

2014



SERVICE MANUAL

**TRX420FA1/FA2
TRX420TM1/TE1/FM1/FM2/FE1**

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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 operate smoothly and may stick or bind.
10. Do not tow your ATV behind a car or other vehicle.

ABBREVIATION

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

Abbrev. term	Full term
CKP sensor	Crankshaft Position sensor
DLC	Data Link Connector
DTC	Diagnostic Trouble Code
ECM (TM1/FM1/FM2 models)	Engine Control Module
ECT sensor	Engine Coolant Temperature sensor
EEPROM	Electrically Erasable Programmable Read Only Memory
EOT sensor (FA1/FA2 models)	Engine Oil Temperature sensor
EPS	Electric Power Steering
ESP	Electric Shift Program
FP	Fuel Pump
IACV	Idle Air Control Valve
IAT sensor	Intake Air Temperature sensor
LCD	Liquid Crystal Display
MAP sensor	Manifold Absolute Pressure sensor
MCS	Motorcycle Communication System
MIL	Malfunction Indicator Lamp
O ₂ sensor	Oxygen sensor
PCM (TE1/FE1/FA1/FA2 models)	Powertrain Control Module
PGM-FI	Programmed Fuel Injection
SCS connector	Service Check Short connector
TP sensor	Throttle Position sensor
VS sensor	Vehicle Speed sensor
2WD	2 Wheel Drive
4WD	4 Wheel Drive

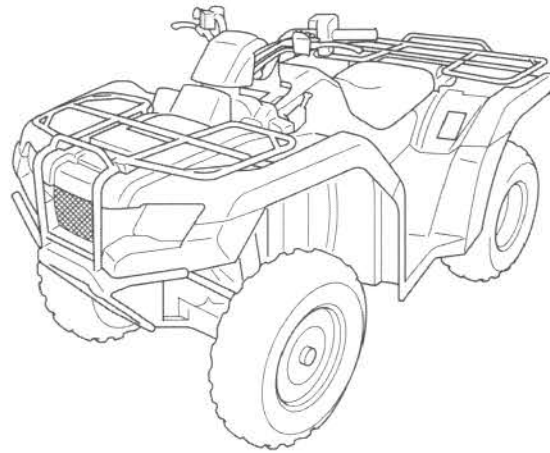
MODEL IDENTIFICATION

This manual covers 7 types of TRX420 models:

Model name	TM1	TE1	FM1	FM2	FE1	FA1	FA2
Manual transmission	○	○	○	○	○	—	—
Dual clutch transmission	—	—	—	—	—	○	○
2WD	○	○	—	—	—	—	—
4WD	—	—	○	○	○	○	○
Left foot operated gearshift	○	—	○	○	—	—	—
ESP	—	○	—	—	○	—	—
EPS	—	—	—	○	—	—	○

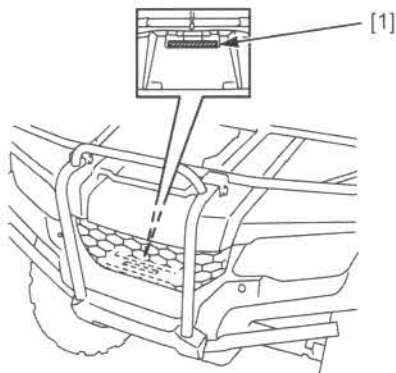
Be sure to refer to the procedure that pertains to the appropriate version of the TRX420.

