UZZ32 Suspension Error Codes
By Kumiko & Jeff Harper and Dom Bloemhard

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Suspension & Akusuruu (?) Piezo TEMS

To enable diagnosis mode
1. connect $T_s + E_1$ on the diagnostic connector (make sure $T_c + E_1$ is not connected)
2. Start engine
3. To get the required readings:
   a. Turn the steering wheel left & right at a rate faster than 9 degrees/sec
   b. Travel forward at a speed greater than 6km/h
   c. Press the brake pedal once (probably to stop the car from step B!)
   NOTE: Codes are not stored in memory when ignition is switched to OFF, so don't turn off the engine

Reading the codes:
NOTE: Do not disconnect $T_s + E_1$
1. Connect a LED to TEM & E_1 on either the Diagnosis connector or the TDCL
2. Short $T_c + E_1$ on the diagnosis connector, or on the TDCL circular plug inside the car
3. Read the flashes of the LED:
   When there are no faults, the led will flash 0.25sec on, 0.25 sec off
   When there are more than one faults recorded, they will be displayed from smallest to largest.
(see pic on page 7-131, this depicts how codes can be read)
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Code #	Problem Desc [comp signal]	
11	Front right Actuator anomaly [AFR, EFR]	
12	Front left actuator anomaly [AFR,EFL]	
21	Rear right actuator anomaly [ARR, EFL]	
22	Rear left actuator anomaly [ARL, FRL]	
35	Speed sensor signal anomaly [spd]	
36	Steering sensor signal anomaly [SS1, SS2]	
42	Stop Light Switch signal anomaly [STP]	

For explanations see below
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For codes 11, 12, 21 See below

Code	Problem desc [comp signal]	Symptoms	Check points
11	Front right absorber control actuator signal [AFR, EFR]	Actuator is getting less than 0.3A current	1. Front right actuator internal short 2. Computer <-> Front right actuator wiring/harness short 3. Computer internal anomaly
12	Front left absorber control actuator signal [AFL, EFL]	Actuator is getting less than 0.3A current	1. Front left actuator internal short 2. Computer <-> Front left actuator wiring/harness short 3. Computer internal anomaly
21	Rear right absorber control actuator signal [ARR, ERR]	Actuator is getting less than 0.3A current	1. Rear right actuator internal short 2. Computer <-> Rear right actuator wiring/harness short 3. Computer internal anomaly
22	Rear left absorber control actuator signal [ARL, ERL]	Actuator is getting less than 0.3A current	1. Rear left actuator internal short 2. Computer <-> Rear left actuator wiring/harness short 3. Computer internal anomaly
31	Computer anomaly	Actuator Voltage is above 120V, or the max voltage has gone over 500V on 2 separate occasions	Computer problem
41	Other	Actuator Voltage is below 120V, or the max voltage has gone below 200V on 2 separate occasions	Control actuator wire harness Computer <-> Control actuator wire harness

For codes 35, 36 & 42 see below

Code #	Problem desc	Possible explanations
35	Vehicle speed did not exceed 6km/h	Speed sensor broken Wiring between speed sensor & computer is shorted, or a connector is disconnected
36	Steering wheel was not turned more than 9 degrees/ sec	Steering sensor broken, sensor signal, bad earth Wiring between steering sensor & computer is shorted, or a connector is disconnected
42	Stop Light switch signal was not detected	Wiring between stoplight sensor & computer is shorted, or a connector is disconnected Stop light switch or system broken

* turn off engine then remove jumpers/LED

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Absorber control computer

Connect mini test lead(?), and switch ignition on. Connect other side to earth

Voltage at computer:

(image – left is absorber control computer connector, then diagnosis port in centre, and TDCL on right)

Connector A

Pin #	Signal Name	IN or OUT of computer?	Signal Type	Test condition	Correct Value	Problem Area in Case of variation
2	STP	In	V	IGN Off, Stop Lamp ON	>8.0V	Stop lamp Switch
			R	IGN Off, Stop Lamp ON	Has Continuity	
4 5	SS1 SS2	In	V	Turn steering wheel slowly	Less than 1V to 4V (can be higher)	Steering position sensor
9	TEM	Out	Hz	IGN On	See Bar?	Absorber control computer
11	+B	In	V	IGN On	10~14V	ECU-IG Fuse
15	TS	In	V	IGN On, NO Short T_s+E_1	<1.0V	Diagnosis

				on diagnosis connector		connector
				IGN On, Short T_s+E_1 on diagnosis connector	10~14V	Suspension Control Computer

16	TC	In	V	IGN On, NO Short T_c+E_1 on TDCL connector	<1.0V	Diagnosis connector
				IGN On, Short T_c+E_1 on TDCL connector	10~14V	Suspension Control Computer
17	SPD	In	V	IGN On, with tyre off ground, spin tyre	1V~5V depending on speed	Speed sensor
18	E2	In	R	IGN OFF	∞	Suspension control computer
21	E3	In	R	IGN OFF	∞	
22	E1	In	R	IGN OFF	Has Continuity	Body Earth

Signal Type: V=Voltage, R=Resistance (to earth?), Hz=Frequency

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More signals??

