

UCI RACE CAR ENGINEERING

Example Pages from Honda Service Manual for CRF450X Dirt Bike

GENERAL INFORMATION

FRONT WHEEL/SUSPENSION/STEERING

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Front axle nut	1	16	88 (9.0, 65)	
Front axle holder bolt	4	8	20 (2.0, 15)	
Front spoke	36	BC3.5	3.68 (0.4, 2.7)	
Front rim lock	1	8	12 (1.2, 9)	
Front brake disc nut	6	6	16 (1.6, 12)	NOTE 4
Steering stem nut	1	26	108 (11.0, 80)	
Steering stem adjusting nut	1	30	See page 14-51	
Fork top bridge pinch bolt	4	8	22 (2.2, 16)	
Fork bottom bridge pinch bolt	4	8	20 (2.0, 15)	
Fork cap	2	39	30 (3.1, 22)	
Fork center bolt	2	22	69 (7.0, 51)	
Fork center bolt lock nut	2	12	22 (2.2, 16)	
Pressure release screw	2	5	1.2 (0.1, 0.9)	
Fork damper	2	50	34 (3.5, 25)	
Fork protector mounting bolt	6	6	7 (0.7, 5.2)	NOTE 2
Front brake disc cover bolt	2	6	13 (1.3, 10)	
Handlebar upper holder bolt	4	8	22 (2.2, 16)	
Handlebar lower holder nut	2	10	44 (4.5, 32)	NOTE 4
Clutch lever pivot bolt	1	6	See page 14-52	NOTE 6
Clutch lever pivot nut	1	6	10 (1.0, 7)	NOTE 4
Engine stop button screw	1	4	1.5 (0.2, 1.1)	
Engine starter switch housing screw	2	4	1.15 (0.1, 0.8)	
Throttle bolt (throttle side)	1	6	4 (0.4, 3.0)	
Tripmeter cable clamp screw	2	4	0.7 (0.1, 0.5)	
Steering damper mounting bolt (After '07)	2	7	20 (2.0, 15)	NOTE 2

REAR WHEEL/SUSPENSION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Rear axle nut	1	22	128 (13.1, 94)	NOTE 4
Rear spoke	32	4.5	3.7 (0.4, 2.7)	
Rear rim lock	1	8	12 (1.2, 9)	
Rear brake disc nut	6	6	16 (1.6, 12)	NOTE 4
Driven sprocket nut	6	8	32 (3.3, 24)	NOTE 4
Rear wheel bearing retainer	1	50	44 (4.5, 32)	
Swingarm pivot nut	1	14	88 (9.0, 65)	NOTE 4
Shock arm nut (swingarm side)	1	12	53 (5.4, 39)	NOTE 1, 4
Shock arm nut (shock link side)	1	12	53 (5.4, 39)	NOTE 1, 4
Shock link nut (frame side)	1	12	53 (5.4, 39)	NOTE 1, 4
Shock absorber upper mounting nut	1	10	44 (4.5, 32)	NOTE 4
Shock absorber lower mounting nut	1	10	44 (4.5, 32)	NOTE 4
Shock absorber spring lock nut	1	60	44 (4.5, 32)	
Drive chain slider screw	3	5	4.2 (0.4, 3.1)	NOTE 2
Drive chain roller bolt	1	8	12 (1.2, 9)	
Drive chain roller nut	1	6	12 (1.2, 9)	NOTE 4
Drive chain guide mounting bolt/nut	2	6	12 (1.2, 9)	NOTE 4
Drive chain adjuster lock nut	2	8	27 (2.8, 20)	NOTE 8
Shock absorber damper rod end nut	1	12	37 (3.8, 27)	NOTE 3
Shock absorber compression damping adjuster	1	27	29 (3.0, 21)	NOTE 3
Left step bracket mounting bolt (upper)	1	12	55 (5.6, 41)	
Left step bracket mounting bolt (lower)	1	8	30 (3.1, 22)	

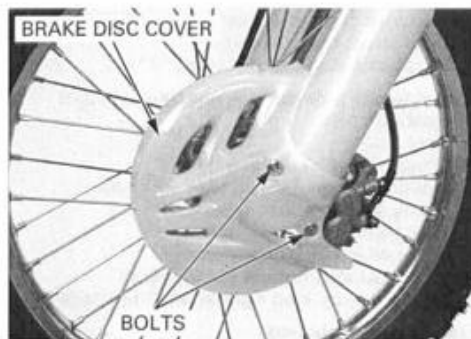
Figure 1: This shows bolt sizes and torque specs.

FRONT WHEEL/SUSPENSION/STEERING

FRONT WHEEL

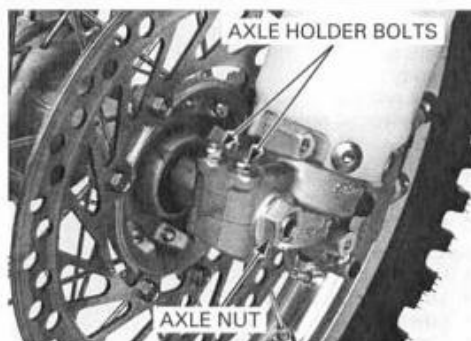
REMOVAL

Remove the bolts and brake disc cover.



