the crankshaft and cylinder head.
The auxiliary pump feeds oil to the primary shaft and transmission. The oil cooler is in the auxiliary pump circuit and cools the oil drawn from the sump by the auxiliary pump. The oil damper in the primary chain receives oil from this pump circuit.



OIL PRESSURE
RELIEF VALVES

Oil from the sump must pass through a strainer before it enters the pumps.

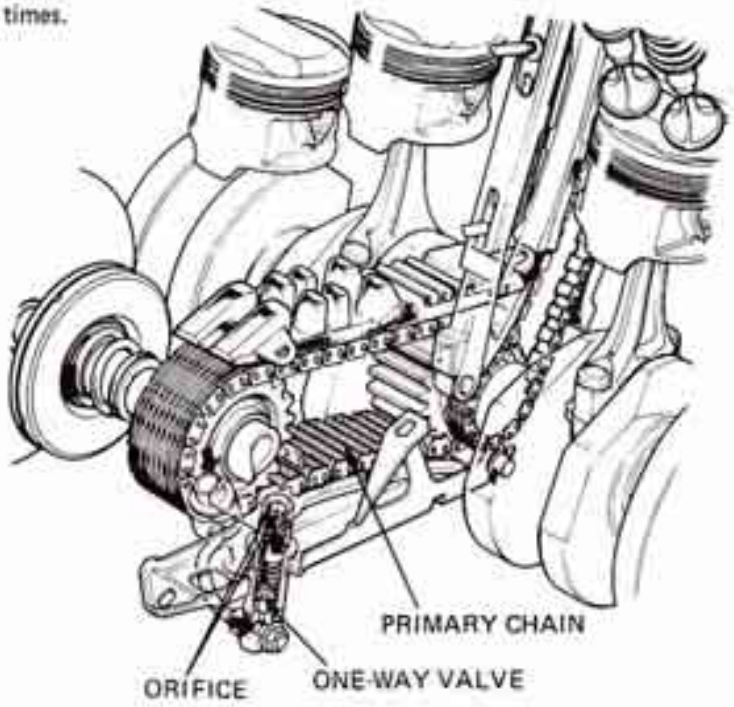


OIL STRAINER

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OIL DAMPER TYPE PRIMARY CHAIN TENSIONER

Primary chain tension is controlled by an oil dampened chain tensioner. It consists of a one-way check valve using a steel ball, a spring and a tension bar. The bar has an oil chamber with small orifices at its end. Oil in the chamber compensates for cavitation, assuring positive damper action at all times.

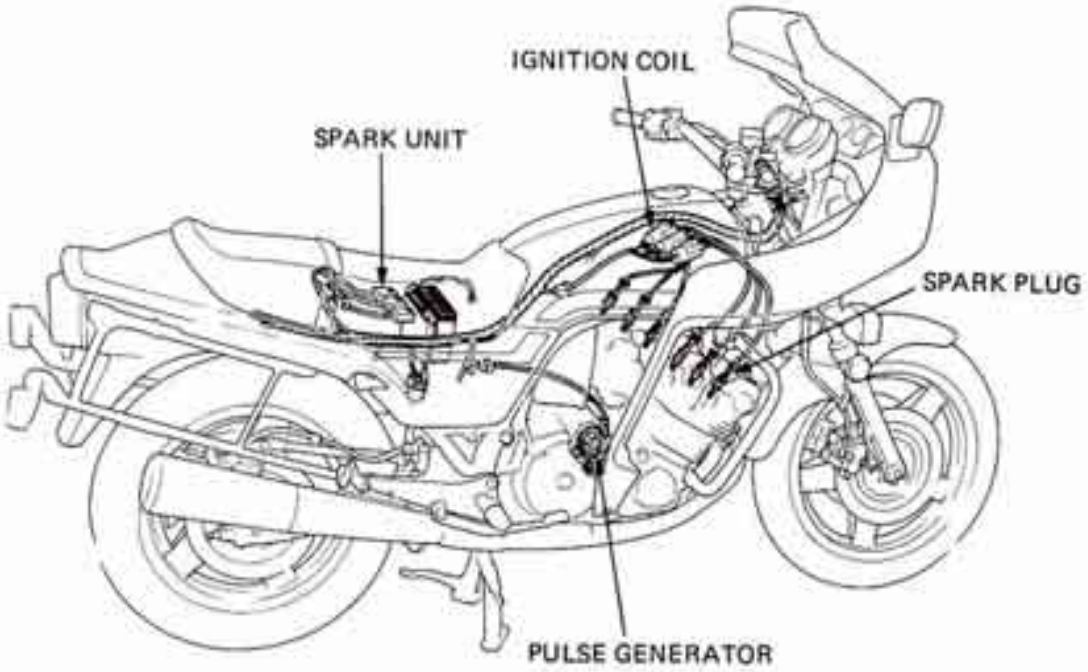


TRANSISTORIZED IGNITION

The engine uses a transistorized ignition. A pulse generator and transistorized spark unit supply current to the primary circuit. The system is free from problems that occur in mechanical breaker systems. It produces stable secondary energy and eliminates periodic adjustments and maintenance services. There are three independent systems; one for 1 & 6, 2 & 5, and 3 & 4 cylinders.

The generator rotor is connected to the primary shaft so they turn as a unit as the shaft rotates. Three generating coils are spaced evenly on the base plate, 120 degrees apart.