Conn	PIN#	Signal	In Out	Signal Type	Test Conditions	Correct Value	Problem Area in Case of variation
A	6	SFL	In	Hz	IGN OFF, SFL—E2 Make front left corner big (open actuator)	See Bar?	Front Shock Absorber Piezo LH sensor
	7	SFR	In	Hz	IGN OFF, SFR—E2 Make front right corner big (open actuator)		Front Shock Absorber Piezo RH sensor
	8	SRL	In	Hz	IGN OFF, SRL—E2 Make rear left corner big (open actuator)		Rear Shock Absorber Piezo LH sensor
	19	SRR	In	Hz	IGN OFF, SRR—E2 Make rear right corner big (open actuator)		Rear Shock Absorber Piezo RH sensor
B	1	EFR	In	R	IGN OFF	∞	-
	2	EFL	In	R	IGN OFF		-
	4	AFL	In	Hz	IGN OFF, AFL—EFL Make front left corner big (open actuator)	See Bar?	Front Shock Absorber Piezo LH actuator
	6	AFR	In	Hz	IGN OFF, AFR—EFL Make front right corner big (open actuator)		Front Shock Absorber Piezo LH actuator
	7	ERR	In	R	IGN OFF	∞	-
	8	ERL	In	R	IGN OFF		-

B	10	ARL	In	Hz	IGN OFF, AFL—ERL Make rear left corner big (open actuator)	See Bar?	Rear Shock Absorber Piezo LH sensor
	12	ARR	In	Hz	IGN OFF, AFL—ERR Make rear right corner big (open actuator)		Rear Shock Absorber Piezo LH sensor

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Test Mode
NOTE: To enter diagnosis mode, short the $T_s + E_1$ on the diagnosis connector and switch the ignition from off to on.

To leave diagnosis mode, remove the short from $T_s + E_1$ on the diagnosis connector and switch the ignition from off to on.

To display the codes, place a short between $T_c + E_1$. The codes from the Test mode, and the other diagnosis codes will be displayed on the Multi Information Display (dash)

Steps:
1. Ensure battery is between 10-14V (With engine off)
2. Test mode instructions:
   a. With the engine off, remove the cover for the Diagnosis connector and place a short between $T_s + E_1$
   b. Ensure Suspension control switches (TEMS and Height) are both 'Norm'
   c. Make sure the steering wheel is dead straight
   d. Close the doors and start the engine without the brake pedal depressed
   e. On the combination meter TEST MODE will display (square on the right hand side?), and the TEMS Sport will flash (I think?)
   f. Perform the following steps:
      i. Turn the steering wheel more than 36 degrees (doesn't say which direction)
      ii. Press the brake pedal
      iii. Open the door (doesn't say, but I assume only a little – given the following step!)
      iv. Press the accelerator all the way down
      v. Travel more than 20km/h
      vi. Flick the suspension control switch to HIGH
      vii. Flick the TEMS control switch to SPORT
          NOTE: Step iv is done with the engine stopped. At the same time you can start the car for step v
          When this has been done the TEMS Sport light will turn on for 1 second
          Step vi and vii are done at the same time; once this has done the TEMS Sport light will flash continuously (or stay on?)

g. On the Diagnosis connector or the TDCL terminal, place a short between $T_c + E_1$ (Don't remove the short between T_s and E_1)

h. Press the scroll button to go through the codes on the dash. When SUS is displayed, if it says SUS NG then it will display the codes….

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Code	Problem desc [comp signal]	Symptoms	Check points
82	Steering sensor signal anomaly [SS1, SS2]	During the steps, the steering wheel didn't register more than 36 degrees	Steering wheel wasn't turned more than 36 degrees Steering sensor broken or bad earth Wire/harness between computer and steering sensor short or broken
83	Stop light switch signal anomaly [STP]	Stop light switch signal was not detected	Stop Light Switch broken or not enough voltage Wire/harness between computer and stop light switch short or broken Other systems using the stop light switch are affecting the signal
84	Courtesy lamp switch signal anomaly [DOOR]	Courtesy light switch signal was not detected	Courtesy Light Switch broken or not enough voltage Wire/harness between computer and courtesy light switch short or broken Other systems using the courtesy light switch are affecting the signal
85	Throttle signal anomaly [L1, L2, L3]	Out of L1, L2 and L3, no more than one signal was detected	Accelerator pedal was not depressed fully Throttle signal from the Engine control computer is bad Wiring between Suspension control computer and Engine control computer is broken/shorted

91	Speed sensor signal anomaly [SPD	A pulse indicating a speed greater than 20km/h was not detected	Didn't travel faster than 20km/h Speed sensor broken, Speed meter cable broken Wire/harness between computer and speed sensor shorted or broken Other systems using the vehicle speed signal are affecting the signal
92	Suspension Control Switch (Height) signal anomaly [HSW]	Suspension control switch (Height) signal was not detected	Broken switch Wiring between switch and Suspension Control Computer is broken/unplugged/shorted
93	Suspension Control Switch (TEMS) signal anomaly [HSW]	Suspension control switch (TEMS) signal was not detected	Broken switch Wiring between switch and Suspension Control Computer is broken/unplugged/shorted

To end the test mode, remove the shorts from T_s & E_1 and T_c & E_1

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Diagnosis mode
To enable diagnosis mode (using the Multi Information Display (Dash)
Place a short between T_c + E_1 on the diagnosis connector or the TDCL terminal
Start the engine and then press the scroll switch to go through the codes.
(To erase codes, remove ECU-B Fuse for 10 seconds)

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Code	Problem desc [comp signal]	Symptoms	Check points
11	Front Right Height Control Sensor System, signal anomaly	Height control sensor voltage was above 4.7V or below 0.2V for more than 2 seconds	Height control sensor problem Wiring harness between Height Control Sensor and Computer is shorted or broken, connector has come loose (or sensor voltage supply or earth is not present)
12	Front Left Height Control Sensor System, signal anomaly		
13	Rear Right Height Control Sensor System, signal anomaly		
14	Rear Left Height Control Sensor System, signal anomaly		
21	Front Suspension Control Actuator System (open circuit or short) [FCH, FS+, FS-]	- The short circuit protection system for the Actuator has detected several short circuits - Short Circuit was detected for more than 2 seconds	Suspension control actuator (open circuit or short) Wiring harness between Suspension control actuator and computer has shorted or come loose
22	Rear Suspension Control Actuator System (open circuit or short) [RCH, RS+, RS-]		

