NORTON COMMANDO TORQUE SETTINGS

The torque values below come from the Norton Workshop manuals, information on the OldBritts website (http://www.oldbritts.com/ob_tech.html), a table provided in an Andover Norton newsletter, recommendations from members of the Access Norton Forum (https://www.accessnorton.com) and personal experience. The cylinder and head graphics are courtesy Grant Tiller (https://granttiller.com/).

What is listed is what I use – if it conflicts with the workshop manual or others, I explain. No, I don't actually use a torque wrench on everything listed, but I have experimented and know how tight I'm getting things.

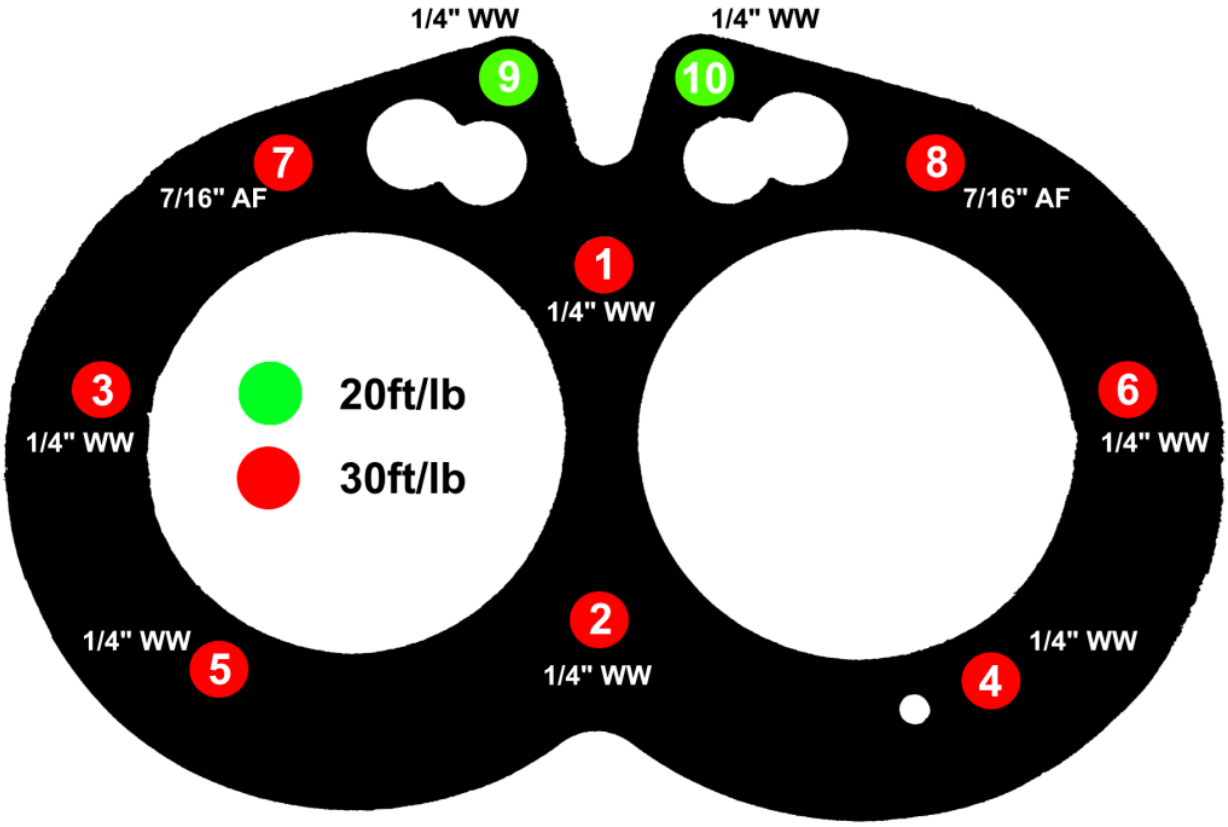
Inch Pounds	Foot Pounds	Inch Pounds	Foot Pounds
1	12	11	132
2	24	12	144
3	36	13	156
4	48	14	168
5	60	15	180
6	72	16	192
7	84	17	204
8	96	18	216
9	108	19	228
10	120	20	240

ENGINE:

