

AUTOMATIC TRANSAXLE

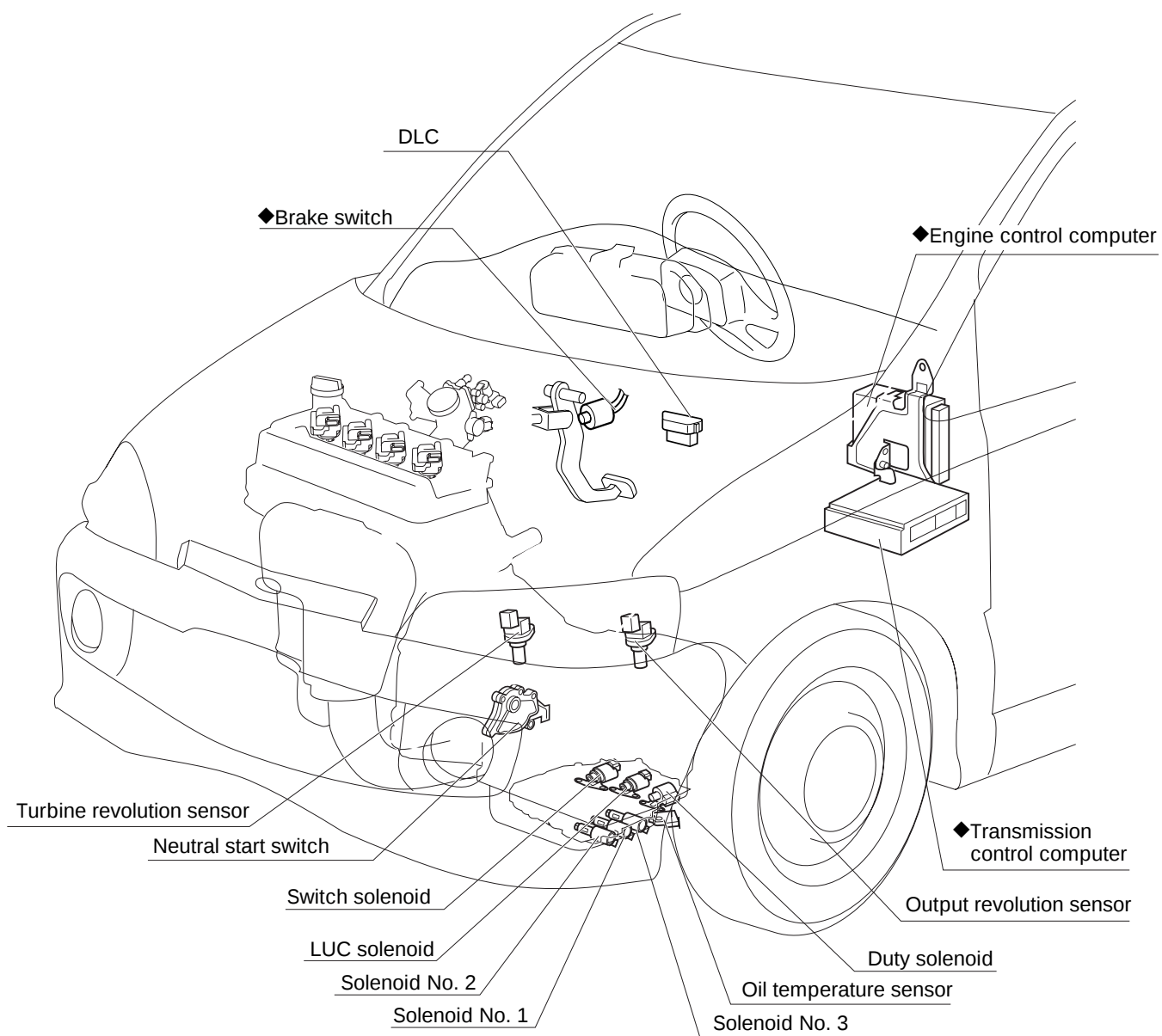
AUTOMATIC TRANSAXLE ELECTRONIC
CONTROL SYSTEMAT-2
OUTLINEAT-2
ARTICLES TO BE PREPAREDAT-8
DIAGNOSISAT-9
TROUBLE SHOOTING ACCORDING
TO DIAGNOSIS CODEAT-10

