1997-2004

HONDA

# SERVICE MANUAL

## TRX250TE/TM

FOURTRAX®

RECON™

# HOW TO USE THIS MANUAL

This service manual describes the service procedures for the TRX250 TM/TE (Recon).

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.
Sections 4 through 21 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 an assembly or system illustration, service information and troubleshooting for the section. The subsequent pages give detailed procedure.

If you do not know the source of the trouble, go to section 22, Troubleshooting.

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# 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).<br>Example: Molykote® BR-2 plus manufactured by Dow Corning, U.S.A.<br>Multi-purpose M-2 manufactured by Mitsubishi Oil, Japan |
|   | Use molybdenum disulfide paste (containing more than 40% molybdenum disulfide, NLGI # 2 or equivalent).<br>Example: Molykote® BR-2 plus, manufactured by Dow Corning, U.S.A.<br>Honda Moly 60 (U.S.A. only)<br>Rocol ASP manufactured by Rocol Limited, U.K.<br>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


| | | | |
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## 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 fibers.

**⚠WARNING**

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

### BATTERY HYDROGEN GAS & ELECTROLYTE

**⚠WARNING**

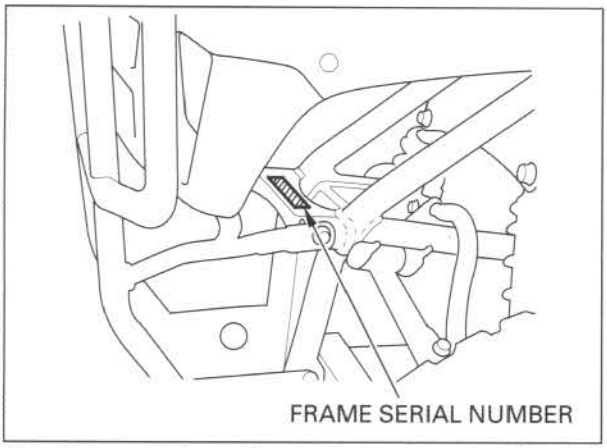
- ***The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.***
- ***The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.***
  - ***If electrolyte 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

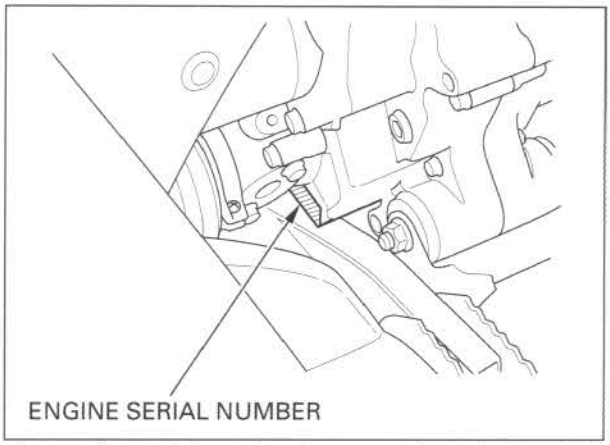
1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that do not meet HONDA's design specifications may cause damage to the vehicle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing 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 1-31 Cable and Harness Routing.

