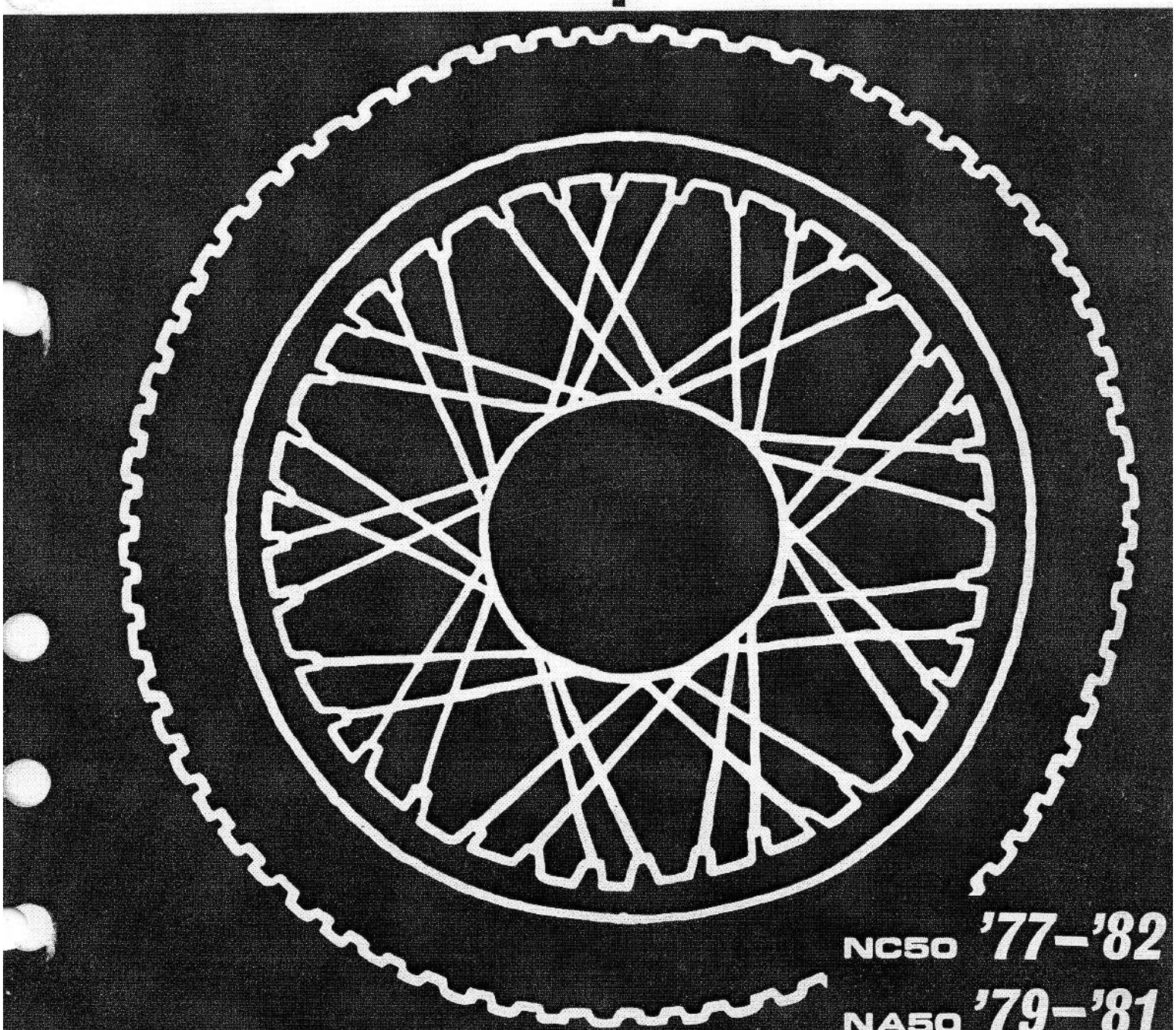
SHOP MANUAL

HONDA

NC50 express

NA50 express II



NC50 '77–'82

NA50 '79–'81

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IMPORTANT SAFETY NOTICE

WARNING Indicates a strong possibility of severe personal injury or loss of life if instructions are not followed.

CAUTION Indicates a possibility of personal injury or equipment damage if instructions are not followed.

NOTE: Gives helpful information.

Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. It is important to note that this manual contains *some* warnings and cautions against some specific service methods which could cause **PERSONAL INJURY** to service personnel or could damage a vehicle or render it unsafe. Please understand that those warnings could not cover all conceivable ways in which service, whether or not recommended by Honda might be done or of the possible hazardous consequences of each conceivable way, nor could Honda investigate all such ways. Anyone using service procedures or tools, whether or not recommended by Honda *must satisfy himself thoroughly* that neither personal safety nor vehicle safety will be jeopardized by the service method or tools selected.

FOREWORD

This shop manual describes the technical features and servicing procedures for the HONDA NC50 and NA50.

Refer to the addendums at the back of the shop manual for 1979 and subsequent model years service information.

HONDA MOTOR CO., LTD.
Service Publications Office

Date of Issue: November 1980

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TECHNICAL FEATURES

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HONDA NC50

FEATURES

The Honda NC 50 is powered by a 2-stroke, 49 cc, crankcase scavenged gasoline engine with two reed valves incorporated in the intake port.

This model is designed on the basis of a "maintenance-free" philosophy in that the maintenance items are limited and service procedures are simplified to a great extent.

A new design is employed in the starting mechanism for simple and easy starting.

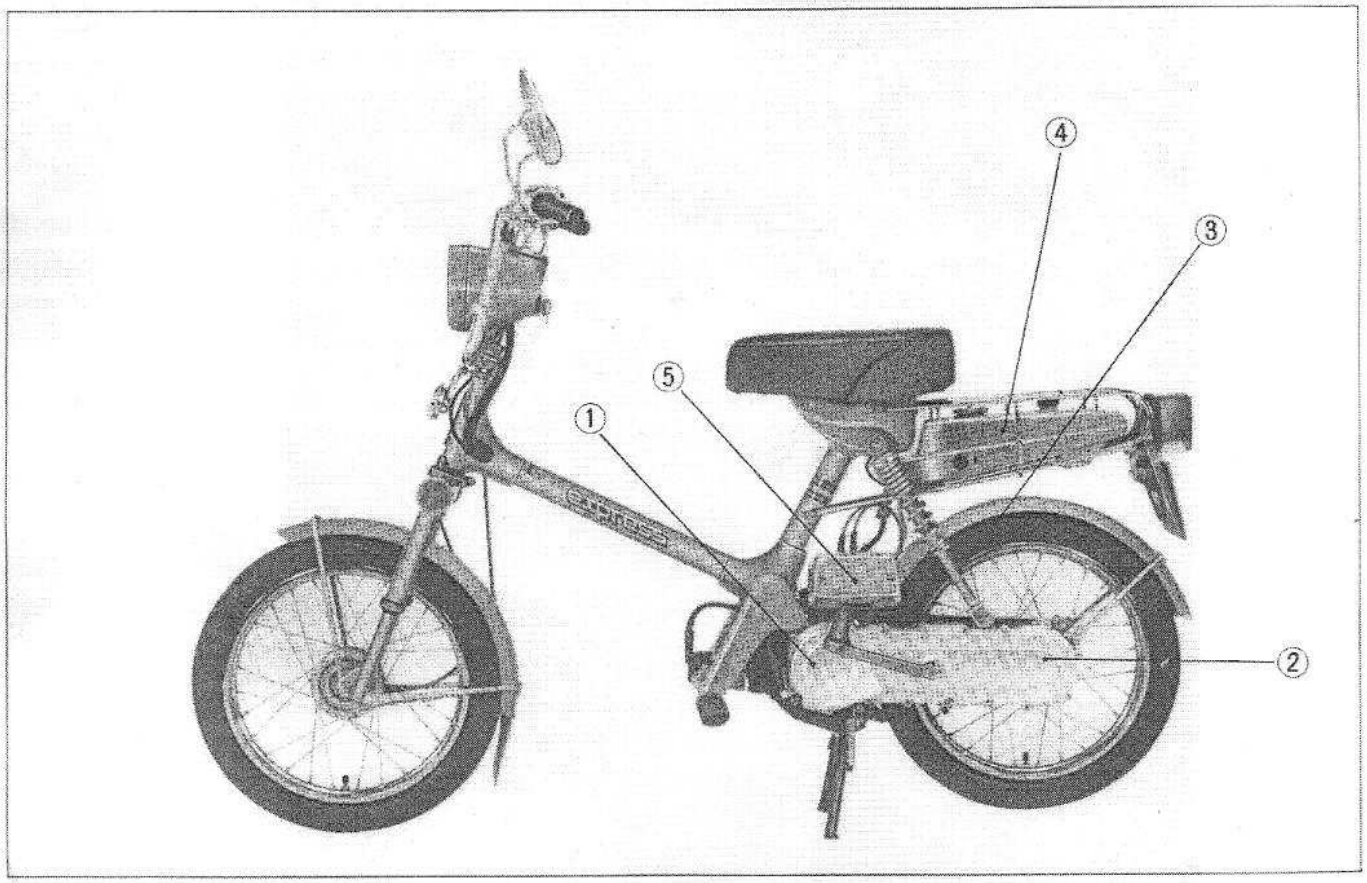
(1) With the use of a starting spring which stores power for cranking the engine, starting is remarkably easy for everyone.