1 AUTOMATIC TRANSAXLE ELECTRONIC CONTROL SYSTEM

1-1 OUTLINE

1-1-1 LOCATION OF COMPONENTS

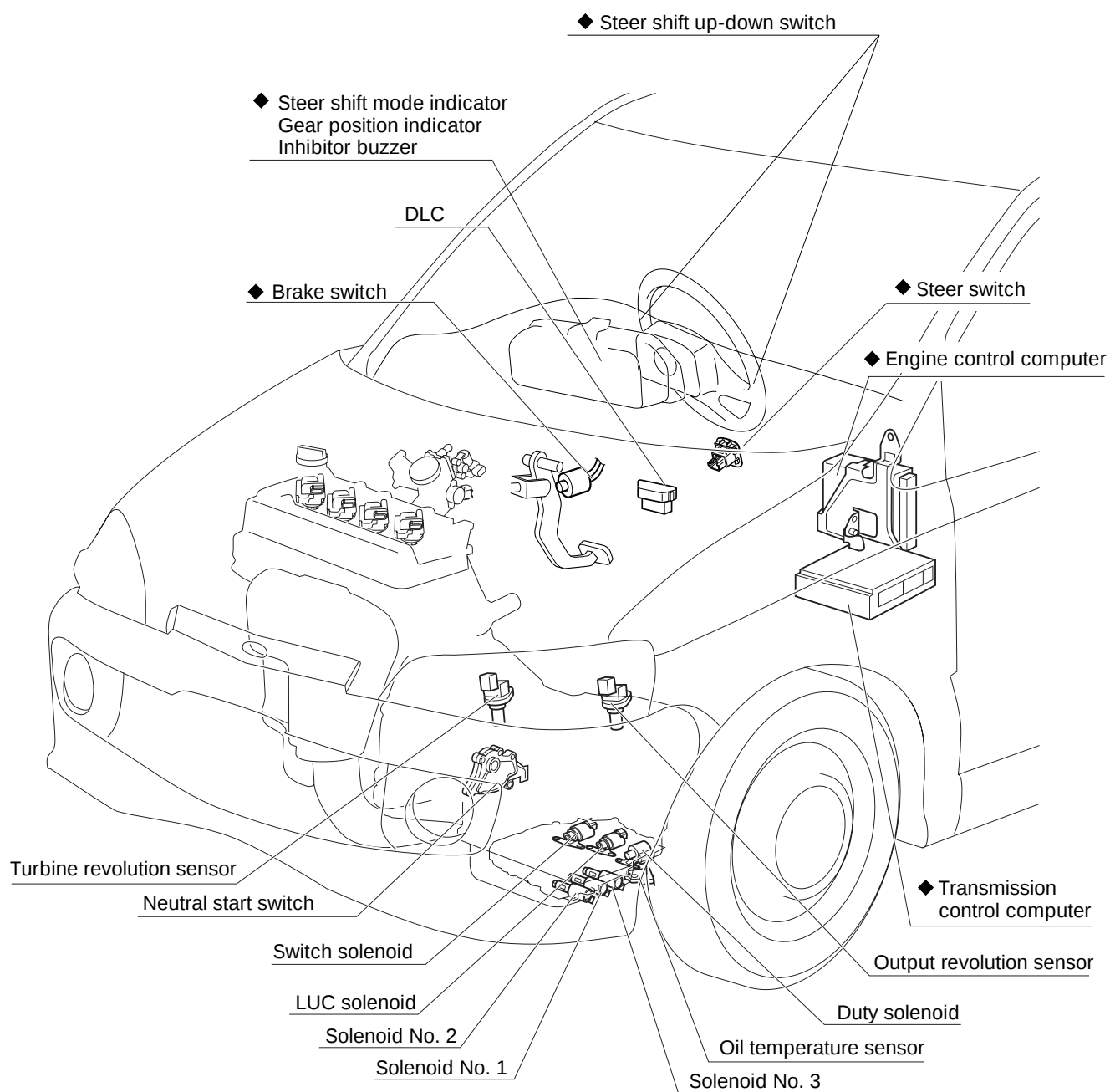
(1) VEHICLES WITHOUT STEER SHIFT



NOTE:

- On the LHD vehicles, as for the ♦-marked parts, they are installed symmetrically between the right and left sides.

