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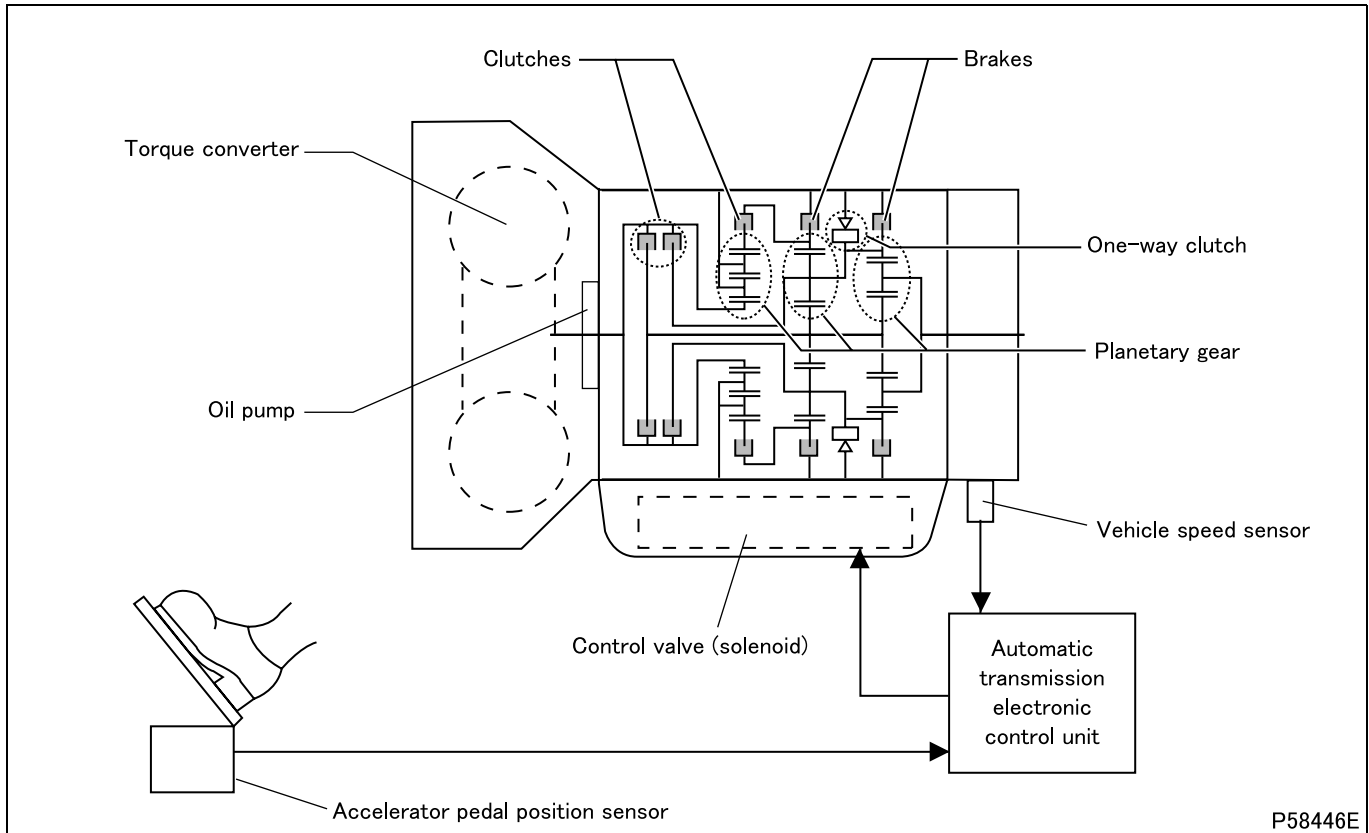
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SPECIFICATIONS

Item		Specifications	
Manufacturer		Aisin Seiki Co., Ltd.	
Transmission model		M036A6	
Torque converter	Type	3-element, single-stage, 2-phase (with lockup clutch)	
	Stall torque ratio	1.60	
Transmission	Type	Planetary gear type; 6 forward gears, 1 reverse gear	
	Gear ratios	1st	3.742
		2nd	2.003
		3rd	1.343
		4th	1.000
		5th	0.773
		6th	0.634
Rev	3.539		
Range selection pattern		P-R-N-D-3-2 (engine startup possible in P and N only)	
Automatic transmission fluid	Type	Mobil ATF3309 or equivalent	
	Total quantity	L {qts.}	
	Quantity at time of replacement	Replaced with drain plug removed	Approx. 6.4 {6.8}
		Replaced with oil pan removed	Approx. 8.4 {8.9}
	L {qts.}		

1. Overview

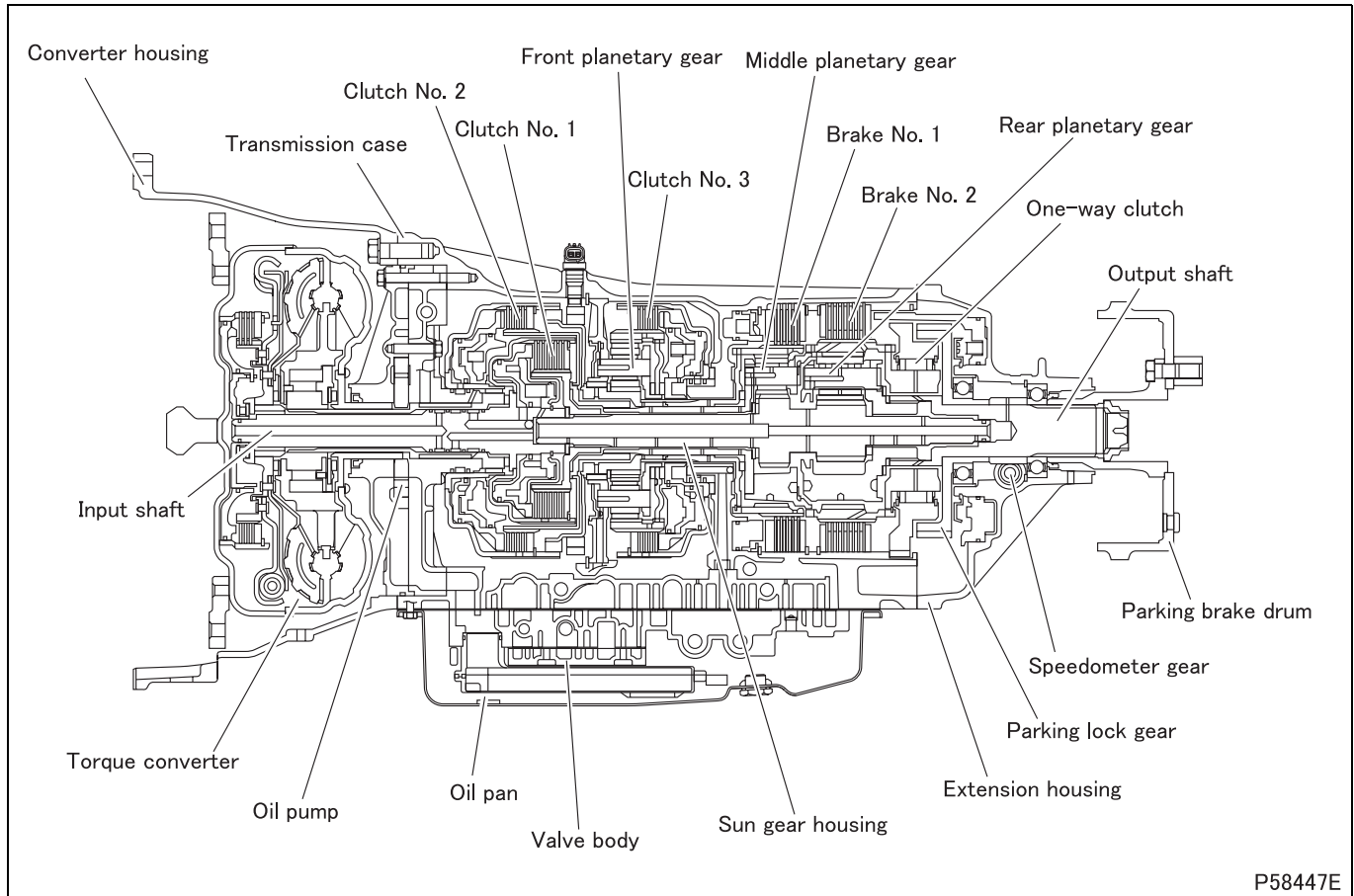
- The automatic transmission forms a system in which gearshifts are automatically realized through direction of automatic transmission fluid on various paths by solenoid valves in accordance with sensor information on the vehicle speed, throttle opening, and other aspects of vehicle operation.
- The automatic transmission electronic control unit provides various control functions. These include a diagnosis function (here, the automatic transmission electronic control unit monitors the main components and warns the driver of any abnormality), a failsafe function (here, the automatic transmission electronic control unit stops control of the automatic transmission when necessitated by an abnormality), and a function (here, the automatic transmission electronic control unit changes the control method to enable continued driving in the event of a relevant abnormality).
- The system consists mainly of electronically controlled control valves (solenoid valves), a torque converter, planetary gears, brakes, clutches, and the automatic transmission electronic control unit and sensors that are used for control of the aforementioned components.



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STRUCTURE AND OPERATION

1.1 Automatic transmission



- The automatic transmission combines a torque converter (this has a lockup mechanism) and a fully automatic 6-speed gear system.

(1) Torque converter

- The torque converter serves as the input device for the transmission. It functions as a fluid coupling that increases the torque transmitted from the engine and absorbs shock during standing starts and during gearshifts. At vehicle speeds above a certain level, a lockup mechanism in the torque converter eliminates slippage and thus improves transmission efficiency.

(2) Transmission

- The transmission consists of a gear system with 6 forward gears and 1 reverse gear. It effects gearshifts using 1 one-way clutch, 3 planetary gear sets (each of these consists of a sun gear, pinion gears, and a ring gear), 3 hydraulically activated, wet, multi-plate clutches, and 2 hydraulically activated, wet, multi-plate brakes.

(3) Hydraulic control arrangement

- Extensive electronic control effected by a microcomputer (the automatic transmission electronic control unit) over the hydraulic circuitry enables precise control over gearshifts.

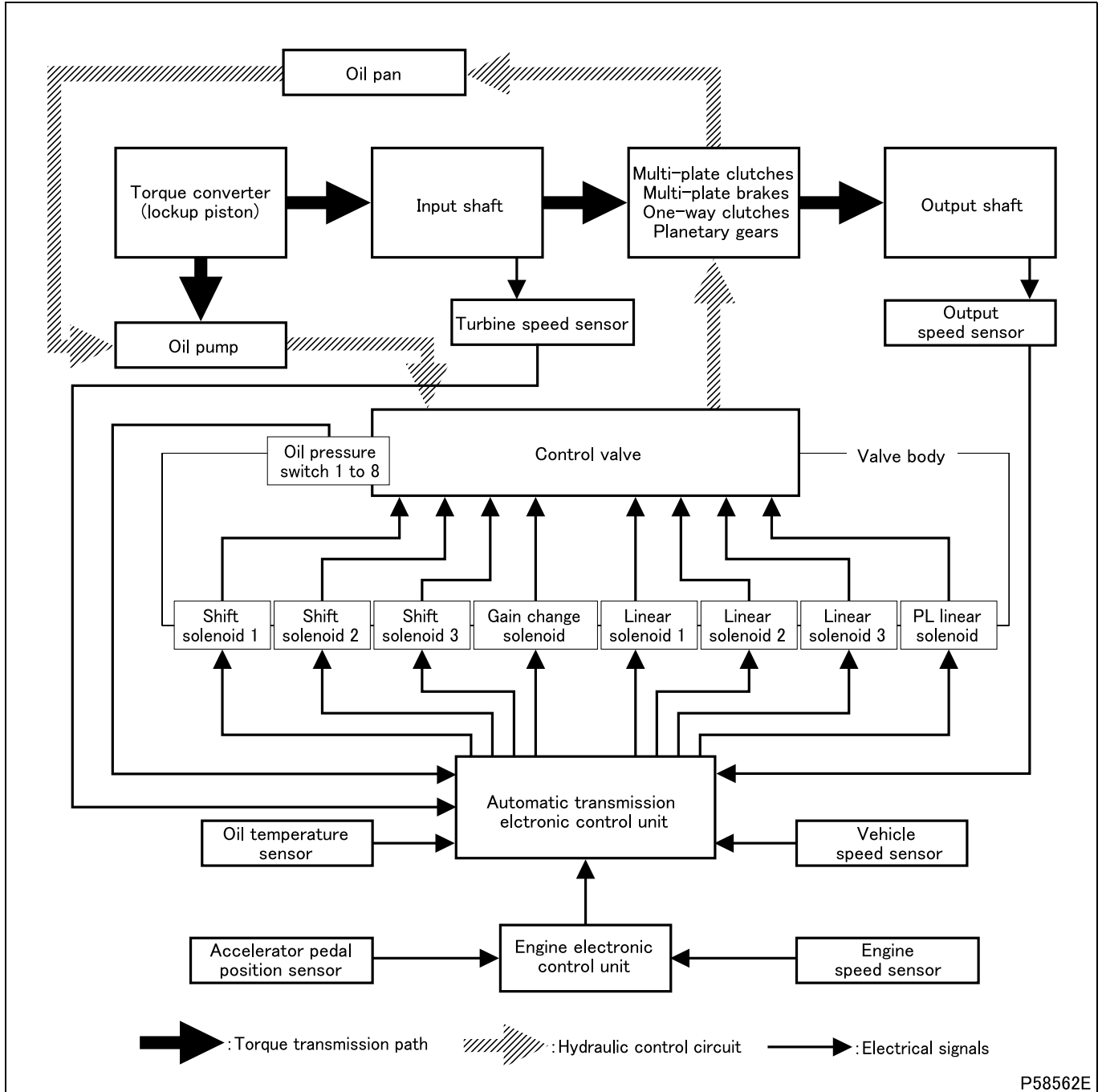
(4) Oil pump

- The gears in the oil pump turn in time with the input shaft rotation to suck in oil from the oil pan. The oil is then compressed and discharged into the hydraulic control components and other parts that need to be lubricated.

(5) Valve body

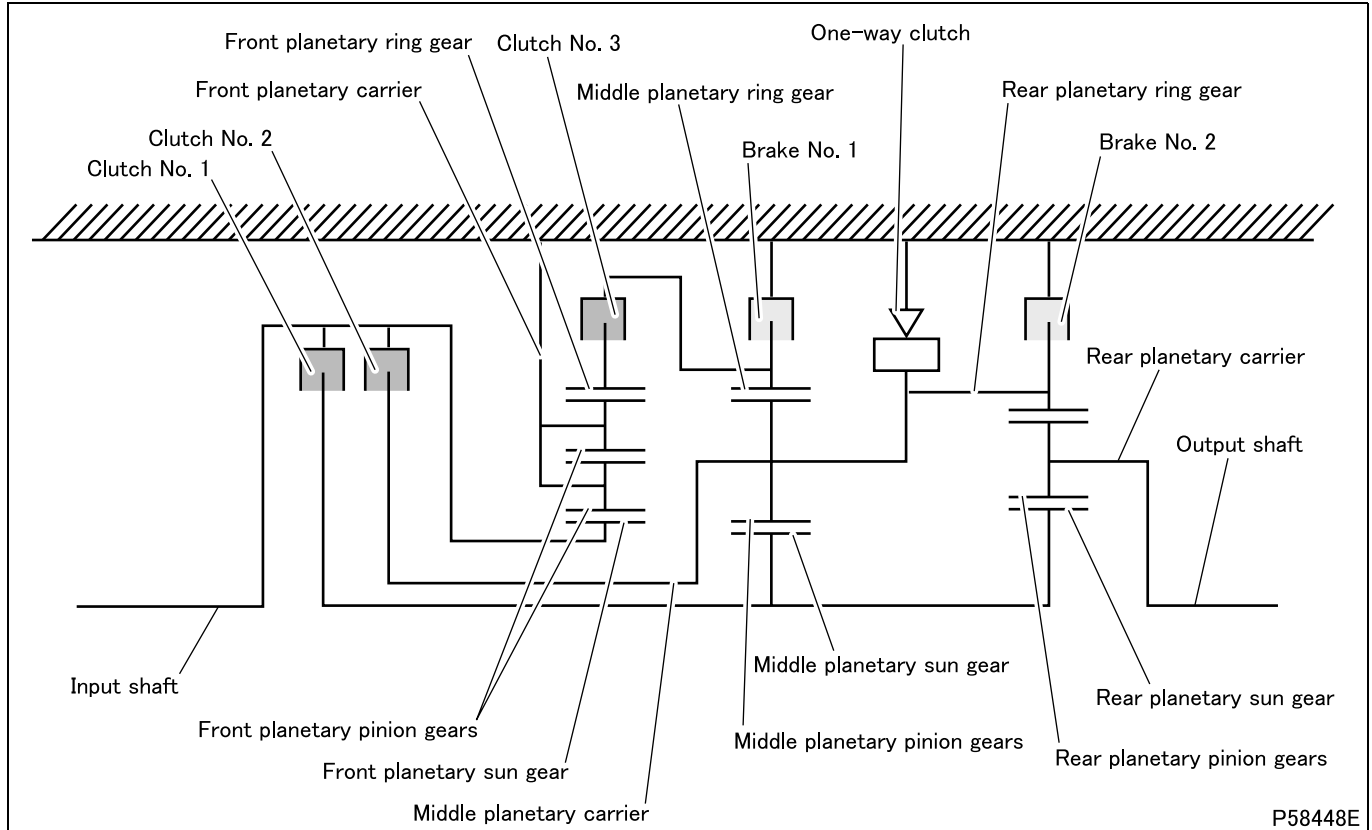
- The valve body consists of the solenoids that are activated by command signals from the electronic control unit to select necessary hydraulic circuit and a control valve that actually changes the operating modes of the brakes and clutches and regulates hydraulic pressure through the selected hydraulic circuit.

1.2 Automatic transmission block diagram



STRUCTURE AND OPERATION

1.3 Transmission



(1) Functions of clutches and brakes

Component	Function
Clutch No. 1	Engage input shaft with middle and rear planetary sun gears
Clutch No. 2	Engage input shaft with middle planetary carrier and rear planetary ring gear
Clutch No. 3	Engage front planetary ring gear with middle planetary ring gear
Brake No. 1	Lock middle planetary ring gear
Brake No. 2	Lock front planetary carrier and rear planetary ring gear
One-way clutch	Lock front planetary carrier and rear planetary ring gear against counterclockwise rotation (only allowing them to rotate clockwise)

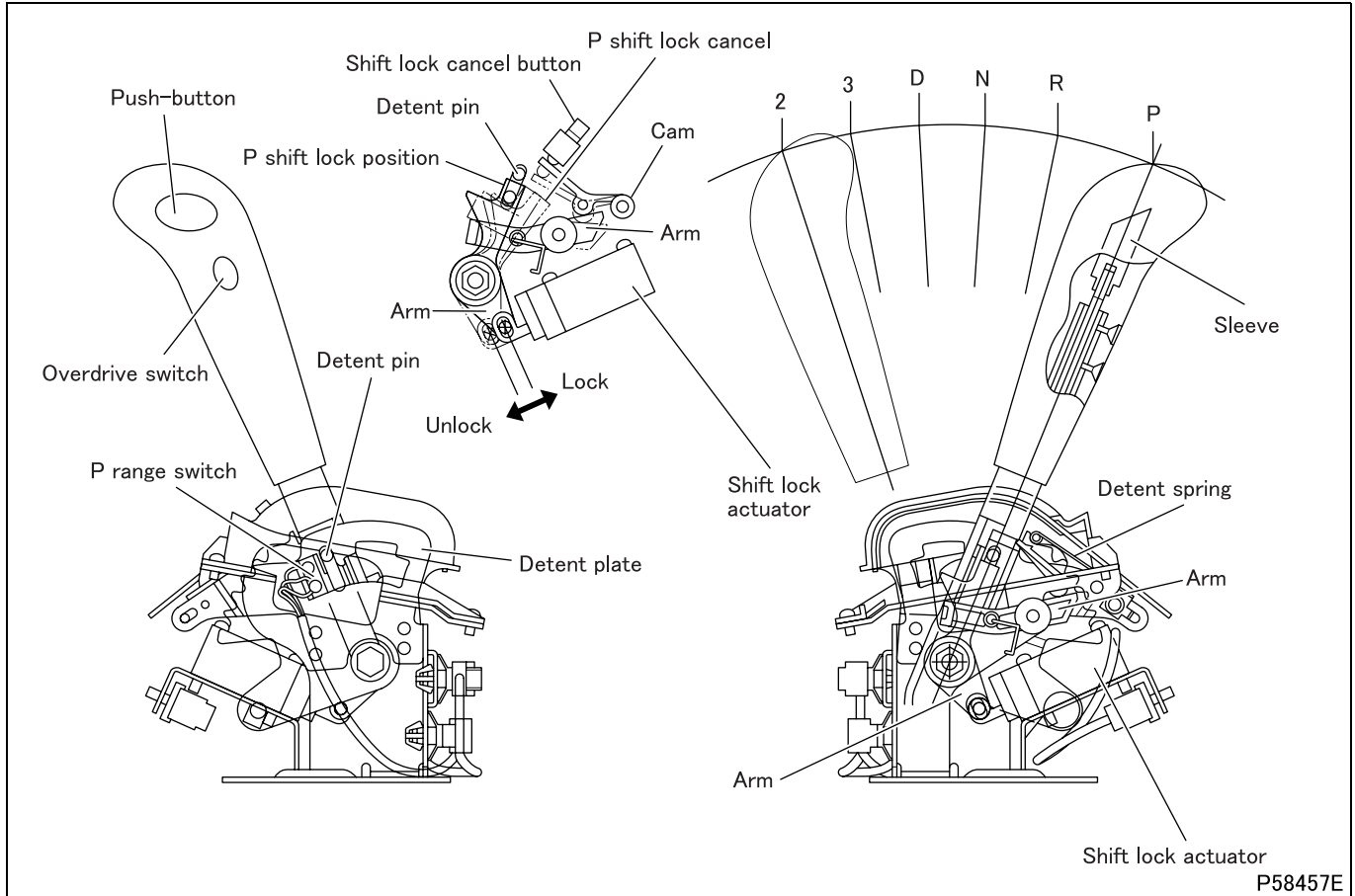
(2) Operation timing of clutches, brakes and solenoids

Shifter position		Shift solenoid			Linear solenoid			Clutch No.			Brake No.		One-way clutch
		1	2	3	1	2	3	1	2	3	1	2	
P	Parking		O	O		O						O	
R	Rev (high torque)	O		O		O	O			O		O	
	Rev (low torque)	O	O	O		O	O			O		O	
N	Neutral		O	O		O						O	
D	1st			O		O		O				O	●
	2nd				O			O			O		
	3rd	O				O		O		O			
	4th	O	O		O			O	O				
	5th		O			O			O	O			
	6th		O		O				O		O		

O : In operation

● : Only in operation when driven

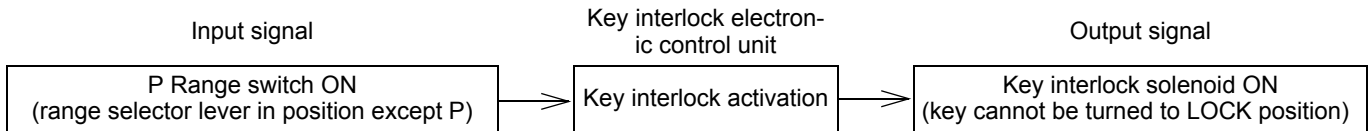
1.4 Range selector lever



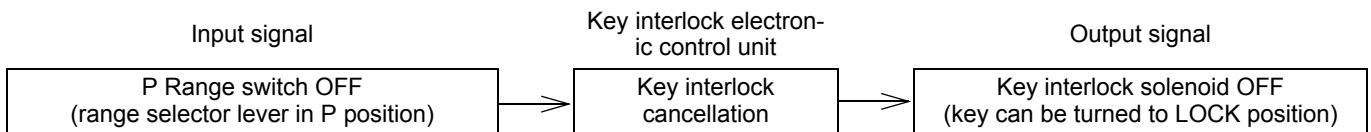
- The P range switch indicates whether the P range is selected. It is used for the key interlock function.
- The shift lock actuator is used in control of the P shift lock function.
- The shift lock cancel button cancels the P shift lock function in a way that bypasses the shift lock actuator. It is used in the event of a fault.

(1) Key interlock function

(1.1) Locked condition



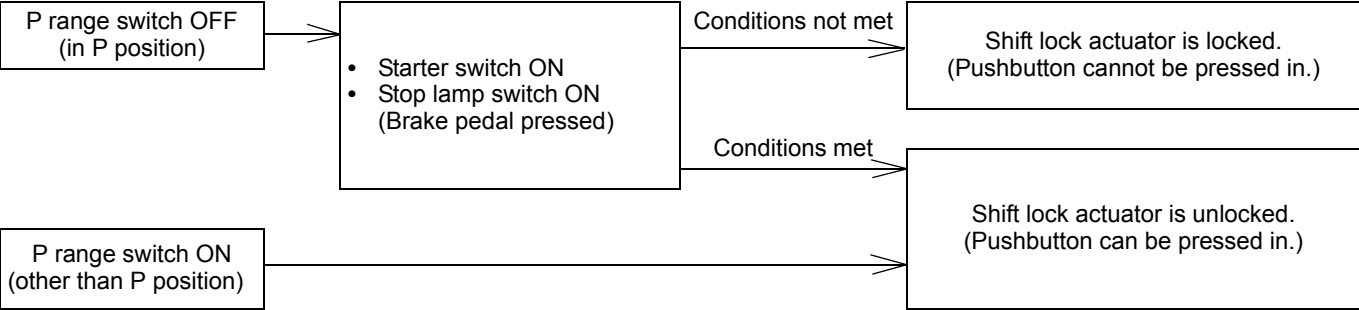
(1.2) Lock cancellation



STRUCTURE AND OPERATION

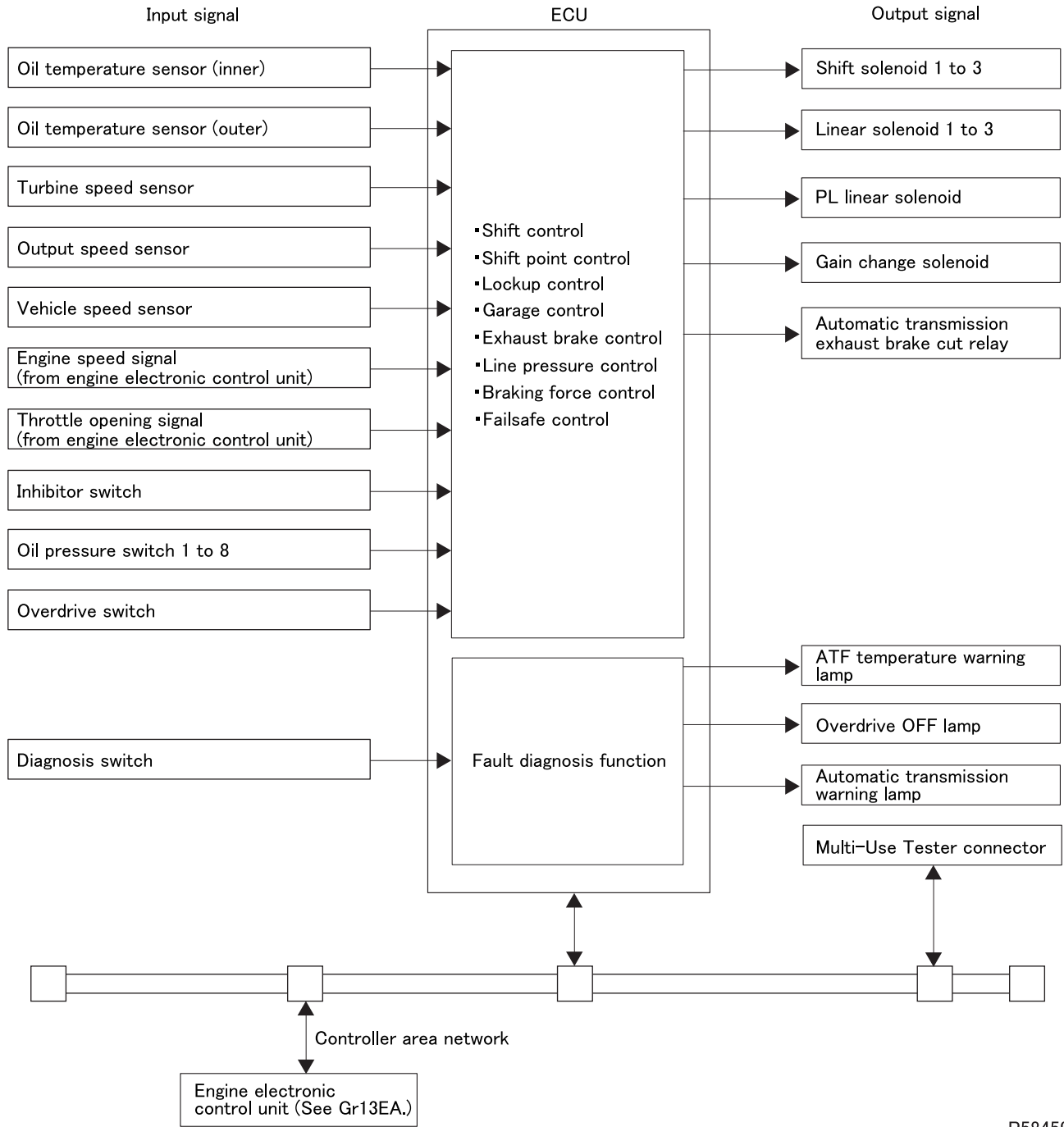
(2) P shift lock function

- When the required condition is not satisfied, the shift lock actuator operates to prevent the push-button from being pushed, effectively preventing movement of the lever from the P position.