# MODEL IDENTIFICATION

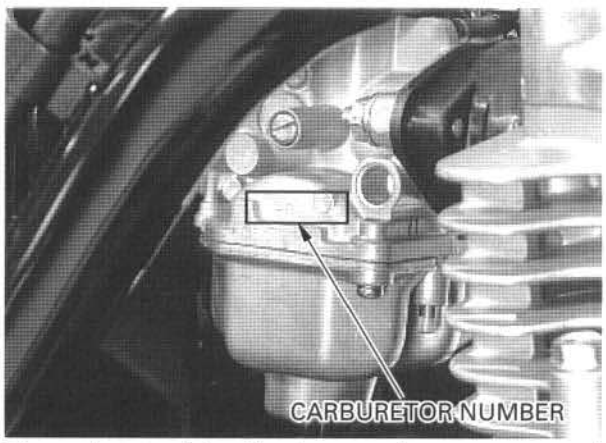
'97 SHOWN; AFTER '97 SIMILAR



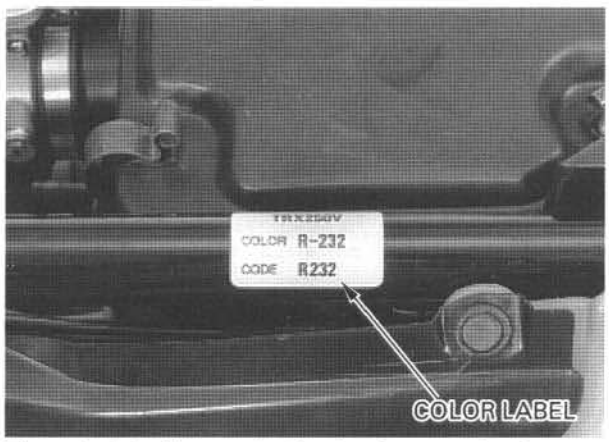

The frame serial number is stamped on the front of the frame.




The engine serial number is stamped on the rear half of the lower crankcase, viewed from the right side.




The carburetor identification numbers are stamped on the right 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

| ITEM | | SPECIFICATIONS |
|---|---|---|
| DIMENSIONS | Overall length | 1,794 mm (70.6 in) |
| | Overall width | 1,034 mm (40.7 in) |
| | Overall height | 1,054 mm (41.5 in) |
| | Wheelbase | 1,131 mm (44.5 in) |
| | Front tread | 783 mm (30.8 in) |
| | Rear tread | 780 mm (30.7 in) |
| | Seat height | 777 mm (30.6 in) |
| | Footpeg height '97 – 2001: | 298 mm (11.7 in) |
| | After 2001: | TM: 298 mm (11.7 in) /TE: 306 mm (12.0 in) |
| | Ground clearance | 152 mm (6.0 in) |
| | Dry weight '97 – 2001: | 180 kg (397 lbs) |
| | After 2001: | TM: 184 kg (406 lbs)/TE: 188 kg (414 lbs) |
| | Curb weight '97 – 2001: | 188 kg (414 lbs) |
| | After 2001: | TM: 191 kg (421 lbs)/TE: 195 kg (430 lbs) |
| | Maximum weight capacity | 175 kg (386 lbs) |
| FRAME | Frame type | Double cradle |
| | Front suspension | Double wish-bone |
| | Front wheel travel | 130 mm (5.1 in) |
| | Front damper | Double tube |
| | Rear suspension | Swingarm |
| | Rear wheel travel | 125 mm (4.9 in) |
| | Rear damper | Double tube |
| | Front tire size | AT22 × 7-11 ★ |
| | Rear tire size | AT22 × 10-9 ★ |
| | Front rim size | 11 × 5.5 AT |
| | Rear rim size | 9 × 8.0 AT |
| | Tire brand (Goodyear) FR/RR | TRACKER HP |
| | Front brake | Hydraulic drum brake |
| | Rear brake | Mechanical drum brake |
| | Toe | Toe-in: 8 mm (5/16 in) |
| | Caster angle | 8° |
| | Camber angle | 0.1° |
| | Trail length | 42 mm (1-5/8 in) |
| | Fuel tank capacity | 9.1 ℓ (2.40 US gal , 2.00 Imp gal) |
| | Fuel tank reserve capacity | 2.4 ℓ (0.63 US gal , 0.53 Imp gal) |
| ENGINE | Bore and stroke | 68.5 × 62.2 mm (2.70 × 2.45 in) |
| | Displacement | 229 $cm^3$ (14.0 cu-in) |
| | Compression ratio | 9.0 : 1 |
| | Valve train | Overhead valve |
| | Intake valve opens | 8° BTDC |
| | Intake valve closes | 37° ABDC |
| | Exhaust valve opens | 38° BBDC |
| | Exhaust valve closes | 7° 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 dry weight '97 – 2001: | 34.6 kg (76.3 lbs) |
| | After 2001: | TM: 35.9 kg (79.1 lbs) /TE: 37.4 kg (82.5 lbs) |
| | Cylinder arrangement | Single cylinder, longitudinally installed |

