

## 2024 Honda CBR500RA, CB500FA, NX500 (CB500XA) Service Info

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Source: 2024 Honda CBR500RA/CB500FA/CB500XA Factory Service Manual.

This is not a complete guide to performing maintenance on the 500s. Use this document at your own risk.

### Destination Codes

AC, II AC, III AC: 50 US state model (meets California emission standards)

CM, II CM, III CM: Canada

### Oil Level Check

Start the engine and let it idle for about 3-5 minutes and then turn it off. Wait for 2 to 3 minutes. With the bike held upright (vertical) on level (horizontal) ground, check the oil sight glass. The oil level should be between the upper and lower marks. If the oil level is below or near the lower mark, remove the oil filler cap and add oil up to the upper oil level mark. Do not overfill. Reinstall the oil filler cap (apply engine oil to the O-ring).

### Recommended Engine Oil

Pro Honda GN4 4-stroke oil or equivalent motor oil.

API service classification: SJ or higher

JASO T 903 standard: MA

Viscosity: SAE 10W-30

### Engine Oil Capacity – CBR500RA/CB500FA

2.5 liters (2.6 US qt) – oil change only

2.7 liters (2.9 US qt) – oil and filter change

### Engine Oil Capacity – CB500XA (NX500)

2.4 liters (2.5 US qt) – oil change only

2.6 liters (2.7 US qt) – oil and filter change

### Oil and Oil Filter Change

Warm up the engine before draining the oil. [Road and Trail: this resuspends any sediment so it drains out with the oil.]

Oil drain bolt torque: 30 N.m (22 lbf.ft).

Apply engine oil to the threads and the O-ring of the new oil filter.

Oil filter torque: 26 N.m (19 lbf.ft).

## Engine Idle Speed

Warm up the engine to normal operating temperature prior to idle speed measurement.

Idle speed: 1200 +/- 100 rpm

## Coolant (Antifreeze)

The service manual states to check the coolant level of the reserve tank with the engine running at normal operating temperature. The owner's manual states to check the coolant level with the engine cold, so this is a contradiction.

The level should be between the upper and lower marks with the motorcycle held vertical on level (horizontal) ground.

Recommended Coolant: Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing corrosion protection inhibitors.

Standard coolant concentration 1:1 mixture with distilled water.

Coolant capacity, engine and radiator: 1.32 liters (1.39 US qt)

Coolant capacity, reserve tank (upper level): 0.12 liters (0.13 US qt)

## Drive Chain Slack

Chain slack CBR500RA/CB500FA: 25 – 35 mm

Chain slack NX500 (CB500XA): 30 – 40 mm

Chain slack is measured mid-way between the sprockets on the lower run, with the motorcycle on the side stand and the transmission in neutral. Generally, chain slack (vertical movement) is measured at the tightest point of the chain, as chains may wear unevenly. The chain should be properly lubricated prior to chain slack measurement.

Rear axle nut torque: 88 N.m (65 lbf.ft)

Chain adjuster lock nut torque: 27 N.m (20 lbf.ft)

## Brake Fluid

Type: Honda DOT 4 brake fluid from a sealed container

Caution: brake fluid can damage paint, plastic and rubber.

Maintenance schedule: replace brake fluid every 2 years.

## Spark Plug

Spark plug: CPR8EA-9 (NGK)

Spark plug gap: 0.8 – 0.9 mm (0.031 – 0.035 in)

These spark plugs can be cleaned and gapped.

Spark plug torque: 16 N.m (12 lbf.ft)

## Fork Fluid

Viscosity: 10W

### CBR500RA/CB500FA

Right fork fluid capacity: 511 +/- 2.5 cc

Left fork fluid capacity: 530 +/- 2.5 cc

Right fork fluid level: 72

Left fork fluid level: 143

### NX500

Right fork fluid capacity: 522 +/- 2.5 cc

Left fork fluid capacity: 500 +/- 2.5 cc

Right fork fluid level: 76

Left fork fluid level: 196

## Valve Clearances

The following is not a complete, step-by-step guide to adjusting the valve clearances.

