








DIAGNOSTIC CODE CHART

HINT: Parameters listed in the chart may not be exactly same as your reading due to type of the instruments or other factors.

Code No.	Number of Check Engine Blinks	Circuit	Diagnostic Code Detecting Condition
-	 BE3931	Normal	No code is recorded.
12	 BE3931	RPM Signal	No "NE" or "G1" and "G2" signal to ECU within 2 sec. after cranking.
13	 BE3931	RPM Signal	No NE signal to ECU for 0.1 sec. or more at 1,000 rpm or more.
			No 12 pulses of NE to ECU during the interval between G1 and G2 pulses.
			Deviation in G (G1, G2) and NE signal continues for 1 sec. during idling (throttle fully closed) after engine warmed up.
14	 BE3931	Ignition No. 1 Signal	No IGF1 signal to ECU for 8-11 consecutive IGT1 signal.
15	 BE3931	Ignition No. 2 Signal	No IGF2 signal to ECU for 8-11 consecutive IGT2 signal.
16	 BE3931	ECT Control Signal	Fault in communications between the engine CPU and ECT CPU in the ECU.
21	 BE3932	Main Oxygen Sensor Signal (on left bank)	(1) Open or short in heater circuit of main oxygen sensor for 0.5 sec. or more.
			(2) Main oxygen sensor signal voltage is reduced to between 0.35 V and 0.70 V for 60 sec. under conditions (a) ~ (d). (2 trip detection logic) *4 (a) Coolant temp. : Between 70°C (158°F) and 95°C (203°F). (b) Engine speed : 1,500 rpm or more. (c) Load driving (EX. ECT in 4th speed, A/C ON, Flat road, 50 mph < 80 km/h >) (d) Main oxygen sensor signal voltage : Alternating above and below 0.45 V.







*4: See page TR-21.

If a malfunction code is displayed during the diagnostic code check in test mode, check the circuit for that code listed in the table below (Proceed to the page given for that circuit).

Trouble Area	"CHECK" Engine Warning Light *1		Memory*2	See Page
	Normal Mode	Test Mode		
_____	—	—	—	—
<ul style="list-style-type: none"> • Open or short in engine speed sensor, No. 1, No. 2 cam position sensor circuit. • Engine speed sensor • No. 1, No. 2 cam position sensor • Starter • ECU 	ON	N.A.	○	TR-48
<ul style="list-style-type: none"> • Open or short in engine speed sensor circuit. • Engine speed sensor • ECU 	ON	N.A.	○	TR-52
<ul style="list-style-type: none"> • Open or short in engine speed sensor circuit. • Mechanical system malfunction (skipping teeth of timing belt, belt stretched) • Engine speed sensor • ECU 	N.A.	ON		
<ul style="list-style-type: none"> • Mechanical system malfunction (skipping teeth of timing belt, belt stretched) • No. 1, No. 2 cam position sensor • ECU 	ON	N.A.		
<ul style="list-style-type: none"> • Open or short in IGF1 circuit from igniter No. 1–ECU. • Igniter No. 1 • ECU 	ON	N.A.	○	TR-54
<ul style="list-style-type: none"> • Open or short in IGF2 circuit from igniter No. 2–ECU. • Igniter No. 2 • ECU 	ON	N.A.	○	TR-54
<ul style="list-style-type: none"> • ECU 	ON	N.A.	X	TR-61
<ul style="list-style-type: none"> • Open or short in heater circuit of main oxygen sensor. • Main oxygen sensor heater • ECU 	ON	N.A.	○	TR-62
<ul style="list-style-type: none"> • Main oxygen sensor circuit • Main oxygen sensor 	ON	ON		

*1, 2: See page TR-20.

DIAGNOSTIC CODE CHART (Cont'd)








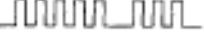

Code No.	Number of Check Engine Blinks	Circuit	Diagnostic Code Detecting Condition
22	 BE3932	Water Temp. Sensor Signal	Open or short in water temp. sensor circuit for 0.5 sec. or more.
24	 BE3932	Intake Air Temp. Sensor Signal	Open or short in intake air temp. sensor circuit for 0.5 sec. or more.
25 (26)	 BE3932	Air-Fuel Ratio Lean (Rich) Malfunction	<p>(1) Main oxygen sensor voltage is 0.45 V or less (lean) for 90 sec. under conditions (a) and (b). (2 trip detection logic)** (a) Coolant temp. : 60°C (140°F) or more. (b) Engine speed : 1,500 rpm or more.</p> <p>(2)** Main oxygen sensor voltage is alternating above and below 0.45 V at 5 times per second or more under conditions (a) and (b). (2 trip detection logic)** (a) Engine speed : Idling (b) Coolant temp. : Between 60°C (140°F) and 95°C (203°F).</p> <p>(3)** Difference of air-fuel ratio feedback compensation value between right and left banks is more than 10 percentage for 30 sec. or more under conditions (a) and (b). (2 trip detection logic)** (a) Engine speed : 2,000 rpm or more. (b) Coolant temp. : Between 60°C (140°F) and 95°C (203°F).</p>
27	 BE3932	Sub-Oxygen Sensor Signal (on left bank)	<p>(1) Open or short in heater circuit of sub-oxygen sensor for 0.5 sec. or more.</p> <p>(2) Main oxygen sensor signal is 0.45 V or more and sub-oxygen sensor signal is 0.45 V or less under conditions (a) and (b). (2 trip detection logic)** (a) Coolant temp. : 80°C (176°F) or more. (b) Accel-pedal : Full depressed for 2 sec. or more.</p>
28	 BE3932	Main Oxygen Sensor Signal (on right bank)	<p>Same as (1) of Code No. 21</p> <p>Same as (2) of Code No. 21</p>
29	 BE3932	Sub-Oxygen Sensor Signal (on right bank)	<p>Same as (1) of Code No. 27</p> <p>Same as (2) of Code No. 27</p>