- Crankcase top front nut (1/4" stud) 72 in lb)
- Crankcase top rear nut (3/8" stud) 25 ft lb.
- Crankcase bottom screws (1/4" x 20 x 1-1/4 – I use stainless steel socket cap screws, anti-seize, and 72 in lb.
- Crankcase front short bolt/nut (5/16") 15 ft lb.
- Mounting bolts (3/8 in., 4 bolts) 25 - 30 ft lb.
- Mounting bolt (5/16 in., 1 bolt) 15 ft lb.
- Cylinder head nuts (3/8 in., 8 nuts) 30 ft lb. See tightening order below
- Cylinder head nuts (5/16 in., 2 nuts) 20 ft lb. See tightening order below
- 750 Cylinder base nuts (3/8 in., 6 nuts) 25 ft lb. See tightening order below
- 750 Cylinder base nuts (5/16 in, 3 nuts) 20 ft lb. See tightening order below
- 850 Cylinder base nuts (3/8 in, 1 nut) 25 ft lb. See tightening order below
- 850 Cylinder base nuts (5/16 in, 4 nuts) 20 ft lb. See tightening order below
- 850 Cylinder barrel Allen bolts (4 bolts, 06-3085, through cylinder) 30 ft lb.
- Crankshaft stud nuts (12 nuts) 30 ft lb.
- Connecting rod nuts (4 nuts, 06-7827) 22 to 25 ft lb.
- Rocker spindle cover plate bolts (8 bolts) 8 ft lb.
- Rotor nut, Crankshaft (1 nut, 06-0387) 70 ft lb.
- Alternator mounting stud nuts (3 nuts) 15 ft lb.
- Oil pressure release valve (2 nuts) 25 ft lb.
- Spark plug 15 ft lb.

Cylinder Head Tightening Order:

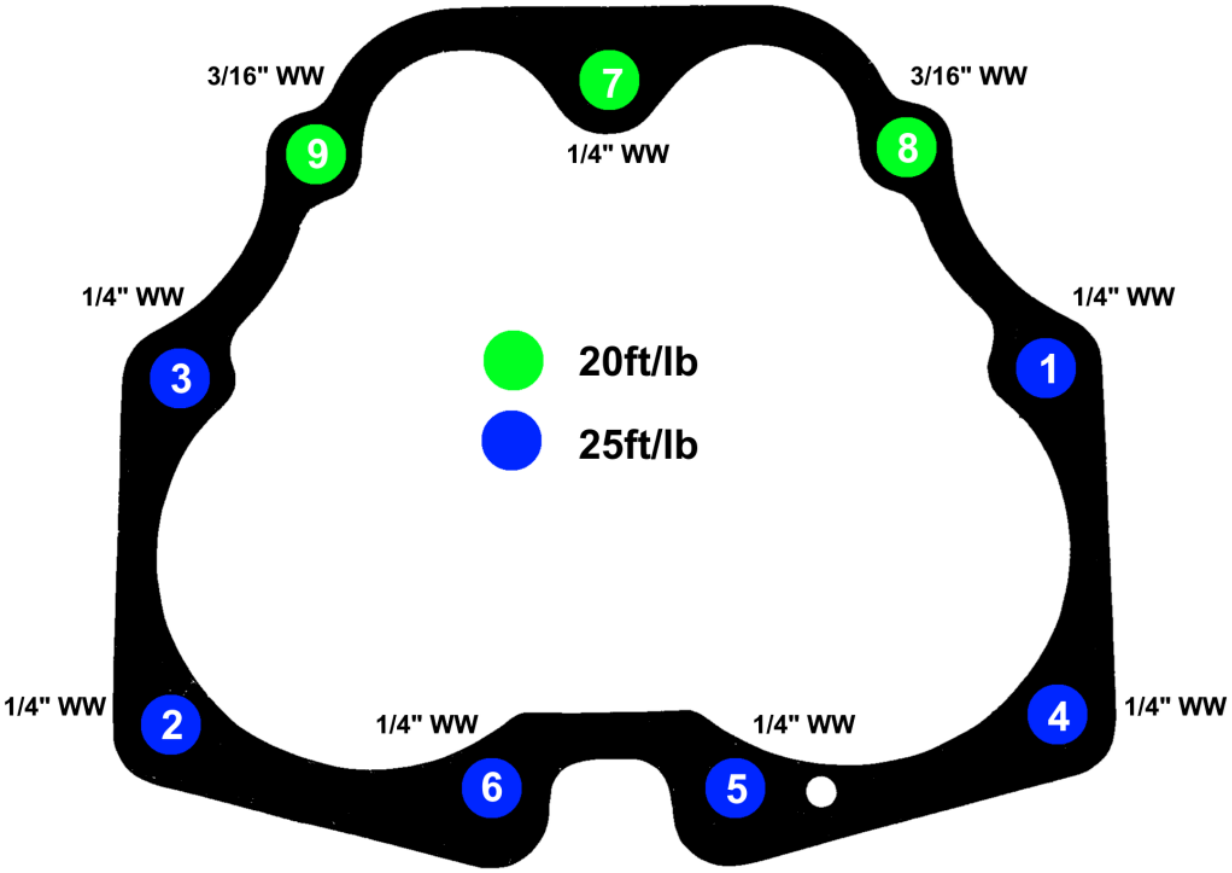
The graphic shows the tightening order (numbers), torque (colors), and wrench sizes. I Start at 10 ft lb and follow the sequence, then 15 ft lbs, and follow the sequence, and then the final torque and follow the sequence.