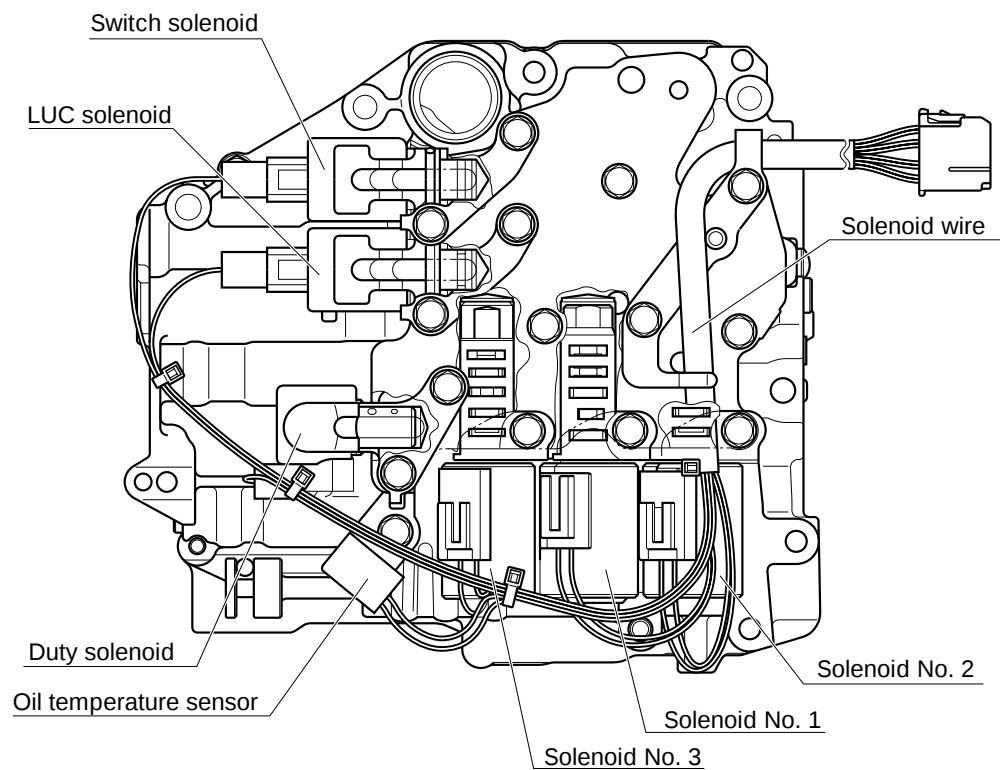
(2) STEER SHIFT EQUIPPED VEHICLES



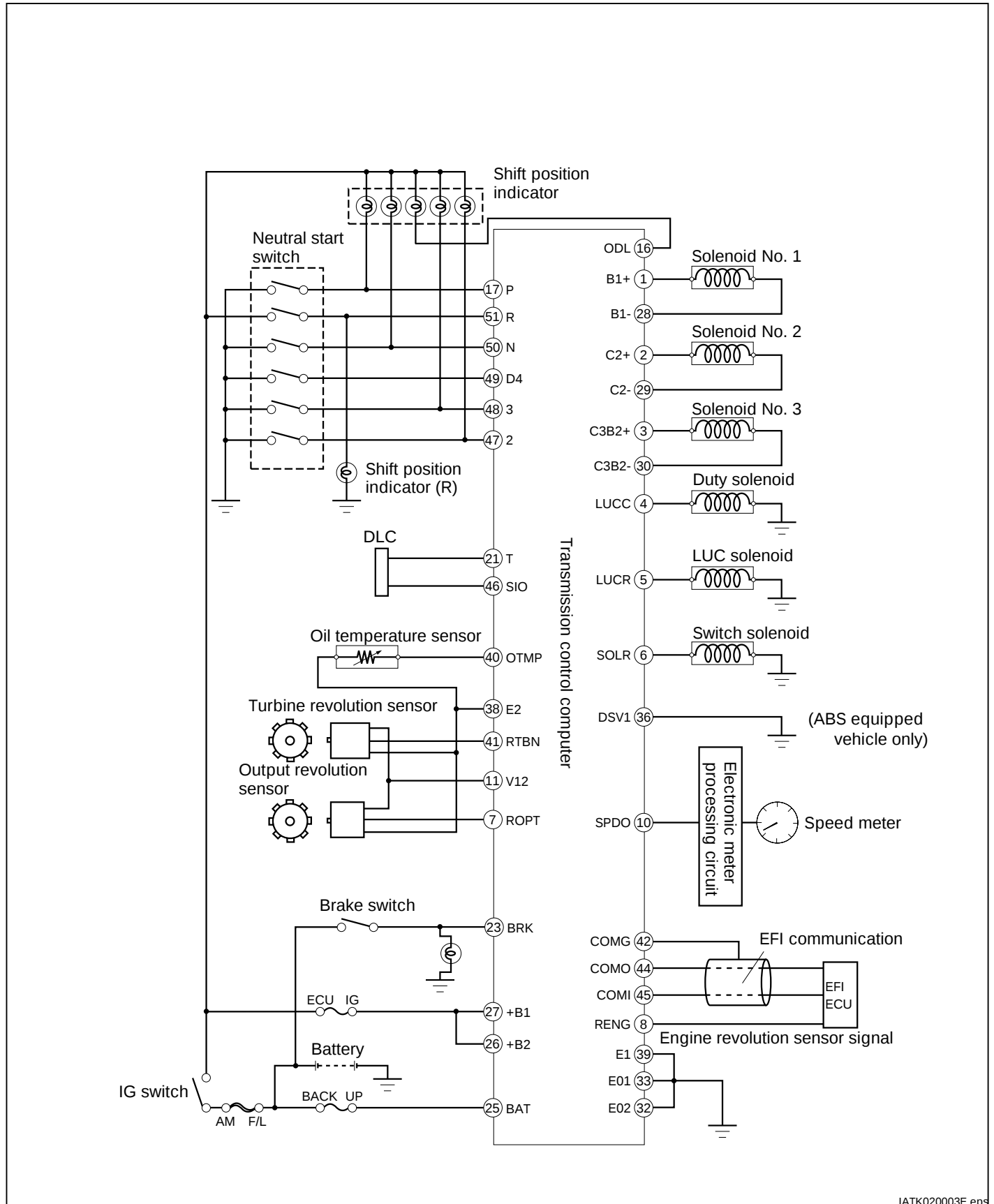
NOTE:

- On the LHD vehicles, as for the ◆ -marked parts, they are installed symmetrically between the right and left sides.

