

2001 - 2005



HONDA

SERVICE MANUAL

TRX250EX

SPORTRAX™

HOW TO USE THIS MANUAL

This service manual describes the service procedures for the TRX250 EX.

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 (CARB).

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 20 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 procedures.

If you don't know the source of the trouble, go to Section 22, Troubleshooting.

Your safety, and the safety of others, is very important. To help you make informed decisions we have provided safety messages and other information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle. You must use your own good judgement.

You will find important safety information in a variety of forms including:

- Safety Labels – on the vehicle
- Safety Messages – preceded by a safety alert symbol  and one of three signal words, DANGER, WARNING, or CAUTION.

These signal words mean:

⚠ DANGER You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.

⚠ WARNING You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.

⚠ CAUTION You CAN be HURT if you don't follow instructions.

- Instructions – how to service this vehicle correctly and safely.

As you read this manual, you will find information that is preceded by a **NOTICE** symbol. The purpose of this message is to help prevent damage to your vehicle, other property, or the environment.

ALL INFORMATION, ILLUSTRATIONS, DIRECTIONS AND SPECIFICATIONS INCLUDED IN THIS PUBLICATION ARE BASED ON THE LATEST PRODUCT INFORMATION AVAILABLE AT THE TIME OF APPROVAL FOR PRINTING. HONDA MOTOR CO., LTD. RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME WITHOUT NOTICE AND WITHOUT INCURRING ANY OBLIGATION WHATEVER. NO PART OF THIS PUBLICATION MAY BE REPRODUCED WITHOUT WRITTEN PERMISSION. THIS MANUAL IS WRITTEN FOR PERSONS WHO HAVE ACQUIRED BASIC KNOWLEDGE OF MAINTENANCE ON HONDA MOTORCYCLES, MOTOR SCOOTERS, OR ATVS.

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SERVICE PUBLICATIONS OFFICE

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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). 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® G-n paste, 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. |

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1. GENERAL INFORMATION

1

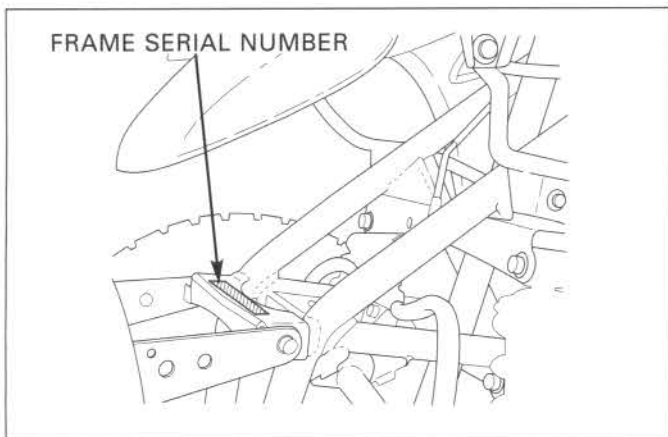
| | | | |
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SERVICE RULES

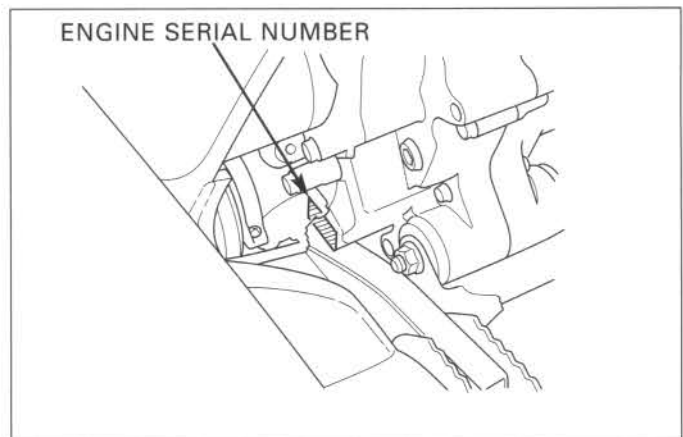
1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that don't meet HONDA's design specifications may cause damage to the motorcycle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing the motorcycle. 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 electrical wires as shown on pages 1-17 through 1-20, Cable & Harness Routing.

GENERAL INFORMATION

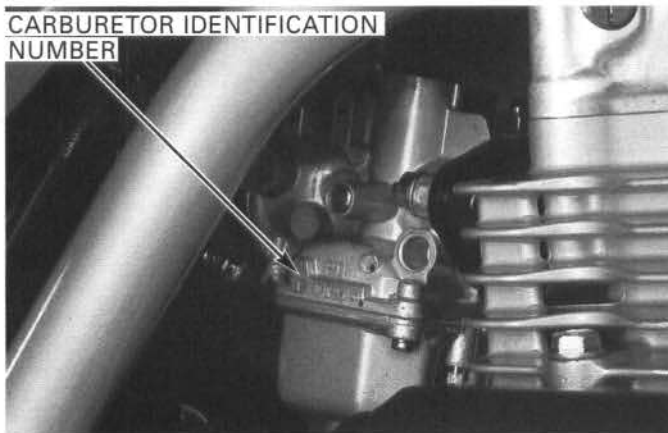
MODEL IDENTIFICATION



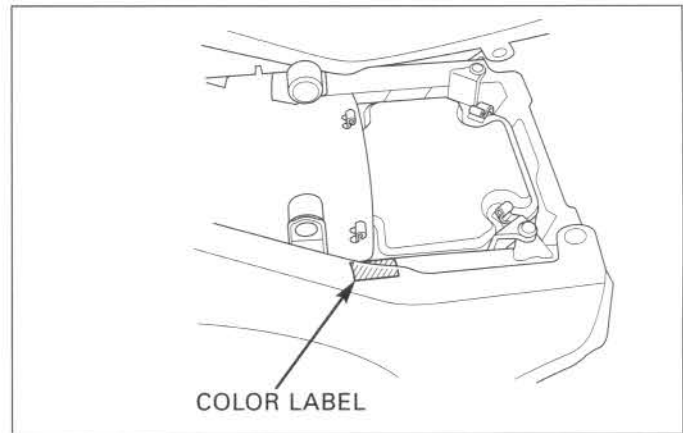
The frame serial number is stamped on the front cross-member of the frame.



The engine serial number is stamped on the lower half of the rear crankcase.



