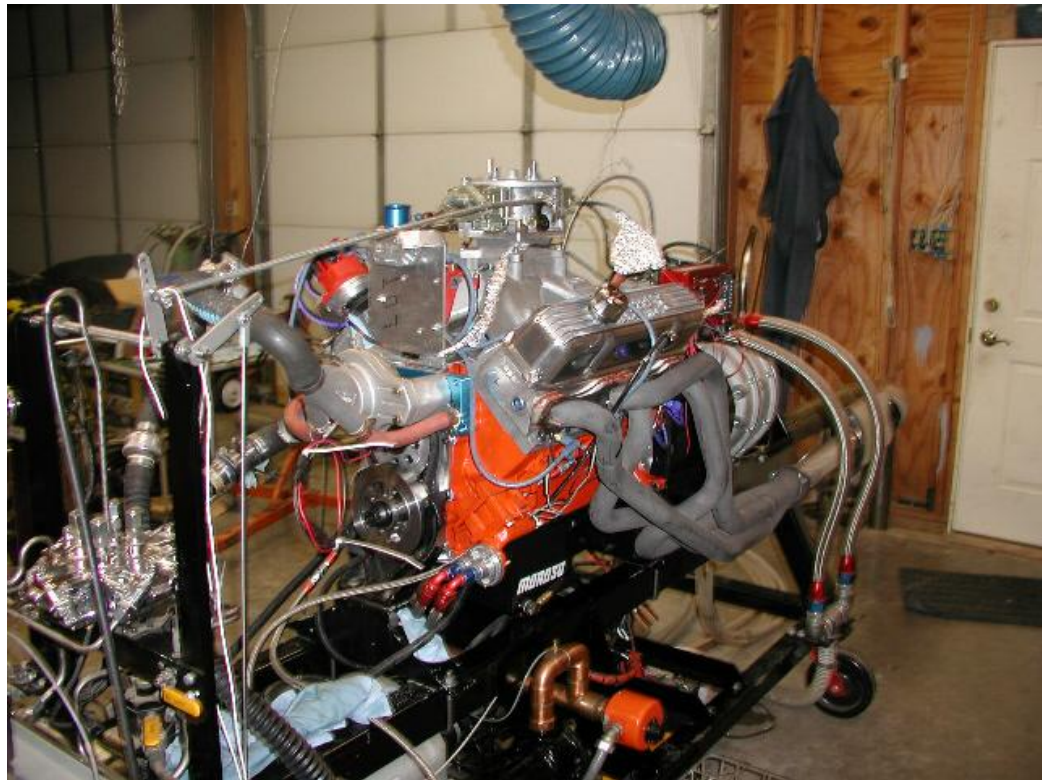


RevSearch

Engine Dynamometer Test Results



EM-470-1

9-28-2003

RevSearch Engine Dynamometer Test Information

Date 9-28-03 Jesse Lackman, RevSearch
Name Moparts Engine MastersTeam 2647 37th Ave SW
Address . Center, ND 58530
City, State 701-794-3484
Zip Phone www.revsearch.com

If additional graphs are desired just call with your requirements and we will send them out. For example we could overlay graphs of a currently tested engine with one(s) you tested previously.

Engine make and model; Dodge 470

Number of cylinders 8 Cylinder bore diameter 4.375

Crankshaft stroke 3.8905 Cubic inch displacement 468

Cylinder block details;

Crankshaft details;

Piston and ring details;

Connecting rod details; Eagle 6.633

Cylinder head details; Stage 6.9 JBW

Compression ratio; 12.2-1

Camshaft specs; Hughes Engines HTL6468BS, HTL6872BS, HTL7276BS

Valve train details; Erson 1.6 ratio

Intake manifold details; INDY-JBW

Exhaust manifold / headers details; 1 7/8 x 3 no name, TTI 1 7/8 x 3 Hedman 2 x 3 1/3

Carburetor / fuel injection details; Promax 950 HP, Promax 1050 Dominator

Fuel; 92 pump gas

Ignition system details; MSD AL-7

Other information; Forget about it.

Some definitions;

BSFC; Brake Specific Fuel Consumption; BSFC is a calculation resulting in a value stating the pounds of fuel the engine is burning per horsepower per hour, in other words a measurement of engine efficiency. Lower is better.

EGT Average; Exhaust Gas Temperature Average; This number is an average of all the exhaust gas temperatures. The EGT numbers should be 1350° F - 1400° F.

EGT Delta; Exhaust Gas Temperature Delta; This value is how much the exhaust gas temperatures vary from one another. Lower is better.

Fuel Flow; The fuel flow is measured in pounds per hour.

Air Flow; The air flow is measured in pounds per hour.

Corrected Horsepower and Torque; All the tests were corrected using the SAE (Society of Automotive Engineers) correction standard J607. This means the engine would produce the corrected HP and Torque numbers if it were operated in these atmospheric conditions. This offers a standard basis of comparing engine dynamometer tests on different dates, different engines, or in different areas of the world.

This engine was tested as “fully equipped” (configured as it will be in its intended application) per SAE J607 with the following exceptions;

The dyno air inlet system was used on all tests except where noted.

General test notes; The change made before each test is in bold.

9-13-03 Tests 671-684 The total timing was set to 32° BTDC. Tests 671 and 672 were break in tests. Tests 673-682 continued the break-in under increasing load with the secondaries disconnected. After test 682 the oil was changed and valves adjusted. Tests 683 –684 were full load sweeps with the secondaries hooked up. The intake and valley pan were pulled to fix a valley pan oil leak. Unusual wear was noted on cam lobes 2in, 4in, 4ex, 6ex, and 8in.

Test Notes

Tests 671-684 54% RH, 27.69” barometric pressure, 77° - 87° F inlet air.

All tests;

- Promax 950 HP
- 32 total
- 1 7/8 x 3 no name headers
- Hughes Engines HTL7276BS cam
- 100LL

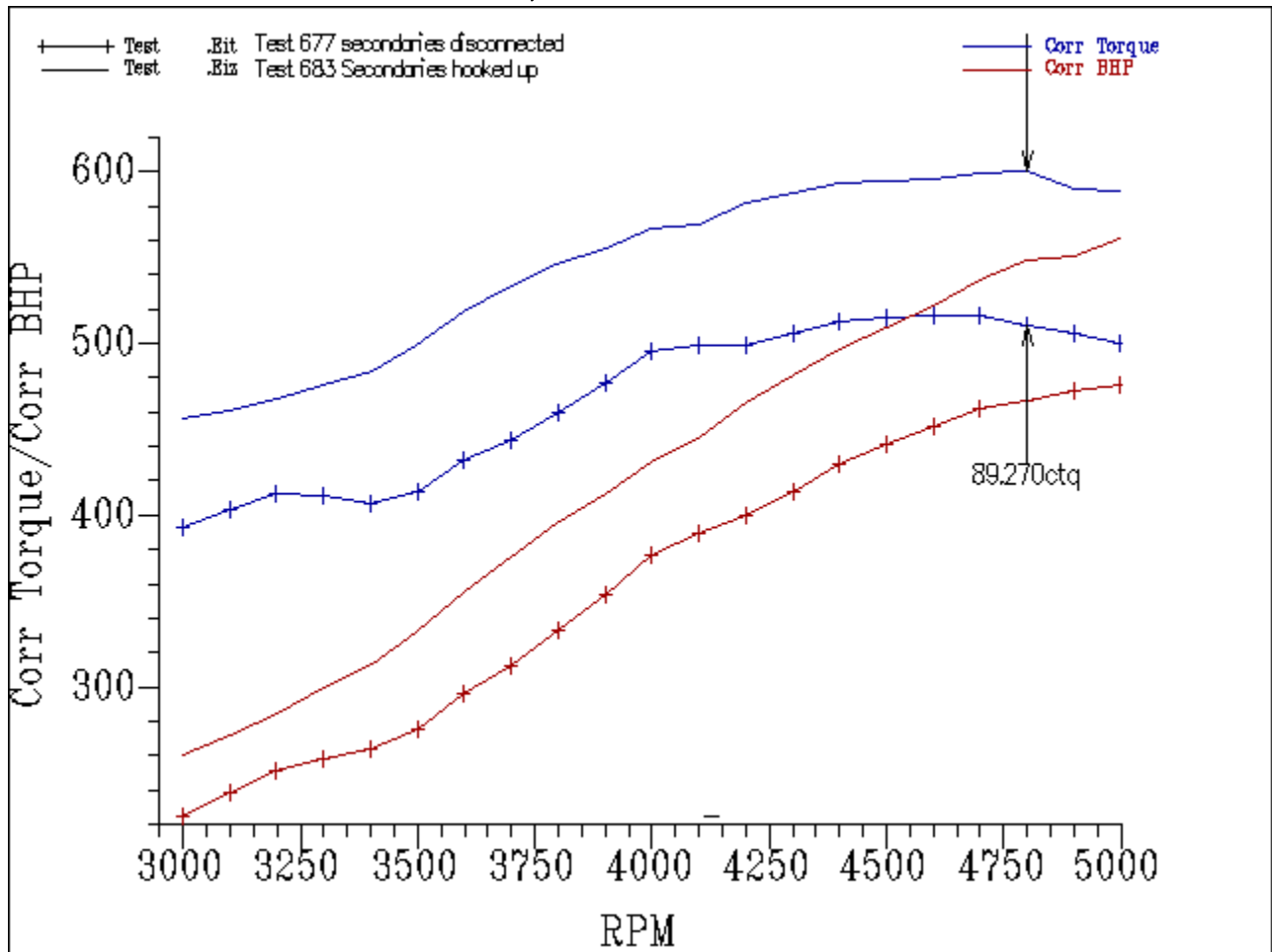
Test 677 Sweep test 5000-3000

- Secondaries disconnected

Test 683 Sweep test 5000-3000

- Secondaries hooked up

Tests 677, 683 Secondaries



9-15-03 Tests 685-686 The oil was changed to Amsoil 20-50 Series 3000 the Hughes Engines HTL 6872 cam was installed and broke in for 20 minutes. The total timing was set to 32° BTDC. After Test 685 the intake and valley pan were pulled to check the cam. Again, unusual wear was noted on cam lobes 2in, 4in, 4ex, and 6ex. It was decided to do a 6500-3000 sweep test which is test 686. The engine was torn down for lifter bore bushing/truing after test 686.

Test Notes

Tests 685-686 67% RH, 27.59" barometric pressure, 79° - 89° F inlet air.