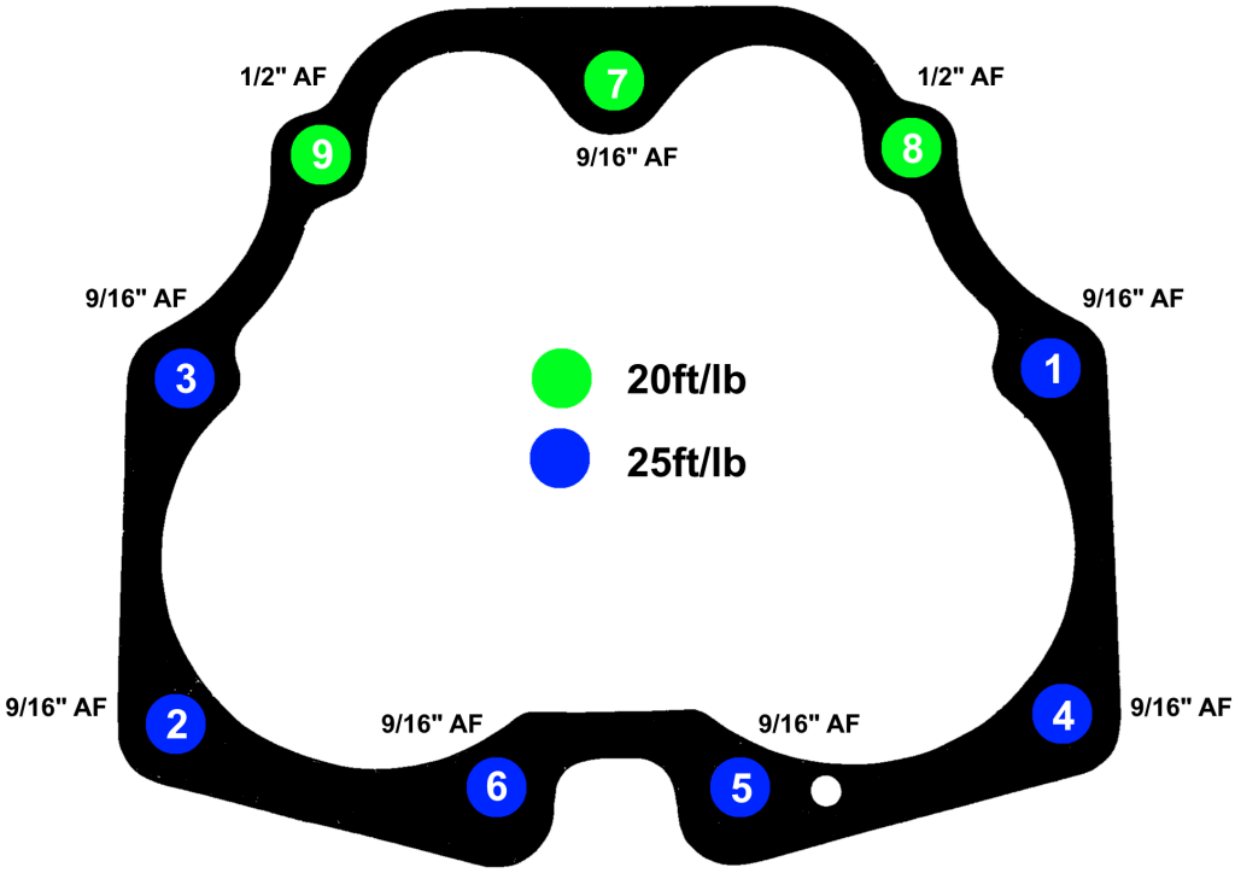
Cylinder Tightening Order:

The three graphics below show the tightening order (numbers), torque (colors), and wrench sizes for the cylinder base nuts for the 750s and the cylinder base nuts and through Allen bolts for the 850. I start at 10 ft lb and follow the sequence, then 15 ft lbs, and follow the sequence, and then the final torque and follow the sequence.

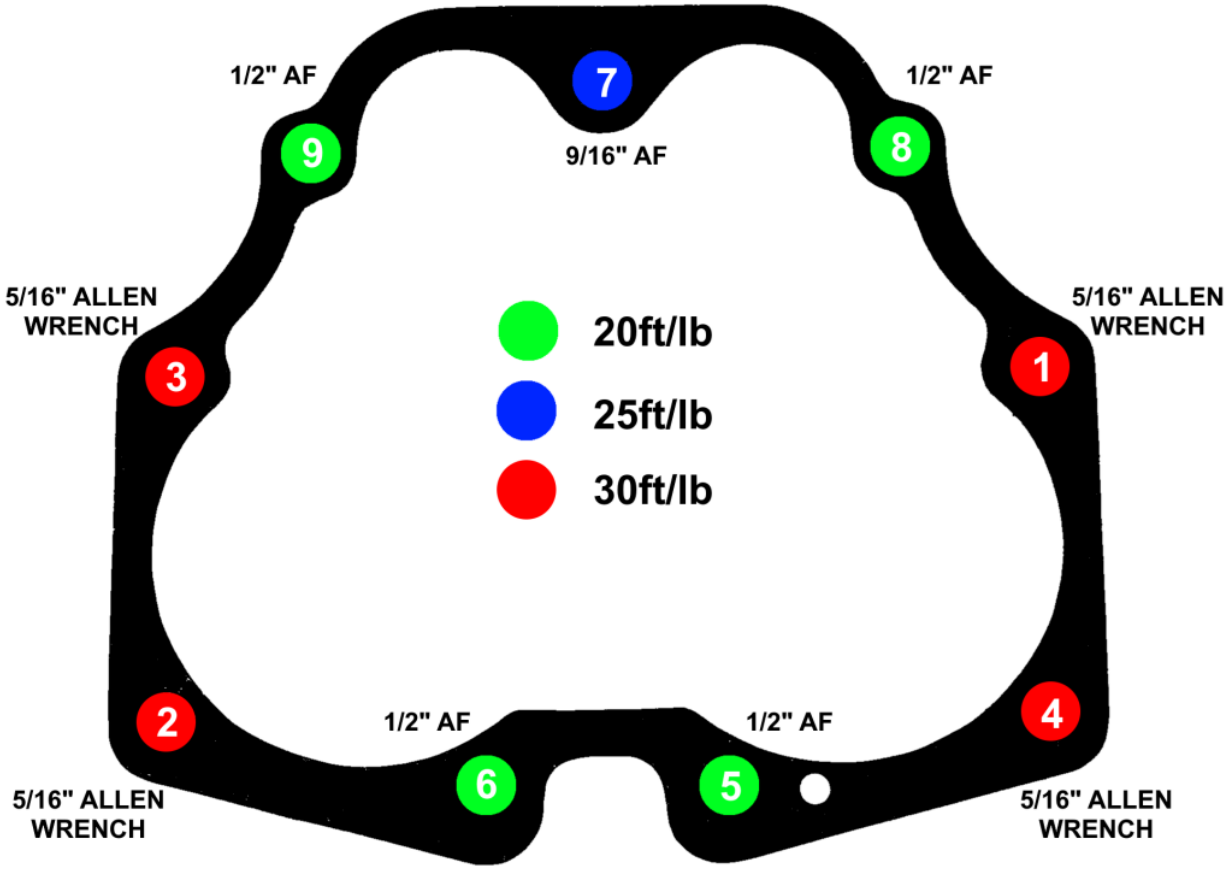
Cylinder Base 750 Tightening Order, Torque, and Wrench Size Prior to 1972:



Cylinder Base 750 Tightening Order, Torque, and Wrench Size 1972/3:

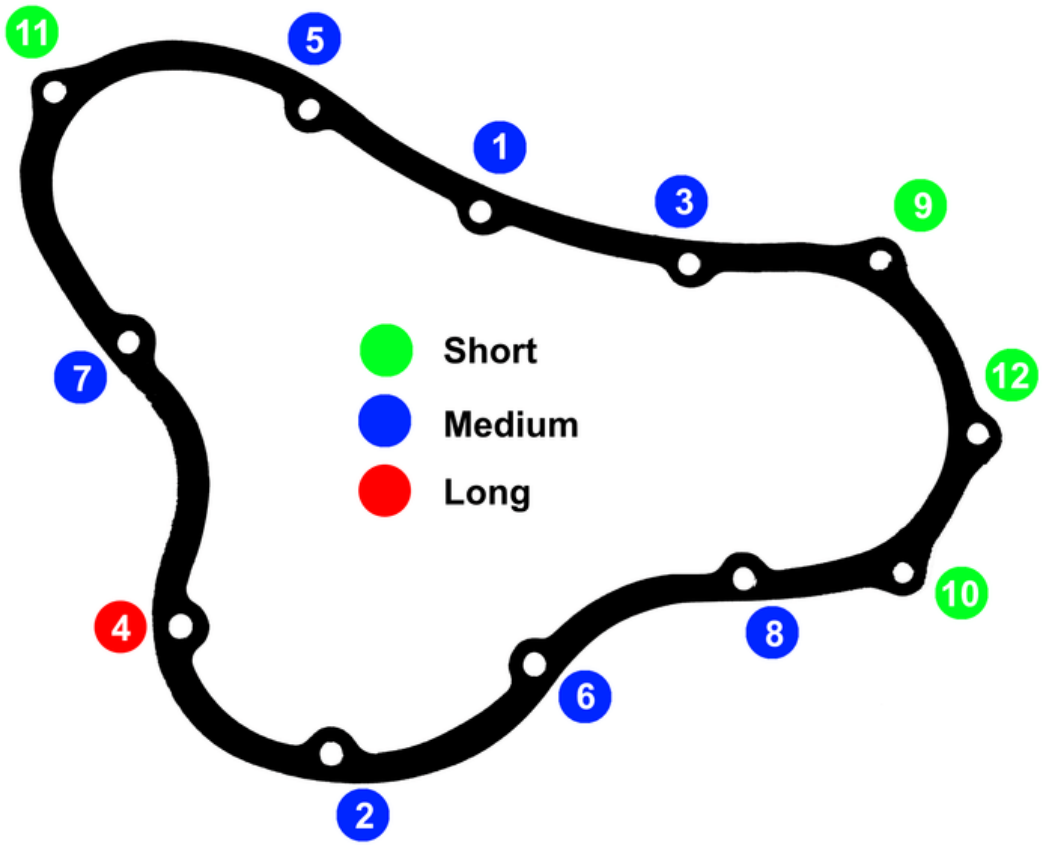


Cylinder Base 850 Tightening Order, Torque, and Wrench Size:



TIMING CASE:

- Cam chain tensioner nuts (2 nuts, 06-2692) 15 ft lb. (This could be too much 10-12ft lb sounds better)
- Oil pump stud nuts (no washers, 2 nuts, 06-7592) 10 to 12 ft lb.
- Oil pump worm gear nut (13-1303, on oil pump shaft) 25 ft lb.
- Oil pump worm gear/nut (06-7889, LH thread, on end of crankshaft) 15 ft lb.
- Camshaft sprocket nut (06-7774) 60 to 80 ft lb depending on cam metal. This seems like too much. On Access Norton, some are saying 25 ft lbs, I use 40 ft lb.
- I'm told that the PW3 Camshaft sprocket nut (cast iron) must be 15 ft lb.
- Timing cover screws (12 screws) 5 - 6 ft lb (60 - 72 in lb.) The graphic below shows the tightening order (numbers) and relative screw lengths. I start at20 in lb and follow the sequence, then 40 in lb, and follow the sequence, and then the final torque and follow the sequence.



