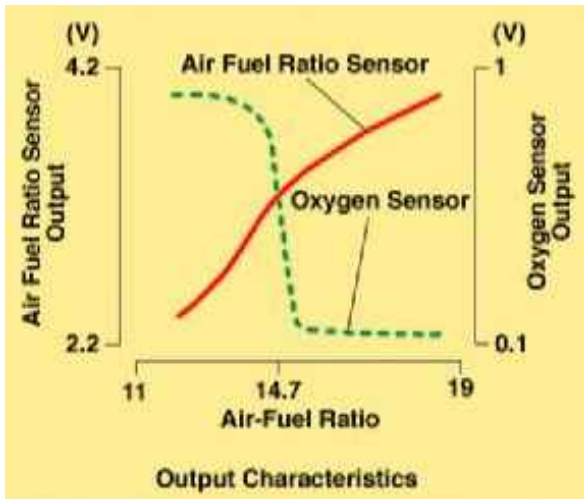


The Zero Fossil Fuel Dual EFIE

[Click here for the complete parts list.](#)

Re dual o2, you only need to offset the one before the cat. The only time you need dual O2 EFIE is if you have dual cats or dual O2 sensors before the one cat like my honda on the factory header manifold.

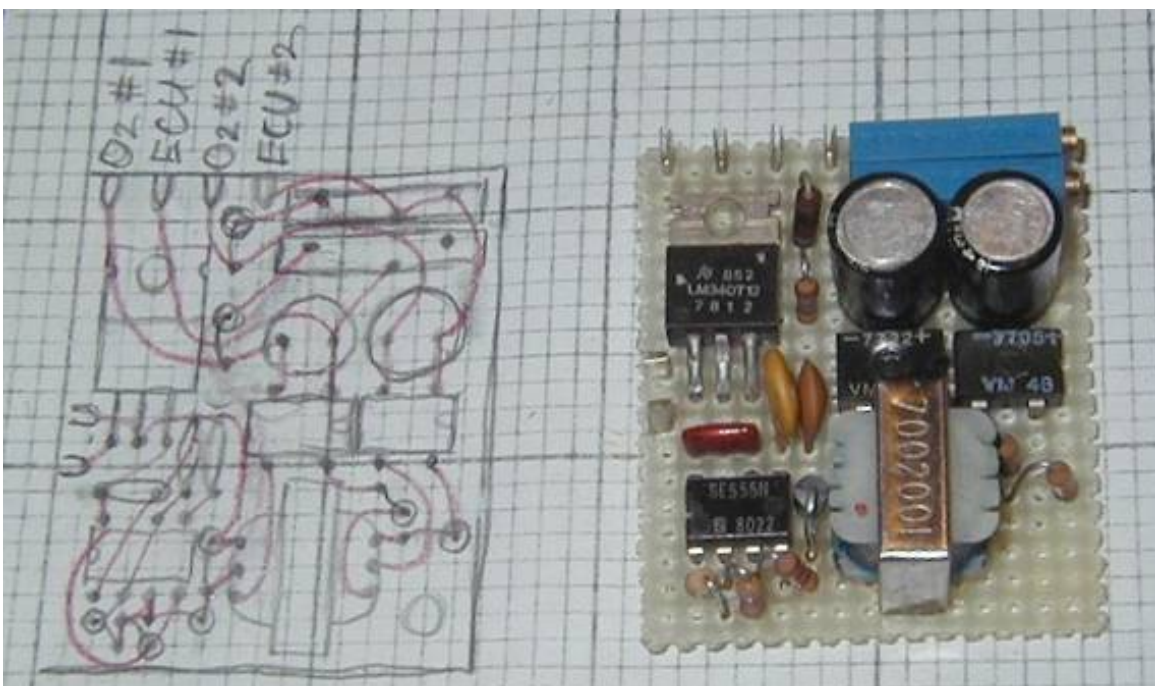
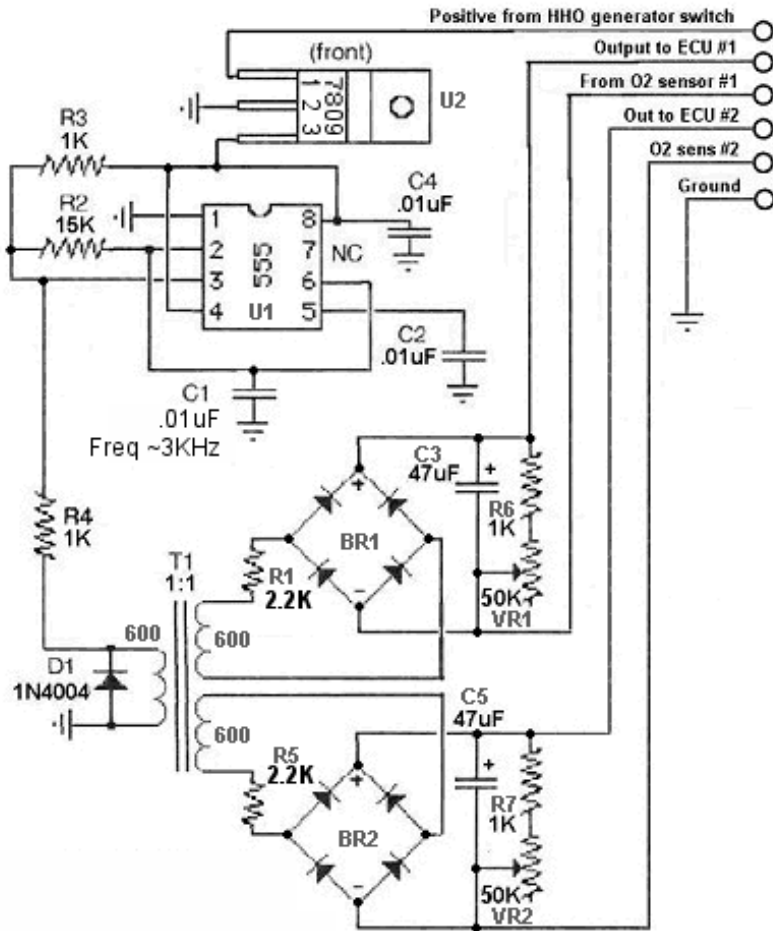
But here's a new twist. Newer vehicles are now using a combination of O2 sensors after the cat and wideband A/F sensors before the cat. The voltage curves between them are opposite! The only way to tell for sure what you have is to pierce the wire going to it, rev the engine once warmed up to around 2500 RPM and measure the voltage in operation with a good DMM. O2 sensors will float around 0.5V, A/F sensors around 3.2V