Both tests;

- Promax 950 HP
- 32 total
- 1 7/8 x 3 no name headers
- Hughes Engines HTL6872BS cam
- 100LL

Test 685 Sweep test 4000-3000

Test 686 Sweep test 6500-3000

- **Score 1063.5**

9-18-03 Test 687 This is the first test after the lifter bore bushing and cam bearing bore correction machining. A Hughes Engines HTL6468BS cam was installed at 105 ICL and broke in for 20 minutes.

Test Notes

Tests 685-686 67% RH, 27.59" barometric pressure, 79° - 89° F inlet air.

Test 687 sweep test 6500-3000

- Promax 1050 Dominator
- 32 total
- 1 7/8 x 3 no name headers
- Hughes Engines HTL6468BS cam
- 100LL
- **Score 1082.1**

9-19-03 Test 688-695 The Dynamax mufflers, 2 x 3 ½ Heddman headers were tested with the HTL 6468BS cam. The Borla mufflers were used for all tests except 692. At the end of test 695 water vapor was noted coming out of the left bank exhaust pipe. The cause turned out to be a coolant leak in the #7 intake port. This was fixed with JB weld and left to set up overnight. The HTL6872BS cam was installed for the next day's testing. The #8 egt thermocouple quit.

Test Notes

Tests 688-696 55% RH, 27.75" barometric pressure, 75° - 80° F inlet air.

Test 688 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- 1 7/8 x 3 no name headers
- Hughes Engines HTL6468BS cam
- 92 Octane
- **Score 1082**

Test 689 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- 1 7/8 x 3 no name headers
- Hughes Engines HTL6468BS cam
- 92 Octane
- **Score 1071.2**

Test 690 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- 1 7/8 x 3 no name headers
- Hughes Engines HTL6468BS cam
- 92 Octane
- **Intake cone removed**
- **Score 1063.1**

Test 691 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- **2 x 3 1/2 Hedman headers**
- Hughes Engines HTL6468BS cam
- 92 Octane
- **Intake cone back in**
- **Score 1062.6**

Test 692 sweep test 6800-3000

- Promax 1050 Dominator
- 34 total
- 2 x 3 1/2 Heddman headers
- Hughes Engines HTL6468BS cam
- 92 Octane
- **Dynomax Mufflers**
- **Score 1059.4**

Test 693 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- **1 7/8 x 3no name headers**
- Hughes Engines HTL6468BS cam
- 92 Octane
- **Borla mufflers back on**
- **Advanced cam to 103 ICL**
- **Score 1085.7**

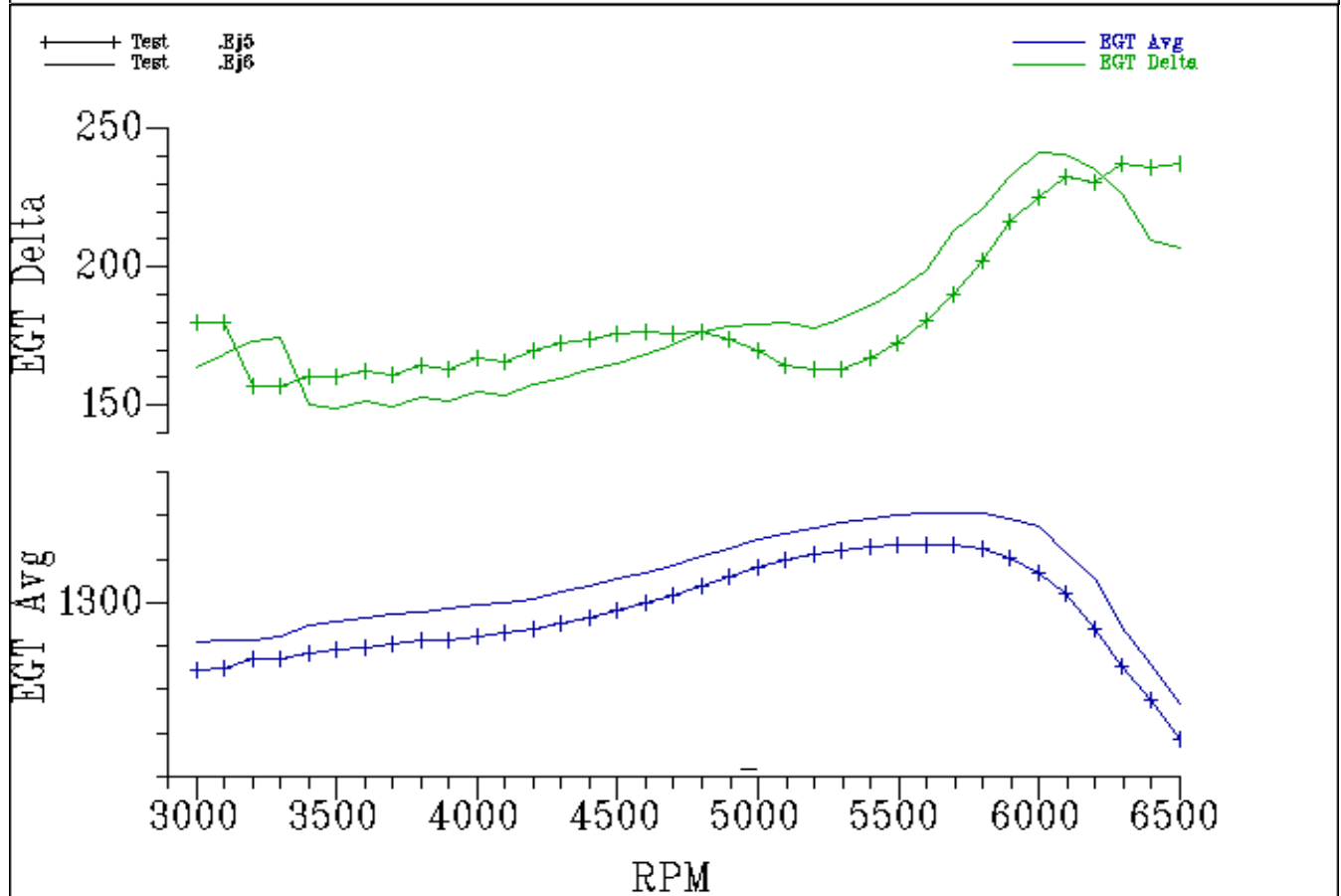
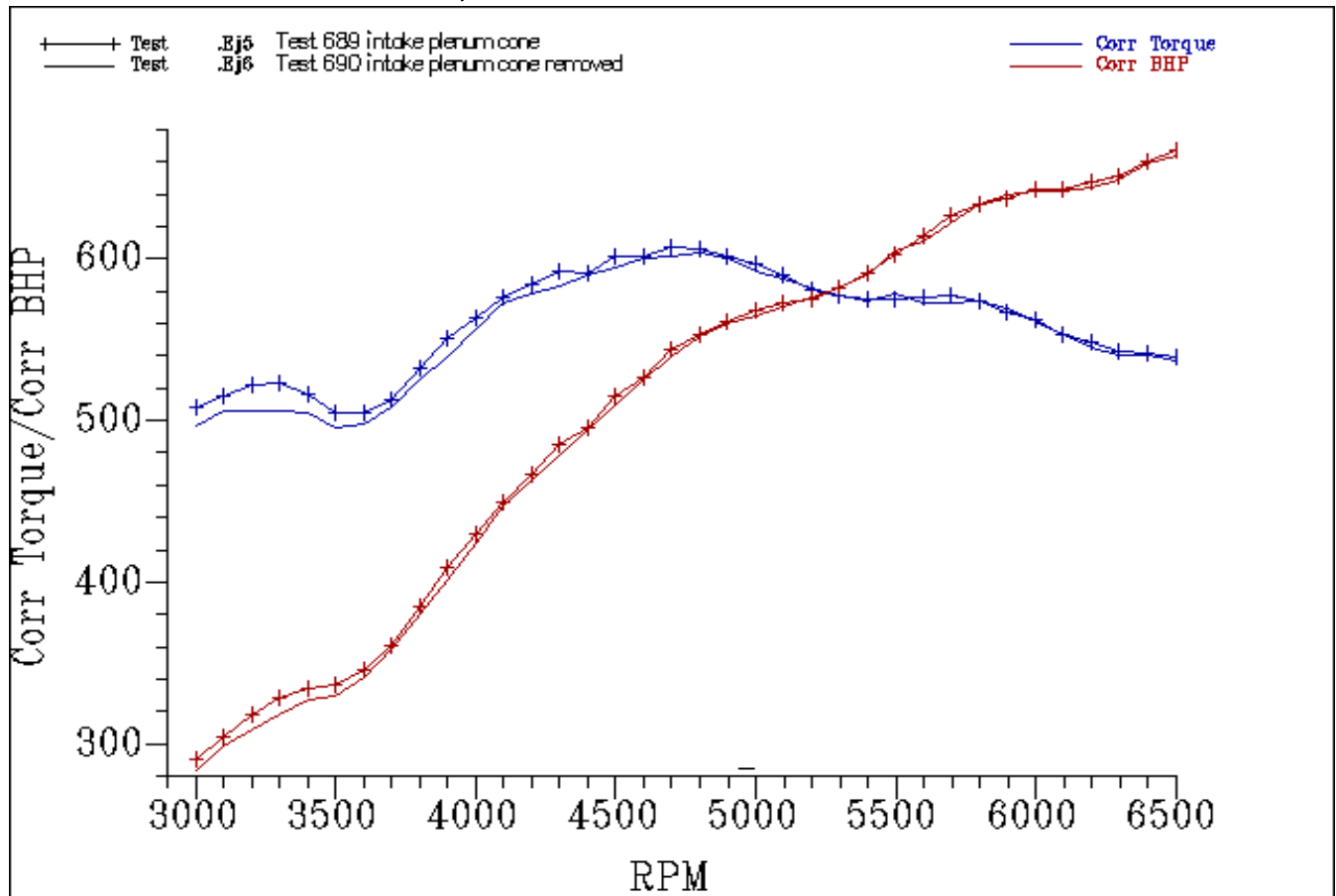
Test 694 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- 2 x 3 1/2 Heddman headers
- Hughes Engines HTL6468BS cam
- 92 Octane
- **.043 intermediate air bleeds in all four corners**
- **Score 1082.3**