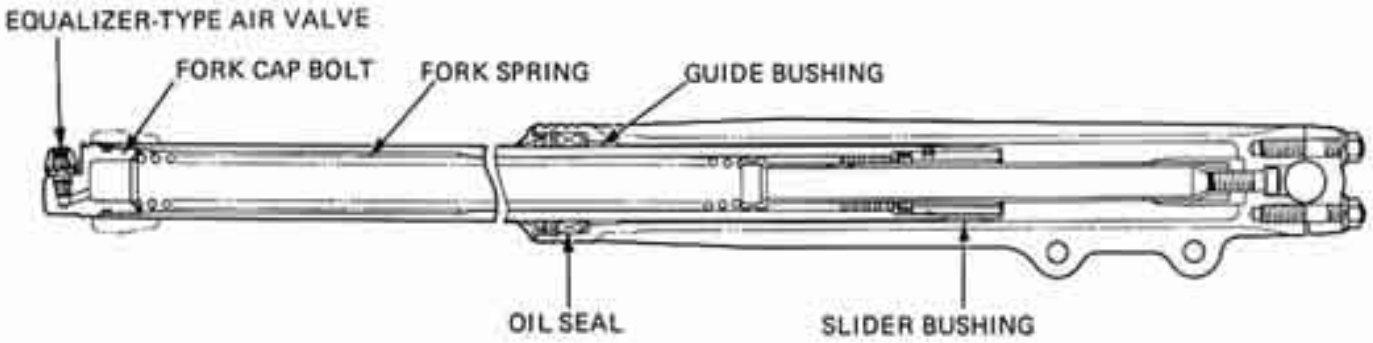
When the rotor turns, pulses are generated as it passes over the coils. Adjusting timing for 1 & 6 cylinders automatically adjusts the other cylinders.



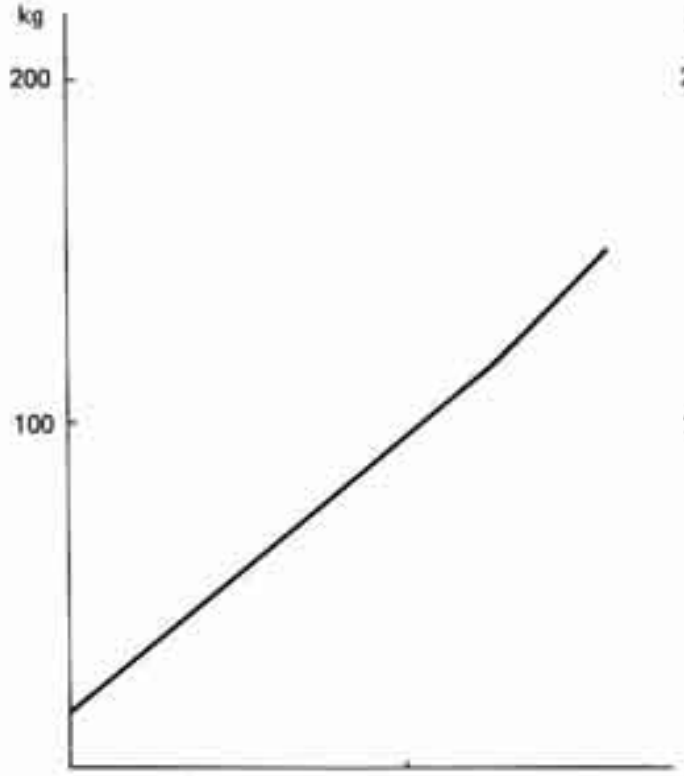
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FRONT AIR FORKS

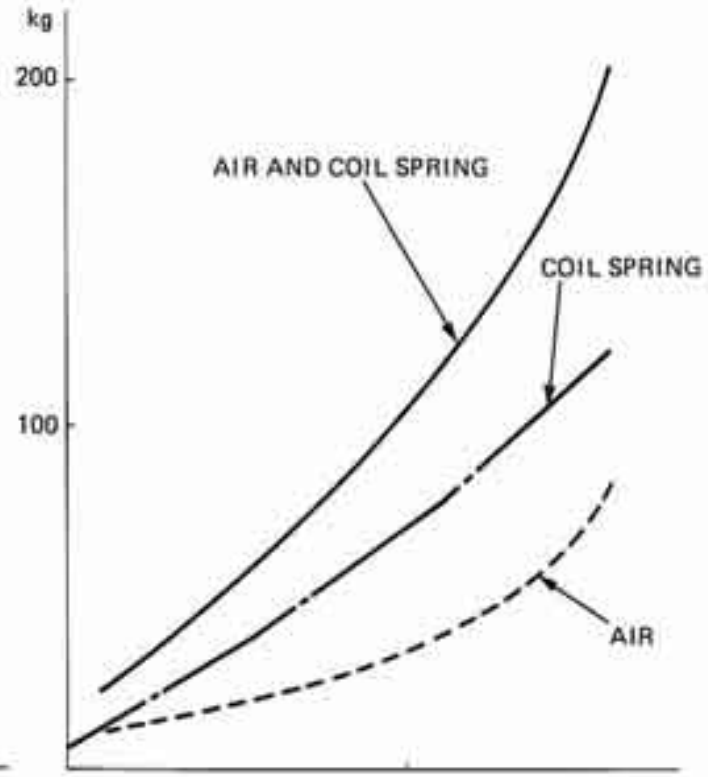
The front forks uses air and a coil spring. The air chamber is inside each fork tube connected with equalizer tube to an air valve at the fork cap bolt.



When adjusted correctly, the air fork system provides a more progressive compression than a conventional fork. The air fork system can be adjusted to each individual's preference to compensate for load and riding conditions.