## GENERAL (Cont'd)

| ITEM | | SPECIFICATIONS |
|---|---|---|
| CARBURETOR | Carburetor type | Piston valve |
| | Throttle bore | 20 mm (0.8 in) |
| DRIVE TRAIN | Clutch system | Centrifugal & multi-plate, wet |
| | Clutch operation system | Automatic |
| | Transmission | Constant mesh, 5-speed with reverse |
| | Primary reduction | 3.086 (71/23) |
| | Final reduction | 3.692 (48/13) |
| | Gear ratio '97 – 2001: | |
| | 1st | 3.545 (39/11) |
| | 2nd | 2.267 (34/15) |
| | 3rd | 1.631 (31/19) |
| | 4th | 1.273 (28/22) |
| | 5th | 1.042 (25/24) |
| | Reverse | 5.850 (39/20×33/11) |
| | After 2001: | |
| | 1st | 3.231 (42/13) |
| | 2nd | 2.167 (39/18) |
| | 3rd | 1.667 (35/21) |
| | 4th | 1.280 (32/25) |
| | 5th | 1.042 (25/24) |
| | Reverse | 5.550 (39/20×37/13) |
| | Gearshift pattern | Left foot operated return system ('97 – 2001/After 2001: TM)<br>Electric shift (left hand operated) return system (After 2001: TE)<br>R–N–1–2–3–4–5 |
| ELECTRICAL | Ignition system | AC-CDI |
| | Starting system | Starter motor and emergency recoil starter |
| | Charging system | Single phase output alternator |
| | Regulator/rectifier | SCR shorted/single phase full wave rectification |
| | Lighting system | Battery |

## LUBRICATION SYSTEM

Unit: mm (in)

| ITEM | | | SPECIFICATIONS | SERVICE LIMIT |
|---|---|---|---|---|
| Engine oil capacity | At draining | '97 – 2001 | 1.6 ℓ (1.7 US qt , 1.4 Imp qt) | ——— |
| | | After 2001 | 1.5 ℓ (1.6 US qt , 1.3 Imp qt) | ——— |
| | At disassembly | '97 – 2001 | 1.8 ℓ (1.9 US qt , 1.6 Imp qt) | ——— |
| | | After 2001 | 1.9 ℓ (2.0 US qt , 1.7 Imp qt) | ——— |
| Recommended engine oil | | | HONDA GN4 4-stroke oil or equivalent motor oil<br>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 | | 0.05 – 0.13 (0.002 – 0.005) | 0.15 (0.006) |

## FUEL SYSTEM

| ITEM | | | SPECIFICATIONS |
|---|---|---|---|
| Carburetor identification number | | '97 (except California type) | PDC1B |
| | | '97 California type/'98 – 2001 All types | PDC1C |
| | | After 2001 | PDC1E |
| Main jet | | | # 95 |
| Slow jet | | | # 38 |
| Jet needle clip position | | '97 | 3rd groove from top |
| | | After '97 | 2nd groove from top |
| Pilot screw | Initial opening | '97 (except California type) | 2-7/8 turns out |
| | | '97 California type | 2-3/4 turns out |
| | | '98 – 2001 | 2-5/8 turns out |
| | | After 2001 | 2 turns out |
| | High altitude setting | | 1/8 turns in from initial opening |
| Float level | | | 14 mm (0.6 in) |
| Idle speed | | | 1,400 ± 100 rpm |
| Throttle lever free play | | | 3 – 8 mm (1/8 – 5/16 in) |

Unit: mm (in)