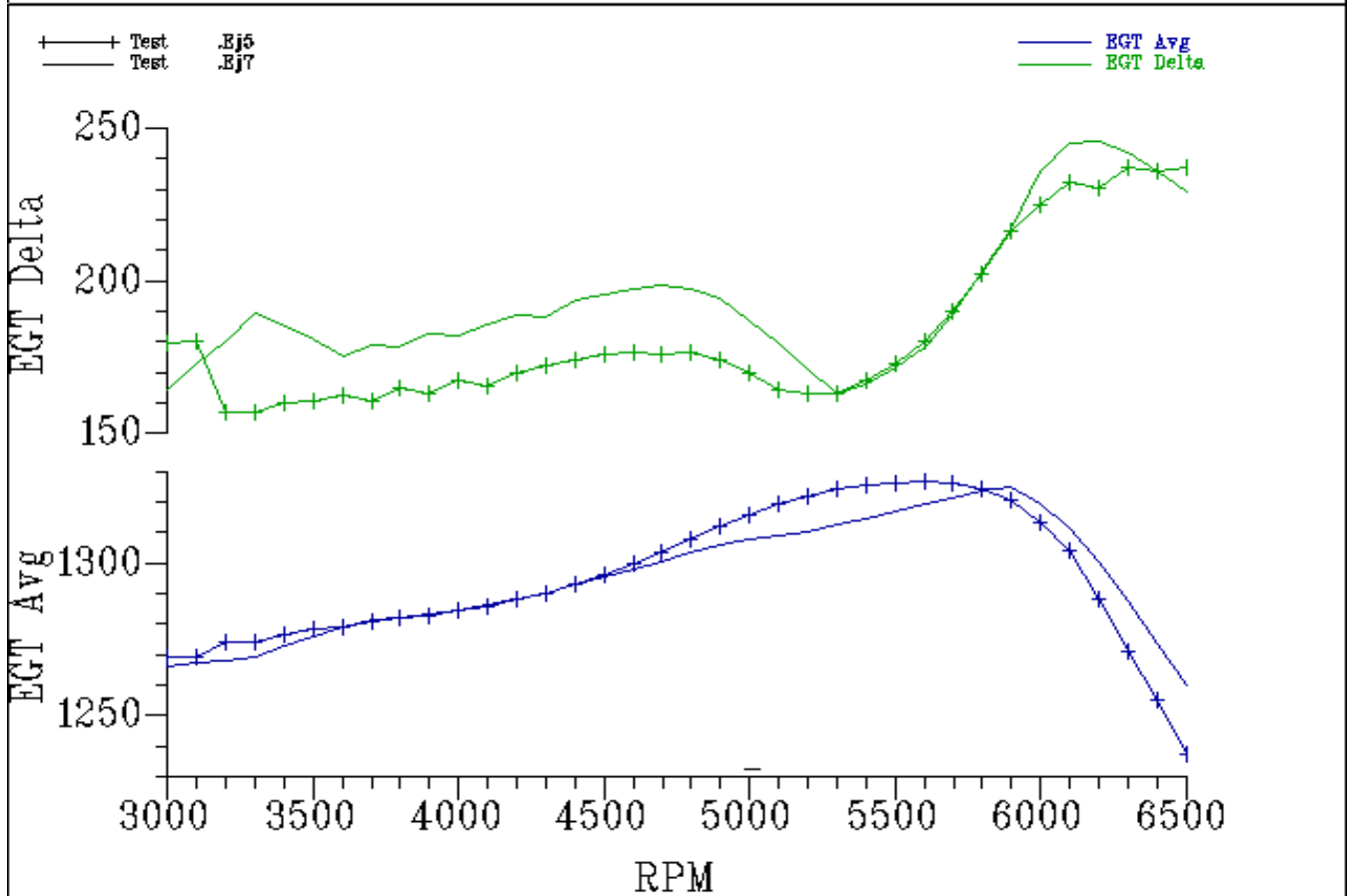
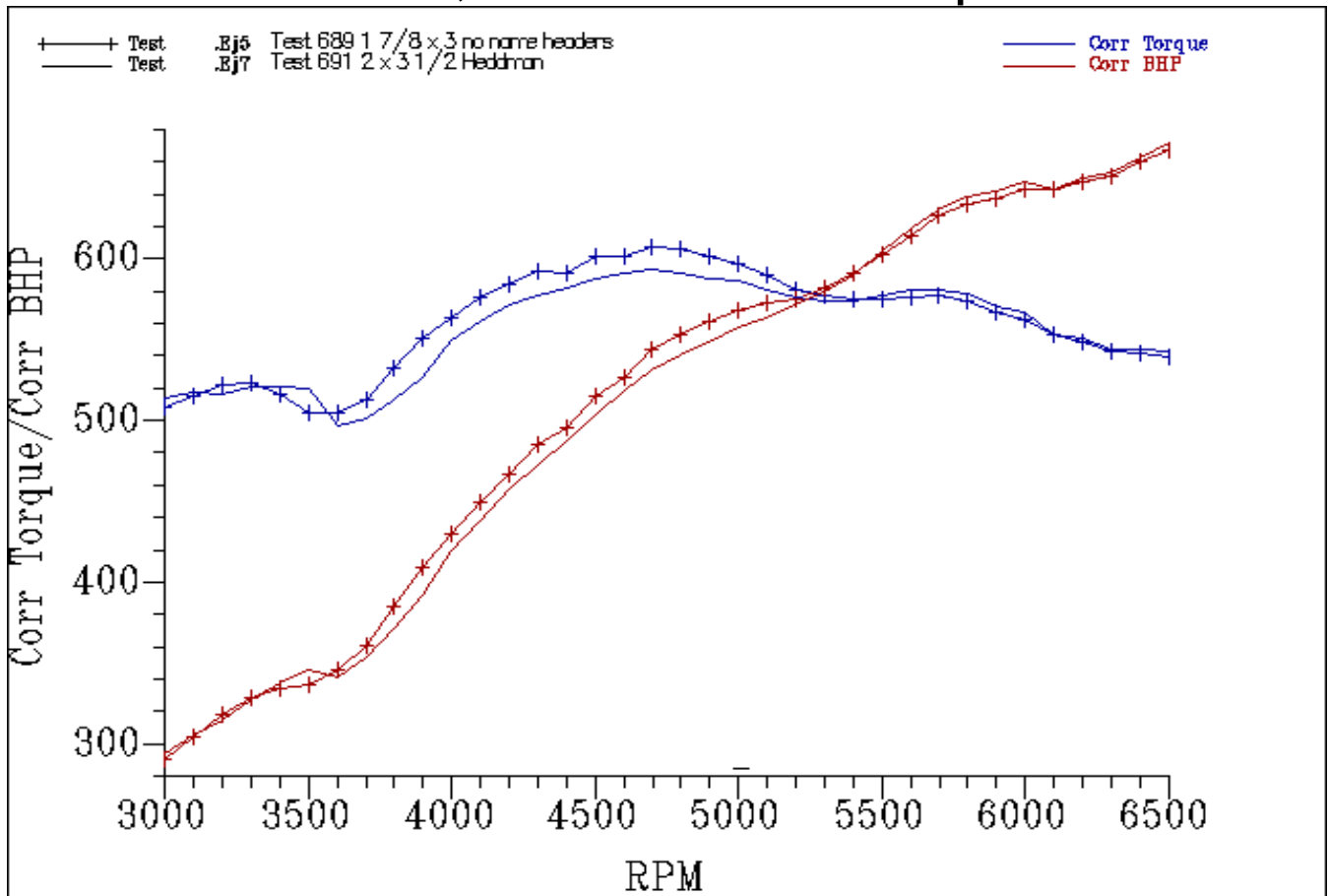
Test 695 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- 1 7/8 x 3 no name headers
- Hughes Engines HTL6468BS cam
- 92 Octane
- **.040 Intermediate air bleeds back in**
- **Removed four hole insert**
- **Score 1070.4**