31	Height control No.1 valve solenoid system short or open system [SLFR, SLFL]	- Left or Right Solenoid in the No.1 Height control valve shorted (as detected by the Short circuit detection device) - Short circuit was detected in both left and right solenoids for more than 2 seconds	- Height control No.1 valve solenoid system short or open system - Wire harness short or broken wires, or bad earth.
33	Height control No.2 valve right solenoid system short or open system [SLRR]	- Solenoid in the No.2 Height control valve shorted (as detected by the Short circuit detection device) - Short circuit was detected in solenoid for more than 2 seconds	- Height control No.2 valve solenoid system short or open system - Wire harness short or broken wires, or bad earth.
34	Height control No.2 valve left solenoid system short or open system [SLRL]		
35	Air valve solenoid system short or open circuit [SLEX, -R.C]	- Air valve Solenoid shorted (as detected by the Short circuit detection device) - Short circuit was detected in solenoid for more than 2 seconds	- air valve solenoid system short or open system - Wire harness short or broken wires, or bad earth.
41	Height control relay No.1 system short, or open circuit [RCMP, -R.C]	- Height control relay shorted for more than 0.1 seconds (as detected by the Short circuit detection device) several times - Short circuit was detected in relay for more than 2 seconds	- Height control relay system short or open system - Wire harness short or broken wires, or bad earth.

42	Compressor motor Lock or Short [RM+]	When Height control relay No.1 was activated, the compressor motor locked (did not turn?) for more than 4 seconds, or a short was detected across the coils. This has occurred several times	Compressor motor lock, coil shorted. B+ in the Wire harness between compressor motor and computer (RM+) shorted. Compressor motor connector has come off

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(Codes continued)

51*[1]	Height Control relay No.1 open for more than 8 min, 30 seconds [RCMP]	Height control relay no.1 was open for more than 8 min, 30 seconds, however vehicle height did not reach intended height in this time	- Air line leakage, bag leak - Air valve solenoid seal leaking - Compressor motor problem - Height control valve leak
52*[2]	Air Valve Solenoid open for more than 6 minutes [SLEX]	Air Valve Solenoid was open for more than 6 minutes, however vehicle did not reach intended height in this time	- Air valve solenoid problem - Height control valve problem - (not written, but could be problem with debris blocking the air from being released)
71	Suspension Switch (in Boot) is off [NSW]	Suspension Switch is switched off	- Suspension Switch is Off - Wire harness between suspension computer and switch is broken or short
72	AIR-SUS Fuse short [+B]	With the ignition switch ON, the computer registered a voltage of 7.5~9.5V for more than 1 second	- Air sus fuse blown/shorted - Engine Main fuse blown or shorted - Wire harness between AIR-SUS fuse and computer has shorted or connector has come loose
73	Alternator Warning [REG]	Alternator IC Regulator voltage dropped below L level for more than 1 second	Engine is not started IC regulator is no good. Wire harness between computer and IC regulator has shorted/broken

74	Battery Voltage too low	Input voltage (+B or IGB) has dropped to between 7.5~9.5V	Battery is NG IG Regulator is NG Wire harness between battery and computer has shorted or open circuit
75	?????	When the car traveled more than 8km/h, the computer did ?????	
--	Computer broken	Computer not functioning	Computer is no good

*1 - Even though all of the systems may be working correctly, this code can come up.
       This can occur if the Ignition switch is left ON for more than 70 minutes.
*2 – Even though all systems may be working correctly, this code can come up.
       This can occur if you switch the ignition OFF then ON while the height is
       changing.

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NOTE, for codes 71-75, the error code will disappear when the issue is fixed (no need to
       erase)

Pages 7-178 to 7-180
Computer pinouts and voltages/signals:
(In/Out refers to whether the signal goes INTO the computer, or OUT of the computer
Signal Type: V=Voltage, R=Resistance (to earth?), Hz=Frequency

Conn	Pin #	Name	In/Out	Type	Test Conditions	Correct value	Likely Fault area
A	1	SLFR	O	V	IG Switch ON → Engine running: → Suspension control switch (Height): Norm ↔ High Car is changing height	< 1.0V > 8.0V	Computer
	2	SLRR	O				
	3	RCMP	O	V	IG Switch ON → Engine running: → Suspension control switch (Height): Norm → High Air Compressor is running	< 1.0V > 8.4V	Computer
	4	IGB	I	V	When IG Switch is ON, and for 3 minutes after IG is switched off	10 ~ 14V	Height Control Relay No.2
	5	BAT	I	V	Ignition Switch ON	10 ~ 14V	ECU-B Fuse

	6	STP	I	V	Brake Pedal Depressed	8~14V	Stop Light Switch
					Brake Pedal Not Pressed	< 1.5V	

					Condition	Value	Component
A	7	SLFL	O	V	IG Switch ON → Engine running: → Suspension control switch (Height): Norm ↔ High Car is changing height	< 1.0V > 8.0V	Computer
	8	SLRL					
	9	SLEX	O	V	IG Switch ON → Engine running: → Suspension control switch (Height): High → Norm Car is lowering	< 1.0V > 8.0V	Computer
	12	-R.C	I	R	At all times	Has Continuity	Computer
B	1	SHB	O	V	IG Switch ON	4.7 ~ 5.3V	Computer
	2	SHFR	I	V	IG Switch ON → Engine running: → Suspension control switch (Height): High → Norm Car has finished changing height	0.5~4.5V ~2.5V	* Height Control Sensor * Computer
	3	SHRR	I				