The carburetor identification number is stamped on the right side of the carburetor body.



The color label is attached on the left frame member under the seat. When ordering color-coded parts, always specify the designated color code.

SPECIFICATIONS

| GENERAL | | |
|--------------------|--|---|
| | ITEM | SPECIFICATIONS |
| DIMENSIONS | Overall length | 1,735 mm (68.3 in) |
| | Overall width | 1,062 mm (41.8 in) |
| | Overall height | 1,073 mm (42.2 in) |
| | Wheelbase | 1,124 mm (44.3 in) |
| | Front tread | 807 mm (31.8 in) |
| | Rear tread | 805 mm (31.7 in) |
| | Seat height | 794 mm (31.3 in) |
| | Footpeg height | 319 mm (12.6 in) |
| | Ground clearance (Skid plate) | 149 mm (5.9 in) |
| | Dry weight | 158 kg (349 lbs) |
| | Curb weight | 166 kg (367 lbs) |
| | Maximum weight capacity | 110 kg (243 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 | 145 mm (5.71 in) |
| | Rear damper | Double tube |
| | Front tire size | AT22 x 7-10 |
| | Rear tire size | AT22 x 10-9 |
| | Front rim size | 10 x 5.5 AT |
| | Rear rim size | 9 x 8.0 AT |
| | Front tire brand | DUNLOP: KT171 |
| | Rear tire brand | DUNLOP: KT175 |
| | Front brake | Hydraulic disc brake |
| | Rear brake | Mechanical drum brake |
| | Toe | Toe-in: 2.3 mm (3/32 in) |
| | Caster angle | 9° |
| | Camber angle | -0.1° |
| | Trail length | 40 mm (1.56 in) |
| Fuel tank capacity | 10.2 liters (2.5 US gal, 2.24 Imp gal) | |
| Fuel tank capacity | 2.7 liters (0.7 US gal, 0.59 Imp gal) | |
| ENGINE | Cylinder arrangement | Single cylinder, longitudinally installed |
| | Bore and stroke | 68.5 x 62.2 mm (2.70 x 2.45 in) |
| | Displacement | 229.2 cm ³ (14.0 cu-in) |
| | Compression ratio | 9.2 : 1 |
| | Valve train | OHV, rocker arm and push rod |
| | Intake valve opens | 8° BTDC (at 1 mm lift) |
| | Intake valve closes | 38° ABDC (at 1 mm lift) |
| | Exhaust valve opens | 34° BBDC (at 1 mm lift) |
| | Exhaust valve closes | 4° ATDC (at 1 mm lift) |
| | 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 | 34.5 kg (76.0 lbs) | |

GENERAL INFORMATION

| GENERAL (Cont'd) | | SPECIFICATIONS |
|------------------|--|--|
| | ITEM | |
| CARBURETOR | Carburetor type Throttle bore | Piston valve 20 mm (0.79 in) |
| DRIVE TRAIN | Clutch system Clutch operation system Transmission Primary reduction Final reduction Gear ratio 1st 2nd 3rd 4th 5th R Gearshift pattern | Centrifugal & multi-plate, wet Automatic Constant mesh, 5-speeds with reverse 3.087 (71/23) 3.692 (48/13) 2.846 (37/13) 1.933 (29/15) 1.444 (26/18) 1.130 (26/23) 0.913 (21/23) 4.769 (31/16 x 32/13) Left foot operated return system, R - N - 1 - 2 - 3 - 4 - 5 |
| ELECTRICAL | Ignition system Starting system Charging system Regulator/rectifier Lighting system | AC-CDI Electric starter motor Single phase output alternator SCR shorted, single phase full-wave rectification Battery |

GENERAL INFORMATION

Unit: mm (in)

LUBRICATION

| ITEM | | STANDARD | SERVICE LIMIT |
|------------------------|----------------|---|---------------|
| Engine oil capacity | At draining | 1.6 liters (1.7 US qt, 1.4 Imp qt) | — |
| | At disassembly | 1.9 liters (2.0 US qt, 1.7 Imp qt) | — |
| Recommended engine oil | | Honda GN4 or HP4 4-stroke oil or equivalent motor oil API service classification SF or SG Viscosity: SAE 10W-40 | — |
| Oil pump | 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 | PDC1D |
| Main jet | #95 |
| Slow jet | #38 |
| Pilot screw opening | See page 5-11 |
| Float level | 14 mm (0.6 in) |
| Jet needle clip position | 3rd groove from top |
| Idle speed | 1,400 ± 100 rpm |
| Throttle lever free play | 3—8 mm (1/8—5/16) |

CYLINDER HEAD/VALVE

Unit: mm (in)

| ITEM | | STANDARD | SERVICE LIMIT |
|---------------------------------|-------------------------------|--|----------------|
| Cylinder compression at 800 rpm | | 1,275 kPa (13.0 kgf/cm ² , 185 psi) | — |
| Valve clearance | | IN/EX 0.13 (0.005) | — |
| Valve, valve guide | 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/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 valve spring | IN/EX 42.4 (1.67) | 41.2 (1.62) |
| | Outer valve spring | IN/EX 44.2 (1.74) | 43.0 (1.69) |
| 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 11.966—11.984 (0.4711—0.4718) | 11.92 (0.469) |
| | Rocker arm-to-shaft clearance | 0.016—0.052 (0.0006—0.0020) | 0.08 (0.003) |
| Cylinder head warpage | | — | 0.10 (0.004) |

GENERAL INFORMATION

Unit: mm (in)

| CYLINDER/PISTON/CAMSHAFT | | | STANDARD | SERVICE LIMIT |
|--|---|-------------------------|----------------------------------|-----------------------------|
| ITEM | | | | |
| 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 pin, piston ring | Piston mark direction | | "IN" mark toward the intake side | — |
| | Piston O.D. measurement point | | 6—14 (0.2—0.6) | — |
| | Piston O.D. | | 68.462—68.482 (2.6953—2.6961) | 68.4 (2.69) |
| | 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) |
| Camshaft, cam follower | Cam lobe height | IN | 35.764—35.924 (1.408—1.414) | 35.6 (1.40) |
| | | EX | 35.292—35.452 (1.389—1.396) | 35.1 (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) |