(2) The power train is enclosed in the left crankcase with an oil bath to lubricate the compartments. The engine and L crankcase swing up and down as a unit, with a pivot in the pipe frame.

(3) The rear wheel is suspended by one rear shock absorber on the left side in combination with the L crankcase.

(4) Since an independent lubrication system is employed, fuel and oil are separately filled in the gasoline tank.

(5) A high-performance plunger type pump is utilized for lubrication purposes.



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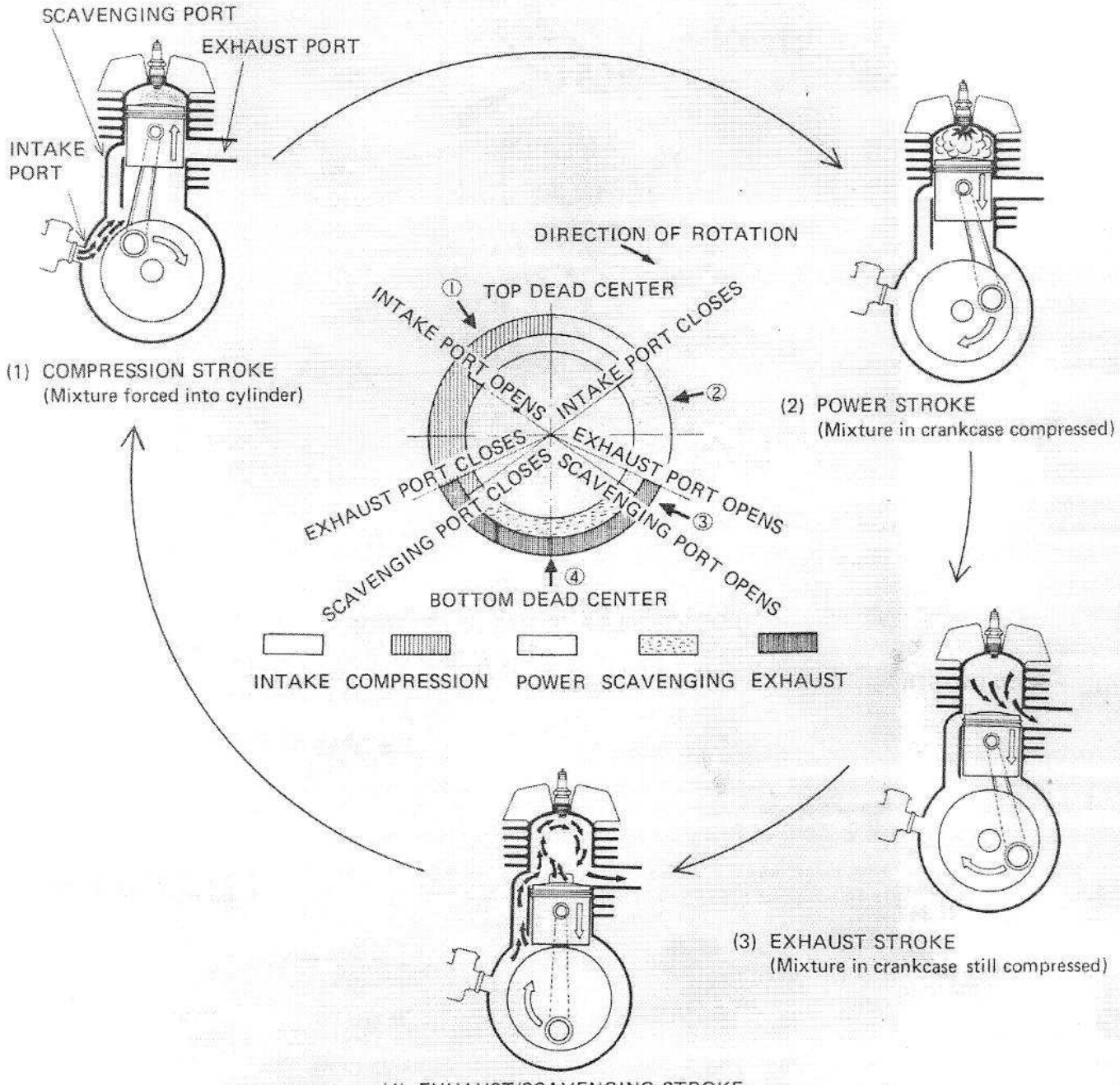
2-STROKE ENGINE FUNDAMENTAL