2. Electronic Control System

2.1 System block diagram

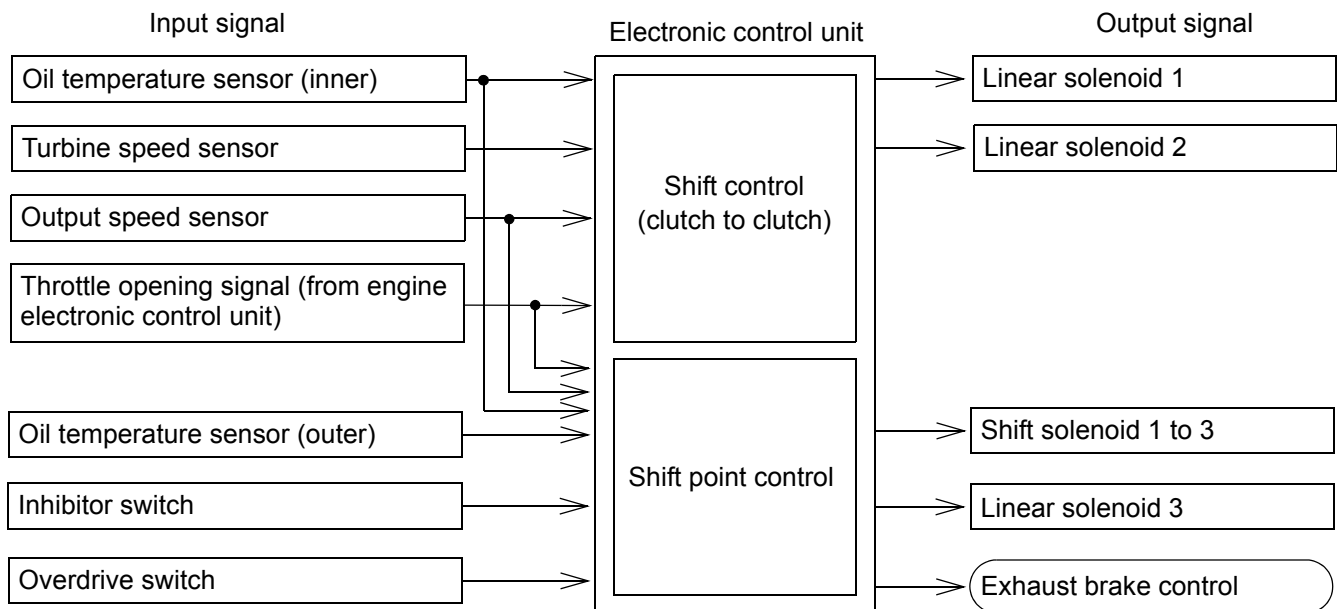


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STRUCTURE AND OPERATION

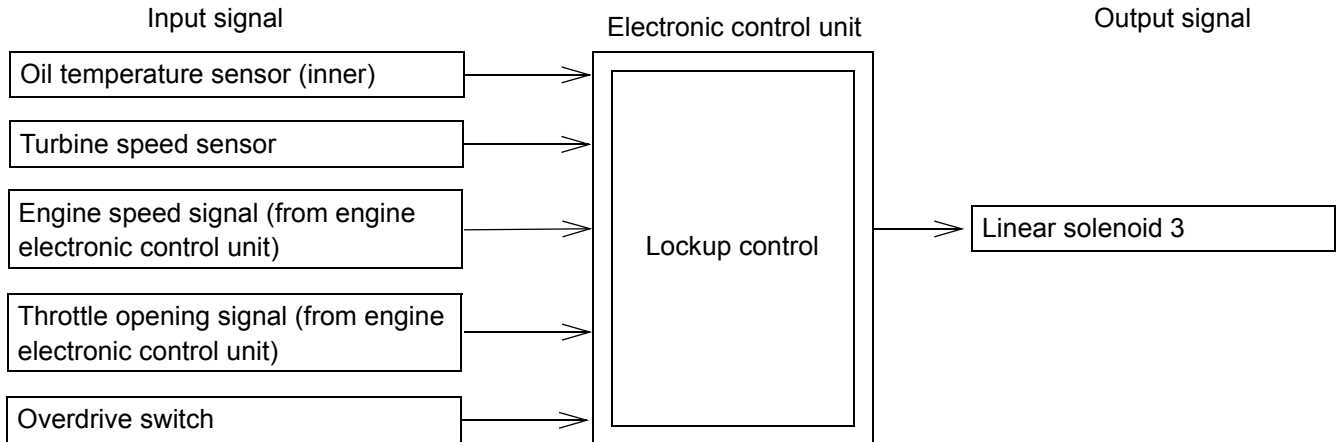
Part name	Major function or operation
Oil temperature sensor (inner and outer)	Detection of automatic transmission fluid temperature
Turbine speed sensor	Detection of input shaft speed
Output speed sensor	Detection of output shaft speed
Vehicle speed sensor	Detection of vehicle speed
Engine electronic control unit (engine speed signal)	Detection of engine speed
Engine electronic control unit (throttle opening signal)	Detection of throttle opening angle
Inhibitor switch	Detection of range selector lever position
Oil pressure switch 1 to 8	Detection of oil pressure
Overdrive switch	Detection of overdrive OFF condition
Diagnosis switch	Displaying diagnosis codes
Shift solenoid 1 to 3	Gear shifting for speed change
Linear solenoid 1, 2	
Linear solenoid 3	Gear shifting for speed change, activation of lockup, shifting from neutral to forward or reverse
PL linear solenoid	Control of line pressure
Gain change solenoid	Change of range where the gearshift pressure is regulated
Automatic transmission exhaust brake cut relay	Cut-off of exhaust brake
ATF temperature warning lamp	Display of abnormal automatic transmission fluid temperature
Overdrive OFF lamp	Display of overdrive OFF
Automatic transmission warning lamp	Display of system fault and diagnosis codes
Multi-Use Tester connector	Communication with Multi-Use Tester; displaying and erasing diagnosis codes

2.2 Shift control and shift point control



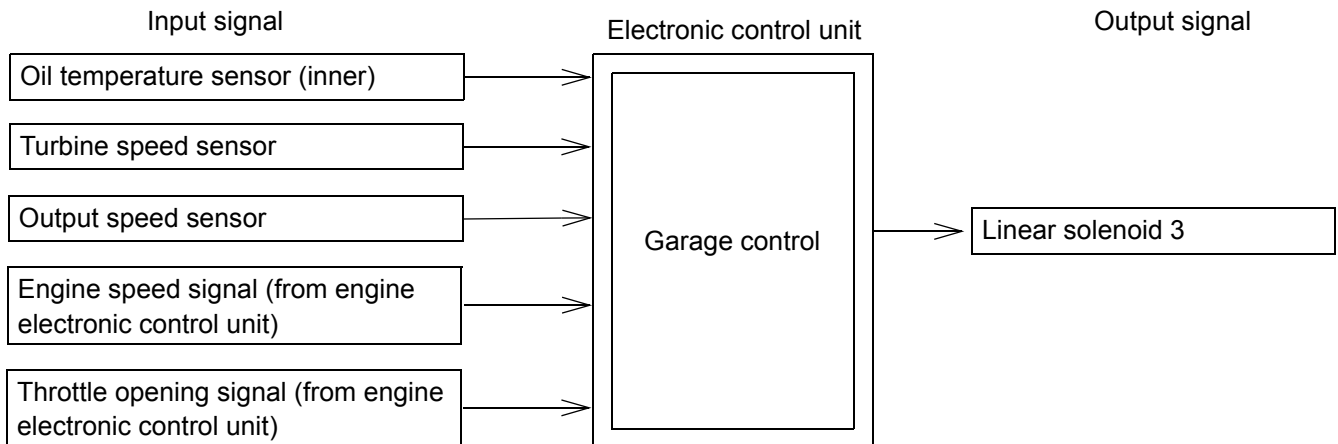
- For automatic selection of the optimal gear, the throttle opening signal and the output speed sensor signals (which correspond to the vehicle speed) cause the automatic transmission electronic control unit to issue relevant signals in accordance with a predetermined shift map to shift solenoid 1-3 and linear solenoid 1 and 2, which are mounted on the valve body.
- Clutch selection for shift control is performed by means of clutch-to-clutch control, whereby one clutch is disengaged as another is engaged.

2.3 Lockup control



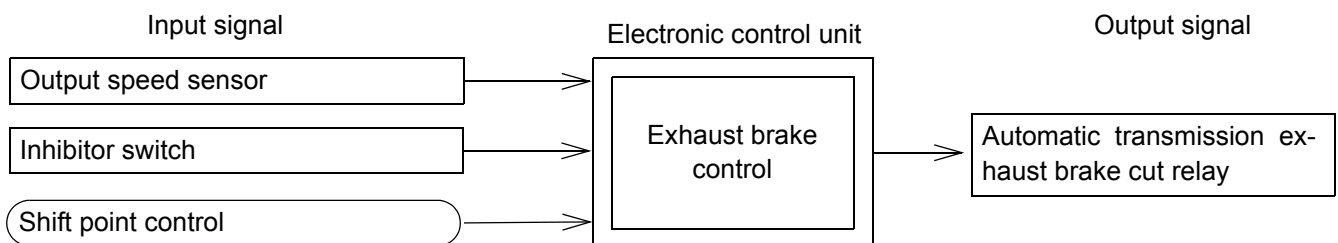
- Lockup control enables slippage in the torque converter to be eliminated for increased transmission efficiency. The throttle opening signal and the output speed sensor signals (which correspond to the vehicle speed) cause the automatic transmission electronic control unit to issue relevant signals in accordance with a predetermined shift map to linear solenoid 3 (this is mounted on the valve body) for lockup ON-OFF-slip selection.

2.4 Garage control



- When the inhibitor switch signal changes from N to a driving range (D or R), a signal is issued by the automatic transmission electronic control unit to linear solenoid 3 (this is mounted on the valve body) to realize a forward or reverse gear.

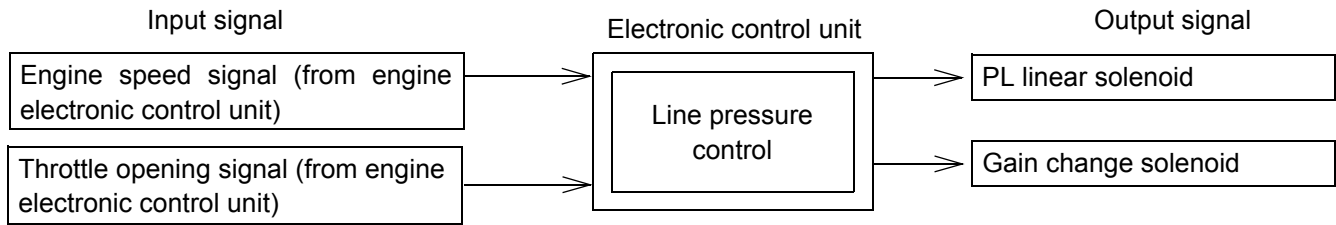
2.5 Exhaust brake control



- The exhaust brake is released under any of the following conditions.
 - Range selector lever is in P or N
 - Low speed driving
 - During automatic transmission shifting
 - ATF temperature is high

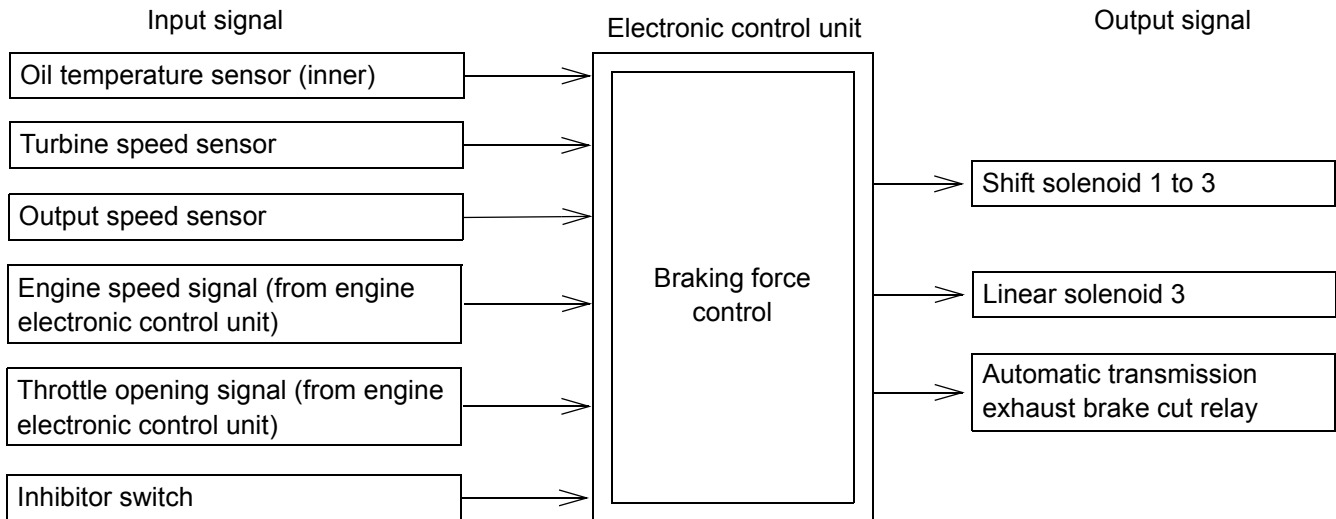
STRUCTURE AND OPERATION

2.6 Line pressure control



- The line pressure control optimizes the automatic transmission line pressure in accordance with the throttle opening signal and engine speed signal.

2.7 Braking force control



- If the accelerator pedal is released when the vehicle speed is higher than a certain level, a gear is selected in accordance with the road grade and cargo weight to realize optimal engine braking.

2.8 Failsafe control

- Failsafe control is designed to maintain the highest possible level of driveability in the event of an abnormality in either output speed sensor, in the engine speed signal, throttle opening signal, oil temperature sensor, or inhibitor switch, or in any solenoid or mechanical valve.

(1) Inhibitor switch

If, with the vehicle either stationary or moving, an inhibitor switch abnormality occurs such that no signals are applied to the automatic transmission electronic control unit, the automatic transmission electronic control unit selects and holds 3rd gear. If multiple signals are applied to the automatic transmission electronic control unit, the automatic transmission electronic control unit maintains driveability by effecting control in the following order of range precedence: P > N > range signals prior to duplicate signal input. The selected hydraulic circuit in the valve body is determined by the manual valve in accordance with the range selector lever position, so the actual vehicle condition is as shown below.

Actual range selector lever position	Inhibitor switch input signals	Vehicle operating condition
P	P and another select signal	P
R	R and another select signal (except P or N range signal)	R
N	N and another select signal	N
D	D and another select signal (except P or N range signal)	3rd gear
3	3 and another select signal (except P or N range signal)	3rd gear
2	2 and another select signal (except P or N range signal)	3rd gear

2.9 Fault diagnosis function

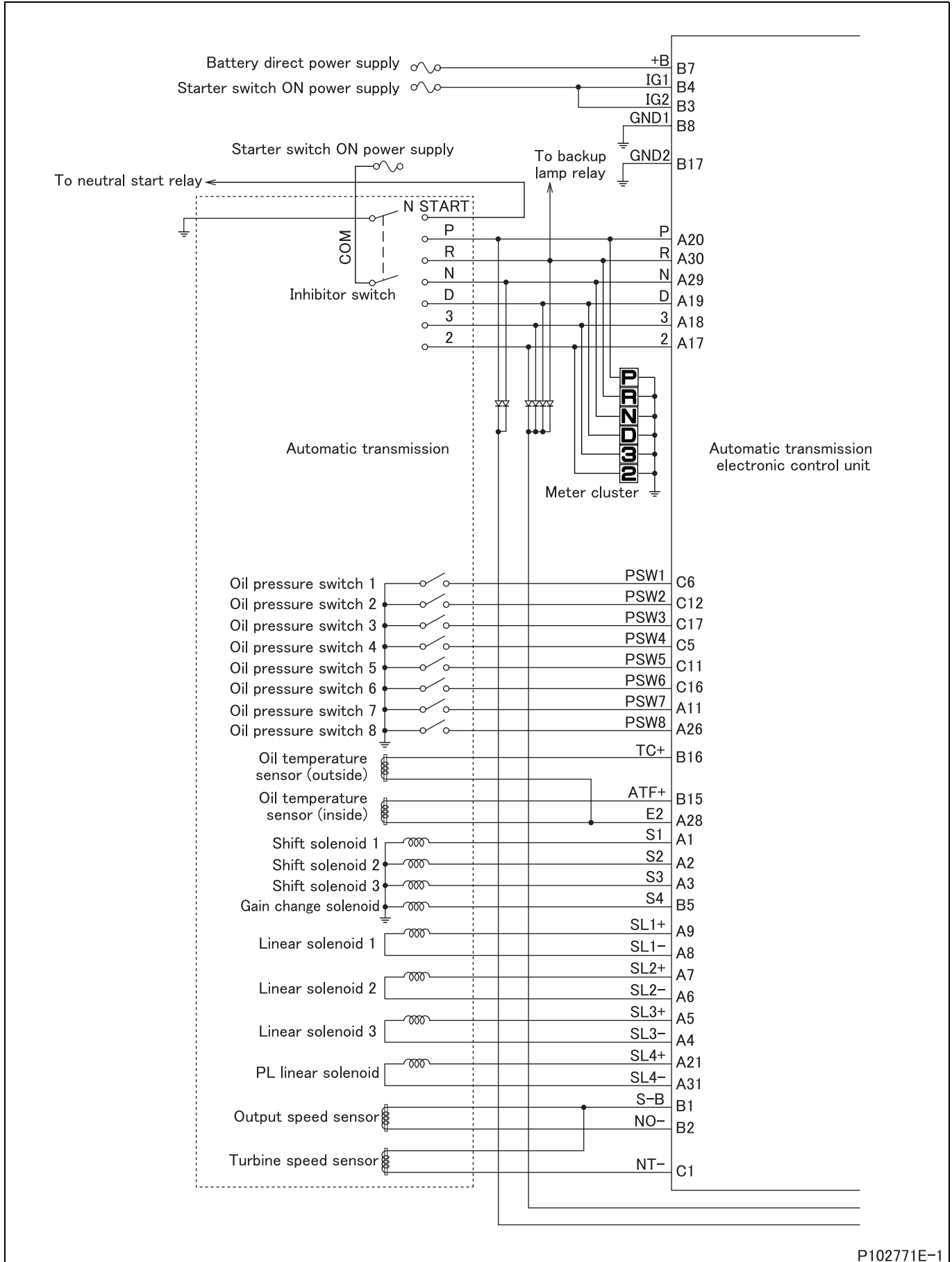
- While the starter switch is in the ON position, the sensors and other components are continuously monitored for faults. In the event that a component is found faulty, an indication is made in the meter cluster to alert the driver, the fault location is memorized in the form of a diagnosis code, and special control necessitated by the fault is initiated.
- While the special control is taking place, the system's functionality is limited to ensure vehicle and driver safety. It is possible to read the memorized diagnosis code using a Multi-Use Tester or from flashing of the warning lamp.

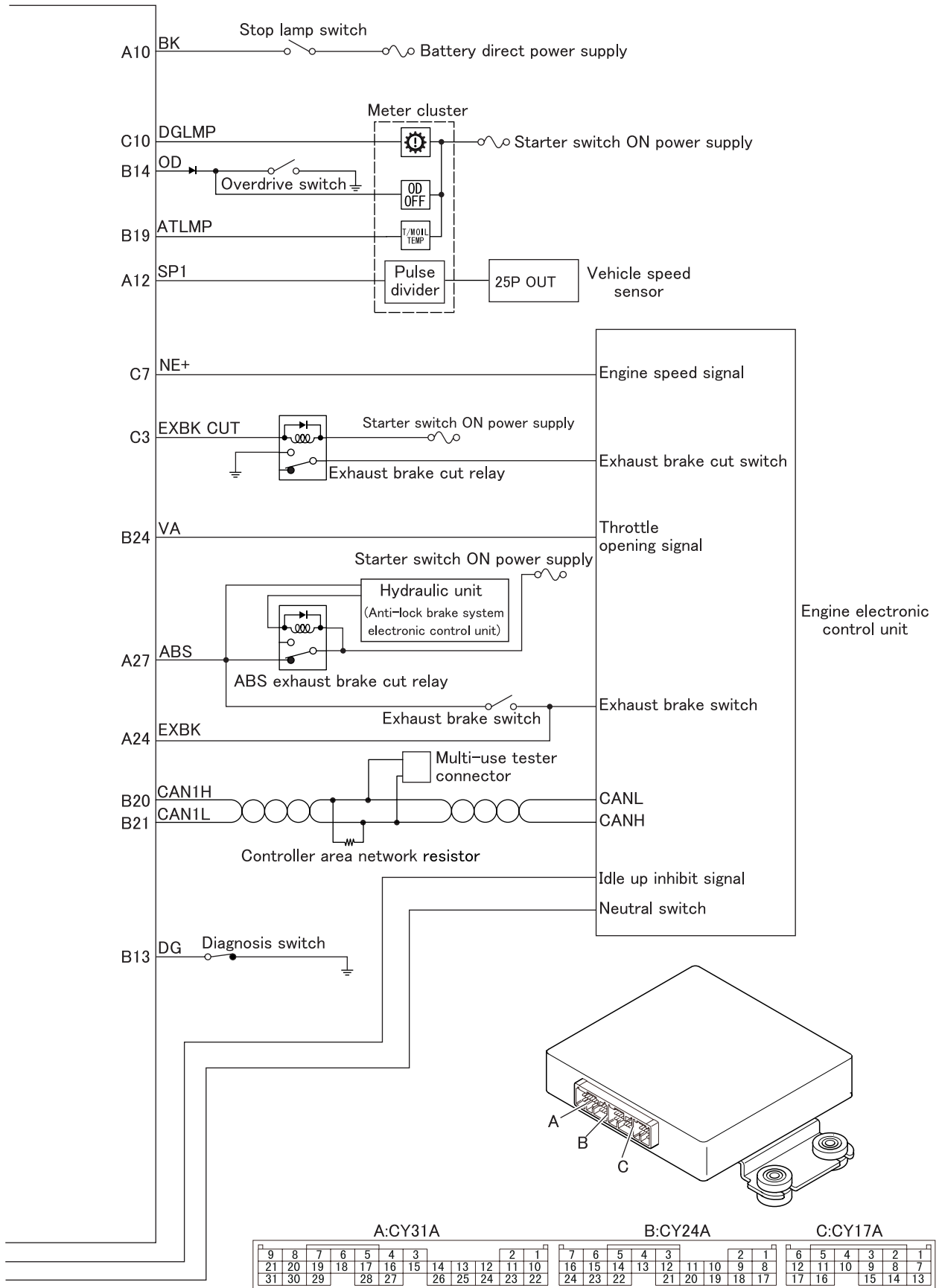
NOTE

- **Diagnosis codes shown by the Multi-Use Tester and those indicated by flashing of the warning lamp are different.**
- **The Multi-Use Tester is capable of showing more detailed diagnosis codes.**

STRUCTURE AND OPERATION

3. Electronic Control Unit Connection Diagram

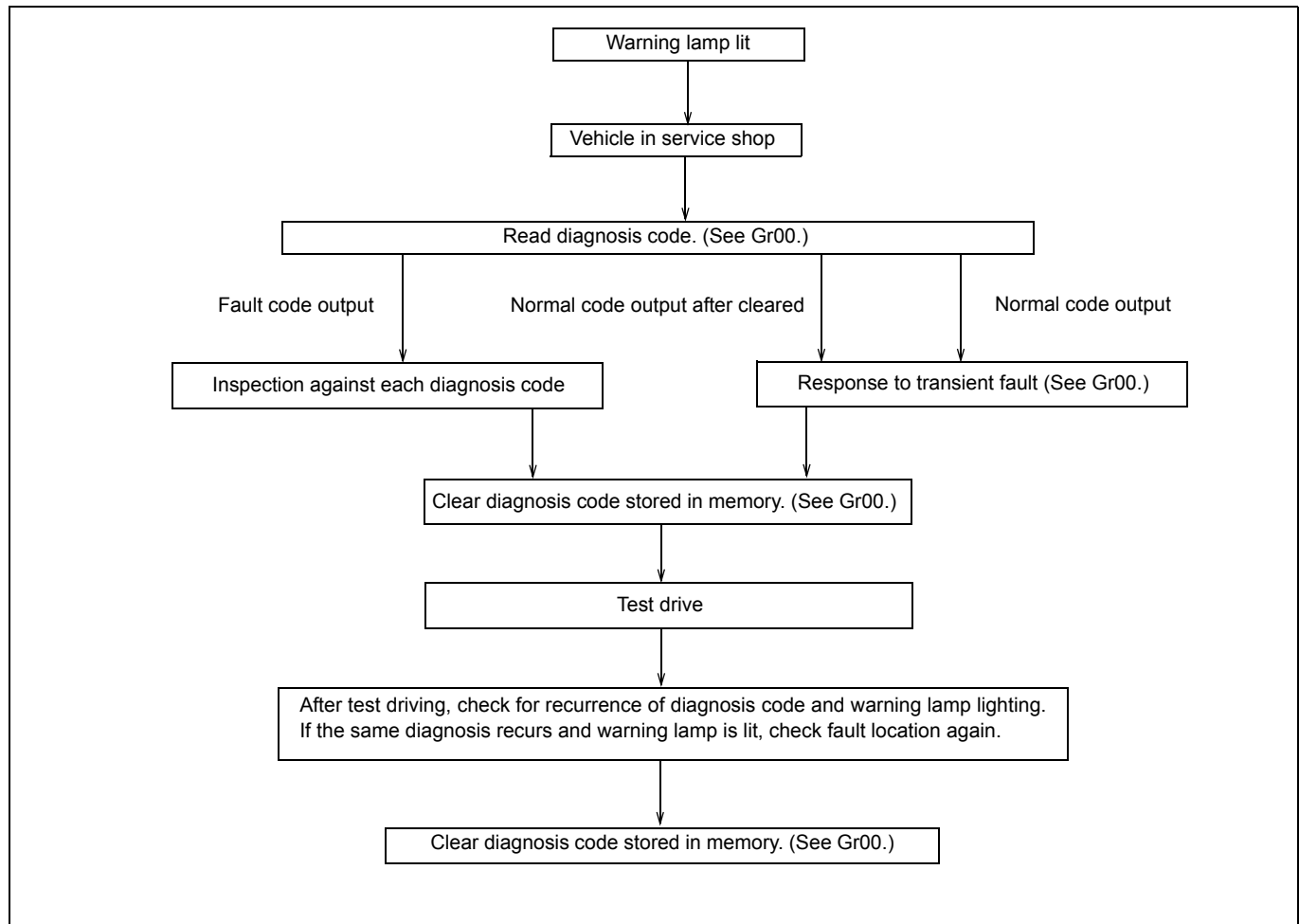




TROUBLESHOOTING

1. Diagnosis Procedure

- Carry out system inspection in accordance with the flow chart given below.
System inspection is roughly divided into two types as follows according to trouble symptom and diagnosis code.
 - Inspection against each diagnosis code stored in memory by the electronic control unit
 - Response to transient fault



2. Diagnostic Precautions

- Before measuring voltage, check the charge and specific gravity of the battery. If system inspection is performed with the battery uncharged or reduced in specific gravity, accurate measurements cannot be achieved.
- To avoid possible damage to electric parts, set the starter switch and lighting switch to LOCK or OFF before disconnecting and reconnecting battery terminals.
- Before disconnecting connectors, set the starter to LOCK or OFF, then allow at least 20 seconds. Voltage may remain in electric parts or connected circuit.
- When performing measurement with the tester, internal circuit and other electrical parts of the electronic control unit could be damaged by the test bar. To avoid it, handle the test bar carefully not to cause a short-circuit failure between connector terminals or between connector and body.
- Resistance is affected by temperature. Determine the necessity of resistance measurement by reference to given temperature specification as a guide. Otherwise, use normal temperature (10 to 35°C {50 to 95°F}) as the measuring condition.

3. Inspections Based on Diagnosis Codes

3.1 Diagnosis code list

- Fault codes can be monitored through the scanning tool (General Scanning Tool or Multi-Use Tester) or the flashing of the warning lamp in the meter cluster.
- There are two kinds of fault codes, i.e., fault code displayed by the General Scanning Tool or Multi-Use Tester and flash code given by the flashing of the warning lamp.
- Scanning tool (General Scanning Tool or Multi-Use Tester) can display diagnosis codes that are more specific than flash codes.
- Diagnosis codes asterisked in the list differ in fault diagnosis period according to the fault diagnosis condition. (For details on fault diagnosis condition, see “Inspection against Each Diagnosis Code”.)

