1997 2.2L (LN2) S-truck W/AUTO TRANS (includes Isuzu Hombre)
ENGINE DIAGNOSTIC PARAMETERS

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SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA AND THRESHOLD VALUE(S)	SECONDARY PARAMETERS AND ENABLE CONDITIONS	TIME REQUIRED AND FREQUENCY	MIL ILLUM. TYPE
Manifold Pressure Sensor Rationality	P0106	Functional Check	Part A: 1. MAP > 53 kPa or 2. Change Of MAP < 3 kPa or Part B: Change in MAP < Table value	Part A: 1. Idle 2. RPM > 600 TP Between 0% & 50 % Δ TP (from an idle condition) > 12% MAP < 53kPa Part B: RPM >600 TP Between 0% & 50 % Δ TP < 50% MAP < 53kPa	14/15 Cts Continuous Check	DTC Type A
Manifold Pressure Too Low	P0107	This DTC Detects A Continuous Short To Low Or Open In Either The Signal Circuit Or MAP Sensor	MAP < 0.08V	RPM > 1000 TP Sensor > 15.2 % Or RPM < 1000 No TP Sensor High/Low DTC's	400/500 Cts 125ms Per Ct Continuous Check	DTC Type A
Manifold Pressure Too High	P0108	This DTC Detects A Continuous Short To high Or Open In the ground Circuit Or MAP Sensor	MAP > 3.80v	TP Sensor < 12% VSS < 1MPH Engine Should Run For At Least 20 - 40 Sec Before Malf Enable No TP Sensor High/Low DTC's	80/100 Cts 125ms Per Ct Continuous Check	DTC Type A
Intake Air Temperature Too High	P0112	The DTC detects a continuous short to ground in the IAT signal circuit or the IAT sensor	IAT < 48 Cts (> 128°C)	VSS > 15 MPH Engine Running > 320 Sec	25/100 Cts 125ms Per Ct Continuous Check	DTC Type A
Intake Air Temperature Too Low	P0113	The DTC detects a continuous short to ground in the IAT signal circuit or the IAT sensor	IAT > 253 Cts (< -57°C)	VSS < 15 MPH Engine Running > 320 Sec	25/100 Cts 125ms Per Ct Continuous Check	DTC Type A
High Coolant Temperature	P0117	The DTC detects a continuous short to ground in the ECT signal circuit or the ECT sensor	ECT < 4 Cts (> 138°C) (High R) Or ECT < 36 Cts (> 142°C) (Low R)	Engine Running > 128 Sec	50/100 Cts 125ms Per Ct Continuous Check	DTC Type A
Low Coolant Temperature	P0118	The DTC detects a continuous short to ground in the ECT signal circuit or the ECT sensor	ECT > 251 Cts (< -50°C) (High R) Or ECT > 252 Cts (< -71°C) (Low R)	Engine Running > 60 Sec	50/100 Cts 125ms Per Ct Continuous Check	DTC Type A
TP Sensor Stuck (Part A)	P0121	The DTC detects a stuck TP sensor	TP > 15%	VSS < 1MPH RPM < 1000 IAC < 100 Cts Δ MAP < 0 kPa	28/30 Cts 125ms Per Ct Continuous Check	DTC Type B