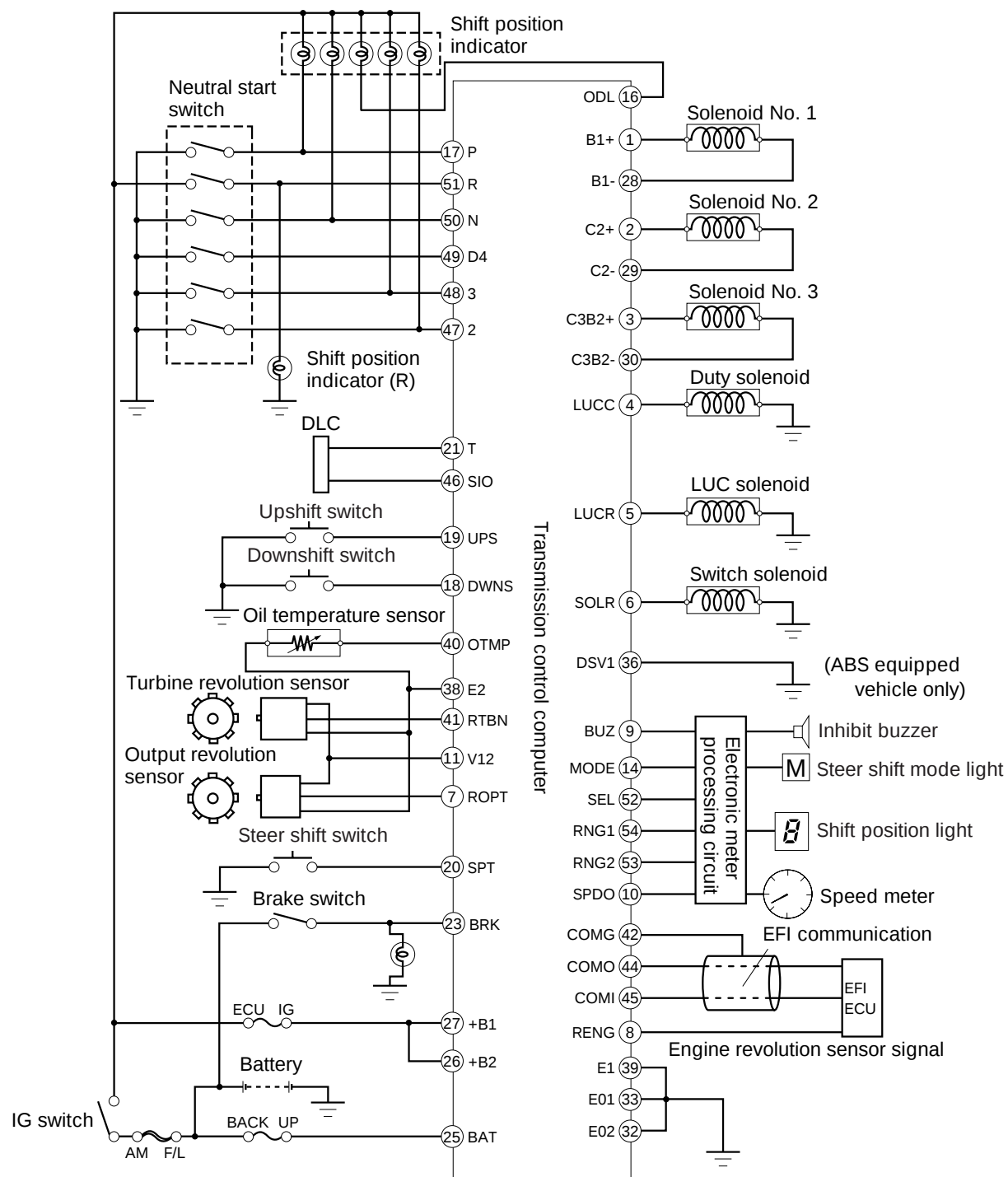
(3) VALVE BODY



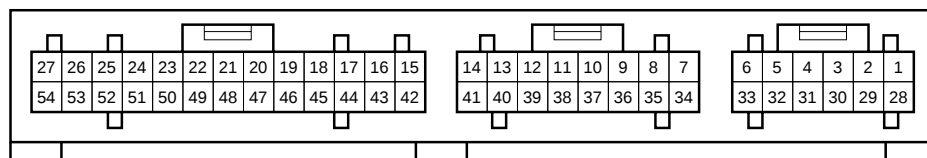
1-1-2 SYSTEM WIRING DIAGRAM (1) VEHICLES WITHOUT STEER SHIFT



(2) STEER SHIFT EQUIPPED VEHICLES



1-1-3 CONNECTOR TERMINAL ARRANGEMENT OF TRANSMISSION CONTROL COMPUTER



<Connector terminal arrangement of transmission control computer>

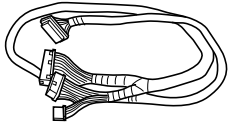
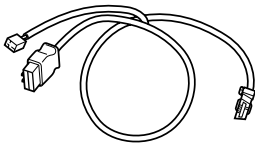
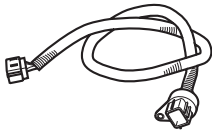
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Terminal No.	Terminal code	Terminal name	Terminal No.	Terminal code	Terminal name
1	B1+	Solenoid No.1 (+)	28	B1-	Solenoid No.1 (-)
2	C2+	Solenoid No.2 (+)	29	C2-	Solenoid No.2 (-)
3	C3B2+	Solenoid No.3 (+)	30	C3B2-	Solenoid No.3 (-)
4	LUCC	Duty solenoid	31	-	-
5	LUCR	LUC solenoid	32	E02	Power system earth 2
6	SOLR	Switch solenoid	33	E01	Power system earth 1
7	ROPT	Output revolution sensor	34	-	-
8	RENG	Engine revolution signal	35	-	-
9	BUZ	Inhibit buzzer	36	DVS1	ABS detecting signal (ABS equipped vehicle only)
10	SPDO	Speedometer	37	-	-
11	V12	Sensor power supply	38	E2	Sensor earth
12	-	-	39	E1	Signal system earth
13	-	-	40	OTMP	Oil temperature sensor
14	MODE	Steer shift mode indicator	41	RTBN	Turbine revolution sensor
15	-	-	42	COMG	EFI serial communication Shield
16	ODL	D4 lamp illumination	43	-	-
17	P	Neutral start switch (P)	44	COMO	EFI serial communication output
18	DWNS	Down shift switch	45	COMI	EFI serial communication input
19	UPS	Up shift switch	46	SIO	Diagnostic tester communication
20	SPT	Steer shift switch	47	2	Neutral start switch (2)
21	T	Check terminal	48	3	Neutral start switch (3)
22	-	-	49	D4	Neutral start switch (D4)
23	BRK	Brake switch	50	N	Neutral start switch (N)
24	-	-	51	R	Neutral start switch (R)
25	BAT	Backup power supply	52	SEL	Gear position lamp illumination
26	+B2	IG	53	RNG2	Gear position signal 2
27	+B1	IG	54	RNG1	Gear position signal 1

