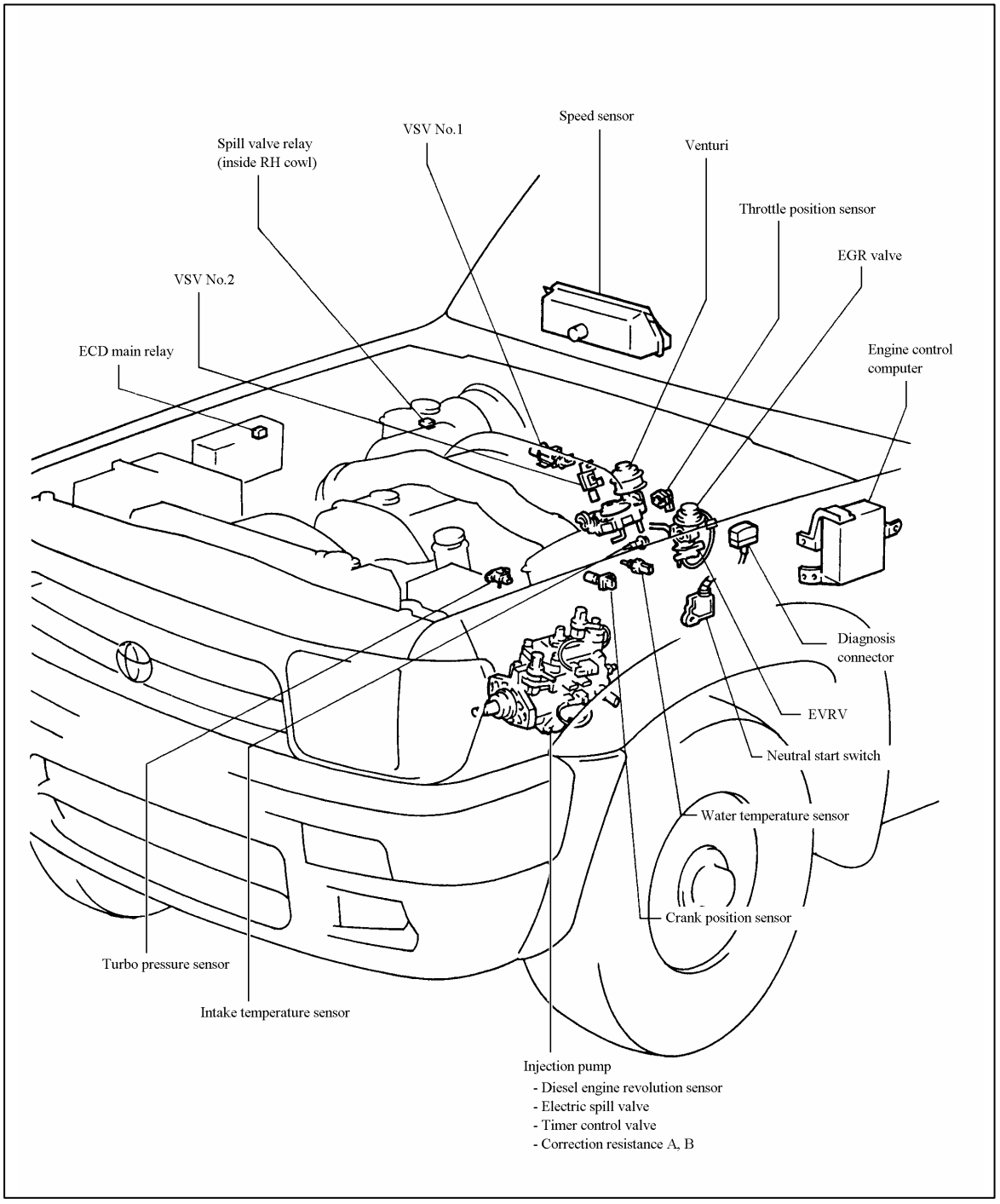
KZN130 1KZ-TE – Engine Control Computer (Aug-1993~)