CONVENTIONAL SUSPENSION



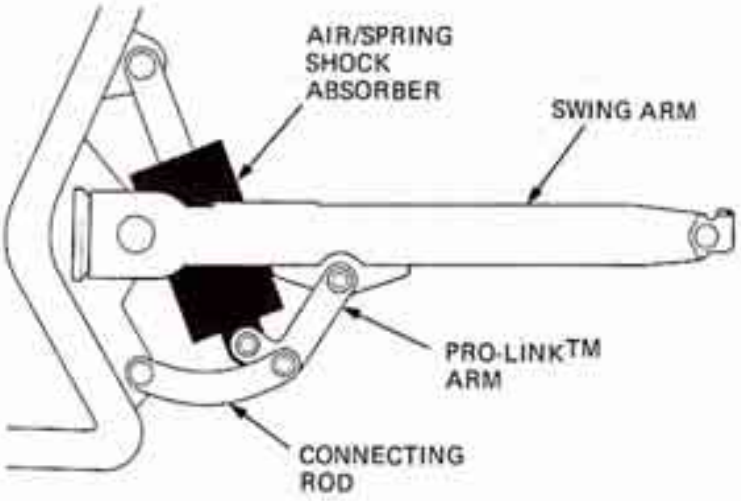
AIR SUSPENSION

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PRO-LINK (PROGRESSIVE LINKAGE) STREET REAR SUSPENSION

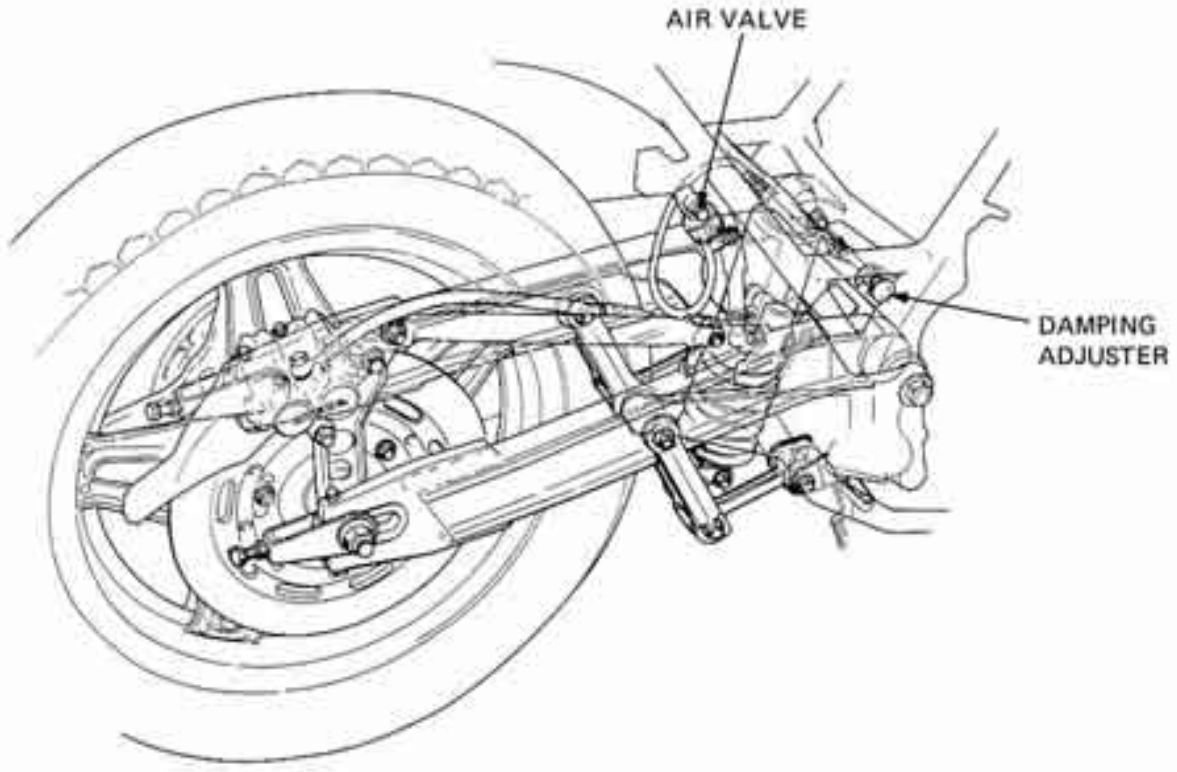
INTRODUCTION

This motorcycle has the Pro-Link Street Rear Suspension System with a two-way adjustable air/spring shock absorber to provide the desired ride under various road conditions and rider/cargo combinations. This system gives good bottoming resistance and at the same time, provides acceptably soft initial travel for smaller bumps.
Low air pressure settings provide a softer ride and are for light loads and smooth road conditions. High air pressure settings provide a firmer ride and are for heavy loads and rough road conditions.



The action of the street system is not as progressive as that of the competition system. Also, the shock absorber position in the street version is considerably lower than in the dirt system, in order to keep the center of gravity of the motorcycle as low as possible, and to allow room above the shock absorber for the battery and other electrical components.