FA2 model shown:

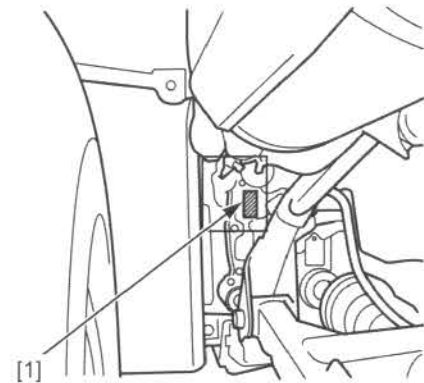


SERIAL NUMBERS/LABELS

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



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

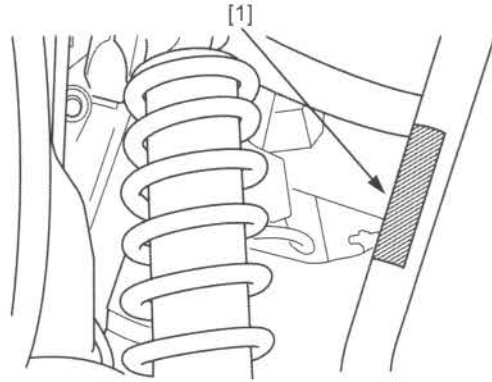


GENERAL INFORMATION

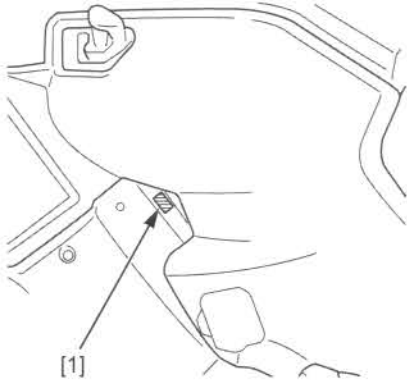
The throttle body identification number is stamped on the lower side of the throttle body.



The safety certification label [1] is attached on the left front frame down pipe.

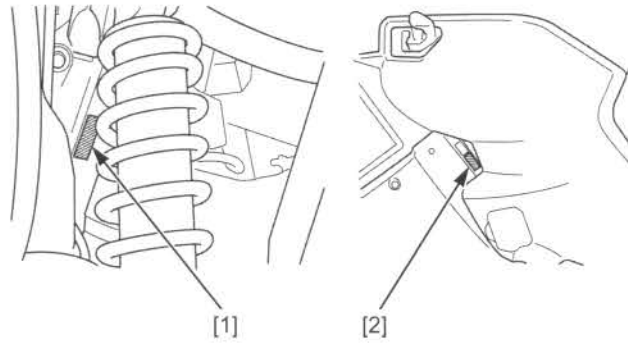


The color label [1] is attached on the left front frame down pipe. When ordering color-coded parts, always specify the designated color code.



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

- U.S.A. and Canada types [1]
- Canada type only [2]



SPECIFICATIONS

GENERAL SPECIFICATIONS

ITEM			SPECIFICATIONS	
DIMENSIONS	Overall length		2,103 mm (82.8 in)	
	Overall width		1,205 mm (47.4 in)	
	Overall height		1,174 mm (46.2 in)	
	Wheelbase		1,268 mm (49.9 in)	
	Front tread		860 mm (33.9 in)	
	Rear tread		890 mm (35.0 in)	
	Seat height		856 mm (33.7 in)	
	Footpeg height		344 mm (13.5 in)	
	Ground clearance		183 mm (7.2 in)	
	Curb weight	U.S.A.	TM1	260 kg (573 lbs)
			TE1	261 kg (575 lbs)
			FM1	276 kg (608 lbs)
			FM2	282 kg (622 lbs)
			FE1	277 kg (611 lbs)
			FA1	284 kg (626 lbs)
			FA2	290 kg (639 lbs)
		Canada	FM1	277 kg (611 lbs)
FM2			283 kg (624 lbs)	
FE1			278 kg (613 lbs)	
	FA2	291 kg (641 lbs)		
Maximum weight capacity			220 kg (485 lbs)	
FRAME	Frame type		Double cradle	
	Front suspension		Double wishbone	
	Front wheel travel		170 mm (6.7 in)	
	Front damper		Double tube	
	Rear suspension		Swingarm (trailing type)	
	Rear wheel travel		170 mm (6.7 in)	
	Rear damper		Double tube	
	Front tire size		AT24 x 8-12 **	
	Rear tire size		AT24 x 10-11 **	
	Front rim size		12 x 6.0 AT	
	Rear rim size		11 x 7.5 AT	
	Front tire brand		M977 (Maxxis)	
	Rear tire brand		M978 (Maxxis)	
	Front brake		Hydraulic disc brake	
	Rear brake		Mechanical drum brake	
	Caster angle		2°	
	Trail length		5 mm (3/16 in)	
	Camber angle		0°	
	Fuel tank capacity		14.7 liters (3.88 US gal, 3.23 Imp gal)	
	Fuel tank reserve capacity		4.9 liters (1.29 US gal, 1.08 Imp gal)	