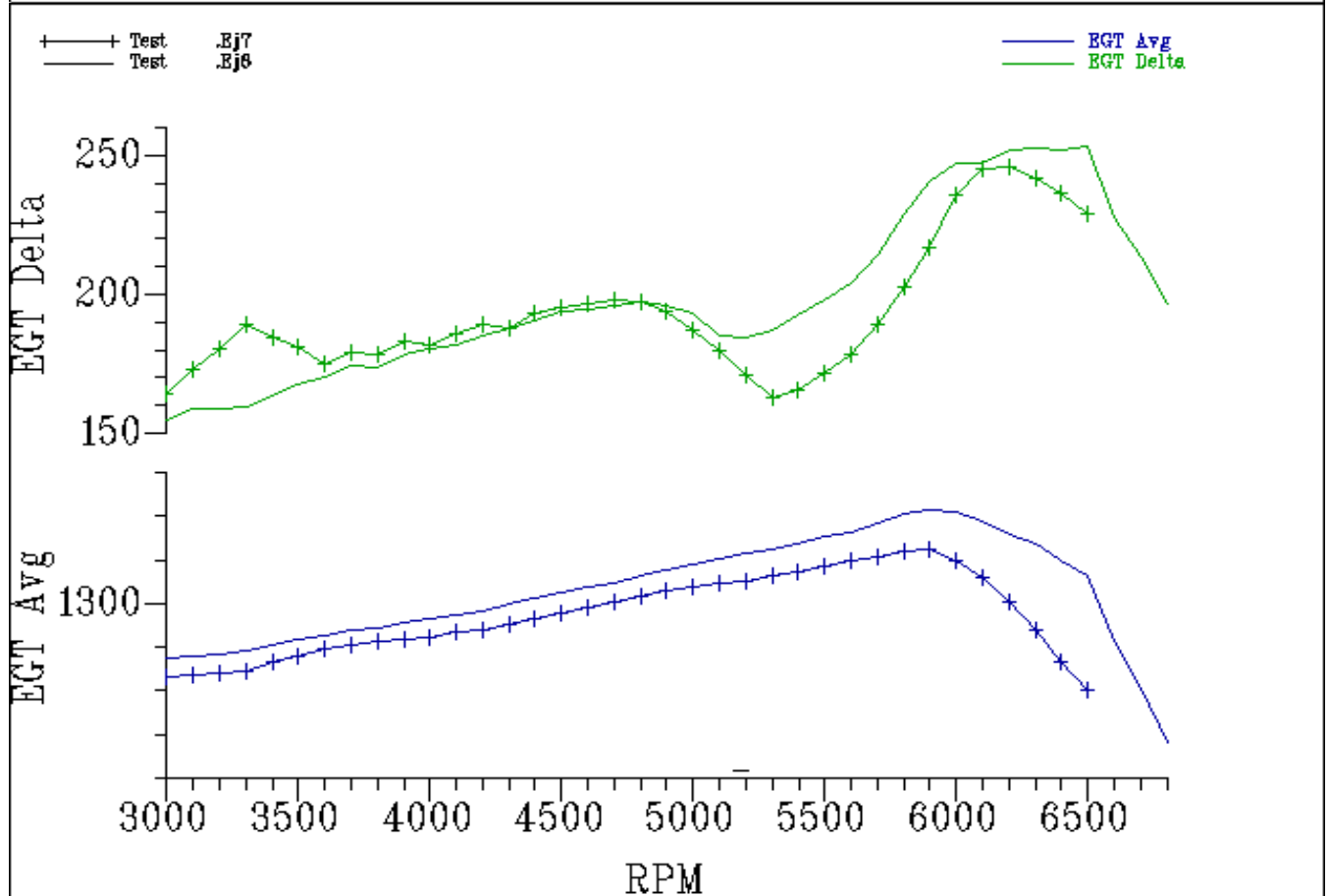
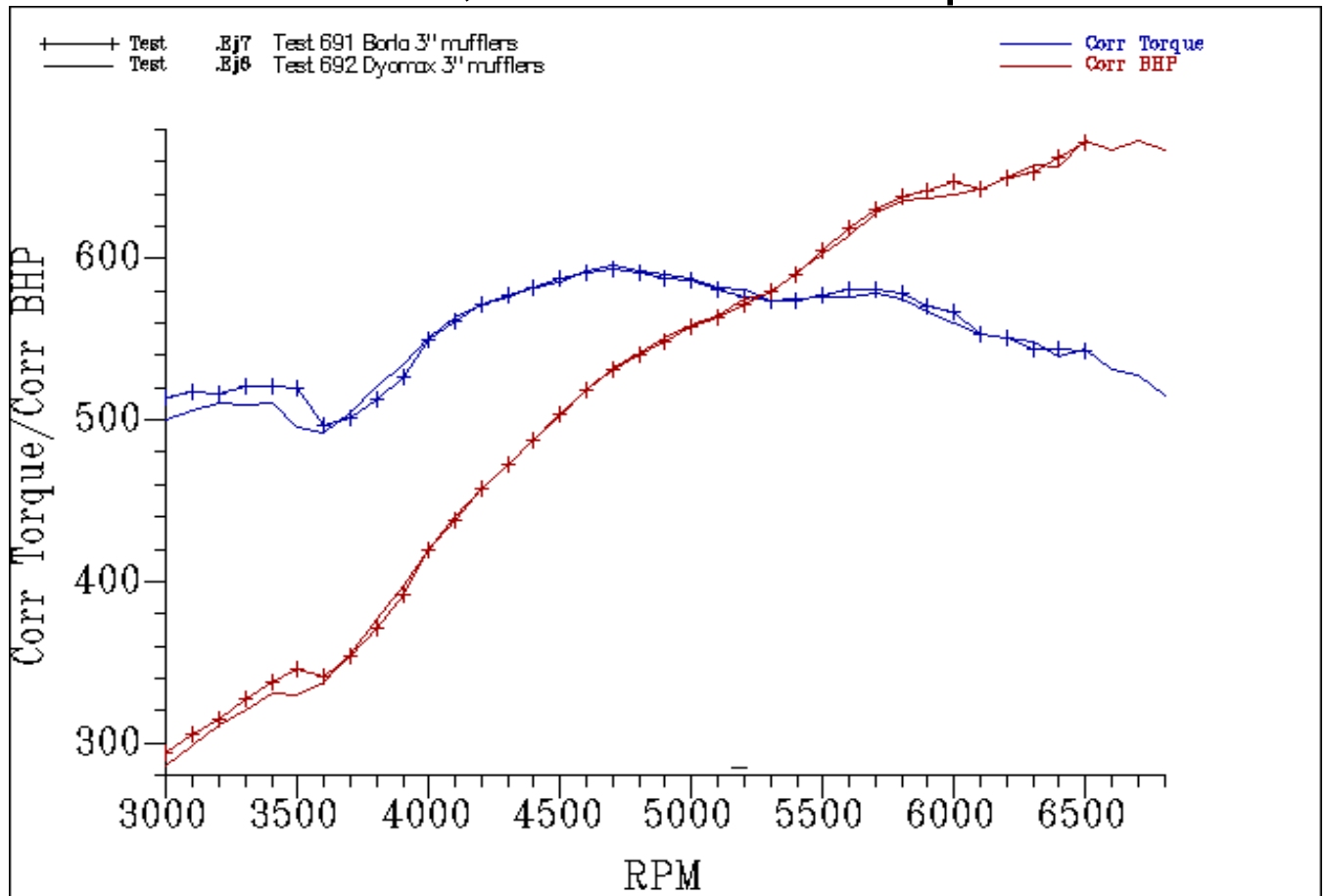
Tests 689, 690 Intake Plenum cone