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					Condition	Value	Component
B	4	RM+	I	V	Engine running Suspension control switch (Height): Norm → High Air Compressor running	< 1.0V	Compressor Motor
	5	RM-	I	R	At all times	Has Continuity	Compressor Motor Earth
	6	CLE	I	V	IG Switch ON	10~14V	* Computer * Connector to Height Sensors
	7	DOOR	I	V	Door Open? Door Closed?	<1.5V 10~14V	Courtesy Light Switch
	8	REG	I	V	IG Switch on (Engine Off) Engine Running	<1.5V 10~14V	IC Regulator
	9	SHG	I	R	At all times	Has Continuity	Computer
	10	SHFL	I	V	IG Switch ON → Engine running: → Suspension control switch (Height): High → Norm Car has finished changing height	0.5~4.5V ~2.5V	* Height Control Sensor * Computer
	11	SHRL	I				
	13	TC	I	V	IG Switch ON, T_c-E_1 not connected	<1.5V	Diagnosis connector TDCL
					IG Switch ON, T_c-E_1 Connected	10~14V	

					Condition	Value	Connected To
B	14	TS	I	V	IG Switch ON, T_s-E_1 not connected	<1.5V	Diagnosis connector TDCL
					IG Switch ON, T_s-E_1 Connected	10~14V	
	15	TD	I	V	IG Switch ON	10~14V	TDCL
	16	TSW	I	V	IG Switch ON, TEMS Switch set to SPORT	<1.5V	Suspension Control Switch (TEMS)
					IG Switch ON, TEMS Switch set to TEMS	10~14V	
C	1	+B	I	V	IG Switch ON	10~14V	AIR-SUS Fuse
	2	IG	I	V	IG Switch ON	10~14V	ECU-IG Fuse
	3	L3	I	V	* IG Switch ON * Slowly Press Accelerator all the way down	~5V → <1.5V → ~5V → <1.5V → ~5V	Engine Control Computer
	4	L1	I	V		~5V → <1.5V	
	5	NSW	I	V	IG Switch ON, Suspension switch (in boot) ON	10~14V	Suspension Switch (in boot)
	6	SS2	I	V	IG Switch ON, Suspension switch (in boot) OFF	<1.5V	
	8	MRLY	O	V	When IG Switch is ON, and for 3 minutes after IG is switched off	10 ~ 14V	Computer
	9	VH	O	V	For ~2 Seconds after IG switch turned on	> 8.2V	Computer
	10	VN	O	V	For ~2 Seconds after IG switch turned on	> 8.2V	Computer

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					Condition	Value	Connected To
	11	FS+	O	Hz	IG Switch ON, TEMS Switch SPORT→NORM	(range)	Computer
	12	FS-	O	Hz	IG Switch ON, T_c-E_1 Open → Shorted	(range)	Computer
	13	FCH	O	Hz	IG Switch ON, TEMS Switch SPORT→NORM	(range)	Computer
	14	GND	I	R	At all times	Has Continuity	Body Earth
	16	L2	I	V	IG Switch ON Slowly Press accelerator all the way down	~5V → < 1.5V → ~5V	Engine Control Computer

C	17	HSW	I	V	IG Switch ON, Height Switch HIGH	< 1.5V	Suspension Height Switch
					IG Switch ON, Height Switch HIGH	10~14V	
	18	SPD	I	V	IG Switch ON, Slowly turn propeller shaft	<1.5V ↔ >5V	Combination Meter
	19	SS1	I	V	IG Switch ON, Slowly turn Steering wheel	<1.5V ↔ >5V	Steering Sensor
	22	VS	O	V	IG Switch ON, "TEMS SPORT" light visible	> 8.2V	Computer
	24	RS+	O	Hz	IG Switch ON, TEMS Switch SPORT→NORM	(range)	Computer
	25	RS-	O	Hz	IG Switch ON, T_c-E_1 Open → Shorted	(range)	Computer
	26	RCH	O	Hz	IG Switch ON, TEMS Switch SPORT→NORM	(range)	Computer

Signal Type: V=Voltage, R=Resistance (to earth?), Hz=Frequency

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Suspension & Akusuruu?? Active Control Suspension

Notes:
- About TestMode
  When you go into Test Mode etc
- To go from normal to Test Mode, put a short between T_s and E_1 on the Diagnosis connector, and turn the ignition switch from OFF to ON
- To display the Test Codes
  While in Test Mode, put a short between T_c and E_1 on either the Diagnosis Connector or the TDCL (OBD?) port. Once this is done the diagnosis codes and the Test Mode codes will be displayed on the Multi Information Display (dash?)

1. **Battery Check**
   Correct Battery Voltage: 10~14V (engine off)

2. **Test Mode Checkpoints**
   (1) With the ignition switch OFF, connect T_s and E_1 on the diagnosis connector
   (2) Ensure Suspension Switch (in boot) is on, and Select Norm on the suspension control switch
   (3) Straighten the steering wheel
   (4) Close all doors, and start the engine *without* pressing on the brake pedal
   (5) The combination meter will indicate that it is in test mode
   Note: In Test Mode, the Active High light will blink (0.13s on, 0.13s off etc), and a small square will be displayed on the right side of the text display area (where the temp/time usually is!)
   (6) Perform the following actions

	Action	ACTIVE HIGH Indicator Display
1	Press Brake Pedal	Blink → On (1 Sec) → Blink
2	Shift into a Gear other than P or N	Blink → On (1 Sec) → Blink
3	Travel faster than 20km/h	Blink → On (Over 20km/h)
4	Turn the steering wheel more than 36º	Turn Right: Blink → On Turn left: Blink → Off
5	Turn Suspension Control switch from HIGH to NORM	Blink → On (1 Sec) → Blink
6	Turn Suspension Switch (in boot) from OFF to ON	Blink → On (1 Sec) → Blink
7	Switch Engine OFF then ON	Blink
8	Switch the Suspension Control switch NORM→HIGH→NORM→HIGH→NORM within 3 seconds	Blink

