

## **Ducati 1098 Frame torque settings – all settings in Nm**

Part Thread (mm) Nm  $\pm 10\%$  Tolerance Notes

### **Accessories and equipment**

Reflector to bracket fastener 4x0.7mm **2.5 Nm**

### **Sidestand**

read like this mm Nm

Nut securing sidestand pivot bolt 8x1.25 **24.0** LOCK 10 (GREASE B on bolt)

Bolt securing sidestand to crankcase 10x1.5 **43.0** LOCK 5

Sidestand sensor bolt 6x1 **10.0**

Sidestand sensor cable clamp bolt 6x1 **10.0**

### **Chain-Front Sprocket**

Front sprocket retaining nut 25x1.5 **186\*** GREASE B

Front sprocket cover bolt 6x1 **6.0**

### **Lights and reflectors**

Headlight support bolt 8x1.25 **25.0** LOCK 2

Lower bolt securing headlight to support 6x1 **10.0**

Turn indicator retaining nut 10x1.25 **5.0**

Tail light retaining bolt 5x0.8 **3.0**

Number plate cover bolt 5x0.8 **5.0**

Number plate holder bolt 6x1 **5.0**

Number plate light bolt 4x0.7 **2,5**

Number plate holder plate bolt 6x1 **10.0**

### **Instruments**

Silent-block retaining nut 5x0.8 **3.0**

### **Front fork**

Front axle clamp bolt 8x1.25 **19\*** GREASE B:

Sequence 1-2-1

Bottom yoke bolt 8x1.25 **22\*** GREASE B:

Sequence 1-2-1

Top yoke bolt 8x1.25 **22\*** GREASE B

Steering stem nut 35x1 **30.0** GREASE B

Steering stem to bottom yoke 37x1 Fully seated LOCK 8

Steering stop bolt locknut 6x1 **10,0** LOCK 2 (on nut thread only)

Steering damper eye bolt 6x1 **8,0**

Steering damper clamp bolt 6x1 **8,0** LOCK 2

Bolt securing steering damper to top yoke 6x1 **8,0** LOCK 1

### **Electrical/electronic system**

Bolt securing ECU to battery support 6x1 **10,0**

Lights relay plate retaining bolt 5 **2,5**

Bolt securing fusebox to frame 6x1 **10,0**

Contactora cable retaining nut 6x1 **5,0**

Bolt securing horn to frame 8x1.25 **22,0**

Voltage regulator retaining bolt 6x1 **10,0**

Lambda sensor 18x1.5 **45,0**

Battery support bolt 6x1 10,0  
Battery cover retaining bolt 6x1 8,0  
Speed sensor retaining bolt 6x1 10,0  
Rear brake switch on master cylinder mounting bracket 8x1 5,0

### **Front brake**

Front brake caliper retaining bolt 10x1.5 43\* GREASE B  
Brake bleed valve 6x1 10,0  
Front/rear brake hose fitting 10x1 20,0  
Bolt securing brake master cylinder to handlebar 6x1 10,0 Sequence: 1-2-1  
Front brake hose clamp retaining bolt 5x0.8 0,8

### **Rear swingarm**

Swingarm pivot bolt nut 15x1.25 72\*  
Rear brake caliper plate centring pin 12x1.25 33\* LOCK 8  
Bolt securing chain sliders to swingarm 6x1 8,0  
Rear wheel hub retaining bolt 12x1.25 33\* GREASE B:  
sequence 1-2-1

### **Rear brake**

Rear brake master cylinder plate bolt 10x1.5 43,0 LOCK 5  
Rear brake caliper bolt 8x1.25 25\* GREASE B  
Rear brake master cylinder bolt 6x1 10,0  
Rear brake reservoir retaining bolt 6x1 2,0  
Rear brake linkage locknut 6x1 7,5

### **Handlebars - Clutch control**

Handlebar hose clamp retaining bolt 6x1 8,0  
Clamp bolt securing handlebar to fork leg 8x1.25 25\*  
Throttle twistgrip housing bolt 6x1 10,0  
Bolt securing clutch master cylinder clamp to handlebar 6x1 10,0  
Clutch hose connector 10x1 20,0  
Clutch piston retaining bolt 6x1 10,0

### **Rear shock absorber**

Nut securing rear suspension rocker arm pivot bolt 10x1.25 42\* GREASE B  
Bolt securing shock absorber to rocker arm 10x1.25 42\* GREASE B  
Bolt securing tie-rod to rocker arm 10x1.25 42\* GREASE B  
Bolt securing shock absorber and tie-rod to swingarm 10x1.25 42\* grease B