Measure with the engine cold: below 35C (95F)

Intake: 0.16 +/- 0.03 mm (0.006 +/- 0.001 in)

Exhaust: 0.27 +/- 0.03 mm (0.011 +/- 0.001 in)

The cylinder head cover and crankshaft hole cap need to be removed. Rotate the crankshaft clockwise (when viewed from the right side) and align the "T" mark with the notch in the crankcase cover. The timing marks on the camshaft sprockets need to be flush with the cylinder head edge and the punch marks on the sprockets need to be facing upwards; if not in the correct position, rotate the crankshaft another full rotation. Measure and record the valve clearances.

If the valve clearances are not within specification, adjust the valve clearances by removing the rocker arm shafts, sliding the rocker arms outwards and replacing shims. The camshafts do not need to be removed. Be careful not to drop shims into the engine.

## Torque Values

Item	Thread Dia. (mm)	N.m	lbf.ft	Remark
<b>Standard Torque Values</b>				
5 mm bolt and nut	5	5.2	3.8	
6 mm bolt (includes SH flange bolt) and nut	6	10	7	
8 mm bolt and nut	8	22	16	
10 mm bolt and nut	10	34	25	
12 mm bolt and nut	12	54	40	
5 mm screw	5	4.2	3.1	
6 mm screw	6	9.0	6.6	
6 mm flange bolt (include NSHF) and nut	6	12	9	
8 mm flange bolt and nut	8	27	20	
10 mm flange bolt and nut	10	39	29	
<b>Specific Fasteners (incomplete list)</b>				
<b>Maintenance</b>				
Engine oil drain bolt	12	30	22	
Oil filter	20	26	19	Apply engine oil to the threads
Fuel tank mounting bolt (front side)	6	10	7	
Spark plug	10	16	12	
Crankshaft hole cap	45	18	13	Apply grease to the threads
Rocker arm shaft plug bolt	12	15	11	Apply engine oil to the threads
Rear axle nut	16	88	65	Self-lock nut
Drive chain adjusting lock nut	8	27	20	UBS nut
Drive sprocket bolt	10	54	40	
Driven sprocket nut	12	108	80	Self-lock nut
<b>Cylinder Head/Valves</b>				
Cylinder head cover bolt	6	10	7	
Rocker arm shaft plug bolt	12	15	11	Apply engine oil to the threads
Cam chain tensioner pivot bolt	6	12	9	Apply locking agent to the threads
Right crankcase cover (Clutch cable holder) bolt	6	12	9	
<b>Cooling system</b>				
Water pump mounting bolt	6	12	9	
Water pump cover drain bolt	6	13	10	
Water pump cover bolt	6	13	10	
Cylinder coolant drain bolt	6	12	9	
Thermostat cover bolt	6	12	9	
Fan motor shroud bolt	6	8.5	6.3	
Fan motor screw	4	2.8	2.1	
Cooling fan nut	3	1.1	0.8	Apply thread lock to threads

Item	Thread Dia. (mm)	N.m	lbf.ft	Remark
<b>Fuel tank</b>				
Fuel tank mounting nut (rear side)	6	12	9	Self-lock nut
Fuel tank mounting bolt (front side)	6	10	7	
Fuel pump mounting nut	6	12	9	
<b>Engine - other</b>				
Right crankcase cover bolt	6	12	9	
Left crankcase cover bolt	6	12	9	
Clutch center lock nut	22	147	108	Lock nut; replace with a new one and stake. Apply engine oil to the threads and seating surface
Gearshift pedal pivot socket bolt	8	27	20	
Drive sprocket cover bolt	6	12	9	
<b>Brakes</b>				
Brake hose oil bolt	10	34	25	
Brake caliper bleed valve	8	5.4	4.0	
Brake caliper pad pin, front and rear	10	17	13	
Brake pipe joint nut (ABS)	10	14	10	Apply brake fluid to the threads
<b>Front Brake</b>				
Front master cylinder holder bolt	6	12	9	
Front brake caliper assembly bolt – CBR500RA/CB500FA	10	37	27	Apply locking agent to the threads
Front brake caliper pin – NX500	8	22	16	Apply locking agent to the threads
Front brake caliper mounting bolt – CBR500RA/CB500FA	10	45	33	Replace with new one
Front brake caliper mounting bolt – NX500	8	30	22	Replace with new one
<b>Rear Brake</b>				
Rear master cylinder mounting bolt	6	12	9	
Rear master cylinder push rod joint nut	8	17	13	
Rear brake caliper bolt	8	22	16	Replace with a new one
Rear brake caliper pin bolt	12	27	20	
Rear brake disc bolt	8	42	31	Replace with new one
Front brake disc socket bolt	6	20	15	Replace with new one
<b>Exhaust</b>				
Muffler mounting nut	8	22	16	
Muffler band bolt	8	22	16	
Exhaust pipe joint nut	8	18	13	
Exhaust pipe cover bolt	6	12	9	