In most 2-stroke engines, the mixture is first drawn into the crankcase and then forced into the cylinder by the pressure build-up which results from the down movement of the piston, thereby, forcing the exhaust gases out through the exhaust port.
Unlike a 4-stroke engine, when firing occurs in the cylinder, some of the exhaust gases still remain mixed in the fuel mixture. Therefore, the engine performance of an 2-stroke engine is mainly dependent upon the timing of absorbing the mixture into the crankcase and the scavenging efficiency of the exhaust gases by the pressurized fuel mixture.

(2-STROKE CYCLE PRINCIPLE)



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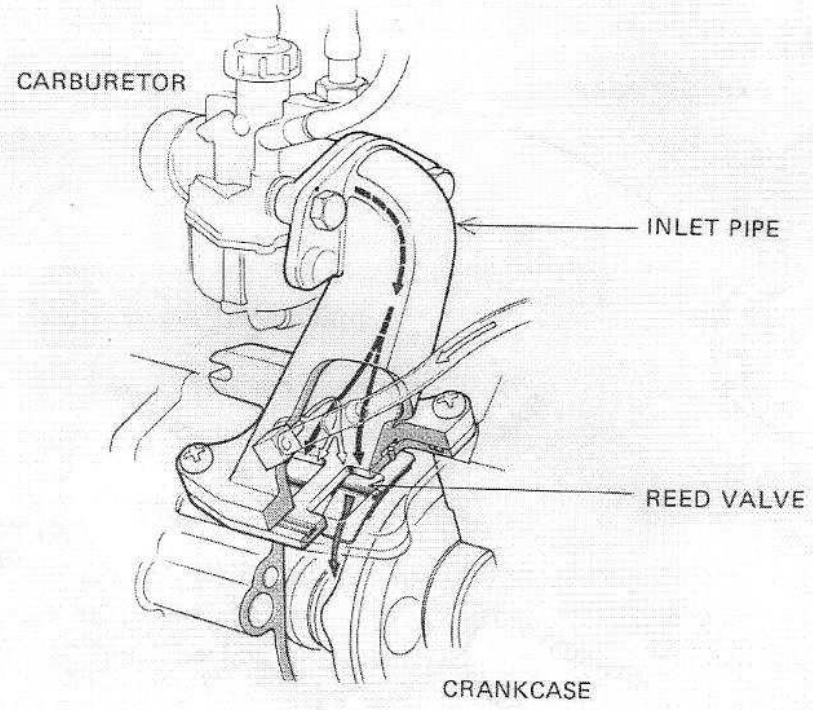
(PORT TIMING)

Two-cycle port timing is determined by the locations of the ports in the cylinder. On NC50, the intake port is provided with a pair of reed valves shaped to give an optimum port timing throughout the entire speed range. The use of the reed valve prevents reverse flow of mixture from the crankcase into the carburetor and assures improved performance even at moderate and low speeds.

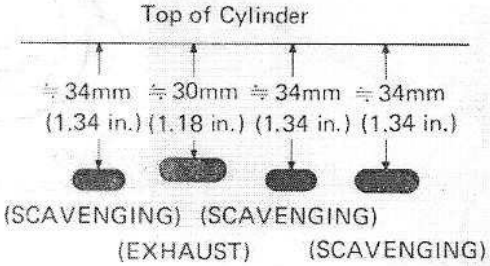
(REED VALVE CONSTRUCTION)

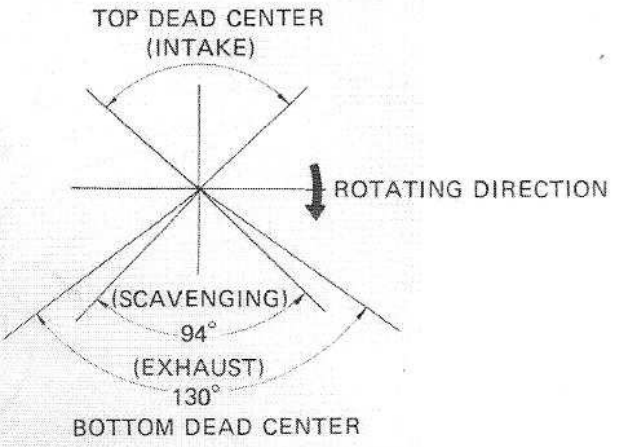


(LOCATION OF PORTS IN CYLINDER)