## CYLINDER HEAD/CYLINDER/PISTON

| ITEM | | | SPECIFICATIONS | SERVICE LIMIT |
|---|---|---|---|---|
| Cylinder compression | | | 1,275 kPa (13.0 kgf/cm², 185 psi) at 800 rpm | — |
| Cylinder head warpage | | | — | 0.10 (0.004) |
| Valve and valve guide | Valve clearance | IN/EX | 0.13 (0.005) | — |
| | 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 | IN/EX | 1.2 (0.05) | 1.5 (0.06) |
| Valve spring free length | Inner | IN/EX | 36.95 (1.455) | 35.7 (1.41) |
| | Outer | IN/EX | 41.01 (1.615) | 39.8 (1.57) |
| Rocker arm | Rocker arm I. D. | IN/EX | 12.000 – 12.018 (0.4724 – 0.4731) | 12.05 (0.474) |
| | Rocker arm shaft O. D. | IN/EX | 11.964 – 11.984 (0.4710 – 0.4718) | 11.92 (0.469) |
| | Rocker arm-to-shaft clearance | | 0.016 – 0.054 (0.0006 – 0.0021) | 0.08 (0.003) |
| Camshaft and cam follower | Cam lobe height | IN | 35.393 – 35.552 (1.3934 – 1.3997) | 35.2 (1.39) |
| | | EX | 35.190 – 35.350 (1.3854 – 1.3917) | 35.0 (1.38) |
| | Cam follower O. D. | IN/EX | 22.467 – 22.482 (0.8845 – 0.8851) | 22.46 (0.884) |
| | Cam follower bore I. 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 | I. D. | | 68.500 – 68.510 (2.6968 – 2.6972) | 68.6 (2.70) |
| | Out-of-round | | — | 0.10 (0.004) |
| | Taper | | — | 0.10 (0.004) |
| | Warpage | | — | 0.10 (0.004) |
| Piston, piston ring | Piston mark direction | | "IN" mark toward the intake side | — |
| | Piston O. D. | | 68.462 – 68.482 (2.6953 – 2.6961) | 68.4 (2.69) |
| | Piston O. D. measurement point | | 6 – 18 (0.2 – 0.7) from bottom of the skirt | — |
| | Piston pin bore I. D. | | 15.002 – 15.008 (0.5906 – 0.5909) | 15.04 (0.592) |
| | Piston pin O. D. | | 14.994 – 15.000 (0.5903 – 0.5906) | 14.96 (0.589) |
| | Piston-to-piston pin clearance | | 0.002 – 0.014 (0.0001 – 0.0006) | 0.020 (0.0008) |
| | Piston ring-to-ring groove clearance | Top | 0.015 – 0.045 (0.0006 – 0.0018) | 0.09 (0.004) |
| | | Second | 0.015 – 0.045 (0.0006 – 0.0018) | 0.09 (0.004) |
| | Piston ring end gap | Top | 0.20 – 0.35 (0.008 – 0.014) | 0.5 (0.02) |
| | | Second | 0.40 – 0.55 (0.016 – 0.022) | 0.7 (0.03) |
| | | Oil (side rail) | 0.20 – 0.70 (0.008 – 0.028) | — |
| Cylinder-to-piston clearance | | | 0.018 – 0.048 (0.0007 – 0.0019) | 0.10 (0.004) |
| Connecting rod small end I.D. | | | 15.010 – 15.028 (0.5909 – 0.5917) | 15.06 (0.593) |
| Connecting rod-to-piston pin clearance | | | 0.010 – 0.034 (0.0004 – 0.0013) | 0.10 (0.004) |

## CLUTCH

Unit: mm (in)

| ITEM | | SPECIFICATIONS | SERVICE LIMIT |
|---|---|---|---|
| Change clutch | Spring free length | 35.2 (1.39) | 34.5 (1.36) |
| | Disc thickness | 2.9–3.0 (0.11–0.12) | 2.6 (0.10) |
| | Plate warpage | — | 0.20 (0.008) |
| | Clutch outer guide O. D. | 27.959–27.980 (1.1007–1.1016) | 27.92 (1.099) |
| | Clutch outer boss I. D. | 28.000–28.021 (1.1024–1.1032) | 28.05 (1.104) |
| Centrifugal clutch | Drum I. D. | 116.00–116.20 (4.567–4.575) | 116.5 (4.59) |
| | Weight lining thickness | 2.0 (0.08) | 1.2 (0.05) |
| | Clutch spring height | 3.0 (0.12) | 2.85 (0.112) |
| | Clutch weight spring free length | 30.75 (1.211) | 31.6 (1.24) |
| | Drum bushing I. D. | 24.000–24.021 (0.9449–0.9457) | 24.05 (0.947) |
| | Crankshaft O. D. at drive gear | 23.959–23.980 (0.9433–0.9441) | 23.93 (0.942) |

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