

5.7L PFI Vin J (Corvette) Inputs

Connector Letter/Pin #	Signal Name	Initials	Wire Color	Test Description and Specifications - Allow 10% Variance
A6	Vehicle Speed Sensor Magnetic	VSS MAG	Yellow	Indicated vehicle speed must match actual MPH. Two wire sensor generates AC voltage. As speed increases, voltage increases. 20 MPH is 5V AC or 155Hz, 30 MPH is 7.5V AC or 200Hz, 45 MPH is 9V AC or 306Hz and 65 MPH is 11.7V AC or 430Hz.
A11	Vehicle Speed Sensor Magnetic	VSS MAG	Purple	Indicated vehicle speed must match actual MPH. Two wire sensor generates AC voltage. As speed increases, voltage increases. 20 MPH is 5V AC or 155Hz, 30 MPH is 7.5V AC or 200Hz, 45 MPH is 9V AC or 306Hz and 65 MPH is 11.7V AC or 430Hz.
A14	Distributorless Ignition System Fault Circuit	DIS FAULT	Dark Green	DIS Module provides a 50% battery voltage signal to ECM. KOEO/ER is 6.1V to 7.2V. Under 1 volt or above 11 volts sets Code 16, MIL lamp ON.
A16	Left O2 Sensor Signal	O2S	Purple	Voltage indicates oxygen content in exhaust. Lean is .10 to .44 volts, rich is .46 to .99 volts. Voltage must change at idle and cruise. Heavy deceleration is .1 volt or less. Wide open throttle is .9 volts.
A21	Left O2 Sensor Ground	O2S GND	Tan	Sensor ground must read .05 volts or less measured to battery negative.
B2	Data Link Connector	DLC	White/Black	When Pin B of the DLC is jumped to Pin A of the DLC the computer is put into test condition and uses the MIL to flash trouble codes.
B3	Throttle Position Sensor	TP SENSOR	Dark Blue	Indicates throttle angle to computer. As angle increases, voltage increases. Closed throttle should read between .46 and .62 volts. Must be above 4.25 volts at wide open throttle.
B4	Manifold Absolute Pressure Sensor	MAP SENSOR	Light Green	Engine load indicator to computer. Key ON Engine OFF at sea level (29 to 30"Hg) should read 4.6 to 4.9 volts. Engine running is 6 to 10"Hg. The difference between KOEO and engine running should match a vacuum gauge. (See chart in MAP Sensor Test Profiles)
B5	Voltage Reference	VREF	Gray/White	5 volt supply for sensors. Key ON must be 4.9 to 5.1 volts.
B6 & B17	Power Ground	PWR GND	Black/White	Computer ground must be .05 volts or less measured to battery negative.
B8	Fuel Pump Monitor	FPM	Gray	Voltage signal informs computer that battery voltage is sent to fuel pump. Pump ON is near battery volts, pump OFF is .05 volts or less.

5.7L PFI Vin J (Corvette) Inputs (Continued)

Connector Letter/Pin #	Signal Name	Initials	Wire Color	Test Description and Specifications - Allow 10% Variance
B9	Engine Coolant Temperature Sensor	ECT SENSOR	Yellow	Indicated temperature must be within 10°F of actual temperature. Open circuit, 4.6 volts or above, is near -38°F. Closed circuit, .05 volts or less, is above 300°F. 2.2V=185°F & 1.5V=220°F. (See chart in ECT Test Profiles)
B10	Vehicle Power	VPWR	Pink/Black	Battery power to computer. Ignition ON should read near battery volts.
B11	Keep Alive Power	KAPWR	Orange	Voltage supply for computer memory is near battery volts at all times.
B12	Secondary Vacuum Sensor Signal	SEC VAC	Gray/Black	Indicates vacuum applied to secondary port throttle valve actuator. Idle is 0"Hg or .54 to .62 volts. Heavy load is 10"Hg or 1.3 volts. Near W.O.T. is 20"Hg or 3.1 volts.
B16	Signal Return	SIG RTN	Black	ECT, EOT, TP sensor & Secondary Vacuum Sensor Ground path must be .05 volts or less measured to battery negative.
B18	Engine Oil Temperature Sensor	EOT	Dark Green	Indicated temperature must be within 10°F of actual temperature. Typically near 200°F with engine running. Open circuit reads 4.6V or higher, scan tool indicates -38°F. Grounded circuit reads .05 volts or less, scan tool indicates above 300°F.
B21	Intake Air Temperature Sensor	IAT	Tan	Dual range sensor indicates temperature of the air entering, or the air in, the manifold. 40°F equals 3.25 volts. 221°F equals 1.50 volts. Actual temperature compared to indicated temperature should be within 10°F. (See chart in IAT Test Profiles)
B22	Signal Return	SIG RTN	Black/Pink	IAT & MAP sensor ground path must be .05 volts or less measured to battery negative.
C2	Air Conditioning ON	ACON	Gray/Red	Voltage input identifies switch status. A/C OFF is under 1 volt. A/C ON is near battery volts.
C7	Air Conditioning ON Cycling/High Pressure Switch	ACON CHP	Dark Blue	Voltage input indicates status of three switches—ACON, Pressure Cycling & High Pressure Cutout. A/C refrigerant pressure above 25 psi & cycling switch closed or refrigerant pressure below 440 psi & high pressure switch closed should read near battery volts. A/C OFF with refrigerant pressure too high reads near 0 volts.
C8	Air Conditioning Fan Control	ACFC	Dark Green	Voltage signal indicates status of A/C high pressure fan switch. When pressure is below 240 psi, A/C is ON and closed switch should read .05 volts or less. When pressure is above 240 psi, A/C is OFF and open switch reads near battery volts and turns cooling fan ON.

