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Calibration Settings for the XDI 2000cc Injectors on 2017 to 2021 Civic Type R

These are our current best known settings for basic operation of the XDI Evo + 2000cc Injectors. To harness the full potential of the fuel system, there are more possible changes to the actual fueling strategy, which require in depth knowledge of DI-Fueling strategies. These settings are in constant development. We highly recommend working with one of our trained and authorized tuners.

Please send email to sales@xtreme-di.com when you encounter any issues.

Read the entire instructions before starting.



Calibration Settings:

1) Injector Slope

Stock: 0.035021 ms/%

XDI 2000cc: 0.020146 (Divide Stock Slope by Factor on Injector Cal Sheet)

2) Fuel Rail Pressure Target Warm:

There are six Fuel Pressure Target Tables that are all similar and you will need to adjust the fuel pressure in the idle range to be much lower than stock. We recommend 20 to 25bar, or 290 to 360psi.

stock

Fuel Pressure (Idle)									
Viewing Active Values									
Relative Load (%) - Reflash-only									
	13.04	16.04	18.05	20.05	25.07	30.08	40.11	45.12	
900	580.15	725.19	812.21	913.74	1160.30	1595.42	2465.65	2900.76	
1300	580.15	725.19	826.72	928.24	1160.30	1595.42	2465.65	2900.76	
1500	580.15	739.69	870.23	986.26	1276.33	1740.46	2610.68	2900.76	
2000	609.16	797.71	942.75	1145.80	1551.91	1595.42	1595.42	1595.42	
3000	638.17	870.23	1044.27	1305.34	1740.46	1740.46	1740.46	1740.46	
4000	652.67	913.74	1116.79	1392.36	1740.46	1740.46	1740.46	1812.98	
5000	652.67	928.24	1174.81	1450.38	1740.46	1740.46	1812.98	1885.49	
6000	652.67	928.24	1174.81	1464.88	1740.46	1740.46	1885.49	2030.53	
Engine Speed (RPM) - Reflash-only									
Rail Pressure (psi) - Reflash-only									

Fuel pressure (normal)									
1									
AirC	13.0	16.0	18.0	20.0	25.0	30.0	40.0	45.0	
900	40.0	50.0	56.0	63.0	80.0	110.0	170.0	200.0	
1300	40.0	50.0	57.0	64.0	80.0	110.0	170.0	200.0	
1500	40.0	51.0	60.0	68.0	88.0	120.0	180.0	200.0	
2000	42.0	55.0	65.0	79.0	107.0	140.0	200.0	200.0	
3000	44.0	60.0	72.0	90.0	125.0	155.0	200.0	200.0	
4000	45.0	63.0	77.0	96.0	126.0	156.0	200.0	200.0	
5000	45.0	64.0	81.0	100.0	130.0	160.0	200.0	200.0	
6000	45.0	64.0	81.0	101.0	131.0	161.0	200.0	200.0	

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Example of modified Fuel Pressure Tables

Fuel Pressure (Normal)									
Relative Load (%) - Reflash-only									
	13.04	16.04	18.05	20.05	25.07	30.08	40.11	45.12	
900	290.00	290.00	290.00	290.00	290.00	290.00	439.97	439.97	
1300	290.00	290.00	290.00	290.00	290.00	290.00	580.01	580.01	
1500	381.16	435.04	476.52	534.54	650.57	787.27	1063.27	1097.72	
2000	609.16	673.77	716.85	759.93	867.62	975.38	1190.76	1298.45	
3000	638.17	737.74	804.02	870.45	1036.37	1202.29	1534.07	1699.99	
4000	652.67	766.45	842.31	918.24	1107.87	1297.58	1676.93	1866.64	
5000	652.67	782.12	868.34	954.64	1170.46	1386.20	1817.62	2033.36	
6000	652.67	797.71	894.38	991.12	1232.90	1474.67	1958.23	2200.01	
Engine Speed (RPM) - Reflash-only									
Rail Pressure (psi) - Reflash-only									

Fuel pressure (idle)									
1									
AirC	13.0	16.0	18.0	20.0	25.0	30.0	40.0	45.0	
700	20.0	20.0	20.0	20.0	20.0	20.0	30.0	30.0	
1000	20.0	20.0	20.0	20.0	20.0	20.0	40.0	40.0	
1500	31.0	32.5	37.5	44.5	56.0	60.0	70.0	70.0	
2000	42.0	45.0	55.0	69.0	92.0	100.0	100.0	100.0	
3000	44.0	50.0	62.0	80.0	105.0	110.0	115.0	120.0	
4000	45.0	53.0	67.0	86.0	105.0	110.0	115.0	125.0	
5000	45.0	54.0	71.0	90.0	105.0	110.0	120.0	130.0	
6000	45.0	54.0	71.0	91.0	105.0	110.0	125.0	140.0	

3) Fuel Rail Pressure Start:

Stock

Fuel Pressure (Start)						
Viewing Active Values						
Engine Temperature (F) - Reflash-only						
-22.0	-4.5	14.5	32.0	68.5	122.5	
2465.65	2030.53	1740.46	1450.38	1015.27	870.23	
Rail Pressure (psi) - Reflash-only						

Fuel pressure (start)						
Fuel pressure at start						
Live	ECT	-30.0	-20.3	-9.8	0.0	20.3 50.3
	FP (bar)	170.0	140.0	120.0	100.0	70.0 60.0
Fuel pressure start timer		15 s				

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Lower pressure for start up

Fuel Pressure (Start)						
Viewing Active Values						
Engine Temperature (F) - Reflash-only						
-22.0	-4.5	14.5	32.0	68.5	122.5	
1470.03	1373.44	1269.45	1172.85	972.19	675.01	
Rail Pressure (psi) - Reflash-only						

Fuel pressure (start)						
Fuel pressure at start						
Live	ECT	-30.0	-20.3	-9.8	0.0	20.3 50.3
	FP (bar)	100.0	93.0	96.0	60.0	48.0 46.0
Fuel pressure start timer		15 s				

4) Cranking Fuel Adjustment / After Start Fuel:

You may need to make adjustments to this table as needed. More fuel may be necessary during cold start.

Cranking Fuel Adjustment		
Viewing Active Values		
Rail Pressure (psi) - Reflash-only		
	145.04	1450.38
-22.0	3.98	3.95
-12.6	3.98	3.94
-4.5	3.94	3.88
5.0	3.77	3.72
14.5	3.58	3.52
32.0	3.08	3.02
49.6	2.55	2.48
68.5	1.94	1.89
86.0	1.75	1.69
140.0	1.63	1.56
194.0	1.50	1.45
230.5	1.44	1.39
Engine Temperature (F) - Reflash-only		
Offset (-) - Reflash-only		

After start fuel													
Live	ECT	-30.0	-24.8	-20.3	-9.8	0.0	9.8	20.3	30.0	50.3	69.8	80.3	90.0
	Trim (%)	24	20	17	11	8	6	5	4	3	3	2	2
After start fuel (split injection)													
Live	ECT	-30.0	-24.8	-20.3	-9.8	0.0	9.8	20.3	30.0	50.3	69.8	80.3	90.0
	Trim (%)	18	16	13	10	7	4	2	2	2	2	1	1

5) CVO (Control Valve Operation):

This will need to be turned off. In Hondata, it is a simple check box. With Cobb, tables will need to be adjusted accordingly.

Stock :

CVO Adaptation Pressure Priority - Temperature Step 1
Viewing Comparison Values

CVO Rail Pressure (psi) - Read-only

18.565	37.130	872.549	1745.097	2896.119
0.00	0.00	3.00	2.00	1.00

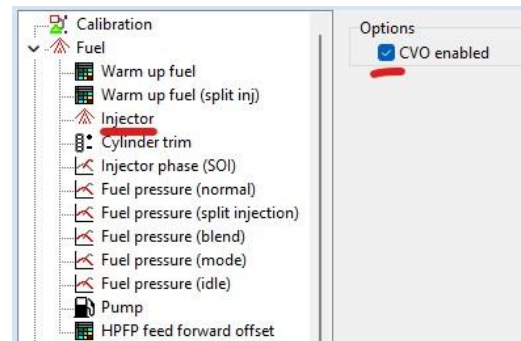
Unk (-) - Read-only

CVO Adaptation Pressure Priority - Temperature Step 1
Viewing Active Values

CVO Rail Pressure (psi) - Reflash-only

18.565	37.130	649.770	928.243	1206.716
0.00	0.00	3.00	2.00	1.00

Unk (-) - Reflash-only



For Hondata, uncheck the box to disable CVO. For Cobb, you will need to change the axis values for CVO Rail Pressure for both Temp Step Tables 1 and 2.

6) Start of Injection (SOI):

Start of injection may need to be advanced on a case by case basis. This is something that will require some adjustment, but you can start by advancing the whole table by 2 to 5 % if you are still having issues after the above changes have been made.

Injector Phase (SOI)
Viewing Active Values

Air Charge (%) - Reflash-only

	15.0	20.3	35.3	50.3	65.3	80.3	90.0	99.8	110.3	129.8	170.3	191.3
780	279.8	279.8	279.8	279.8	283.6	290.3	290.3	289.6	291.8	297.1	300.8	301.6
1080	279.8	279.8	279.8	285.1	285.1	290.3	290.3	290.3	293.3	297.8	300.8	301.6
1400	270.1	270.1	279.8	285.1	285.1	294.8	296.3	297.1	297.8	299.3	300.8	300.8
2120	260.3	260.3	279.8	285.1	290.3	300.1	300.1	300.1	300.1	300.1	300.1	300.1
2800	264.8	264.8	279.8	285.1	290.3	300.1	300.1	300.1	300.1	300.1	300.1	300.1
3040	270.1	273.8	285.8	293.3	300.1	305.3	306.1	306.8	308.3	309.1	309.8	309.8
3760	275.3	279.1	291.1	294.8	299.3	305.3	306.8	309.1	311.3	312.8	317.3	323.3
4520	279.8	284.3	296.3	300.1	303.8	309.8	314.3	318.1	321.8	326.3	333.8	345.1
5200	283.6	288.1	300.1	303.8	307.6	313.6	318.1	321.8	325.6	333.1	353.3	362.3
6000	291.1	294.8	306.8	311.3	315.1	321.1	325.6	329.3	333.1	345.1	353.3	362.3
6500	299.3	303.8	315.8	319.6	323.3	329.3	333.8	337.6	341.3	347.3	353.3	362.3
7000	309.8	314.3	326.3	330.1	333.8	339.8	344.3	348.1	351.8	351.8	353.3	362.3