GENERAL INFORMATION

ITEM			SPECIFICATIONS	
ENGINE	Cylinder arrangement		Single cylinder, longitudinally installed	
	Bore and stroke		86.5 x 71.5 mm (3.41 x 2.81 in)	
	Displacement		420 cm ³ (25.6 cu-in)	
	Compression ratio		9.9 : 1	
	Valve train		OHV	
	Except FA1/ FA2	Intake valve	opens	9° BTDC at 1 mm lift
			closes	44° ABDC at 1 mm lift
		Exhaust valve	opens	36° BBDC at 1 mm lift
			closes	7° ATDC at 1 mm lift
	FA1/FA2	Intake valve	opens	9° BTDC at 1 mm lift
			closes	46° ABDC at 1 mm lift
		Exhaust valve	opens	46° BBDC at 1 mm lift
			closes	4° ATDC at 1 mm lift
	Lubrication system		Forced pressure and wet sump	
	Oil pump type		Trochoid	
Cooling system		Liquid cooled		
Air filtration		Oiled double urethane foam		
Engine dry weight	TM1		49.3 kg (108.7 lbs)	
	TE1		50.3 kg (110.9 lbs)	
	FM1/FM2		49.7 kg (109.6 lbs)	
	FE1		50.7 kg (111.8 lbs)	
	FA1/FA2		56.2 kg (123.9 lbs)	
FUEL DELIVERY SYSTEM	Type		PGM-FI	
	Throttle bore		34 mm (1.3 in)	
DRIVE TRAIN (Except FA1/FA2)	Clutch system		Centrifugal and multi-plate wet clutches	
	Clutch operation system		Automatic	
	Transmission		Constant mesh, 5-speeds with reverse	
	Primary reduction		2.103 (61/29)	
	Secondary reduction		1.818 (40/22)	
	Final reduction	TM1/TE1	Rear	3.153 (41/13)
			Front	3.230 (42/13)
		Except TM1/TE1	Rear	3.153 (41/13)
	Gear ratio	1st		3.857 (54/14)
		2nd		2.235 (38/17)
		3rd		1.571 (33/21)
		4th		1.178 (33/28)
		5th		0.848 (28/33)
Reverse		4.831 (46/14 x 25/17)		
Gearshift pattern	TM1/ FM1/FM2	R - N - 1 - 2 - 3 - 4 - 5		
		Left foot operated return system		
	TE1/FE1	R - N - 1 - 2 - 3 - 4 - 5 Electric shift (left hand operated) return system		
DRIVE TRAIN (FA1/FA2)	Clutch system		Centrifugal and 2 multi-plate wet clutches	
	Clutch operation system		Automatic	
	Transmission		Automatic, 5-speeds with reverse	
	Primary reduction		2.680 (67/25)	
	Secondary reduction		1.480 (37/25)	
	Final reduction	Front	3.230 (42/13)	
		Rear	3.153 (41/13)	
	Gear ratio	1st		3.058 (52/17)
		2nd		2.157 (41/19)
		3rd		1.541 (37/24)
		4th		1.178 (33/28)
		5th		0.848 (28/33)
		Reverse		3.996 (45/16 x 27/19)
Gearshift pattern		R - N - 1 - 2 - 3 - 4 - 5 Automatic and Electric shift (left hand operated) return system		

GENERAL INFORMATION

ITEM		SPECIFICATIONS
ELECTRICAL	Ignition system	Full transistorized ignition
	Starting system	Electric starter motor
	Charging system	Triple phase output alternator
	Regulator/rectifier	FET shorted, triple phase full-wave rectification
	Lighting system	Battery

