2012

HONDA

SERVICE MANUAL

TRX500FM/FPM/FE/FPE

CONTENTS

MEMO

1. GENERAL INFORMATION

SERVICE RULES

1. Use Honda Genuine 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 electrical wires as shown in the Cable & Harness Routing (page 1-23).
9. Do not bend or twist control cables. Damaged control cables will not operates smoothly and may stick or bind.
10. Do not tow your ATV behind a car or other vehicle.

ABBREVIATION

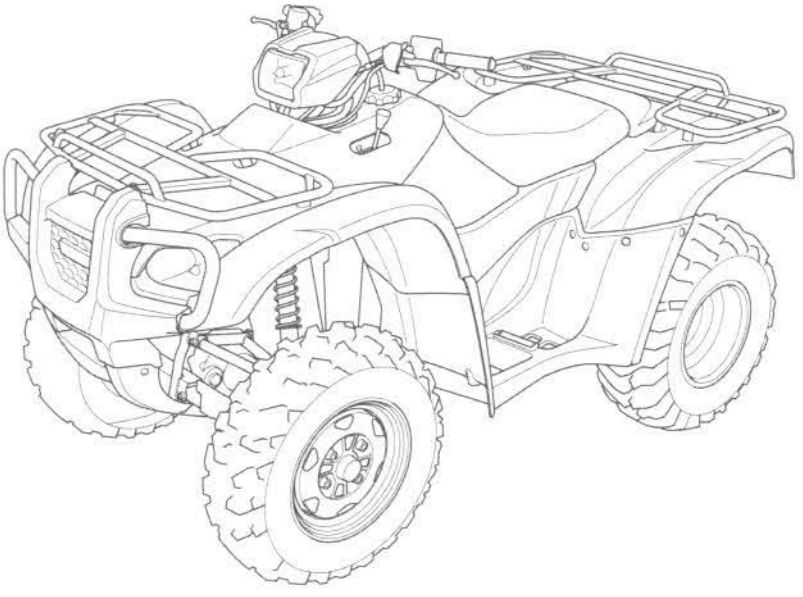
Throughout this manual, the following abbreviation are used to identify the respective parts or systems.

Abbrev. term	Full term
CKP sensor	Crankshaft Position sensor
LCD	Liquid Crystal Display
DLC	Data Link Connector
DTC	Diagnostic Trouble Code
PCM (FE/FPE models)	Powertrain Control Module
ECM (FM/FPM models)	Engine Control Module
ECT sensor	Engine Coolant Temperature sensor
EEPROM	Electrically Erasable Programmable Read Only Memory
EPS	Electric Power Steering
ESP	Electric Shift Program
ECU	Electric Control Unit
HDS	Honda Diagnostic System
IACV	Idle Air Control Valve
IAT sensor	Intake Air Temperature sensor
MAP sensor	Manifold Absolute Pressure sensor
MIL	Malfunction Indicator Lamp
PGM-FI	Programmed Fuel Injection
SCS service connector	Service Check Short service connector
TP sensor	Throttle Position sensor
VS sensor	Vehicle Speed sensor
4WD	4 Wheel Drive

MODEL IDENTIFICATION

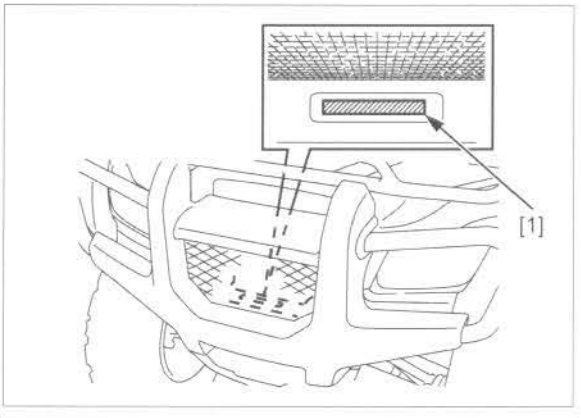
This manual covers 4 types of TRX500 models:
- FM – 4WD/Left foot operated gearshift
- FE – 4WD/Electric shift program (ESP)
- FPM – 4WD/Left foot operated gearshift/Electric Power Steering (EPS)
- FPE – 4WD/Electric shift program (ESP)/Electric Power Steering (EPS)

Be sure to refer to the procedure that pertains to the appropriate version of the TRX500.

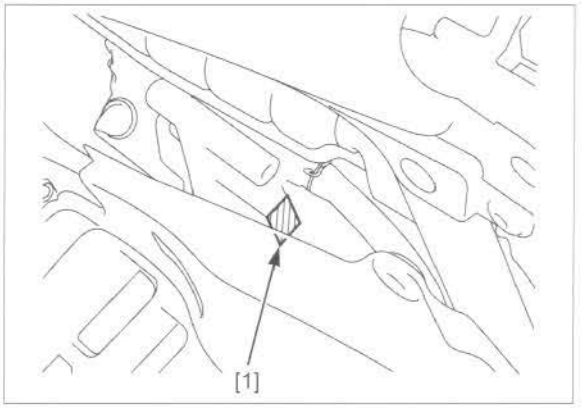


SERIAL NUMBERS

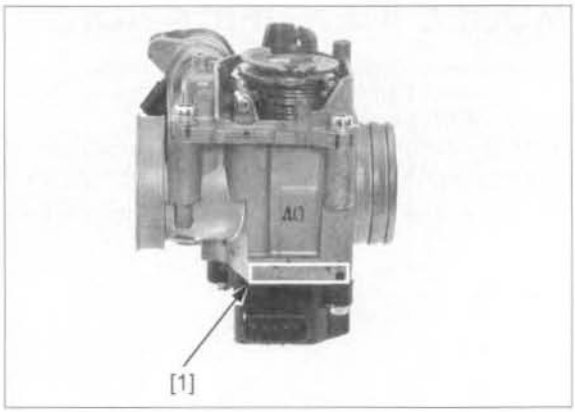
The Vehicle Identification Number (VIN) [1] is stamped on the front side of the frame through the front fender.