Item	Thread Dia. (mm)	N.m	lbf.ft	Remark
<b>Side stand, Footpegs</b>				
Side stand pivot bolt		10	7	Loosen 1/8 to ¼ turn after tightening
Side stand pivot nut	10	30	22	Self-lock. Hold pivot bolt securely.
Rider footpeg bracket bolt	8	37	27	
Passenger footpeg bracket bolt	8	37	27	
Seat rail mounting upper nut	10	60	44	Refers to sub-frame
Seat rail mounting lower bolt	10	60	44	
<b>Front wheel, front suspension, steering</b>				
Front axle – CBR500RA/CB500FA	16	59	44	
Front axle bolt – NX500	12	59	44	
Front axle pinch bolt – CBR500RA/CB500FA	8	22	16	
Front axle pinch bolt – NX500	8	22	16	
Fork cap	44.5	35	26	
Top bridge pinch bolt	8	22	16	
Bottom bridge pinch bolt – CBR500RA/CB500FA	10	32	24	
Bottom bridge pinch bolt – NX500	8	22	16	
Handlebar pinch bolt – CBR500RA	8	27	20	
Handlebar upper holder bolt – CB500FA/NX500	8	27	20	
Handlebar lower holder nut – CB500FA	8	27	20	
Handlebar lower holder nut – NX500	10	39	29	
Steering bearing adjustment nut – CBR500RA/CB500FA	26	23	17	Apply engine oil or urea-based multi- purpose grease to the threads
Steering bearing adjusting nut – NX500	26	27	20	Apply engine oil or urea-based multi- purpose grease to the threads
Steering stem nut	24	103	76	
<b>Rear wheel, rear suspension</b>				
Shock absorber mounting nut	10	44	32	Self-lock nut
Shock linkage nut	10	44	32	Self-lock nut
Swingarm pivot nut	14	88	65	Self-lock nut. Apply engine oil to the threads and seating surface.
Rear brake disc bolt	8	42	31	Replace with a new one
Driven sprocket nut	12	108	80	Self-lock nut
Rear axle nut	16	88	65	Self-lock nut

Item	Thread Dia. (mm)	N.m	lbf.ft	Remark
<b>Engine removal / installation</b>				
Front engine hanger bolt	10	45	33	See page 15-8 (see below)
Upper engine hanger bolt	10	60	44	See page 15-8 (see below)
Rear engine hanger nut	10	55	41	See page 15-8 (see below)
Drive sprocket bolt	10	54	40	
Right crankcase cover (clutch cable holder) bolt	6	12	9	
EOP switch terminal screw	4	2.0	1.5	

**Engine mounting (installation) bolt/nut tightening sequence:**

1. Rear engine hanger nut, lower
2. Rear engine hanger nut, upper
3. Upper engine hanger bolt, left side
4. Upper engine hanger bolt, right side
5. Front engine hanger bolts

**Thread diameter** in mm refers to “male” thread and is measured on the outer surface (peak, not trough) of the bolt thread (equals diameter of smooth portion of bolt shaft if not completely cut with threads).