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AT-AT-O-T-00011

1-2 ARTICLES TO BE PREPARED

	Shape	Part number, part name	Use
SST		09842-97205-000 Sub harness, transmission control computer check	For checking transmission control computer
		09991-87404-000 Wire, engine control system inspection	For diagnosis starting, erasing and for connecting DS-21
		09991-87403-000 Wire, diagnosis check	For diagnosis starting and erasing
		09990-97201-000 Sub harness, A/T solenoid wire check	For in-vehicle check of solenoid wires instruments
		09660-87001-000 DS-21 diagnosis tester	For checking computer input/output signals of transmission control computer, and for reading and erasing
Tool		Diagnosis program card	For checking computer input/output signals of transmission control computer, and for reading and erasing

1-3 DIAGNOSIS

1-3-1 ERASING OF LEARNING VALUE AND INITIAL LEARNING

NOTE

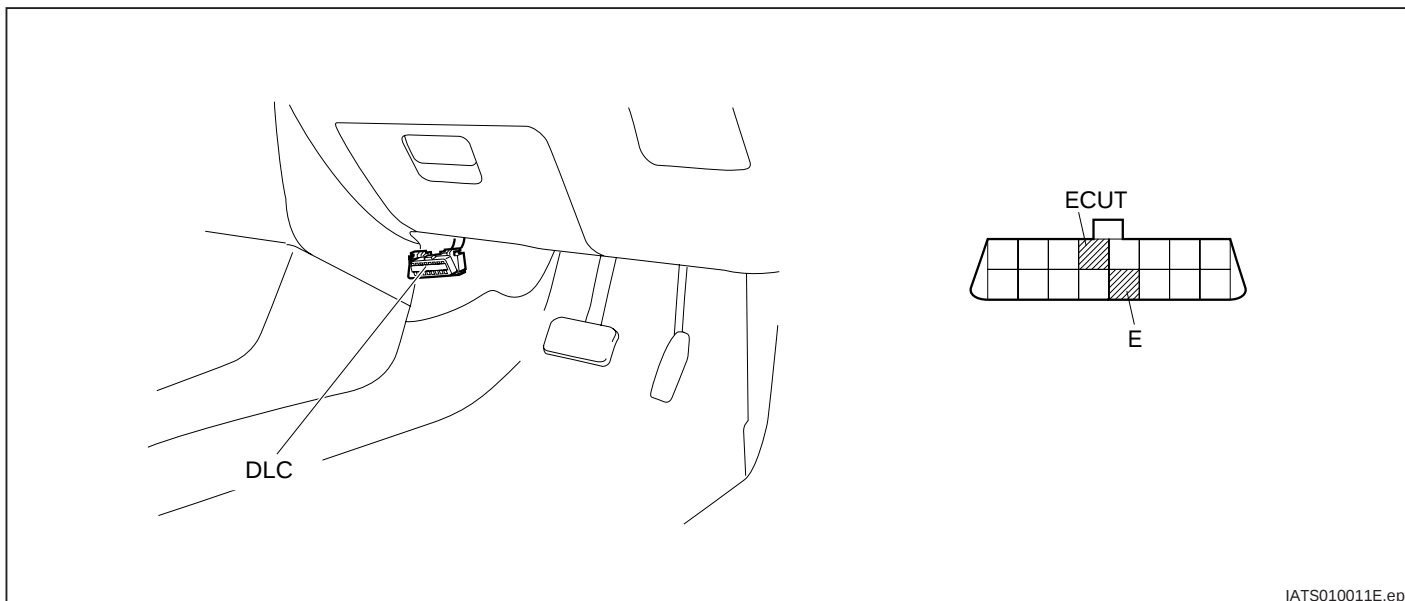
- When the automatic transaxle assembly and valve body assembly (including the solenoid valves) have been replaced, it is necessary to erase the learning values of the transmission control computer and to perform the initial learning. Erase the learning values and perform the initial learning, following the procedure given below.