— NC50 TWO-STROKE PORT AND VALVE TIMING —

Opening and closing angles in terms of crankshaft angles are given below:





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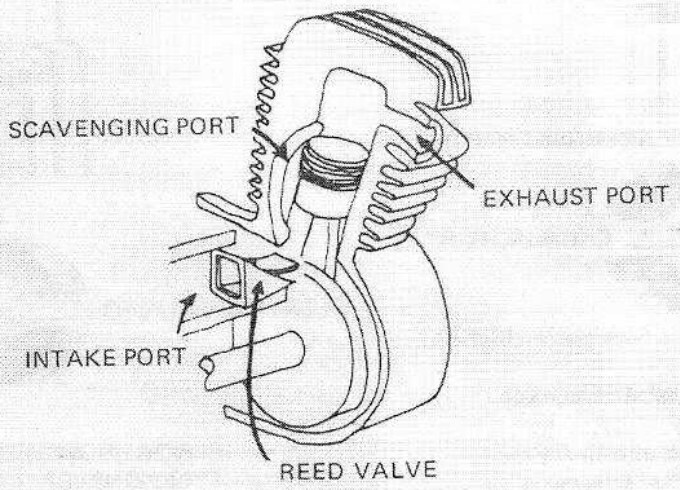
1. 2-STROKE PORT AND VALVE ARRANGEMENT

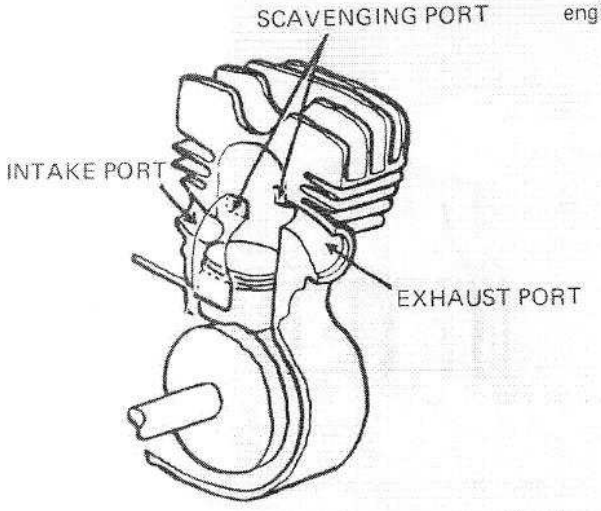
2-stroke port and valve arrangement comes in three types; 1) Reed valve, 2) Piston valve, and 3) Rotary valve. On the NC50, a pair of thin reed valves is utilized for each intake port. Opening and closing of the exhaust ports are made by the piston as it moves up and down in the cylinder.

NC50 PORT AND VALVE ARRANGEMENT



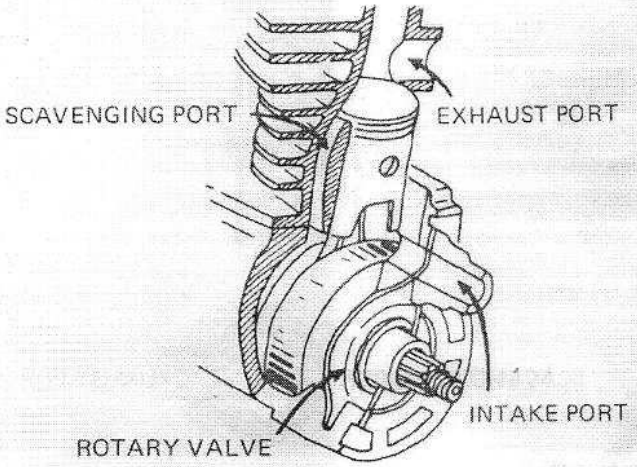
(1) REED VALVE TYPE

Thin plate opens and closes the intake port when differential pressure takes place across the intake passage and engine crankcase.



(2) PISTON VALVE TYPE

The intake ports in the cylinder wall are opened and closed by the piston as it moves up and down.