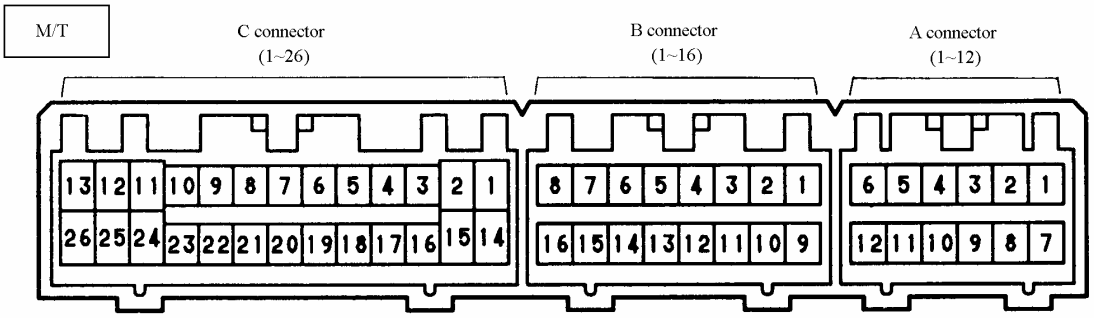


KZN130 1KZ-TE - Engine Control Diagnosis Trouble Codes List

Code No	Diagnosis Item	Diagnosis Contents 1. Diagnosis condition 2. Abnormal condition 3. Abnormal term	Probable Inspection Area
12	Revolution Signal 1 [TDC+, TDC-]	1. Engine revolution is more than 400rpm 2. No crank position signal (TDC signal) input	• Wiring and connector (crank position sensor) • Engine control computer
13	Revolution Signal 2 [NE+, NE-]	1. Engine revolution is more than 680rpm, STA is OFF 2. No NE signal input 3. More than 0.5 seconds	• Wiring and connector (diesel engine revolution sensor) • Engine control computer
		1. For 2 seconds after STA ON signal is input 2. No NE signal input	
14	Timer Control Valve [TCV]	1. Coolant temperature is 45°C or more, +B is 11V or more, while injection timing feedback is activated, STA is OFF 2. Timing is differ from target approx.7° (crank angle). 3. More than 5 seconds	• Wiring and connector • Fuel filter (choked) • Fuel (frozen, air-in) • Injection pump (internal pressure) • Engine control computer
16	ECT CPU	2. ECT CPU malfunction	• Engine control computer
22	Water Temperature Sensor [THW, E2]	2. Open or short in water temperature senor circuit 3. More than 0.5 seconds	• Wiring and connector (water temperature sensor circuit) • Water temperature senor • Engine control computer
24	Intake Temperature Sensor [THA, E2]	2. Open or short in intake temperature sensor circuit 3. More than 0.5 seconds	• Wiring and connector (intake temperature sensor circuit) • Intake temperature sensor • Engine control computer
32	Correction Resistance [VRP, VRT, E2]	2. Open or short in correction resistance circuit 3. More than 0.5 seconds	• Wiring and connector (correction resistance circuit) • Correction resistance • Engine control computer

35	Turbo Pressure Sensor [PIM, VC, E2]	1. Engine revolution is 2400rpm or more, accelerator position is 52% or more 2. Intake pressure signal is abnormally low or high. 3. More than 2 seconds	• Wiring and connector (turbo pressure sensor circuit) • Turbo pressure sensor • Gas filter (choked) • Turbo charger • Engine control computer
39	Fuel Temperature Sensor [THF, E2]	2. Open or short in fuel temperature sensor circuit	• Wiring and connector (fuel temperature sensor circuit) • Fuel temperature sensor • Engine control computer
41	Throttle Position Sensor [IDL, VA, VC, E2]	2. Open or short in throttle position sensor circuit	• Wiring and connector (throttle position sensor circuit) • Engine control computer
42	Speed Sensor [SP1]	1. M/T: engine revolution is 2400rpm or more and less than 4000rpm, accelerator position is 52% or more, coolant temperature is 60° or more. A/T: engine revolution is 2800rpm or more, shift position is other than P, N range. 2. Vehicle speed signal is 0km/h 3. More than 8 seconds	• Wiring and connector (speed sensor circuit) • Speed sensor • Engine control computer
43	Starter Signal [STA]	1. Engine revolution is 1200rpm or more 2. Starter signal 3. More than 10 seconds	• Wiring and connector • Engine control computer
51	Switch Signal [A/C, IDL, NSW]	1. Connected TE1 and E1 of the diagnosis connector, A/C ON or IDL contact OFF and STA OFF (for A/T, shift position is other than P, N range)	• Wiring and connector (A/C switch, throttle position sensor IDL circuit, neutral start switch) • Throttle position sensor • Engine control computer