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TP Sensor Stuck (Part B)	P0121	Normal Operating Range Of 0% To 99.6%	TP Vs RPM Table TP > 52.5% At 1600 RPM TP > 73% At 2400 RPM TP > 99% At 3200 RPM TP > 99.6% At 4000 RPM	MAP < 37.2 kPa TP Sensor Δ < 2% No MAP Sensor High/Low DTC's	50/100 Cts 125ms Per Ct Continuous Check	DTC Type A
TP Sensor Low	P0122	Normal Operating Range Of .33v - 4.24v	TP Sensor < 0.16v	Engine Running	50/200 Cts 125ms Per Ct Continuous Check	DTC Type A
TP Sensor High (Part "A")	P0123	Normal Operating Range Of .33v - 4.24v	TP Sensor > 3.9v	Engine Running RPM < 1500 MAP < 60 kPa	110/200 Cts 125ms Per Ct Continuous Check	DTC Type A
TP Sensor High (Part "B")	P0123	Normal Operating Range Of .33v - 4.24v	TP Sensor > 4.8v	N/A	110/200 Cts 125ms Per Ct Continuous Check	DTC Type A
Time For Closed Loop	P0125	This DTC Detects If A Stabilized Minimum Closed Loop Temperature Is Reached And Maintained After Engine Start-Up	If Closed Loop Timer Is Exceeded: 120 Sec At 50°F (10°C) 300 Sec At 20°F (-7°C) ECT < 70°F (21°C)	ECT Shorts Tests Not Failing And ECT DTC's Not Active IAT Sensor DTC's Not Active Start Up ECT < 21°C IAT > -7°C ECT > -7°C Max Idle Time<: 90 Sec At 50°F (10°C) 225 Sec At 20°F (-7°C) Min Air Flow < 10 GPM To Be Considered Idle	11 Cts 125ms Per Ct Once An Ignition Cycle	DTC Type B
O2S 1 Lean	P0131	Normal Operating Range Which Varies 150mv - 850mv	O2S 1 < 43 mv	Engine Running > 30 Sec TP Between 4.7% & 50.2% ECT >70°C A/F Ratio Between 14.5 And 14.7 Engine Operating In Closed Loop No MAP Low/Rationality DTC's No IAT Sensor DTC's No ECT Sensor High/Low DTC's No TP Sensor DTC's No Misfire DTC's No EGR Position DTC's No EVAP Purge Valve Leaking DTC's No IAC Valve DTC's	999/1000 Cts 125ms Per Ct Continuous Check	DTC Type A

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O2S 1 Rich	P0132	Normal Operating Range Which Varies 150mv - 850mv	O2S 1 > 945mv	Engine Running > 30 Sec TP Between 4.7% & 50.2% A/F Ratio 14.5 & 14.7 ECT >70°C Engine Operating In Closed Loop No MAP Low/Rationality DTC's No IAT Sensor DTC's No ECT Sensor High/Low DTC's No TP Sensor DTC's No Misfire DTC's No EGR Position DTC's No EVAP Purge Valve Leaking DTC's No IAC Valve DTC's	599/600 Cts 125ms Per Ct Continuous Check	DTC Type A
O2S 1 Slow Response	P0133	Normal Operating Range Which Varies 150mv - 850mv This DTC Determines If The O2S 1 Is Functioning Properly By Checking Its Response Time	Avg O2S 1 Response Times: R/L > 249ms L/R > 249ms Ratio Of L/R To R/L Is >3.5 Or < 0.8	TP Between 8% & 20% RPM Between 1600 & 2600 EVAP > 60% Pwm PLM > 191 No MAP Low/Rationality DTC's No IAT Sensor DTC's No ECT Sensor High/Low DTC's No TP Sensor DTC's No Misfire DTC's No EGR Position DTC's No EVAP Purge Valve Leaking DTC's No IAC Valve DTC's	100 Sec Once An Ignition Cycle	DTC Type B
O2S 1 Open	P0134	Normal Operating Range Which Varies 150mv - 850mv	O2S 1 > 407mv & < 509mv	Engine Running > 30 Sec TP Between 10% & 55% ECT >70°C No MAP Low/Rationality DTC's No IAT Sensor DTC's No ECT Sensor High/Low DTC's No TP Sensor DTC's No Misfire DTC's No EGR Position DTC's No EVAP Purge Valve Leaking DTC's No IAC Valve DTC's	1199/1200 Cts 125ms Per Ct Continuous Check	DTC Type A