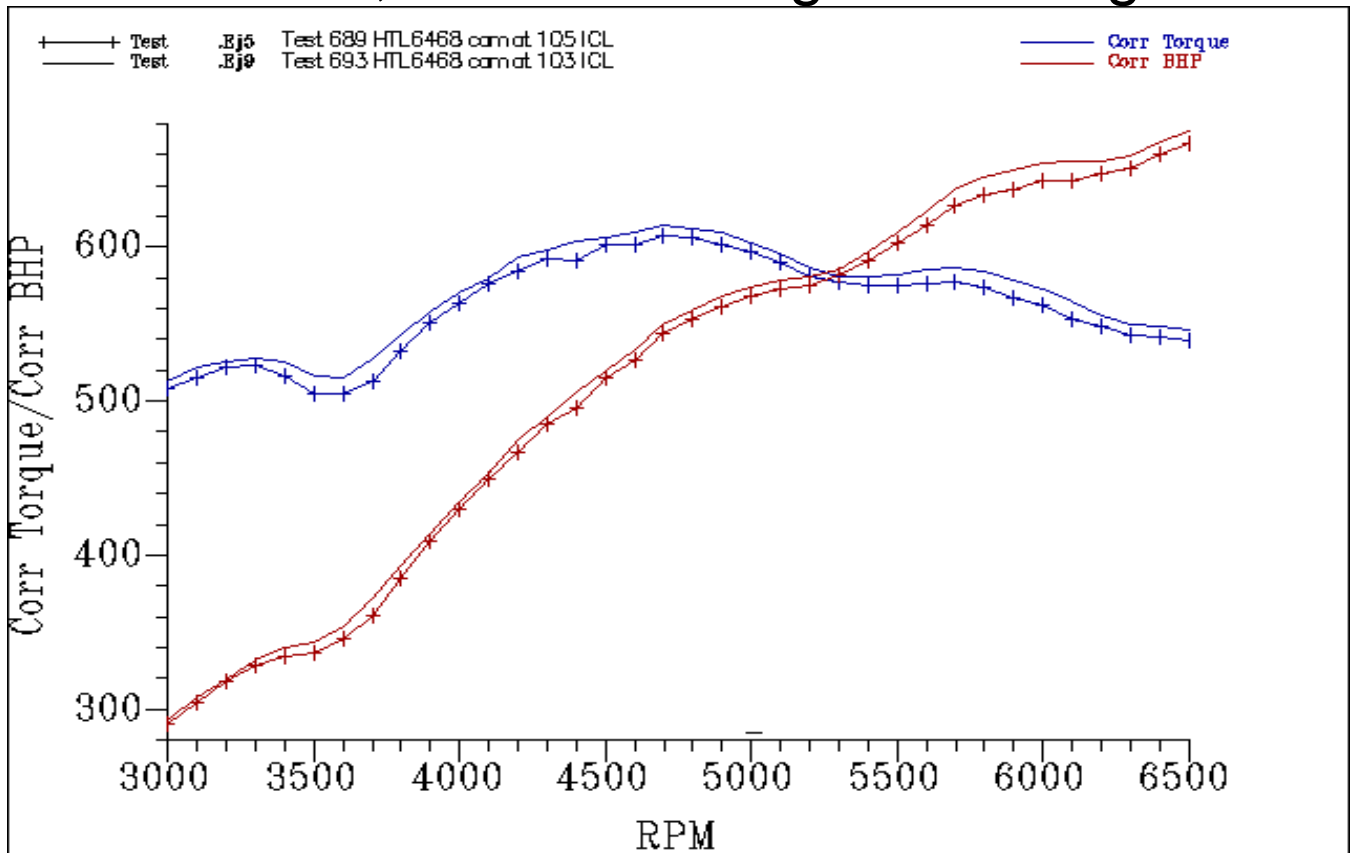
Tests 689, 691 Header comparison



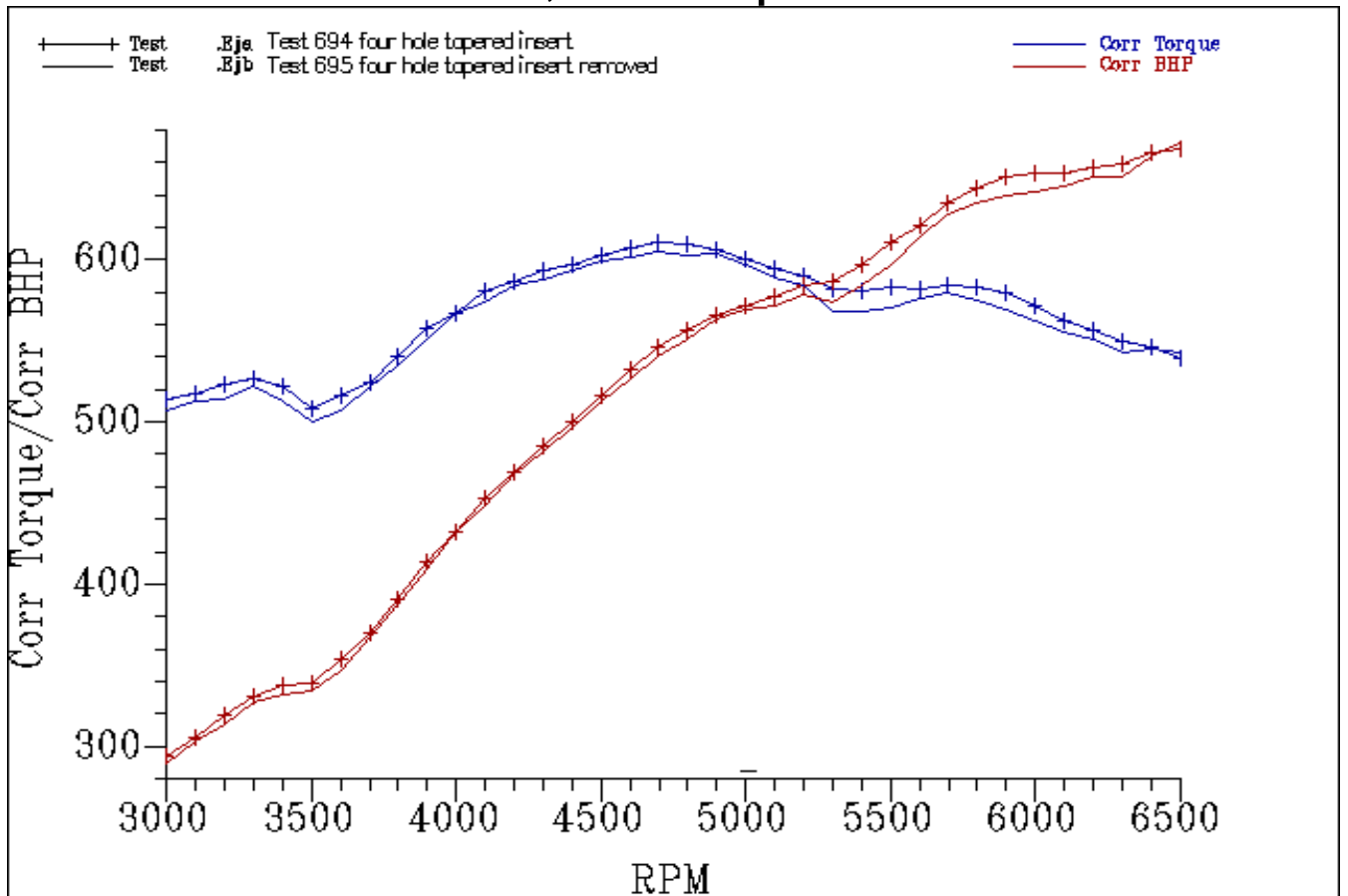
Tests 691, 692 muffler comparison



Tests 689, 693 advancing cam 2 degrees



Tests 694, 695 tapered insert



9-20-03 Tests 696 - 709 All these test were done with the HTL6872BS cam and the Borla mufflers. Test 696 was off on power. The power was way off on test 697, the test was aborted and the engine was shut down. A rocker shaft hold down bolt had pulled out of the head on the left side. The left side bolt holes were tapped to the bottom and longer bolts were used.

Test Notes

Tests 688-696 54% RH, 27.58" – 27.62" barometric pressure, 80° - 80° F inlet air.

Test 696 sweep test 6500-3000

- **Hughes Engines HTL6872BS cam at 106ICL**
- Bad test

Test 697 sweep test 6500-3000

- Test aborted

Test 698 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- 1 7/8 x 3 no name headers
- **Hughes Engines HTL6872BS cam at 106ICL**
- 92 Octane
- **Score 1064.9**

Test 699 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- 1 7/8 x 3 no name headers
- **Hughes Engines HTL6872BS cam at 104ICL**
- 92 Octane
- **Score 1077.1**

Test 700 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- 1 7/8 x 3 no name headers
- **Hughes Engines HTL6872BS cam at 102ICL**
- 92 Octane
- **Score 1079.6**

Test 701 sweep test 6500-3000

- Promax 1050 Dominator
- Lf84 rf85 lr84 rr85
- 34 total
- 1 7/8 x 3 no name headers
- Hughes Engines HTL6872BS cam at 102ICL
- 92 Octane
- **Score 1075.6**

Test 702 sweep test 6500-3000

- Mike's 1150 Dominator
- 97 square
- 34 total
- 1 7/8 x 3 no name headers
- Hughes Engines HTL6872BS cam at 102ICL
- 92 Octane
- **Score 1066.9**

Test 703 sweep test 6500-3000

- Promax 1050 Dominator **87 square**
- 34 total
- 1 7/8 x 3 TTI headers
- Hughes Engines HTL6872BS cam at 102ICL
- 92 Octane
- **Score 1066.1**

Test 704 sweep test 6500-3000

- Promax 1050 Dominator
- **32 total**
- 1 7/8 x 3 no name headers
- Hughes Engines HTL6872BS cam at 102ICL
- 92 Octane
- **Score 1068.9**

Test 705 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- **2 x 3 1/2 Hedman headers**
- bad test plug wire shorting to headers

Test 706 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- **2 x 3 1/2 Hedman headers**
- bad test muffler blew off

Test 707 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- **2 x 3 1/2 Hedman headers**
- Hughes Engines HTL6872BS cam at 102ICL
- 92 Octane
- **Score 1071.1**

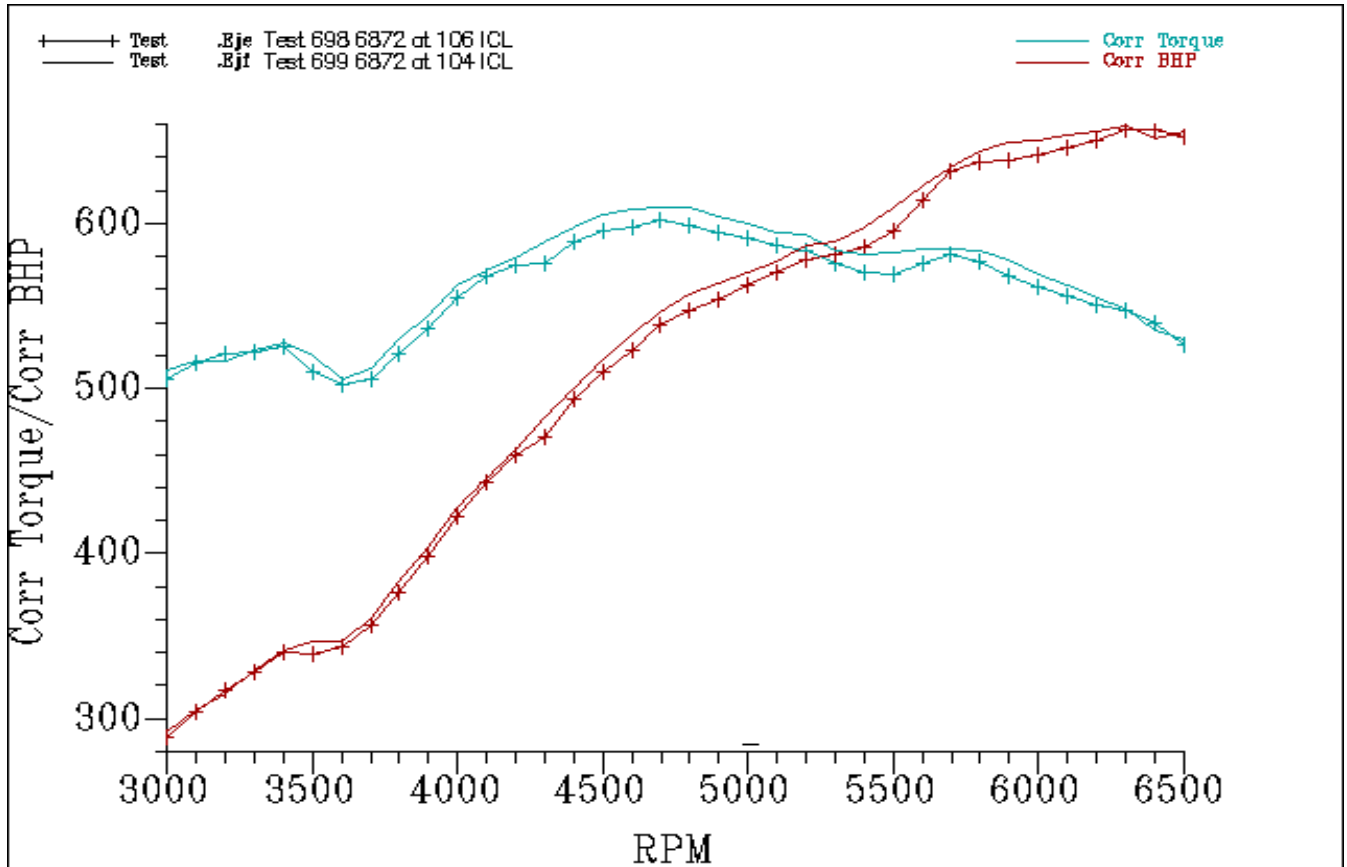
Test 708 sweep test 6800-3000

- Promax 1050 Dominator
- 34 total
- 2 x 3 1/2 Hedman headers
- Hughes Engines HTL6872BS cam at 102ICL
- 92 Octane
- **removed air cleaner**
- **Score 1064.3**

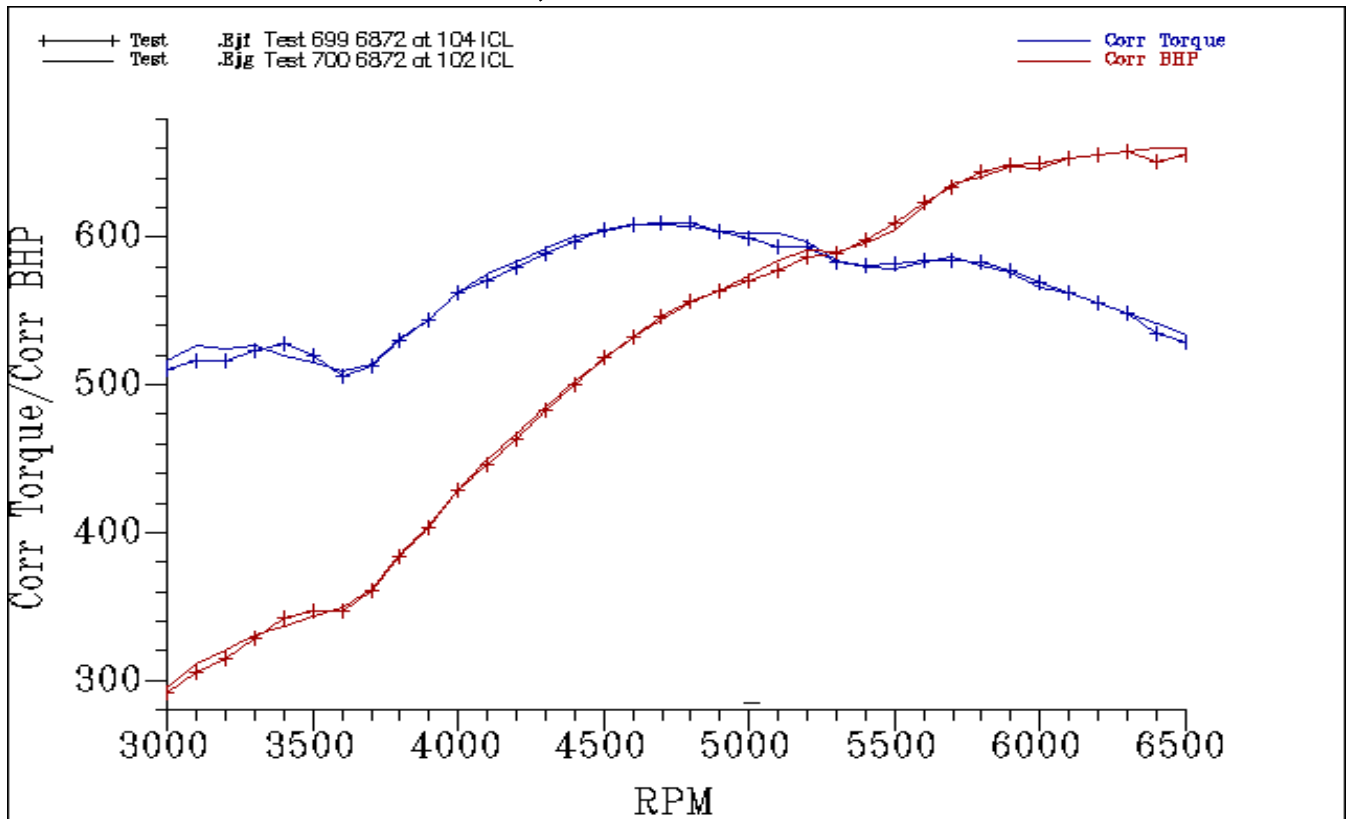
Test 709 sweep test 6500-3000

- Promax 1050 Dominator
- 34 total
- 2 x 3 1/2 Hedman headers
- **Hughes Engines HTL6872BS cam at 100ICL**
- 92 Octane
- **Score 1064.8**