KZN130 1KZ-TE - Engine Control Computer Terminal Configuration



Terminal No.	Terminal Name	Terminal No.	Terminal Name	Terminal No.	Terminal Name	Terminal No.	Terminal Name
A-1	+BF	B-1	THF	C-1	EGR	C-17	NE-
A-2	BATT	B-2	PIM	C-2	STA	C-18	TDC-
A-3	+BG	B-3	THA	C-3	H-IND	C-19	
A-4	ACT	B-4	THW	C-4	NE+	C-20	
A-5		B-5		C-5	TDC+	C-21	
A-6	G-IND	B-6	VRP	C-6		C-22	
A-7	+B	B-7	TE1	C-7	SVR	C-23	FSW
A-8	W	B-8	VF	C-8	M-REL	C-24	E1
A-9	IGSW	B-9	E2	C-9	S/TH2	C-25	
A-10	A/C	B-10	VA	C-10	S/TH1	C-26	E02
A-11	SP1	B-11	VC	C-11	SPV		
A-12	TAC	B-12	IDL	C-12	TCV		
		B-13		C-13	E01		
		B-14	VRT	C-14	S-REL		
		B-15	TE2	C-15			
		B-16		C-16	HSW		

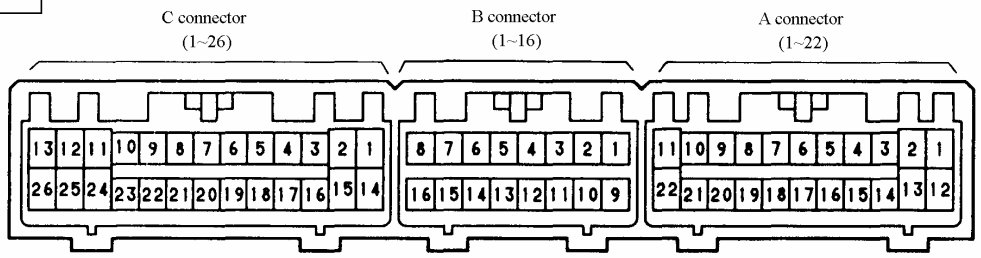
KZN130 Manual Transmission

Inspection Item	Terminal	Inspection Condition	Standard (V)
Power	BATT – E1	Always	9~14
	+B – E1	Engine is stopped, IG ON	9~14
	+BF – E1		
	+BG – E1		
	IGSW – E1		
	VC – E1	Engine is stopped, IG ON	4.5~5.5
ECD Main Relay	M-REL – E1	Engine is stopped, IG ON	9~14
Spill Valve Relay	SVR – E1	Engine is stopped, IG ON	0~1.5
Turbo Pressure Sensor	PIM – E1	Atmosphere pressure (760mmHg)	1.3~1.9
		When apply negative pressure of 300mmHg (460mmHg)	0.2~0.9
		When apply pressure of 1kg/cm2	4.0~4.6
Throttle Position Sensor	VA – E1	Close throttle valve fully	0.1~0.8
		Open throttle valve fully	3.2~4.9
	IDL – E1	Close throttle valve fully	0~3
		Open throttle valve fully	9~14
Intake Temperature Sensor	THA – E1	Intake temperature is 0~80°C (after warmed up engine)	0.5~3.4
Water Temperature Sensor	THW – E1	Coolant temperature is 60~120°C (after warmed up engine)	0.1~0.8
Crank Position Sensor	TDC+ - TDC-	While idling	Generation pulse occurs
Speed Sensor	SP1 – E1	While driving vehicle at approx.20km/h	Generation pulse occurs
Revolution Signal	NE+ - NE-	While idling	Generation pulse occurs
Starter Signal	STA – E1	While cranking	6 or more
Electric Spill Valve	SPV – E1	Engine is stopped, IG ON	9~14
		While idling	Generation pulse occurs
Timer Control Valve	TCV – E1	Engine is stopped, IG ON	9~14
		While idling	Generation pulse occurs