Raise the front wheel off the ground by placing a workstand or equivalent under the engine.

Remove the axle nut and loosen the left axle holder bolts.



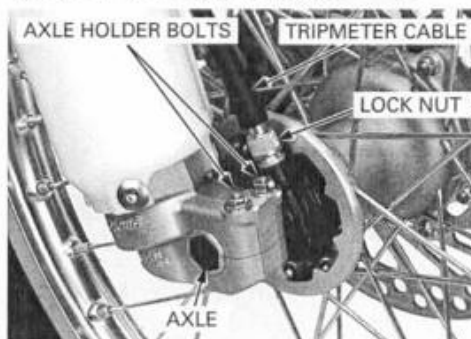
Loosen the lock nut and disconnect the tripmeter cable.

Loosen the right axle holder bolts.

Remove the axle and front wheel.

- Do not operate the brake lever after removing the front wheel. To do so will cause difficulty in fitting the brake disc between the pads.

Be careful not to damage the brake pads with the disc.



INSPECTION

AXLE

Set the axle on V-blocks and measure the runout. Turn the axle and measure the runout using a dial indicator.

Actual runout is 1/2 of the total indicator reading.

SERVICE LIMIT: 0.20 mm (0.008 in)

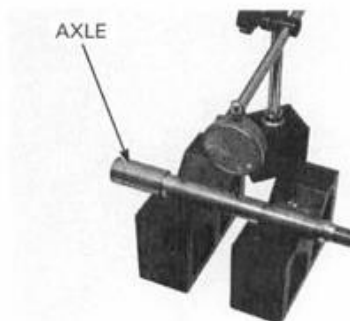


Figure 2: Example of how to remove a component

REAR WHEEL/SUSPENSION COMPONENT LOCATION

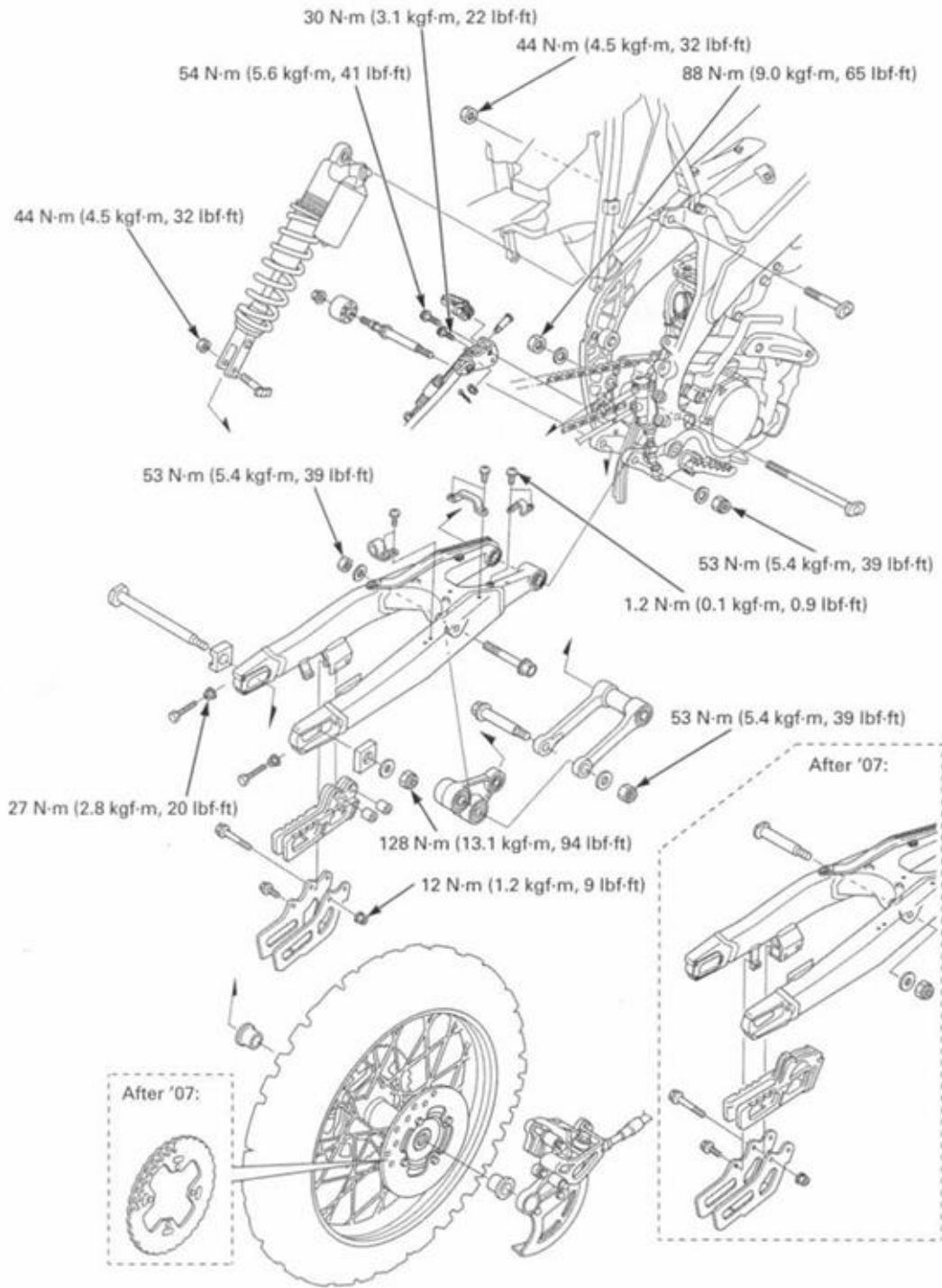


Figure 3: Torque Specs in Exploded View

SERVICE INFORMATION

GENERAL

▲WARNING

- Use only nitrogen to pressurize the shock absorber. The use of an unstable gas can cause a fire or explosion resulting in serious injury.
- The shock absorber contains nitrogen under high pressure. Do not allow fire or heat near the shock absorber.
- Before disposal of the shock absorber, release the nitrogen by pressing the valve core. Then remove the valve from the shock absorber.

- Keep grease off of the brake pads and disc.
- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- When servicing the rear wheel or suspension support the motorcycle using a workstand or equivalent under the engine.
- For optimum suspension performance and linkage component service life, the swingarm and shock linkage pivot bearing (along with related seals and bushings) should be disassembled, cleaned, inspected for wear and lubricated with multi-purpose grease NLGI No.2 (molybdenum disulfide additive) every 7.5 hours of operation (competition use only).
- Optional rear wheel sprockets, drive chain, shock springs and spring preload pin spanners are available. For optional parts (page 1-37).