The engine serial number [1] is stamped on the left side of the rear crankcase.

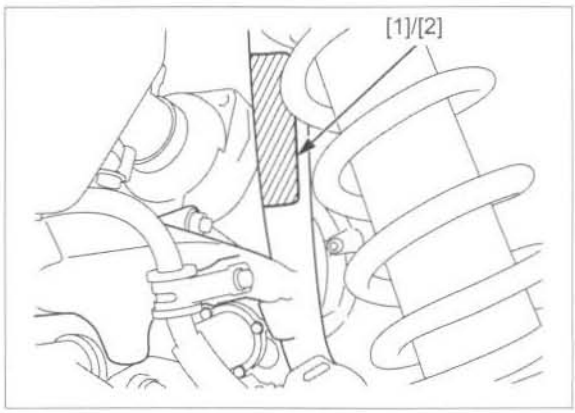


The throttle body identification number [1] is stamped on the lower side of the throttle body.

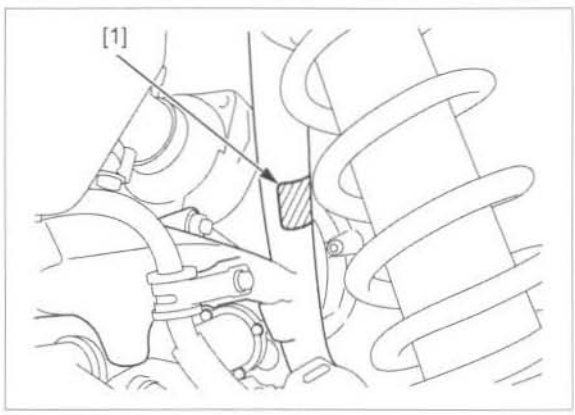


LABELS

The certification label [1] (U.S.A. type) or safety certification label [2] (Canada type) is attached on the left front frame down pipe.

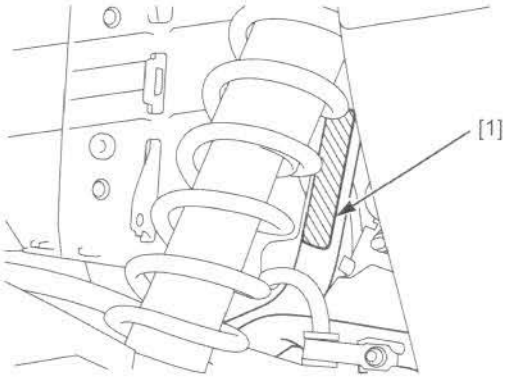


The color label [1] is attached on the left front frame down pipe. When ordering color-coded parts, always specify the designated color code.

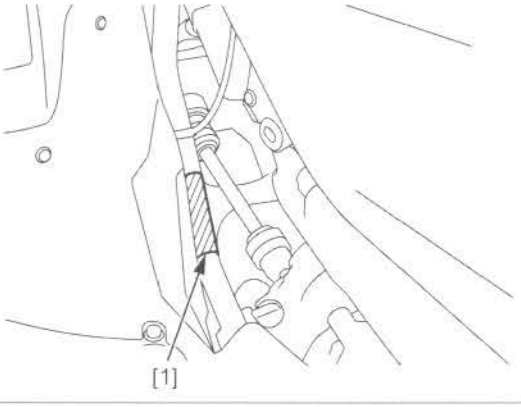


The vehicle emission control information label [1] is attached on the left front frame pipe.

U.S.A. and Canada type:



Canada type only:



SPECIFICATIONS

GENERAL SPECIFICATIONS

ITEM			SPECIFICATIONS
DIMENSIONS	Overall length		2,127 mm (83.7 in)
	Overall width		1,205 mm (47.4 in)
	Overall height		1,197 mm (47.1 in)
	Wheelbase		1,281 mm (50.4 in)
	Front tread		915 mm (36.0 in)
	Rear tread		925 mm (36.4 in)
	Seat height		881 mm (34.7 in)
	Footpeg height	FM/FPM:	365 mm (14.4 in)
		FE/FPE:	355 mm (14.0 in)
	Ground clearance		194 mm (7.6 in)
	Curb weight	FM:	U.S.A.: 284 kg (626 lbs)
			Canada: 286 kg (631 lbs)
		FE:	U.S.A.: 285 kg (628 lbs)
			Canada: 286 kg (631 lbs)
		FPM:	U.S.A.: 291 kg (642 lbs)
			Canada: 293 kg (646 lbs)
		FPE:	U.S.A.: 292 kg (644 lbs)
			Canada: 294 kg (648 lbs)
	Maximum weight capacity		220 kg (485 lbs)
FRAME	Frame type		Double cradle
	Front suspension		Double wishbone
	Front wheel travel		171 mm (6.7 in)
	Front damper		Double tube
	Rear suspension		Swingarm (trailing type)
	Rear wheel travel		174 mm (6.9 in)
	Rear damper		Double tube
	Front tire size		AT25 x 8-12 **
	Rear tire size		AT25 x 10-12 **
	Front rim size		12 x 6.0 AT
	Rear rim size		12 x 7.5 AT
	Front tire brand		M975 (MAXXIS)
	Rear tire brand		M978 (MAXXIS)
	Front brake		Hydraulic disc brake
	Rear brake		Mechanical drum brake
	Caster angle		3°
	Trail length		11 mm (0.4 in)
	Camber angle		0°
	Fuel tank capacity		15.0 liters (3.96 US gal, 3.30 Imp gal)
	Fuel tank reserve capacity		4.6 liters (1.22 US gal, 1.01 Imp gal)
ENGINE	Cylinder arrangement		Single cylinder, longitudinally installed
	Bore and stroke		92.0 x 71.5 mm (3.62 x 2.81 in)
	Displacement		475 cm^3 (29.0 cu-in)
	Compression ratio		9.5 : 1
	Valve train		OHV
	Intake valve	opens: at 1 mm (0.04 in) lift	7° BTDC
		closes: at 1 mm (0.04 in) lift	43° ABDC
	Exhaust valve	opens: at 1 mm (0.04 in) lift	44° BBDC
		closes: at 1 mm (0.04 in) lift	1° ATDC
	Lubrication system		Forced pressure and wet sump
	Oil pump type		Trochoid
	Cooling system		Liquid cooled
	Air filtration		Oiled double urethane foam
	Engine dry weight	FM/FPM:	U.S.A.: 51.4 kg (113.3 lbs)
			Canada: 52.5 kg (115.7 lbs)
		FE/FPE:	U.S.A.: 52.3 kg (115.3 lbs)
			Canada: 53.4 kg (117.7 lbs)
FUEL DELIVERY SYSTEM	Type		PGM-FI (Programmed Fuel Injection)
	Throttle bore		36 mm (1.4 in)

ITEM			SPECIFICATIONS
DRIVE TRAIN	Clutch system		Centrifugal and multi-plate, wet
	Clutch operation system		Automatic
	Transmission		Constant mesh, 5-speeds with reverse
	Primary reduction		2.103 (61/29)
	Secondary reduction		1.875 (30/16)
	Final reduction	Front	3.231 (42/13)
		Rear	3.154 (41/13)
	Gear ratio	1st	4.230 (55/13)
		2nd	2.388 (43/18)
		3rd	1.608 (37/23)
		4th	1.178 (33/28)
		5th	0.848 (28/33)
		Reverse	5.743 (48/13 x 28/18)
	Gearshift pattern		R – N – 1 – 2 – 3 – 4 – 5
		FM/FPM:	Left foot operated return system
		FE/FPE:	Electric shift (left hand operated) return system
ELECTRICAL	Ignition system		Full transistorized ignition
	Starting system	U.S.A.:	Electric starter motor
		Canada:	Electric starter motor and emergency recoil stater
	Charging system		Triple phase output alternator
	Regulator/rectifier		FET shorted, triple phase full wave rectification
	Lighting system		Battery

PGM-FI SYSTEM SPECIFICATIONS

ITEM	SPECIFICATIONS
IAT sensor resistance (20°C/68°F)	2.2 – 2.7 kΩ
ECT sensor resistance (40 ± 5°C/104 ± 41°F)	0.86 – 1.55 kΩ
Fuel injector resistance (20°C/68°F)	11.6 – 12.4 Ω

IGNITION SYSTEM SPECIFICATIONS

ITEM	SPECIFICATIONS
Spark plug	BKR5E-11 (NGK), K16PR-U11 (DENSO)
Spark plug gap	1.0 – 1.1 mm (0.039 – 0.043 in)
Ignition coil primary peak voltage	100 V minimum
Ignition pulse generator peak voltage	0.7 V minimum
Ignition timing ("F" mark)	10° BTDC at idle

ELECTRIC STARTER SPECIFICATIONS

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	12.0 (0.47)	6.5 (0.26)

FUEL SYSTEM SPECIFICATIONS

ITEM	SPECIFICATIONS
Throttle body identification number	GQ3RA
Idle speed	1,400 ± 100 rpm
Throttle lever freeplay	3 – 8 mm (0.1 – 0.3 in)
Fuel pressure at idle	316 – 387 kPa (3.2 – 3.9 kgf/cm^2, 46 – 56 psi)
Fuel pump flow (at 12 V)	125 cm^3 (4.2 US oz, 4.4 Imp oz) minimum/10 seconds

COOLING SYSTEM SPECIFICATIONS

ITEM		SPECIFICATIONS
Coolant capacity	Radiator and engine	1.5 liters (1.6 US qt, 1.3 Imp qt)
	Reserve tank	0.3 liter (0.3 US qt, 0.3 Imp qt)
Radiator cap relief pressure		108 – 137 kPa (1.1 – 1.4 kgf/cm^2, 16 – 20 psi)
Thermostat	Begin to open	80 – 84°C (176 – 183°F)
	Fully open	95°C (203°F)
	Valve lift	8 mm (0.3 in) minimum at 95°C (203°F)
Recommended antifreeze		Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing silicate-free corrosion inhibitors
Standard coolant concentration		1:1 mixture with distilled water

