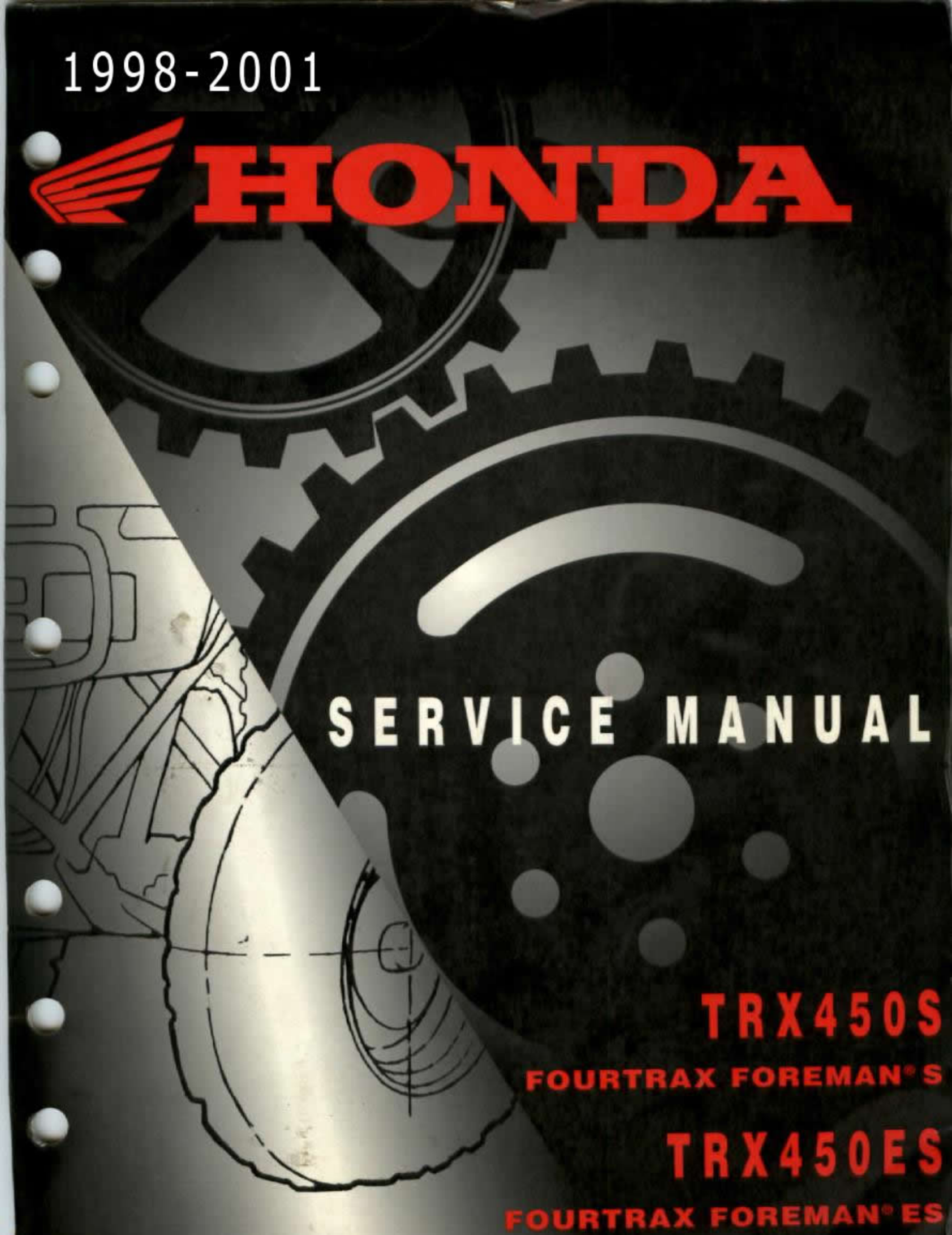
1998-2001

HONDA



SERVICE MANUAL

TRX450S
FOURTRAX FOREMAN® S

TRX450ES
FOURTRAX FOREMAN® ES

HOW TO USE THIS MANUAL

This service manual describes the service procedures for the TRX450S and TRX450ES.