Correction Resistance	VRP – E1	Engine is stopped, IG ON	0.2~4.5
	VRT – E1	Engine is stopped, IG ON	0~5
EGR Control	EGR – E1	While idling	9~14
		After warmed up engine, maintain engine revolution at 1500rpm and hold it	0~3
VSV No.1	S/TH1 – E1	Engine is stopped, IG ON	9~14
		Turn IG from ON to OFF	0~3 for 2 seconds
VSV No.2	S/TH2 – E1	Coolant temperature is less than 75°C, while idling	9~14
		Turn IG from ON to OFF	0~3 for 2 seconds
Fuel Temperature Sensor	THF – E1	IG ON (when cold start)	0.5~3.4
Glow Plug Relay	S-REL – E1	Turn IG from OFF to ON	9~14
		While idling (after after-glow is completed)	0~1.5
Glow Indicator Lamp	G-IND – E1	Turn IG from OFF to ON	0~3
		While idling	9~14
Check Engine Lamp	W – E1	When check engine warning lam is ON (disconnect connector from water temperature sensor)	0~3
		While idling (when warning lam is OFF)	9~14
Tachometer Output	TAC – E1	While idling	Generation pulse occurs
A/C Signal	A/C – E1	A/C ON (magnet clutch ON)	0~1.5
		A/C OFF	7.5~14
	ACT – E1	A/C ON (magnet clutch ON)	9~14
		A/C OFF	0~3
Others	TE1, TE2 – E1	Engine is stopped, IG ON	9~14
		Connected TE1 and E1, TE2 and E1 of the diagnosis connector	0~3

Others	VF – E1	Connected TE1 and E1 of the diagnosis connector (when there is no diagnosis trouble code memorised)	4.3~5.7
		Disconnect connector from water temperature senor, and connect TE1 and E1 of the diagnosis connector (when diagnosis trouble code output)	0~1
	H-IND – E1	When heater indicator lamp is ON	0~3
	HSW – E1	When depressed heater idle up switch	0~3
		When released heater idle up switch	9~14
	E1, E2, E01, E02 – body earth	(inspection of continuity)	(always continuity)

A/T



Terminal No	Terminal Name	Terminal No	Terminal Name	Terminal No	Terminal Name	Terminal No	Terminal Name	Terminal No	Terminal Name
A-1	BATT	A-17	OIL-W	B-1	VC	C-1	SL	C-17	NE-
A-2	+BG	A-18	TAC	B-2	PIM	C-2	S1	C-18	TDC-
A-3	M-REL	A-19	ATC	B-3	THA	C-3		C-19	SP2
A-4	STP	A-20	DG	B-4	THW	C-4	NE+	C-20	L
A-5	W	A-21	OD1	B-5	THF	C-5	TDC+	C-21	2
A-6		A-22	NSW	B-6	VRP	C-6		C-22	N
A-7	G-IND			B-7	VRT	C-7	SVR	C-23	L4
A-8	H-IND			B-8	VF	C-8	HSW	C-24	EGR
A-9	SP1			B-9	E2	C-9	S/TH2	C-25	S-REL
A-10	A/C			B-10	TFN	C-10	S/TH1	C-26	E02
A-11	STA			B-11	VA	C-11	SPV		
A-12	+B			B-12	IDL	C-12	TCV		
A-13	+BF			B-13	THO	C-13	E01		
A-14	IGSW			B-14	TE2	C-14	E1		
A-15	P			B-15	TE1	C-15	S2		
A-16	OD2			B-16		C-16			

