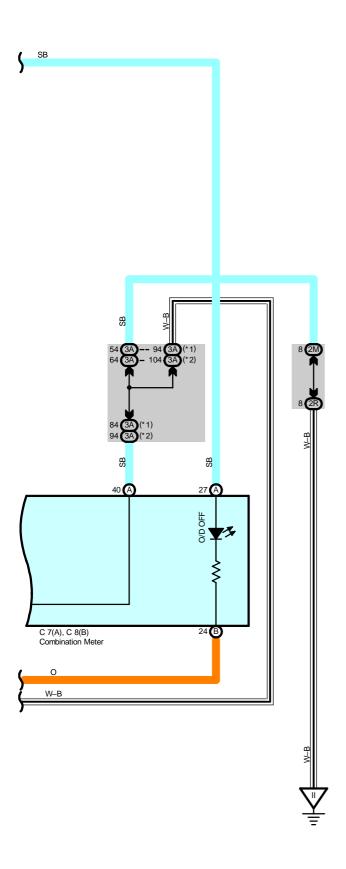


- \* 1 : Automatic A/C
  \* 2 : Manual A/C
  \* 5 : Automatic A/C TMMK Made
  \* 6 : Automatic A/C TMC Made



#### **System Outline**

Previous automatic transaxle have selected each gear shift using mechanically controlled throttle hydraulic pressure, governor hydraulic pressure and lock—up hydraulic pressure. The electronically controlled transmission, however, electrically controls the line pressure, throttle pressure, lock—up pressure and accumulator pressure etc. through the solenoid valve. The electronically controlled transmission is a system which precisely controls gear shift timing and lock—up timing in response to the vehicle's driving conditions and the engine condition detected by various sensors. It makes smooth driving possible by shift selection for each gear which is the most appropriate to the driving conditions at that time, and by preventing downing, squat and gear shift shock when starting off.

#### 1. Gear Shift Operation

When driving, the engine warm up condition is input as a signal to TERMINAL THW of the engine control module from the engine coolant temp. sensor and the vehicle speed signal is input to TERMINAL SPD of the engine control module. At the same time, the throttle valve opening signal from the throttle position sensor is input to TERMINAL VTA of the engine control module as throttle angle signal.

Based on these signals, the engine control module selects the best shift position for the driving conditions and sends current to the electronically controlled transmission solenoid.

#### 2. Lock-Up Operation

When each signal makes engine control module recognize that LOCK-UP condition is satisfied, the current flows from engine control module TERMINAL DSL to electronically controlled transmission solenoid TERMINAL DSL. At the same time, the current flows engine control module TERMINAL SL1+ to electroically controlled transmission solenoid TERMINAL SL1+ and from TERMINAL SL1- to engine control module TERMINAL SL1-. This works LOCK-UP solenoid to perform LOCK-UP operation.

#### 3. Stop Light SW Circuit

If the brake pedal is depressed (Stop light SW on) when driving in lock—up condition, a signal is input to TERMINAL STP of the engine control module. The engine control module operates and cuts the current to the solenoid to release lock—up.

#### 4. Overdrive Circuit

\* O/D main SW on

When the O/D main SW is turned on, a signal is input to TERMINAL ODMS of the engine control module and engine control module operation causes gear shift when the conditions for overdrive are met.

\* O/D main SW off

When the O/D main SW is turned off, a signal is input into TERMINAL ODMS of the engine control module, and turns on the O/D off indicator light. This activates the ECU, and the transmission system is controlled not to shift to overdrive.

#### **Service Hints**

#### E6 (A), E7 (B), E8 (C), E9 (D), E10 (E) Engine Control Module

L-E1: 10.0-14.0 volts (Ignition SW on and shift lever at L position)

2-E1: 10.0-14.0 volts (Ignition SW on and shift lever at 2 position)

R-E1: 10.0-14.0 volts (Ignition SW on and shift lever at R position)

D-E1: 10.0-14.0 volts (Ignition SW on and shift lever at D position)

ODMS-E1: 10.0-14.0 volts (O/D main SW on)

Below 1.0 volts (O/D main SW off)

THO-E2 : Below 1.0 volts (Ignition SW on and AFT temperature 110 °C (230 °F)

SLT+-SLT-:

10.0-14.0 volts (Ignition SW on)

#### A4 A/T Indicator Light SW

3-1: Closed with shift lever in P position

3-2: Closed with shift lever in R position

3-5 : Closed with shift lever in N position

3-7: Closed with shift lever in D position

3–8 : Closed with shift lever in L position

3-4: Closed with shift lever in 2 position

#### A17 O/D Main SW

2-4: Closed with the O/D main SW off, open with the O/D main SW on

### ) : Parts Location

Co	ode	See Page	Co	ode	See Page	Code	See Page
P	۸4	38 (1MZ–FE)	E4		38 (1MZ-FE)	l15	43
А	17	42	E6	Α	42	J1	43
C	2	38 (1MZ–FE)	E7	В	42	S14	43
C7	Α	42	E8	С	42	Т3	39 (1MZ–FE)
C8	В	42	E9	D	42	T4	39 (1MZ–FE)
Е	3	38 (1MZ-FE)	E10	Е	42		

### : Relay Blocks

Code	See Page	Relay Blocks (Relay Block Location)	
1	22	Engine Room R/B (Engine Compartment Left)	

### : Junction Block and Wire Harness Connector

Code	See Page	Junction Block and Wire Harness (Connector Location)				
1B						
1C	25	Engine Room Main Wire and Engine Room J/B (Engine Compartment Left)				
1H						
1K	25	Engine Wire and Engine Room J/B (Engine Compartment Left)				
2A	28	Instrument Panel Wire and Driver Side J/B (Lower Finish Panel)				
2B	20					
2E	28	Engine Room Main Wire and Driver Side J/B (Lower Finish Panel)				
2G	20					
2L	- 29					
2M		Instrument Panel Wire and Driver Side J/B (Lower Finish Panel)				
20		Institutient Fallet Wile and Driver Side 3/B (Lower Fillish Fallet)				
2R						
	34 (*1)					
3A	35 (*3)					
JA.	36 (*2)					
	37 (*4)	Instrument Danel Wire and Descender Side I/D (Instrument Danel Brees BH)				
	34 (*1)	Instrument Panel Wire and Passenger Side J/B (Instrument Panel Brace RH)				
3B	35 (*3)					
3B	36 (*2)					
	37 (*4)					

\* 1 : TMC Made Automatic A/C \* 2 : TMC Made Manual A/C \* 3 : TMMK Made Automatic A/C \* 4 : TMMK Made Manual A/C

### : Connector Joining Wire Harness and Wire Harness

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)		
IF1				
IF2	52	Engine Room Main Wire and Instrument Panel Wire (Right Side of Steering Column Tube)		
IF4				
IJ1	54	Instrument Panel Wire and Instrument Panel Wire (Instrument Panel Reinforcement RH)		
IL1	E4	Engine Wire and Instrument Panel Wire (Behind the Glove Box)		
IL2	54	Engine vviie and institument ranei vviie (benind the Glove Box)		

## 7: Ground Points

Code	See Page	Ground Points Location
ED	48 (1MZ-FE)	Left Fender
EE	48 (1MZ-FE)	Surge Tank RH
EF	48 (1MZ-FE)	Rear Side of Surge Tank
II	52	Cowl Side Panel LH
IJ	52	Instrument Panel Brace LH

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## : Splice Points

Code	See Page Wire Harness with Splice Points		Code	See Page	Wire Harness with Splice Points
15	54	Engine Wire	16	54	Engine Wire