LUBRICATION SYSTEM SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Engine oil capacity	After draining	2.9 liters (3.1 US qt, 2.6 Imp qt)	–
	After draining/filter change	3.0 liters (3.2 US qt, 2.6 Imp qt)	–
	After disassembly	3.3 liters (3.5 US qt, 2.9 Imp qt)	–
Recommended engine oil		Pro Honda GN4 4-stroke oil (U.S.A. and Canada) or Honda 4-stroke oil (Canada only), or equivalent motor oil API service classification: SG or higher (except oils labeled as energy conserving on the circular API service label) JASO T 903 standard: MA Viscosity: SAE 10W-30	–
Oil pump	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15 – 0.24 (0.006 – 0.009)	0.25 (0.010)
	Side clearance	0.02 – 0.09 (0.001 – 0.004)	0.11 (0.004)

CYLINDER HEAD/VALVE SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cylinder compression at 400 rpm			600 kPa (6.1 kgf/cm^3, 87 psi)	–
Valve clearance		IN	0.15 ± 0.02 (0.006 ± 0.001)	–
		EX	0.23 ± 0.02 (0.009 ± 0.001)	–
Valve, valve guide	Valve stem O.D.	IN	5.975 – 5.990 (0.2352 – 0.2358)	5.95 (0.234)
		EX	5.955 – 5.970 (0.2344 – 0.2350)	5.93 (0.233)
	Valve guide I.D.	IN/EX	6.000 – 6.012 (0.2362 – 0.2367)	6.02 (0.237)
	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 guide projection above cylinder head	IN/EX	14.8 – 15.0 (0.58 – 0.59)	–
	Valve seat width	IN/EX	1.2 (0.05)	1.5 (0.06)
Valve spring	Free length	Inner	42.94 (1.691)	42.08 (1.657)
		Outer	43.63 (1.718)	42.76 (1.683)
Rocker arm	Arm I.D.	IN/EX	12.000 – 12.018 (0.4724 – 0.4731)	12.05 (0.474)
	Shaft O.D.	IN/EX	11.964 – 11.984 (0.4710 – 0.4718)	11.92 (0.469)
	Arm-to-shaft clearance	IN/EX	0.016 – 0.054 (0.0006 – 0.0021)	0.08 (0.003)
Camshaft and cam follower	Cam lobe height	IN	35.9400 – 36.1800 (1.41496 – 1.42441)	35.74 (1.407)
		EX	35.6811 – 35.9211 (1.40476 – 1.41421)	35.48 (1.397)
	Cam follower O.D.	IN/EX	22.467 – 22.482 (0.8845 – 0.8851)	22.46 (0.884)
	Follower bore I.D.	IN/EX	22.510 – 22.526 (0.8862 – 0.8868)	22.54 (0.887)
	Follower-to-bore clearance	IN/EX	0.028 – 0.059 (0.0011 – 0.0023)	0.07 (0.003)
Cylinder head warpage			–	0.10 (0.004)

CYLINDER/PISTON SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cylinder	I.D.		92.000 – 92.010 (3.6220 – 3.6224)	92.10 (3.626)
	Out-of-round		–	0.10 (0.004)
	Taper		–	0.10 (0.004)
	Warpage		–	0.10 (0.004)
Piston, pis-ton pin, piston ring	Piston O.D. at 15 (0.6) from bottom		91.970 – 91.990 (3.6209 – 3.6216)	91.90 (3.618)
	Piston pin hole I.D.		19.002 – 19.008 (0.7481 – 0.7483)	19.04 (0.750)
	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)	0.08 (0.003)
	Piston ring end gap	Top	0.15 – 0.30 (0.006 – 0.012)	0.5 (0.02)
		Second	0.30 – 0.45 (0.012 – 0.018)	0.6 (0.02)
		Oil (side rail)	0.20 – 0.70 (0.008 – 0.028)	0.9 (0.04)
	Piston ring-to-ring groove clearance	Top	0.030 – 0.060 (0.0012 – 0.0024)	0.09 (0.004)
		Second	0.030 – 0.060 (0.0012 – 0.0024)	0.09 (0.004)
Cylinder-to-piston clearance			0.010 – 0.040 (0.0004 – 0.0016)	0.10 (0.004)
Connecting rod small end I.D.			19.020 – 19.041 (0.7488 – 0.7496)	19.07 (0.751)
Connecting rod-to-piston pin clearance			0.020 – 0.047 (0.0008 – 0.0019)	0.10 (0.004)

CLUTCH/GEARSHIFT LINKAGE SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Centrifugal clutch	Drum I.D.		150.0 – 150.2 (5.906 – 5.913)	150.4 (5.92)
	Weight lining thickness		2.0 (0.08)	1.3 (0.05)
	Clutch spring height		2.96 (0.117)	2.84 (0.112)
	Clutch weight spring free length		24.72 (0.973)	25.7 (1.01)
Change clutch	Spring free length	FM/FPM	52.2 (2.06)	50.7 (2.00)
		FE/FPE	46.8 (1.84)	45.3 (1.78)
	Disc thickness		2.62 – 2.78 (0.103 – 0.109)	2.3 (0.09)
	Plate warpage		–	0.20 (0.008)
	Outer I.D.		29.000 – 29.021 (1.1417 – 1.1426)	29.05 (1.144)
	Outer guide	I.D.	22.000 – 22.021 (0.8661 – 0.8670)	22.05 (0.868)
		O.D.	28.959 – 28.980 (1.1401 – 1.1409)	28.93 (1.139)
	Mainshaft O.D. at clutch outer guide		21.967 – 21.980 (0.8648 – 0.8654)	21.93 (0.863)
Primary drive gear	Gear I.D.		29.000 – 29.021 (1.1417 – 1.1426)	29.05 (1.144)
	Crankshaft O.D. at drive gear		28.959 – 28.980 (1.1401 – 1.1409)	28.93 (1.139)