PGM-FI SPECIFICATIONS

ITEM	SPECIFICATIONS
IAT sensor resistance (20°C/68°F)	2.2 – 2.7 kΩ
ECT sensor resistance (40°C/104°F)	1.0 – 1.3 kΩ
Fuel injector resistance (20°C/68°F)	11.1 – 12.3 Ω
O ₂ sensor heater resistance (20°C/68°F)	6.7 – 9.5 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
CKP sensor peak voltage	0.7 V minimum
Ignition timing ("F" mark)	10° BTDC at idle

FUEL SYSTEM SPECIFICATIONS

ITEM	SPECIFICATIONS
Throttle body identification number	GQBKA
Idle speed	1,400 ± 100 rpm
Throttle lever freeplay	3 – 8 mm (1/8 – 5/16 in)
Fuel pressure at idle	331 – 367 kPa (3.4 – 3.7 kgf/cm ² , 48 – 53 psi)
Fuel pump flow (at 12 V)	356 cm ³ (12.0 US oz, 12.5 Imp oz) minimum/10 seconds

COOLING SYSTEM SPECIFICATIONS

ITEM	SPECIFICATIONS	
Coolant capacity	Replacement	1.5 liters (1.6 US qt, 1.3 Imp qt)
	After disassembly	1.6 liters (1.7 US qt, 1.4 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	

GENERAL INFORMATION

LUBRICATION SYSTEM SPECIFICATIONS

			Unit: mm (in)	
ITEM			STANDARD	SERVICE LIMIT
Engine oil capacity	Except FA1/FA2	After draining	2.6 liters (2.7 US qt, 2.3 Imp qt)	–
		After draining/filter change	2.7 liters (2.9 US qt, 2.4 Imp qt)	–
		After disassembly	3.3 liters (3.5 US qt, 2.9 Imp qt)	–
	FA1/FA2	After draining	3.4 liters (3.6 US qt, 3.0 Imp qt)	–
		After draining/filter change	3.6 liters (3.8 US qt, 3.2 Imp qt)	–
		After disassembly	4.0 liters (4.2 US qt, 3.5 Imp qt)	–
Recommended engine oil			Pro Honda GN4 4-stroke oil (U.S.A. and Canada) 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 pressure at 5,000 rpm (80°C/176°F)			510 kPa (5.2 kgf/cm ² , 74 psi)	–
Oil pump	Tip clearance		0.15 (0.006)	0.20 (0.008)

CYLINDER HEAD/VALVE SPECIFICATIONS

				Unit: mm (in)	
ITEM			STANDARD	SERVICE LIMIT	
Cylinder compression at 400 rpm			500 kPa (5.1 kgf/cm ³ , 73 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 – 0.2366)	6.02 (0.237)
	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	11.966 – 11.984 (0.4711 – 0.4718)	–
Camshaft and cam follower	Cam lobe height	Except FA1/FA2	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)
		FA1/FA2	IN	35.1861 – 35.4261 (1.38528 – 1.39473)	34.98 (1.377)
			EX	35.3009 – 35.5409 (1.38980 – 1.39925)	35.10 (1.382)
	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)
Cylinder head warpage			–	0.10 (0.004)	

CYLINDER/PISTON SPECIFICATIONS

				Unit: mm (in)	
ITEM			STANDARD	SERVICE LIMIT	
Cylinder	I.D.		86.500 – 86.510 (3.4055 – 3.4059)	86.60 (3.409)	
	Out-of-round		–	0.10 (0.004)	
Piston, piston pin, piston ring	Piston O.D. at 15 (0.6) from bottom		86.470 – 86.490 (3.4043 – 3.4051)	86.42 (3.402)	
	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 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)	–	
Second		0.030 – 0.060 (0.0012 – 0.0024)	–		
Connecting rod small end I.D.			19.020 – 19.041 (0.7488 – 0.7496)	19.07 (0.751)	

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