Follow the Maintenance Schedule (Section 3) recommendations to ensure that the vehicle is in peak operating condition and the emission levels are within the standards set by the California Air Resources Board.

Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Sections 1 and 3 apply to the whole vehicle. Section 2 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections.
Section 4 through 22 describe parts of the vehicle, grouped according to location.

Find the section you want on this page, then turn to the table of contents on the first page of the section.

Most sections start with assembly or system illustration, service information and troubleshooting for the section.
The subsequent pages give detailed procedure.

If you are not familiar with this vehicle, read the Technical Features in section 23.

If you don't know the source of the trouble, go to section24, Troubleshooting.

CONTENTS

SYMBOLS

The symbols used throughout this manual show specific service procedures. If supplementary information is required pertaining to these symbols, it would be explained specifically in the text without the use of the symbols.

	Replace the part(s) with new one(s) before assembly.
	Use recommended engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1 : 1).
	Use multi-purpose grease (Lithium based multi-purpose grease NLGI #2 or equivalent).
	Use molybdenum disulfide grease (containing more than 3 % molybdenum disulfide, NLGI #2 or equivalent). Example: Molykote® BR-2 plus manufactured by Dow Corning, U.S.A. Multi-purpose M-2 manufactured by Mitsubishi Oil, Japan
	Use molybdenum disulfide paste (containing more than 40 % molybdenum disulfide, NLGI #2 or equivalent). Example: Molykote® BR-2 plus, manufactured by Dow Corning, U.S.A. Honda Moly 60 (U.S.A. only) Rocol ASP manufactured by Rocol Limited, U.K. Rocol Paste manufactured by Sumico Lubricant, Japan
	Use silicone grease.
	Apply a locking agent. Use a middle strength locking agent unless otherwise specified.
	Apply sealant.
	Use DOT 3 or DOT 4 brake fluid. Use the recommended brake fluid unless otherwise specified.
	Use Fork or Suspension Fluid.

1. GENERAL INFORMATION

GENERAL SAFETY

CARBON MONOXIDE

If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area.

⚠ WARNING

The exhaust contains poisonous carbon monoxide gas that can cause loss of consciousness and may lead to death.

Run the engine in an open area or with an exhaust evacuation system in an enclosed area.

GASOLINE

Work in a well ventilated area. Keep cigarettes, flames or sparks away from the work area or where gasoline is stored.

⚠ WARNING

Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.

HOT COMPONENTS

⚠ WARNING

Engine and exhaust system parts become very hot and remain hot for some time after the engine is run. Wear insulated gloves or wait until the engine and exhaust system have cooled before handling these parts.

USED ENGINE OIL

⚠ WARNING

Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil. KEEP OUT OF REACH OF CHILDREN.

BRAKE FLUID

CAUTION:

Spilling fluid on painted, plastic or rubber parts will damage them. Place a clean shop towel over these parts whenever the system is serviced. KEEP OUT OF REACH OF CHILDREN.

BRAKE DUST

Never use an air hose or dry brush to clean the brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fivers.

⚠ WARNING

Inhaled asbestos fibers have been found to cause respiratory disease and cancer.

BATTERY HYDROGEN GAS & ELECTROLYTE

⚠ WARNING

- ***The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.***
- ***The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.***
  – If electrolyte gets on your skin, flush with water.
  – If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician immediately.
- ***Electrolyte is poisonous.***
  – If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician. KEEP OUT OF REACH OF CHILDREN.