Unit: mm (in)

| CLUTCH | | | STANDARD | SERVICE LIMIT |
|-----------------------|--|--|-------------------------------|---------------|
| ITEM | | | | |
| 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 guide 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) |
| | Front crankshaft O.D. at primary drive gear | | 23.959—23.980 (0.9433—0.9441) | 23.93 (0.942) |

Unit: mm (in)

CRANKSHAFT/TRANSMISSION

| ITEM | | | STANDARD | SERVICE LIMIT |
|--------------------------------------|------------------------------|-----------------------------|-------------------------------|---------------|
| Crankshaft, connecting rod | Side clearance | | 0.05—0.50 (0.002—0.020) | 0.80 (0.031) |
| | Radial clearance | | 0.004—0.012 (0.0002—0.0005) | 0.05 (0.002) |
| | Runout | Front | — | 0.06 (0.002) |
| Rear | | — | 0.03 (0.001) | |
| Transmission | Gear I.D. | M4 | 23.000—23.021 (0.9055—0.9063) | 23.04 (0.907) |
| | | M5 | 18.000—18.021 (0.7087—0.7095) | 18.04 (0.710) |
| | | C1, C2, C3, R | 25.000—25.021 (0.9843—0.9851) | 25.04 (0.986) |
| | | Reverse idle | 13.000—13.018 (0.5118—0.5125) | 13.04 (0.513) |
| | Mainshaft O.D. | at M4 | 19.959—19.980 (0.7858—0.7866) | 19.93 (0.785) |
| | | at M5 | 14.966—14.984 (0.5892—0.5899) | 14.94 (0.588) |
| | Reverse idle gear shaft O.D. | | 12.966—12.984 (0.5105—0.5112) | 12.94 (0.509) |
| | Gear bushing O.D. | M4 | 22.959—22.979 (0.9039—0.9047) | 22.94 (0.903) |
| | | M5 | 17.959—17.980 (0.7070—0.7079) | 17.94 (0.706) |
| | | C3 | 24.959—24.980 (0.9826—0.9835) | 24.94 (0.982) |
| | | C1, C2, C3, R | 24.959—24.980 (0.9826—0.9835) | 24.94 (0.982) |
| | Gear bushing I.D. | M4 | 20.000—20.021 (0.7874—0.7882) | 20.04 (0.789) |
| | | M5 | 15.000—15.018 (0.5906—0.5913) | 15.04 (0.592) |
| | | C3 | 22.000—22.021 (0.8661—0.8670) | 22.04 (0.868) |
| | Gear-to-bushing clearance | M4 | 0.021—0.062 (0.0008—0.0024) | 0.10 (0.004) |
| | | M5 | 0.020—0.062 (0.0008—0.0024) | 0.10 (0.004) |
| | | C1, C2, C3, R | 0.020—0.062 (0.0008—0.0024) | 0.10 (0.004) |
| Bushing-to-shaft clearance | M4 | 0.020—0.062 (0.0008—0.0024) | 0.10 (0.004) | |
| | M5 | 0.016—0.052 (0.0006—0.0020) | 0.10 (0.004) | |
| | C3 | 0.020—0.062 (0.0008—0.0024) | 0.10 (0.004) | |
| Reverse idle gear-to-shaft clearance | | 0.016—0.052 (0.0006—0.0020) | 0.10 (0.004) | |
| Shift fork, fork shaft | Fork | I.D. | 13.000—13.018 (0.5118—0.5125) | 13.04 (0.513) |
| | | Claw thickness | 4.93—5.00 (0.194—0.197) | 4.60 (0.181) |
| | Fork shaft O.D. | | 12.966—12.984 (0.5105—0.5112) | 12.96 (0.510) |

GENERAL INFORMATION

FRONT WHEEL/SUSPENSION/STEERING

Unit: mm (in)

| ITEM | | STANDARD | SERVICE LIMIT |
|--|------------|---|---------------|
| Minimum tire thread depth | | — | 4 (0.16) |
| Cold tire pressure | Standard | 30 kPa (0.30 kgf/cm ² , 4.4 psi) | — |
| | Minimum | 26 kPa (0.26 kgf/cm ² , 3.8 psi) | — |
| | Maximum | 34 kPa (0.34 kgf/cm ² , 5.0 psi) | — |
| | With cargo | 30 kPa (0.30 kgf/cm ² , 4.4 psi) | — |
| Tie-rod distance between the ball joints | | 326.7 ± 1 (12.86 ± 0.4) | — |
| Toe | | Toe-in: 2.3 mm (3/32 in) | — |

REAR WHEEL/BRAKE/SUSPENSION

Unit: mm (in)

| ITEM | | STANDARD | SERVICE LIMIT |
|---------------------------|------------------|---|------------------|
| Minimum tire thread depth | | — | 4 (0.16) |
| Cold tire pressure | Standard | 20 kPa (0.20 kgf/cm ² , 2.9 psi) | — |
| | Minimum | 17 kPa (0.17 kgf/cm ² , 2.5 psi) | — |
| | Maximum | 23 kPa (0.23 kgf/cm ² , 3.3 psi) | — |
| | With cargo | 20 kPa (0.20 kgf/cm ² , 2.9 psi) | — |
| Rear brake | Drum I.D. | 140.0 (5.51) | 141.0 (5.55) |
| | Lining thickness | 4.5 (0.18) | To the indicator |

HYDRAULIC DISC BRAKE

Unit: mm (in)

| ITEM | | STANDARD | SERVICE LIMIT |
|-------------------------|-----------|-------------------------------|-----------------|
| Recommended brake fluid | | DOT 4 brake fluid | — |
| Brake disc | Thickness | 2.8—3.2 (0.11—0.13) | 2.5 (0.10) |
| | Runout | — | 0.30 (0.012) |
| Master cylinder I.D. | | 12.700—12.743 (0.5000—0.5017) | 12.755 (0.5022) |
| Master piston O.D. | | 12.657—12.684 (0.4983—0.4994) | 12.645 (0.4978) |
| Caliper cylinder I.D. | | 33.96—34.01 (1.337—1.339) | 34.02 (1.340) |
| Caliper piston O.D. | | 33.878—33.928 (1.3338—1.3357) | 33.87 (1.333) |