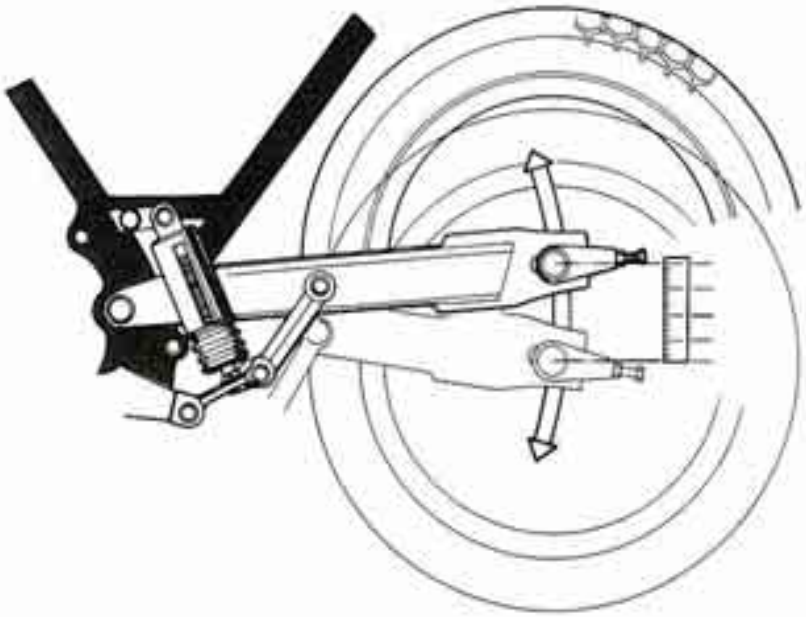
Shock absorbers used in the street Pro-Link™ systems are of the air/spring type: this gives good bottoming resistance, and at the same time, provides acceptably soft initial travel for smaller bumps.



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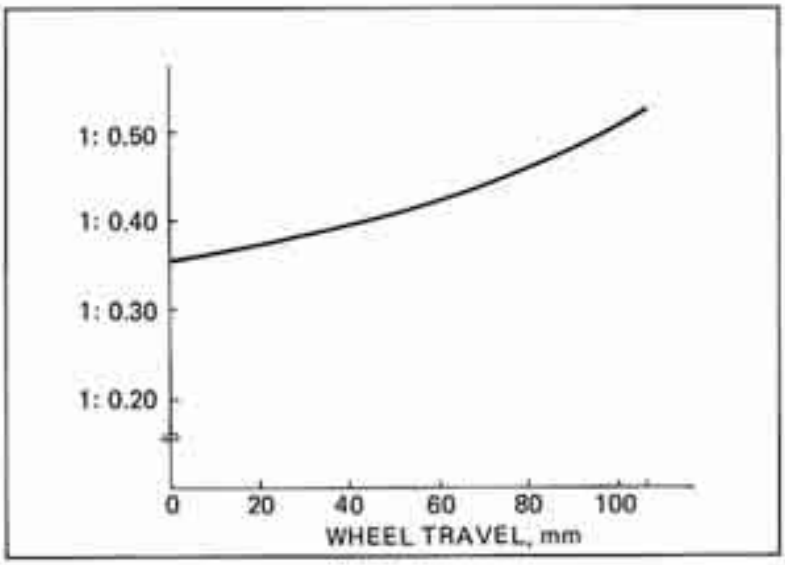
OPERATION

As the wheel and swingarm are driven up by bumps, the shock absorber is compressed by the shock arm which is held in a precise arc by the shock link. As wheel travel increases the shock arm rises above the swingarm proportionately, increasing absorber compression.
This provides the required progressive rise rate; the shock absorber moves only about one-fourth of wheel travel at the beginning and moves about one-third of wheel travel near the end.



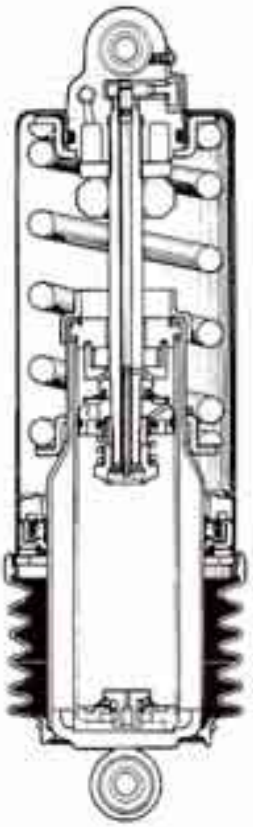
This graph shows the wheel travel/shock travel ratio through the entire stroke of a CBX Pro-Link system.

WHEEL TRAVEL/SHOCK TRAVEL RATIO

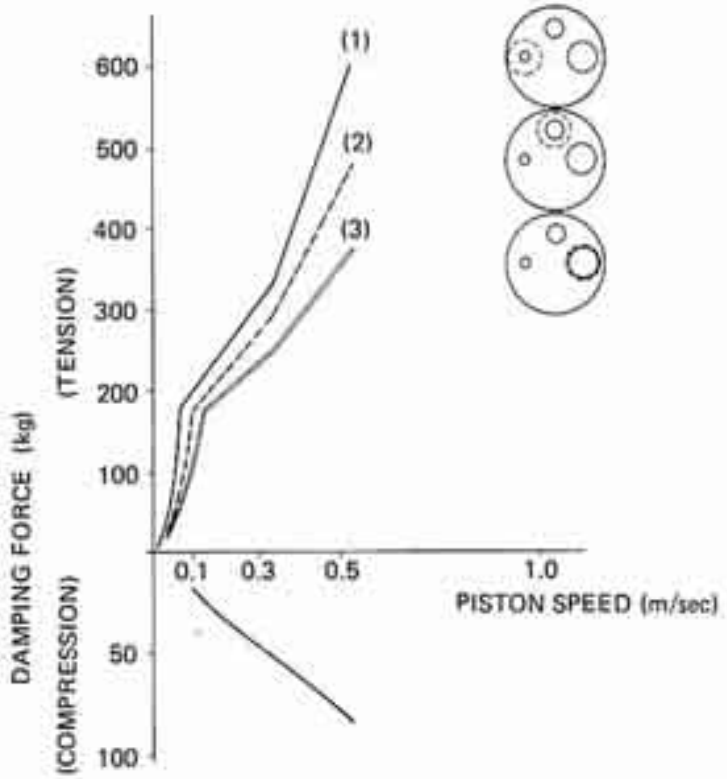


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The CBX shock absorber has provision for three stages of damping adjustment:

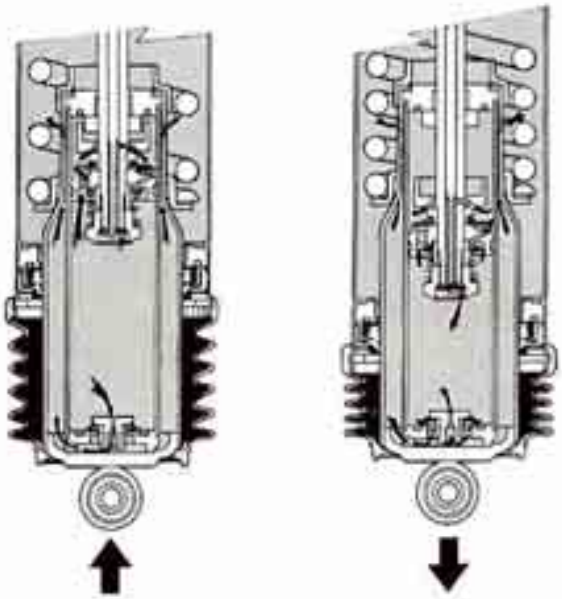


DAMPING FORCE CHARACTERISTICS





OIL FLOW CHART



COMPRESSION REBOUND

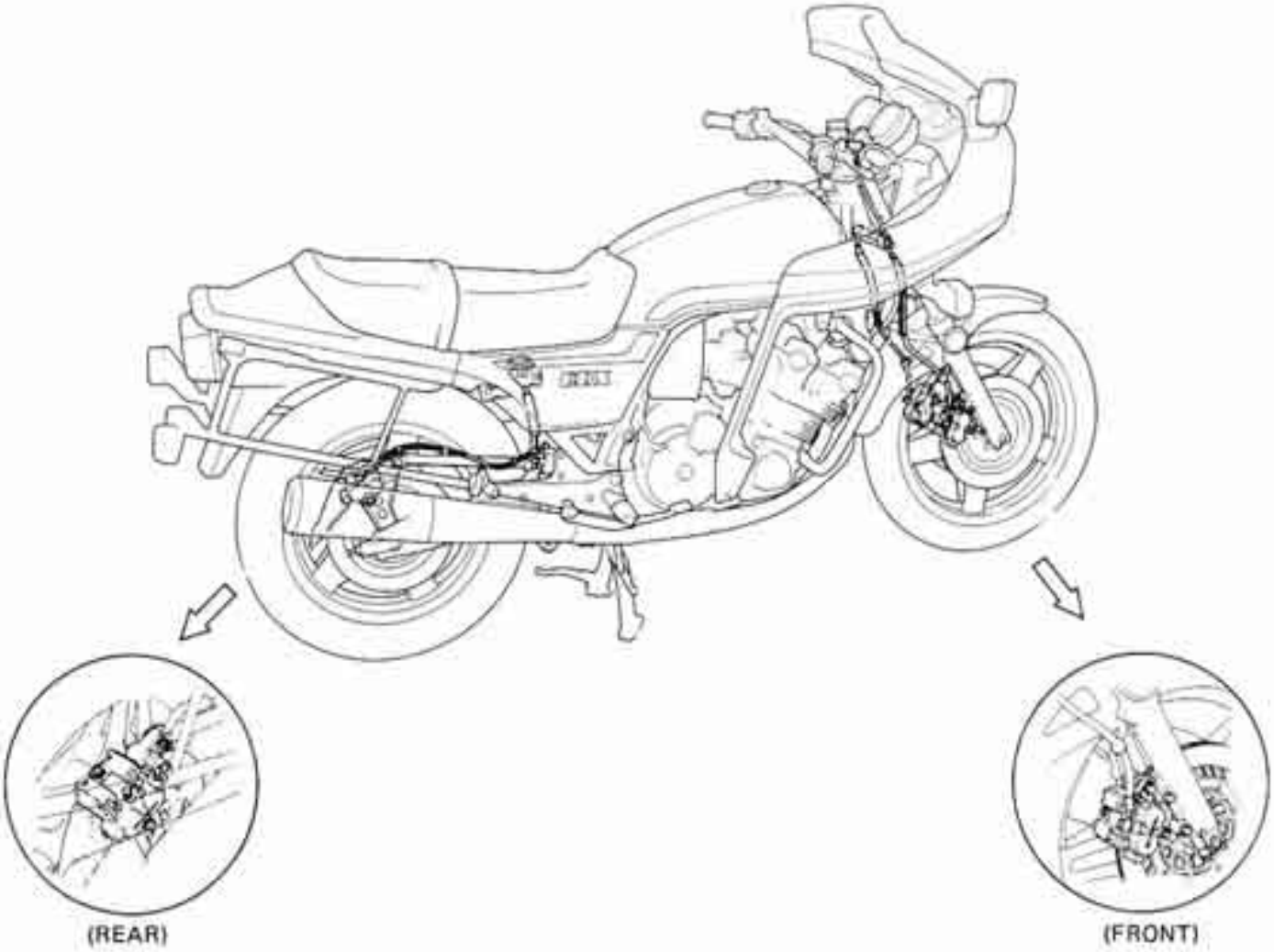
(1) Recommended Rear Suspension Adjustment:

Rear Air Pressure	Rider/ Load	REBOUND DAMPING ADJUSTER	RIDING CONDITIONS
200 kPa (2.0 kg/cm², 28 psi) ↕ 400 kPa (4.0 kg/cm², 57 psi)	One ↕ Up to vehicle capacity load	1	General or around town riding
		2	Highway or winding road riding
		3	Rough road riding

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TRIPLE DISC BRAKE SYSTEM

The CBX uses a triple hydraulic brake system: a ventilated dual disc brake for the front and a single disc brake for the rear. Each brake caliper contains two pistons to force the brake pads against the disc.

