PONTIAC V8 TORQUE SPECIFICATIONS

Classic Pontiac V8 — 265 / 301 / 326 / 350 / 389 / 400 / 421 / 428 / 455 ci

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Read before you pull a wrench

These are **baseline factory guidelines** for the classic Pontiac V8. Final torque depends on the exact parts, block condition, and fastener brand in your build. Torque values assume the listed lubricant — a value is only valid with the lube it was set for. Always tighten in the correct **sequence** and in **2–3 progressive steps** (roughly 1/3, 2/3, then full).

ARP & aftermarket fasteners — do NOT use the factory column

If you are running **ARP** (or any aftermarket) studs/bolts, use that manufacturer's torque value and **their** specified lubricant (ARP Ultra-Torque or moly). The **instruction sheet packed in the box always supersedes this chart.** Substituting engine oil for ARP lube changes the required torque. See the Aftermarket section.

1. Bottom End / Rotating Assembly

Fastener / Component	Lubricant / Sealer	Torque
Main bearing caps (all except rear)	Engine oil	**95 ft-lbs**
Rear main cap	Engine oil	**120 ft-lbs**
Connecting rod bolts — stock	Assembly lube	**45 ft-lbs**
Connecting rod bolts — Super Duty (SD)	Assembly lube	**65 ft-lbs**
Harmonic damper centerbolt	Thread locker	**160 ft-lbs**
Flexplate (auto) / Flywheel (manual)	Thread locker	**95 ft-lbs**
Camshaft thrust plate	Engine oil	**15 ft-lbs**
Cam sprocket / timing gear (upper)	Thread locker	**45 ft-lbs**
Timing cover to block	Engine oil	**35 ft-lbs**

Rod bolt note: 45 ft-lbs is the factory torque figure. Aftermarket rods and ARP rod bolts are set by **bolt stretch** — see Aftermarket section.

2. Cylinder Heads & Valvetrain

Fastener / Component	Lubricant / Sealer	Torque
Cylinder head bolts (cast iron)	Engine oil	**95 ft-lbs**
Rocker studs — screw-in, hex head	Engine oil	**55 ft-lbs**
Rocker Arm Nuts — **Factory Spec from GM**	Assembly Lube	**Torqued Down (Not recommended)**
Rocker Arm Nuts — **Aftermarket and/or Machined/Modified Head or Engine**	Assembly Lube	**Per Lifter Specification. Typically 1/2 to 3/4 turn past zero lash.**
Intake manifold (cast iron heads)	Non-hardening sealer	**40 ft-lbs**
Valve covers	Engine oil	**8 ft-lbs**
Exhaust manifold	Anti-seize	**30 ft-lbs**
Spark plugs (cast iron heads)	None	**20 ft-lbs**

Head bolts: snug in sequence, then torque in steps — ~30 → 60 → 95 ft-lbs following the Pontiac head-bolt pattern.

3. Oiling System

Fastener / Component	Lubricant / Sealer	Torque
Oil pump-to-rear-main-cap bolt	Engine oil	**30 ft-lbs**
Oil pump cover / base plate bolts	Engine oil*	**15 ft-lbs**
Windage tray	Engine oil	**15 ft-lbs**
Oil pan bolts	Engine oil	**12 ft-lbs**

Yes — on a Pontiac pump the "cover" **is** the base plate: the flat plate bolted to the back of the pump body that retains the gears. Those 4 small bolts get 15 ft-lbs. The separate 30 ft-lb bolt is the large fastener that mounts the whole pump to the rear main cap. *Many builders add thread locker (and/or safety-wire) to the cover/base-plate bolts — they are notorious for backing out; an ARP pump-plate bolt kit is a common upgrade.

4. Cooling & Front Cover

Fastener / Component	Lubricant / Sealer	Torque
Water pump to cover	Engine oil	**10 ft-lbs**
Single timing cover-to-intake bolt	O-ring + light RTV	**10 ft-lbs**

5. Driveline

Fastener / Component	Lubricant / Sealer	Torque
Clutch pressure plate	Thread locker	**25 ft-lbs**
Bellhousing (transmission to block)	Engine oil	**40 ft-lbs**

6. Aftermarket / ARP Fasteners

The box sheet wins
Torque depends on the exact kit, bolt material (8740 / ARP2000 / L19), diameter, and lube. The values below are **representative Pontiac-application figures** for quick reference only — always confirm against the ARP instruction sheet for your part number. ARP figures assume **ARP Ultra-Torque or moly**; using engine oil requires a higher torque to reach the same clamp load.

ARP Main Studs — Pontiac 326–455

Fastener / Component	Lubricant / Sealer	Torque
Main studs — 1/2" (standard positions)	ARP Ultra-Torque / moly	**110 ft-lbs**
Main studs — 9/16" (large rear / outer)	ARP Ultra-Torque / moly	**140 ft-lbs**
Outer block bolts on 4-bolt caps (if stock GM)	Per stock spec	**Stock value**

After switching from factory bolts to studs, re-check main-bore size/roundness and align-hone if needed.

ARP Head Studs / Head Bolts — Pontiac

Fastener / Component	Lubricant / Sealer	Torque
Head studs / bolts — cast iron heads	ARP moly / Ultra-Torque	**~95 ft-lbs**
Head studs / bolts — aluminum heads	ARP moly + sealer*	**Per maker (≈ 90)**

Torque in 3–4 steps in the Pontiac sequence. *Use thread sealer on any stud/bolt that enters a water jacket. Aluminum heads are usually backed down slightly and re-torqued per the head/gasket maker (e.g. Edelbrock sheet #61595).