Fault code		Monitor ID	Fault (outline)	Warning	Multi-Use Tester indication	Fault diagnosis period
Diagnosis code	Flash code					
P0078	54	–	Failure of exhaust brake cut relay	O	EXH brake Cut Signal	8TRIP
P0500	12	1	Failure of vehicle speed sensor	●	Vehicle Speed Sensor	2DC
*P0501	12	2	Failure of vehicle speed sensor	●	Vehicle Speed Sensor Performance	IMD or 2DC
P0562	11	72	Open-circuit of starter switch ON power supply	●	Power Supply Voltage (Low)	IMD
P0604	91	74	Failure of electronic control unit	●	ECU Hardware (RAM)	2DC
P0605	92	75	Failure of electronic control unit	●	ECU System (Hardware)	2DC
P062F	93	76	Failure of electronic control unit	●	ECU System (EEPROM)	IMD
P0702	11	73	Open-circuit of battery power supply	●	Power Supply Low (Battery)	2DC
P0706	49	49, 50	Failure of oil pressure switch 8	●	Oil Pressure SW 8 Performance	IMD
P0707	43	19	Failure of inhibitor switch	●	Shift Position SW Low	IMD
P0708	43	20	Failure of inhibitor switch	●	Shift Position SW High	IMD
P0711	13	13, 14	Failure of oil temperature sensor (inside)	●	Oil Temp Sensor “OP” Performance	IMD
P0712	13	11	Failure of oil temperature sensor (inside)	●	Oil Temp Sensor “OP” Low	IMD
P0713	13	12	Failure of oil temperature sensor (inside)	●	Oil Temp Sensor “OP” High	IMD
P0714	13	15	Failure of oil temperature sensor (inside)	●	Oil Temp Sensor “OP” Intermittent	IMD
P0717	16	5	Failure of turbine speed sensor	●	Turbine Speed Sensor No Signal	2DC
*P0721	25	4	Failure of output speed sensor	●	Output Speed Sensor Performance	IMD or 2DC
P0722	25	3	Failure of output speed sensor	●	Output Speed Sensor No Signal	2DC
P0726	15	6	Abnormality of engine speed signal	●	Engine Speed Sensor Performance	2DC
P0730	37	7, 8	Incorrect gear ratio	●	Incorrect Gear Ratio	IMD
P0746	41	38, 39	Linear solenoid 1 binds in OFF state.	●	Linear Sol Valve 1 Stuck Off	IMD
P0747	41	40	Linear solenoid 1 binds in ON state.	●	Linear Sol Valve 1 Stuck On	IMD
P0748	26	21, 22	Linear solenoid 1 is open-circuited or short-circuited.	●	Linear Sol Valve 1 Electrical	IMD
P0751	45	52	Shift solenoid 1 binds in OFF state.	●	Shift Solenoid 1 Stuck Off	IMD
P0752	45	51	Shift solenoid 1 binds in ON state.	●	Shift Solenoid 1 Stuck On	IMD
P0756	46	56	Shift solenoid 2 binds in OFF state.	●	Shift Solenoid 2 Stuck Off	IMD

TROUBLESHOOTING

Fault code		Monitor ID	Fault (outline)	Warning	Multi-Use Tester indication	Fault diagnosis period
Diagnosis code	Flash code					
P0757	46	55	Shift solenoid 2 binds in ON state.	●	Shift Solenoid 2 Stuck On	IMD
P0761	47	60	Shift solenoid 3 binds in OFF state.	●	Shift Solenoid 3 Stuck Off	IMD
P0762	47	59	Shift solenoid 3 binds in ON state.	●	Shift Solenoid 3 Stuck On	IMD
P0766	55	64	Shift solenoid 3 binds in OFF state.	●	Shift Solenoid 4 Stuck Off	IMD
P0767	55	63	Shift solenoid 3 binds in ON state.	●	Shift Solenoid 4 Stuck On	IMD
P0776	42	43, 44	Linear solenoid 2 binds in OFF state.	●	Linear Sol Valve 2 Stuck Off	IMD
P0777	42	45	Linear solenoid 2 binds in ON state.	●	Linear Sol Valve 2 Stuck On	IMD
P0778	27	23, 24	Linear solenoid 2 is open-circuited or short-circuited.	●	Linear Sol Valve 2 Electrical	IMD
P0796	48	47	Linear solenoid 3 binds in OFF state.	●	Linear Sol Valve 3 Stuck Off	IMD
P0797	48	46	Linear solenoid 3 binds in ON state.	●	Linear Sol Valve 3 Stuck On	IMD
P083D	48	48	Failure of oil pressure switch 7	●	Oil Pressure SW 7 High	IMD
P0842	41	37	Failure of oil pressure switch 1	●	Oil Pressure SW 1 Low	IMD
P0843	41	36	Failure of oil pressure switch 1	●	Oil Pressure SW 1 High	IMD
P0847	42	42	Failure of oil pressure switch 2	●	Oil Pressure SW 2 Low	IMD
P0848	42	41	Failure of oil pressure switch 2	●	Oil Pressure SW 2 High	IMD
P0863	88	67	Abnormality in CAN communication	●	CAN Communication	IMD
P0872	45	54	Failure of oil pressure switch 3	●	Oil Pressure SW 3 Low	IMD
P0873	45	53	Failure of oil pressure switch 3	●	Oil Pressure SW 3 High	IMD
P0877	46	58	Failure of oil pressure switch 4	●	Oil Pressure SW 4 Low	IMD
P0878	46	57	Failure of oil pressure switch 4	●	Oil Pressure SW 4 High	IMD
P0973	31	29	Failure of shift solenoid 1	●	Shift Solenoid 1 - Low	IMD
P0974	31	30	Failure of shift solenoid 1	●	Shift Solenoid 1 - High	IMD
P0976	32	31	Failure of shift solenoid 2	●	Shift Solenoid 2 - Low	IMD
P0977	32	32	Failure of shift solenoid 2	●	Shift Solenoid 2 - High	IMD
P0979	33	33	Failure of shift solenoid 3	●	Shift Solenoid 3 - Low	IMD
P0980	33	34	Failure of shift solenoid 3	●	Shift Solenoid 3 - High	IMD
P0985	52	–	Failure of gain change solenoid	○	Shift Solenoid 4 - Low	IMD
P0986	52	35	Failure of gain change solenoid	●	Shift Solenoid 4 - High	IMD
P0989	47	62	Failure of oil pressure switch 5	●	Oil Pressure SW 5 Low	IMD
P0990	47	61	Failure of oil pressure switch 5	●	Oil Pressure SW 5 High	IMD
P0994	55	66	Failure of oil pressure switch 6	●	Oil Pressure SW 6 Low	IMD
P0995	55	65	Failure of oil pressure switch 6	●	Oil Pressure SW 6 High	IMD
P1604	24	10	Abnormality in accelerator pedal position signal	●	Accel Sensor	IMD
P2716	34	27, 28	PL linear solenoid is open-circuited or short-circuited.	●	Linear Sol Valve 4 Electrical	IMD
P2742	17	16	Failure of oil temperature sensor (outside)	●	Oil Temp Sensor "TC" Low	IMD
*P2743	17	17, 18	Failure of oil temperature sensor (outside)	●	Oil Temp Sensor "TC" High	IMD or 2DC
P2757	61	9	Failure of lockup clutch	●	Lockup Clutch	2DC
P2759	35	25, 26	Linear solenoid 3 is open-circuited or short-circuited.	●	Linear Sol Valve 3 Electrical	IMD
U0100	88	68, 69, 70, 71	Abnormality in CAN communication	●	CAN Communication	IMD

IMD: Immediate

CAN: Controller area network

DC [Drive cycle]: "Start switch ON to start engine till starter switch OFF" constitutes 1 DC.

TRIP: Starter switch ON to OFF constitutes 1 TRIP.

● : Engine warning and automatic transmission warning lamps lit

O : Automatic transmission warning lamp only lit

TROUBLESHOOTING

3.2 Inspection against Each Fault Code in the List

[Fault code]

Diagnosis code: P0078/Flash code: 54

[Monitor ID]

None

[Fault (outline)]

Failure of exhaust brake cut relay

[Diagnosis check]

- The operating condition of exhaust brake under exhaust brake cut control is monitored.

[Code generation condition]

- Input of controller area network signal of exhaust brake operation from engine electronic control unit continues for more than 0.5 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Exhaust brake cut being requested

[Control effected by electronic control unit during fault]

- Braking force control is inhibited.

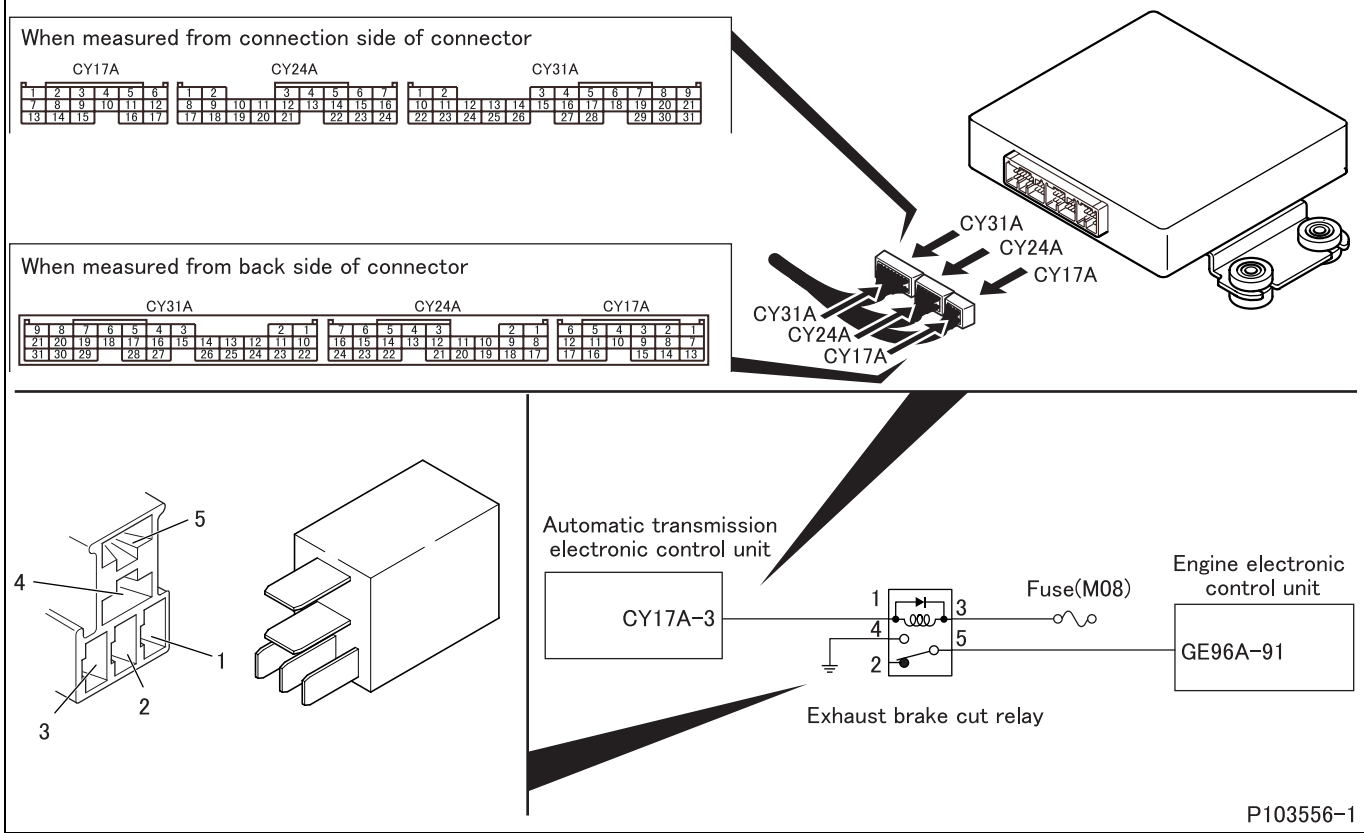
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and automatic transmission exhaust brake cut relay
- Malfunction of each connector
- Malfunction of automatic transmission exhaust brake cut relay
- Defective electronic control unit

[Recoverability]

- When diagnosis code is cleared with scanning tool (General Scanning Tool or Multi-Use Tester).

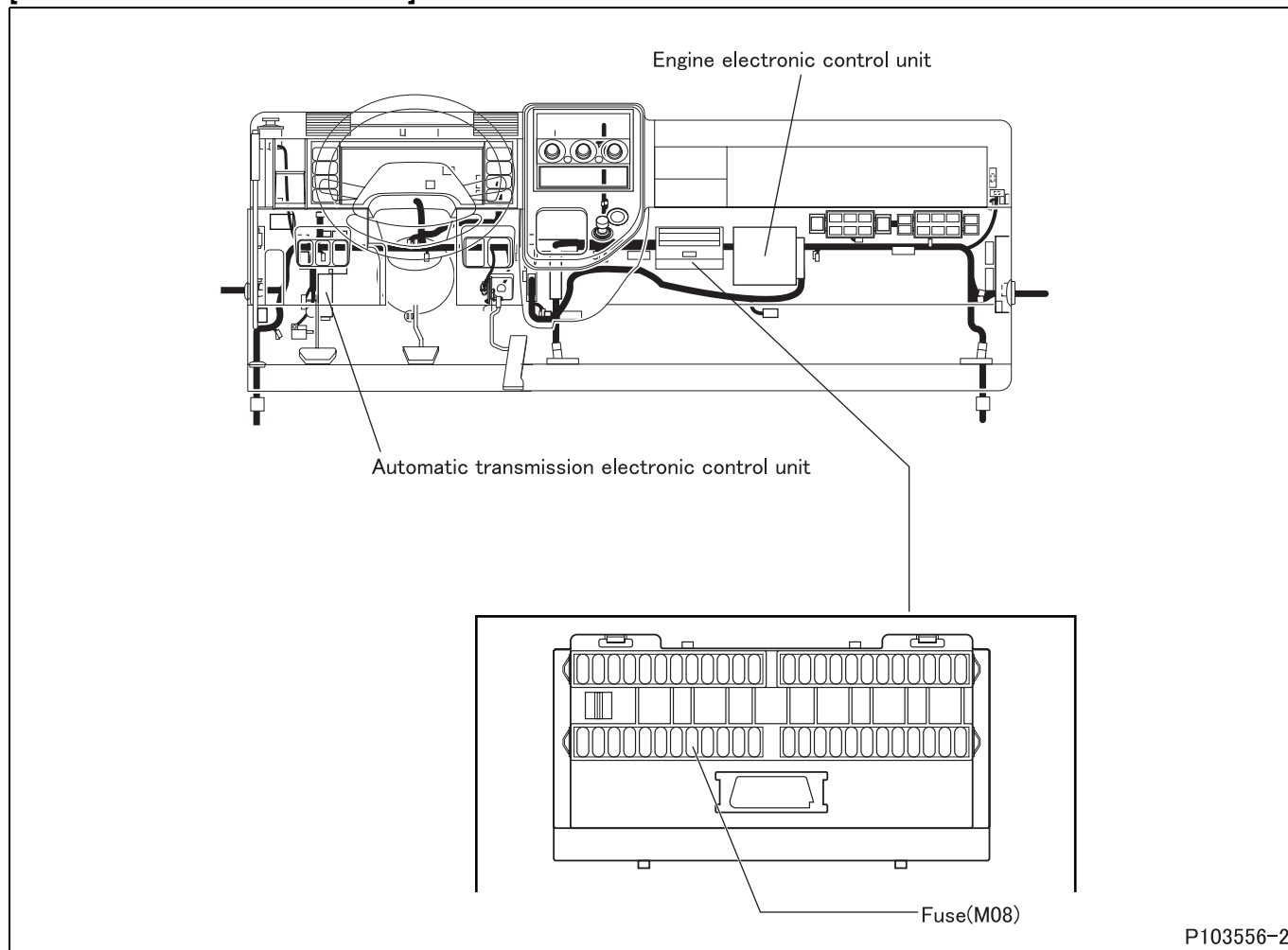
[Electronic Control Unit Connection Diagram]



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TROUBLESHOOTING

[Parts Identification and Location]



P103556-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

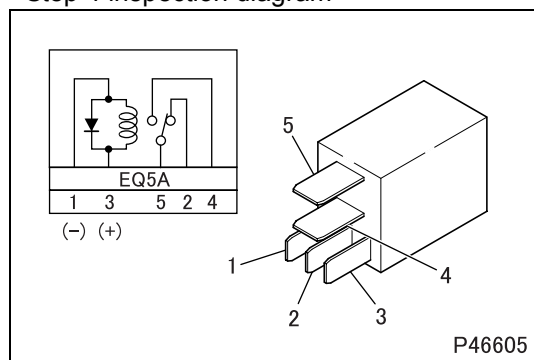
	Inspection items	Inspection by control data
Step 1	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 54 "Exh Brake Cut SIG" of Service Data.</p>
	Inspection condition	<p>When vehicle is running</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • Decelerated and stopped: 12 V → 0 V • During acceleration: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • Decelerated and stopped: OFF → ON • During acceleration: OFF
	Inspection result (Is the judging standard satisfied?)	<p>YES Go to transient fault (See Gr00.).</p> <p>NO Go to step 2.</p>

Step 2	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
NO		Modify connector.	

Step 3	Inspection items	Inspection of relay connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Modify connector.	

Step 4	Inspection items	Inspection of relay unit	
	Maintenance item	Measure continuity between terminals No. 4 and 5 when relay operates.	
	Inspection condition	Apply battery voltage across connector terminals No. 3 (+) and 1 (-).	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Replacement of sensor	

<Step 4 inspection diagram>



Step 5	Inspection items	Inspection of harness between relay and electronic control unit (signal)	
	Maintenance item	Check circuit between relay connector terminal No. 1 and electronic control unit connector (CY17A) terminal No. 3	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify harness.	

TROUBLESHOOTING

Step 6	Inspection items	Inspection of harness between relay and fuse	
	Maintenance item	Check circuit between relay connector terminal No. 3 and electronic control unit fuse (M08)	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

Step 7	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 54 (Exh Brake Cut SIG) of Service Data.</p>	
	Inspection condition	When vehicle is running <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • Decelerated and stopped: 12 V → 0 V • During acceleration: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • Decelerated and stopped: OFF → ON • During acceleration: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Replacement of electronic control unit	

[Fault code]

Diagnosis code: P0500/Flash code: 12

[Monitor ID]

1

[Fault (outline)]

Failure of vehicle speed sensor

[Diagnosis check]

- Vehicle speed sensor is monitored for fault during vehicle run (after at least 4 seconds of running at 5 km/h {3 mph} or more)

[Code generation condition]

- Input signal from vehicle speed sensor is missing when output speed sensor output is normal.

[Diagnosis check timing]

- Fault diagnosis is performed once at the minimum during the driving cycle.

[Diagnostic requirement]

- Vehicle speed: above 5 km/h {3 mph} (not less than 4 sec.)
- Shift position: other than P or N range
- Output speed sensor related diagnosis code (P0721, P0722) does not occur.

[Control effected by electronic control unit during fault]

- Normal control is effected using output speed sensor.

[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and pulse divider in meter cluster
- Open-circuit or short-circuit of harness between pulse divider in meter cluster and vehicle speed sensor
- Malfunction of each connector
- Malfunction of pulse divider in meter cluster
- Malfunction of vehicle speed sensor
- Malfunction of electronic control unit

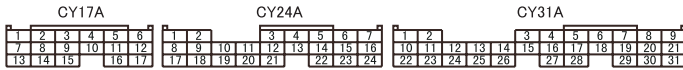
[Recoverability]

- Recovered if signal becomes normal with starter switch in ON position.

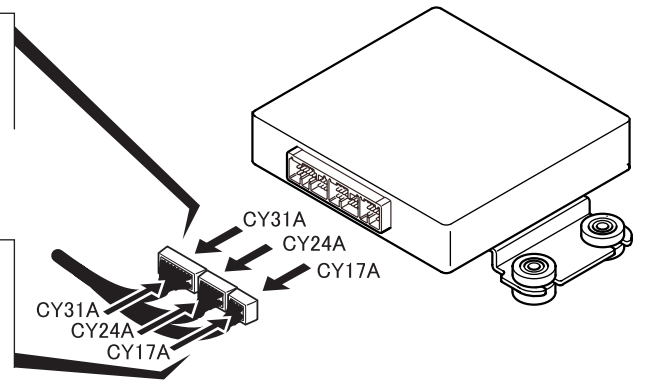
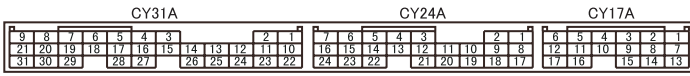
TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]

When measured from connection side of connector



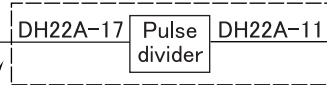
When measured from back side of connector



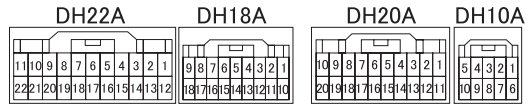
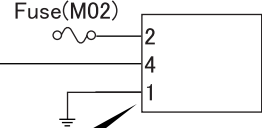
Automatic transmission electronic control unit



Meter cluster



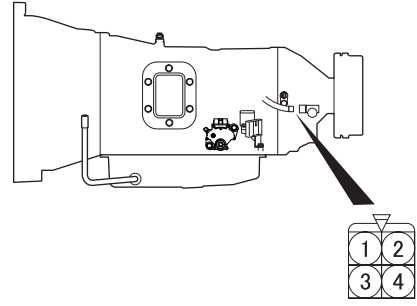
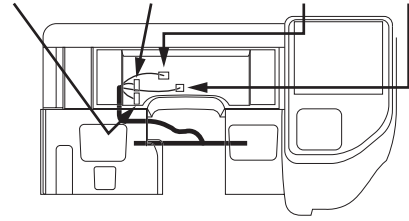
Vehicle speed sensor



When measured from connection side of connector

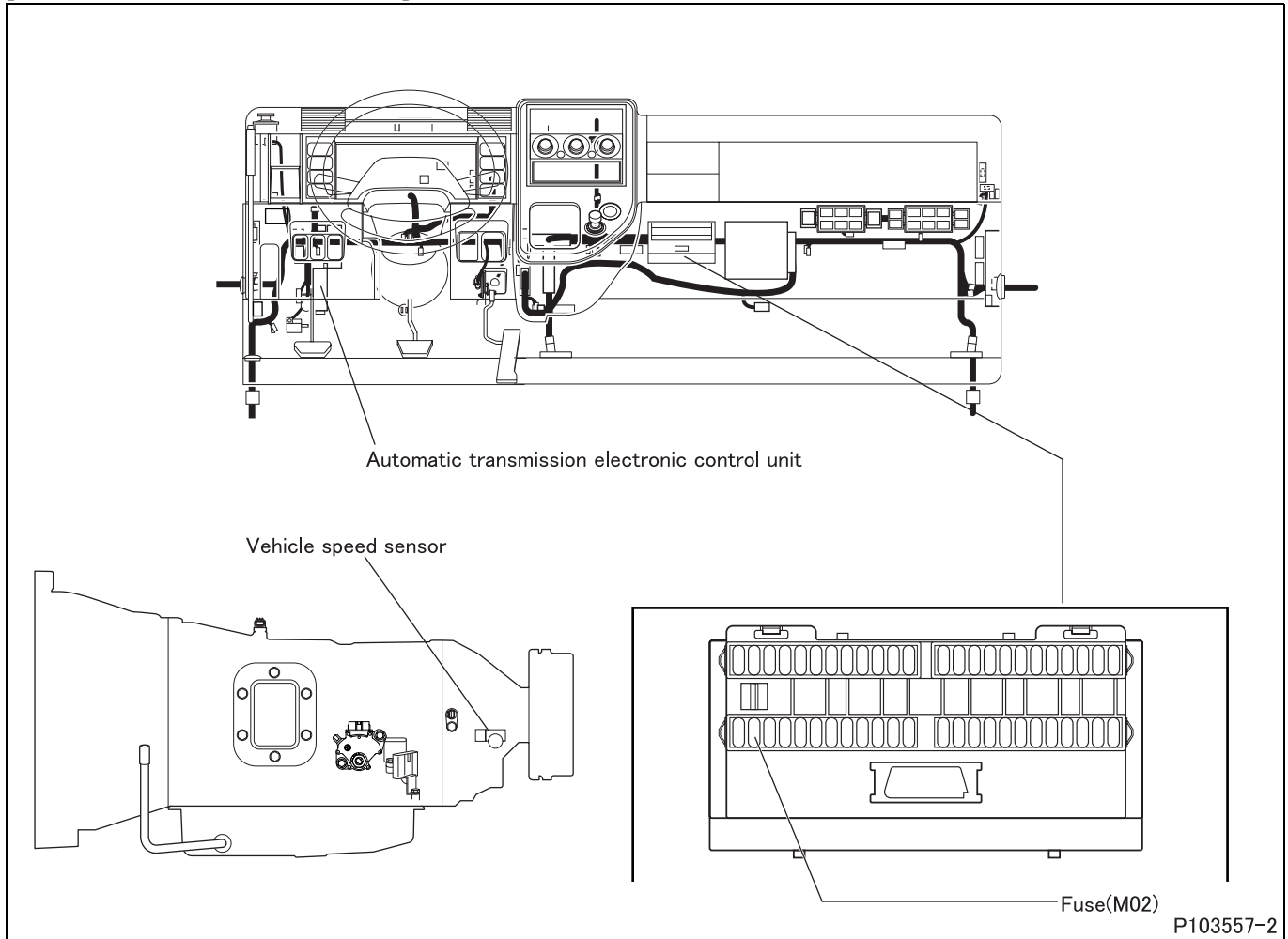


When measured from back side of connector



P103557-1

[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Go to step 2.</p> <p><Multi-Use Tester used> Measure item No. 12 "VEH Speed 1" of Service Data.</p>
	Inspection condition		During vehicle run
	Requirements		Same indication as speedometer is given.
	Inspection result (Is the judging standard satisfied?)		<p>YES Go to transient fault (See Gr00.).</p> <p>NO Go to step 2.</p>

Step 2	Inspection items		Inspection by electronic control unit connector (signal)
	Maintenance item		Measure value of voltage between connector (CY31A) terminal No. 12 (+) and (CY24A) terminal No. 8 (-).
	Inspection condition		<ul style="list-style-type: none"> • Measure from back side of harness connector with electronic control unit connected to harness. • Slowly turn the wheel using chassis dynamometer or the like. • Starter switch: ON
	Requirements		<ul style="list-style-type: none"> • Low pulse: 0.5 V or less • High pulse: Approx. 8 V
	Inspection result (Is the judging standard satisfied?)		<p>YES Go to step 3.</p> <p>NO Go to step 4.</p>

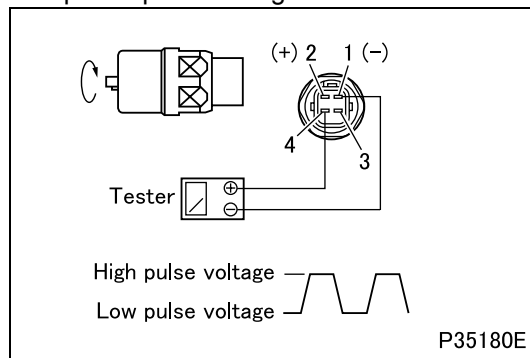
TROUBLESHOOTING

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 10.
NO		Modify connector.	

Step 4	Inspection items	Inspection of harness between electronic control unit and pulse divider	
	Maintenance item	Check circuit between meter cluster connector (DH22A) terminal No. 17 and electronic control unit connector (CY31A) terminal No. 12.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Modify connector.	

Step 5	Inspection items	Inspection of sensor unit <25 pulse output>	
	Maintenance item	Measure maximum value (high pulse voltage) and minimum value (low pulse voltage) of voltage generated between sensor connector terminals No. 4 (+) and No. 1 (-).	
	Inspection condition	Slowly turn sensor shaft with battery voltage applied between terminals No. 2 (+) and No. 1 (-).	
	Requirements	<ul style="list-style-type: none"> • Low pulse: 0.5 V or less • High pulse: Approx. 8 V 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Replacement of sensor	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between sensor and fuse (power supply)	
	Maintenance item	Check circuit between sensor connector No. 2 and fuse (M02).	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

Step 7	Inspection items	Inspection of harness between sensor chassis and ground (ground)	
	Maintenance item	Check circuit between sensor connector No. 1 and chassis ground.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify harness.	

Step 8	Inspection items	Inspection of harness between sensor and pulse divider (signal)	
	Maintenance item	Check circuit between sensor connector terminal No. 4 and meter cluster connector (DH22A) terminal No. 11.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 9.
NO		Modify harness.	