REAR DRIVING MECHANISM

Unit: mm (in)

| ITEM | | STANDARD | SERVICE LIMIT | |
|------------------|---------------------------------|----------------|--|--------------|
| Rear axle runout | | — | 3.0 (0.12) | |
| Final drive | Recommended oil | | Hypoid gear oil SAE #80 | |
| | Oil capacity | At draining | 75 cm ³ (2.5 US oz, 2.6 Imp oz) | |
| | | At disassembly | 100cm ³ (3.4 US oz, 3.5 Imp oz) | |
| | Gear backlash | | 0.05—0.25 (0.002—0.010) | 0.40 (0.002) |
| | Backlash difference | | — | 0.2 (0.01) |
| | Ring gear-to-stop pin clearance | | 0.3—0.6 (0.01—0.02) | — |

BATTERY/CHARGING SYSTEM

| ITEM | | SPECIFICATIONS | |
|------------|--------------------------------------|-----------------|----------------|
| Battery | Capacity | 12 V—8 Ah | |
| | Current leakage | 1 mA maximum | |
| | Voltage (20°C/68°F) | Fully charged | 13.0—13.2 V |
| | | Needs charging | Below 12.3 V |
| | Charging current | Normal | 0.9 A x 5—10 h |
| Quick | | 4.0 A x 1.0 h | |
| Alternator | Capacity | 123 W/5,000 rpm | |
| | Charging coil resistance (20°C/68°F) | 0.1—1.0 Ω | |

IGNITION SYSTEM

| ITEM | | SPECIFICATIONS |
|---------------------------------------|-----------------------------------|-------------------------------------|
| Spark plug | Standard | DPR8EA-9 (NGK) X24EPR-U9 (DENSO) |
| | For cold climate (below 5°C/41°F) | DPR7EA-9 (NGK) X22EPR-U9 (DENSO) |
| Spark plug gap | | 0.8—0.9 mm (0.03—0.04 in) |
| Ignition-coil peak voltage | | 100 V minimum |
| Ignition pulse generator peak voltage | | 0.7 V minimum |
| Alternator exciter coil peak voltage | | 100 V minimum |
| Ignition timing ("F" mark) | | 14° BTDC at 1,700 rpm |

ELECTRIC STARTER

| ITEM | STANDARD | SERVICE LIMIT |
|----------------------------|-------------------|------------------|
| Starter motor brush length | 12.5 mm (0.49 in) | 9.0 mm (0.35 in) |

LIGHTS/SWITCHES

| ITEM | | SPECIFICATIONS |
|-----------|-----------------------------|------------------|
| Main fuse | | 15 A |
| Bulbs | Headlight | 12 V—35/35 W x 1 |
| | Taillight | 12 V—5 W x 1 |
| | Indicator (Reverse/neutral) | 12 V—1.7 W x 2 |

GENERAL INFORMATION

TORQUE VALUES

STANDARD

| FASTENER TYPE | TORQUE N·m (kgf·m, lbf·ft) | FASTENER TYPE | TORQUE N·m (kgf·m, lbf·ft) |
|----------------------------|-------------------------------|---------------------------------------|-------------------------------|
| 5-mm bolt and nut | 5 (0.5, 3.6) | 5-mm screw | 4 (0.4, 2.9) |
| 6-mm bolt and nut | 10 (1.0, 7) | 6-mm screw | 9 (0.9, 6.5) |
| 6-mm flange bolt (SH type) | 10 (1.0, 7) | 6-mm flange bolt (8-mm head) and nut | 12 (1.2, 9) |
| 8-mm bolt and nut | 22 (2.2, 16) | 6-mm flange bolt (10-mm head) and nut | 12 (1.2, 9) |
| 10-mm bolt and nut | 34 (3.5, 25) | 8-mm flange bolt and nut | 26 (2.7, 20) |
| 12-mm bolt and nut | 54 (5.5, 40) | 10-mm flange bolt and nut | 39 (4.0, 29) |

- Torque specifications listed below are for important fasteners.
- Others should be tightened to standard torque values listed above.

NOTES: 1. Apply locking agent to the threads.

2. Apply oil to the threads and seating surface.

3. Apply grease to the threads and seating surface.

4. Do not reuse: Replace with a new one.

5. Castle nut: Tighten to the specified torque then tighten to position suitable for cotter pin hole direction.

6. Stake.

7. Left-hand thread

ENGINE

| ITEM | Q'TY | THREAD DIA. (mm) | TORQUE N·m (kgf·m, lbf·ft) | REMARKS |
|--|------|---------------------|-------------------------------|--------------|
| MAINTENANCE: | | | | |
| Oil drain-bolt | 1 | 12 | 25 (2.5, 18) | |
| Spark plug | 1 | 12 | 18 (1.8, 13) | |
| Timing hole cap | 1 | 14 | 10 (1.0, 7) | |
| Valve adjusting hole cap | 2 | 30 | 20 (2.0, 14) | |
| Valve adjusting screw lock-nut | 2 | 6 | 17 (1.7, 12) | NOTE 2 |
| FUEL SYSTEM: | | | | |
| Carburetor insulator stud bolt | 2 | 6 | 10 (1.0, 7) | |
| CYLINDER HEAD/VALVE: | | | | |
| Cylinder head cover bolt | 9 | 6 | 12 (1.2, 9) | |
| Cylinder head flange nut | 4 | 8 | 30 (3.1, 22) | NOTE 2 |
| Carburetor insulator bolt | 2 | 6 | 10 (1.0, 7) | |
| Cylinder head 8-mm stud bolt | 2 | 8 | 6 (0.6, 4.3) | |
| CYLINDER/PISTON/CAMSHAFT: | | | | |
| Cam chain tensioner arm pivot bolt | 1 | 6 | 12 (1.2, 9) | NOTE 1 |
| Push rod end piece | 4 | 6 | 13 (1.3, 9) | |
| Front crankcase stud bolt | 2 | 8 | 12 (1.2, 9) | |
| Rear crankcase stud bolt | 2 | 8 | 12 (1.2, 9) | |
| CLUTCH: | | | | |
| Centrifugal clutch-drum lock nut | 1 | 18 | 88 (9.0, 65) | NOTE 2, 6, 7 |
| Change clutch center lock nut | 1 | 16 | 79 (8.1, 59) | NOTE 2, 6 |
| Change clutch lifter plate bolt | 4 | 6 | 12 (1.2, 9) | |
| GEARSHIFT LINKAGE: | | | | |
| Gearshift return spring pin bolt | 1 | 8 | 22 (2.2, 16) | NOTE 1 |
| Gearshift cam plate bolt | 1 | 6 | 16 (1.6, 12) | NOTE 1 |
| Gearshift A arm bolt | 1 | 8 | 25 (2.5, 18) | |
| Gearshift drum stopper arm bolt | 1 | 6 | 12 (1.2, 9) | NOTE 1 |
| ALTERNATOR/STARTER CLUTCH: | | | | |
| Flywheel bolt | 1 | 10 | 74 (7.5, 54) | NOTE 2 |
| Starter one-way clutch outer Torx bolt | 6 | 6 | 16 (1.6, 12) | NOTE 1 |
| Ignition pulse generator bolt | 2 | 5 | 6 (0.6, 4.3) | NOTE 1 |
| CRANKSHAFT/TRANSMISSION: | | | | |
| Neutral switch rotor socket-bolt | 1 | 6 | 10 (1.0, 7) | NOTE 1 |
| LIGHTS/SWITCHES: | | | | |
| Neutral switch and reverse switch | 2 | 10 | 13 (1.3, 9) | |