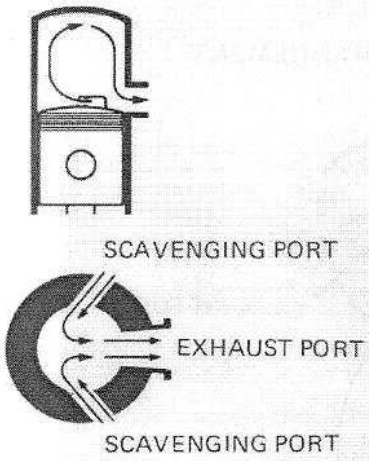


(3) ROTARY VALVE TYPE

A rotary disc plate with a slot closes and opens the intake port in the crankcase wall. In some installations, the crank web is used to open and close the port.

2. SCAVENGING

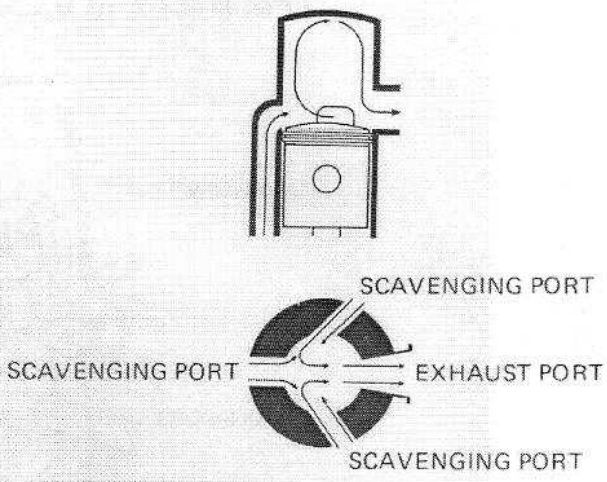
Three methods of scavenging are in commonly used. The NC50 utilizes loop scavenging with three scavenging ports.



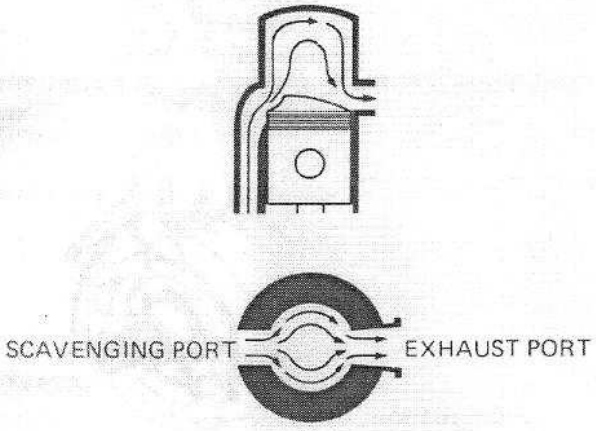
(1) LOOP TYPE SCAVENGING

In Schnuerle type, the mixture discharged into the cylinder through the scavenging ports is, by the angle of the port outlets, thrown against the wall opposite from the exhaust port and bounced back, thus forcing the exhaust gas out of the port.

NC 50 SCAVENGING

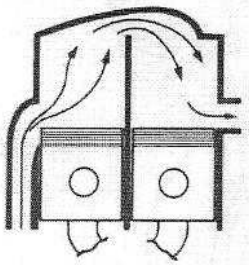


HONDA NC50 EMPLOYS SCHNUERLE TYPE, ONE OF LOOP METHODS, BUT THREE SCAVENGING PORTS INSTEAD OF TWO ARE PROVIDED IN ORDER TO ASSURE STEADY SCAVENGING EFFECT.



(2) CROSS SCAVENGING TYPE

The specially designed piston crown or deflector acts as a guide to allow the mixture to flow upwards and then downwards to the exhaust port in the opposite side of the cylinder.



(3) UNIFLOW TYPE SCAVENGING

One opening interconnects the two combustion chambers at top. Scavenging port is provided in one cylinder and exhaust port in the other cylinder so that the scavenging flows runs in one way without entanglement.