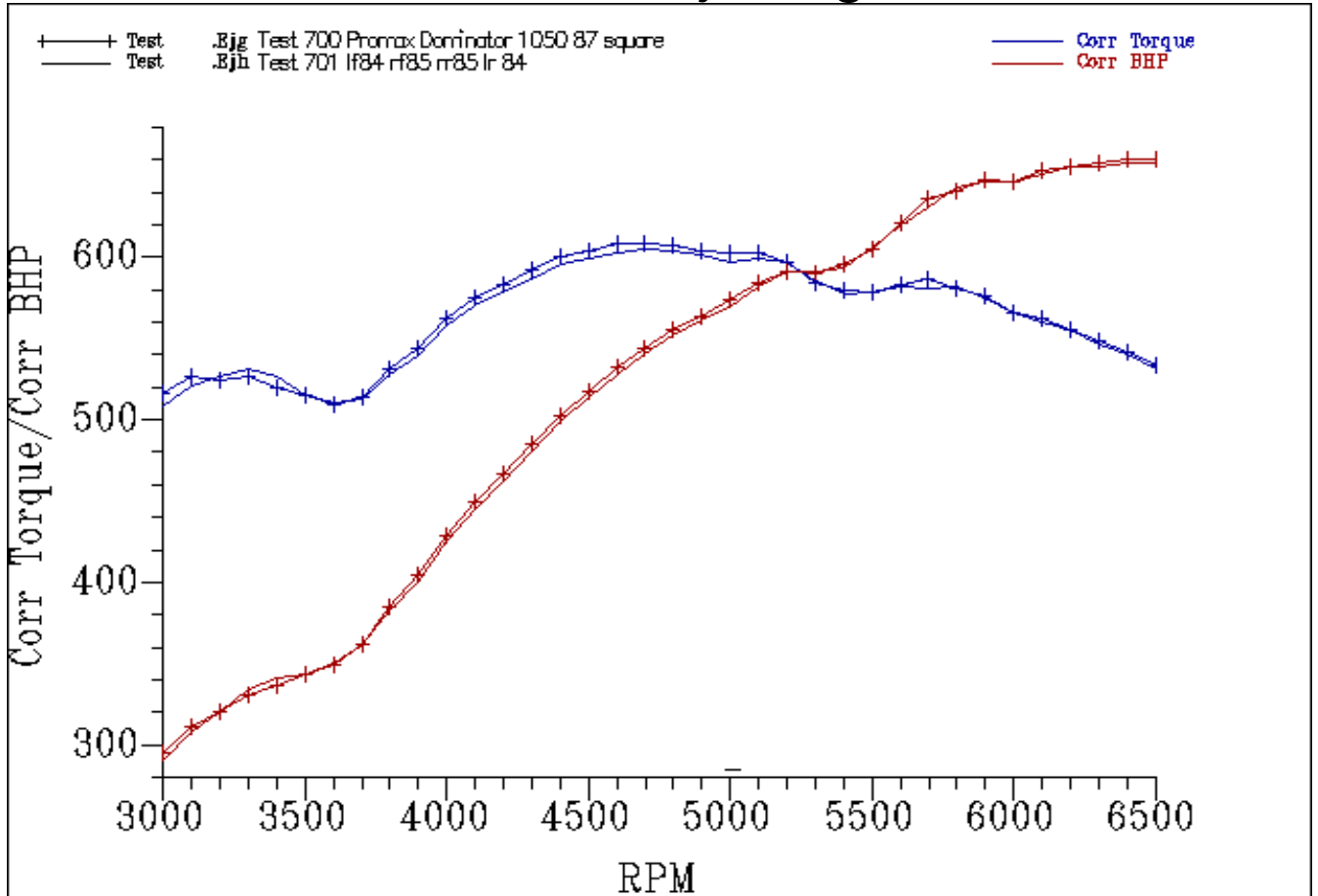
Tests 698, 699 cam advance



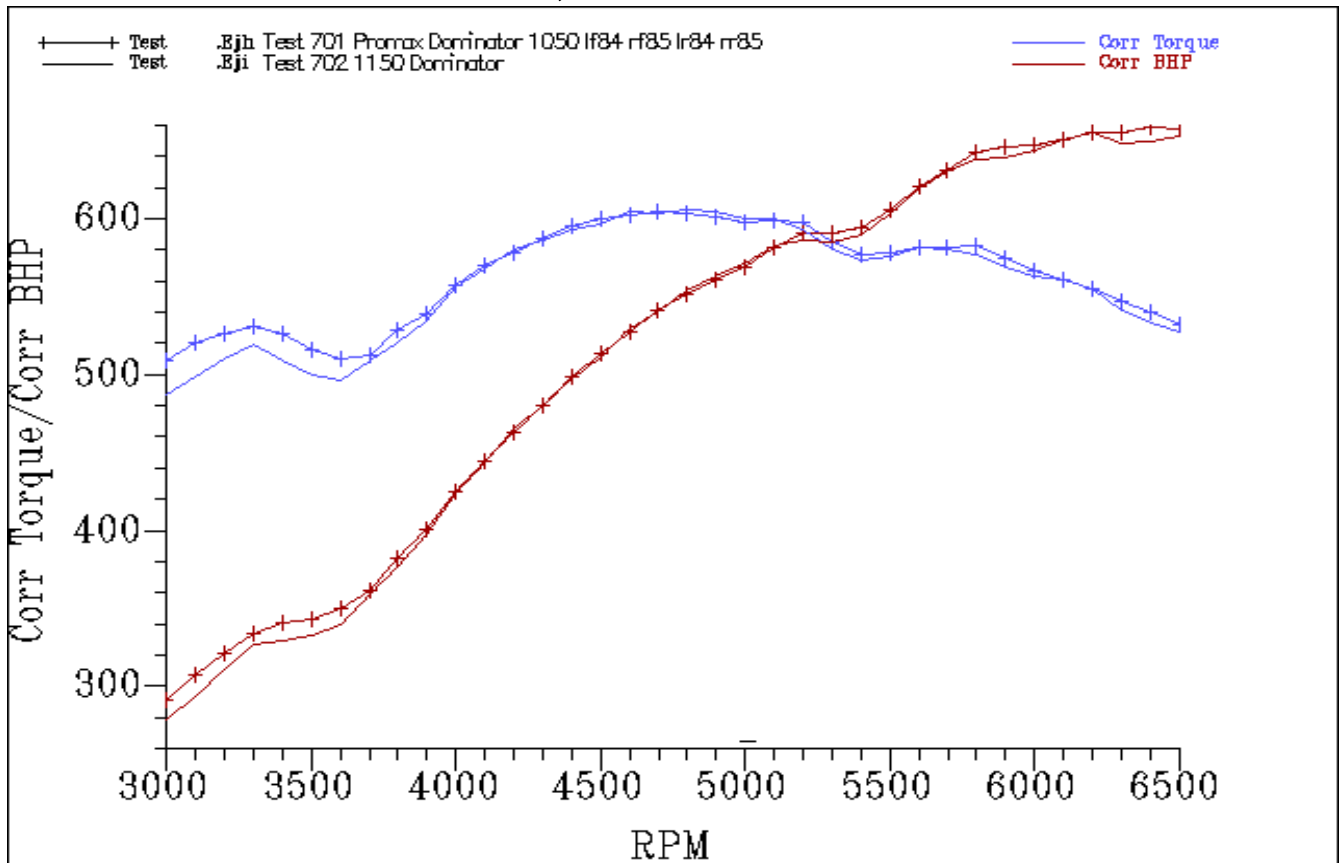
Test 699, 700 cam advance



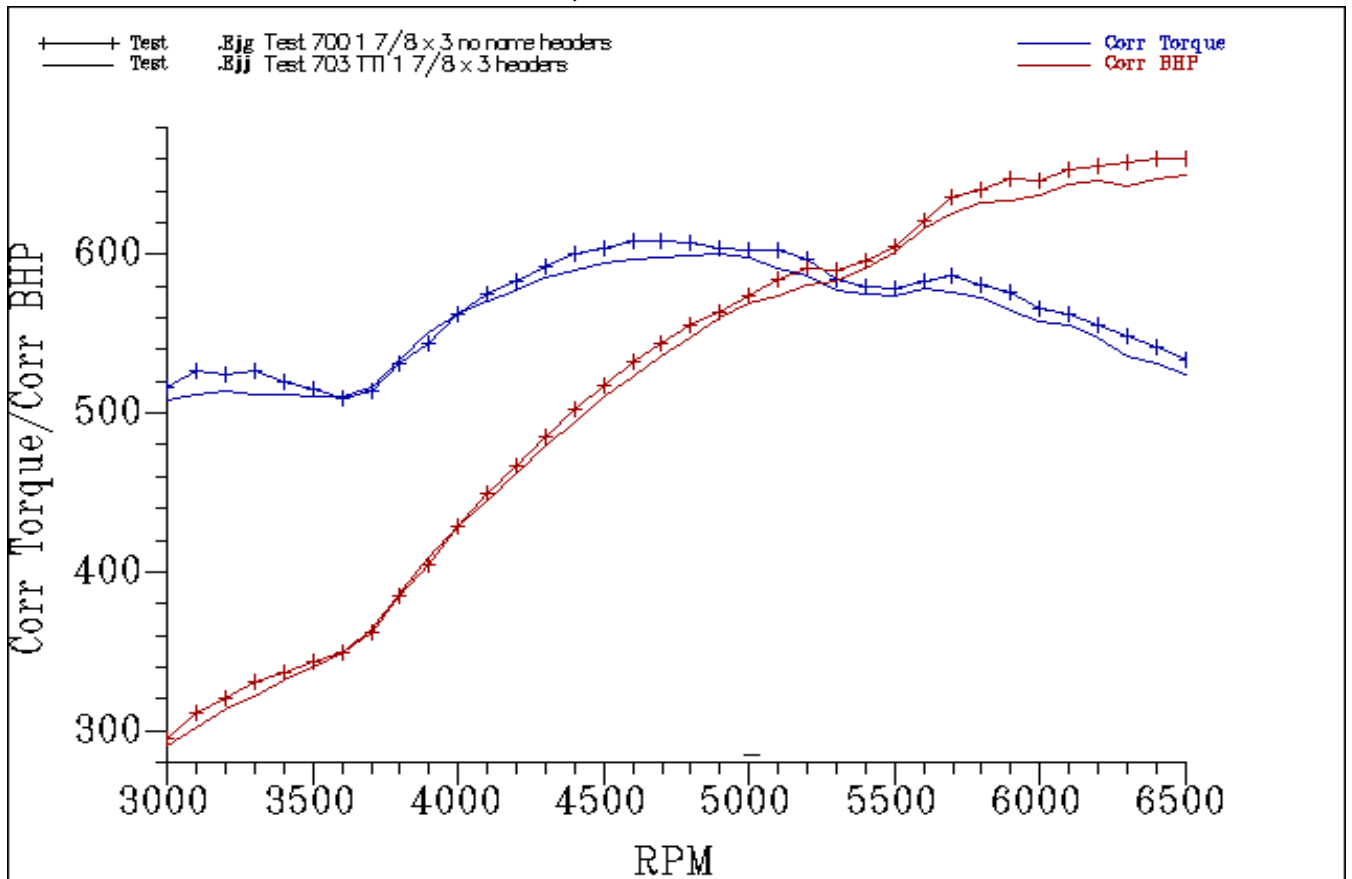
Tests 700, 701 jetting leaner