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O2S 2 Lean	P0137	Normal Operating Range Which Varies 150mv - 850mv	O2S 2 < 22mv	Engine Running > 30 Sec TP Between 4.7% & 50.2% ECT >40°C A/F Ratio Between 14.5 & 14.7 No MAP Low/Rationality DTC's No IAT Sensor DTC's No ECT Sensor High/Low DTC's No TP Sensor DTC's No Misfire DTC's No EGR Position DTC's No EVAP Purge Valve Leaking DTC's No IAC Valve DTC's	899/900cts 125ms Per Ct Continuous Check	DTC Type B
O2S 2 Rich	P0138	Normal Operating Range Which Varies 150mv - 850mv	O2S 2 > 1042 mv	Engine Running > 30 Sec TP Between 4.7% & 50.2% ECT >40°C A/F Ratio between 14.5 & 14.7 No MAP Low/Rationality DTC's No IAT Sensor DTC's No ECT Sensor High/Low DTC's No TP Sensor DTC's No Misfire DTC's No EGR Position DTC's No EVAP Purge Valve Leaking DTC's No IAC Valve DTC's	599/600 Cts 125ms Per Ct Continuous Check	DTC Type B
O2S 2 Open	P0140	Normal Operating Range Which Varies 150mv - 850mv	O2S 2 Between 425mv & 456mv	Engine Running > 30 Sec TP Between 5% & 55% ECT >40°C No MAP Low/Rationality DTC's No IAT Sensor DTC's No ECT Sensor High/Low DTC's No TP Sensor DTC's No Misfire DTC's No EGR Position DTC's No EVAP Purge Valve Leaking DTC's No IAC Valve DTC's	999/1000 Cts 125ms Per Ct Continuous Check	DTC Type B

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O2S 2 Heater Circuit Malfunction	P0141	11.5v - 13.6v	O2S 2 Voltage Changes > ±150mv From Mean O2S 2 Bias Voltage	ECT And IAT < 40°C Difference In ECT & IAT < 7°C TP Must Not Be > 20% For >3.75 Sec. No MAP Low/Rationality DTC's No IAT Sensor DTC's No ECT Sensor High/Low DTC's No TP Sensor DTC's No Injector DTC's No Misfire DTC's No EGR Position DTC's No EVAP Purge Valve Leaking DTC's No IAC Valve DTC's	Time Determined By Table Once An Ignition Cycle	DTC Type B
Fuel Trim Lean	P0171	Fuel Trim Index Between 110 And 145	Fuel Trim Index > 165	Baro > 73.8 kPa ECT > 60°C & < 115°C IAT > -25°C & < 115 °C MAP >27kPa RPM Between 750 & 3400 VSS < 70MPH No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No O2S 1 DTC's No Injector DTC's No Misfire DTC's No Ks DTC's No CKP Sensor DTC's No CMP Sensor DTC's No EGR DTC's No EVAP Purge Valve DTC's No VSS DTC's No IAC Valve DTC's No Flash Memory Error DTC's	4 Sec Continuous Check	DTC Type B

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Fuel Trim Rich	P0172	Fuel Trim Index Between 110 And 145	Fuel Trim Index < 80	Baro > 73.8 kPa ECT > 60°C & < 115°C IAT >-25°C & < 115 °C MAP >27kPa RPM Between 750 & 3400 VSS < 70MPH No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No O2S 1 DTC's No Injector DTC's No Misfire DTC's No Ks DTC's No CKP Sensor DTC's No CMP Sensor DTC's No EGR DTC's No EVAP Purge Valve DTC's No VSS DTC's No IAC Valve DTC's No Flash Memory Error DTC's	16 Sec Once Every 250 Seconds	DTC Type B
Injector Circuit Problem	P0200	Bpw 1 - 4 Ms (At Idle)	Injector Current < 4 Amps	N/A	5 Sec Continuous Check	DTC Type A
Random Misfire Cylinder 1 Misfire Cylinder 2 Misfire Cylinder 3 Misfire Cylinder 4 Misfire	P0300 P0301 P0302 P0303 P0304	Change in crankshaft angular velocity	FTP Threshold - 1.5% I/M Threshold - 1.5% Catalyst Damage - see speed/load chart	Engine run time > 5 sec RPM Between 469 & 6156 ECT > -7°C & <123°C Fuel level > 10% No MAP Sensor Low/Rationality DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No O2S 1 DTC's No Fuel Trim DTC's No Ks DTC's No CKP Sensor DTC's No CMP Sensor DTC's No EGR DTC's No VSS DTC's No IAC Valve DTC's No Flash Memory Error DTC's	Emission Level 5 failed 200 revolution blocks out of 16 Catalyst Damaging Level 1 to 5 failed 200 revolution block(s) Continuous Check	DTC Type B EMISSION DTC Type A CATALYST DAMAGING
Knock Sensor (KS) Output	P0325	Instantaneous Voltage > 1.0v	Instantaneous Voltage < 1.0v	RPM > 1200 ECT > 56°C MAP > 60 kPa	60 Sec Continuous Check	DTC Type A