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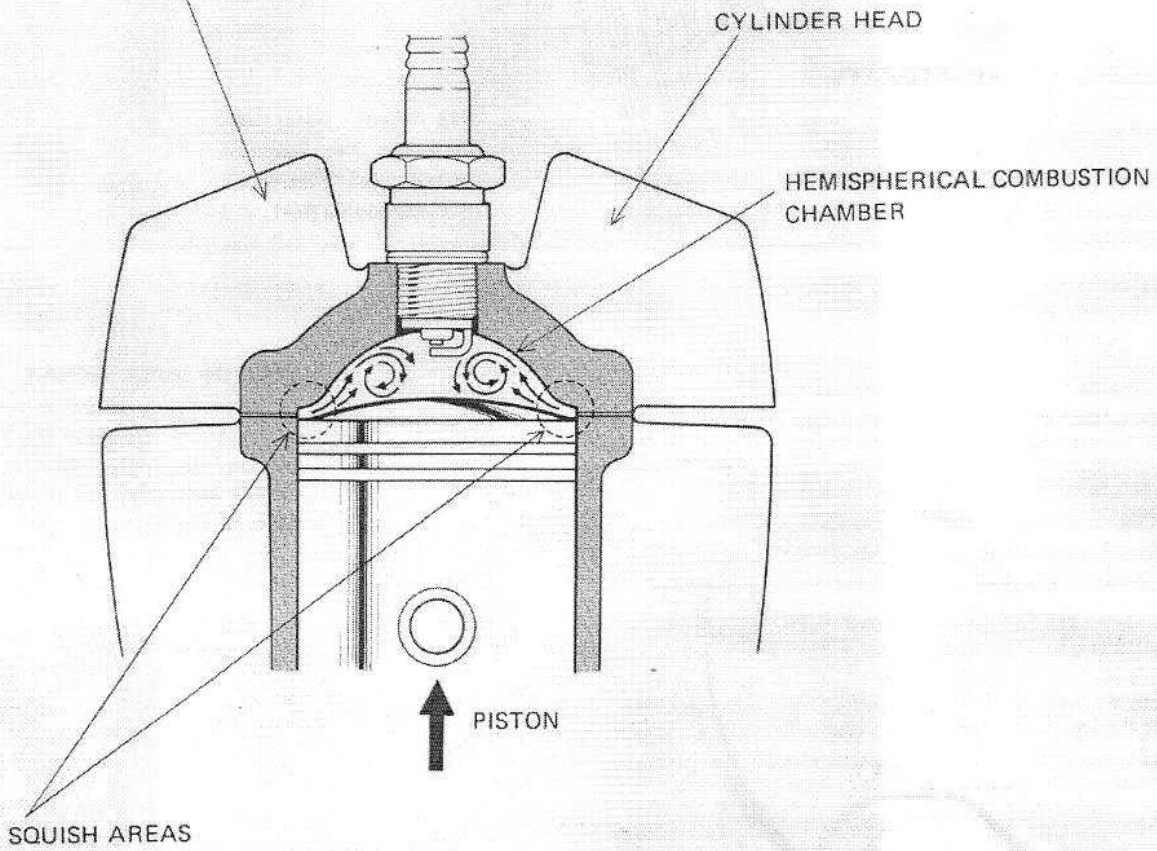
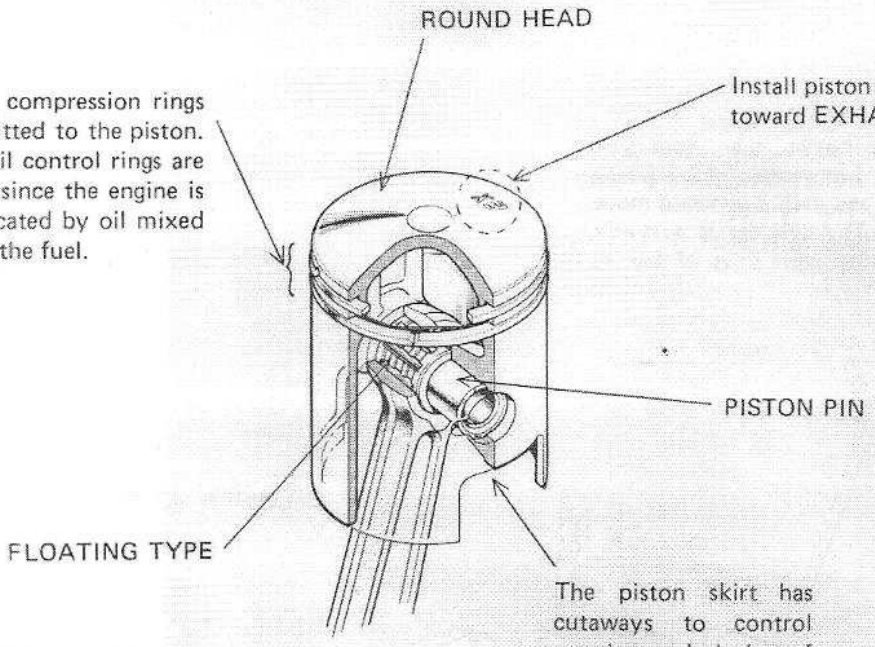
1. CYLINDER HEAD

