Flex fuel testing
FK8 Civic Type R
Stock Civic Type R

Honda limits boost

<table>
<thead>
<tr>
<th>Engine Torque</th>
<th>Engine RPM</th>
<th>SAE (adapted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>332.01 lbft</td>
<td>67.2 mph</td>
<td>ratio 4.625:1</td>
</tr>
<tr>
<td>332.01</td>
<td>4018 rpm</td>
<td>tcf 1.000</td>
</tr>
<tr>
<td>332.01</td>
<td></td>
<td>delta 0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power</th>
<th>Engine RPM</th>
<th>SAE (adapted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>317.33 HP</td>
<td>105.9 mph</td>
<td>ratio 4.625:1</td>
</tr>
<tr>
<td>317.33</td>
<td>6330 rpm</td>
<td>tcf 1.000</td>
</tr>
<tr>
<td>317.33</td>
<td></td>
<td>delta 0.00</td>
</tr>
</tbody>
</table>
Hondata Fuel System base tune 57 hp 90 lb-ft

- Hondata Fuel System
- Hondata FlashPro
- 91 Octane (E10)
- Intercooler
- High flow cat
- Base tune

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**Engine Torque**

- 423.92 lbft
- 334.11 lbft

**Engine RPM**

- 80.5 mph
- 55.4 mph

**ratio**

- 3.746:1
- 3.746:1

**tcf**

- 1.000
- 1.000

**delta**

- 89.81
- 57.31

---

**Power**

- 374.63 HP
- 317.32 HP

**mph**

- 116.8
- 106.2

**rpm**

- 5659
- 6350

**tcf**

- 1.000
- 1.000

**delta**

- 57.31
Ethanol basics

- 34% less energy density
- 50% volume more to generate the same bang
- More than 100 octane (less knock)
- As ethanol evaporates the air is cooled
  - In cylinder charge cooler
E10-E52 44 hp 25 lb ft

Torque everywhere above 4000
Filling your tank

- Can you remember two numbers?
- 3 & 4
- 3 Gallons E85, 4 Gallons pump = E40
- 4 Gallons E85, 3 Gallons pump = E50
- E40-E50 has better range than E85
Higher ethanol content E52 +

<table>
<thead>
<tr>
<th>Engine Torque (lbft)</th>
<th>HP</th>
<th>Engine RPM (rpm)</th>
<th>Ratio</th>
<th>TCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>447.38</td>
<td>447.38</td>
<td>4271</td>
<td>3.746:1</td>
<td>1.000</td>
</tr>
<tr>
<td>88.2</td>
<td>119.4</td>
<td>5785</td>
<td>3.746:1</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Delta: 0.00
E52-73

A little less < 4000
A little more > 6500
Tuning and tech notes

- E85 needs 50% more volume
- But the Hondata fuel system delivers 24% more volume
- You can run full E85
- Boost reduced as the ethanol content climbs

- Injector duty 35%
- Fuel pump duty 90%
- Dyno tune leaner for more boost and pump duty
- Circuit race CTRs (no cat) >120 track hours at 13.2 air fuel
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