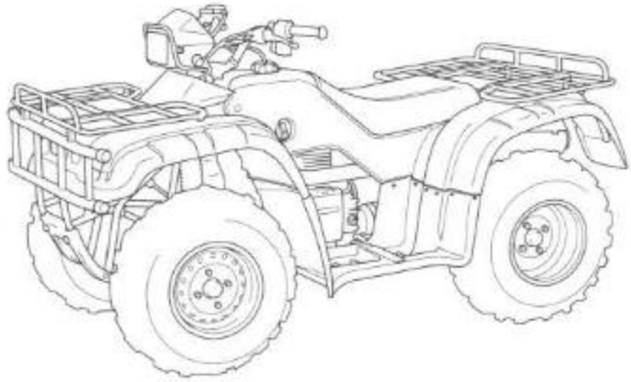
SERVICE RULES

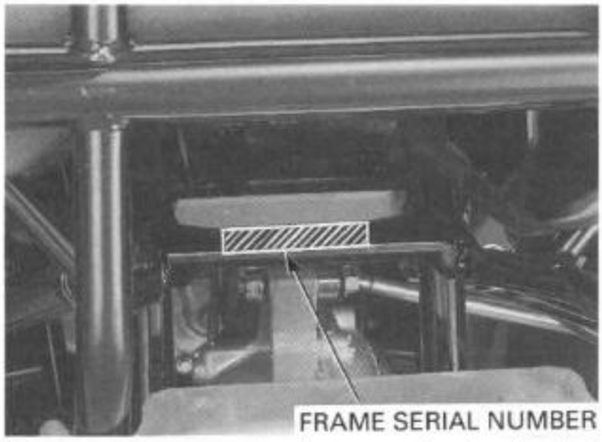
1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that don't meet HONDA's design specifications may cause damage to the vehicle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing the vehicle. Metric bolts, nuts and screws are not interchangeable with English fasteners.
4. Install new gaskets, O-rings, cotter pins, and lock plates when reassembling.
5. When tightening bolts or nuts, begin with the larger diameter or inner bolt first. Then tighten to the specified torque diagonally in incremental steps unless a particular sequence is specified.
6. Clean parts in cleaning solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
7. After reassembly, check all parts for proper installation and operation.
8. Route all cable and harness routing as shown on pages 1-21 through 1-29 Cable and Harness Routing.

MODEL IDENTIFICATION

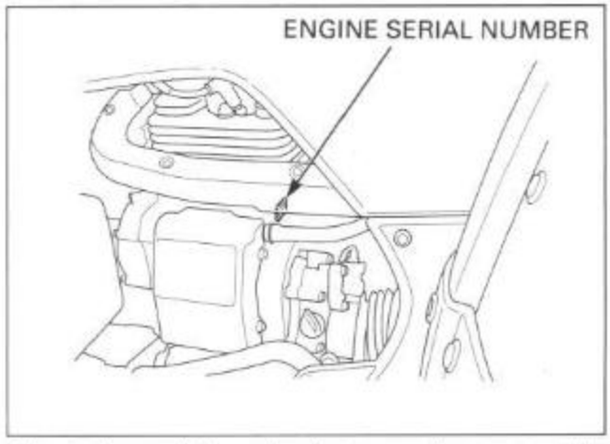
TRX450S:

TRX450ES:

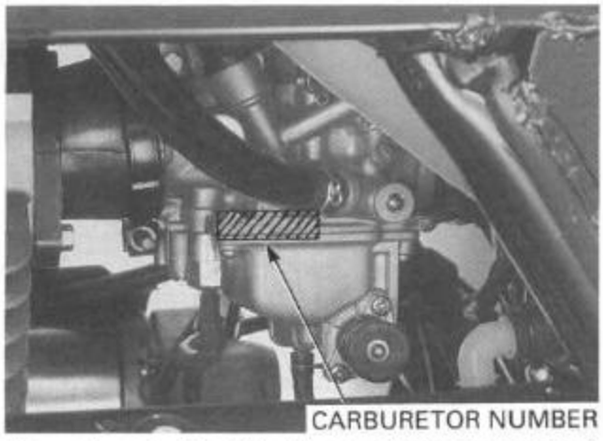




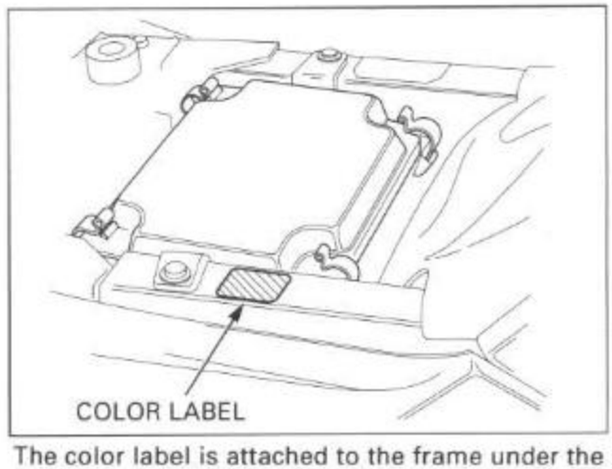
The frame serial number is stamped on the front of the frame.



The engine serial number is stamped on upper side of the rear crankcase viewed from the left side.



The carburetor identification numbers are stamped on the left side of the carburetor body as shown.



The color label is attached to the frame under the seat as shown. When ordering color-coded parts, always specify the designated color code.

SPECIFICATIONS

GENERAL

[ ] : TRX450ES

ITEM		SPECIFICATION
DIMENSIONS	Overall length	1,961 mm (77.2 in)
	Overall width	1,156 mm (45.5 in)
	Overall height	1,144 mm (45.0 in)
	Wheelbase	1,271 mm (50.0 in)
	Front tread	912 mm (35.9 in)
	Rear tread	905 mm (35.6 in)
	Seat height	860 mm (33.9 in)
	Footpeg height	327 mm (12.9 in) [333 mm (13.1 in)]
	Ground clearance	192 mm (7.6 in)
	Dry weight	260 kg (573 lbs) [266 kg (586 lbs)]
	Curb weight	270 kg (595 lbs) [276 kg (608 lbs)]
	Maximum weight capacity	220 kg (485 lbs)
FRAME	Frame type	Double cradle
	Front suspension	Double wish-bone
	Front wheel travel	150 mm (5.91 in)
	Front damper	Double tube
	Rear suspension	Swingarm
	Rear wheel travel	150 mm (5.91 in)
	Rear damper	Double tube
	Front tire size	AT 25 X 8-12 ★★
	Rear tire size	AT 25 X 10-12 ★★
	Front rim size	12 X 6.0 AT
	Rear rim size	12 X 7.5 AT
	Tire brand (DUNLOP) FR/RR	KT401C/KT405C
	Front brake	Hydraulic drum brake
	Rear brake	Mechanical drum brake
	Toe	Toe-out : 35 mm (1-3/8 in)
	Caster angle	3°
	Camber angle	0.1°
	Trail length	7 mm (9/32 in)
	Fuel tank capacity	12.0 ℓ (3.18 US gal, 2.64 Imp gal)
	Fuel tank reserve capacity	2.7 ℓ (0.71 US gal, 0.59 Imp gal)
ENGINE	Bore and stroke	90.0 X 68.0 mm (3.54 X 2.68 in)
	Displacement	432.6 cm³ (26.40 cu-in)
	Compression ratio	8.5 : 1
	Valve train	Overhead valve
	Intake valve opens	6° BTDC
	Intake valve closes	45° ABDC
	Exhaust valve opens	36° BBDC
	Exhaust valve closes	10° ATDC
	Lubrication system	Forced pressure and wet sump
	Oil pump type	Trochoid
	Cooling system	Air cooled
	Air filtration	Oiled double urethane
	Crankshaft type	Unit type, two main journals
	Engine weight	50.2 kg (110.7 lbs)
	Cylinder arrangement	Single cylinder, longitudinally installed

GENERAL (Cont'd)