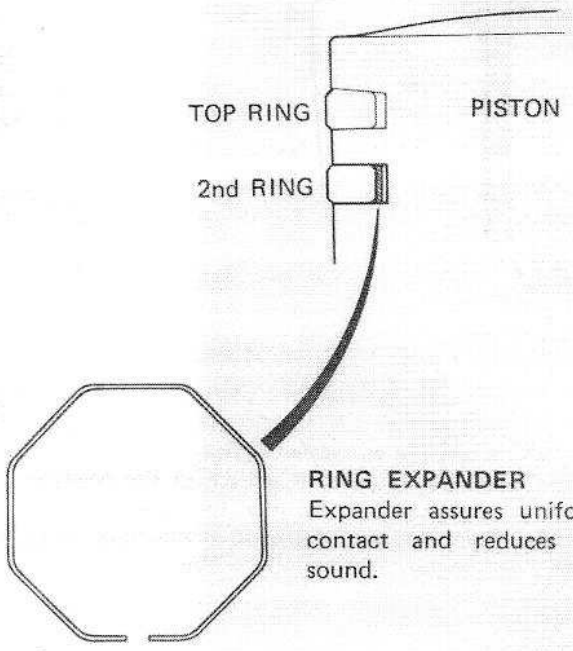
Two-cycle engines run hotter than four-cycle engines since each upward movement of the piston is a compression stroke and each downward movement, a power stroke. The cylinder is a sturdy, one-piece aluminum casting with rows of fins to dissipate excess heat.



A clearance, called squish area, is provided all the way along the circumference of the chamber between the piston at TDC and cylinder head, where the mixture is under pressure higher than the other area. This causes the mixture in the squish area to rush toward the center, thus making the burning steadier, assuring high burning efficiency and also minimizing carbon formation.

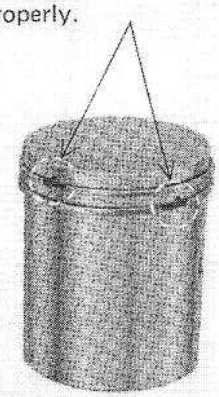
2. PISTON





RING EXPANDER
Expander assures uniform ring contact and reduces slapping sound.

PISTON RING DOWEL
A piston ring dowel is press fitted to each ring groove to locate the ring in place. After fitting the ring in the ring groove, check to make sure that the dowel engages the ring end gap properly.



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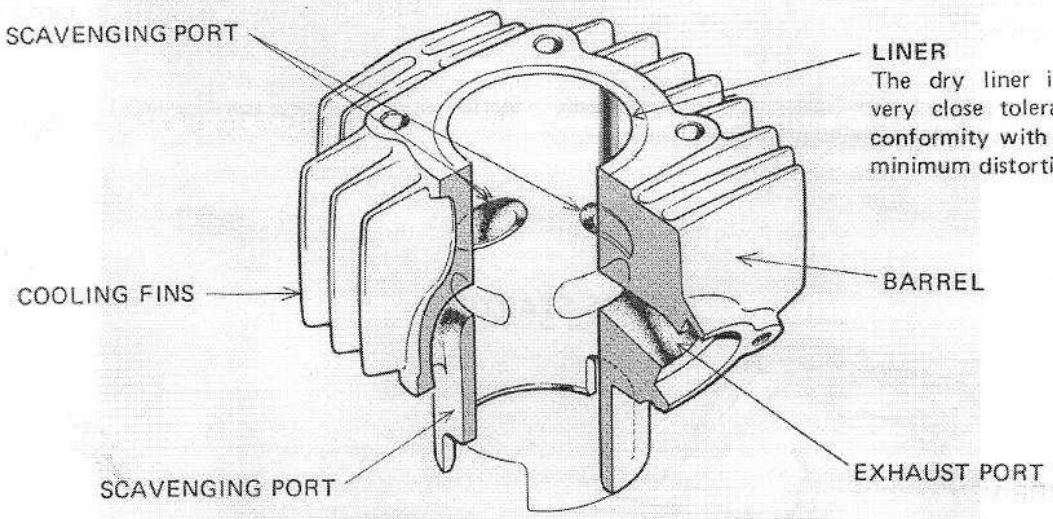
3. CYLINDER

The cylinder block is designed such that maximum rigidity with minimum distortion characteristics are accomplished in an aluminum casting. The block employs a dry liner which is in full-face contact with the block for good conduction of heat. The ports in the cylinder are arranged to provide most effective breathing and easiest exhaust gas explosion.



4. CRANKSHAFT/CRANKCASE

The crankcase is of airtight construction with least resistance to mixture flow. It is designed to offer effective scavenging to blow out remaining exhaust gases in the cylinder and to provide mixture for the next cycle effectively.