(7) Put a short between T_c and E_1 on either the Diagnosis Connector or the TDCL (OBD?) port.
Caution: Do not remove short between T_s and E_1
Note: Once this is done 'diag mode' (in Japanese) will be displayed on the Multi Information Display (dash?)
(8) Press Scroll Button until **SUS** is displayed and read the codes which will be displayed.
Note:
- If there are no problems at all **SUS OK** will be displayed, Otherwise **SUS NG** will be displayed.
- If **SUS NG** is displayed, the codes will follow one at a time
- To read the codes, use a diagnosis reader (or just read the dash?? It doesn't mention it)

Codes (Page 7-196 to 7-198)

Code	Problem desc [comp signal]	Symptoms	Check points
53	Stop light switch signal anomaly [STP]	Stop light switch signal was not detected	-Stop Light Switch broken or not enough voltage -Wire/harness between computer and stop light switch short or broken
54	Neutral Start Switch signal anomaly [PN]	Neutral Start Switch signal was not detected	-Neutral start switch broken or voltage problem -Wire/harness between computer and Neutral Start Switch short or broken
55	Speed Sensor signal anomaly [SPD]	A speed of more than 20km/h was not detected	-Did not travel more than 20km/h during test -Speed Sensor broken or voltage/ground problem -Wire/harness between computer and Speed Sensor short or broken
56	Steering sensor signal anomaly [SS1, SS2]	During the steps, the steering wheel didn't register more than 36 degrees	Steering wheel wasn't turned more than 36 degrees Steering sensor broken or bad earth Wire/harness between computer and steering sensor short or broken
57	Suspension Control Switch signal anomaly [HISW]	Height Control Switch signal was not detected	-height control switch broken -Wire/harness between computer and height control Switch short or broken, or loose

58	(page 7-197) Master Suspension Switch Signal [OFF SW]	Suspension Control Switch signal does not change.	- Suspension control switch broken - Wire Harness from Computer<->Susp. Control switch is open circuit, wire harness broken, short or connector loose
59	IC Regulator Signal Anomaly [ICL]	IC Regulator Signal does not change	- IC Regulator broken - Wire Harness from Computer<->IC Regulator is open circuit, wire harness broken, short or connector loose
61	Longitudinal G sensor signal anomaly [GLG]	G Value >0.1G detected	- Longitudinal or Side-to-side G sensor broken - Sensor not installed correctly (tilted) - Sensor voltage interruption/abnormality - Wire Harness from Computer<-> Longitudinal/Side-to-side G sensor is is open circuit, wire harness broken, short or connector loose
62		G Value >0.04 but not more than 0.1G	
63		G Value < -0.04G but not less than -0.1G	
64		G Value < -0.1G detected	
65	Side-to-Side G sensor signal anomaly [GLT]	G Value >0.1G detected	- Longitudinal or Side-to-side G sensor broken - Sensor not installed correctly (tilted) - Sensor voltage interruption/abnormality - Wire Harness from Computer<-> Longitudinal/Side-to-side G sensor is open circuit, wire harness broken, short or connector loose
66		G Value >0.04 but not more than 0.1G	
67		G Value < -0.04G but not less than -0.1G	
68		G Value < -0.1G detected	

71	Front (LH) Vertical G sensor signal anomaly [SGFL]	G Value >0.1G detected	- Vertical G sensor broken
72		G Value < -0.1G detected	- Sensor not installed correctly (tilted)
73	Rear (RH) Vertical G sensor signal anomaly [SGRR]	G Value >0.1G detected	- Sensor voltage interruption/abnormality
74		G Value < -0.1G detected	- Wire Harness from Computer<-> Vertical G sensor is open circuit, wire harness broken, short or connector loose
75	Rear (LH) Vertical G sensor signal anomaly [SGRL]	G Value >0.1G detected	
76		G Value < -0.1G detected	
81	Front (LH) Height Control Sensor signal anomaly [HFL]	height signal more than 15mm above standard height detected	- Car hasn't finished changing height
82		height signal lower than 15mm below standard height detected	- Height control sensor anomaly - Sensor voltage interruption/abnormality
83	Front (RH) Height Control Sensor signal anomaly [HFR]	height signal more than 15mm above standard height detected	- Wire Harness from Computer<-> Height control sensor is open circuit, wire harness broken, short or connector loose
84		height signal lower than 15mm below standard height detected	

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85	Rear (LH) Height Control Sensor signal anomaly [HRL]	height signal more than 15mm above standard height detected	- Car hasn't finished changing height
86		height signal lower than 15mm below standard height detected	- Height control sensor anomaly - Sensor voltage interruption/abnormality - Wire Harness from Computer<-> Height control sensor is open circuit, wire harness broken, short or connector loose

87	Rear (RH) Height Control Sensor signal anomaly [HRR]	height signal more than 15mm above standard height detected	
88		height signal lower than 15mm below standard height detected	
91	Accumulator Pressure sensor signal anomaly [PACC]	Accumulator pressure signal does not reach $100kg/cm^3$, or exceeds $130kg/cm^3$	- Pressure sensor anomaly - Sensor voltage interruption/abnormality - Wire Harness from Computer<-> Pressure sensor is open circuit, wire harness broken, short or connector loose
92	Pneumatic Cylinder Pressure sensor (RL) signal anomaly [PRL]	Cylinder pressure signal does not reach $40kg/cm^3$, or exceeds $70kg/cm^3$	
93	Pneumatic Cylinder Pressure sensor (RR) signal anomaly [PRR]	Cylinder pressure signal does not reach $40kg/cm^3$, or exceeds $70kg/cm^3$	
-	Electric Fan [CRY]	Fan does not start after switching "Norm->High->Norm->High->Norm" (within 3 seconds) NOTE: Normally the fan should run for 1 minute after doing this	Fan broken/anomaly or input voltage problem - Wire Harness from Computer<-> fan is open circuit, broken, short or connector loose

3. Test Mode Cancellation
   Remove the jumper from TDCL or Diagnosis connector (codes will be erased)

Height control Rod
1. Height control sensor link (commonly known as the 'rods')
   In the image shown, the length of the measurement A should be as follows:
   Front: 165.6mm
   Rear: 41.5mm

2. **Erasing Diagnosis Codes**

Remove the ECU-B fuse in the Fuse Junction Box No.1.