Step 9	Inspection items	Inspection by pulse divider connector	
	Maintenance item	Measure value of voltage between meter cluster connector (DH22A) terminal No. 17 (+) and No. 6 (-).	
	Inspection condition	<ul style="list-style-type: none"> • Measure from back side of connector with harness left connected • Remove sensor and slowly turn sensor shaft. • Starter switch: ON 	
	Requirements	<ul style="list-style-type: none"> • Low pulse: 0.5 V or less • High pulse: Approx. 8 V 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 10.
NO		Replacement of meter cluster	

Step 10	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 12 (+) and (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 12 "VEH Speed 1" of Service Data.	
	Inspection condition	<Multi-Use Tester not used> <ul style="list-style-type: none"> • Measure from back side of harness connector with electronic control unit connected to harness. • Slowly turn the wheel using chassis dynamometer or the like. • Starter switch: ON <Multi-Use Tester used> During vehicle run	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • Low pulse: 0.5 V or less • High pulse: Approx. 8 V <Multi-Use Tester used> Same indication as speedometer is given.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0501/Flash code: 12

[Monitor ID]

2

[Fault (outline)]

Failure of vehicle speed sensor

[Diagnosis check]

- Vehicle speed sensor in control as backup for output speed sensor is monitored for fault with vehicle in running condition.

[Code generation condition]

Vehicle speed sensor is judged faulty in either of the following cases.

- Electronic control unit determines vehicle stop after sudden input of deceleration signal from vehicle speed sensor. (Lamp indication: IMD) <A>
- Abnormality established by comparison with turbine speed sensor and output speed sensor and of output gear ratio has continued for 4 seconds. (Lamp indication: 2DC)

[Diagnosis check timing]

- Fault diagnosis is performed once at the minimum during the driving cycle.

[Diagnostic requirement]

- Vehicle speed sensor related diagnosis code (P0500) does not occur.
- Output speed sensor related diagnosis code (P0721, P0722) does not occur.
- Turbine speed sensor related diagnosis code does not occur.
- Engine speed sensor related diagnosis code does not occur.
- Inhibitor switch related diagnosis code does not occur.
- Control with the fixed speed gear signals outputted under fault conditions is not effected.
- Shift position: other than P or N range
- Control at the time of gear shifting is not effected.

[Control effected by electronic control unit during fault]

- The gear last selected is active on a steady basis. <A>
- Normal control is effected using output speed sensor.

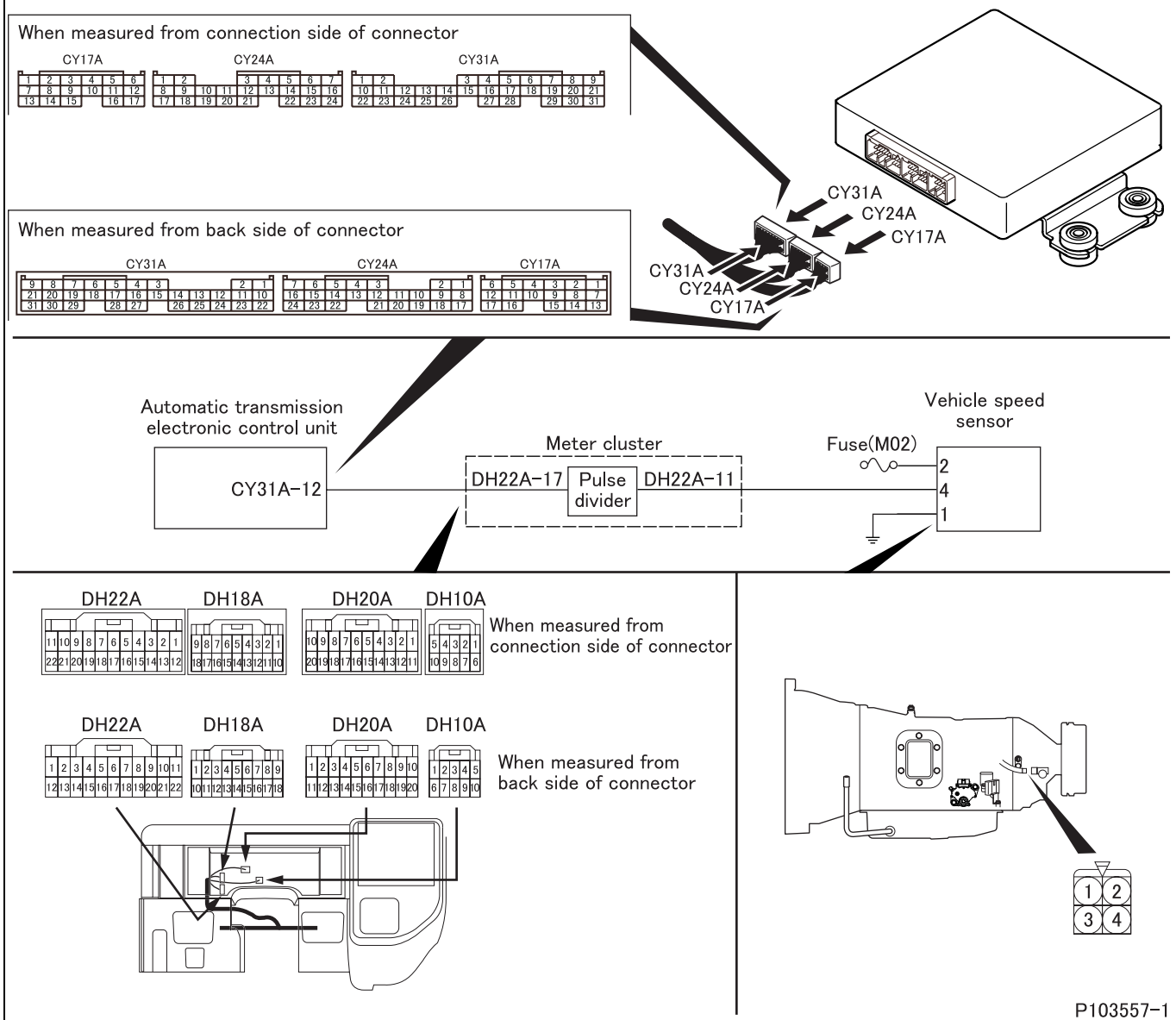
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and pulse divider in meter cluster
- Open-circuit or short-circuit of harness between pulse divider in meter cluster and vehicle speed sensor
- Malfunction of each connector
- Malfunction of pulse divider in meter cluster
- Malfunction of vehicle speed sensor
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal with starter switch in ON position.

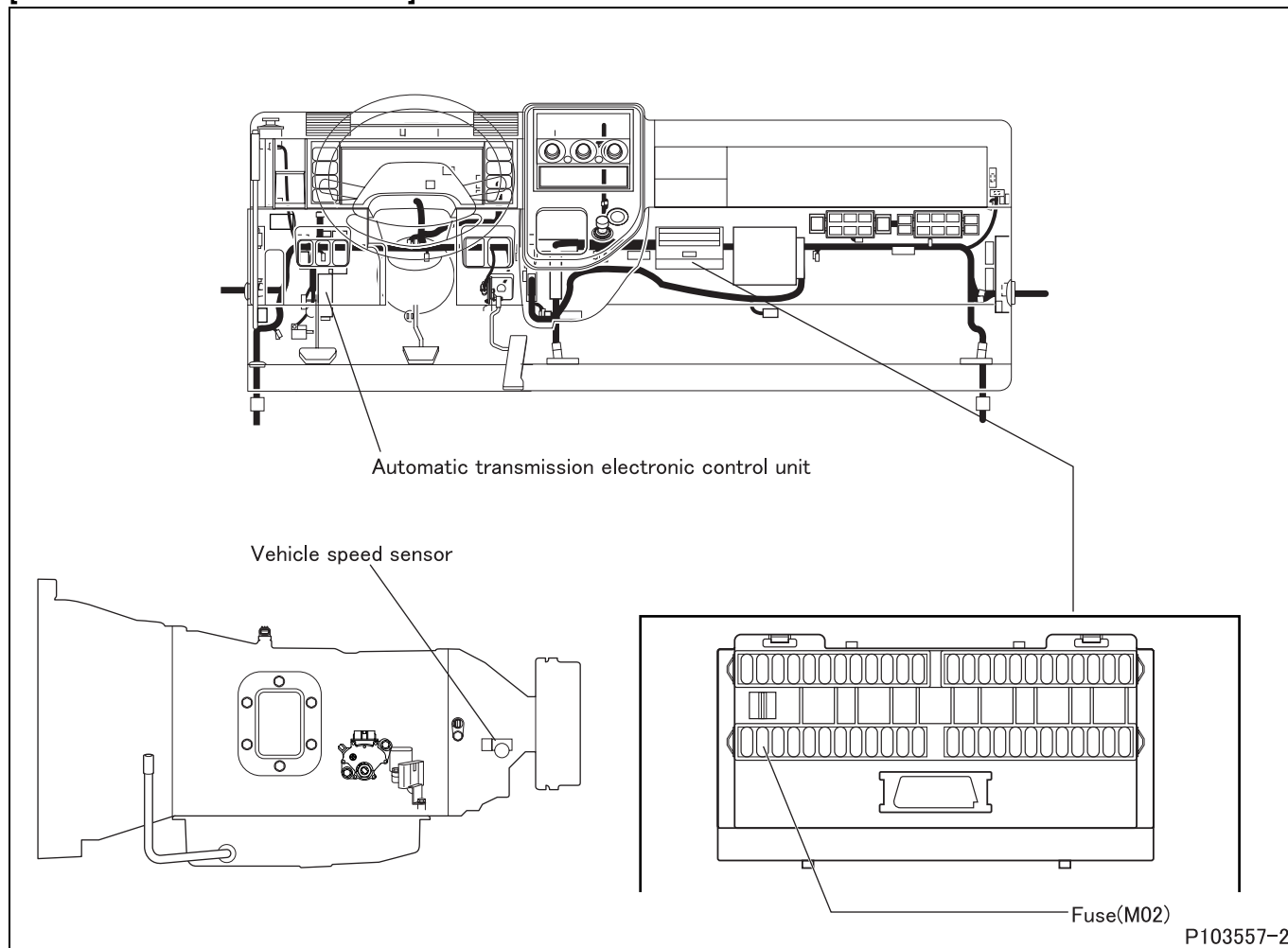
[Electronic Control Unit Connection Diagram]



P103557-1

TROUBLESHOOTING

[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items		Inspection by control data
	Maintenance item		<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 12 "VEH Speed 1" of Service Data.
	Inspection condition		During vehicle run
	Requirements		Same indication as speedometer is given.
	Inspection result (Is the judging standard satisfied?)		YES Go to transient fault (See Gr00.). NO Go to step 2.

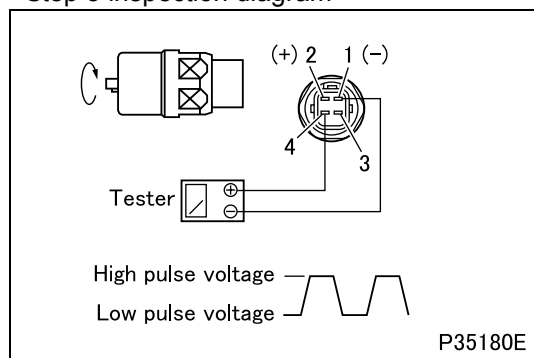
Step 2	Inspection items		Inspection by electronic control unit connector (signal)
	Maintenance item		Measure value of voltage between connector (CY31A) terminal No. 12 (+) and (CY24A) terminal No. 8 (-).
	Inspection condition		<ul style="list-style-type: none"> • Measure from back side of harness connector with electronic control unit connected to harness. • Slowly turn the wheel using chassis dynamometer or the like. • Starter switch: ON
	Requirements		<ul style="list-style-type: none"> • Low pulse: 0.5 V or less • High pulse: Approx. 8 V
	Inspection result (Is the judging standard satisfied?)		YES Go to step 3. NO Go to step 4.

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 10.
NO		Modify connector.	

Step 4	Inspection items	Inspection of harness between electronic control unit and pulse divider	
	Maintenance item	Check circuit between meter cluster connector (DH22A) terminal No. 17 and electronic control unit connector (CY31A) terminal No. 12.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Modify connector.	

Step 5	Inspection items	Inspection of sensor unit <25 pulse output>	
	Maintenance item	Measure maximum value (high pulse voltage) and minimum value (low pulse voltage) of voltage generated between sensor connector terminals No. 4 (+) and No. 1 (-).	
	Inspection condition	Slowly turn sensor shaft with battery voltage applied between terminals No. 2 (+) and No. 1 (-).	
	Requirements	<ul style="list-style-type: none"> • Low pulse: 0.5 V or less • High pulse: Approx. 8 V 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Replacement of sensor	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between sensor and fuse (power supply)	
	Maintenance item	Check circuit between sensor connector No. 2 and fuse (M02).	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

TROUBLESHOOTING

Step 7	Inspection items	Inspection of harness between sensor chassis and ground (ground)	
	Maintenance item	Check circuit between sensor connector No. 1 and chassis ground.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify harness.	

Step 8	Inspection items	Inspection of harness between sensor and pulse divider (signal)	
	Maintenance item	Check circuit between sensor connector terminal No. 4 and meter cluster connector (DH22A) terminal No. 11.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 9.
NO		Modify harness.	

Step 9	Inspection items	Inspection by pulse divider connector	
	Maintenance item	Measure value of voltage between meter cluster connector (DH22A) terminal No. 17 (+) and No. 6 (-).	
	Inspection condition	<ul style="list-style-type: none"> • Measure from back side of connector with harness left connected • Remove sensor and slowly turn sensor shaft. • Starter switch: ON 	
	Requirements	<ul style="list-style-type: none"> • Low pulse: 0.5 V or less • High pulse: Approx. 8 V 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 10.
NO		Replacement of meter cluster	

Step 10	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No.12 (+) and (CY24A) terminal No.8 (-). <Multi-Use Tester used> Measure item No. 12 "VEH Speed 1" of Service Data.	
	Inspection condition	<Multi-Use Tester not used> <ul style="list-style-type: none"> • Measure from back side of harness connector with electronic control unit connected to harness. • Slowly turn the wheel using chassis dynamometer or the like. • Starter switch: ON <Multi-Use Tester used> During vehicle run	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • Low pulse: 0.5 V or less • High pulse: Approx. 8 V <Multi-Use Tester used> Same indication as speedometer is given.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Replacement of electronic control unit	

[Fault code]

Diagnosis code: P0562/Flash code: 11

[Monitor ID]

72

[Fault (outline)]

Open-circuit of starter switch ON power supply

[Diagnosis check]

- Engine speed after starter switch is turned OFF is monitored for open-circuit of starter switch ON power supply.

[Code generation condition]

- Engine speed remains higher than 300 rpm for 12 seconds after starter switch is turned OFF.

[Diagnosis check timing]

- Fault diagnosis is performed once when the electronic control unit is powered off.

[Diagnostic requirement]

- Starter switch: OFF

[Control effected by electronic control unit during fault]

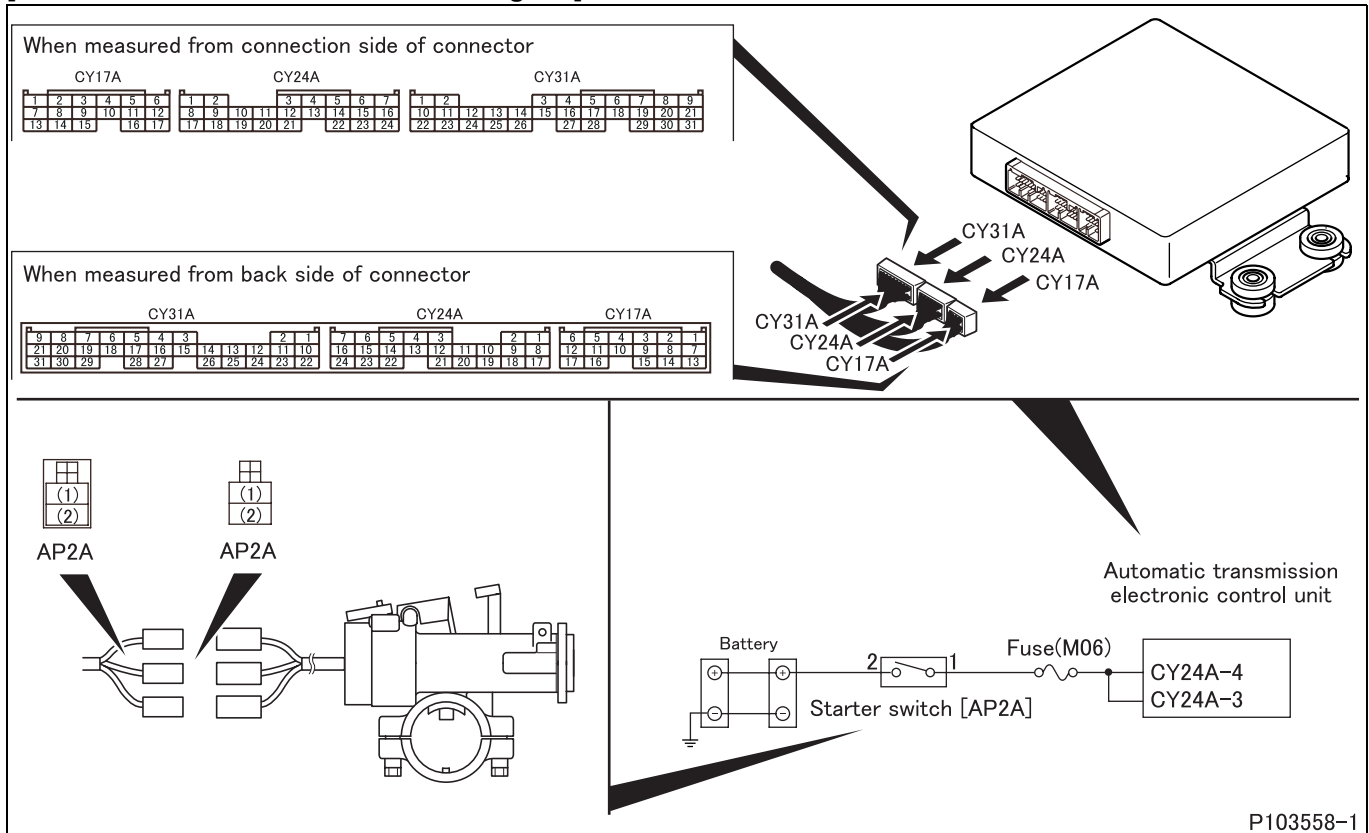
- All solenoids are turned OFF and control is effected at fixed speed gear output (3rd or 5th) corresponding to vehicle speed.

[Probable cause of trouble]

- Open-circuit of harness between electronic control unit and starter switch
- Malfunction of each connector
- Malfunction of starter switch
- Malfunction of electronic control unit

[Recoverability]

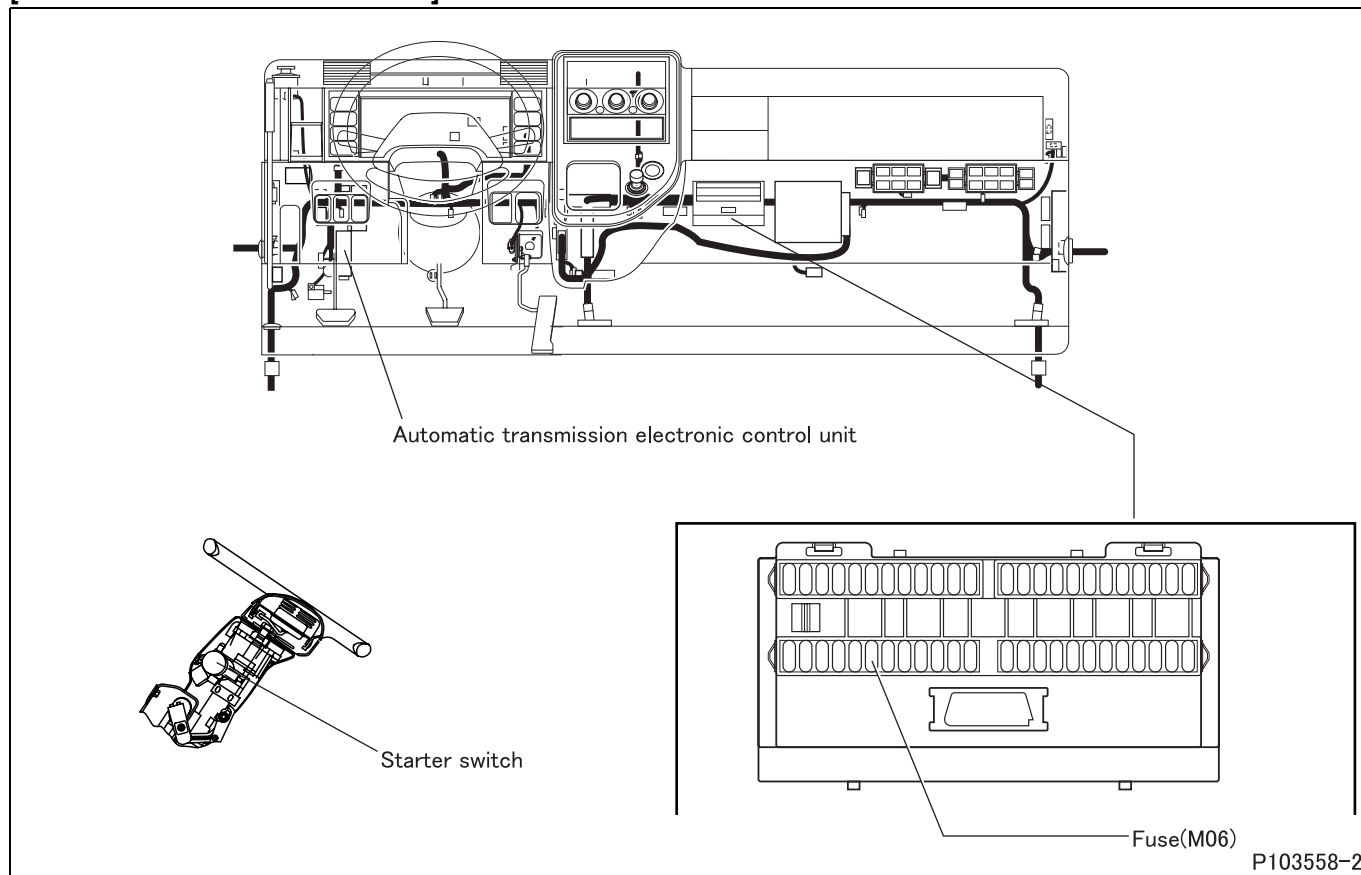
- Recovered when the starter switch is turned from OFF to ON.

[Electronic Control Unit Connection Diagram]

P103558-1

TROUBLESHOOTING

[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items		Inspection by control data
	Maintenance item		<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 11 "IG" of Service Data.
	Inspection condition		Starter switch: ON
	Requirements		12 V (equivalent to battery voltage)
	Inspection result (Is the judging standard satisfied?)		YES Go to transient fault (See Gr00.). NO Go to step 2.

Step 2	Inspection items		Inspection by electronic control unit connector (power supply)
	Maintenance item		Measure value of voltage between connector (CY24A) terminal No. 3, 4 (+) and 8 (-).
	Inspection condition		<ul style="list-style-type: none"> • Measure from back side of harness connector with harness left connected • Engine stopped
	Requirements		<ul style="list-style-type: none"> • Starter switch ON: 12 V • Starter switch OFF: 0 V
	Inspection result (Is the judging standard satisfied?)		YES Go to step 3. NO Go to step 4.

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Replacement of electronic control unit
NO		Modify connector.	

Step 4	Inspection items	Inspection of starter switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Modify connector.	

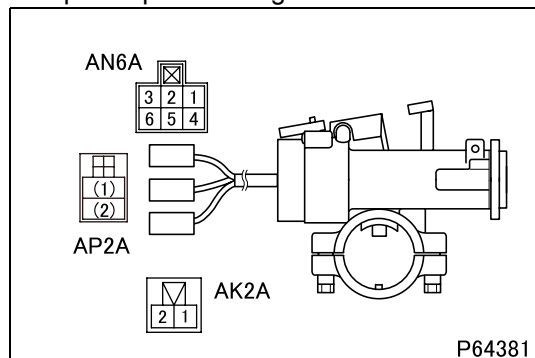
Step 5	Inspection items	Inspection by starter switch connector	
	Maintenance item	Measure value of voltage between switch connector (AP2A) terminal No. 1 (+) and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Measure from back side of connector with harness left connected • Starter switch: ON 	
	Requirements	12 V	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Go to step 7.	

Step 6	Inspection items	Inspection of harness between electronic control unit and starter switch	
	Maintenance item	Check circuit between starter switch connector (AP2A) terminal No.1 and electronic control unit connector (CY24A) terminal No. 3, 4	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity (Fuse (M06) not blown).	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 10.
NO		Modify harness.	

Step 7	Inspection items	Inspection of starter switch unit	
	Maintenance item	Measure continuity between switch connector (AP2A) terminals No. 1 and No. 2.	
	Inspection condition	Starter switch: ON	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Replacement of switch	

TROUBLESHOOTING

<Step 7 inspection diagram>



Step 8	Inspection items	Inspection of harness between battery and electronic control unit (power supply)		
	Maintenance item	Check circuit between battery terminal (+) and electronic control unit connector (CY24A) terminal No. 3, 4.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity (Fuse (M06) not blown).		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 9.	
		NO	Modify harness.	

Step 9	Inspection items	Inspection of harness between battery and electronic control unit (ground)		
	Maintenance item	Check circuit between battery terminal (-) and electronic control unit connector (CY24A) terminal No. 8, 17.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 10.	
		NO	Modify harness.	

Step 10	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY24A) terminal No. 3, 4 (+) and 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 11 "IG" of Service Data.</p>		
	Inspection condition	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • Measure from back side of harness connector with harness left connected • Engine stopped <p><Multi-Use Tester used> Starter switch: ON</p>		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • Starter switch ON: 12 V • Starter switch OFF: 0 V <p><Multi-Use Tester used> 12 V (equivalent to battery voltage)</p>		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Replacement of electronic control unit	

[Fault code]

Diagnosis code: P0604/Flash code: 91

[Monitor ID]

74

[Fault (outline)]

Failure of electronic control unit

[Diagnosis check]

- Write device (RAM) in electronic control unit is monitored for fault.

[Code generation condition]

- RAM in electronic control unit malfunctions.

[Diagnosis check timing]

- Fault diagnosis is performed once when the electronic control unit is powered on.

[Diagnostic requirement]

- Performed once when electronic control unit is powered up.

[Control effected by electronic control unit during fault]

- All solenoids are turned OFF and control is effected at fixed speed gear output (3rd or 5th) corresponding to vehicle speed.

[Probable cause of trouble]

- Malfunction of electronic control unit (replacement of electronic control unit)

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Clear memory, resume power supply to electronic control unit and check for recurrence of the same diagnosis code.		
	Maintenance item	-		
	Inspection condition	-		
	Requirements	No recurrence detected		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0605/Flash code: 92

[Monitor ID]

75

[Fault (outline)]

Failure of electronic control unit

[Diagnosis check]

- Write device (RAM) in electronic control unit is monitored for fault.

[Code generation condition]

- FlashROM in electronic control unit malfunctions.

[Diagnosis check timing]

- Fault diagnosis is performed once when the electronic control unit is powered on.

[Diagnostic requirement]

- Performed once when electronic control unit is powered up.

[Control effected by electronic control unit during fault]

- All solenoids are turned OFF and control is effected at fixed speed gear output (3rd or 5th) corresponding to vehicle speed.

[Probable cause of trouble]

- Malfunction of electronic control unit (replacement of electronic control unit)

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Clear memory, resume power supply to electronic control unit and check for recurrence of the same diagnosis code.		
	Maintenance item	-		
	Inspection condition	-		
	Requirements	No recurrence detected		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Replacement of electronic control unit	

[Fault code]

Diagnosis code: P062F/Flash code: 93

[Monitor ID]

76

[Fault (outline)]

Failure of electronic control unit

[Diagnosis check]

- Write device (RAM) in electronic control unit is monitored for fault.

[Code generation condition]

- EEPROM in electronic control unit malfunctions.

[Diagnosis check timing]

- Fault diagnosis is performed once when the electronic control unit is powered on.

[Diagnostic requirement]

- Performed once when electronic control unit is powered up.

[Control effected by electronic control unit during fault]

- Effects no special control.

[Probable cause of trouble]

- Malfunction of electronic control unit (replacement of electronic control unit)

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items		Clear memory, resume power supply to electronic control unit and check for recurrence of the same diagnosis code.
	Maintenance item		–
	Inspection condition		–
	Requirements		No recurrence detected
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0702/Flash code: 11

[Monitor ID]

73

[Fault (outline)]

Open-circuit of battery power supply

[Diagnosis check]

- When starter switch is turned OFF to ON, electronic control unit determines whether there was abnormality in power supply at last engine start by means of its internal write device (EEPROM).

[Code generation condition]

- Presence of abnormality at last engine start has been written in EEPROM.

[Diagnosis check timing]

- Fault diagnosis is performed once when the electronic control unit is powered on.

[Diagnostic requirement]

- Performed once when electronic control unit is powered up.

[Control effected by electronic control unit during fault]

- No control is effected in particular.