KZN130 Automatic Transmission

Inspection Item	Terminal	Inspection Condition	Standard (V)
Power	BATT – E1	Always	9~14
	+B – E1	Engine is stopped, IG ON	9~14
	+BF – E1		
	+BG – E1		
	IGSW – E1		
	VC – E1	Engine is stopped, IG ON	4.5~5.5
ECD Main Relay	M-REL – E1	Engine is stopped, IG ON	9~14
Spill Valve Relay	SVR – E1	Engine is stopped, IG ON	0~1.5
Turbo Pressure Sensor	PIM – E1	Atmosphere pressure (760mmHg)	1.3~1.9
		When apply negative pressure of 300mmHg (460mmHg)	0.2~0.9
		When apply pressure of 1kg/cm2	4.0~4.6
Throttle Position Sensor	VA – E1	Close throttle valve fully	0.1~0.8
		Open throttle valve fully	3.2~4.9
	IDL – E1	Close throttle valve fully	0~3
		Open throttle valve fully	9~14
Intake Temperature Sensor	THA – E1	Intake temperature is 0~80°C (after warmed up engine)	0.5~3.4
Water Temperature Sensor	THW – E1	Coolant temperature is 60~120°C (after warmed up engine)	0.1~0.8
Crank Position Sensor	TDC+ - TDC-	While idling	Generation pulse occurs
Speed Sensor	SP1 – E1	While driving vehicle at approx.20km/h	Generation pulse occurs
	SP2 – E1	Rotate drive wheel slowly	Generation pulse occurs
Revolution Signal	NE+ - NE-	While idling	Generation pulse occurs
Starter Signal	STA – E1	While cranking	6 or more
Electric Spill Valve	SPV – E1	Engine is stopped, IG ON	9~14
		While idling	Generation pulse occurs

Timer Control Valve	TCV – E1	Engine is stopped, IG ON	9~14
		While idling	Generation pulse occurs
Correction Resistance	VRP – E1	Engine is stopped, IG ON	0.2~4.5
	VRT – E1	Engine is stopped, IG ON	0~5
EGR Control	EGR – E1	While idling	9~14
		After warmed up engine, maintain engine revolution at 1500rpm and hold it	0~3
VSV No.1	S/TH1 – E1	Engine is stopped, IG ON	9~14
		Turn IG from ON to OFF	0~3 for 2 seconds
VSV No.2	S/TH2 – E1	Coolant temperature is 75°C, while idling	9~14
		Turn IG from ON to OFF	0~3 for 2 seconds
Glow Plug Relay	S-REL – E1	Turn IG from OFF to ON	9~14
		While idling (after after-glow is completed)	0~1.5
Glow Indicator Lamp	G-IND – E1	Turn IG from OFF to ON	0~3
		While idling	9~14
Check Engine Lamp	W – E1	When check engine warning lamp is ON (disconnect connector from water temperature sensor)	0~3
		While idling (when warning lamp is OFF)	9~14
Neutral Start Switch	NSW – E1	Shift lever is P, N range	0~3
		Shift lever is other than P, N range	9~14
Tachometer Output	TAC – E1	While idling	Generation pulse occurs
A/C Signal	AC – E1	A/C ON (magnet clutch ON)	0~1.5
		A/C OFF	7.5~14
	ACT – E1	A/C ON (magnet clutch ON)	9~14
		A/C OFF	0~3

Fuel Temperature Sensor	THF – E1	IG ON (when cold start)	0.5~3.4
Others	TE1, TE2 – E1	Engine is stopped, IG ON	9~14
		Connected TE1 and E1, TE2 and E1 of the diagnosis connector	0~3
	VF – E1	Connected TE1 and E1 of the diagnosis connector (when there is no diagnosis trouble code memorised)	4.3~5.7
		Disconnect connector from water temperature sensor, connected TE1 and E1 of the diagnosis connector (when diagnosis trouble codes output)	0~1
	H-IND – E1	When heater indicator lamp is ON	0~3
	HSW – E1	When depressed heater idle up switch	0~3
		When released heater idle up switch	9~14
	E1, E2, E01, E02 – body earth	(inspection of continuity)	(always continuity)