GENERAL INFORMATION

| FRAME | | | | |
|--|------|---------------------|-------------------------------|-----------|
| ITEM | Q'TY | THREAD DIA. (mm) | TORQUE N-m (kgf-m, lbf-ft) | REMARKS |
| FRAME/BODY PANELS/EXHAUST SYSTEM: | | | | |
| Footpeg mounting nut | 4 | 8 | 32 (3.3, 24) | |
| Skid plate bolt | 3 | 8 | 32 (3.3, 24) | |
| Muffler band bolt | 1 | 8 | 23 (2.3, 17) | |
| Exhaust pipe protector bolt | 3 | 6 | 22 (2.2, 16) | |
| MAINTENANCE: | | | | |
| Spark arrester bolt | 3 | 6 | 12 (1.2, 9) | |
| Reverse control cable adjusting nut lock nut | 1 | 6 | 7 (0.7, 5.1) | |
| ENGINE REMOVAL/INSTALLATION: | | | | |
| Engine mounting nut (Lower left/lower right) | 2 | 10 | 54 (5.5, 40) | |
| Cylinder head mounting rubber bolt | 1 | 8 | 32 (3.3, 24) | |
| ALTERNATOR/STARTER CLUTCH: | | | | |
| Gearshift pedal pinch bolt | 1 | 6 | 20 (2.0, 14) | |
| FRONT WHEEL/SUSPENSION/STEERING: | | | | |
| Handlebar lower holder nut | 2 | 10 | 39 (4.0, 29) | NOTE 4 |
| Steering shaft end nut | 1 | 14 | 108 (11.0, 80) | |
| Tie-rod ball joint nut | 4 | 12 | 54 (5.5, 40) | NOTE 4 |
| Tie-rod lock nut | 4 | 12 | 54 (5.5, 40) | |
| Steering shaft holder bolt | 2 | 8 | 32 (3.3, 24) | |
| Upper arm pivot nut | 4 | 10 | 30 (3.1, 22) | NOTE 4 |
| Lower arm pivot nut | 4 | 10 | 30 (3.1, 22) | NOTE 4 |
| Knuckle ball joint nut | 4 | 12 | 32 (3.3, 24) | NOTE 5 |
| Shock absorber upper mounting nut | 2 | 10 | 30 (3.1, 22) | NOTE 4 |
| Shock absorber lower mounting nut | 2 | 10 | 30 (3.1, 22) | NOTE 4 |
| Brake hose clamp 6-mm bolt | 4 | 6 | 12 (1.2, 9) | NOTE 1 |
| Front wheel hub nut | 2 | 14 | 69 (7.0, 51) | NOTE 5 |
| Front wheel nut | 8 | 10 | 64 (6.5, 47) | |
| Throttle case cover screw | 3 | 4 | 4 (0.4, 2.9) | |
| REAR WHEEL/BRAKE/SUSPENSION: | | | | |
| Shock absorber upper mounting nut | 1 | 10 | 44 (4.5, 33) | NOTE 4 |
| Shock absorber lower mounting bolt | 1 | 10 | 44 (4.5, 33) | |
| Rear axle nut | 1 | 32 | 39 (4.0, 29) | |
| Rear axle nut lock nut | 1 | 32 | 127 (13.0, 94) | NOTE 1 |
| Rear wheel hub nut | 2 | 18 | 147 (15.0, 108) | NOTE 3, 5 |
| Rear wheel nut | 8 | 10 | 64 (6.5, 47) | |
| Swingarm right pivot bolt | 1 | 30 | 112 (11.4, 82) | |
| Swingarm left pivot adjusting bolt | 1 | 30 | 4 (0.4, 2.9) | |
| Swingarm left pivot lock nut | 1 | 30 | 112 (11.4, 82) | |
| Rear brake arm nut | 1 | 6 | 12 (1.2, 9) | |
| Rear brake panel drain bolt | 1 | 8 | 12 (1.2, 9) | |
| HYDRAULIC DISC BRAKE: | | | | |
| Brake disc cover bolt | 2 | 6 | 12 (1.2, 9) | |
| Brake disc bolt | 6 | 8 | 42 (4.3, 31) | NOTE 4 |
| Master cylinder reservoir cap screw | 2 | 4 | 1.5 (0.15, 1.1) | |
| Brake hose oil bolt | 3 | 10 | 34 (3.5, 25) | |
| Brake pipe bolt | 2 | 10 | 17 (1.7, 12) | |
| Brake caliper/bracket mounting bolt | 4 | 8 | 30 (3.1, 22) | NOTE 4 |
| Brake caliper bleed valve | 2 | 8 | 6 (0.6, 4.3) | |
| Brake caliper pad pin plug | 4 | 10 | 3 (0.3, 2.2) | |
| Brake caliper pad pin | 4 | 10 | 18 (1.8, 13) | |
| Brake lever pivot bolt | 1 | 6 | 6 (0.6, 4.3) | |
| Brake lever pivot lock nut | 1 | 6 | 6 (0.6, 4.3) | |
| Brake caliper slide pin bolt | 2 | 8 | 22 (2.2, 16) | |
| Brake caliper bracket pin bolt | 2 | 8 | 18 (1.8, 13) | |