1. Erasing learning values

- (1) Connect the terminal ECUT with the terminal E in the data link connector (DLC).

SST: 09991-87404-000

09991-87403-000



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- (2) Turn ON the ignition switch. Within three seconds after turning ON, depress the brake pedal and keep it depressed.

NOTE

- With the ignition switch set to the ON position, do not start the engine. Keep the brake pedal depressed until the operations (3) and (4) are completed.
- (3) Move the shift lever in the order of P→R→P within one second.
 - (4) Repeat the operations above eight times.
 - (5) Ensure that the O/D OFF lamp flashes.

NOTE

- Moving the shift lever in the order of P→R→P is considered as a single operation. This single operation should be performed within one second.
 - After completion of the operation eight times, the O/D OFF lamp flashes quickly for 2.5 seconds as a sign of having erased the learning values.
- (6) After confirming that the O/D OFF lamp flashes, disconnect the terminal ECUT from the terminal E in the DLC.

- (7) Turn OFF the ignition switch.

2. Initial learning

- (1) Start the engine. Fully warm up the engine and transmission.

NOTE

- The initial learning of the automatic transmission control computer starts when the transmission fluid temperature is 50°C or above.
- (2) For the initial learning, drive the car in an urban area for about fifteen minutes.

NOTE

- During the driving in the urban area for the initial learning, perform every gear shift and kickdown.

AT-AT-G-L-00001

1-3-2 CONTENTS OF DIAGNOSIS

Code No.		Warning indication	Code Memory	Contents of malfunction
2 digits	4 digits*			
31	P1706	○	×	Abnormal engine torque
37	P0715	○	○	No turbine revolution input
38	P0710	○	○	Open wire or short of fluid temperature sensor circuit
38	P0711	○	○	Abnormal rising characteristics of fluid temperature of fluid temperature sensor
41	P1711	○	×	Throttle sensor malfunctioning
42	P0720	○	○	No output revolution input
55	P0705	○	×	No neutral start switch input
56	P0705	○	○	Multi-input of neutral start switch
57	P1704	○	×	Short of steer shift mode switch circuit
58	P1705	○	×	Short of steer shift up/down switch circuit
61	P0753	○	○	Open wire or short of solenoid No. 1 (B1) circuit
62	P0758	○	○	Open wire or short of solenoid No. 2 (C2) circuit
63	P0763	○	○	Open wire or short of solenoid No. 3 (C3/B2) circuit
64	P0768	○	○	Open wire or short of Duty solenoid circuit
65	P0773	○	○	Open wire or short of LUC solenoid circuit
66	P1780	○	○	Open wire or short of switch solenoid circuit
72	P1703	○	○	Lockup revolution speed not matching
82	P1602	○	○	Faulty communication with EFI-ECU
86	P0725	○	○	No engine revolution input

* Denotes those output code when the DS-21 is used.

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AT-AT-G-D-00012

1-4 TROUBLE SHOOTING ACCORDING TO DIAGNOSIS CODE

1-4-1 DIAGNOSTIC TROUBLE CODE 31 [P1706]

(1) EVALUATION CONDITIONS

1. This diagnostic trouble code is outputted as a diagnostic trouble code at the AT ECU side when the EFI ECU detects abnormality of the manifold absolute pressure sensor circuit (diagnostic trouble code No.P0105/31) or the crankshaft position sensor A circuit malfunction (diagnostic trouble code No.P0335/13).

(2) CHECKING METHOD

1. Perform trouble shooting according to the check procedure for diagnostic trouble code No.P0105/31 or diagnostic trouble code No.P0335/13, abnormality of the manifold absolute pressure sensor circuit or the crankshaft position sensor A circuit malfunction, whose are described in the EFI system.

AT-AT-L-K-00001

1-4-2 DIAGNOSTIC TROUBLE CODE 41 [P1711]

(1) EVALUATION CONDITIONS

1. This diagnostic trouble code is outputted as a diagnostic trouble code at the AT ECU side when the EFI ECU detects abnormality of the throttle position sensor system (diagnostic trouble code No.P0120/41).

(2) CHECKING METHOD

1. Perform trouble shooting according to the check procedure for diagnosis code No.P0120/41, abnormality of the throttle position sensor system, which is described in the EFI system.

AT-AT-L-V-00001