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CKP Sensor Position Resync	P0335	7x Resync Counter = 0 Counts	7x Resync Counter > 15 Counts	Engine Running No CMP Sensor DTC's	256 Sec Continuous Check	DTC Type A
CMP Sensor Position Resync	P0341	Cam Resync Counter = 0 Counts	Cam Resync Counter > 15 Counts	Engine Running	256 Seconds Continuous Check	DTC Type A
CMP Sensor Missing	P0342	0 - 255 Counts	No Change In Cam Activity > 16 Cycles	Engine Running	Continuous Check	DTC Type A
EGR Flow Insufficient (Note: On 6/19/96, CARB verbally approved the use of a third prep when testing this diagnostic for demonstration purposes.)	P0401	Operates When EGR Is Used. EGR Enables With IAT > 5°C EGR Disables With IAT < 3°C MAP Δ > MAP Cal Under Decel Conditions	MAP Δ < MAP Cal Under Decel Conditions	RPM Between 1100 & 2200 Vehicle Speed >25MPH No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No Fuel Trim Rich DTC's No Injector DTC's No Misfire DTC's No Cam Resync DTC's No EVAP Leak DTC's No VSS DTC's	15 Tests Per Trip After NVM Reset Otherwise Once Per Ignition Cycle	DTC Type A
EGR Open Valve Pintle Error	P0404	Actual Wide Open EGR Vs Desired < 20% Or Desired EGR Pos Vs Actual EGR Pos < 9%	Actual Wide Open EGR Vs Desired > 20% Or Desired EGR Pos Vs Actual EGR Pos > 9%	EGR Enabled No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No Fuel Trim Rich DTC's No Injector DTC's No Misfire DTC's No Cam Resync DTC's No EVAP Leak DTC's No VSS DTC's	22 Sec Continuous Check	DTC Type B
EGR Closed Valve Pintle Error	P1404	Actual EGR Closed Position > 15 Cts	Actual EGR Closed Position < 15 Cts	EGR Enabled No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No Misfire DTC's No CKP Sensor DTC's No EVAP DTC's No VSS DTC's No IAC Valve DTC's	5 Sec 4 Fails per drive cycle (With pintle movement > 15% per each test) Continuous Check	DTC Type B