### **Front mudguard**

Front mudguard fastener 6x1 10,0 LOCK 1

### **Liquid Cooling**

Radiator pack retaining bolt 6x1 10,0  
Radiator orientation bolt 6x1 10,0  
Coolant hose guide fastener ... 2,5  
Coolant hose guide fastener ... 2,5  
Coolant (bleed) hose guide clamp on horizontal cylinder ... 1,0  
Radiator hose to expansion tank fastener ... 1,0  
Coolant drain plug on pump cover 10x1 18,0

Expansion tank to bracket fastener 6x1 3,0  
Bolt securing expansion tank bracket to cylinder head 6x1 10,0  
Radiator-expansion tank and drainage hose guide clamp ... 1,0

### **Footrests and levers**

Bolt securing footrest to frame 8x1.25 24,0 LOCK 2  
Bolt securing heel plate to footrest bracket 5x0.8 5,0 LOCK 2  
Gearchange lever tie-rod locknut 6x1 10,0  
Gearchange lever clamp retaining bolt 6x1 10,0 LOCK 1  
Gearchange rod to lever retaining nut 6x1 10,0  
Brake/gearchange lever pivot bolt 8x1.25 23,0 LOCK 2  
Locknut for rear brake pedal adjuster screw 6x1 2,5  
Rear brake linkage to brake lever pivot bolt 6x1 5,0

### **Front wheel**

Front wheel axle nut 25x1.25 63\* Shell Retinax HDX2 (apply to bolt thread)

### **Rear wheel**

Rear wheel cush drive retaining nut 10x1 48,0 LOCK 2  
Rear wheel pack retaining nut (both sides) 48x1.5 230\* GREASE B  
Rear wheel drive pin retaining bolt 8x1 25\*

### **Fuel tank**

Fuel tank centring plates retaining bolt 6x1 6,0 LOCK 2  
Bolt securing flange to fuel tank 5x0.8 6,0 LOCK 2  
Bolt securing deformation bracket to subframe 6x1 10,0  
Unions for fuel tank breather and drain hoses 7x1 2,0  
Bolt securing fuel tank to deformation bracket 8x1.25 22,0  
Bolt securing side panel brackets to fuel tank 5x0.8 2,5  
Fuel hose containment plate fastener 5x0.8 2,5  
Bolt securing fuel cap to fuel tank flange 5x0.8 5,0

### **Exhaust**

Nut securing manifold to cylinder head 6x1 10,0  
Vertical manifold heat shield retaining nut 6x1 10,0  
CO plug 10x1.25 25,0  
Nut securing exhaust to frame 6x1 10,0  
Nut securing silencer support/number plate holder to frame 6x1 8,0  
Bolt securing silencers to support 8x1.25 20,0  
Silencer rear retaining nut 5x0.8 4,0  
Nut securing Bowden cables to exhaust valve 5x0.8 6,0  
Exhaust valve actuator retaining bolt 6x1 10,0  
Rider heat shield retaining bolt 5x0.8 5,0

### **Seat**

Bolt securing rider's seat to frame 5x0.8 5,0  
Nut securing hooks to pillion seat 6x1 10,0

### **Frame**

Nut securing frame pack/engine 12x1.25 60\* GREASE B  
Nut securing subframe to frame 8x1.25 25\*

Ignition switch retaining bolt 6x1 10,0 Solid threadlocker on bolt  
Ignition switch cover retaining nut 6x1 10,0  
Nut securing lock cable end fitting to seat cowling 22x1.5 1,0 LOCK 3  
Bolt securing seat lock latch to frame 6x1 5,0

### **Oil cooler**

Oil cooler nipple on crankcase 14x1.5 25,0 LOCK 1  
Cooler oil hose union on crankcase 16x1.5 25\* Lubricate with engine oil  
Oil hose union on oil cooler 16x1.5 18\* Lubricate with engine oil  
Oil hose containment plate retaining bolt 6x1 10,0  
Bolt securing oil cooler bracket to cylinder head 6x1 10,0  
Bolt securing oil cooler pack to bracket 6x1 10,0

### **Air intake - oil breather**

Bolt securing intake funnels to base of airbox 5x0.8 5,0  
Bolt securing throttle cable guide to airbox 4x0.7 4,0 LOCK 1  
Bolt securing air ducts to airbox 6x1 5,0  
Bolt securing air ducts to headlight 6x1 4,0  
Clamp securing blow-by hose to crankcase ... 2,5

### **Fuel system - EVAP canister**

Clamp securing throttle body to intake manifold ... 2,5  
Bolt securing intake funnels to throttle body 5x0.8 2,5 LOCK 2  
Bolt securing fuel hose guide to airbox 4x0.7 2,5 LOCK 2  
Bolt securing fuel hose guide to base of airbox 5x0.8 4,0