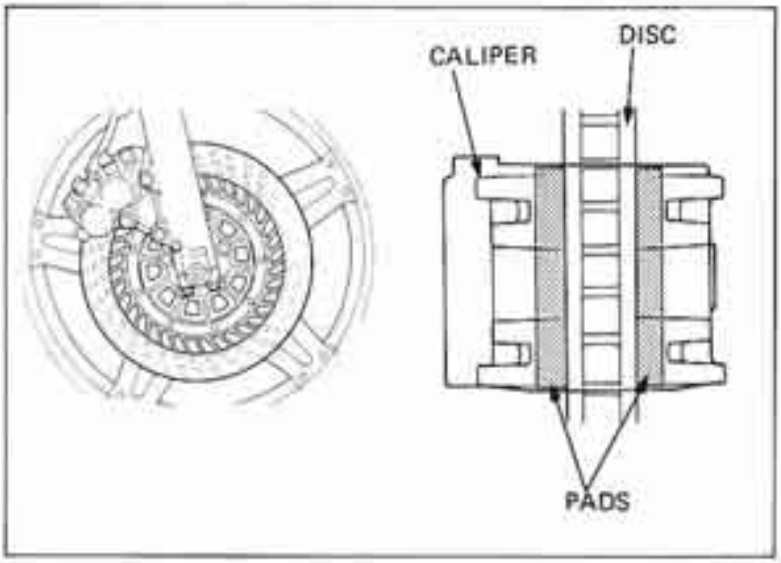


(REAR)

(FRONT)

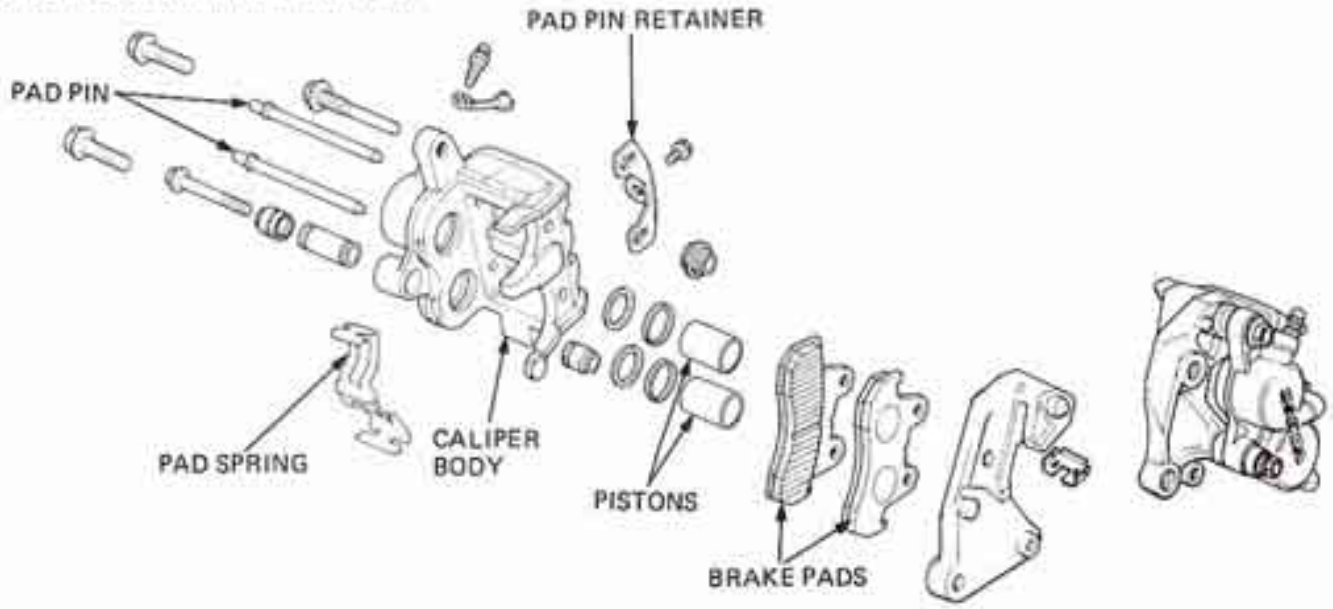
VENTILATED FRONT BRAKE DISCS

The hollow construction allows more heat to be dissipated to the air when the brake is applied, ensuring safer, faster stopping with the least possible fading.