ALTERNATOR/STARTER CLUTCH SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Starter driven gear boss	O.D.	51.705 – 51.718 (2.0356 – 2.0361)	51.69 (2.035)
	I.D.	31.946 – 31.962 (1.2577 – 1.2583)	31.90 (1.256)
Crankshaft O.D. at starter driven gear		31.884 – 31.900 (1.2553 – 1.2559)	31.85 (1.254)

CRANKCASE/TRANSMISSION/CRANKSHAFT/BALANCER SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Shift fork	I.D.	Front, rear	13.000 – 13.021 (0.5118 – 0.5126)	13.04 (0.513)
		Center	13.000 – 13.018 (0.5118 – 0.5125)	13.04 (0.513)
	Claw thickness		4.93 – 5.00 (0.194 – 0.197)	4.5 (0.18)
	Shaft O.D.		12.966 – 12.984 (0.5105 – 0.5112)	12.96 (0.510)
Transmission	Gear I.D.	M3	25.000 – 25.021 (0.9843 – 0.9851)	25.05 (0.986)
		M5	20.000 – 20.021 (0.7874 – 0.7882)	20.05 (0.789)
		C1, C2, C4, CR	28.020 – 28.041 (1.1031 – 1.1040)	28.07 (1.105)
		Reverse idle	13.000 – 13.021 (0.5118 – 0.5126)	13.04 (0.513)
	Gear bushing O.D.	M3	24.959 – 24.980 (0.9826 – 0.9835)	24.93 (0.981)
		M5	19.966 – 19.984 (0.7861 – 0.7868)	19.94 (0.785)
		C2	27.984 – 28.005 (1.1017 – 1.1026)	27.94 (1.100)
		C1, C4, CR	27.979 – 28.000 (1.1015 – 1.1024)	27.93 (1.100)
	Gear-to-bushing clearance	M3	0.020 – 0.062 (0.0008 – 0.0024)	0.10 (0.004)
		M5	0.016 – 0.055 (0.0006 – 0.0022)	0.10 (0.004)
		C2	0.015 – 0.057 (0.0006 – 0.0022)	0.08 (0.003)
		C1, C4, CR	0.020 – 0.062 (0.0008 – 0.0024)	0.10 (0.004)
	Gear bushing I.D.	M3	22.000 – 22.021 (0.8661 – 0.8670)	22.04 (0.868)
		M5	17.016 – 17.034 (0.6699 – 0.6706)	17.06 (0.672)
		C4	25.000 – 25.021 (0.9843 – 0.9851)	25.05 (0.986)
	Mainshaft O.D.	at M3	21.959 – 21.980 (0.8645 – 0.8654)	21.93 (0.863)
		at M5	16.976 – 16.987 (0.6683 – 0.6688)	16.93 (0.667)
	Countershaft O.D.	at C4	24.959 – 24.980 (0.9826 – 0.9835)	24.93 (0.981)
	Reverse idle shaft O.D.		12.966 – 12.984 (0.5105 – 0.5112)	12.94 (0.509)
	Bushing-to-shaft clearance	M3	0.020 – 0.062 (0.0008 – 0.0024)	0.10 (0.004)
		M5	0.029 – 0.058 (0.0011 – 0.0023)	0.10 (0.004)
		C4	0.020 – 0.062 (0.0008 – 0.0024)	0.10 (0.004)
	Reverse idle gear-to-shaft clearance		0.016 – 0.055 (0.0006 – 0.0022)	0.10 (0.004)
Crankshaft	Runout		–	0.15 (0.006)
	Big end side clearance		0.05 – 0.65 (0.002 – 0.026)	0.8 (0.03)
	Big end radial clearance		0.006 – 0.018 (0.0002 – 0.0007)	0.05 (0.002)

ENGINE REMOVAL/INSTALLATION

ITEM			SPECIFICATIONS
Engine dry weight	FM/FPM	U.S.A.	51.4 kg (113.3 lbs)
		Canada	52.5 kg (115.7 lbs)
	FE/FPE	U.S.A.	52.3 kg (115.3 lbs)
		Canada	53.4 kg (117.7 lbs)
Engine oil capacity	After draining		2.9 liters (3.1 US qt, 2.6 Imp qt)
	After draining/filter change		3.0 liters (3.2 US qt, 2.6 Imp qt)
	After disassembly		3.3 liters (3.5 US qt, 2.9 Imp qt)
Coolant capacity (radiator and engine)			1.5 liters (1.6 US qt, 1.3 Imp qt)
Reverse selector lever freeplay			2 – 4 mm (0.1 – 0.2 in)

FRONT WHEEL/SUSPENSION/STEERING SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Minimum tire tread depth		–	4.0 (0.16)
Cold tire pressure	Standard	30 kPa (0.30 kgf/cm^2, 4.4 psi)	–
	With cargo	30 kPa (0.30 kgf/cm^2, 4.4 psi)	–
Tie-rod distance between the ball joints		383.1 (15.08)	–
Toe		Toe-out: 28 ± 15 (1.1 ± 0.6)	–

REAR WHEEL/SUSPENSION SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Minimum tire tread depth		–	4.0 (0.16)
Cold tire pressure	Standard	30 kPa (0.30 kgf/cm^2, 4.4 psi)	–
	With cargo	30 kPa (0.30 kgf/cm^2, 4.4 psi)	–