PRIMARY CASE:

- Pre-MK3 Chaincase Attachment Nut (one nut) 25 ft lb.
- Alternator mounting stud nuts (3 nuts) 15 ft lb.
- Inner chaincase fixing bolts (3 bolts, 06-2669) 5 - 6 ft lb (60 - 72 in lb.)
- MK3 Chaincase outer screws (10 screws, 06-5533) 5 - 6 ft lb (60 - 72 in lb.)
- MK3 Long starter screw (1 screw, 06-5532) 8 ft lb.
- MK3 Short starter screws (2 screws, 06-4729) 8 ft lb.

GEARBOX:

- The inner cover nuts (7 nuts, 00-0004) 12 ft lb. Tighten in a crisscross pattern to 4 ft lb, then to 8 ft lb and finally to 12 ft lb
- Outer cover screws (5 screws, 00-0482) 50 in lb.) These are fine threads. Use anti-seize, tighten to 30 in lb in a crisscross pattern and then to 50 in lb.
- Clutch to main shaft nut (1 nut, 04-0373) 50 ft lb.) The factory torque setting for this nut is 70 ft lb but according to Old Britts, this torque setting runs the risk of breaking the clutch locating circlip (06-0752), they say to blue thread locker on this nut and torque to 40 ft lb and if you want to use 70 ft lb. you should use a new circlip each time this nut is removed. Andover Norton says 50 ft lb. I do use a new tab washer each time, no thread locker, and 50 ft lb.
- Timing-side main shaft nut (1 nut, 04-0023) 40 - 50 ft lb.
- Final drive sprocket nut (Countershaft) (Left Hand, 1 nut, 04-0070) 80 ft lb. This can be really hard to accomplish unless you have the correct very deep socket. I get it as tight as possible and call it good.
- Top gearbox fixing bolt (06-2563) 55 ft lb.
- Bottom gearbox fixing nuts (2 nuts 14.0305) 55 ft lb. The stud is part 06-0597
- Kick start pinch bolt (1 bolt, 06-0599) 25 ft lb.
- Gearshift pinch bolt (1 bolts, 04-0105) 15 ft lb.
- Drain plug (04.0138 or 04.0138M) 10 ft lb. It is especially important to not over tighten the magnetic version.

FRONT FORKS / WHEEL:

- Fork top bolts (tighten first, 2 bolts, 06-0345) 30 - 40 ft lb.
- Steering head stem nut (tighten second, 1 nut, 0700101) 25 - 30 ft lb.
- Spindle nut (tighten third, 1 nut, 06-0361) 60 ft lb.
- Yoke pinch bolts (tighten fourth, 2 Allen bolts, 06-1911) 30 ft lb.
- Fork spindle pinch bolt/nut (tighten last) 10 - 15 ft lb.
- Fork damper tube anchor bolt (1 bolts) 10 ft lb.
- Nut mudguard bridge stud (2 each fork) 8 ft lb.
- Disc to hub nuts (5 nuts) 20 ft lb.
- Front mudguard stay bolt (bottom, 4 bolts) 10 ft lb.

REAR WHEEL:

- Rear wheel nut (dummy spindle, 1 nut) 80 ft lb.
- Rear wheel spindle (one nut) 80 ft lb.
- Brake Drum Sleeve Nut (three nuts, 06-0323) 40 ft lb.
- Wheel adjuster nuts (2 nuts) 8 ft lb.
- Speedo cable to speedo Gear Box (06-7904) 15 ft lb.
- Swing arm pivot pin bolt (one bolt) 10 ft lb.
- Rear mudguard nut (top, 2 nuts) 8 ft lb.
- Rear mudguard nut 5/16 (1 nut) 15 ft lb.
- Rear mudguard nut 1.4 (bottom, 2 nuts) 8 ft lb.
- Tail lamp pillar nut (2 nuts) 24 in lb.
- Lift handle-clip nut 1/4 (1 nut) 8 ft lb.