5.7L PFI Vin J (Corvette) Inputs (Continued)

Connector Letter/Pin #	Signal Name	Initials	Wire Color	Test Description and Specifications - Allow 10% Variance
C9	Engine Power Switch	EPS	Dark Blue/ White	Two position switch signals ECM to enable secondary throttle valves/injectors when full power conditions exist. Normal action denies secondary operation and reads 2.5 to 3.2 volts. Full power enables secondary operation and reads .7 to 1.5 volts.
C12	Power Ground	PWR GND	Black/White	Computer ground must be .05 volts or less measured to battery negative.
C15	Right O2 Sensor Signal	O2S	Purple	Voltage indicates oxygen content in exhaust. Lean is .10 to .44 volts, rich is .46 to .99 volts. Voltage must change at idle and cruise. Heavy deceleration is .1 volt or less. Wide open throttle is .9 volts.
C20	Right O2 Sensor Ground	O2S GND	Tan	Sensor ground must read .05 volts or less measured to battery negative.
D2	Knock Signal	KS	Black	Voltage signal from knock sensor module to computer. No detonation reads 9.5 to 10.5 volts. Detonation reads less than 1 volt. Scan tool should display degrees of retard as voltage is pulled low.
D3	Cylinder Identification	CID	Brown/ White	Hall effect sensor on left cylinder head is used to sequence injectors. Digital voltage signal is normally high (near battery volts). Signal is pulled low as notch in retractor aligns with sensor when #1 cylinder is near TDC. 14-18% dwell.
D7	Vehicle Anti-Theft System	VATS	Dark Blue	Digital voltage signal from anti-theft module to computer. OFF is .05 volts or less. ON is 2.4 to 2.6 volts.
D13	Ignition Ground	IGN GND	Black/Red	Ignition module ground must read .05 volts or less measured to battery negative.
D18	Engine Speed Sensor	RPM SENSOR	Purple/White	RPM reference to computer from Pin D of DIS ignition module. Module creates digital RPM signal to ECM. Cranking or engine running is 2.4 to 2.6 volts. Dwell is 49 to 51%, near 50Hz. During cranking, crank sensor must produce at least .2V AC to ignition module 3-wire harness terminal A (yellow wire) and C (purple wire). Near 1.5V AC & 100 Hz, at idle RPM.