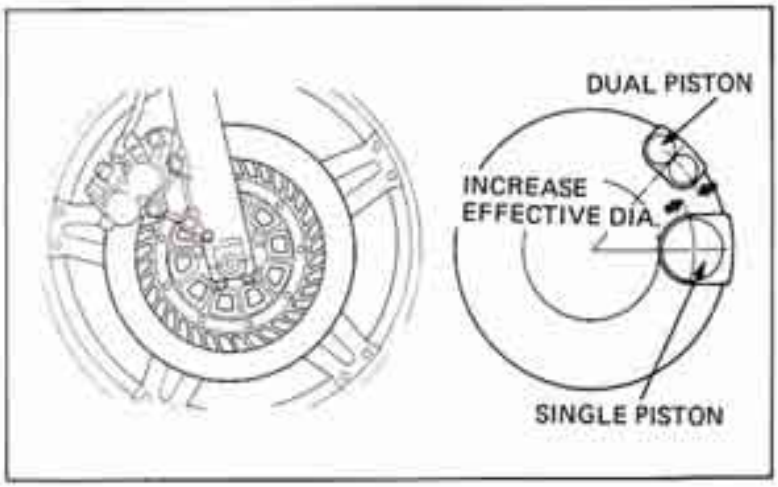


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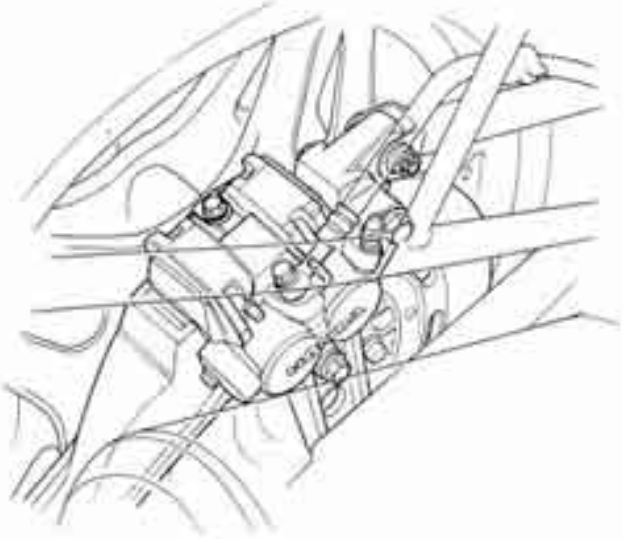
DUAL PISTON BRAKE CALIPER



The advantages inherent in the use of two pistons in a single caliper can be added to the long list of many features built into the CBX.
Among the advantages is greater stopping power, and locating the pistons nearer the edge of the disc allows the same pad pressure with up to 30% less lever effort.
Another result of this design is a lighter, stronger caliper to withstand a greater load encountered by the caliper when the brake is applied.



[REAR]



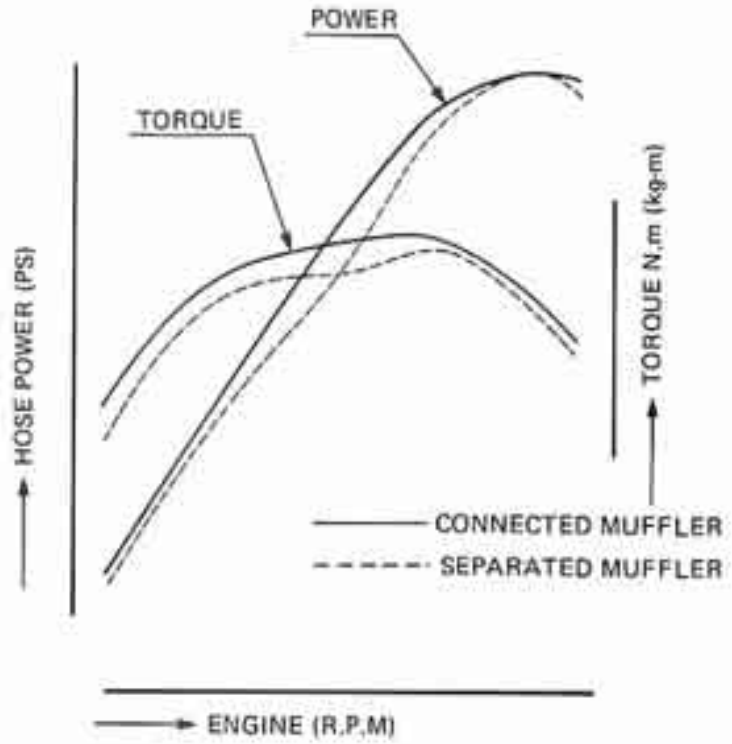
[FRONT]