- For brake system information (page 16-3).
- Use genuine Honda replacement bolts and nuts for all suspension pivot and mounting points.

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Cold tire pressure		98 kPa (1.0 kgf/cm ² , 14 psi)	-
Axle runout		-	0.20 (0.008)
Wheel rim runout	Radial	-	2.0 (0.08)
	Axial	-	2.0 (0.08)
Wheel hub-to-rim distance		See page 15-11	-
Drive chain slack		25 - 35 (1.0 - 1.4)	60 (2.4)
Drive chain width		-	13.4 (0.53)
Drive chain size/link	DID	520MXV/114	-
Drive chain slider thickness		-	5.0 (0.20)
Drive chain roller O.D.	Upper	-	39 (1.5)
	Lower	-	35 (1.4)
Shock absorber	Damper gas pressure		980 kPa (10.0 kg/cm ² , 142 psi)
	Damper compressed gas		Nitrogen gas
	Recommended shock oil		Pro Honda HP Fork Oil 5W or equivalent
	Damper rod compressed force at 12 mm compressed		20.0 - 24.0 kgf (44.1 - 52.9 lbf)
	Standard oil capacity		395 cm ³ (13.4 US oz, 13.9 Imp oz)
	Spring installed length (standard)		
High speed side compression damping adjuster standard position		'05 - '07	258.5 (10.18)
		After '07	258.0 (10.16)
Low speed side compression damping adjuster standard position		'05 - '07	3/4 - 1-1/4 turns out from full in
		After '07	7/12 - 1-1/12 turns out from full in
Rebound damping adjuster standard position		10 clicks out from full in	-
Rebound damping adjuster standard position		'05 - '07	11 - 14 clicks out from full in
		After '07	10 - 13 clicks out from full in

Figure 4: Sample for Basic Service and Wear Limits

REAR WHEEL/SUSPENSION

TOOLS












<p>Spoke wrench, 6.6 mm 070MA-KZ30100</p>  <p>or equivalent commercially available in U.S.A.</p>	<p>Slider guide, 16 mm 07PMG-KZ40100</p>  <p>not available in U.S.A.</p>	<p>Driver 07949-3710001</p> 
<p>Driver 07749-0010000</p> 	<p>Attachment, 28 x 30 mm 07946-1870100</p> 	<p>Attachment, 40 x 42 mm 07746-0010900</p> 
<p>Attachment, 24 x 26 mm 07746-0010700</p> 	<p>Pilot, 19 mm 07746-0041400</p> 	<p>Pilot, 20 mm 07746-0040500</p> 
<p>Pilot, 22 mm 07746-0041000</p> 	<p>Pilot, 25 mm 07746-0040600</p> 	<p>Bearing remover head, 25 mm 07746-0050800</p> 

Figure 5: Special Tools for Service/Repair