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Catalyst Monitor	P0420	Oxygen Storage Capability (OSC) Time Difference< 0.031 Sec	Oxygen Storage Capability (OSC) Time Difference ≥ 0.031 Sec OSC Time Difference = OSC Worst Pass Thresh - OSC Compensation Factor * (O2S 2 Response Time - O2S 1 Response Time) OSC Worst Pass Thresh = 0.703 Sec	Valid Idle Period Criteria Engine Speed ≥ 1000 RPM For Minimum Of 36 Sec Since End Of Last Idle Period. Min Engine Run Time: Time for hot start ≥ 360 Sec Time for cold start≥ 510 Sec Test Enable Conditions Predicted Catalyst Temp ≥ 345°C Baro ≥ 72.3 kPa IAT Between -20.5°C & 80°C ECT Between 75°C & 125°C Idle ≤ 200 Sec Test Attempted This Trip ≤ 12 Tests Attempted This Idle Period < 1 -75 RPM ≤ (Engine Speed - Desired Speed) ≤ 150 RPM Trip Enable Criteria No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No Fuel Trim Rich DTC's No Injector DTC's No Misfire DTC's No EVAP Leak DTC's No VSS DTC's No O2S 1 DTC's No O2S 2 DTC's	1 Test Attempted Per Valid Idle Period Max Of 6 Tests Per Trip Until Idle Catalyst I/M Flag Set Max Of 1 Test Per Trip After Catalyst I/M Flag Set 15.6 Ms Per Ct	DTC Type A
EVAP System Large Leak	P0440	0.5 To 4.5 V	Vac < 3.0 V	Baro >75 kPa ECT Between 4°C & 30°C At Startup IAT Between 4°C & 30°C At Startup ECT - IAT < 8°C IAT - ECT < 1.5°C Fuel Level 15% - 85% TP Sensor Between 7% & 35% Engine Run Time > 185 Sec EVAP Solenoid Enabled No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No O2S 1 DTC's No VSS DTC's	400 Sec Once Per Ignition Cycle	DTC Type A

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EVAP Small Leak Detected	P0442	0.5 To 4.5 V	0.024 - 0.10 V Per Sec Decay Varies With Fuel Level	Baro >75 kPa ECT Between 4°C & 30°C At Startup IAT Between 4°C & 30°C At Startup ECT - IAT < 8°C IAT - ECT < 1.5°C Fuel Level 15% - 85% TP Sensor Between 7% & 35% Engine Run Time > 185 Sec EVAP Solenoid Enabled No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No O2S 1 DTC's No VSS DTC's	15 Sec Once Per Ignition Cycle	DTC Type A
EVAP Canister Vent Blocked	P0446	0.5 To 4.5 V	Vac > 4.2v	Baro >75 kPa ECT Between 4°C & 30°C At Startup IAT Between 4°C & 30°C At Startup ECT - IAT < 8°C IAT - ECT < 1.5°C Fuel Level 15% - 85% TP Sensor Between 7% & 35% Engine Run Time > 120 Sec EVAP Solenoid Enabled No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No O2S 1 DTC's No VSS DTC's	100 Sec Once Per Ignition Cycle	DTC Type A

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Idle Speed Low	P0506	10 - 72 Steps At Idle	IAC > 145 Steps	Engine Run Time > 20 Sec Baro > 72kpa Ect > 40°C Idle Speed > 60 Rpm Below Desired Idle Stabilized For 5 Sec No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No O2S 1 DTC's No Injector DTC's No CKP Sensor DTC's No CMP Sensor DTC's No EGR DTC's No EVAP Flow Or Leaking DTC's No EVAP Vent Blocked DTC's No VSS DTC's	12.5 Sec Continuous Check	DTC Type A
Idle Speed High	P0507	10 - 72 Steps At Idle	IAC < 2 Steps	Engine Run Time > 20 Sec Baro > 72kPa ECT > 40°C Idle Speed > 60 RPM Below Desired Idle Stabilized For 5 Sec No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No O2S 1 DTC's No Injector DTC's No CKP Sensor DTC's No CMP Sensor DTC's No EGR DTC's No EVAP Flow Or Leaking DTC's No EVAP Vent Blocked DTC's No VSS DTC's	12.5 Sec Continuous Check	DTC Type B
PCM Has EEPROM Flash Error	P0601	Correct Checksum	Checksum Detection Incorrect > 3 Times	N/A	Immediate	DTC Type A
EEPROM Not Programmed	P0602	Programmed EEPROM	Unprogrammed EEPROM	N/A	Immediate	DTC Type A