### **Fairings**

Bolt securing windshield to headlight shell 4x0.7 1,0  
Upper bolt securing headlight shell to support 6x1 5,0  
Lower bolt securing headlight shell to support 6x1 5,0  
Bolt securing upper fairing panels to headlight shell 5x0.8 1,0  
Bolt securing right-hand fairing panel 5x0.8 1,0  
Bolt securing left-hand fairing panel 5x0.8 1,0  
Bolt securing left-hand fairing panel to frame 5x0.8 2,5  
Bolt securing right-hand fairing panel to frame 5x0.8 2,5  
Lower bolt securing RH and LH fairing panels 5x0.8 2,5  
Bolt securing shield to radiator 5x0.8 2,5  
Bolt securing splashguard to headlight support 5x0.8 1,0  
Bolt securing side panels to fairing panels 5x0.8 1,0  
Bolt securing air duct cover to air duct 5x0.8 1,0  
Bolt securing air duct cover to frame/headlight shell 5x0.8 2,5  
Front lower bolt securing fairing panels to frame 5x0.8 2,5  
Rear lower bolt securing fairing panels to frame 5x0.8 2,5  
Bolt securing side panels to fuel tank/frame 5x0.8 2,5  
Bolt securing side panels to seat cowling 5x0.8 1,0  
Bolt securing side panels to heat shield 5x0.8 1,0  
Front bolt securing seat cowling/side panels to frame 5x0.8 2,5  
Intermediate bolt securing seat cowling to frame 5x0.8 2,5

Front bolt securing seat cowling heat shield to frame 5x0.8 2,5  
Bolt securing fairing bracket to engine 6x1 10,0  
Bolt securing fairing bracket to engine 10x1.5 20,0

**\* dynamic safety-critical point; tightening torque must be within Nm ± 5%.**

**Ducati 1098 Engine torque settings – all settings in Nm**

Idler and tensioner pulley bolts M20x1 50 LOCK 2  
Camshaft pulley retaining nut M17x1 71 GREASE A  
Rocker arm shaft covers M12x1.25 15 LOCK 2  
Coolant temperature sensor on coolant outlet union M12x1.5 23 LOCK 4 – Restrain the insert when tightening  
Coil retaining screw M6x1 10  
Pulley flange retaining bolts M6x1 10  
Rocker cover bolt M6x1 10  
Exhaust manifold stud M6x1 10 LOCK 2  
Vacuum gauge connection screw on cylinder head M6x1 5 LOCK 2  
Evaporative emissions canister fitting on cylinder head M6x1 5 LOCK 2  
Air breather fitting on horizontal cylinder head M6x1 5 LOCK 2  
Air breather blanking screw on vertical cylinder head M6x1 10 LOCK 6  
Intake manifold bolt M6x1 10  
Bolts securing coolant unions to cylinder head M5x1 8 pre-applied Tecnologic 150 threadlocker  
Oil cartridge M16x1.5 11 Engine oil on gasket  
Oil cartridge nipple M16x1.5 42 LOCK 2  
Oil pick-up pipe plug M14x1.5 24 LOCK 5  
Oil drain plug M12x1.5 20  
Clutch cover oilway blanking plug M10x1.5 15 LOCK 5  
Neutral sensor M10x1.25 10  
Oil pump adapter bolt M10x1 LOCK 5  
Clutch cover inner oilway screw M10x1.5 15 LOCK 5  
Cylinder head/barrel stud M10x1.5 25 LOCK 2  
Gear stop lever bolt M8x1.25 18 LOCK 2  
Blow-by valve bolt M6x1 10  
Chain side secondary bearing retaining bolt M6x1 10 LOCK 2  
Clutch side primary bearing retaining bolt M6x1 10 LOCK 2  
Crankcase screw – idler area M6x1 10  
Outer crankcase screw M6x1 9  
Oil pick-up gauze filter bolt M6x1 14  
Left-hand side crankcase cover screw M6x1 10  
Bosch sensor bolt M6x1 10  
Right-hand side crankcase cover screw M6x1 9  
Chain cover oil circuit blanking screw M6x1 5 LOCK 5  
Right-hand side crankcase cover screw M6x1 9