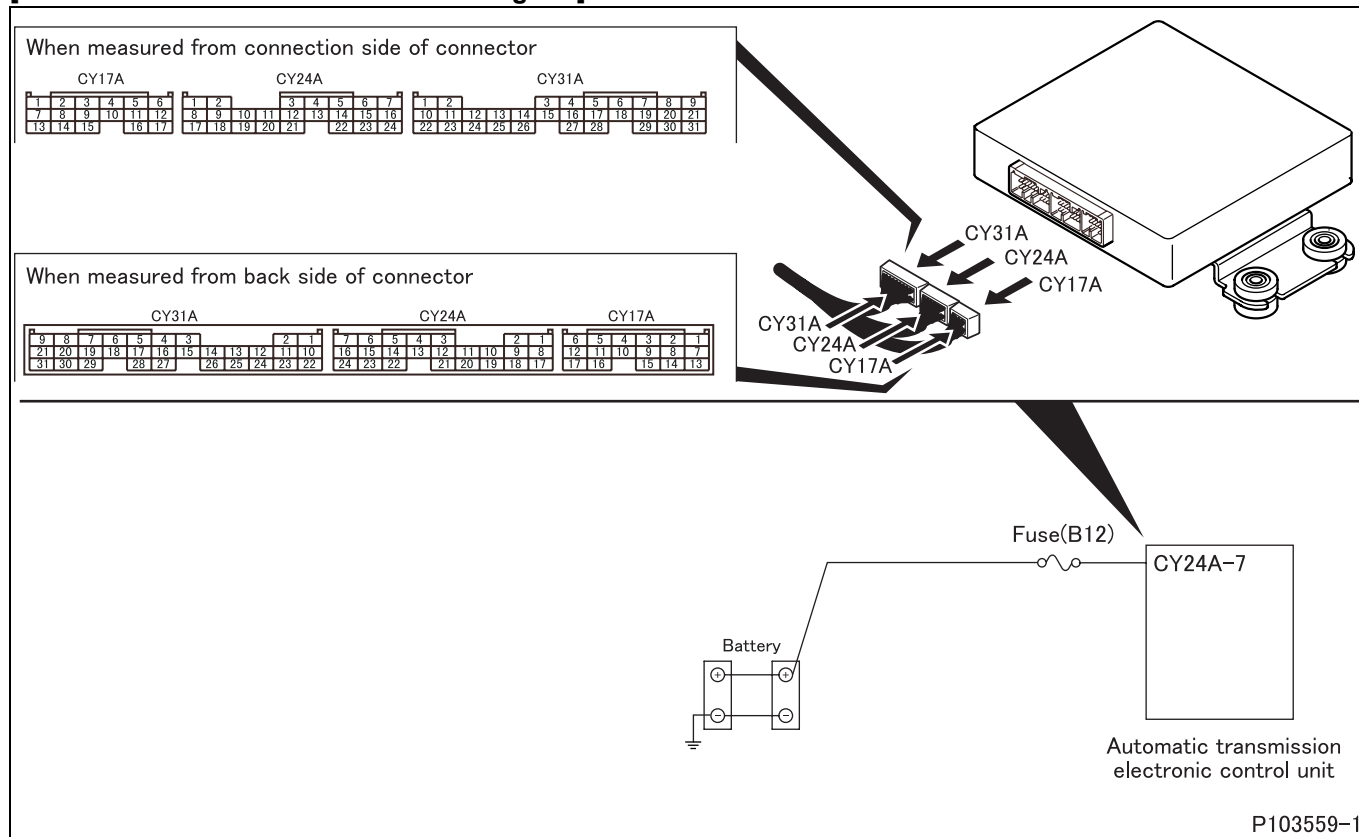
[Probable cause of trouble]

- Open-circuit of battery harness
- Malfunction of each connector
- Malfunction of electronic control unit

[Recoverability]

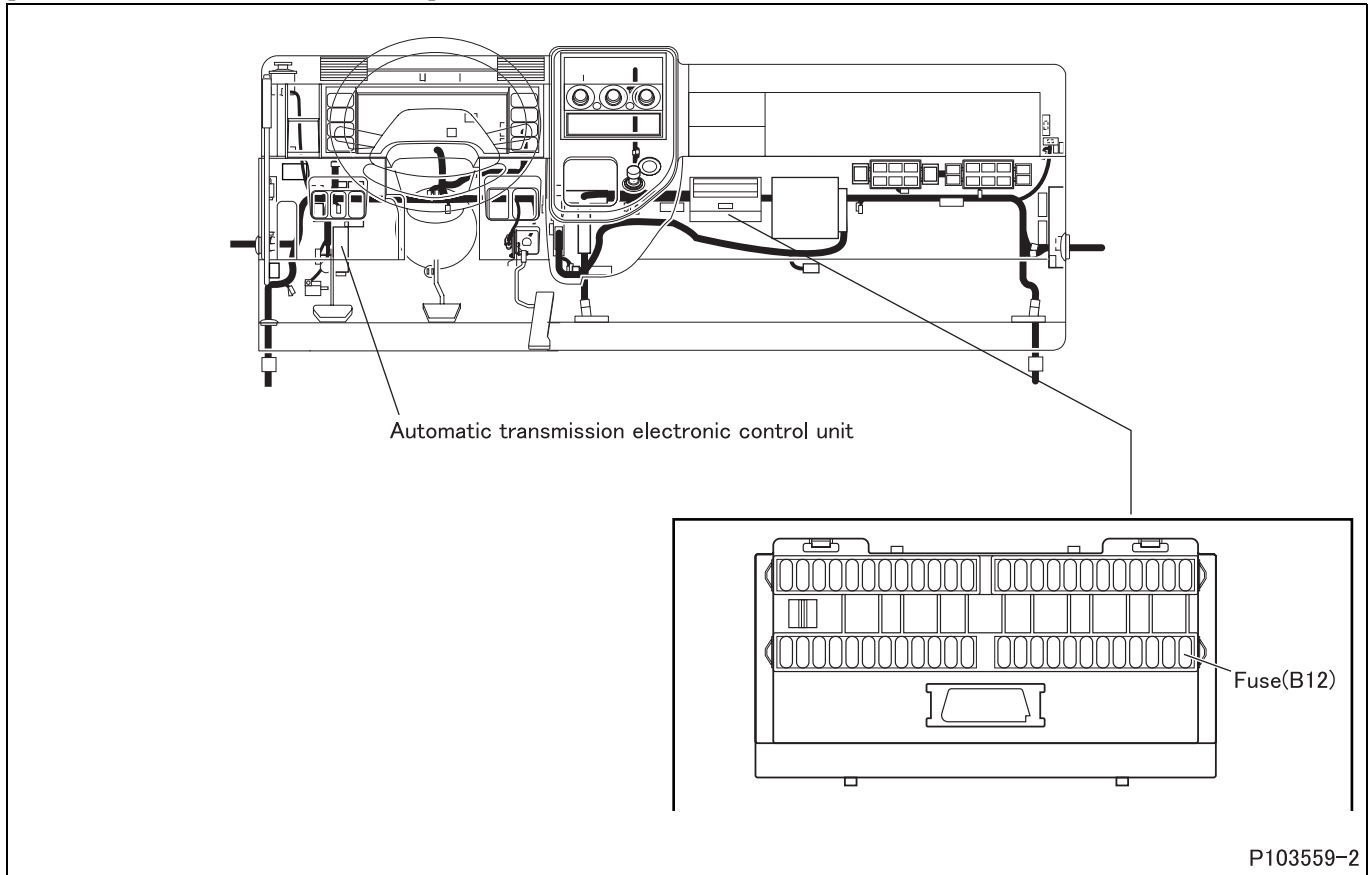
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



P103559-1

[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by electronic control unit connector (power supply)	
	Maintenance item	Measure value of voltage between connector (CY24A) terminal No. 7 (+) and 8 (-).	
	Inspection condition	<ul style="list-style-type: none"> • Measure from back side of harness connector with harness left connected • Engine stopped 	
	Requirements	12 V	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 2.
	NO	Go to step 3.	

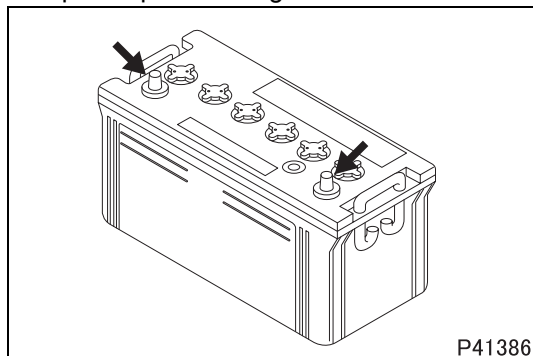
Step 2	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Replacement of electronic control unit
	NO	Modify connector.	

TROUBLESHOOTING

Step 3	Inspection items		Inspection of battery terminal
	Maintenance item		Inspection of battery terminal
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> • Connector is properly connected. • No corrosion is found in terminal. • Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 4	Inspection items		Inspection of battery
	Maintenance item		Measure battery terminal voltage.
	Inspection condition		Engine stopped
	Requirements		Approx. 12 V
	Inspection result (Is the judging standard satisfied?)		YES NO

<Step 4 inspection diagram>



Step 5	Inspection items		Inspection of harness between battery and electronic control unit (power supply)
	Maintenance item		Check circuit between battery terminal (+) and electronic control unit connector (CY24A) terminal No. 7.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity (Fuse (B12) not blown).
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 6	Inspection items		Inspection of harness between battery and electronic control unit (ground)
	Maintenance item		Check circuit between battery terminal (–) and electronic control unit connector (CY24A) terminal No. 8, 17.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 7	Inspection items		Inspection by electronic control unit connector (power supply)			
	Maintenance item		Measure value of voltage between connector (CY24A) terminal No. 7 (+) and 8 (-).			
	Inspection condition		<ul style="list-style-type: none"> • Measure from back side of harness connector with harness left connected • Engine stopped 			
	Requirements		12 V			
	Inspection result (Is the judging standard satisfied?)		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50px;">YES</td> <td>Go to transient fault (See Gr00.).</td> </tr> <tr> <td>NO</td> <td>Replacement of electronic control unit</td> </tr> </table>	YES	Go to transient fault (See Gr00.).	NO
YES	Go to transient fault (See Gr00.).					
NO	Replacement of electronic control unit					

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0706/Flash code: 49

[Monitor ID]

49, 50

[Fault (outline)]

Failure of oil pressure switch 8

[Diagnosis check]

- ON/OFF status of oil pressure switch 8 at range shifts is monitored.

[Code generation condition]

- Oil pressure switch 8 remains OFF for 7 seconds for 3 times in 1 TRIP when range is shifted to D, 3 or 2. (Open-circuit) <A>
- Oil pressure switch 8 remains ON for 0.5 second when range is shifted to P, R or N. (Short-circuit)

[Diagnosis check timing]

- Fault diagnosis is performed once at the minimum during the driving cycle.

[Diagnostic requirement]

- Starter switch: ON <A>
- Engine revolution: above 550 rpm (not less than 0.1 sec.) <A>
- Continuous

[Control effected by electronic control unit during fault]

- Control is effected on fixed speed gear output (3rd).

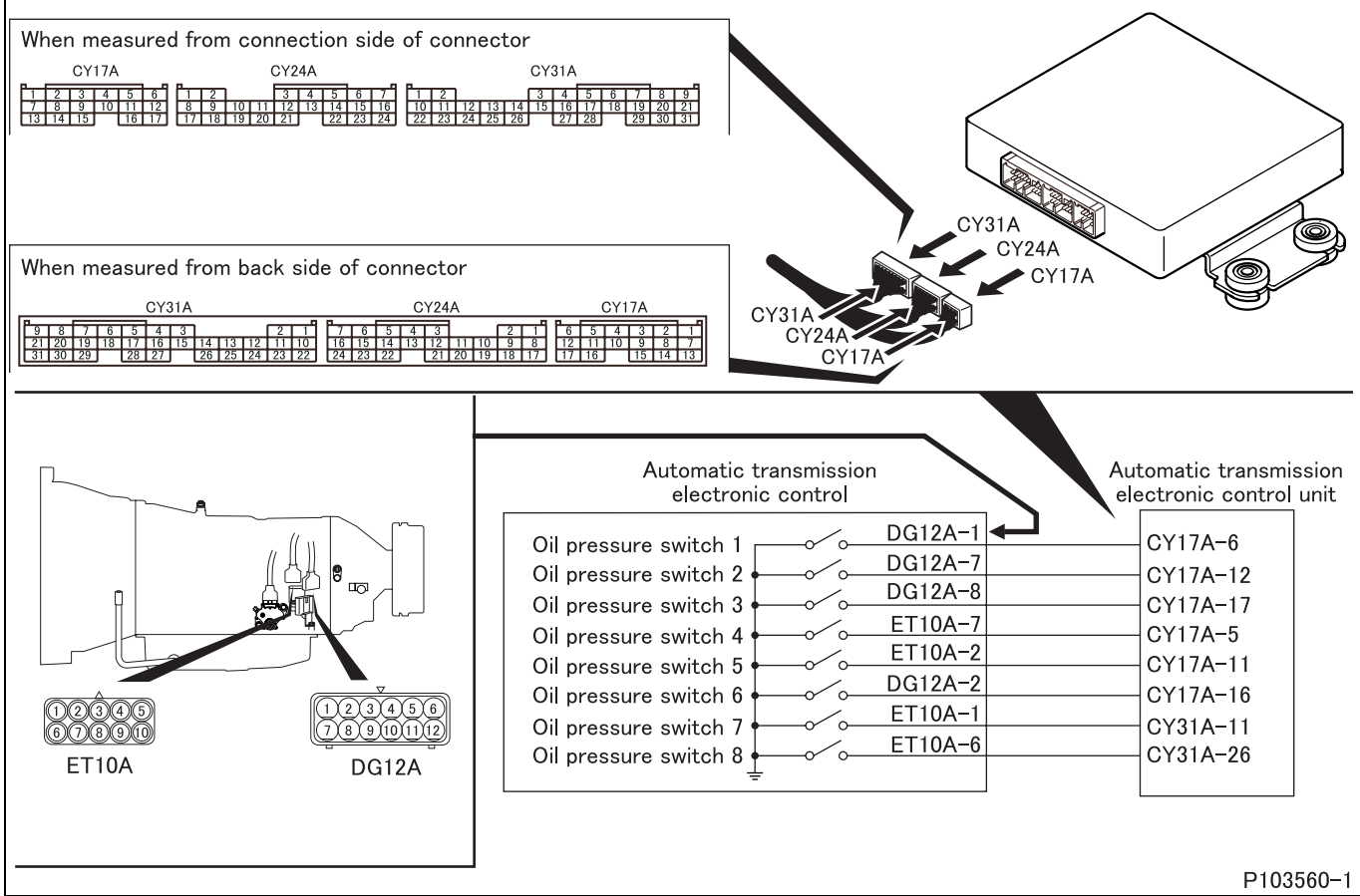
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 8
- Malfunction of each connector
- Malfunction of oil pressure switch 8
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

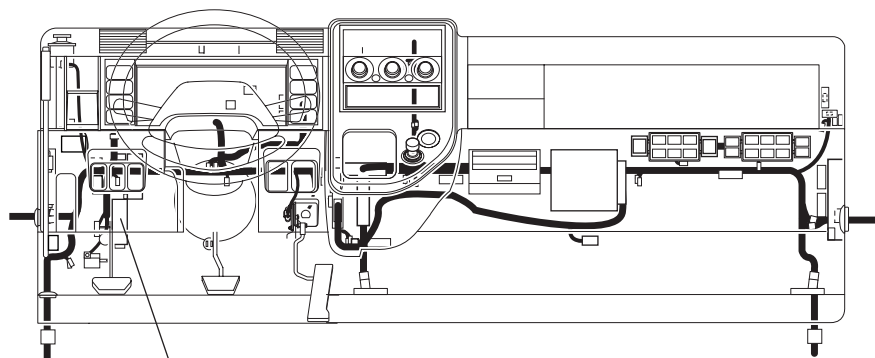
[Electronic Control Unit Connection Diagram]



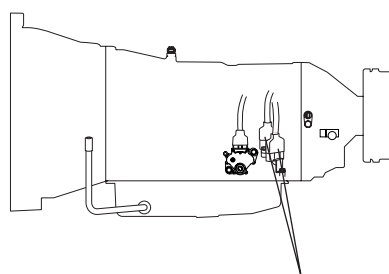
P103560-1

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside),
shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data	
Step 1	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY31A) terminal No. 26 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 68 "Oil Press SW8" of Service Data.</p>	
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • D range: 0 V • P, R, N range: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • D range: ON • P, R, N range: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
		NO	Go to step 2.

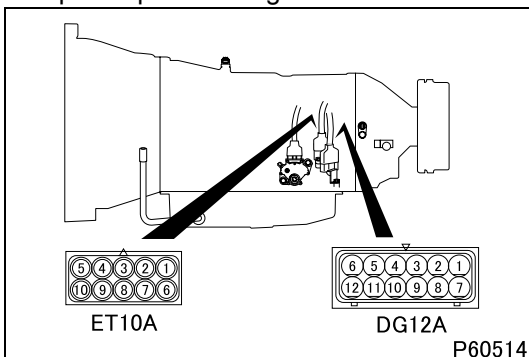
Step 2	Inspection items		Inspection by electronic control unit connector (signal)
	Maintenance item		Measure continuity between connector (CY31A) terminal No. 26 and chassis ground.
	Inspection condition		<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF
	Requirements		There is no continuity.
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 3	Inspection items		Inspection of electronic control unit connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 4	Inspection items		Inspection of switch connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 5	Inspection items		Inspection of switch unit
	Maintenance item		Check continuity between connector (ET10A) terminal No. 6 and automatic transmission case.
	Inspection condition		<ul style="list-style-type: none"> • Disconnect connector and measure switch side. • Starter switch: OFF
	Requirements		There is no continuity.
	Inspection result (Is the judging standard satisfied?)		YES NO

<Step 5 inspection diagram>



TROUBLESHOOTING

Step 6	Inspection items	Inspection of harness between switch and electronic control unit (signal)	
	Maintenance item	Check circuit between connector (ET10A) terminal No. 6 and electronic control unit connector (CY31A) terminal No. 26	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

Step 7	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY31A) terminal No. 26 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 68 "Oil Press SW8" of Service Data.</p>	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • D range: 0 V • P, R, N range: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • D range: ON • P, R, N range: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Replacement of electronic control unit	

[Fault code]

Diagnosis code: P0707/Flash code: 43

[Monitor ID]

19

[Fault (outline)]

Failure of inhibitor switch

[Diagnosis check]

- Inhibitor switch output is monitored under conditions below for open-circuit.
- Condition (1): Oil pressure switch 8 in OFF position.
- Condition (2): When range shifted

[Code generation condition]

- With oil pressure switch 8 in OFF position, all P, R and N output signals are not input from inhibitor switch for 2 consecutive seconds. <A>
- All P, R and N output signals are not input from inhibitor switch for 30 consecutive seconds.
- Either R or N output signal is not input from inhibitor switch. <C>

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Starter switch: ON

[Control effected by electronic control unit during fault]

- Control is effected on fixed speed gear output (3rd). <A, C>
- No control is effected in particular.

[Probable cause of trouble]

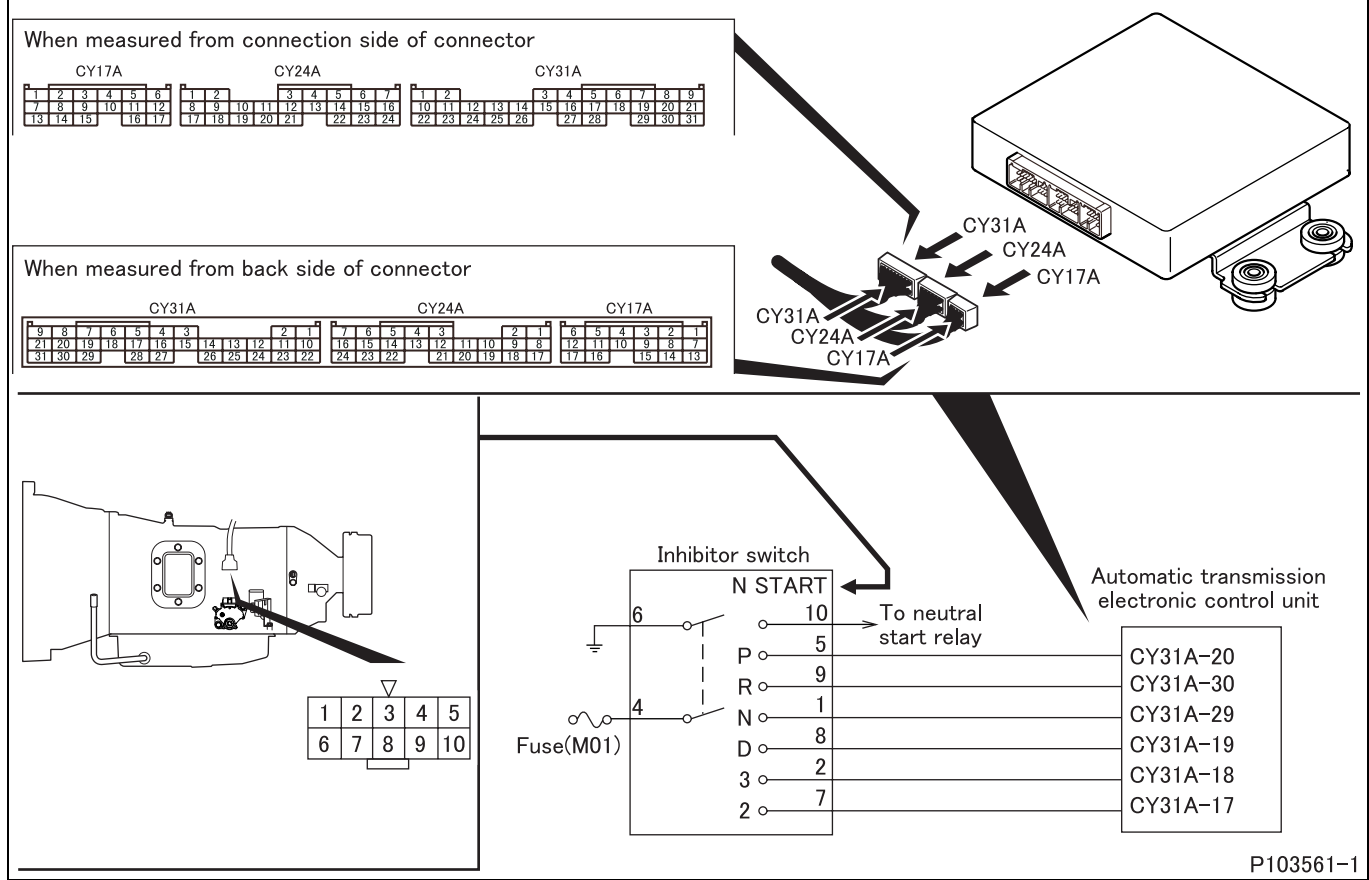
- Open-circuit or short-circuit of harness between electronic control unit and inhibitor switch
- Malfunction of each connector
- Malfunction of inhibitor switch
- Maladjustment of selector cable
- Malfunction of electronic control unit

[Recoverability]

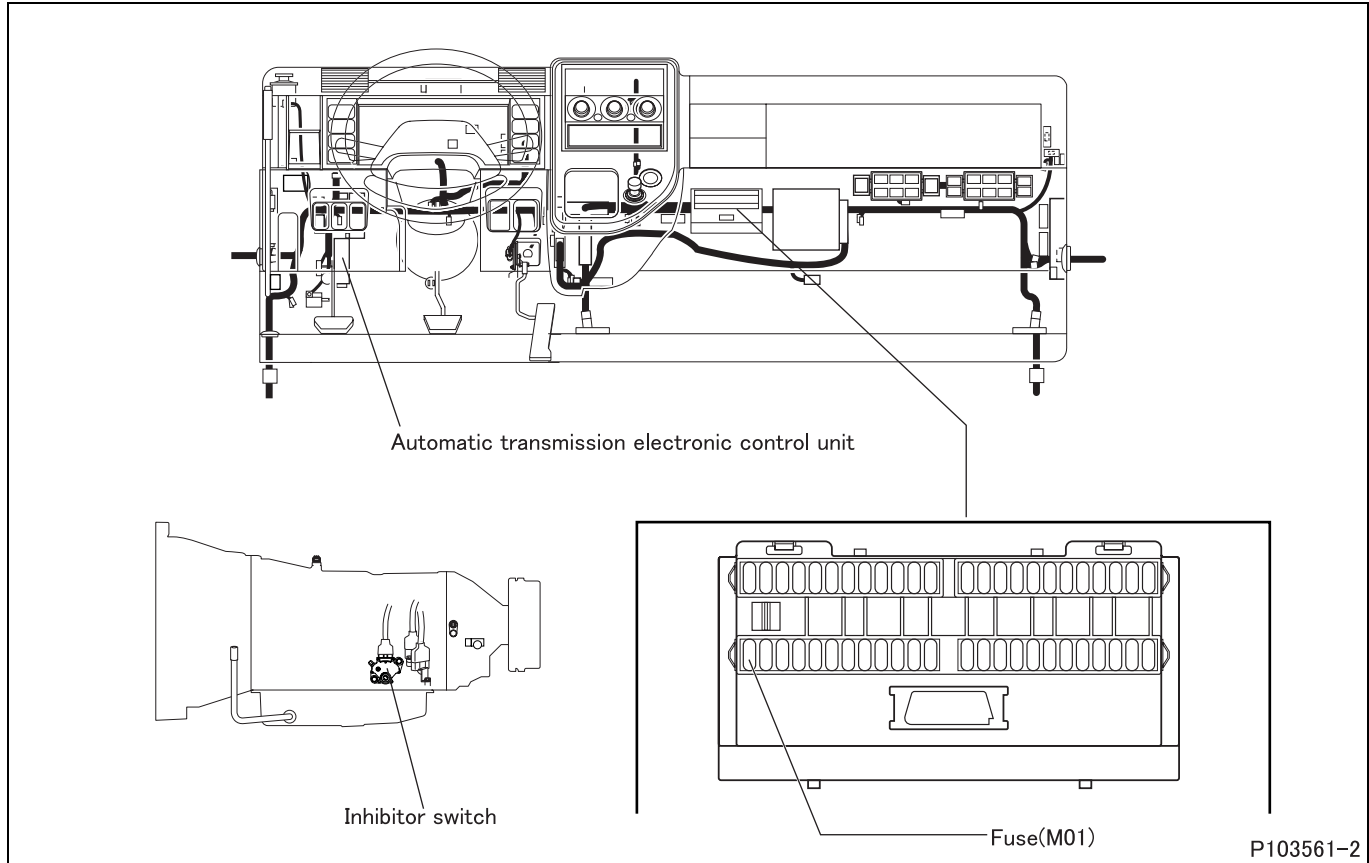
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit). <A>
- Recovered if signal becomes normal with starter switch in ON position. <B, C>

TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 19 "P Pos.SW", No. 20 "R Pos.SW", No. 21 "N Pos.SW", No. 22 "D Pos.SW", No. 24 "3 Pos.SW", No. 55 "Selector Pos.", No. 78 "2 Pos.SW" of Service Data.	
	Inspection condition	-	
	Requirements	Synchronous with shift of range selector lever position.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
		NO	Go to step 2.

Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	<Range selector in P position> Measure value of voltage between connector (CY31A) terminal No. 20 (+) and (CY24A) terminal No. 8 (-). <Range selector in R position> Measure value of voltage between connector (CY31A) terminal No. 30 (+) and (CY24A) terminal No. 8 (-). <Range selector in N position> Measure value of voltage between connector (CY31A) terminal No. 29 (+) and (CY24A) terminal No. 8 (-). <Range selector in D position> Measure value of voltage between connector (CY31A) terminal No. 19 (+) and (CY24A) terminal No. 8 (-). <Range selector in 3rd position> Measure value of voltage between connector (CY31A) terminal No. 18 (+) and (CY24A) terminal No. 8 (-). <Range selector in 2nd position> Measure value of voltage between connector (CY31A) terminal No. 17 (+) and (CY24A) terminal No. 8 (-).	
	Inspection condition	<ul style="list-style-type: none"> • Measure from back side of harness connector with harness left connected • Starter switch: ON • Check with range selector in each position. 	
	Requirements	12 V	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
		NO	Go to step 4.

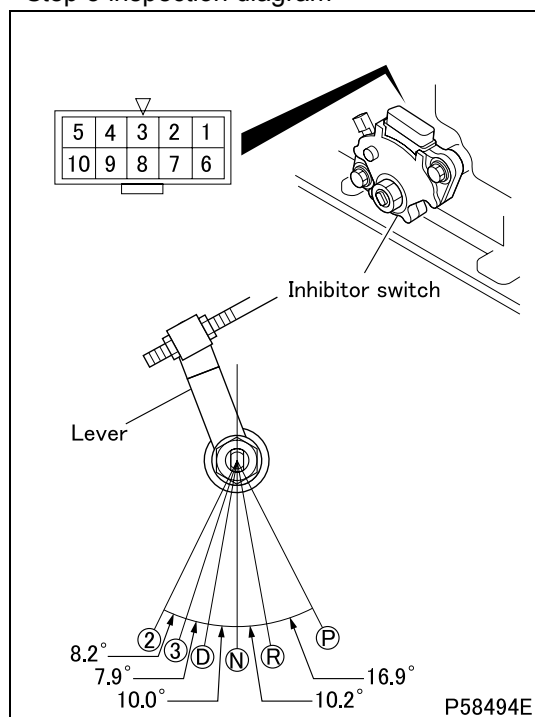
Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Replacement of electronic control unit
		NO	Modify connector.

Step 4	Inspection items	Inspection of inhibitor switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
		NO	Modify connector.