Caution

- o Removing ECU-B fuse will also erase the Airbag and 4WS diagnosis codes
- o To erase the codes, you need to remove the fuse for 10 seconds

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Diagnosis codes explanations

Code	Problem desc [comp signal]	Symptoms	Check points
11	Front Left Height Control Sensor System, signal anomaly or Short [HFL]	Height control sensor voltage was above 4.7V or below 0.3V for more than 2 seconds	(1) Height control sensor problem (2) Height Control Sensor Wiring harness is shorted or broken, connector has come loose (or sensor voltage supply or earth is not present)
12	Front Right Height Control Sensor System, signal anomaly or Short [HFR]		
13	Rear Left Height Control Sensor System, signal anomaly or Short [HRL]		
14	Rear Right Height Control Sensor System, signal anomaly or Short [HRR]		
16	Low Oil Level [LOIL]	Oil level sensor registers below 0.3V for more than 1 minute continuously	(1) Active Control Suspension Fluid no good (contaminants). (2) Oil leak (3) Oil level sensor broken (4) Oil level Sensor Wiring harness is shorted or broken, connector has come loose

17	Front (LH) vertical G sensor system open circuit/short [SGFL]	Vertical G sensor voltage was above 4.7V or below 0.3V for more than 2 seconds	(1) Vertical G sensor problem (2) Vertical G Sensor Wiring harness shorted or broken, connector has come loose (or sensor voltage supply or earth is not present)
18	Rear (LH) vertical G sensor system open circuit/short [SGRL]		
19	Rear (RH) vertical G sensor system open circuit/short [SGRR]		
23	Rear (LH) Pressure Sensor system open circuit/short [PRL]	Pressure sensor voltage was above 4.7V or below 0.3V for more than 2 seconds	(1) Pressure sensor problem (2) Pressure Sensor Wiring harness is shorted or broken, connector has come loose (or sensor voltage supply or earth is not present)
24	Rear (RH) Pressure Sensor system open circuit/short [PRR]		
25	Accumulator Pressure Sensor system open circuit/short [PACC]		

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26	Oil temp sensor system open circuit/short Abnormal rise in oil temperature [TOIL]	Oil Temperature sensor voltage was above 4.7V or below 0.3V for more than 2 seconds	(1) Pressure sensor problem (2) Pressure Sensor Wiring harness is shorted or broken, connector has come loose (or sensor voltage supply or earth is not present) (3) Oil Cleaner is blocked by a foreign object
27	Longitudinal (front-back) G sensor system open circuit/short Abnormal rise in oil temperature [GLG]	G Sensor voltage was above 4.7V or below 0.3V for more than 2 seconds	(1) G sensor problem (2) G Sensor Wiring harness is shorted or broken, connector has come loose (or sensor voltage supply or earth is not present)
28	Horizontal (side-to-side) G sensor system open circuit/short Abnormal rise in oil temperature [GLT]		

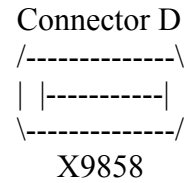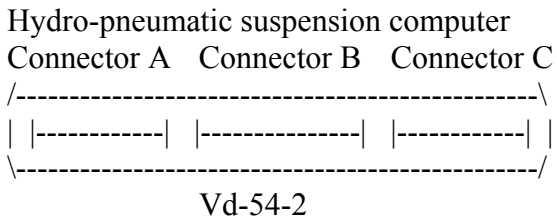| 31	Front (LH) Absorber Control Solenoid Valve system open circuit/short [SFL]	Current going through absorber control valve was above 1.27A or below 20mA for more than 0.2 seconds	(1) Absorber control solenoid valve broken/ns (2) Absorber control solenoid valve wiring harness broken, short, or connector loose
32	Front (RH) Absorber Control Solenoid Valve system open circuit/short [SFR]		
33	Rear (LH) Absorber Control Solenoid Valve system open circuit/short [SRL]		
34	Rear (RH) Absorber Control Solenoid Valve system open circuit/short [SRR]		
35	Suspension Control Solenoid Valve System open circuit / short [SBYP]	Current going through Suspension Control valve was above 1.27A or below 20mA for more than 0.2 seconds	(1) Suspension control solenoid valve broken/ns (2) Suspension control solenoid valve wiring harness broken, short, or connector loose
41	Main Relay contact point eroded/melted [RLY]	1 Second after Main Relay was switched on, ECU-B did not get any voltage	Main Relay Broken
42	Cooling Fan, Relay Coil open circuit/short [CRY]	(1) Current in the relay coil was above 3A for more than 2 seconds (2) Relay Coil resistance is over 1kΩ for more than 2 seconds	(1) Cooling Fan Relay broken (2) Cooling Fan Relay wiring harness broken, short, or connector loose
45	Front (LH) vertical G sensor output abnormality [GFL]	(1) Vertical G Sensor registers ±1.5G continuously for more than 1 second (2) When Reset, the Vert. G sensor registers 0.1G or more	(1) Vertical G sensor broken (2) Vertical G sensor wiring harness broken, short, or connector loose
46	Rear (LH) vertical G sensor output abnormality [GRL]		
47	Rear (RH) vertical G sensor output abnormality [GRR]		