GENERAL INFORMATION

| FRAME (Cont'd) | | | | |
|--|------|---------------------|-------------------------------|---------|
| ITEM | Q'TY | THREAD DIA. (mm) | TORQUE N-m (kgf-m, lbf-ft) | REMARKS |
| REAR DRIVING MECHANISM: | | | | |
| Final gear case mounting bolt (Front/left) | 8 | 10 | 54 (5.5, 40) | |
| Final gear case cover 8-mm bolt | 6 | 8 | 25 (2.6, 19) | |
| 10-mm bolt | 2 | 10 | 49 (5.0, 36) | NOTE 1 |
| Pinion bearing lock nut | 1 | 64 | 98 (10.0, 72) | NOTE 6 |
| Final gear case drain-bolt | 1 | 8 | 12 (1.2, 9) | |
| Final gear case oil check bolt | 1 | 8 | 12 (1.2, 9) | |
| Final gear case oil cap | 1 | 30 | 12 (1.2, 9) | |
| LIGHTS/SWITCHES: | | | | |
| Headlight aim adjusting screw | 1 | 4 | 4 (0.4, 2.9) | |

TOOLS

- NOTES: 1. Alternative tool.
 2. Equivalent commercially available in U.S.A.
 3. Not available in U.S.A.

| DESCRIPTION | TOOL NUMBER | REMARKS | REF. SECTION |
|-------------------------------------|---------------|--|-----------------------|
| Carburetor float level gauge | 07401-0010000 | | 5 |
| Flywheel holder | 07725-0040000 | NOTE 2 | 10 |
| Rotor puller | 07733-0010000 | NOTE 1: 07933-2000000 | 10 |
| Remover weight | 07741-0010201 | NOTE 1: 07936-371020A (U.S.A. only) or 07936-3710200 (U.S.A. only) | 9, 12,14,16 |
| Valve guide driver, 5.5 mm (IN) | 07742-0010100 | | 7 |
| Attachment, 32 x 35 mm | 07746-0010100 | | 9, 10, 12, 13 |
| Attachment, 37 x 40 mm | 07746-0010200 | | 13 |
| Attachment, 42 x 47 mm | 07746-0010300 | | 12, 13 |
| Attachment, 52 x 55 mm | 07746-0010400 | | 12, 16 |
| Attachment, 62 x 68 mm | 07746-0010500 | | 14, 16 |
| Attachment, 72 x 75 mm | 07746-0010600 | | 12 |
| Attachment, 22 x 24 mm | 07746-0010800 | | 16 |
| Driver, 22 mm I.D. | 07746-0020100 | | 13 |
| Driver, 40 mm I.D. | 07746-0030100 | | 13, 16 |
| Attachment, 30 mm I.D. | 07746-0030300 | | 16 |
| Pilot, 15 mm | 07746-0040300 | | 9, 12, 13 |
| Pilot, 17 mm | 07746-0040400 | | 13, 14 |
| Pilot, 20 mm | 07746-0040500 | | 12, 13 |
| Pilot, 25 mm | 07746-0040600 | | 12 |
| Pilot, 35 mm | 07746-0040800 | | 12, 16 |
| Pilot, 40 mm | 07746-0040900 | | 16 |
| Pilot, 14 mm | 07746-0041200 | | 16 |
| Bearing remover shaft | 07746-0050100 | | 13 |
| Bearing remover head, 15 mm | 07746-0050400 | | 13 |
| Driver | 07749-0010000 | | 9, 10, 12, 13, 14, 16 |
| Valve spring compressor | | | 7 |
| Valve seat cutter | | | 7 |
| - seat cutter, 29 mm (45° IN) | 07780-0010300 | NOTE 2 | |
| - seat cutter, 33 mm (45° EX) | 07780-0010800 | | |
| - flat cutter, 30 mm (32° IN) | 07780-0012200 | | |
| - flat cutter, 33 mm (32° EX) | 07780-0012900 | | |
| - interior cutter, 30 mm (60° IN) | 07780-0014000 | | |
| - cutter holder, 5.5 mm (IN) | 07781-0010101 | | |
| Pilot screw wrench | 07908-4220201 | | 5 |
| Swingarm lock nut wrench | 07908-4690003 | | 14 |
| Valve adjusting wrench, 3 mm | 07908-KE90200 | NOTE 1: 07708-0030400 | 3 |
| Snap ring pliers | 07914-SA50001 | | 15 |
| Lock nut spanner, 41 mm | 07916-9580200 | | 14 |
| Lock nut wrench, 41 mm | 07916-9580300 | | 14 |
| Lock nut wrench, 30 x 64 mm | 07916-MB00002 | | 16 |
| Puller shaft | 07931-ME4010B | | 16 |
| Special nut | 07931-HB3020A | | 16 |
| Remover handle | 07936-3710100 | | 14 |
| Bearing remover, 17 mm | 07936-3710300 | | 14 |
| Bearing remover, 15 mm | 07936-KC10500 | | 9, 12 |
| Attachment, 28 x 30 mm | 07946-1870100 | | 13 |
| Oil seal driver attachment, 56.5 mm | 07947-SD90101 | | 14 |
| Driver handle | 07949-3710001 | | 13 |
| Thread adapter | 07965-KA30000 | NOTE 1: 07VMF-HM8010A (U.S.A. only) | 12 |