BRAKE SYSTEM SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Front brake	Recommended brake fluid	Honda DOT 4 brake fluid	–
	Disc thickness	3.8 – 4.2 (0.15 – 0.17)	3.0 (0.12)
	Disc runout	–	0.30 (0.012)
	Master cylinder I.D.	14.000 – 14.043 (0.5512 – 0.5529)	14.055 (0.5533)
	Master piston O.D.	13.957 – 13.984 (0.5495 – 0.5506)	13.945 (0.5490)
	Caliper cylinder I.D.	32.030 – 32.080 (1.2610 – 1.2630)	32.090 (1.2634)
	Caliper piston O.D.	31.984 – 31.998 (1.2578 – 1.2598)	31.94 (1.257)
Rear brake	Drum I.D.	180.0 – 180.2 (7.086 – 7.094)	181.0 (7.13)
	Shoe lining thickness	5.3 (0.21)	To index mark
Rear (parking) brake lever freeplay		15 – 20 mm (0.6 – 0.8 in)	–
Rear brake pedal freeplay		15 – 20 mm (0.6 – 0.8 in)	–

FRONT DRIVING MECHANISM SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Front final drive	Oil capacity	After draining	200 cm^3 (6.8 US oz, 7.0 Imp oz)	–
		After disassembly	250 cm^3 (8.5 US oz, 8.8 Imp oz)	–
	Recommended oil		Honda shaft drive oil or equivalent hypoid gear oil, SAE # 80	–
	Gear backlash		0.05 – 0.25 (0.002 – 0.010)	0.4 (0.02)
	Backlash difference		–	0.2 (0.01)
	Slip torque		14 – 17 N·m (1.45 – 1.75 kgf·m, 10 – 13 lbf·ft)	12 N·m (1.2 kgf·m, 9 lbf·ft)
	Face cam-to-housing distance		3.3 – 3.7 (0.13 – 0.15)	3.3 (0.13)
	Differential ring gear depth		6.55 – 6.65 (0.258 – 0.262)	6.55 (0.258)
	Cone spring free height		2.8 (0.11)	2.6 (0.10)

REAR DRIVING MECHANISM SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Axle runout			–	3.0 (0.12)
Rear final drive	Oil capacity	After draining	75 cm^3 (2.5 US oz, 2.6 Imp oz)	–
		After disassembly	100 cm^3 (3.4 US oz, 3.5 Imp oz)	–
	Recommended oil		Honda shaft drive oil or equivalent hypoid gear oil, SAE # 80	–
	Gear backlash		0.05 – 0.25 (0.002 – 0.010)	0.4 (0.02)
	Backlash difference		–	0.2 (0.01)
	Ring gear-to-stop pin clearance		0.3 – 0.6 (0.01 – 0.02)	–

BATTERY/CHARGING SYSTEM SPECIFICATIONS

ITEM			SPECIFICATIONS
Battery	Type		GYZ16H
	Capacity		12 V – 16 Ah
	Current leakage		0.62 mA max.
	Voltage (20°C/68°F)	Fully charged	13.0 – 13.2 V
		Needs charging	Below 12.4 V
	Charging current	Normal	1.6 A x 5 – 10 h
		Quick	8.0 A x 1.0 h
Alternator	Capacity		0.416 kW/5,000 rpm
	Charging coil resistance (20°C/68°F)		0.1 – 1.0 Ω

LIGHTS/METERS/SWITCHES SPECIFICATIONS

ITEM			SPECIFICATIONS
Bulbs	Headlight (high/low beam)		12 V - 30/30 W x 2
	Assist headlight		12 V - 45 W
	Brake/taillight		LED
	Neutral indicator		LED
	Reverse indicator		LED
	Coolant temperature indicator		LED
	MIL		LED
	4WD indicator		LED
	Meter light		LED
	EPS indicator (FPM/FPE)		LED
Fuse	Main fuse	FM/FPM	30 A
		FE/FPE	30 A x 2
	Sub-fuse		15 A x 2, 10 A x 2
	EPS fuse (FPM/FPE)		40 A

TORQUE VALUES

STANDARD TORQUE VALUES

FASTENER TYPE	TORQUE N·m (kgf·m, lbf·ft)	FASTENER TYPE	TORQUE N·m (kgf·m, lbf·ft)
5 mm bolt and nut	5.2 (0.5, 3.8)	5 mm screw	4.2 (0.4, 3.1)
6 mm bolt and nut	10 (1.0, 7)	6 mm screw	9 (0.9, 6.6)
8 mm bolt and nut	22 (2.2, 16)	6 mm flange bolt (8 mm head, small flange)	10 (1.0, 7)
10 mm bolt and nut	34 (3.5, 25)		
12 mm bolt and nut	54 (5.5, 40)	6 mm flange bolt (8 mm head, large flange)	12 (1.2, 9)
		6 mm flange bolt (10 mm head) and nut	12 (1.2, 9)
		8 mm flange bolt and nut	27 (2.8, 20)
		10 mm flange bolt and nut	39 (4.0, 29)