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48	Longitudinal G sensor (front-back) output abnormality [GLG]	Horiz/Long. G sensor registers registers more than ±1.3G for more than 1 second	(1) Horiz/Long. G sensor broken (2) Horiz/Long. G sensor wiring harness broken, short, or connector loose
49	Horizontal G sensor (side-to-side) output abnormality [GLT]		
51	System pressure does not reach minimal level [PACC]	System pressure is less than 70cm^3 for more than 10 seconds continuously	(1) Accumulator Pressure Sensor broken (2) Suspension control pump V belt stretched too long (3) Oil leak (4) Suspension Control Pump Broken
52	System pressure too high [PACC]	System pressure is more than 150cm^3 for more than 10 seconds continuously	(1) Accumulator Pressure Sensor Broken (2) Pump Accumulator Relief valve broken (3) Computer Broken

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Hydro Pneumatic Suspension Computer Pin-Outs

Image of Connector Plugs:

Hydro-pneumatic suspension computer
Connector A   Connector B   Connector C   Connector D
```
/------------------------------------------------\        /--------------\
| |------------|  |---------------|  |------------| |      | |-----------| |
\------------------------------------------------/        \--------------/
              Vd-54-2                                          X9858
```

Longitudinal, Horizontal Check Connectors
Connector a (white)   Connector b (grey??)

```
  /--------\                           /--------\
 | -------- |                         | -------- |
  \__|_|__/                            \__|_|__/
GLG EG GLG                           GLT EG GLT
    e-3-1                                e-3-1
```
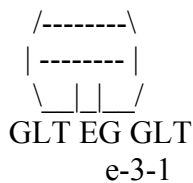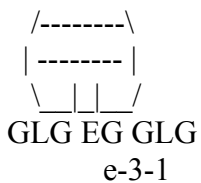
Connector A

Pin #	Signal Name	IN or OUT	Signal Type	Test Match (+)↔(-)	Test Condition	Correct Value	Problem Area in Case of variation
1	TC	I	V	A1 – C7	Ignition Switch ON and there is NO short between Tc-E_1 on the diagnosis connector or TDCL	<1V	- Diagnosis connector - TDCL
					Ignition Switch ON and there IS a short between Tc-E_1 on the diagnosis connector or TDCL	8~14V	
2	ES_1	I	R	A2 – C7	Lit. Usual Time	Has continuity	Long. G Sensor shield system
3	TOIL	I	V	A3 – C7	Engine Idling	0.5~4.5 V	Oil Temperature sensor
4	PRL	I	V	A4 – A25 or A26	Engine Idling	0.5~4.5 V	Rear (LH) Pressure Sensor
5	GLG	I	V	A5 – A24	IG Switch ON	0.5~4.5 V	Long/Horiz G sensor
6	HFL	I	V	A6 – A25 or A26	IG Switch ON	0.5~4.5 V	Front (LH) Height control sensor
7	HRL	I	V	A7 – A25 or A26	IG Switch ON	0.5~4.5 V	Rear (LH) Height control sensor
8	SGFL	I	V	A8 – A25 or A26	IG Switch ON	0.5~4.5 V	Front (LH) Vertical G sensor
9	SGRL	I	V	A9 – A25 or A26	IG Switch ON	0.5~4.5 V	Rear (LH) Vertical G sensor

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10	PACC	I	V	A10 – A25 or A26	Engine Idling	0.5~4.5 V	Accumulator Pressure sensor
11	VG5	O	V	A11 – A24	Engine Idling	4.7-4.3V	Computer
12	VL5	O	V	A12 – A25 or A26	Engine Idling	4.7-4.3V	Computer
13	VR5	O	V	A13 – A25 or A26	Engine Idling	4.7-4.3V	Computer
14	TS	I	V	A14 – C7	Ignition Switch ON and there is NO short between Ts-E_1 on the diagnosis connector or TDCL	<1V	- Diagnosis connector - TDCL
					Ignition Switch ON and there IS a short between Ts-E_1 on the diagnosis connector or TDCL	8~14V	
15	ES_2	I	R	A15 – C7	Lit. Usual Time	Has Continuity	Horiz G sensor Shield System

16	TD	I	V	A16 – C7	Ignition Switch ON and there is NO short between T_D-E_1 on the diagnosis connector/TDCL	<1V	- Diagnosis connector - TDCL
					Ignition Switch ON and there IS a short between T_D-E_1 on the diagnosis connector/TDCL	8~14V	
17	PRR	I	V	A17 – A26	Engine Idling	0.5~4.5 V	Rear (RH) Pressure Sensor

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18	GLT	I	V	A18 – A24	IG Switch ON	0.5~4.5 V	Long., Vert. G sensor
19	HFR	I	V	A19 – A25 or A26	IG Switch ON	0.5~4.5 V	Front (RH) height control sensor
20	HRR	I	V	A20 – A25 or A26	IG Switch ON	0.5~4.5 V	Rear (RH) height control sensor
22	SGRR	I	V	A22 – A25 or A26	IG Switch ON	0.5~4.5 V	Rear (RH) vertical G sensor
24	EG	I	R	A24 – C7	Lit. Usual Time	Has continuity	Computer
25	EL			A25 – C7			
26	ER			A26 – C7			

Connector B

Pin #	Signal Name	I n / O u t	Signal Type	Test conn (+) ↔ (-)	Test Conditions	Normal Results	Possible problem areas
1	SS1	I	V	$B_1 ↔ C_7$	Ignition Switch on, Slowly turn steering wheel	Varies From below 1V to above 5V	Steering Sensor
5	4WSF	I	V	$B_5 ↔ C_7$	Ignition Switch on	8~14V	4WS Computer
6	ABS	I	V	$B_6 ↔ C_7$	Ignition Switch on	8~14V	ABS Computer
7	LOIL	I	V	$B_7 ↔ C_7$	Ignition Switch on	8~14V	Oil Level Sensor
8	HISW	I	V	$B_8 ↔ C_7$	Ignition Switch on, Sus. Control switch NORM	8~14V	Suspension Control Switch
9	SS2	I	V	$B_9 ↔ C_7$	Ignition Switch on, Slowly turn steering wheel	Varies From below 1V to above 5V	Steering Sensor
10	SPD	I	V	$B_{10} ↔ C_7$	Ignition Switch on, Slowly driving car	Varies From below 1V to above 5V	Speed sensor
12	STP	I	V	$B_{12} ↔ C_7$	Ignition Switch on, brake on	10~14V	Stop Light switch
14	OFFSW	I	V	$B_{14} ↔ C_7$	Ignition Switch on, suspension master switch (boot) on	10~14V	Suspension Master Switch
16	ICL	I	V	$B_{16} ↔ C_7$	At idle time	> 8V	IC Regulator