TROUBLESHOOTING

Step 5	Inspection items		Inspection of inhibitor switch unit
	Maintenance item		<p><P></p> <ul style="list-style-type: none"> • Measure continuity between terminals No. 4 and No. 5 and between terminals No. 6 and No. 10. <p><R></p> <ul style="list-style-type: none"> • Measure continuity between terminals No. 4 and No. 9. <p><N></p> <ul style="list-style-type: none"> • Measure continuity between terminals No. 1 and No. 4 and between terminals No. 6 and No. 10. <p><D></p> <ul style="list-style-type: none"> • Measure continuity between terminals No. 4 and No. 8. <p><3></p> <ul style="list-style-type: none"> • Measure continuity between terminals No. 2 and No. 4. <p><2></p> <ul style="list-style-type: none"> • Measure continuity between terminals No. 4 and No. 7.
	Inspection condition		<ul style="list-style-type: none"> • Keep switch installed on vehicle. • Shift range selector lever from one range position to another and measure continuity each time. • Starter switch: ON
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)		<p>YES</p> <p>NO</p>
		Go to step 6.	
		Replacement of switch	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between inhibitor switch and electronic control unit (signal)	
	Maintenance item	<p><P></p> <ul style="list-style-type: none"> • Check circuit between switch connector terminal No. 5 and electronic control unit connector (CY31A) terminal No. 20 <p><R></p> <ul style="list-style-type: none"> • Check circuit between switch connector terminal No. 9 and electronic control unit connector (CY31A) terminal No. 30 <p><N></p> <ul style="list-style-type: none"> • Check circuit between switch connector terminal No. 1 and electronic control unit connector (CY31A) terminal No. 29 <p><D></p> <ul style="list-style-type: none"> • Check circuit between switch connector terminal No. 8 and electronic control unit connector (CY31A) terminal No. 19 <p><3></p> <ul style="list-style-type: none"> • Check circuit between switch connector terminal No. 2 and electronic control unit connector (CY31A) terminal No. 18 <p><2></p> <ul style="list-style-type: none"> • Check circuit between switch connector terminal No. 7 and electronic control unit connector (CY31A) terminal No. 17 	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify harness.	

Step 7	Inspection items	Inspection of harness between inhibitor switch and fuse (power supply)	
	Maintenance item	Check circuit between switch connector terminal No. 4 and fuse (M01)	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
	NO	Modify harness.	

TROUBLESHOOTING

	Inspection items	Inspection by control data
Step 8	Maintenance item	<p><Multi-Use Tester not used> <Range selector in P position> Measure value of voltage between connector (CY31A) terminal No. 20 (+) and (CY24A) terminal No. 8 (-). <Range selector in R position> Measure value of voltage between connector (CY31A) terminal No. 30 (+) and (CY24A) terminal No. 8 (-). <Range selector in N position> Measure value of voltage between connector (CY31A) terminal No. 29 (+) and (CY24A) terminal No. 8 (-). <Range selector in D position> Measure value of voltage between connector (CY31A) terminal No. 19 (+) and (CY24A) terminal No. 8 (-). <Range selector in 3rd position> Measure value of voltage between connector (CY31A) terminal No. 18 (+) and (CY24A) terminal No. 8 (-). <Range selector in 2nd position> Measure value of voltage between connector (CY31A) terminal No. 17 (+) and (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 19 "P Pos.SW", No. 20 "R Pos.SW", No. 21 "N Pos.SW", No. 22 "D Pos.SW", No. 24 "3 Pos.SW", No. 55 "Selector Pos.", No. 78 "2 Pos.SW" of Service Data.</p>
	Inspection condition	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • Measure from back side of harness connector with harness left connected • Starter switch: ON • Check with range selector in each position.
	Requirements	<p><Multi-Use Tester not used> 12 V</p> <p><Multi-Use Tester used> Synchronous with shift of range selector lever position.</p>
	Inspection result (Is the judging standard satisfied?)	YES
NO		Check selector cables for incorrectly adjusted condition and adjust the cable if it is defective. If the fault is still not removed, replace the electronic control unit.

[Fault code]

Diagnosis code: P0708/Flash code: 43

[Monitor ID]

20

[Fault (outline)]

Failure of inhibitor switch

[Diagnosis check]

- Inhibitor switch output signal is monitored.

[Code generation condition]

- Two or more of inhibitor switch output signals P, R, N, D, 3 and 2 are continuously input for 0.5 second.

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Starter switch: ON

[Control effected by electronic control unit during fault]

- Control is effected on fixed speed gear output (3rd).

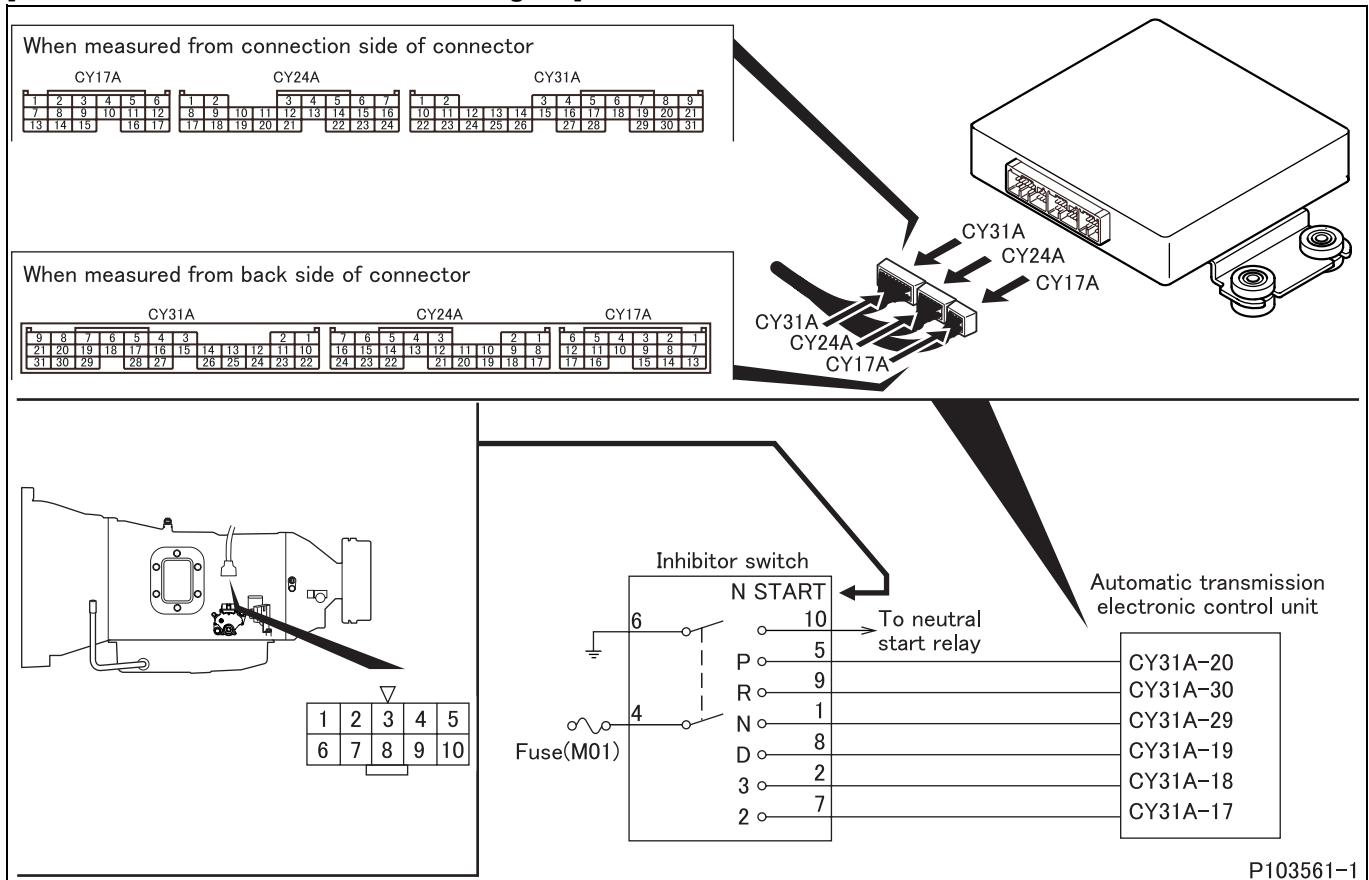
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and inhibitor switch
- Malfunction of each connector
- Malfunction of inhibitor switch
- Malfunction of electronic control unit

[Recoverability]

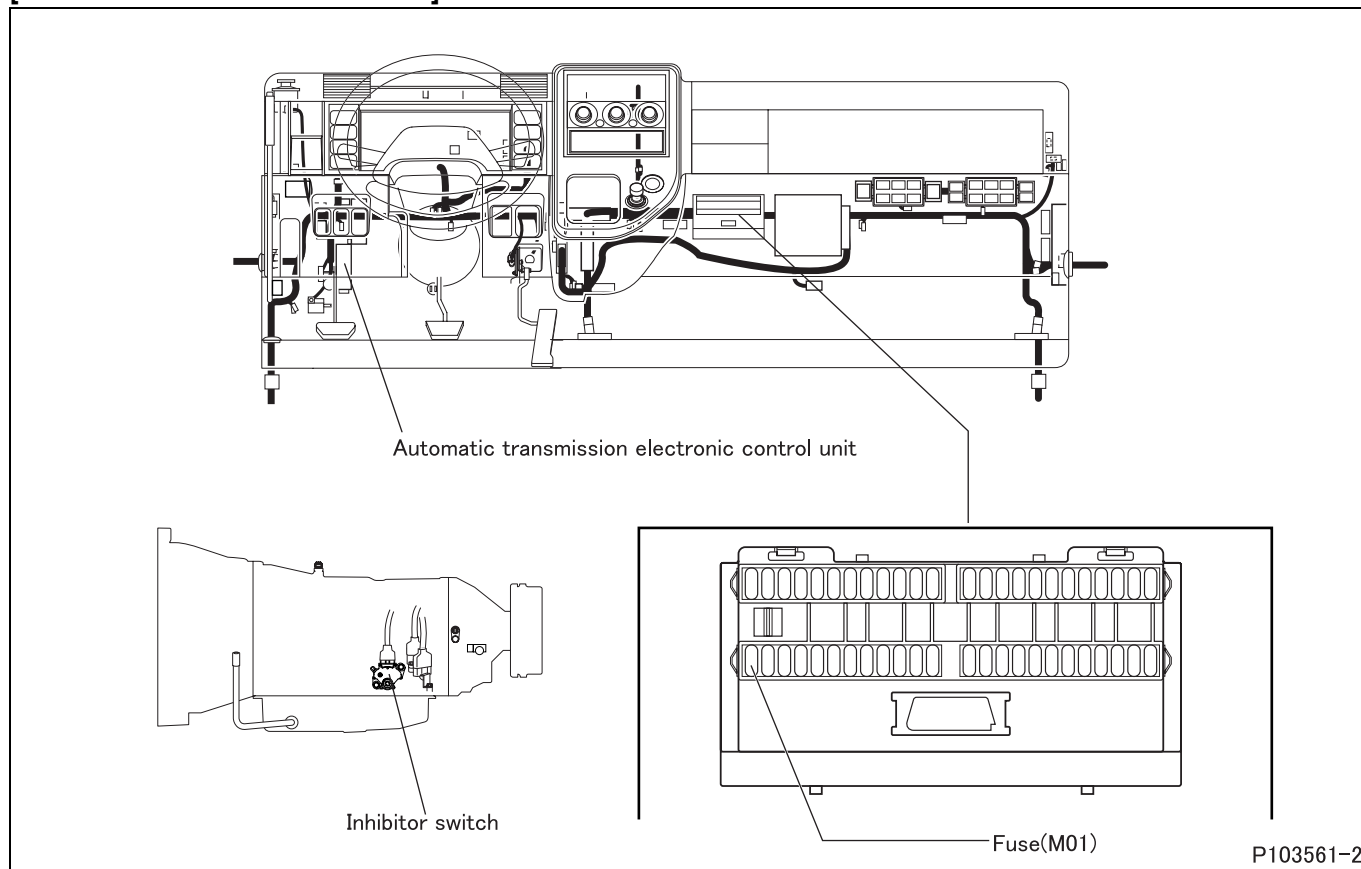
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



TROUBLESHOOTING

[Parts Identification and Location]



P103561-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data	
Step 1	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 19 "P Pos.SW", No. 20 "R Pos.SW", No. 21 "N Pos.SW", No. 22 "D Pos.SW", No. 24 "3 Pos.SW", No. 55 "Selector Pos.", No. 78 "2 Pos.SW" of Service Data.	
	Inspection condition	–	
	Requirements	Synchronous with shift of range selector lever position.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
		NO	Go to step 2.

Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	<p><Range selector in P position> Measure value of voltage between connector (CY31A) terminal No. 20 (+) and (CY24A) terminal No. 8 (-).</p> <p><Range selector in R position> Measure value of voltage between connector (CY31A) terminal No. 30 (+) and (CY24A) terminal No. 8 (-).</p> <p><Range selector in N position> Measure value of voltage between connector (CY31A) terminal No. 29 (+) and (CY24A) terminal No. 8 (-).</p> <p><Range selector in D position> Measure value of voltage between connector (CY31A) terminal No. 19 (+) and (CY24A) terminal No. 8 (-).</p> <p><Range selector in 3rd position> Measure value of voltage between connector (CY31A) terminal No. 18 (+) and (CY24A) terminal No. 8 (-).</p> <p><Range selector in 2nd position> Measure value of voltage between connector (CY31A) terminal No. 17 (+) and (CY24A) terminal No. 8 (-).</p>	
	Inspection condition	<ul style="list-style-type: none"> • Measure from back side of harness connector with harness left connected • Starter switch: ON • Check with range selector in each position. 	
	Requirements	12 V	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

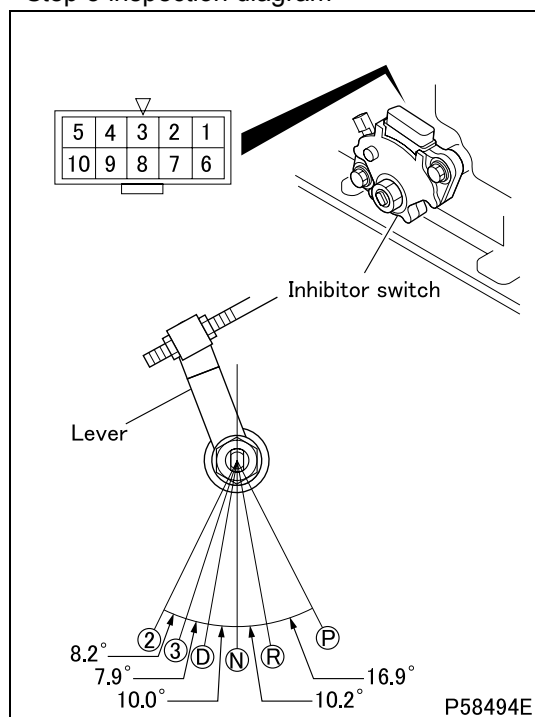
Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Replacement of electronic control unit
	NO	Modify connector.	

Step 4	Inspection items	Inspection of inhibitor switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

TROUBLESHOOTING

Step 5	Inspection items		Inspection of inhibitor switch unit
	Maintenance item		<p><P></p> <ul style="list-style-type: none"> • Measure continuity between terminals No. 4 and No. 5 and between terminals No. 6 and No. 10. <p><R></p> <ul style="list-style-type: none"> • Measure continuity between terminals No. 4 and No. 9. <p><N></p> <ul style="list-style-type: none"> • Measure continuity between terminals No. 1 and No. 4 and between terminals No. 6 and No. 10. <p><D></p> <ul style="list-style-type: none"> • Measure continuity between terminals No. 4 and No. 8. <p><3></p> <ul style="list-style-type: none"> • Measure continuity between terminals No. 2 and No. 4. <p><2></p> <ul style="list-style-type: none"> • Measure continuity between terminals No. 4 and No. 7.
	Inspection condition		<ul style="list-style-type: none"> • Keep switch installed on vehicle. • Shift range selector lever from one range position to another and measure continuity each time. • Starter switch: ON
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)		<p>YES</p> <p>NO</p>
		Go to step 6.	
		Replacement of switch	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between inhibitor switch and electronic control unit (signal)	
	Maintenance item	<p><P></p> <ul style="list-style-type: none"> • Check circuit between switch connector terminal No. 5 and electronic control unit connector (CY31A) terminal No. 20 <p><R></p> <ul style="list-style-type: none"> • Check circuit between switch connector terminal No. 9 and electronic control unit connector (CY31A) terminal No. 30 <p><N></p> <ul style="list-style-type: none"> • Check circuit between switch connector terminal No. 1 and electronic control unit connector (CY31A) terminal No. 29 <p><D></p> <ul style="list-style-type: none"> • Check circuit between switch connector terminal No. 8 and electronic control unit connector (CY31A) terminal No. 19 <p><3></p> <ul style="list-style-type: none"> • Check circuit between switch connector terminal No. 2 and electronic control unit connector (CY31A) terminal No. 18 <p><2></p> <ul style="list-style-type: none"> • Check circuit between switch connector terminal No. 7 and electronic control unit connector (CY31A) terminal No. 17 	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify harness.	

Step 7	Inspection items	Inspection of harness between inhibitor switch and fuse (power supply)	
	Maintenance item	Check circuit between switch connector terminal No. 4 and fuse (M01)	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
	NO	Modify harness.	

TROUBLESHOOTING

	Inspection items	Inspection by control data
Step 8	Maintenance item	<p><Multi-Use Tester not used> <Range selector in P position> Measure value of voltage between connector (CY31A) terminal No. 20 (+) and (CY24A) terminal No. 8 (-). <Range selector in R position> Measure value of voltage between connector (CY31A) terminal No. 30 (+) and (CY24A) terminal No. 8 (-). <Range selector in N position> Measure value of voltage between connector (CY31A) terminal No. 29 (+) and (CY24A) terminal No. 8 (-). <Range selector in D position> Measure value of voltage between connector (CY31A) terminal No. 19 (+) and (CY24A) terminal No. 8 (-). <Range selector in 3rd position> Measure value of voltage between connector (CY31A) terminal No. 18 (+) and (CY24A) terminal No. 8 (-). <Range selector in 2nd position> Measure value of voltage between connector (CY31A) terminal No. 17 (+) and (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 19 "P Pos.SW", No. 20 "R Pos.SW", No. 21 "N Pos.SW", No. 22 "D Pos.SW", No. 24 "3 Pos.SW", No. 55 "Selector Pos.", No. 78 "2 Pos.SW" of Service Data.</p>
	Inspection condition	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • Measure from back side of harness connector with harness left connected • Starter switch: ON • Check with range selector in each position.
	Requirements	<p><Multi-Use Tester not used> 12 V</p> <p><Multi-Use Tester used> Synchronous with shift of range selector lever position.</p>
	Inspection result (Is the judging standard satisfied?)	YES
	NO	Replacement of electronic control unit

[Fault code]

Diagnosis code: P0711/Flash code: 13

[Monitor ID]

13, 14

[Fault (outline)]

Failure of oil temperature sensor (inside)

[Diagnosis check]

- Automatic transmission fluid temperature immediately after starter switch is turned ON is monitored. <A>
- Automatic transmission fluid temperature during engine warm-up is monitored.

[Code generation condition]

- Detected temperature of oil temperature sensor (inside) is less than -10°C $\{14^{\circ}\text{F}\}$ even after specified time of vehicle run. <A>
- Detected temperature of oil temperature sensor (inside) does not change by any more than 2°C $\{36^{\circ}\text{F}\}$.

[Diagnosis check timing]

- Fault diagnosis is performed once at the minimum during the driving cycle.

[Diagnostic requirement]

- Automatic transmission fluid temperature 1 sec. after the starter switch is turned from ON position: -50°C $\{-56^{\circ}\text{F}\}$ to -10°C $\{14^{\circ}\text{F}\}$ <A>
- Engine coolant temperature 1 sec. after the starter switch is turned from ON position: 70°C $\{160^{\circ}\text{F}\}$ or more
- Temperature change in the engine coolant after the starter switch is turned to ON position: above 50°C $\{120^{\circ}\text{F}\}$
- Automatic transmission fluid temperature 1 sec. after the starter switch is turned from ON position: -50°C $\{-56^{\circ}\text{F}\}$ to 40°C $\{105^{\circ}\text{F}\}$
- Starter switch ON battery voltage: 10 V to 16 V
- Controller area network: Normal
- Elapsed time when the engine speed calculated from the output speed sensor signals exceeds 300 rpm: above 410 sec.

[Control effected by electronic control unit during fault]

- Control is effected on basis of low oil temperature (-30°C $\{-24^{\circ}\text{F}\}$) immediately after starter switch is turned ON and normal oil temperature (80°C $\{175^{\circ}\text{F}\}$) 5 minutes later.
- Braking force control is inhibited.

[Probable cause of trouble]

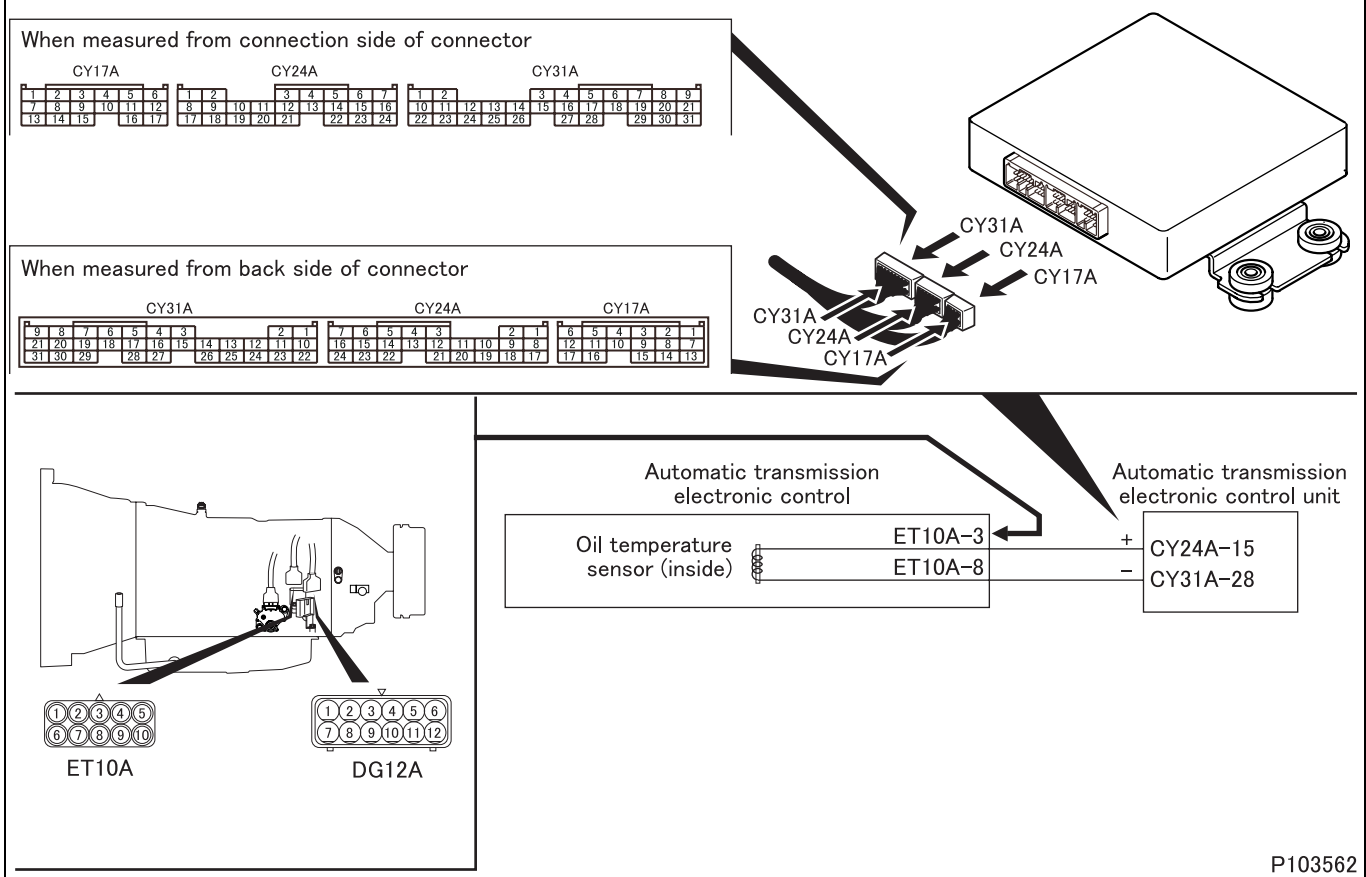
- Open-circuit or short-circuit of harness between electronic control unit and oil temperature sensor (inside)
- Malfunction of each connector
- Malfunction of oil temperature sensor (inside)
- Malfunction of electronic control unit

[Recoverability]

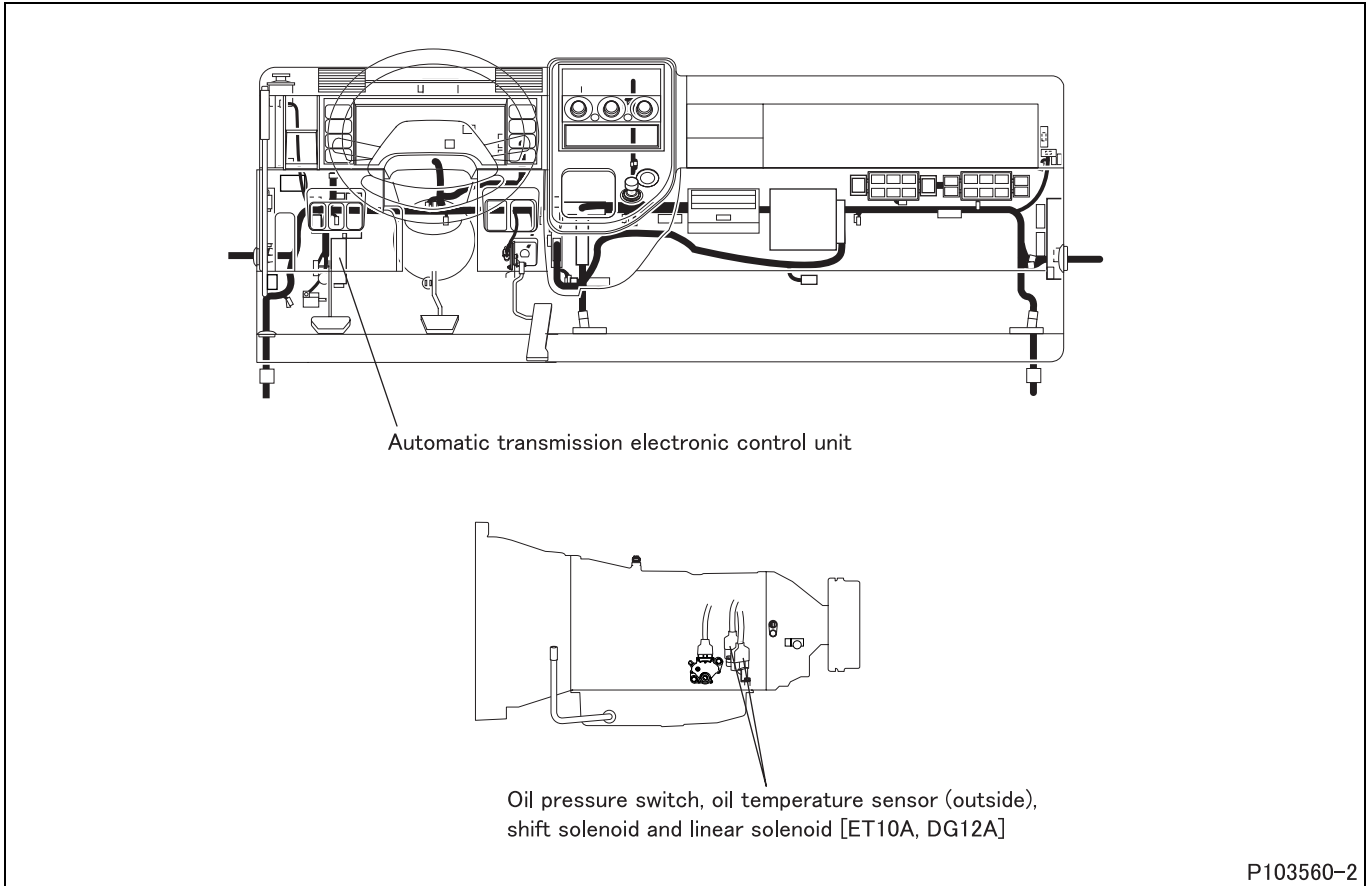
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of resistance between electronic control unit connector (CY24A) terminal No. 15 and connector (CY31A) terminal No. 28. <Multi-Use Tester used> Measure item No. 13 "A/T Oil Temp (OP)" of Service Data.	
	Inspection condition	<Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> Cold engine → during warm-up: Resistance is gradually reduced. <Multi-Use Tester used> <ul style="list-style-type: none"> • Cold engine: Proportionate to outside air temperature • During warm-up: Gradually increased. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY24A) terminal No. 15 and connector (CY31A) terminal No. 28.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	<ul style="list-style-type: none"> • -30°C $\{-22^{\circ}\text{F}\}$: $44 \pm 6.6 \text{ k}\Omega$ • 10°C $\{50^{\circ}\text{F}\}$: $6445 \pm 645 \Omega$ • 110°C $\{230^{\circ}\text{F}\}$: $247 \pm 16 \Omega$ • 145°C $\{295^{\circ}\text{F}\}$: $111 \pm 6 \Omega$ 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

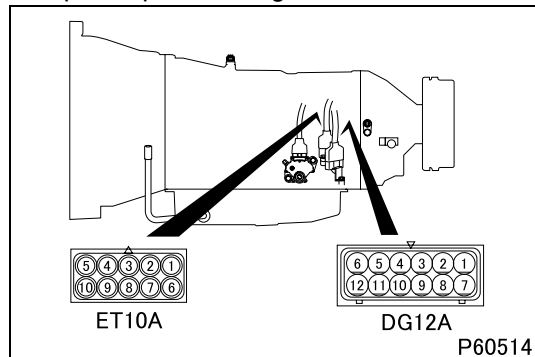
Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Replacement of electronic control unit
	NO	Modify connector.	