ITEM			SPECIFICATION
CARBURETOR	Carburetor type		CV (Constant Vacuum) type
	Throttle bore		32.0 mm
DRIVE TRAIN	Clutch system		Centrifugal & multi-plate, wet
	Clutch operation system		Automatic
	Transmission		Constant mesh, 5-speed with reverse
	Primary reduction		2.103 (61/29)
	Secondary reduction		2.100 (42/20)
	Final reduction	Front	3.153 (41/13)
		Rear	3.153 (41/13)
	Gear ratio	1st	4.083 (49/12)
		2nd	2.388 (43/18)
		3rd	1.608 (37/23)
		4th	1.178 (33/28)
		5th	0.848 (28/33)
		Reverse	4.781 (34/12 X 27/16)
	Gearshift pattern		Left foot operated return system R – N – 1 – 2 – 3 – 4 – 5
ELECTRICAL	Ignition system		DC – CDI
	Starting system		Starter motor and emergency recoil starter
	Charging system		Triple phase output alternator
	Regulator/rectifier		SCR shorted/triple phase full wave rectification
	Lighting system		Battery

LUBRICATION SYSTEM

Unit: mm (in)

ITEM		STANDARDS	SERVICE LIMIT
Engine oil capacity	At draining	2.0 ℓ (2.10 US qt, 1.76 Imp qt)	—
	At disassembly	2.7 ℓ (2.84 US qt, 2.38 Imp qt)	—
	At oil filter change	2.1 ℓ (2.21 US qt, 1.85 Imp qt)	—
Recommended engine oil		HONDA GN4 4-stroke oil or equivalent motor oil API service classification SF or SG	—
Oil pump rotor	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15 – 0.21 (0.006 – 0.008)	0.25 (0.010)
	Side clearance	0.02 – 0.09 (0.001 – 0.004)	0.11 (0.004)

FUEL SYSTEM

ITEM		SPECIFICATIONS
Carburetor identification number		VE93A
Main jet	Initial	#130
	High altitude setting	#120
Slow jet		#45
Jet needle clip position		3rd groove from top
Pilot screw	Initial opening	2 – 5/8 turns out
	High altitude setting	2 – 5/8 turns out
Float level		18.5 mm (0.73 in)
Engine idle speed		1,400 ± 100 rpm
Throttle lever free play		3.0 – 8.0 mm (1/8 – 5/16 in)
Starting enrichment (SE) valve distance		10 – 11 mm (0.39 – 0.43 in)

CYLINDER HEAD/VALVES/CAMSHAFT

Unit: mm (in)

ITEM			STANDARDS	SERVICE LIMIT
Cylinder compression	Decompressor effected		539 – 834 kPa (5.5 – 8.5 kgf/cm², 78 – 121 psi) at 450 rpm	—
	Decompressor not effected		1,226 – 1,442 kPa (12.5 – 14.5 kgf/cm², 178 – 206 psi) at 450 rpm	—
Valve, Valve guide	Valve clearance	IN	0.15 (0.006)	—
		EX	0.15 (0.006)	—
	Valve stem O.D.	IN	5.475 – 5.490 (0.2156 – 0.2161)	5.45 (0.215)
		EX	5.455 – 5.470 (0.2148 – 0.2154)	5.43 (0.214)
	Valve guide I.D.	IN	5.500 – 5.512 (0.2165 – 0.2170)	5.525 (0.2175)
		EX	5.500 – 5.512 (0.2165 – 0.2170)	5.525 (0.2175)
	Stem to guide clearance	IN	0.010 – 0.037 (0.0004 – 0.0015)	0.12 (0.005)
		EX	0.030 – 0.057 (0.0012 – 0.0022)	0.14 (0.006)
	Valve seat width		1.2 (0.005)	1.5 (0.06)
Valve spring free length	Inner		36.85 (1.451)	35.84 (1.411)
	Outer		41.67 (1.641)	40.42 (1.591)
Rocker arm/ shaft	Rocker arm I.D.		12.000 – 12.018 (0.4724 – 0.4731)	12.05 (0.474)
	Rocker arm shaft O.D.		11.964 – 11.984 (0.4710 – 0.4718)	11.92 (0.469)
	Rocker arm to shaft clearance		0.016 – 0.054 (0.0006 – 0.002)	0.08 (0.003)
Camshaft and cam follower	Cam lobe height	IN	36.4291 – 36.4291 (1.43421 – 1.44051)	36.25 (1.427)
		EX	36.2670 – 36.4270 (1.42783 – 1.43131)	36.10 (1.421)
	Cam follower O.D.	IN/EX	22.467 – 22.482 (0.8845 – 0.8851)	22.46 (0.884)
	Cam follower bore O.D.	IN/EX	22.510 – 22.526 (0.8862 – 0.8868)	22.54 (0.887)
	Cam follower to bore clearance		0.028 – 0.059 (0.0011 – 0.0023)	0.07 (0.003)