* 3, 4: See page TR-20, 21.

Trouble Area	"CHECK" Engine Warning Light *1		Memory*2	See Page
	Normal Mode	Test Mode		
<ul style="list-style-type: none"> • Open or short in water temp. sensor circuit. • Water temp. sensor • ECU 	ON	ON	○	TR-68
<ul style="list-style-type: none"> • Open or short in intake air temp. sensor circuit. • Intake air temp. sensor • ECU 	OFF	ON	○	TR-72
	ON*3			
<ul style="list-style-type: none"> • Open or short in main oxygen sensor circuit. • Main oxygen sensor • Ignition system • Water temp. sensor 	ON	ON	○	TR-74
<ul style="list-style-type: none"> • Open or short in injector circuit. • Fuel line pressure (injector blockage) • Air flow meter (air intake) • Engine ground bolt loose • Foreign object caught in valve 				
<ul style="list-style-type: none"> • Fuel line pressure (injector leak, blockage) • Mechanical system malfunction (skipping teeth of timing belt) • Ignition system 				
<ul style="list-style-type: none"> • Open or short in heater circuit of sub-oxygen sensor. • Sub-oxygen sensor heater. • ECU 	ON	N.A.	○	TR-82
<ul style="list-style-type: none"> • Open or short in sub-oxygen sensor circuit. • Sub-oxygen sensor • ECU 	ON	ON		
• Same as (1) of Code No. 21	ON	N.A.	○	TR-62
• Same as (2) of Code No. 21	ON	ON		
• Same as (1) of Code No. 27	ON	N.A.	○	TR-82
• Same as (2) of Code No. 27	ON	ON		

*1, 2, 3: See page TR-20.




DIAGNOSTIC CODE CHART (Cont'd)

Code No.	Number of Check Engine Blinks	Circuit	Diagnostic Code Detecting Condition
31	 BE3933	Air Flow Meter Signal	All conditions below are detected. (a) No air-flow meter signal to ECU for 2 sec. when engine speed is above 300 rpm. (b) Engine stall.
35	 BE3933	HAC Sensor Signal	Open or short in HAC sensor circuit for 0.5 sec. or more.
41	 BE3934	Throttle Position Sensor Signal	(1) Open or short in throttle position sensor circuit (VTA1) for 0.5 sec. or more. (2) IDL1 contact is ON and VTA1 output exceeds 1.5 V for 0.5 sec. or more.
42	 BE3934	Vehicle Speed Sensor Signal	All conditions below are detected continuously for 8 sec. or more. (a) Vehicle speed signal : 0 mph (b) Engine speed : 1,500 rpm or more (c) Neutral start switch (NSW) : OFF
43	 BE3934	Starter Signal	No starter signal to ECU.
47	 BE3934	Sub-Throttle Position Sensor Signal	(1) Open or short in sub-throttle position sensor circuit (VTA2) for 0.5 sec. or more. (2) IDL2 contact is ON and VTA2 output exceeds 1.5 V for 0.5 sec. or more.
52	 BE3935	No. 1 Knock Sensor Signal	No No. 1 knock sensor signal to ECU for 3 crank revolutions with engine speed between 1,600 rpm ~ 5,200 rpm.
53	 BE3935	Knock Control Signal	Engine control computer (for knock control) malfunction at engine speed between 650 rpm and 5,200 rpm.
55	 BE3935	No. 2 Knock Sensor Signal	No No. 2 knock sensor signal to ECU for 3 crank revolutions with engine speed between 1,600 rpm ~ 5,200 rpm.