Under-piston oil jet retaining screw M5x0.8 8 LOCK 2  
Oil cooler nipple M14x1.5 27 LOCK 5  
Crankcase hollow screw M8x1.25 20  
Left-hand side crankcase cover screw M6x1 10  
Drylock left-hand side crankcase cover screw M6x1 10 pre-applied Loctite 516  
Starter motor mounting bolt M6x1 10 LOCK 2  
Starter motor rear bolt M6x1 10 LOCK 2  
Idler gear shaft retaining bolt M6x1 10 LOCK 2  
Front sprocket retaining nut M24x1 190 GREASE B  
Flywheel retaining nut M24x1 330 LOCK 5  
Crankshaft grub screw M8x1.25 13  
Drilled crankshaft grub screw M8x1.25 13  
Selector drum locating screw M16x1.5 30  
Gear stop lever screw M8x1.25 18 LOCK 2  
Selector claw bolt M8x1.25 25  
Selector claw locator nut M6x1 10  
Selector claw bolt M6x1 9 LOCK 2  
Idler and tensioner pulley bolts M20x1 50 LOCK 2  
Camshaft pulley retaining nut M15x1 71 GREASE A  
Timing belt driveshaft gear nut M14x1 55 GREASE A  
Idler and tensioner pulley nut M8x1.25 25 GREASE A  
Timing belt cover screw M6x1 10 LOCK 2  
Self-tapping screw for timing belt cover filter M3.5  
Dry clutch centre nut M25x1 250 LOCK 5  
Oil filler plug M22x1.5 5  
Wet clutch centre nut M20x1 120 GREASE B  
Oil temperature sensor M12x1.5 18 LOCK 4  
Oilway blanking plug M10x1 20 LOCK 5  
Dry clutch drum bolts M8x1.25 35 LOCK 4  
Right-hand side crankcase cover screw M6x1 9  
Clutch spring bolt M5x0.8 5  
Coolant inlet union M30x1.5 25 LOCK 5  
Coolant outlet union M22x1.5 25 LOCK 5  
Pick-up sensor inspection screw M12x1 15 LOCK 2  
Water pump cover plug M10x1 20  
Spark plug M10x1 12  
Coolant pump bearing stop screw M6x1 10 LOCK 2  
Stator wiring clamp bracket bolt M6x1 10 LOCK 2  
Water pump cover plug M6x1 10  
Left-hand crankcase cover screw M6x1 10  
Inspection cover screw M6x1 4.5  
Alternator rotor/flywheel bolt M6x1 13 LOCK 2  
By-pass pump cap M15x1 25 LOCK 2  
Oil pump retaining bolt M6x1 10

Oil pump retaining bolt M8x1.25 **26**  
Oil pump retaining bolt M6x1 **10**  
Coolant outlet union M22x1.5 **25** LOCK 5  
Coolant circuit hose clamps **2.5**

**\* dynamic safety-critical point; tightening torque must be within Nm  $\pm$  5%.**

### Lubricants/Oil/Grease/Loctite

**Engine Oil** SHELL Advance Ultra 4

**Brake Fluid** DOT 4 special hydraulic brake fluid. SHELL Advance Brake DOT 4

**Chain** SAE 80-90 gear oil or special products for chains with O-rings. SHELL Advance Chain or Advance Teflon Chain

**Anti-freeze** (nitride, amine and phosphate free) 30 to 40% solution in water. SHELL Advance coolant or Glycoshell

**GREASE A** Multipurpose, medium fibre, lithium grease. SHELL Alvania R3

**GREASE B** Molybdenum disulphide grease, high mechanical stress and high temperature resistant. SHELL Retinax HDX2

**GREASE C** Bearing/joint grease for parts subject to prolonged mechanical stress. Temperature range: -10 to 110 °C. SHELL Retinax LX2

**GREASE D** Protective grease, with anti-corrosive and waterproofing properties. SHELL Retinax HD2

**GREASE E** PANKL grease - PLB 05.

**GREASE F** OPTIMOL grease - PASTE WHITE T.

**LOCK 1** Low-strength threadlocker. [Loctite 222](#)

**LOCK 2** Medium-strength threadlocker, compatible with oil. [Loctite 243](#)

**LOCK 3** High-strength threadlocker for threaded parts. [Loctite 270](#)

**LOCK 4** Flange sealant resistant to high mechanical stress and solvents. Resists high temperatures (up to 200 °C) and pressures up to 350 Atm; fills gaps up to 0.4 mm. [Loctite 510](#)

**LOCK 5** Permanent adhesive for smooth or threaded cylindrical fasteners on mechanical parts.

High resistance to mechanical stress and solvents. Temperature range: -55 to 175 °C. [Loctite 128455](#)

[LOCK 6](#) Pipe sealant for pipes and medium to large fasteners. For water and gases (except oxygen). Maximum filling capacity: 0.40 mm diameter clearance. [Loctite 577](#)

[LOCK 7](#) Speed bonder for rubber and plastics with elastomer charged ethylic base. [Loctite 480](#)

[LOCK 8](#) High-strength retaining compound for threaded parts, bearings, bushes, splines and keys. Temperature range: -55 to 150 °C. [Loctite 601](#)

[LOCK 9](#) Medium-strength threadlocker. [Loctite 401](#)

[LOCK 10](#) Product for metal parts to seal and lock cylindrical freely sliding or threaded couplings. Resistant to high mechanical stress and high temperature, excellent resistance to solvents and chemical attack. [Loctite 128443](#)

[LOCK 11](#) Instant adhesive gel offering tensile/shear strength. [Loctite 454 gel](#)