Step 4	Inspection items	Inspection of sensor connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

TROUBLESHOOTING

Step 5	Inspection items		Inspection of sensor unit
	Maintenance item		Measure value of resistance between connector (ET10A) terminal No. 3 and 8.
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> • -30°C $\{-22^{\circ}\text{F}\}$: $44 \pm 6.6 \text{ k}\Omega$ • 10°C $\{50^{\circ}\text{F}\}$: $6445 \pm 645 \Omega$ • 110°C $\{230^{\circ}\text{F}\}$: $247 \pm 16 \Omega$ • 145°C $\{295^{\circ}\text{F}\}$: $111 \pm 6 \Omega$
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Replacement of sensor (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items		Inspection of harness between sensor and electronic control unit (signal)
	Maintenance item		Check circuit between connector (ET10A) terminal No. 3 and electronic control unit connector (CY24A) terminal No. 15.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

Step 7	Inspection items		Inspection of harness between sensor and electronic control unit (ground)
	Maintenance item		Check circuit between connector (ET10A) terminal No. 8 and electronic control unit connector (CY31A) terminal No. 28.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify harness.	

Step 8	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of resistance between electronic control unit connector (CY24A) terminal No. 15 and connector (CY31A) terminal No. 28.</p> <p><Multi-Use Tester used> Measure item No. 13 "A/T Oil Temp (OP)" of Service Data.</p>
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used> Cold engine → during warm-up: Resistance is gradually reduced.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • Cold engine: Proportionate to outside air temperature • During warm-up: Gradually increased.
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0712/Flash code: 13

[Monitor ID]

11

[Fault (outline)]

Failure of oil temperature sensor (inside)

[Diagnosis check]

- Automatic transmission fluid temperature is monitored by oil temperature sensor (inside).

[Code generation condition]

- Oil temperature sensor (inside) output temperature remains excessively high (over 180°C {355°F}) for 0.5 second.

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Control is effected on basis of low oil temperature (–30°C {–24°F}) immediately after starter switch is turned ON and normal oil temperature (80°C {175°F}) 5 minutes later.
- Braking force control is inhibited.

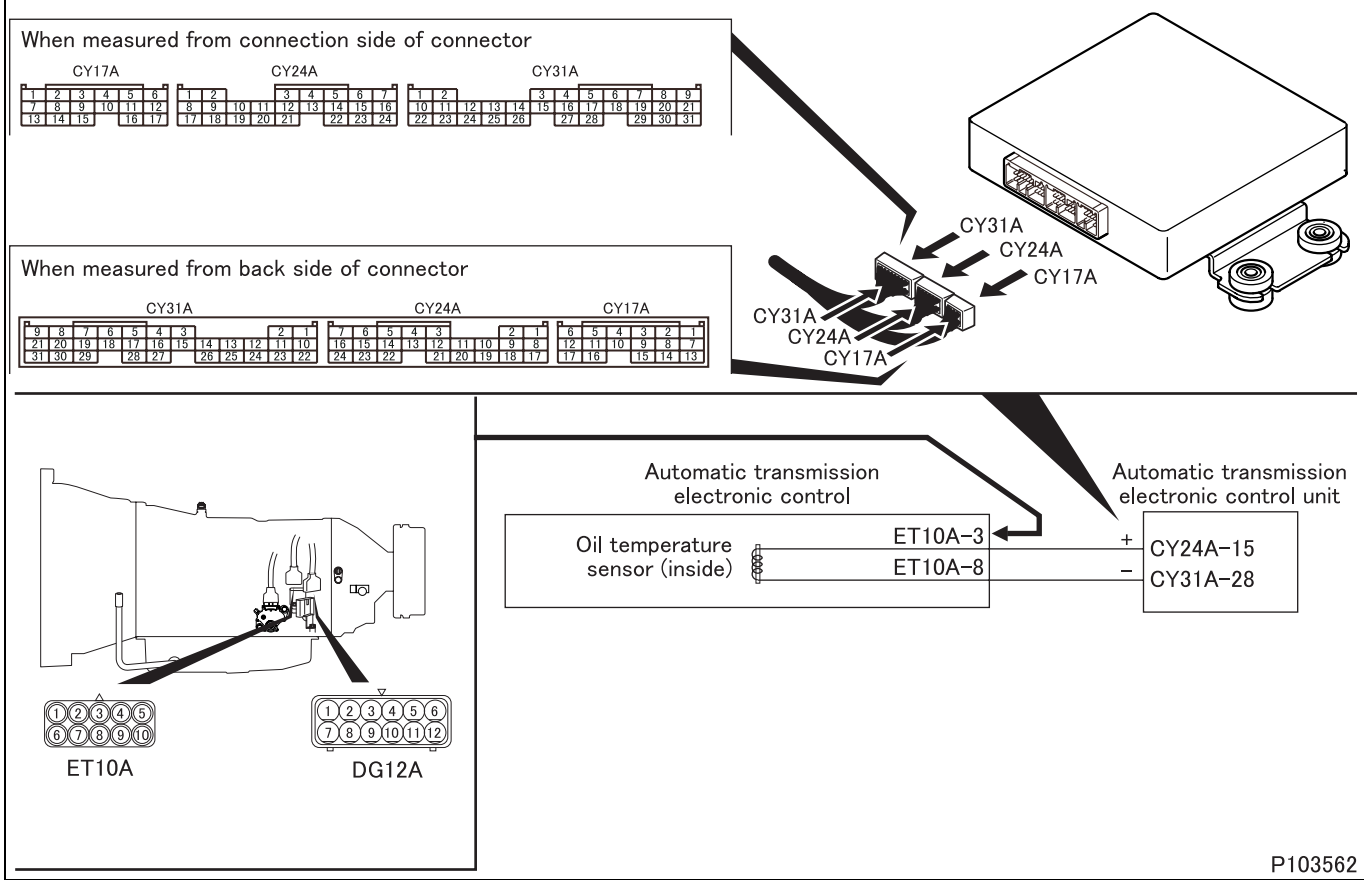
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil temperature sensor (inside)
- Malfunction of each connector
- Malfunction of oil temperature sensor (inside)
- Malfunction of electronic control unit

[Recoverability]

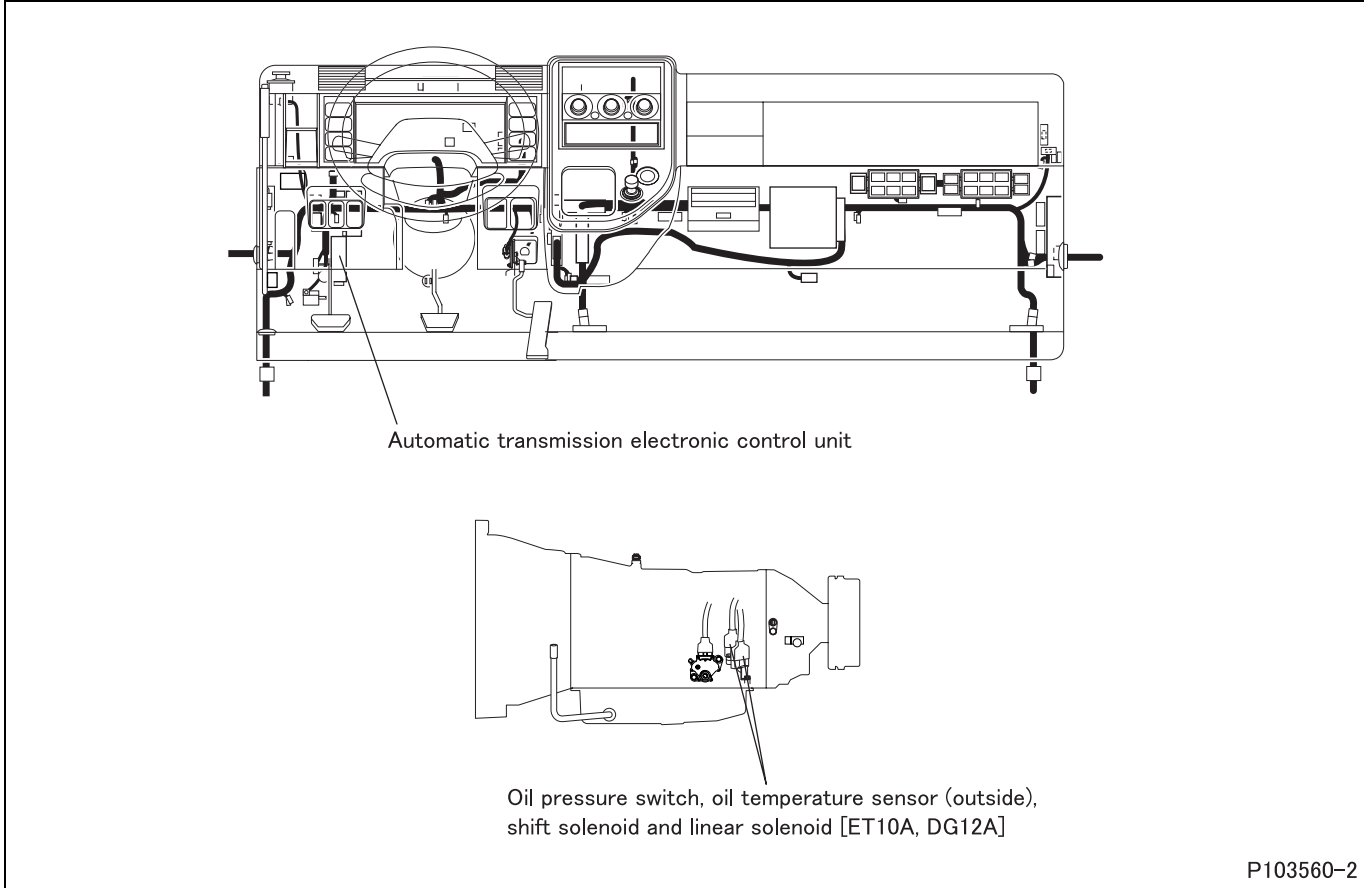
- Recovered if signal becomes normal with starter switch in ON position.

[Electronic Control Unit Connection Diagram]



P103562

[Parts Identification and Location]



P103560-2

TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of resistance between electronic control unit connector (CY24A) terminal No. 15 and connector (CY31A) terminal No. 28. <Multi-Use Tester used> Measure item No. 13 "A/T Oil Temp (OP)" of Service Data.	
	Inspection condition	<Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> Cold engine → during warm-up: Resistance is gradually reduced. <Multi-Use Tester used> <ul style="list-style-type: none"> Cold engine: Proportionate to outside air temperature During warm-up: Gradually increased. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

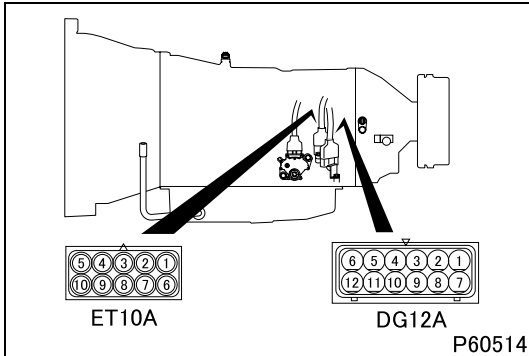
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY24A) terminal No. 15 and connector (CY31A) terminal No. 28.	
	Inspection condition	<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF 	
	Requirements	<ul style="list-style-type: none"> -30°C {-22°F}: 44 ± 6.6 kΩ 10°C {50°F}: 6445 ± 645 Ω 110°C {230°F}: 247 ± 16 Ω 145°C {295°F}: 111 ± 6 Ω 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Replacement of electronic control unit
	NO	Modify connector.	

Step 4	Inspection items	Inspection of sensor connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of sensor unit	
	Maintenance item	Measure value of resistance between connector (ET10A) terminal No. 3 and 8.	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • -30°C {-22°F}: 44 ± 6.6 kΩ • 10°C {50°F}: 6445 ± 645 Ω • 110°C {230°F}: 247 ± 16 Ω • 145°C {295°F}: 111 ± 6 Ω 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
		NO	Replacement of sensor (contact an Aisin Service Station)

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between sensor and electronic control unit (signal)	
	Maintenance item	Check circuit between connector (ET10A) terminal No. 3 and electronic control unit connector (CY24A) terminal No. 15.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
		NO	Modify harness.

Step 7	Inspection items	Inspection of harness between sensor and electronic control unit (ground)	
	Maintenance item	Check circuit between connector (ET10A) terminal No. 8 and electronic control unit connector (CY31A) terminal No. 28.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
		NO	Modify harness.

TROUBLESHOOTING

Step 8	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of resistance between electronic control unit connector (CY24A) terminal No. 15 and connector (CY31A) terminal No. 28.</p> <p><Multi-Use Tester used> Measure item No. 13 "A/T Oil Temp (OP)" of Service Data.</p>
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • Cold engine → during warm-up: Resistance is gradually reduced. <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • Cold engine: Proportionate to outside air temperature • During warm-up: Gradually increased.
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Replacement of electronic control unit

[Fault code]

Diagnosis code: P0713/Flash code: 13

[Monitor ID]

12

[Fault (outline)]

Failure of oil temperature sensor (inside)

[Diagnosis check]

- Automatic transmission fluid temperature is monitored by oil temperature sensor (inside).

[Code generation condition]

- Oil temperature sensor (inside) output temperature remains excessively low (below -50°C $\{-56^{\circ}\text{F}\}$) for 0.5 second.

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Control is effected on basis of low oil temperature (-30°C $\{-24^{\circ}\text{F}\}$) immediately after starter switch is turned ON and normal oil temperature (80°C $\{175^{\circ}\text{F}\}$) 5 minutes later.
- Braking force control is inhibited.

[Probable cause of trouble]

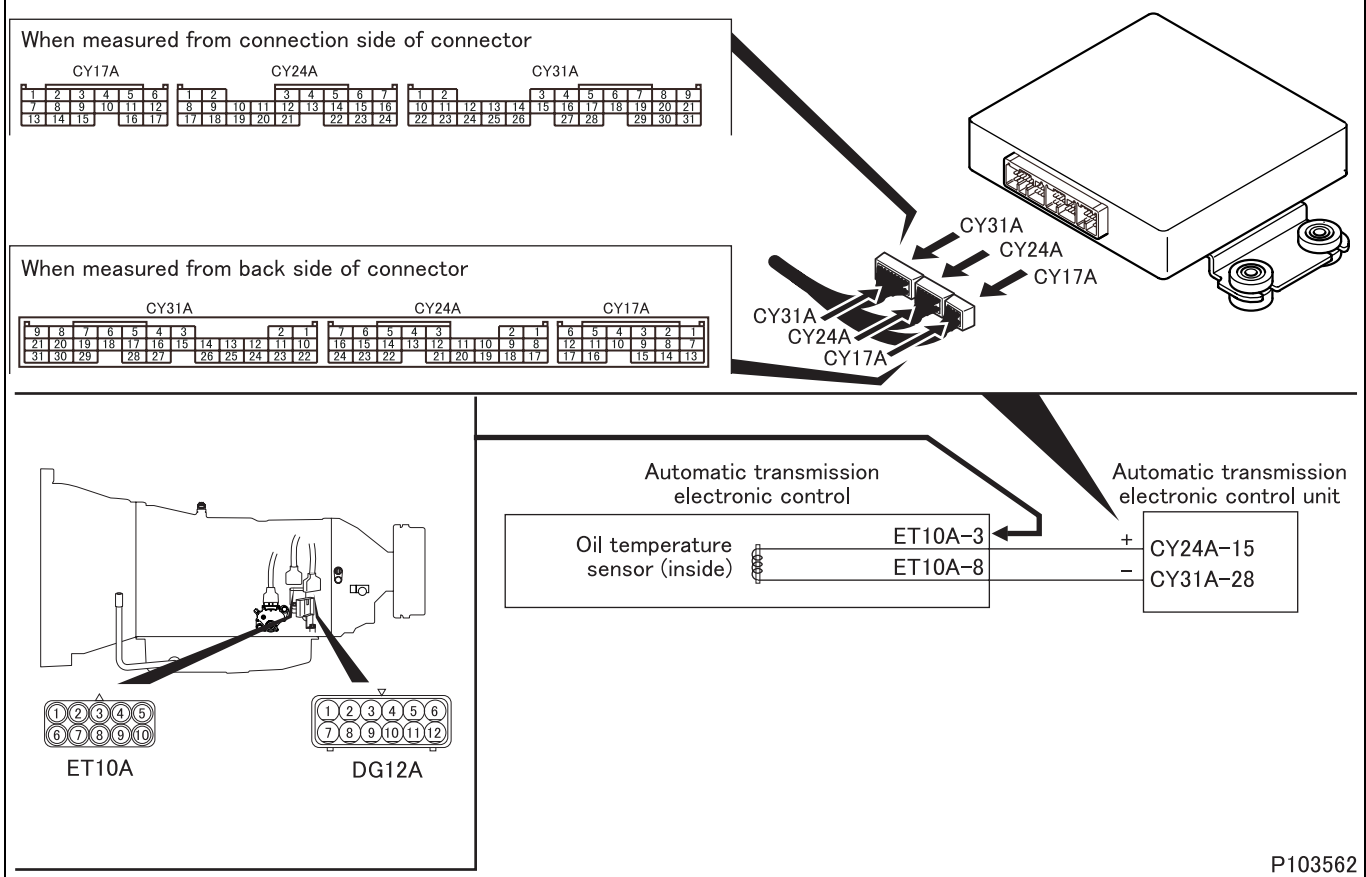
- Open-circuit or short-circuit of harness between electronic control unit and oil temperature sensor (inside)
- Malfunction of each connector
- Malfunction of oil temperature sensor (inside)
- Malfunction of electronic control unit

[Recoverability]

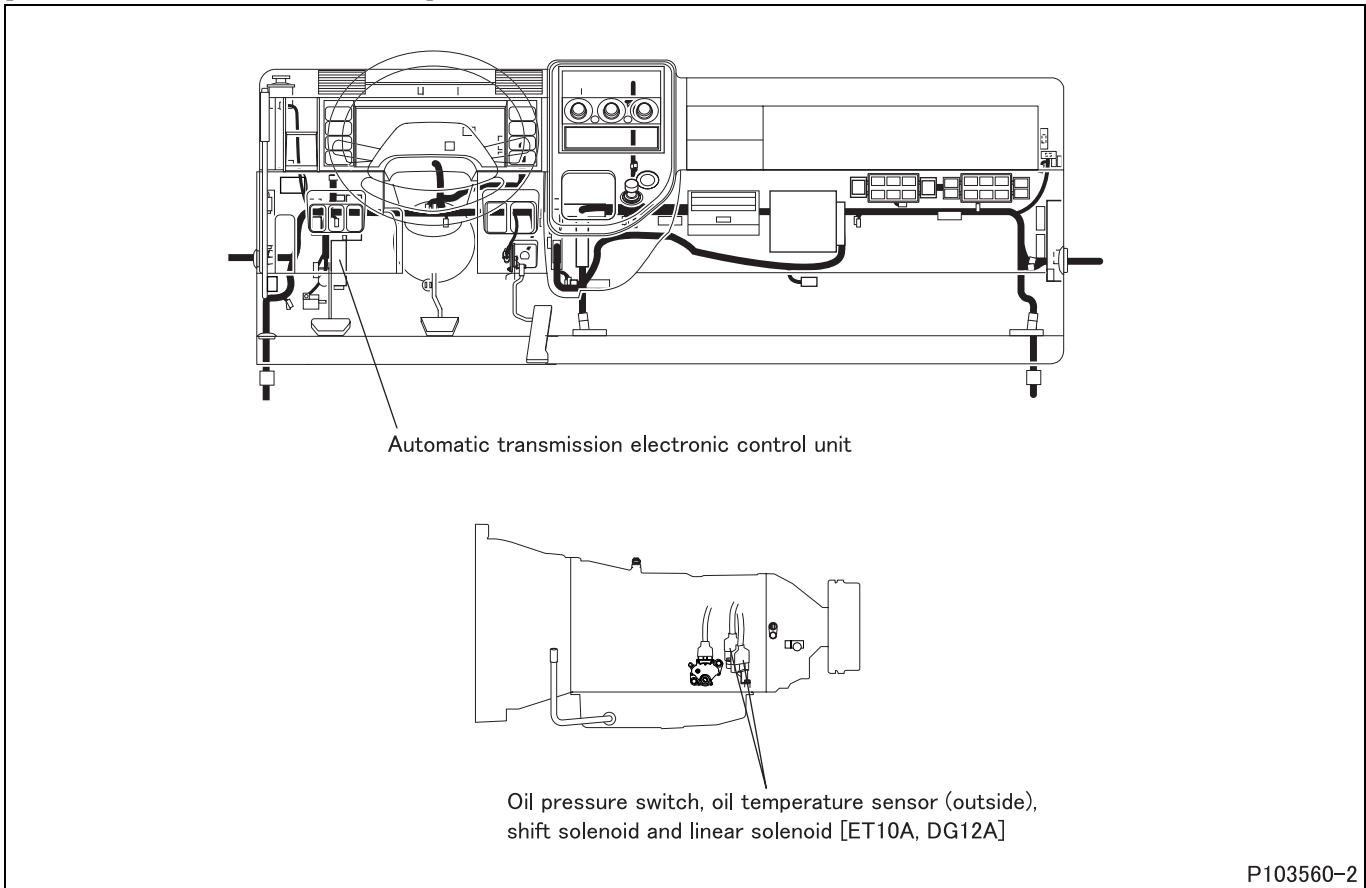
- Recovered if signal becomes normal with starter switch in ON position.

TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of resistance between electronic control unit connector (CY24A) terminal No. 15 and connector (CY31A) terminal No. 28. <Multi-Use Tester used> Measure item No. 13 "A/T Oil Temp (OP)" of Service Data.	
	Inspection condition	<Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> Cold engine → during warm-up: Resistance is gradually reduced. <Multi-Use Tester used> <ul style="list-style-type: none"> • Cold engine: Proportionate to outside air temperature • During warm-up: Gradually increased. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 2.	

Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY24A) terminal No. 15 and connector (CY31A) terminal No. 28.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	<ul style="list-style-type: none"> • -30°C $\{-22^{\circ}\text{F}\}$: $44 \pm 6.6 \text{ k}\Omega$ • 10°C $\{50^{\circ}\text{F}\}$: $6445 \pm 645 \Omega$ • 110°C $\{230^{\circ}\text{F}\}$: $247 \pm 16 \Omega$ • 145°C $\{295^{\circ}\text{F}\}$: $111 \pm 6 \Omega$ 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
NO		Go to step 4.	

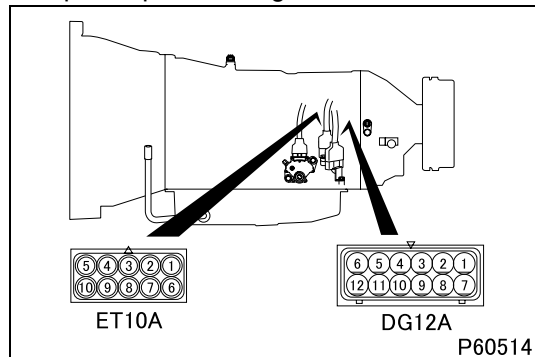
Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Replacement of electronic control unit
NO		Modify connector.	

Step 4	Inspection items	Inspection of sensor connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Modify connector.	

TROUBLESHOOTING

Step 5	Inspection items		Inspection of sensor unit
	Maintenance item		Measure value of resistance between connector (ET10A) terminal No. 3 and 8.
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> • -30°C $\{-22^{\circ}\text{F}\}$: $44 \pm 6.6 \text{ k}\Omega$ • 10°C $\{50^{\circ}\text{F}\}$: $6445 \pm 645 \Omega$ • 110°C $\{230^{\circ}\text{F}\}$: $247 \pm 16 \Omega$ • 145°C $\{295^{\circ}\text{F}\}$: $111 \pm 6 \Omega$
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Replacement of sensor (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items		Inspection of harness between sensor and electronic control unit (signal)
	Maintenance item		Check circuit between connector (ET10A) terminal No. 3 and electronic control unit connector (CY24A) terminal No. 15.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

Step 7	Inspection items		Inspection of harness between sensor and electronic control unit (ground)
	Maintenance item		Check circuit between connector (ET10A) terminal No. 8 and electronic control unit connector (CY31A) terminal No. 28.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify harness.	

Step 8	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of resistance between electronic control unit connector (CY24A) terminal No. 15 and connector (CY31A) terminal No. 28.</p> <p><Multi-Use Tester used> Measure item No. 13 "A/T Oil Temp (OP)" of Service Data.</p>
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used> Cold engine → during warm-up: Resistance is gradually reduced.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • Cold engine: Proportionate to outside air temperature • During warm-up: Gradually increased.
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0714/Flash code: 13

[Monitor ID]

15

[Fault (outline)]

Failure of oil temperature sensor (inside)

[Diagnosis check]

- Automatic transmission fluid temperature is monitored by oil temperature sensor (inside).

[Code generation condition]

- Oil temperature sensor (inside) signal remains intermittent for 7 seconds.

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Starter switch ON battery voltage: 10 V to 16 V

[Control effected by electronic control unit during fault]

- Control is effected on basis of low oil temperature (-30°C $\{-24^{\circ}\text{F}\}$) immediately after starter switch is turned ON and normal oil temperature (80°C $\{175^{\circ}\text{F}\}$) 5 minutes later.
- Braking force control is inhibited.