GENERAL INFORMATION

| DESCRIPTION | TOOL NUMBER | REMARKS | REF. SECTION |
|--------------------------------------|---------------|---|--------------|
| Oil seal driver | 07965-KE80200 | | 16 |
| Assembly collar | 07965-VM00100 | | 12, 13 |
| Assembly shaft | 07965-VM00200 | NOTE 1: 07931-ME4010B (U.S.A. only) and 07931-HB3020A (U.S.A. only) | 12 |
| Valve guide reamer, 5.5 mm | 07984-2000001 | NOTE 1: 07984-200000D (U.S.A. only) | 7 |
| Clutch center holder | 07GMB-KT70101 | NOTE 1: 07HGB-001010B (U.S.A. only) or 07HGB-001010A (U.S.A. only) and 07HGB-001020B (U.S.A. only) or 07HGB-001020A (U.S.A. only) | 9 |
| Clutch puller | 07GMC-HB30100 | NOTE 1: 07933-HB3000A (U.S.A. only) | 9 |
| Peak voltage adapter | 07HGJ-0020100 | NOTE 1: Peak voltage tester (U.S.A. only) | 18 |
| Clutch holder | 07HMB-HB70100 | NOTE 1: 07923-HB3000B (U.S.A. only) | 9 |
| Pinion puller set | 07HMC-MM80101 | NOTE 3: | 16 |
| - shaft puller | 07931-ME40000 | NOTE 1: 07931-ME4010B (U.S.A. only) and 07931-HB3020A (U.S.A. only) | 16 |
| - pinion puller base | 07HMC-MM80110 | NOTE 1: 07HMC-MM8011A (U.S.A. only) | 16 |
| Pinion puller base | 07HMC-MM8011A | | 16 |
| Oil seal driver | 07JAD-PH80101 | | 14 |
| Driver attachment | 07LAD-PW50500 | | 16 |
| Remover base | 07JAF-SH20200 | | 13 |
| Ball joint remover/installer | 07JMF-HC50110 | | 13 |
| Clutch spring compressor | 07LAE-PX40100 | | 9 |
| Ball joint remover | 07MAC-SL00200 | | 13 |
| Pilot, 32 mm | 07MAD-PR90200 | | 14 |
| Bearing remover head, 14 mm | 07WMC-KFG0100 | or 07936-KC10200 and 07YMC-001010A (U.S.A. only) | 16 |
| Remover shaft, 15 mm | 07936-KC10100 | | 16 |
| Differential bearing clip compressor | 07YME-HN4010A | | 16 |
| Universal bead breaker | GN-AH-958-BB1 | | 13 |

LUBRICATION & SEAL POINTS

| ENGINE | LOCATION | MATERIAL | REMARKS |
|--------|--|---|---------|
| | Cylinder bore Connecting rod big end Connecting rod small end inner surface Piston ring whole surface Piston pin outer surface Piston pin hole and piston outer surface Cylinder head flange nut threads Cam chain tensioner inner surface of pivot Cam chain and oil pump chain whole surfaces Centrifugal clutch drum lock nut threads Centrifugal clutch shoe sliding surface Centrifugal clutch drum bushing inner surface Change clutch ball retainer ball Change clutch disc linings Change clutch center lock nut threads Primary driven gear teeth One-way clutch linings of cam Flywheel bolt threads Starter gear teeth Starter driven gear teeth and needle bearing inner surface Reverse stopper shaft bearing inner surface Transmission bearings and gear teeth Transmission bushing and collar sliding surfaces Mainshaft gear teeth and bearing inner surfaces Countershaft gear teeth and bearing inner surfaces Shift fork and shift fork shaft sliding surfaces Shift fork pawl pin sliding surfaces Gearshift drum inner grooves and bearing inner surfaces Gearshift master arm bearing inner surface Gearshift A arm bolt threads Gearshift spindle outer surface and bearing inner surfaces Sub clutch lever whole surface and bearing inner surface Bearings and needle bearings | Engine oil | |
| | Valve stem sliding surfaces Camshaft journals and cam lobes Rocker arm slipper surfaces Rocker arm shaft outer surfaces Change clutch outer guide sliding surface Starter idle gear shaft outer surfaces Starter reduction gear shaft outer surfaces | Molybdenum oil solution (a mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease) | |
| | Alternator boss oil seal lip Oil seal lips | Multi-purpose grease | |
| | Camshaft retainer bolt threads Mainshaft bearing retainer bolt threads Cam chain tensioner arm pivot bolt threads Cam chain tensioner adjuster bolt threads Centrifugal oil filter cover bolt threads Gearshift drum stopper arm pivot bolt threads Gearshift return spring pin bolt threads Neutral switch rotor socket-bolt threads Gearshift cam plate bolt threads Starter one-way clutch outer Torx bolt threads Ignition pulse generator 5-mm socket bolt threads | Locking agent | |
| | Stator cord grommet | Sealant | |