ISOLASTICS/ REAR SUPPORT PLATE:

- Front bolt nut (1 nut) 30 ft lb.
- Rear stud nuts (2 nuts) 30 ft lb.
- Front supporting plate nuts (2 bolts) 25 ft lb.
- Rear engine plate nut (1 bolt, bottom) 20 ft lb.
- Rear engine plate nut (2 bolts, upper) 30 ft lb.
- Engine steady to head screw (3 screws) 12 ft lb.
- Engine steady stud nut (2 studs) 12 ft lb.

CALIPER:

- Front caliper to fork bolts (2 bolts\nuts, 0700291) 25 - 30 ft lb.
- End plug (original caliper, 1 plug, 06-2185) 25 ft lb. It would take a special/weird tool to actually set this torque. Since there is a rubber seal, I just get it tight using the tool from Andover Norton which probably gets it to 25 ft lb or more.

OIL TANK AND FITTINGS:

- Oil tank mounting bolt (1 bolt, 06-0652) 4 ft lb.
- Oil junction block bolt (1 bolt, 03-0448) 8 ft lb.
- Rubber mounting bolt nuts (2 bolts, 4 nuts, 03-3057) 4 ft lb.
- Oil filter mounting bolts (2 bolts, 22403) 8 ft lb.
- Rocker feed banjo bolts (3 bolts, 06-7696) 15 ft lb.

MISCELLANEOUS:

- Side stand nut (1972 - later, one nut) 50 - 60 ft lb. Since the bolt goes in from the bottom and is thin headed and since you can't get a torque wrench on the nut with the primary installed, just make it real tight. Next time you have the inner and outer primary off, you can do it with a torque wrench if you like!
- Center stand nuts (1 nut each side) 45 ft lb.
- Coil mounting bracket nuts (2 nuts) 10 in lb.
- Kick start pinch bolt (1 bolt/nut) 25 ft lb.
- Balance pipe bolt, exhaust (2 bolts/nuts) 7 ft lb.
- Carburetor stud nut (4 nuts) 8 ft lb.
- Carburetor fixing screws (4 screws) 8 ft lb.
- Shock mounting nuts (2 each shock) 25 ft lb.
- Chain guard nut (2 nuts) 8 ft lb.
- Front break lever pivot bolt (1 bolt) 25 ft lb.
- Front hydraulic hose nut (1 nut) 15 ft lb.
- Muffler clamp pinch bolt (1 bolt) 9 ft lb.
- Zener diode nut (one nut) 24 in lb.
- Coil clip bolts (2 each coil) 10 in lb.
- Coil mounting bracket bolts (4 bolts) 8 ft lb.
- Reflector nut 20 in lb.
- Screw, condenser pack (2 screws) 24 in lb.
- Nut, condenser pack (2 nuts) 24 in lb.
- Horn nut (2 nuts) 8 ft lb.
- Head lamp bolt (2 bolts) 15 ft lb.

FOOTRESTS:

- Rear side plate mounting nut (2 each plate) 25 ft lb.
- Footpeg nuts (1 each footpeg) 40 ft lb.
- Footrest mounting flange nuts (3 on left 2 on right) 8 ft lb.
- Footrest mounting bolt (1 on right) 15 ft lb.
- Passenger footrest bolt\nut (1 each) 25 ft lb.
- Passenger pivot bolt (1 each rest) 8 ft lb.
- Mounting rubber nuts (2 each rubber) 10 ft lb.

GENERAL:

There is a table in the MKIII Workshop Manual called "General Guidance Table – Torque Recommendations" that provides much more info. The plating, thread pitch, hardness, lubrication and other factors matter. These values for plated, unlubricated UNF fasteners are from that table:

- 1/4" Bolt 8 ft lb.
- 5/16" Bolt 15 ft lb.
- 3/8" Bolt 25 ft lb.
- 7/16" Bolt 40 ft lb.
- 1/2" Bolt 60 ft lb.
- 9/16" Bolt 80 ft lb.

NOTES:

- Lubrication makes bolts easier to turn and therefore lower torque should be used.
- Anytime you are threading a stainless steel nut on to a stainless steel bolt, it is good practice put a dab of anti-seize on the threads. Stainless has a tendency to work harden and weld itself together.
- Plated Steel or Stainless Steel screws in aluminum casings require great care if fine thread. 5 ft lb. with anti-seize is fine with course threads but is probably too much with fine threads like those used for the gearbox. I always use anti-seize on Stainless into aluminum but only 4ft lb (48 in lb.) for fine threads.