Trouble Area	"CHECK" Engine Warning Light *1		Memory*2	See Page
	Normal Mode	Test Mode		
<ul style="list-style-type: none"> Open or short in air flow meter circuit. Air flow meter ECU 	ON	N.A.	○	TR-88
<ul style="list-style-type: none"> ECU 	ON	ON	○	TR-92
<ul style="list-style-type: none"> Open or short in throttle position sensor circuit. 	ON	ON	○	TR-94
<ul style="list-style-type: none"> Throttle position sensor ECU 				
<ul style="list-style-type: none"> No. 1 speed sensor Combination meter Open or short in No. 1 speed sensor circuit. ECU 	ON	ON	○	TR-98
<ul style="list-style-type: none"> Open or short in starter signal circuit. Open or short in ignition switch or main relay circuit. ECU 	N.A.	OFF	X	TR-100
<ul style="list-style-type: none"> Open or short in sub-throttle position sensor circuit. 	OFF	ON	○	TR-94
<ul style="list-style-type: none"> Sub-throttle position sensor ECU 				
<ul style="list-style-type: none"> Open or short in No. 1 knock sensor circuit. No. 1 knock sensor (looseness) ECU 	ON	N.A.	○	TR-102
<ul style="list-style-type: none"> ECU 	ON	N.A.	X	
<ul style="list-style-type: none"> Open or short in No. 2 knock sensor circuit. No. 2 knock sensor (looseness) ECU 	ON	N.A.	○	

*1, 2: See page [TR-20](#).

DIAGNOSTIC CODE CHART (Cont'd)

Code No.	Number of Check Engine Blinks	Circuit	Diagnostic Code Detecting Condition
71*3	 BE3937	EGR System Malfunction	(1) Open or short in EGR step motor circuit for 1 sec. or more.
			(2) EGR gas temp. is 65°C (149°F) or below for 1 ~ 4 min. under conditions (a) and (b). (2 trip detection logic)** (a) Coolant temp. : 65°C (149°F) or more. (b) EGR operation possible (EX. ECT in 3rd speed, A/C ON, 60 mph < 96 km/h> , Flat road).
78	 BE3937	Fuel Pump Control Signal	(1) Open or short in fuel pump circuit for 1 sec. or more with engine speed 1,000 rpm or less. (2 trip detection logic)**
			(2) Open in input circuit of fuel pump ECU (FPC) with engine speed 1,000 rpm or less. (2 trip detection logic)**
			(3) Open or short in diagnostic signal line (DI) of fuel pump ECU with engine speed 1,000 rpm or less. (2 trip detection logic)**
51	 BE3935	Switch Condition Signal	(1) 3 sec. or more after engine starts, idle switch OFF (IDL1). (2) Neutral start switch OFF (NSW). (Shift position in "R", "D", "2" or "1" ranges). (3) A/C switch ON.

*1: "ON" displayed in the diagnosis mode column indicates that the "CHECK" Engine Warning Light is lighted up when a malfunction is detected. "OFF" indicates that the "CHECK" does not light up during malfunction diagnosis, even if a malfunction is detected. "N.A." indicates that the item is not included in malfunction diagnosis.

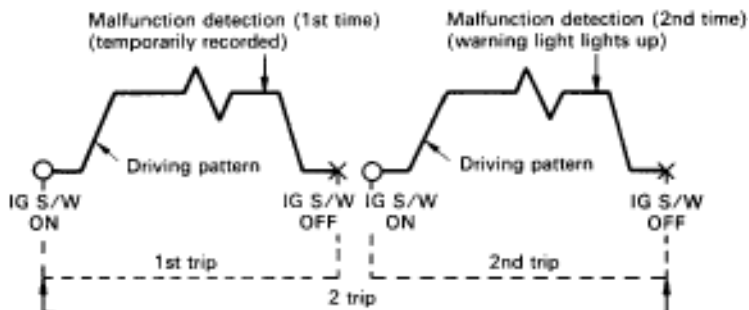
*2: "O" in the memory column indicates that a diagnostic code is recorded in the ECU memory when a malfunction occurs. "X" indicates that a diagnostic code is not recorded in the ECU memory even if a malfunction occurs. Accordingly, output of diagnostic results in normal or test mode is performed with the IG switch ON.

*3: Only for USA specification vehicles.

Trouble Area	"CHECK" Engine Warning Light*1		Memory*2	See Page
	Normal Mode	Test Mode		
<ul style="list-style-type: none"> Open or short in EGR step motor circuit. ECU 	ON	N.A.	○	TR-108
<ul style="list-style-type: none"> Open in EGR gas temp. sensor circuit. ECU 	ON	ON		
<ul style="list-style-type: none"> Open or short in fuel pump ECU circuit. Fuel pump ECU Engine & ECT ECU power source circuit. Fuel pump Engine & ECT ECU 	ON	ON	○	TR-114
<ul style="list-style-type: none"> A/C switch circuit Throttle position sensor IDL circuit Neutral start switch circuit. Accelerator pedal and cable ECU 	N.A.	OFF	X	TR-118

*4: This indicates items for which "2 trip detection logic" is used. With this logic, when a logic malfunction is first detected, the malfunction is temporarily stored in the ECU memory. If the same case is detected again during the second drive test, this second detection causes the "CHECK" Engine Warning Light to light up. The 2 trip repeats the same mode a 2nd time. (However, the IG switch must be turned OFF between the 1st trip and 2nd trip).

In the Test Mode, the "CHECK" Engine Warning Light lights up the 1st trip a malfunction is detected.



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