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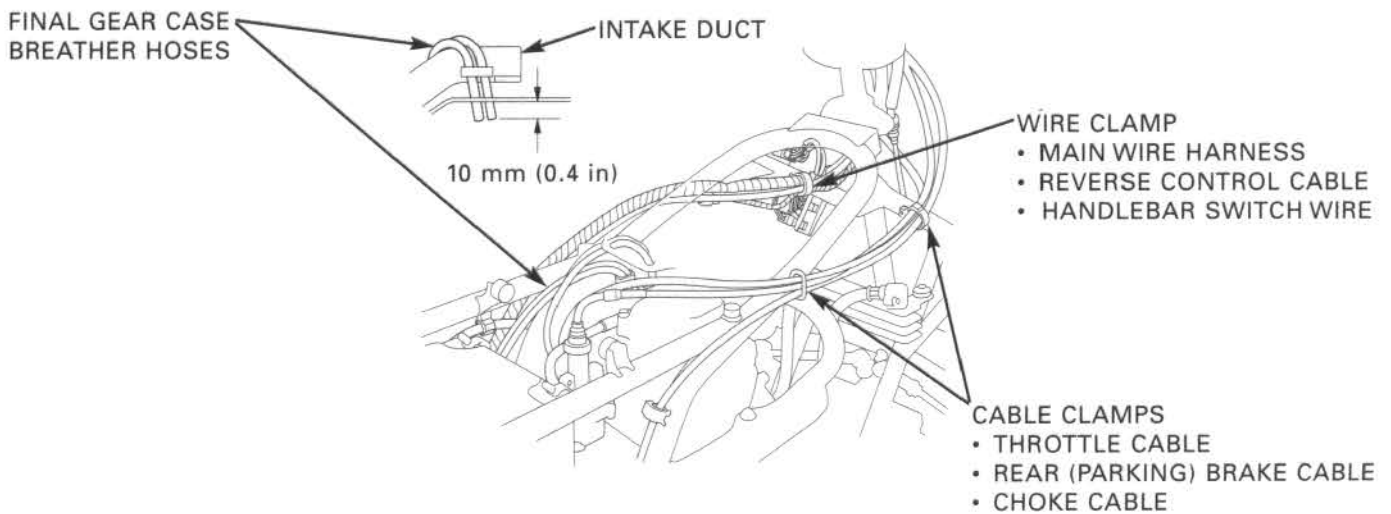
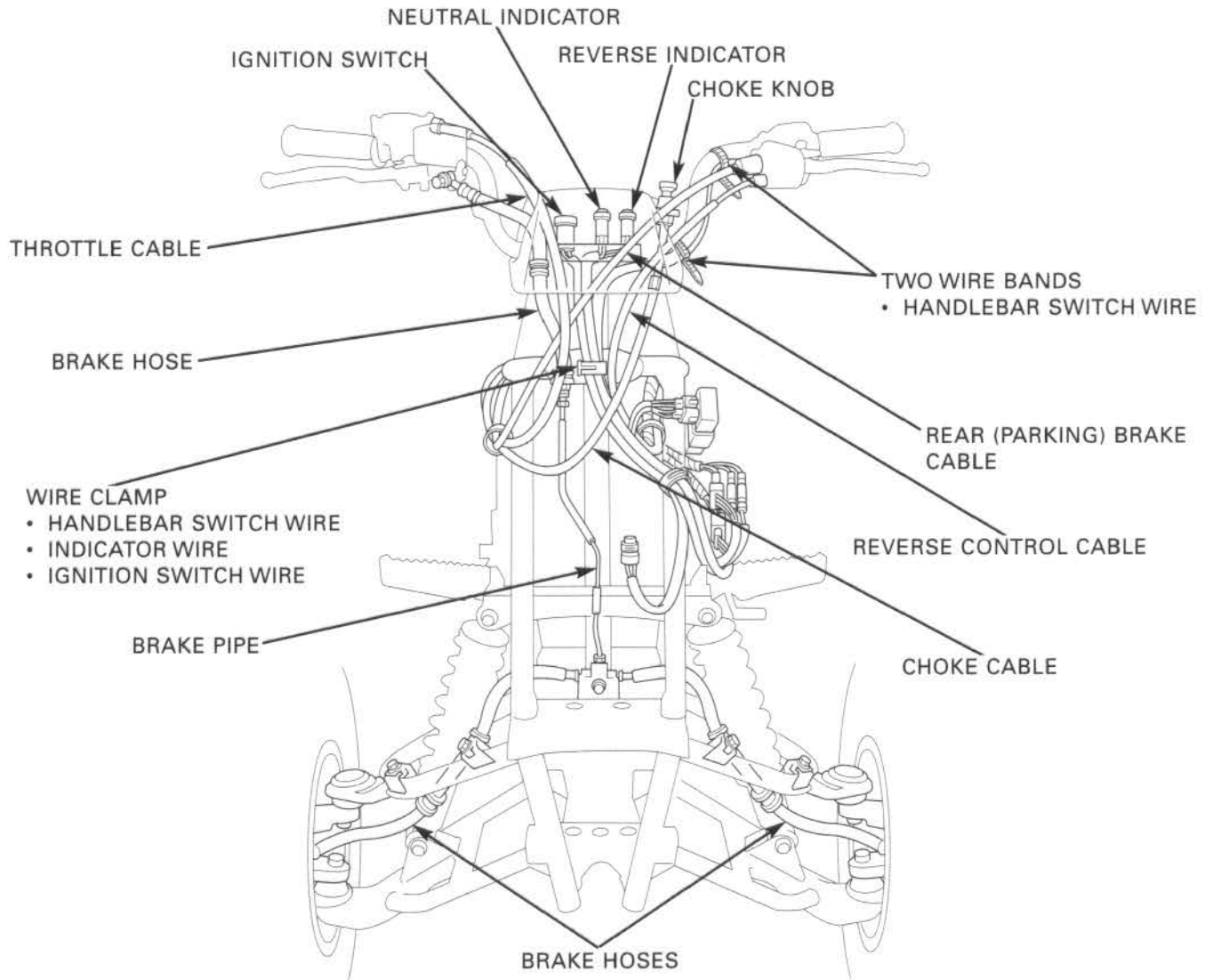
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GENERAL INFORMATION

| FRAME | LOCATION | MATERIAL | REMARKS |
|-------|--|---|--|
| | Steering bushing sliding surface Steering shaft oil seal lips Steering shaft dust seal lips Front wheel hub dust seal lips Rear brake cable end and parking brake cable end Rear brake cam dust seal lips Rear brake panel dust seal lips Rear brake panel dust seal side lip Rear brake cam shaft sliding surface Rear brake shoe-to-brake cam contacting surface Rear brake shoe-to-anchor pin contacting surface Brake pedal shaft sliding surface Brake pedal dust seal lips Brake lever pivot sliding surface Brake lever parking arm pin sliding surface Rear brake panel O-ring Final gear case pinion joint oil seal lips Final gear case ring gear oil seal lips Final gear case oil cap O-ring Swingarm bearing and grease holder Swingarm bearing dust seal lips Throttle cable end and throttle lever side threaded portion Oil seal lips and dust seal lips | Multi-purpose grease | Spreading 2.5—3.0 g (0.09 – 0.11 oz) Spreading 0.5—1.0 g (0.02 – 0.04 oz) Spreading 0.5—1.0 g (0.02 – 0.04 oz) Spreading 0.5—1.0 g (0.02 – 0.04 oz) Fill up 3 g (0.1 oz) minimum |
| | Rear brake cam felt seal | Engine oil | |
| | Brake master cylinder piston seals Brake master cylinder piston Brake caliper piston Brake caliper piston seals | DOT 4 brake fluid | |
| | Front brake lever pivot Front brake lever-to master piston contacting area Brake caliper slide pin bolt sliding area Brake caliper pin sliding area | Silicone grease | |
| | Front shock absorber lower side oil seal lips Front shock absorber lower side metal bushings Rear axle shaft splines Universal joint splines Final gear case pinion joint splines Final gear case pinion joint needle bearing Rear shock absorber oil seal lips Rear shock absorber metal bushings | Molybdenum disulfide grease | page 14-12 and page 16-3 |
| | Rear axle nut lock nut threads | Locking agent | |
| | Final gear case | Hypoid gear oil SAE #80 | |
| | Final gear case-to-gear case cover mating surfaces | Liquid sealant | |
| | Air cleaner element | Pro Honda Foam Air Filter Oil or equivalent | Impregnation 20 ± 3 g (0.7 ± 0.1 oz) |
| | Each cable inside | Cable lubricant | |
| | Handle grip rubber inside | Honda bond A or Honda grip cement (U.S.A. only) | |

CABLE & HARNESS ROUTING



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