5.7L PFI Vin J (Corvette) Outputs

Connector Letter/Pin #	Signal Name	Initials	Wire Color	Test Description and Specifications - Allow 10% Variance
A1	Injector 1 Primary	INJ PRIM	Black	Computer supplies a duty cycled ground to turn ON. % dwell/mS must follow the throttle. Cold start-up is 8 to 30mS. Hot idle is .8 to 2mS. 16.8-18.0 minimum ohms/Bosch & 12.0-12.4 minimum ohms/Multitec. Using Multitec in place of Bosch may cause driveability problems.
A2	Injector 7 Primary	INJ PRIM	Black/Purple	Computer supplies a duty cycled ground to turn ON. % dwell/mS must follow the throttle. Cold start-up is 8 to 30mS. Hot idle is .8 to 2mS. 16.8-18.0 minimum ohms/Bosch & 12.0-12.4 minimum ohms/Multitec. Using Multitec in place of Bosch may cause driveability problems.
A3	Injector 5 Primary	INJ PRIM	Black/White	Computer supplies a duty cycled ground to turn ON. % dwell/mS must follow the throttle. Cold start-up is 8 to 30mS. Hot idle is .8 to 2mS. 16.8-18.0 minimum ohms/Bosch & 12.0-12.4 minimum ohms/Multitec. Using Multitec in place of Bosch may cause driveability problems.
A4	Idle Air Control A Coil High	IAC Ahi	Light Blue/ White	Computer controls RPM by sending digital voltage commands to stepper motor. Counts range from 0 to 255. Increased RPM commands equal increased counts, decreased RPM commands equal decreased counts. 10 to 30 counts acceptable, 17 to 24 counts preferred, at hot idle.
A5	Idle Air Control B Coil High	IAC Bhi	Light Green/ White	Computer supplies a duty cycled ground to turn ON. % dwell/mS must follow the throttle. Cold start-up is 8 to 30mS. Hot idle is .8 to 2mS. 16.8-18.0 minimum ohms/Bosch & 12.0-12.4 minimum ohms/Multitec. Using Multitec in place of Bosch may cause driveability problems.
A7	Injector 2 Primary	INJ PRIM	Black/Light Green	Computer supplies a duty cycled ground to turn ON. % dwell/mS must follow the throttle. Cold start-up is 8 to 30mS. Hot idle is .8 to 2mS. 16.8-18.0 minimum ohms/Bosch & 12.0-12.4 minimum ohms/Multitec. Using Multitec in place of Bosch may cause driveability problems.
A8	Injector 6 Primary	INJ PRIM	Black/ Yellow	Computer supplies a duty cycled ground to turn ON. % dwell/mS must follow the throttle. Cold start-up is 8 to 30mS. Hot idle is .8 to 2mS. 16.8-18.0 minimum ohms/Bosch & 12.0-12.4 minimum ohms/Multitec. Using Multitec in place of Bosch may cause driveability problems.
A9	Idle Air Control A Coil Low	IAC Alo	Light Blue/ Black	Computer controls RPM by sending digital voltage commands to stepper motor. Counts range from 0 to 255. Increased RPM commands equal increased counts, decreased RPM commands equal decreased counts. 10 to 30 counts acceptable, 17 to 24 counts preferred, at hot idle.
A10	Idle Air Control B Coil Low	IAC Blo	Light Green/ Black	Computer controls RPM by sending digital voltage commands to stepper motor. Counts range from 0 to 255. Increased RPM commands equal increased counts, decreased RPM commands equal decreased counts. 10 to 30 counts acceptable, 17 to 24 counts preferred, at hot idle.

5.7L PFI Vin J (Corvette) Outputs (Continued)

Connector Letter/Pin #	Signal Name	Initials	Wire Color	Test Description and Specifications - Allow 10% Variance
A12	Injector 8 Primary	INJ PRIM	Dark Blue/ White	Computer supplies a duty cycled ground to turn ON. % dwell/mS must follow the throttle. Cold start-up is 8 to 30mS. Hot idle is .8 to 2mS. 16.8-18.0 minimum ohms/Bosch & 12.0-12.4 minimum ohms/Multitec. Using Multitec in place of Bosch may cause driveability problems.
A13	Injector 4 Primary	INJ PRIM	Black/Red	Computer supplies a duty cycled ground to turn ON. % dwell/mS must follow the throttle. Cold start-up is 8 to 30mS. Hot idle is .8 to 2mS. 16.8-18.0 minimum ohms/Bosch & 12.0-12.4 minimum ohms/Multitec. Using Multitec in place of Bosch may cause driveability problems.
A17	Vehicle Speed Sensor Dash	VSS DASH	Dark Green/ White	Computer supplies pulses (4000hz/mile) which transmit vehicle speed data to instrument panel cluster. Generates voltage over 3 MPH.
A18	Injector 3 Primary	INJ PRIM	Black/Pink	Computer supplies a duty cycled ground to turn ON. % dwell/mS must follow the throttle. Cold start-up is 8 to 30mS. Hot idle is .8 to 2mS. 16.8-18.0 minimum ohms/Bosch & 12.0-12.4 minimum ohms/Multitec. Using Multitec in place of Bosch may cause driveability problems.
A19	Fuel Pump	FP	Dark Green/ White	Computer supplied battery power to relay turns pump ON. Reads near battery volts when ON, OFF is .05 volts or less.
B13	Shift Indicator Lamp	SIL	Tan/Black	Grounded to turn ON. Computer supplies a ground (turns ON) when RPM, MAP and TPS indicate the best time to upshift for best fuel economy.
B19	1 to 4 Upshift Relay	1-4 US	Dark Green	Grounded to turn ON. When ON, relay applies battery volts to normally grounded Upshift solenoid. ON when TPS is above 3% current but below 30%, MAP verifies low load when transmission is in 1st draw gear & VSS above 12 MPH but below 19 MPH with RPM below 1,200. Current draw is 256-337mA.
C5	Electric Air Injection Reaction Motor Relay	EAIR MR	Black/Pink	Grounded to turn ON. When ON, relay supplies battery voltage to electric A.I.R. motor. Pump air routed to AIR control valve. Current draw is 213-247mA.
C6	Fan Control 1	FC 1	Light Blue/ Black	Grounded to turn ON. Above 223°F (ON) is under 1 volt. Below 210°F (OFF) is near battery volts.
C10	Inverted Function Canister Purge	IFCP	Dark Green/ Yellow	Grounded to turn ON. When ON, vacuum blocked to canister. OFF ER in closed loop, ECT above 149°F, VSS above 10mph, TPS above 3%.

