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REF: Engine Conversions & Upgrades

Performance Upgrades

Typical Staged Sportster Engine Upgrades ¹⁾

Paying Taxes

Stage 0: Stock = HP- 40 for 883, HP- 50 for 1200 (average)

Stage 0.5 (also known as "The Harley Tax")= HP- 50 for 883, HP- 60 for factory 1200 (Example)²⁾

- Stock plus:
 - High flow air Cleaner OR
 - SE Slip-On Mufflers or equivalent

Stage 1 Upgrades

Quote: Stage 1 and Harley Tax are synonyms and include Pipes, Air Filter and Carburetor re-jetting/ ECU re-mapping ³⁾

- Stage 1.0 = HP- 60 for 883/1200, HP- 65-70 for factory 1200 (Example)⁴⁾
- High Flow Air Cleaner AND
- High Flow Exhaust AND
- Fuel/Air ratio adjustment : Jetting for carburetor, modify fuel tables in ecm with EFI bikes.

Known Stage 1 883 configurations

This is just examples of what has worked on some bikes. Each motor may be different in it's own unique way.

883 Engines:

- Carbureted / Year Model / Jetting / Mods:
 - .
 - .
 - .

- .
- EFI:/ Year Model / Jetting / Mods:
 - Screamin' Eagle Air Cleaner/ Screamin' Eagle Slip on exhaust
 - .
 - .
 - .
 - .

Known Stage 1 1200 configurations

1200 Engines:

- Carbureted / Year Model / Mods:
 - .
 - .
 - .
 - .
- EFI:/ Year Model / Mods:
 - .
 - .
 - .
 - .

Stage 1.5 Upgrades

Stage 1.5= HP-65 for 883/1200, HP- 70 for factory 1200 (Example)⁵⁾

- Stage 1 plus:
 - Andrews N2 cams (mild)

Stage 2 Upgrades

Quote: Stage II: Stage I plus cam upgrades⁶⁾

Quote: Stage II: Camshaft, Larger displacement, Higher compression⁷⁾

- Stage 2: Stage 1.5 plus: (Example)⁸⁾
 - Andrews N4, N8, or SE bolt-in cams instead of N2
 - SE S1 Lightning or other bolt-on +/- 10:1 heads
 - HP=75
 - Options:
 - 2 into 1 header system, add +/- 7 hp
 - SE carb (or equivalent), add +/- 3 hp
 - XR750 (or other) valve springs, no gain

- Stage 2.5: Stage 2 plus
- Professionally ported 10:1 or higher heads
- Matching (to head) domed pistons
- XR750 valve springs or SE cam kit
- 2 into 1 header system
- SE,S&S Super E, or Mikuni HSR42 carb
- HP=90+
- Options:
 - big valves (big twin size), add +/- 5 hp

Stage 3 Upgrades

Quote:Stage III: Its on like Donkey Kong ! ⁹⁾

Quote: Stage III: Boring and/or Headwork and/or Forced Induction and/or Nitrous ¹⁰⁾ Stage 3 = HP- ????

- Stage 2.5 plus:(Example)¹¹⁾
 - Big-bore cylinders and pistons and/or
 - Stroker kit and/or
 - Nitrous injection and/or
 - Supercharging
 - Options: many

Useful Tips Formulas

Formulas

- Displacement: $\pi \times (\text{radius squared}) \times \text{height}$ (example: 4 inch bore, 4 inch stroke) = $3.14159 \times (2 \text{ squared}) \times 4 = 50.265\text{ci}$ of displacement per cylinder
- Cubic Centimeters to Cubic Inches: $\text{cc} \div (2.54 \text{ cubed})$ (example: 1200cc) = $1200 \div (2.54 \text{ cubed}) = 73.23\text{ci}$
- Cubic Inches to Cubic Centimeters: $\text{ci} \times (2.54 \text{ cubed})$ (example: 100ci) = $100 \times (2.54 \text{ cubed}) = 1638.7\text{cc}$
- Horsepower: $(\text{torque} \times \text{rpm}) \div 5252$ (example: 80 ft-lbs at 4000 rpm) = $(80 \times 4000) \div 5252 = 60.93\text{hp}$
- Torque: $(\text{horsepower} \times 5252) / \text{rpm}$ (example: 100hp at 4000 rpm) = $(100 \times 5252) \div 4000 = 80 \times 4000 / 5252 = 131 \text{ft-lbs.}$

Building and Performance Tips

- [Hammer Performance Tech Tips](#)

- [NRHS Performance Tech Tips](#)
- [Flo Headworks Tech Tips](#)

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6)

rocketmangb- <http://xlforum.net/forums/showthread.php?t=1606840>

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