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O2S 1 Not Enough Switches	P1133	Normal Operation Which Varies From 150mv - 850mv	O2S 1 Switch Numbers L/R < 10 Cts R/L < 15 Cts	1600 - 2600 RPM EVAP > 36% Pwm PLM > 128 TP Between 9% & 20 % No MAP Low/Rationality DTC's No IAT Sensor DTC's No ECT Sensor High/Low DTC's No TP Sensor DTC's No Injector DTC's No Misfire DTC's No EGR Position DTC's No EVAP Purge Valve Leaking DTC's No IAC Valve DTC's	100 Sec Once An Ignition Cycle	DTC Type B
Misfire Crank Angle Sensing Error	P1336	Crankshaft Compensation Factor (Ccf) Sum = 2	Ccf Sum Above Or Below 2 By 7 Counts (2 = 65536 Counts)	No Crank Sensor DTC's No Cam Sensor DTC's	.5 Sec Once Per Ignition Cycle	DTC Type A
EGR Sensor Signal Low	P0405	Actual Closed EGR Vs Desired Closed EGR <6 Cts	Actual Closed EGR Vs Desired Closed EGR > 6 Cts	EGR Enabled No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No Fuel Trim Rich DTC's No Injector DTC's No Misfire DTC's No Cam Resync DTC's No EVAP Leak DTC's No VSS DTC's	25 Sec Continuous Check	DTC Type B
Purge Valve Leaking	P1441	0.5 To 4.5 V	Vac >2.0v	Baro >75 kPa ECT Between 4°C & 30°C At Startup IAT Between 4°C & 30°C At Startup ECT - IAT < 8°C IAT - ECT < 1.5°C Fuel Level 15% - 85% TP Sensor Between 7% & 35% Engine Run Time > 0 Sec No MAP Sensor DTC's No IAT Sensor DTC's No ECT Sensor DTC's No TP Sensor DTC's No O2S 1 DTC's No VSS DTC's	300 Sec Once Per Ignition Cycle	DTC Type A

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P/N Diagnostic (Part A)	P1520	P/N Switch Indicates R-Dl While Driving	P/N Switch Does Not Change	RPM Between 1600 & 2800 TP Sensor Between 6.6% & 26% VSS > 40 MPH No TP Sensor DTC's No CKP Sensor DTC's No VSS DTC's	Immediately Continuous Check	DTC Type B
P/N Diagnostic (Part B)	P1520	P/N Switch Indicates R-DL While Driving	P/N Switch Indicates P/N While Driving	RPM Between 1600 & 2800 TP Sensor Between 6.6% & 26% VSS > 40 MPH No TP Sensor DTC's No CKP Sensor DTC's No VSS DTC's	26/27 Sec Continuous Check	DTC Type B
EEPROM General Fault	P1621	Correct Checksum	Incorrect Checksum	N/A	Immediately	DTC Type A

EVAP Fuel Level Sensor Circuit	P0460	0 - 255 Counts	Tank Level Moves < 4 Counts In 120 Miles	Engine Running	Continuous Check	DTC Type C
A/C Pressure Diagnostic (Part "A")	P0530	.1v - 4.9v	A/C < .20v	A/C Requested IAT > 0°C	15 Sec Continuous Check	DTC Type C
A/C Pressure Diagnostic (Part "B")	P0530	.1v - 4.9v	A/C > 4.9v With Clutch "On" A/C > 3.98v With Clutch "Off"	IAT > 0°C	15 Sec Continuous Check	DTC Type C
System Voltage Low	P0562	11.35v - 15.5v	Voltage < 10.1v	RPM > 1300	240 Sec Continuous Check	DTC Type C
System Voltage High	P0563	11.35v - 15.5v	Voltage > 17v	N/A	Immediate Continuous Check	DTC Type C
Lean Fuel Monitor	P1171	O2S 1 Under Power Enrichment Mode Which Varies From 850mv - 905mv	O2S 1 < 300mv	Vehicle In Power Enrichment Mode	5 Sec Continuous Check	DTC Type C
Class Ii Communication Fault With The PCM	P1601	Recieving Data From Ipc	No Scheduler Message From PCM	Engine Running > 15 Seconds	5 Sec Continuous Check	DTC Type C
No ICC Communication With The PCM	P1602	Recieving Data From ICC	No Data From ICC	Engine Running > 15 Sec	5 Sec Continuous Check	DTC Type C