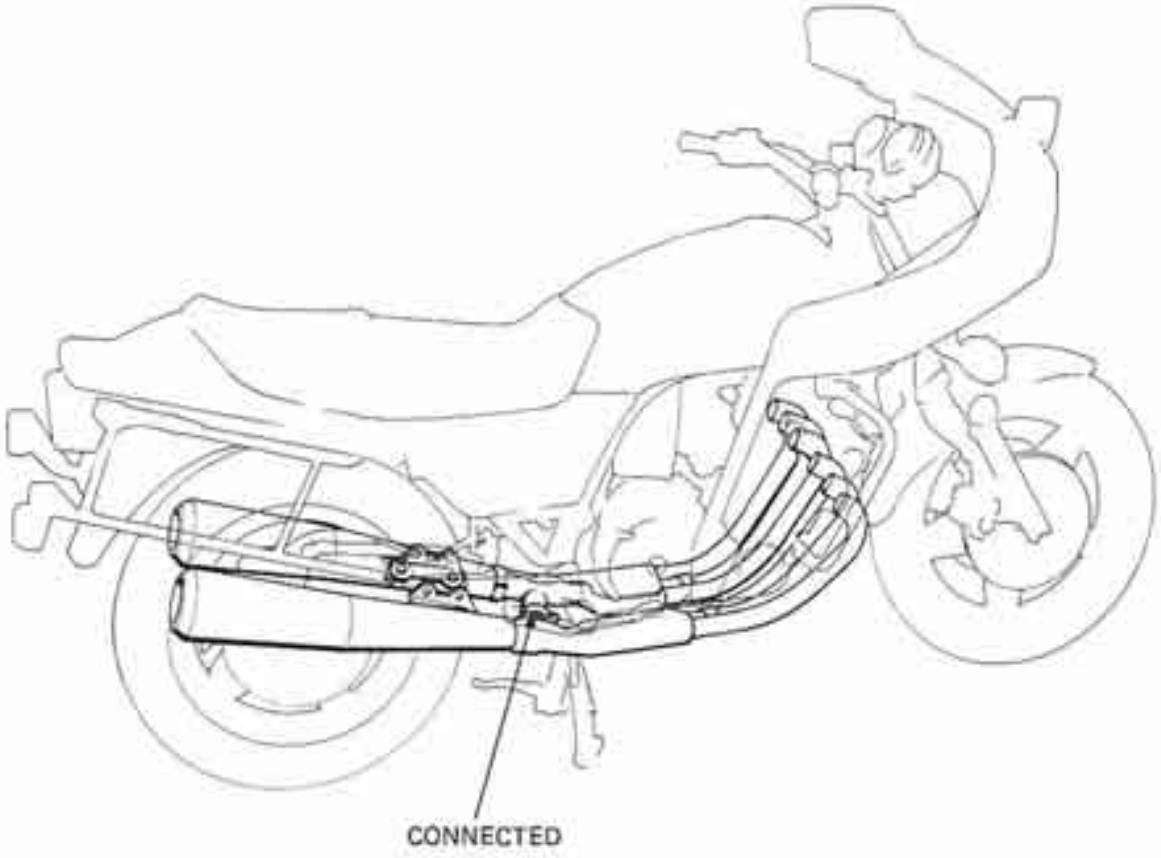


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EXHAUST MUFFLERS

The right and left mufflers are internally connected to give a desired acoustic properties and still offer low resistance to gas flow for more output per liter of fuel consumed.

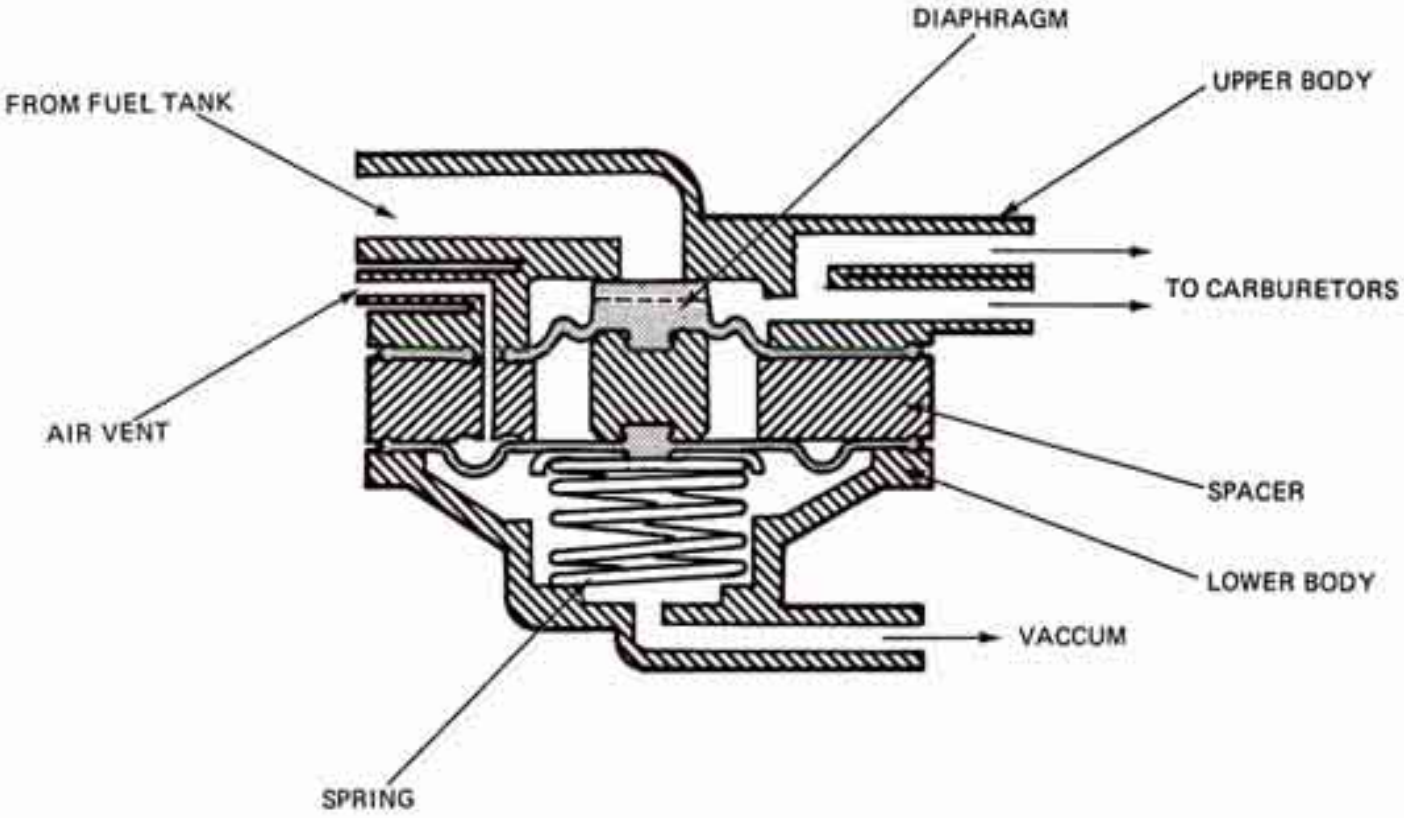




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FUEL LINE DIAPHRAGM

The fuel line diaphragm depends upon a negative crankcase pressure and a spring loaded diaphragm, allowing fuel to flow from fuel tank to the carburetor to the engine only when the engine is operating.
With the engine off the diaphragm is held against the fuel outlet within the diaphragm body; no fuel can flow through the fuel tank to the carburetor.
As the engine is cranked, negative vacuum pressure pulls the diaphragm down against diaphragm spring tension. This opens the fuel outlet allowing fuel to flow to the carburetor.
When the engine is stopped, the diaphragm is pushed back against the fuel outlet to block the fuel flow.



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