Connector C

Pin #	Signal Name	In/Out	Signal Type	Test conn (+) ↔ (-)	Test Conditions	Normal Results	Possible problem areas
1	+B	I	V	$C_1 \leftrightarrow C_7$	Ignition Switch on	10~14V	HPS Fuse
2	GLG(+)	I	V	$C_2 \leftrightarrow C_7$	Ignition Switch on, GLG(+) – EG on connector **b** OPEN	Above 5V	Long./Horiz. G sensor
					Ignition Switch on, GLG(+) – EG on connector **b** SHORTED	Less than 1V	Long./Horiz. G sensor
3	GLT(+)	I	V	$C_3 \leftrightarrow C_7$	Ignition Switch on, GLT(+) – EG on connector **a** OPEN	Above 5V	Long./Horiz. G sensor
					Ignition Switch on, GLT(+) – EG on connector **a** SHORTED	Less than 1V	Long./Horiz. G sensor
4	ES4	I	R	$C_4 \leftrightarrow C_7$	At All Times	Has Continuity	Computer
5	ES3	I		$C_5 \leftrightarrow C_7$			
7	GND	O	R	$C_7 \leftrightarrow$ Body earth	At All Times	Has Continuity	- Computer - Body Earth
8	GLG(-)	I	V	$C_8 \leftrightarrow C_7$	Ignition Switch on, GLG(-) – EG on connector **b** OPEN	Above 5V	Long./Horiz. G sensor
					Ignition Switch on, GLG(-) – EG on connector **b** SHORTED	Less than 1V	Long./Horiz. G sensor
9	GLT(-)	I	V	$C_9 \leftrightarrow C_7$	Ignition Switch on, GLT(-) – EG on connector **a** OPEN	Above 5V	Long./Horiz. G sensor
					Ignition Switch on, GLT(-) – EG on connector **a** SHORTED	Less than 1V	Long./Horiz. G sensor
10	ES5	I	R	$C_{10} \leftrightarrow C_7$	At All Times	Has Continuity	Computer
12	PN	I	V	$C_{12} \leftrightarrow C_7$	Ignition Switch on, Shift Lever in P or Neutral	10~14V	Neutral Start Switch

Connector D

Pin #	Signal Name	In/Out	Signal Type	Test conn (+) ↔ (-)	Test Conditions	Normal Results	Possible problem areas
1	B+	I	V	$D_1 \leftrightarrow C_7$	Ignition Switch on	10~14V	HPS Fuse
2	BAT	I	V	$D_2 \leftrightarrow C_7$	At All Times	8~14V	ECU-B Fuse
3	HPSF	O	V	$D_3 \leftrightarrow C_7$	Ignition Switch on	9~14V	Computer
4	ACTV HIGH	O	V	$D_4 \leftrightarrow C_7$	Engine Idling, Suspension Control Switch HIGH	10~14V	Combination Meter
5	ACTV SUS	O	V	$D_5 \leftrightarrow C_7$	Engine Idling	Less than 1V	Combination Meter
6	ACTV -OFF	O	V	$D_6 \leftrightarrow C_7$	Ignition Switch on, Suspension Master Switch OFF	Less than 1V	Combination Meter

7	SFL(+)	O	V	$D_7 \leftrightarrow C_7$	When engine is idling, shift gear to something other than P or N. After the Checking State (gear engages?) shift back into P or N		0.36~7.7V	Respective absorber control solenoid valve
8	SFR(+)			$D_8 \leftrightarrow C_7$				
9	SRL(+)			$D_9 \leftrightarrow C_7$				
10	SRR(+)			$D_{10} \leftrightarrow C_7$				
11	SBYP (+)	O	V	$D_{11} \leftrightarrow D_{25}$	When engine is idling, shift gear to something other than P or N. After the Checking State (gear engages?) shift back into P or N		0.36~7.7V	Suspension control Solenoid Valve
12	GND	O	R	$D_{12} \leftrightarrow$ Bodyearth	At All Times		Has Continuity	- Computer - Body Earth
13	IG	I	V	$D_{13} \leftrightarrow C_7$	Ignition Switch on		10~14V	ECU-IG Fuse
18	TEM	I	V	$D_{18} \leftrightarrow C_7$	Ignition Switch on		Less than 1V	Diagnosis Connector
19	CRY	O	V	$D_{19} \leftrightarrow C_7$	Ignition Switch on	Suspension Fluid > 70°C	10~14V	- Oil Temperature Sensor - Computer
						Suspension Fluid < 60°C	Less than 1V	
20	RLY	O	V	$D_{20} \leftrightarrow C_7$	Ignition Switch ON		10~14V	Computer
					Ignition Switch OFF		Less than 1V	Computer
21	SFL(-)	O	V	$D_{21} \leftrightarrow$ Bodyearth	At All Times		0~0.5V	- Computer - Body Earth
22	SFR(-)			$D_{22} \leftrightarrow$ Bodyearth				
23	SRL(-)			$D_{23} \leftrightarrow$ Bodyearth				
24	SRR(-)			$D_{24} \leftrightarrow$ Bodyearth				
25	SBYP(-)			$D_{25} \leftrightarrow$ Bodyearth				

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