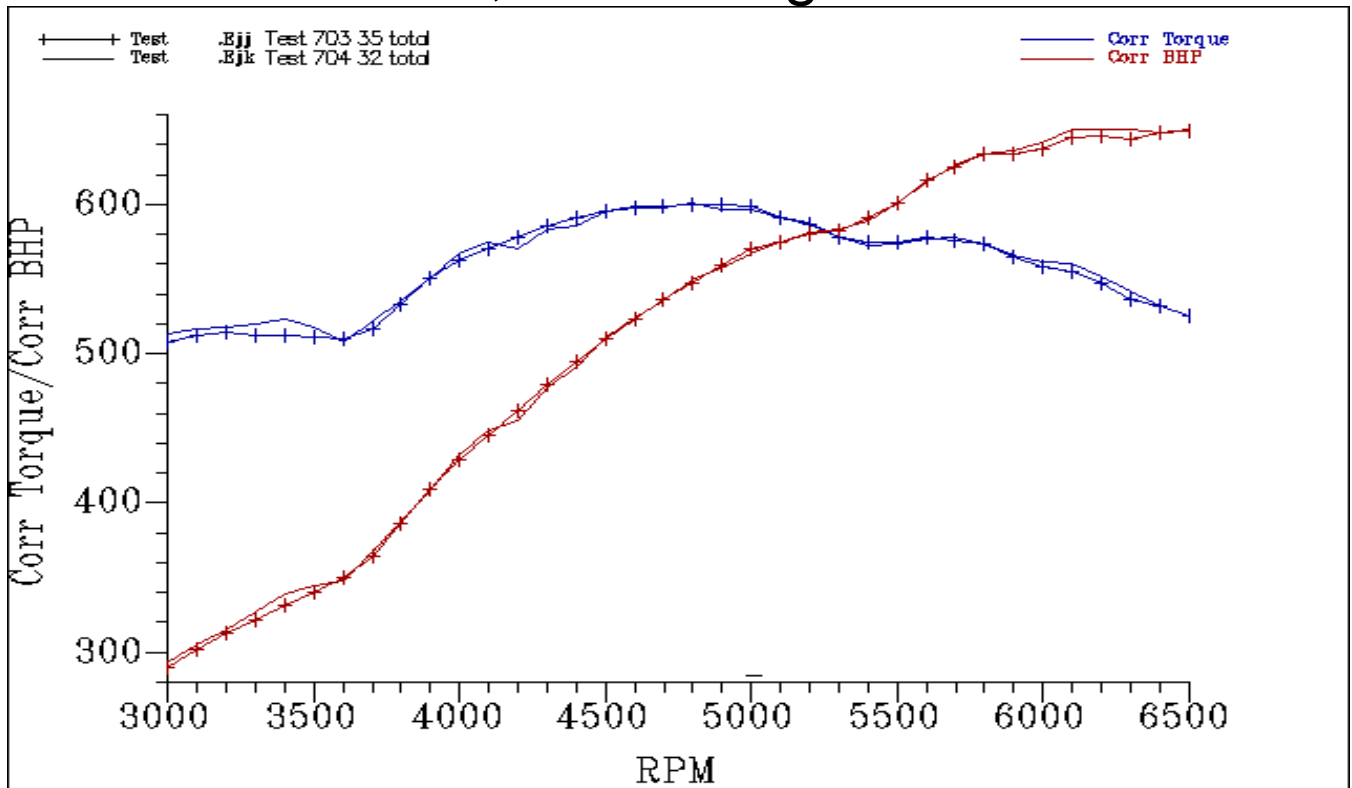
Test 701, 702 Mike's 1150



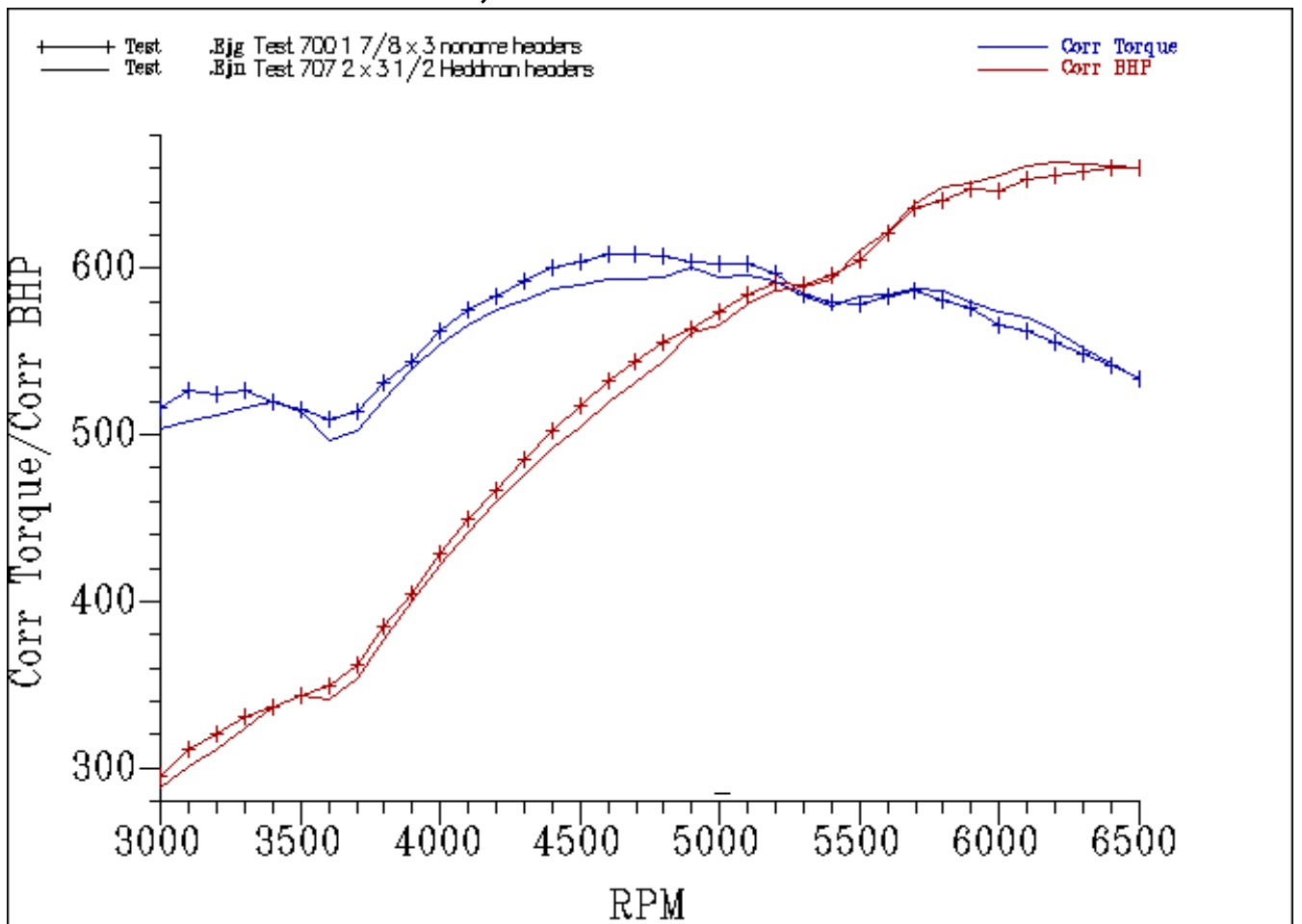
Tests 700, 703 TTI headers



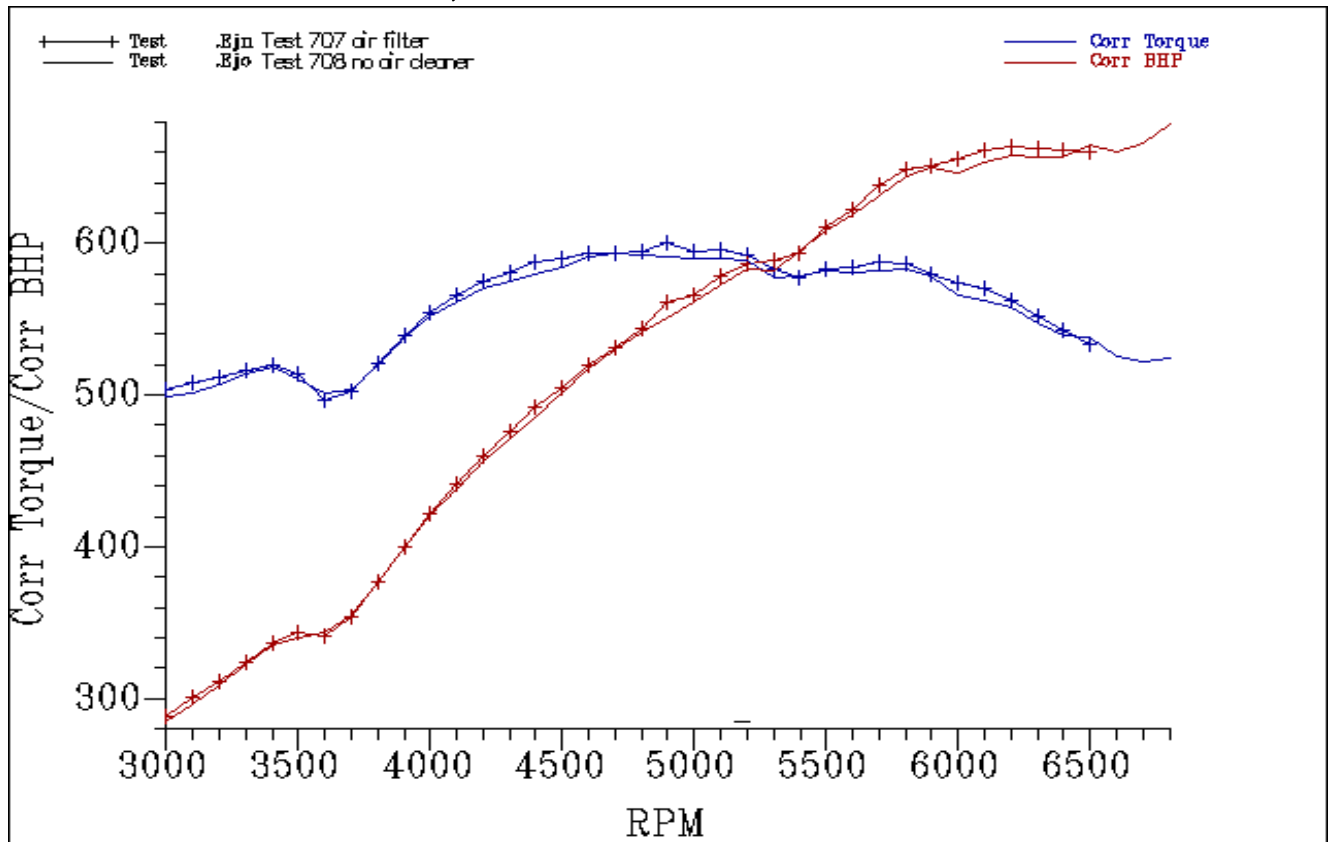
Test 703, 704 timing to 32 total