ENGINE & FRAME TORQUE VALUES

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

FRAME/BODY PANELS/EXHAUST SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Rear carrier bolt	4	10	74 (7.5, 55)	
Mudguard bracket nut	8	8	32 (3.3, 24)	
Muffler band bolt	2	8	23 (2.3, 17)	
Muffler cover bolt	2	6	22 (2.2, 16)	
Exhaust pipe cover band bolt	3	–	2.0 (0.2, 1.5)	
Muffler cover band screw (front side)	1	–	2.0 (0.2, 1.5)	
Muffler cover band screw (rear side)	1	–	3.2 (0.33, 2.4)	
Exhaust pipe stud bolt	2	8	6.0 (0.6, 4.4)	See page 2-15

MAINTENANCE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Spark plug	1	14	22 (2.2, 16)	
Valve adjusting screw lock nut	2	6	17 (1.7, 13)	
Valve adjusting hole cap	2	36	12 (1.2, 9)	
Timing hole cap	1	14	10 (1.0, 7)	
Engine oil drain bolt	1	12	25 (2.5, 18)	
Rear final gear case oil check bolt	1	8	12 (1.2, 9)	
Rear final gear case oil filler cap	1	30	12 (1.2, 9)	
Rear final gear case oil drain bolt	1	8	12 (1.2, 9)	
Rear final gear case skid plate bolt	3	8	32 (3.3, 24)	ALOC bolt: replace with a new one.
Front final gear case oil filler cap	1	30	12 (1.2, 9)	
Front final gear case oil drain bolt	1	8	12 (1.2, 9)	
Final clutch arm cover bolt	3	6	10 (1.0, 7)	
Front master cylinder reservoir cap screw	2	4	2.0 (0.2, 1.5)	
Tie-rod lock nut (knuckle side)	2	12	54 (5.5, 40)	See page 3-26
Tie-rod lock nut (steering arm side)	2	12	54 (5.5, 40)	Left hand threads. See page 3-26

PGM-FI SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Sensor unit torx screw (T25)	3	5	3.4 (0.3, 2.5)	
ECT sensor	1	10	12 (1.2, 9)	
Bank angle sensor mounting bolt	2	6	10 (1.0, 7)	

IGNITION SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Timing hole cap	1	14	10 (1.0, 7)	

ELECTRIC STARTER

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Starter motor case bolt	2	5	4.9 (0.5, 3.6)	
Negative brush set screw	1	5	3.7 (0.4, 2.7)	

FUEL SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Sub-fuel tank/fuel pump assembly bolt	6	6	8.8 (0.9, 6.5)	See page 7-20
Fuel joint mounting bolt	2	6	9.0 (0.9, 6.6)	
Wire harness clamp stay screw	1	5	3.4 (0.3, 2.5)	
Fuel feed hose clamp stay screw	1	5	3.4 (0.3, 2.5)	
Insulator band screw (Cylinder head side)	1	5	–	See page 7-25
Insulator band screw (Throttle body side)	1	5	–	See page 7-26
Throttle drum cover screw	1	4	1.8 (0.2, 1.3)	
IACV torx screw (T20)	2	4	2.1 (0.2, 1.5)	
Fuel injector mounting bolt	2	5	5.1 (0.5, 3.8)	

COOLING SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cooling fan nut	1	5	2.7 (0.3, 2.0)	Apply locking agent to the threads.
Fan motor bolt	3	5	5.2 (0.5, 3.8)	
Fan motor stay bolt	3	6	8.4 (0.9, 6.2)	

CYLINDER HEAD/VALVE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cylinder head nut	4	10	48 (4.9, 35)	Apply engine oil to the threads and seating surface.
Cam chain tensioner pivot bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads.
Spark plug	1	14	22 (2.2, 16)	
ECT sensor	1	10	12 (1.2, 9)	
Upper engine hanger nut (frame side)	1	10	54 (5.5, 40)	
Upper engine hanger bolt (engine side)	2	8	32 (3.3, 24)	

CYLINDER/PISTON

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cylinder stud bolt	4	10	12 (1.2, 9)	See page 11-8

CLUTCH/GEARSHIFT LINKAGE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Clutch spring bolt	4	6	13 (1.3, 10)	
Centrifugal clutch lock nut	1	20	118 (12.0, 87)	Lock nut: replace with a new one. Apply engine oil to the threads and seating surface. Stake.
Change clutch lock nut	1	18	108 (11.0, 80)	Lock nut: replace with a new one. Apply engine oil to the threads and seating surface. Stake.
Shift drum stopper arm pivot bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads.
Gearshift cam bolt	1	6	16 (1.6, 12)	Apply locking agent to the threads.
Gearshift spindle return spring pin	1	8	22 (2.2, 16)	Apply locking agent to the threads.
Gearshift spindle A stopper bolt (FM/FPM)	1	8	27 (2.8, 20)	Apply locking agent to the threads.

ALTERNATOR/STARTER CLUTCH

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Starter clutch bolt	6	8	37 (3.8, 27)	Apply locking agent to the threads.
Flywheel bolt (U.S.A. type)	1	12	108 (11.0, 80)	Apply engine oil to the threads and seating surface.
Flywheel/driven pulley bolt (Canada type)	1	12	108 (11.0, 80)	Apply engine oil to the threads and seating surface.
CKP sensor bolt	2	5	6.0 (0.6, 4.4)	Apply locking agent to the threads.

CRANKCASE/TRANSMISSION/CRANKSHAFT/BALANCER

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Mainshaft bearing setting plate bolt	2	6	12 (1.2, 9)	Apply locking agent to the threads.