On the O2 sensors, + from the EFIE goes to the ECU, - to the O2 sensor.

On the A/F sensors, - from the EFIE goes to the ECU, + to the O2 sensor.

Slightly modified EFIE showing my own final values. LED's were removed because I don't need to see pretty lights that do nothing. Switch was also removed because A) Any time the HHO generator is turned on the EFIE should also, and B) If the HHO generator is turned off, the effect of the sum resistance of R5 + R6 in series with the O2 sensor is nil. This also prevents any sharp transitions from being sent to the ECU. New design also sports dual independent outputs for dual O2 sensors. Range is -50mV - 550mV.





If you have correspondence you would like to send me personally, please use [My PGP public key for zerofossilfuel at gmail dot com](#), especially if it is so sensitive that you fear it may be intercepted in transit and analyzed by all of the wrong people. And believe me, if you send it to me, it will be read by someone else unless you do encrypt it. You have been advised.

Dual EFIE Parts List

Unless noted, all resistors are in ohms, 1/4W, 5% tolerance. All capacitors are in uF, 16V minimum

Designation	P/N	Qty	Description	Mouser	Digi-Key	Jameco
U1	LM555CN	1	Timer I.C.	512-LM555CN \$0.26 ea	LM555CNFS-ND \$0.44 ea	27422 \$0.29 ea
U2	7809 LM340T-9	1	9V Regulator, TO-220	512-MC7809ECT \$0.38 ea	497-1448-5-ND \$0.65 ea	876352 \$0.56 ea
T1	Triad TY-300P	1	600pri : 600/600 Sec audio transformer	553-ty300p \$5.56 ea	237-1123-ND \$5.56 ea	630475 \$5.49 ea
BR1, BR2		2	DIP full wave bridge	512-DF01M \$0.33 ea	DF01M-ND \$0.049 ea	103000 \$0.35 ea
D1	1N4004	1	Rectifier	755-1N4004AT-82 \$0.49 ea	1N4004RLG \$2.27 for 10	1537918 \$0.25 ea
R1, R5	2.2k	2	Resistor			
R2	15K	1	Resistor			
R3, R4, R6, R7	1k	4	Resistor			
C1	0.01uF	1	Mylar film cap			
C2, C4	0.01uF	2	Disk ceramic cap			
C3, C5	47uF	2	Electrolytic cap			
VR1, VR2	Bourns 3006P-1-503LF or 3296W-1-503LF	2	50K Linear taper trim pot	652-3006P-1-503-LF \$1.55 ea or 652-3296P-1-503LF \$2.37 ea	3006P-503LF-ND \$1.73 ea or 3296W-503LF-ND \$2.50 ea	696108 \$1.49 ea or 769485 \$1.65 ea

		1	Perf board, 0.1"x0.1" hole pattern			
		1	Project box			
Misc: Perf board terminals, ground lugs, binding posts, stand-offs, hookup wire.						