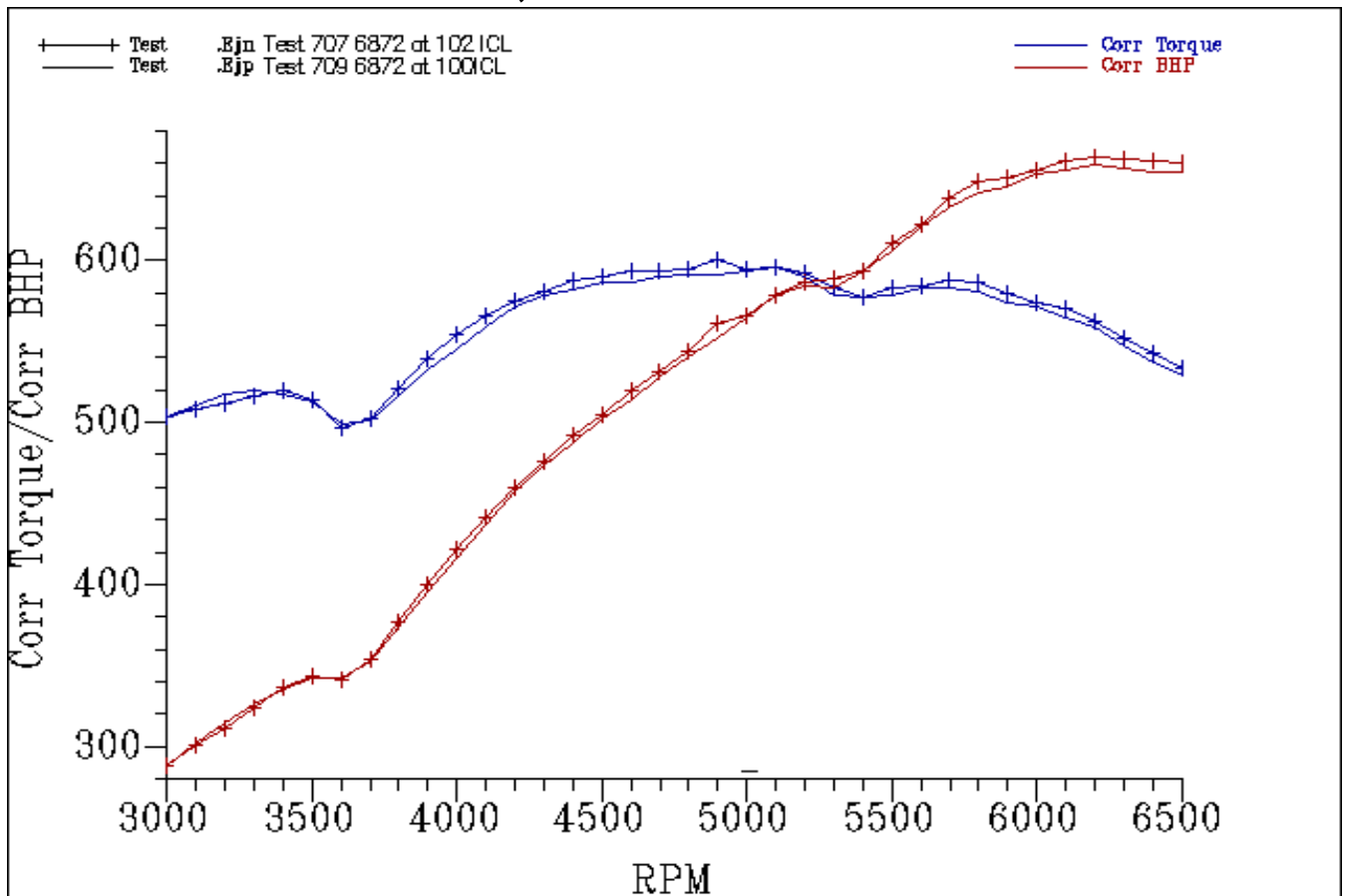
Tests 700, 707 Hedman headers



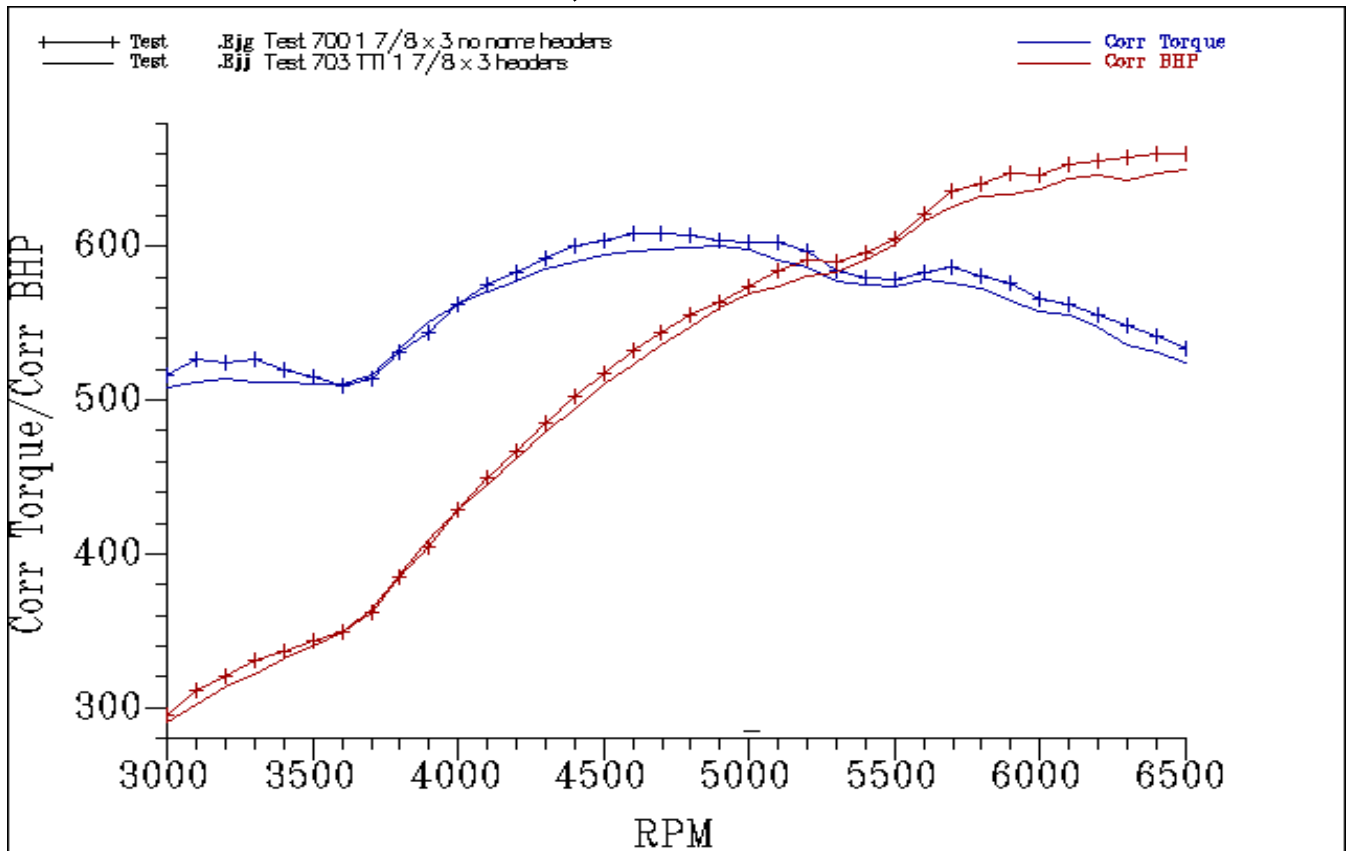
Tests 707, 708 removed air cleaner



Test 707, 709 advanced cam



Tests 700, 703 TTI headers



Test 693, 700 best of each cam