ENGINE REMOVAL/INSTALLATION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Lower engine hanger nut (left and right)	2	10	54 (5.5, 40)	
Upper engine hanger nut (frame side)	1	10	54 (5.5, 40)	
Upper engine hanger bolt (engine side)	2	8	32 (3.3, 24)	
Gearshift pedal pinch bolt (FM/FPM)	1	6	20 (2.0, 15)	
Front final gear case mounting nut	2	10	44 (4.5, 32)	Lock nut: replace with a new one.

FRONT WHEEL/SUSPENSION/STEERING

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Throttle housing cover screw	3	4	1.5 (0.2, 1.1)	
Throttle housing holder screw	2	5	4.2 (0.4, 3.1)	
Throttle lever pivot nut	1	6	7.0 (0.7, 5.2)	
Meter cover stay bolt	2	8	32 (3.3, 24)	
Front wheel nut	8	10	64 (6.5, 47)	
Front wheel hub nut	2	16	78 (8.0, 58)	Castle nut: tighten to the specified torque and further tighten until its grooves align with the cotter pin hole.
Front brake disc bolt	8	8	42 (4.3, 31)	ALOC bolt: replace with a new one.
Splash guard bolt	6	6	11 (1.1, 8)	ALOC bolt: replace with a new one.
Shock absorber mounting nut	4	10	39 (4.0, 29)	Lock nut: replace with a new one.
Upper arm pivot nut	2	10	34 (3.5, 25)	Lock nut: replace with a new one.
Lower arm pivot nut	4	10	39 (4.0, 29)	Lock nut: replace with a new one.
Upper and lower arm ball joint nut	4	12	29 (3.0, 21)	Castle nut: tighten to the specified torque and further tighten until its grooves align with the cotter pin hole.
Brake hose clamp bolt	7	6	12 (1.2, 9)	ALOC bolt: replace with a new one.
Tie-rod joint nut	4	12	54 (5.5, 40)	Lock nut: replace with a new one.
Steering shaft end nut	1	14	108 (11.0, 80)	Lock nut: replace with a new one.
Steering shaft holder bolt	2	8	32 (3.3, 24)	
Steering shaft pinch bolt (FPM/FPE)	1	10	60 (6.1, 44)	ALOC bolt: replace with a new one.
EPS unit mounting nut (FPM/FPE)	2	8	22 (2.2, 16)	
Handlebar switch housing screw (FM/FPM)	2	5	4.2 (0.4, 3.1)	
Handlebar switch housing screw (FE/FPE)	3	5	4.2 (0.4, 3.1)	
Rear brake lever bracket holder screw	2	5	4.2 (0.4, 3.1)	
Front master cylinder holder bolt	2	6	12 (1.2, 9)	
Front brake caliper mounting bolt	4	8	30 (3.1, 22)	ALOC bolt: replace with a new one.

REAR WHEEL/SUSPENSION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Rear wheel nut	8	10	64 (6.5, 47)	
Shock absorber upper mounting nut	1	10	39 (4.0, 29)	Lock nut: replace with a new one.
Shock absorber lower mounting nut	1	10	39 (4.0, 29)	Lock nut: replace with a new one.
Universal joint guard bolt	2	6	10 (1.0, 7)	ALOC bolt: replace with a new one.
Swingarm pivot bolt	2	12	118 (12.0, 87)	ALOC bolt: replace with a new one.

BRAKE SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Brake hose oil bolt	3	10	34 (3.5, 25)	
Front brake caliper bleed valve	2	8	5.4 (0.6, 4.0)	
Front master cylinder reservoir cap screw	2	4	2.0 (0.2, 1.5)	
Pad pin	4	10	17 (1.7, 13)	
Pad pin plug	4	10	2.4 (0.2, 1.8)	
Front brake lever pivot bolt	1	6	1.0 (0.1, 0.7)	
Front brake lever pivot nut	1	6	5.9 (0.6, 4.4)	
Front brake light/inhibitor switch screw	1	4	1.2 (0.1, 0.9)	Apply locking agent to the threads.
Front master cylinder holder bolt	2	6	12 (1.2, 9)	
Front brake caliper mounting bolt	4	8	30 (3.1, 22)	ALOC bolt: replace with a new one.
Front brake caliper slide pin	2	8	22 (2.2, 16)	Apply locking agent to the threads.
Front brake caliper bracket pin	2	8	17 (1.7, 13)	
Rear brake arm pinch bolt/nut	1	8	20 (2.0, 15)	
Rear wheel hub nut	2	20	137 (14.0, 101)	Castle nut: tighten to the specified torque and further tighten until its grooves align with the cotter pin hole.
Rear brake panel drain bolt	1	8	12 (1.2, 9)	
Brake pipe joint bolt	2	10	14 (1.4, 10)	

FRONT DRIVING MECHANISM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Front final gear pinion bearing lock nut	1	60	98 (10.0, 72)	Lock nut: replace with a new one. Stake.
Differential ring gear bolt	11	8	49 (5.0, 36)	ALOC bolt: replace with a new one.
Front final gear case cover bolt	2	10	47 (4.8, 35)	Apply locking agent to the threads.
	4	8	25 (2.5, 18)	
Front final clutch shift fork bolt	1	6	10 (1.0, 7)	ALOC bolt: replace with a new one.
Front final clutch housing bolt	3	8	25 (2.5, 18)	
Front final gear case mounting nut	2	10	44 (4.5, 32)	Lock nut: replace with a new one.
4WD select switch	1	10	12 (1.2, 9)	
4WD select switch wire clamp bolt	1	6	10 (1.0, 7)	
Final clutch arm cover bolt	3	6	10 (1.0, 7)	

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