Engine Speed (RPM) - Reflash-only

Crank Angle BTDC (%) - Reflash-only

Injector phase (SOI)

	15.0	20.3	35.3	50.3	65.3	80.3	90.0	99.8	110.3	129.8	170.3	191.3
780	279.8	279.8	279.8	279.8	283.5	290.3	290.3	289.5	291.8	297.0	300.8	301.5
1080	279.8	279.8	279.8	285.0	285.0	290.3	290.3	290.3	293.3	297.8	300.8	301.5
1400	270.0	270.0	279.8	285.0	285.0	294.8	296.3	297.0	297.8	299.3	300.8	300.8
2120	260.3	260.3	279.8	285.0	290.3	300.0	300.0	300.0	300.0	300.0	300.0	300.0
2800	264.8	264.8	279.8	285.0	290.3	300.0	300.0	300.0	300.0	300.0	300.0	300.0
3040	270.0	273.8	285.8	293.3	300.0	305.3	306.0	306.8	308.3	309.0	309.8	309.8
3760	275.3	279.0	291.0	294.8	299.3	305.3	306.8	309.0	311.3	312.8	317.3	323.3
4520	279.8	284.3	296.3	300.0	303.8	309.8	314.3	318.0	321.8	326.3	333.8	345.0
5200	283.5	288.0	300.0	303.8	307.5	313.5	318.0	321.8	325.5	333.0	353.3	362.3
6000	291.0	294.8	306.8	311.3	315.0	321.0	325.5	329.3	333.0	345.0	353.3	362.3
6500	299.3	303.8	315.8	319.5	323.3	329.3	333.8	337.5	341.3	347.3	353.3	362.3
7000	309.8	314.3	326.3	330.0	333.8	339.8	344.3	348.0	351.8	351.8	353.3	362.3

7) General Rail Pressure strategy

If you are still having issues with cold start, hot start, hot idle, cruising misfire, you might need to increase or decrease rail pressure again. Especially on full E85.

Ethanol blends burn better with high fuel pressure, so keep pressure up.

Pump gas needs lowest amount of fuel, so inj msec will tend to be low, take pressure down.

The injector pulse needs to stay above 0.8msec at all times, regardless the fuel type.

You might need to adjust fueling tables a bit as well at low loads. This all depends on the amount of changes in the build and calibration.

One Table that is helpful when fuel pressure does not quite follow desired is the MSV Feed Forward Control (Cobb) / HPFP Feed Forward Gain (Hondata)

MSV Feed Forward Control
Viewing Active Values
KLVSTMSVGX (RPM) - Reflash-only

700	1000	2000	3000	4000	5000	6000	7000
0.17322	0.16150	0.16150	0.14148	0.13147	0.11157	0.12518	0.12518

Gain (-) - Reflash-only

HPFP feed forward gain

Live	rpm	700	1000	2000	3000	4000	5000	6000	7000
	Factor	0.1732	0.1615	0.1615	0.1415	0.1315	0.1116	0.1116	0.1116

Adjust this up or down in the rpm range where pressure is under or overachieving target and you will see that pressure is more apt to follow target as you get this table further dialed in.

8) Data Logging

When tuning DI aftermarket parts, you should always log desired and actual rail pressure, HPFP duty cycle or delivery angle, DI injector pulse in msec, DI start of injection.

9) Injector Issues

When having issues with tuning the bigger injectors, swapping back to stock injectors is not a fair way to fully blame the aftermarket injectors for the problem. There is never an instance where the only thing that changes is the injectors because the tune also has to change in order to run the stock injectors. Therefore, the problem could still be both with the tune or with the injectors since both have changed

These injectors do not like to run on high pressure at idle. This forces a very small Pulswidth and will cause idle and drivability issues. The Honda's like to start up in a high pressure CSER mode which needs to be tuned out in order to prevent this issue.

Limitations:

The limits for the XDI Evo Pump and 2000cc Injectors are:

Rail Pressure = 220bar / 22MPa (250bar absolute limit for single pressure overshoots)
minimum Pulsewidth = 0.8msec (please adjust desired rail pressure accordingly)

Special Thanks to John Pierro at FK8TD for his support in creating this Guide.