5.7L PFI Vin J (Corvette) Outputs (Continued)

Connector Letter/Pin #	Signal Name	Initials	Wire Color	Test Description and Specifications - Allow 10% Variance
C11	Malfunction Indicator Lamp	MIL	Brown/ White	Grounded to turn ON. Computer supplies a constant ground for first 2 seconds after Key ON. With Key ON, a duty cycled ground is provided when Pin B of DLC is jumped to Pin A of DLC.
C16	Air Conditioning Clutch	ACC	Gray	Grounded to turn ON. A/C ON is delayed 1 to 4 sec. after A/C demand input. Reads less than 1 volt. A/C OFF is near battery volts. Current draw is 210 to 243mA.
C17	Secondary Port Throttle Solenoid	2ND PTS	Pink	Grounded to turn ON. Vacuum from electric vacuum pump (KOE/OER) is applied to secondary port throttle actuators to open secondary port throttle valves. Vacuum pump turns ON if internal vacuum reservoir is below 12"Hg OFF or above 17"Hg ON. Current draw is 247-286mA.
C21	Secondary Fuel Pump	2ND FP	Light Green	Computer supplied battery power to relay turns pump ON. Reads near battery volts when ON, OFF is .05 volts or less. ON below 176°F when Full Power is signaled.
D1	Ignition Bypass	IGN BY	Tan/Black	Computer signal to DIS terminal B for switching to computed timing control. 0 volts cranking; 4.5 to 5 volts engine running. (Note: Terminal B may vary.)
D5	Electric Air Injection Reaction Solenoid	EAIR SOL	Brown	Grounded to turn ON. When ON, vacuum applied to AIR control valve. Electric AIR pump air to exhaust ports. OFF, pump air to atmosphere. ON, ECT less than 60°F in Open Loop. ON time is 15 seconds to 5 minutes to closed loop time. 238-273mA, current draw.
D6	Upshift Lamp Control	ULC	Yellow/ Black	Grounded to turn ON. When ON, ECM recognizes Upshift solenoid is engaged. Indicates to operator that 2nd & 3rd gears will be skipped.
D11	Fan Control 2	FC 2	Dark Blue/ White	Grounded to turn ON. Above 236°F with A/C pressure above 240 psi (ON) is under 1 volt. Below 210°F (OFF) is near battery volts.
D12	Ignition Control	IC	White	Spark timing control signal from computer to terminal E of HEI ignition module (A of DIS ignition module). % dwell decreases with RPM increase. 72-80% dwell & 1.2-1.6V at Idle.
D15	Data Output Line	DOL	Tan	Pin E or M of DLC. Jumping Pin B to Pin A of DLC sends data to Pin E or M, voltage varies from 1 to 5 volts.
D16	Injector 2 & 7 Secondary Relay	INJ SR	Dark Green	Grounded to turn ON. When ON, Pin E of secondary injector relay #2 reads below 1 volt. Relay supplies battery volts to secondary injectors 2 & 7. ECM primary injector control circuit for 2 & 7 turns ON secondary injectors when primary injectors are ON.

5.7L PFI Vin J (Corvette) Outputs (Continued)

Connector Letter/Pin #	Signal Name	Initials	Wire Color	Test Description and Specifications - Allow 10% Variance
D17	Injector 1 & 8 Secondary Relay	INJ SR	Brown	Grounded to turn ON. When ON, Pin E of secondary injector relay #1 reads below 1 volt. Relay supplies battery volts to secondary injectors 1 & 8. ECM primary injector control circuit for 1 & 8 turns ON secondary injectors when primary injectors are ON.
D20	Data Output Line	DOL	Tan	Digital voltage signal between body computer & engine computer reads from 1 to 5 volts.
D21	Injector 5 & 6 Secondary Relay	INJ SR	Tan	Grounded to turn ON. When ON, Pin E of secondary injector relay #2 reads below 1 volt. Relay supplies battery volts to secondary injectors 5 & 6. ECM primary injector control circuit for 5 & 6 turns ON secondary injectors when primary injectors are ON.
D22	Injector 3 & 4 Secondary Relay	INJ SR	Gray	Grounded to turn ON. When ON, Pin E of secondary injector relay #1 reads below 1 volt. Relay supplies battery volts to secondary injectors 3 & 4. ECM primary injector control circuit for 3 & 4 turns ON secondary injectors when primary injectors are ON.

5.7L PFI Vin J (Corvette) Diagram