CYLINDER/PISTON

Unit: mm (in)

ITEM			STANDARDS	SERVICE LIMIT
Cylinder	I.D.		90.00 – 90.01 (3.543 – 3.544)	90.10 (3.547)
	Taper		—	0.10 (0.004)
	Out of round		—	0.10 (0.004)
	Warpage		—	0.10 (0.004)
Piston, piston rings, piston pin	Piston mark direction		"IN" mark facing toward the intake side	—
	Piston O.D.		89.945 – 89.965 (3.5411 – 3.5419)	89.90 (3.539)
	Piston O.D. measurement point		10 mm (0.4 in) from bottom of skirt	—
	Piston pin bore I.D.		19.002 – 19.008 (0.7481 – 0.7483)	19.08 (0.751)
	Piston pin O.D.		18.994 – 19.000 (0.7478 – 0.7480)	18.96 (0.746)
	Piston-to piston pin clearance		0.002 – 0.014 (0.0001 – 0.0006)	0.12 (0.039)
	Piston ring-to-ring groove clearance	Top	0.030 – 0.060 (0.0011 – 0.0024)	0.09 (0.004)
		Second	0.015 – 0.45 (0.0006 – 0.0018)	0.09 (0.004)
	Piston ring end gap	Top	0.015 – 0.30 (0.006 – 0.012)	0.5 (0.02)
		Second	0.300 – 0.450 (0.012 – 0.018)	0.6 (0.02)
		Oil (side rail)	0.20 – 0.70 (0.008 – 0.028)	—
Cylinder-to-piston clearance			0.035 – 0.056 (0.0014 – 0.0022)	0.10 (0.004)
Connecting rod small end I.D.			19.020 – 19.041 (0.7488 – 0.7496)	19.07 (0.7508)
Connecting rod-to piston pin clearance			0.020 – 0.047 (0.0008 – 0.0019)	0.10 (0.004)

CLUTCH/GEARSHIFT LINKAGE

Unit: mm (in)

ITEM			STANDARDS	SERVICE LIMIT
Change clutch	Spring free length		32.1 (1.26)	31.0 (1.22)
	Disc thickness		2.62 – 2.78 (0.103 – 0.109)	2.3 (0.09)
	Plate warpage		—	0.20 (0.008)
	Clutch outer guide	O.D.	27.959 – 27.980 (1.1007 – 1.1016)	27.92 (1.099)
		I.D.	22.000 – 22.021 (0.8661 – 0.8670)	22.05 (0.868)
	Mainshaft O.D at outer guide		21.972 – 21.993 (0.8650 – 0.8659)	21.93 (0.863)
Centrifugal clutch	Drum I.D.		140.0 – 140.2 (5.51 – 5.52)	140.4 (5.53)
	Weight lining thickness		3.0 (0.12)	2.0 (0.08)
	Clutch spring height		3.1 (0.12)	2.95 (0.116)
	Clutch weight spring free length		21.6 (0.85)	22.5 (0.89)
Primary drive gear	I.D.		27.000 – 27.021 (1.0630 – 1.0638)	27.05 (1.065)
	Crankshaft O.D. at drive gear		26.959 – 26.980 (1.0614 – 1.0622)	26.93 (1.060)