Aftermarket Connecting Rod Bolts — Eagle / Scat / Molnar

Three rules before any rod-bolt number below

1. The bolt sets the spec, not the rod length. A 6.800″ and a 6.625″ Pontiac rod from the same maker use the same 7/16″ bolt — the spec is **identical** for both lengths. Match by bolt material, under-head length (UHL) and head stamp.

2. Lube is maker-specific and changes the number. Eagle & Scat = **ARP moly**. Molnar = **CMD Extreme Pressure #3** (do NOT use moly or oil on Molnar bolts). A different lube voids the torque value — you must then use stretch.

3. Stretch is the gold standard; torque is the fallback. Use a stretch gauge when the rod allows. Record each bolt's free length; retire any bolt that grows ≥ 0.001″. Don't mix methods — use torque OR stretch, not both.

Eagle — 7/16″ rod bolts (lube: ARP moly) • H-beam Pontiac 6.800″ & 6.625″

Bolt material / head stamp	Torque (ARP moly)	Stretch
7/16″ ARP 8740 (7/16″ head)	**63 ft-lbs**	**0.0059–0.0063″**
7/16″ ARP2000 (7/16″ head)	**75 ft-lbs**	**0.0064–0.0068″**
7/16″ ARP L19 (1/2″ head)	**79 ft-lbs**	**0.0073–0.0077″**

Scat — 7/16″ rod bolts (lube: ARP moly) • Scat publishes max torque, not stretch

Bolt material / size	Max recommended torque (ARP moly)
7/16″ × 1.600″ ARP 8740 cap screw	**63 ft-lbs**
7/16″ × 1.800″ ARP 8740 cap screw	**63 ft-lbs**
7/16″ × 1.600″ ARP2000 cap screw	**70 ft-lbs**
7/16″ × 1.800″ SCAT 2000 cap screw	**63 ft-lbs**
7/16″ × 1.500″ SCAT 2001 cap screw	**63 ft-lbs**

Scat does not list L19 in its standard rod-bolt chart; an L19 special order ships with its own sheet. Verify stretch with a gauge — Scat rods are torqued/honed at the listed value.

Molnar — 7/16″ ARP2000 (lube: CMD #3 only) • spec is keyed to bolt under-head length

Bolt (ARP2000, by under-head length)	Stretch	Torque + Angle
7/16″ × 1.600″ UHL	**0.0060–0.0064″**	**30 ft-lbs + 60°**
7/16″ × 1.800″ UHL	**0.0070–0.0075″**	**30 ft-lbs + 65°**

Molnar's standard bolt is ARP2000; read your bolt's head stamp and measure UHL, then use the matching row. **L19 and Custom Age 625+** are Molnar upgrade options that ship with their own spec sheet — use that sheet, not this table. Molnar specs assume CMD #3 lube; never substitute oil or moly.

About L19 (every brand)

L19 is the strongest of the three (for the highest-output / nitrous / boost builds) but it is corrosion-prone — keep it **oiled** on the shelf, install promptly, and expect fewer re-use cycles. It typically needs the highest torque/stretch of the set to reach clamp load. Always confirm the exact figure on the bolt maker's sheet for your part number.

ARP Damper / Flexplate / Flywheel

Fastener / Component	Lubricant / Sealer	Torque
Harmonic damper centerbolt (ARP)	ARP lube	**Per kit (≈160)**
Flexplate / flywheel bolts (ARP)	ARP lube	**Per kit (≈95)**

Aftermarket Valvetrain

Fastener / Component	Lubricant / Sealer	Torque
Roller rockers, stud-mount w/ poly-lock (Comp, Crane, Harland Sharp, PRW)	Set preload/lash, then jam set screw	**Per lifter**
Shaft-mount rockers (T&D) — stand bolts	ARP / per maker	**~25–35 ft-lbs**
Screw-in rocker stud conversion (into head)	Sealer	**~50 ft-lbs**

Fastener / Component	Lubricant / Sealer	Torque
Stud girdle	Per maker	**Per maker**

Aftermarket Intake & Headers

Fastener / Component	Lubricant / Sealer	Torque
Aluminum intake on cast iron heads (Edelbrock, etc.)	Non-hardening sealer	**40 ft-lbs**
Aluminum intake on aluminum heads	Non-hardening sealer	**~25–30 ft-lbs**
Header bolts (Doug's, Hooker, RA, Hedman)	Anti-seize / ARP	**~25–30 ft-lbs**

Aluminum intakes torque in sequence to a lower value to avoid distortion. Re-check header bolts after the first heat cycle.

Tightening Principles — Every Job

1. Clean and chase all threads; blow out blind holes — trapped oil or debris gives a false torque reading.
2. Match the lubricant the spec assumes. ARP specs assume ARP lube; don't dry-torque an oiled spec.
3. Torque in 2–3 progressive steps and in the correct factory sequence — never single-pass a head or main.
4. Use a calibrated wrench; pull smoothly to the click. Re-torque after the first heat cycle where the gasket maker calls for it.
5. When in doubt, call the pros: **(866) 762-7527** or use Ask-a-Tech at butlerperformance.com.

Compiled by Butler Performance Inc. — the Pontiac experts. Sources: Butler published spec table and ARP application data. This chart is a reference aid and does not replace the factory service manual or the instruction sheet supplied with your parts.