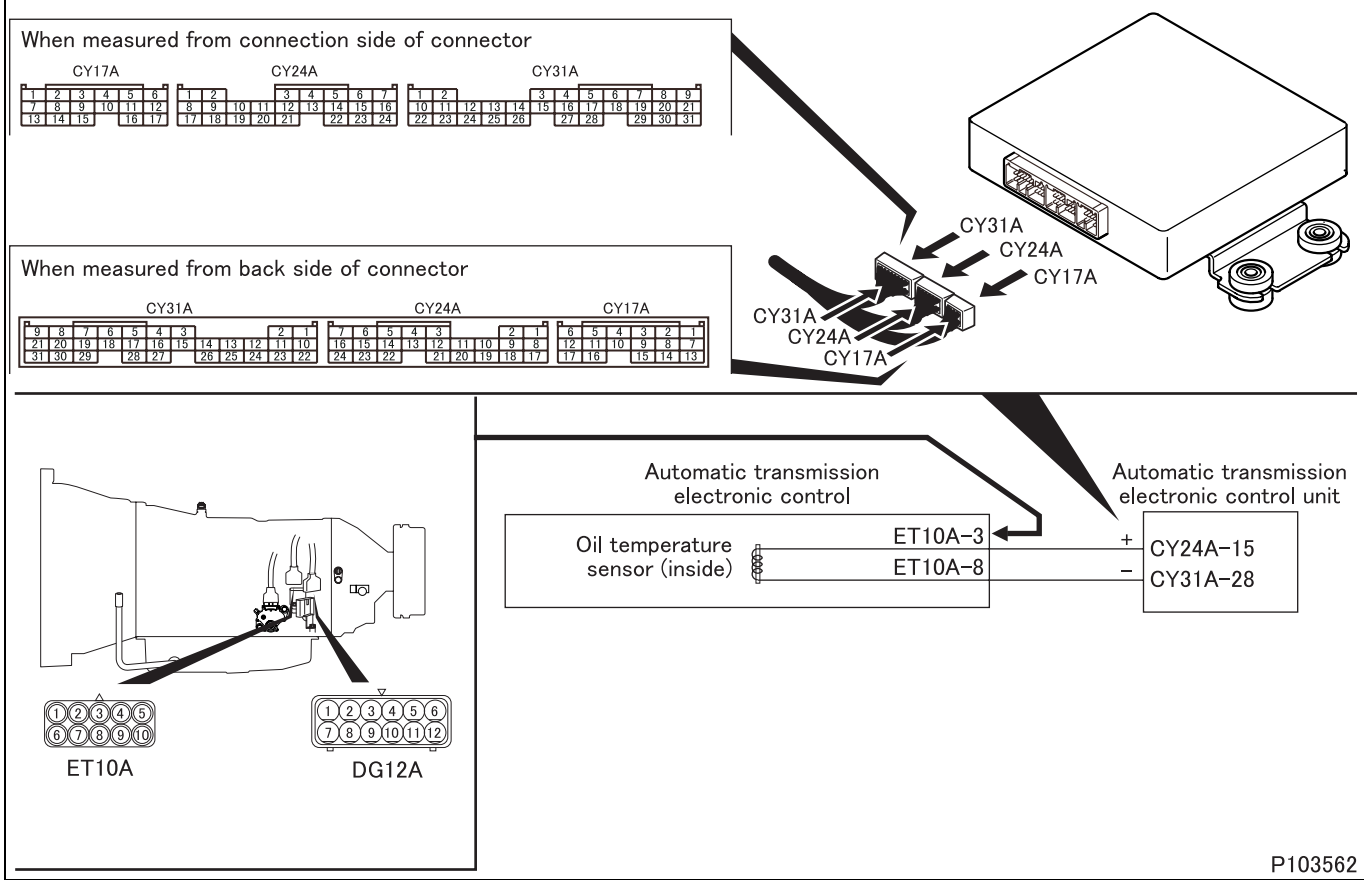
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil temperature sensor (inside)
- Malfunction of each connector
- Malfunction of oil temperature sensor (inside)
- Malfunction of electronic control unit

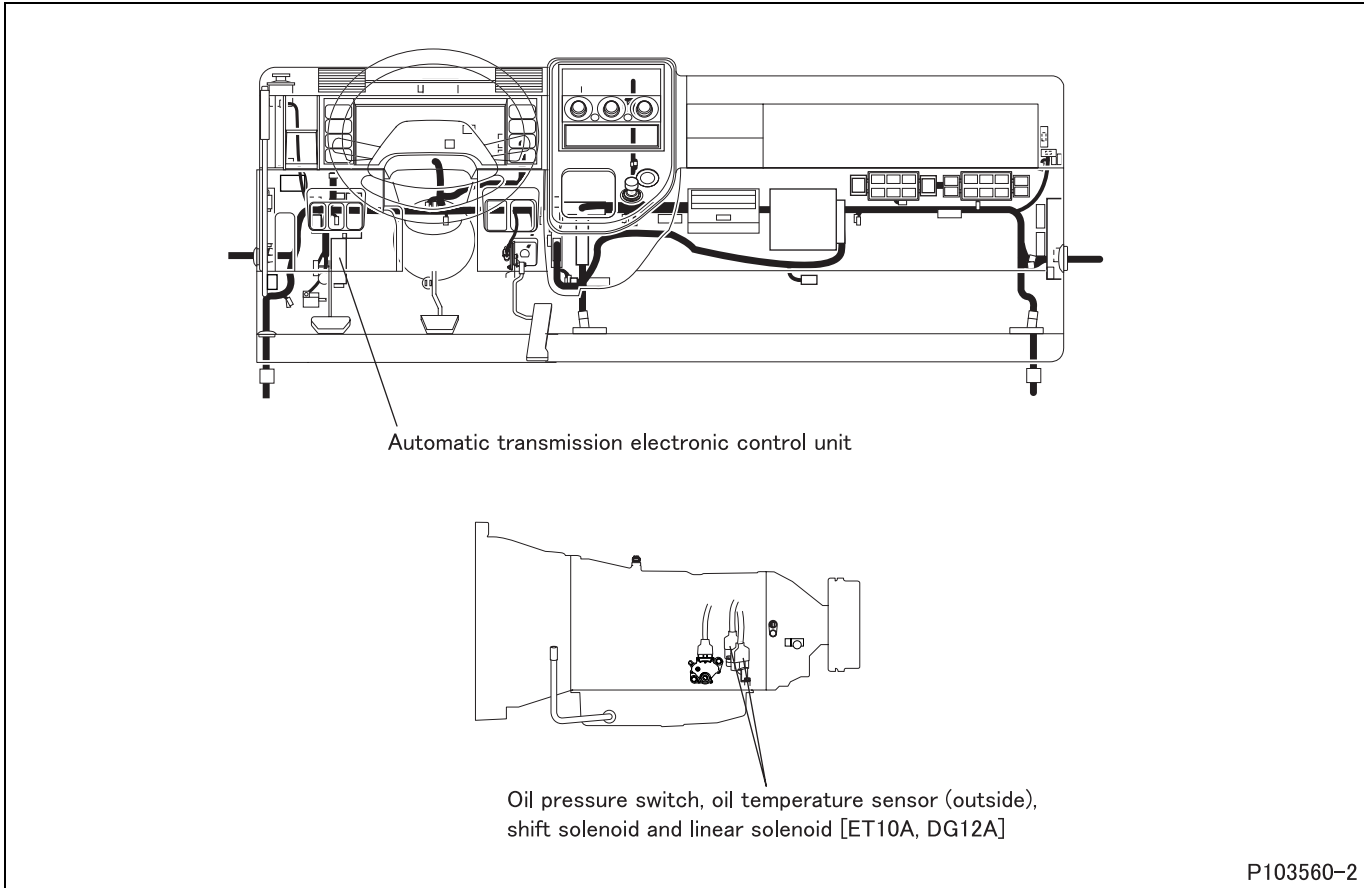
[Recoverability]

- Recovered if signal becomes normal with starter switch in ON position.

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of resistance between electronic control unit connector (CY24A) terminal No. 15 and connector (CY31A) terminal No. 28. <Multi-Use Tester used> Measure item No. 13 "A/T Oil Temp (OP)" of Service Data.	
	Inspection condition	<Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> Cold engine → during warm-up: Resistance is gradually reduced. <Multi-Use Tester used> <ul style="list-style-type: none"> Cold engine: Proportionate to outside air temperature During warm-up: Gradually increased. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 2.	

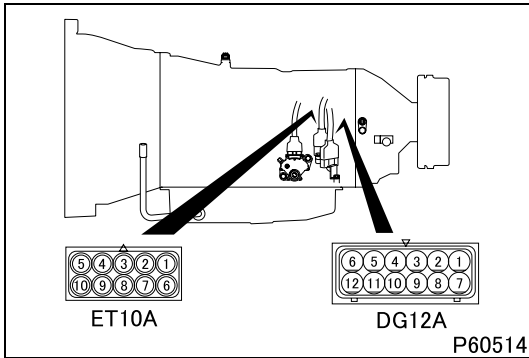
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY24A) terminal No. 15 and connector (CY31A) terminal No. 28.	
	Inspection condition	<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF 	
	Requirements	<ul style="list-style-type: none"> -30°C {-22°F}: 44 ± 6.6 kΩ 10°C {50°F}: 6445 ± 645 Ω 110°C {230°F}: 247 ± 16 Ω 145°C {295°F}: 111 ± 6 Ω 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
NO		Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Replacement of electronic control unit
NO		Modify connector.	

Step 4	Inspection items	Inspection of sensor connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Modify connector.	

Step 5	Inspection items	Inspection of sensor unit	
	Maintenance item	Measure value of resistance between connector (ET10A) terminal No. 3 and 8.	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • -30°C {-22°F}: 44 ± 6.6 kΩ • 10°C {50°F}: 6445 ± 645 Ω • 110°C {230°F}: 247 ± 16 Ω • 145°C {295°F}: 111 ± 6 Ω 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Replacement of sensor (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between sensor and electronic control unit (signal)	
	Maintenance item	Check circuit between connector (ET10A) terminal No. 3 and electronic control unit connector (CY24A) terminal No. 15.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

Step 7	Inspection items	Inspection of harness between sensor and electronic control unit (ground)	
	Maintenance item	Check circuit between connector (ET10A) terminal No. 8 and electronic control unit connector (CY31A) terminal No. 28.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify harness.	

TROUBLESHOOTING

Step 8	Inspection items		Inspection by control data			
	Maintenance item		<p><Multi-Use Tester not used> Measure value of resistance between electronic control unit connector (CY24A) terminal No. 15 and connector (CY31A) terminal No. 28.</p> <p><Multi-Use Tester used> Measure item No. 13 "A/T Oil Temp (OP)" of Service Data.</p>			
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>			
	Requirements		<p><Multi-Use Tester not used> Cold engine → during warm-up: Resistance is gradually reduced.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • Cold engine: Proportionate to outside air temperature • During warm-up: Gradually increased. 			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to transient fault (See Gr00.).</td> </tr> <tr> <td>NO</td> <td>Replacement of electronic control unit</td> </tr> </table>	YES	Go to transient fault (See Gr00.).	NO
YES	Go to transient fault (See Gr00.).					
NO	Replacement of electronic control unit					

[Fault code]

Diagnosis code: P0717/Flash code: 16

[Monitor ID]

5

[Fault (outline)]

Failure of turbine speed sensor

[Diagnosis check]

- Turbine speed sensor is monitored for fault when vehicle is running without gear shifted.

[Code generation condition]

- Input signal from turbine speed sensor is missing when output speed sensor output is normal.

[Diagnosis check timing]

- Fault diagnosis is performed once at the minimum during the driving cycle.

[Diagnostic requirement]

- Vehicle speed: above 5 km/h {3 mph} (not less than 4 sec.)
- Shift position: other than P or N range
- Engine revolution: 300 rpm or higher
- Control at the time of gear shifting is not effected.

[Control effected by electronic control unit during fault]

- Oil pressure control by linear solenoids 1, 2 and 3 is switched from vehicle speed feedback to controlling in accordance with elapsed time from speed change.
- Braking force control is inhibited.

[Probable cause of trouble]

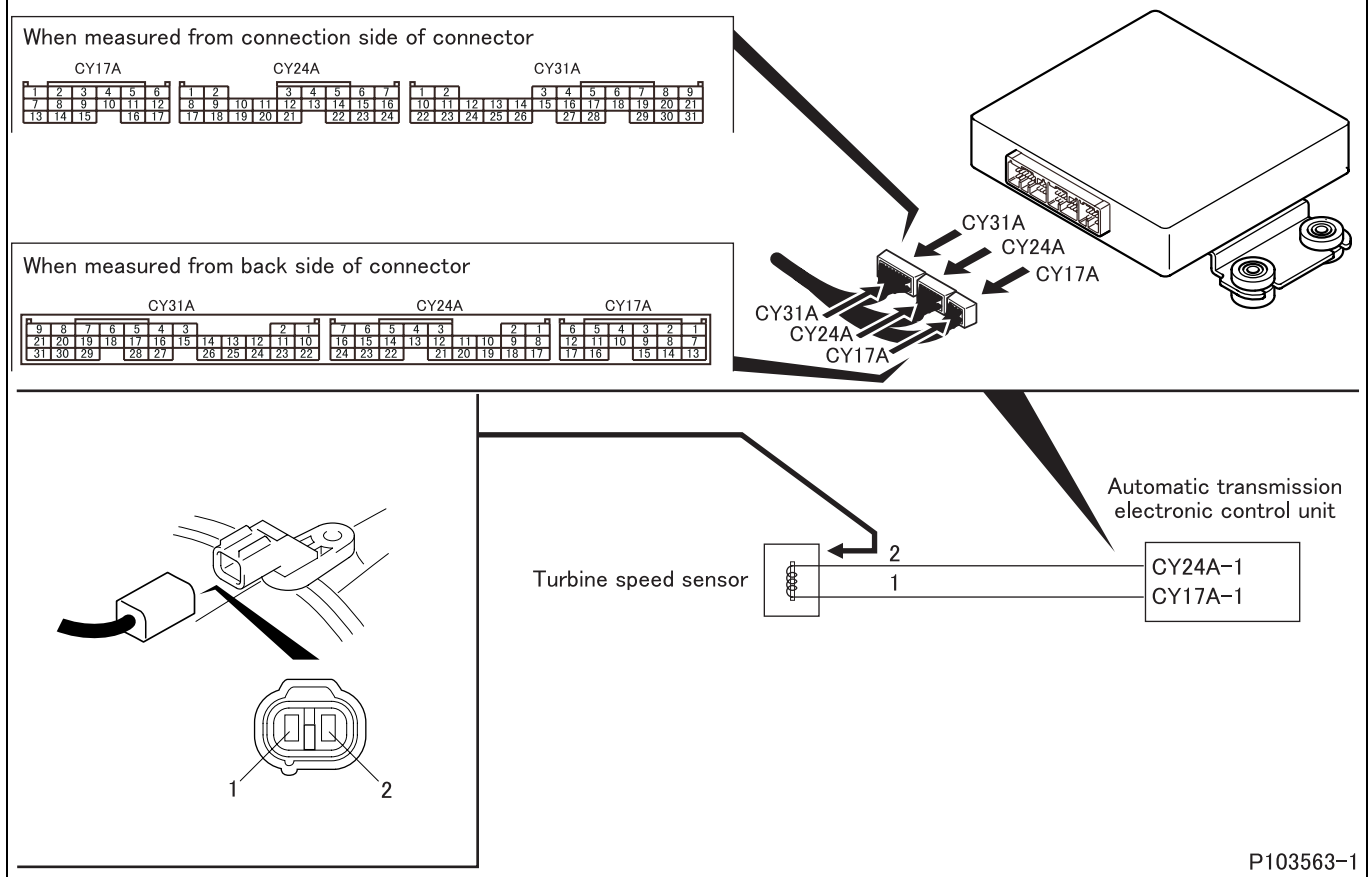
- Open-circuit or short-circuit of harness between electronic control unit and turbine speed sensor
- Malfunction of each connector
- Malfunction of turbine speed sensor
- Malfunction of electronic control unit

[Recoverability]

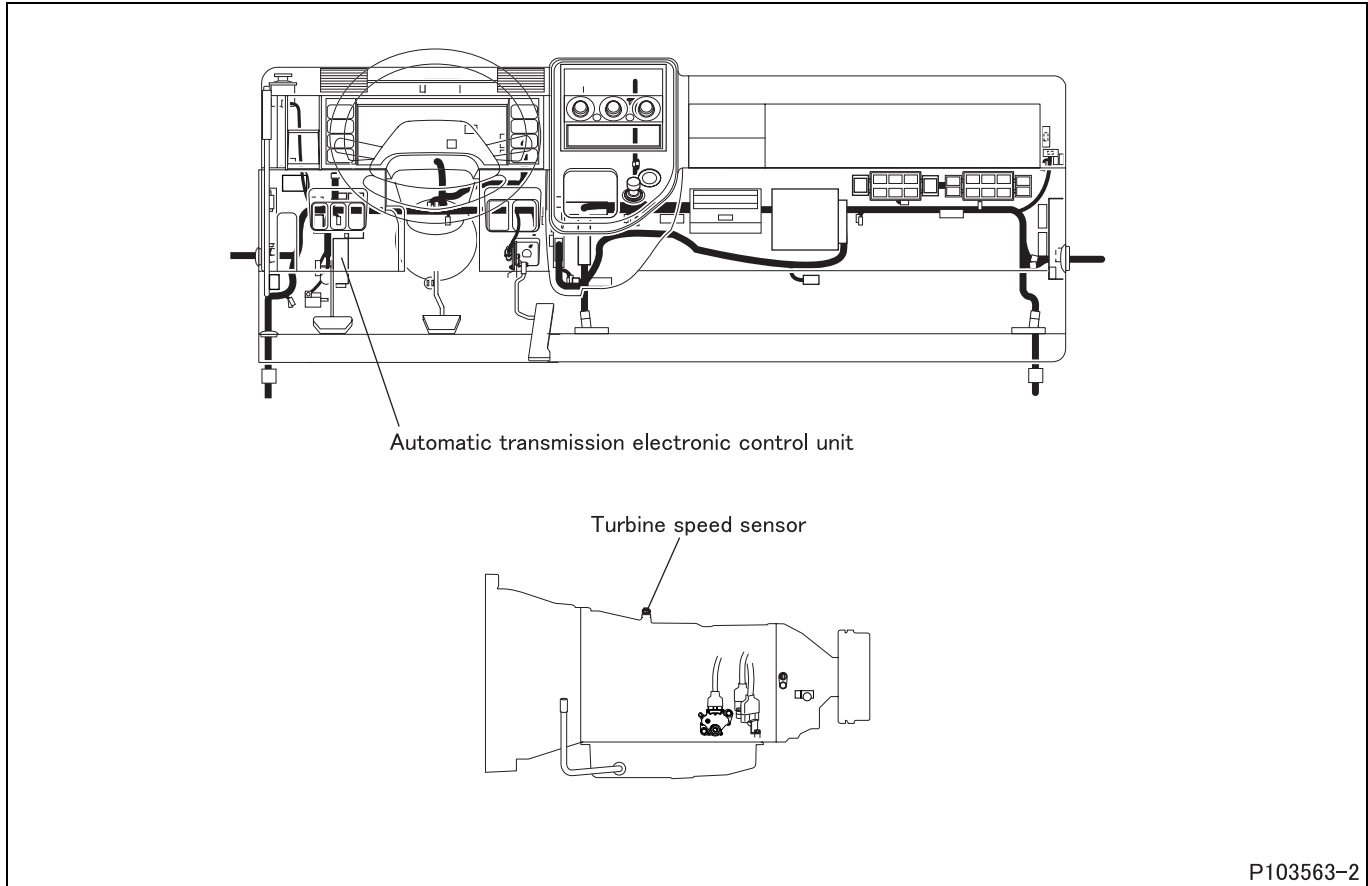
- Recovered if signal becomes normal with starter switch in ON position.

TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 16 "Turbine Speed" of Service Data.	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Vehicle standing with range selector in D position: 0 rpm • Vehicle running from above state: Gradually increased. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 2.	

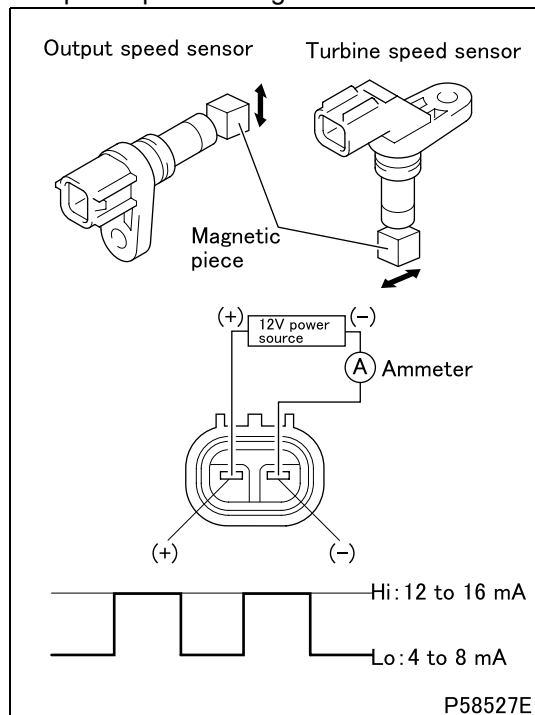
Step 2	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
NO		Modify connector.	

Step 3	Inspection items	Inspection of sensor connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Modify connector.	

Step 4	Inspection items	Inspection of sensor unit	
	Maintenance item	Measure current between terminals.	
	Inspection condition	<ul style="list-style-type: none"> • Wire sensor as illustrated. • Move magnetic piece at sensor tip in illustrated direction. (Distance between sensor and magnetic piece: Within 5 mm [0.20 in.]) 	
	Requirements	<ul style="list-style-type: none"> • Hi: 12 to 16 mA • Low: 4 to 8 mA 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Replacement of sensor	

TROUBLESHOOTING

<Step 4 inspection diagram>



Step 5	Inspection items	Inspection of harness between sensor and electronic control unit (signal)		
	Maintenance item	Check circuit between sensor connector terminal No. 2 and electronic control unit connector (CY24A) terminal No. 1.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of harness	

Step 6	Inspection items	Inspection of harness between sensor and electronic control unit (ground)		
	Maintenance item	Check circuit between sensor connector terminal No. 1 and electronic control unit connector (CY17A) terminal No. 1.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Replacement of harness	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<Multi-Use Tester not used> Check for recurrence of the same diagnosis code. <Multi-Use Tester used> Measure item No. 16 "Turbine Speed" of Service Data.		
	Inspection condition	-		
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> If the same diagnosis code occurs, replace electronic control unit. <Multi-Use Tester used> <ul style="list-style-type: none"> Vehicle standing with range selector in D position: 0 rpm Vehicle running from above state: Gradually increased. 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Replacement of electronic control unit	

[Fault code]

Diagnosis code: P0721/Flash code: 25

[Monitor ID]

4

[Fault (outline)]

Failure of output speed sensor

[Diagnosis check]

- Output speed sensor is monitored for fault with vehicle in running condition.

[Code generation condition]

Vehicle speed sensor is judged faulty in either of the following cases.

- Electronic control unit determines vehicle stop after sudden input of deceleration signal from output speed sensor. (Lamp indication: IMB) <A>
- Abnormality established by comparison with turbine speed sensor and vehicle speed sensor and of output gear ratio has continued for 4 seconds. (Lamp indication: 2DC)

[Diagnosis check timing]

- Fault diagnosis is performed once at the minimum during the driving cycle.

[Diagnostic requirement]

- Vehicle speed sensor related diagnosis code (P0500, P0501) does not occur.
- Output speed sensor related diagnosis code (P0722) does not occur.
- Turbine speed sensor related diagnosis code does not occur.
- Engine speed sensor related diagnosis code does not occur.
- Inhibitor switch related diagnosis code does not occur.
- Control with the fixed speed gear signals outputted under fault conditions is not effected.
- Shift position: Other than P or N range
- Control at the time of gear shifting is not effected.

[Control effected by electronic control unit during fault]

- The gear last selected is active on a steady basis.

[Probable cause of trouble]

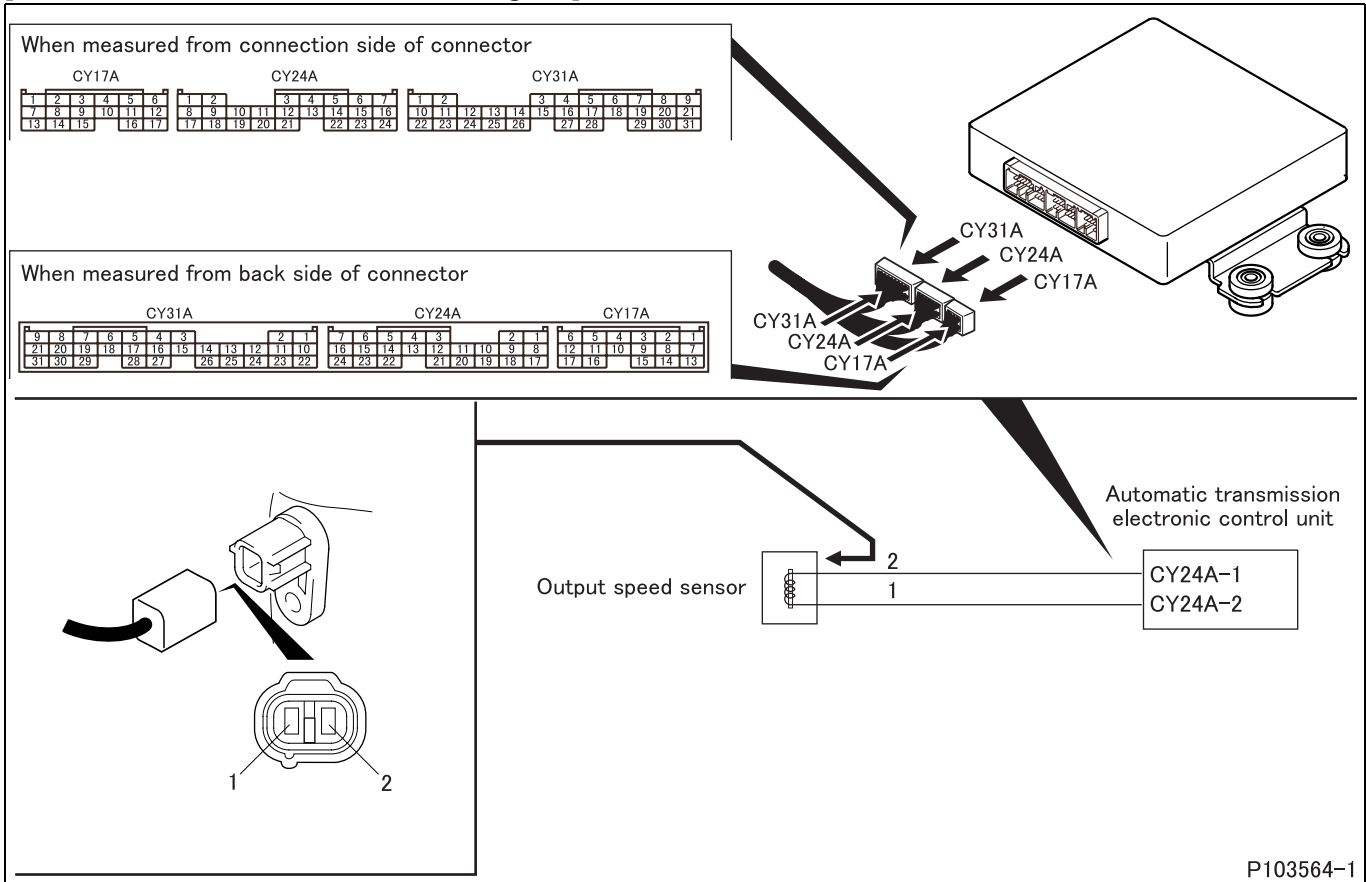
- Open-circuit or short-circuit of harness between electronic control unit and output speed sensor
- Malfunction of each connector
- Malfunction of output speed sensor
- Malfunction of electronic control unit

[Recoverability]

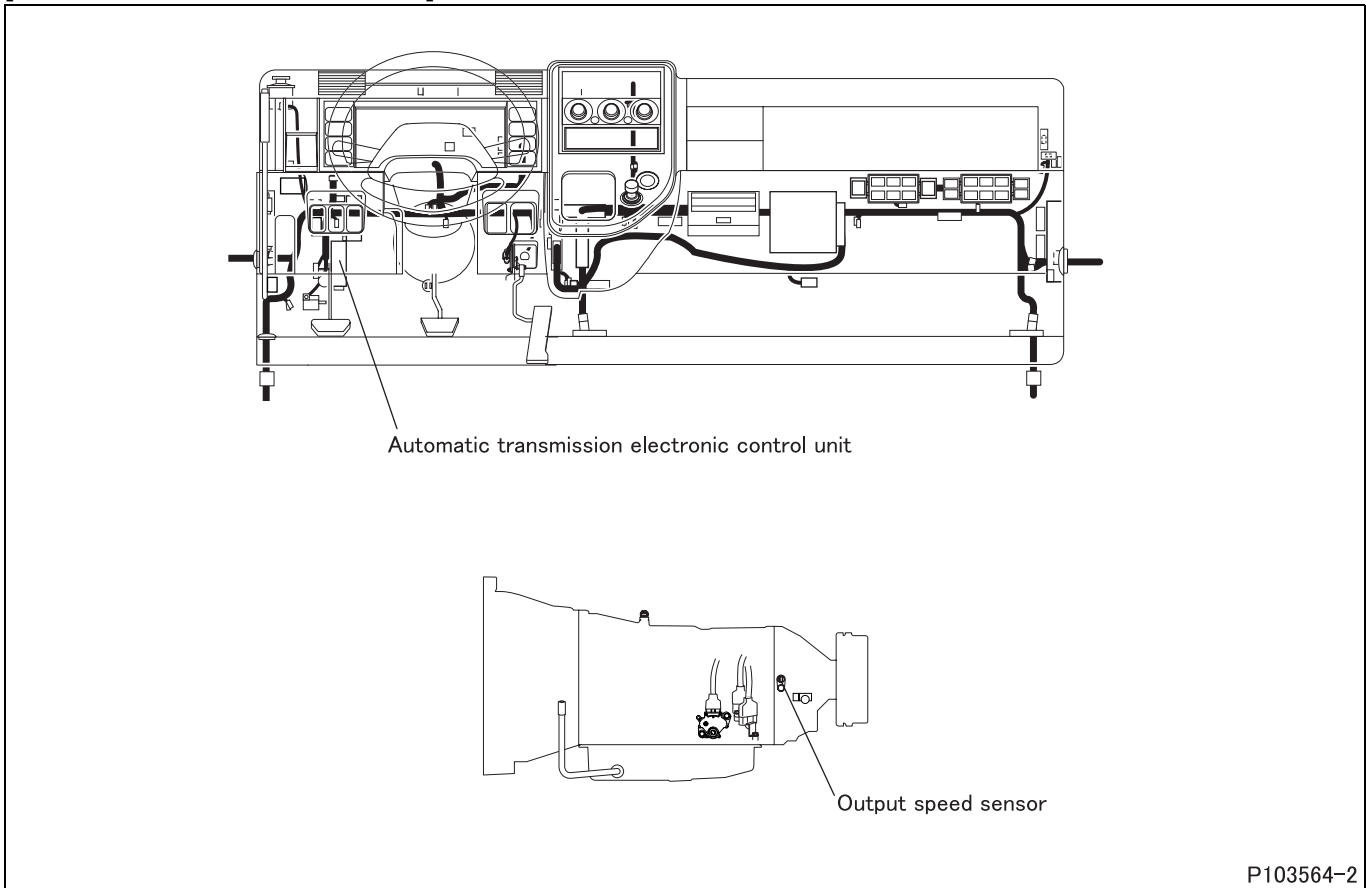
- Recovered if signal becomes normal with starter switch in ON position.

TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 25 "VEH Speed 2" of Service Data.	
	Inspection condition	-	
	Requirements	During vehicle run: Synchronous with speedometer.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 2.	

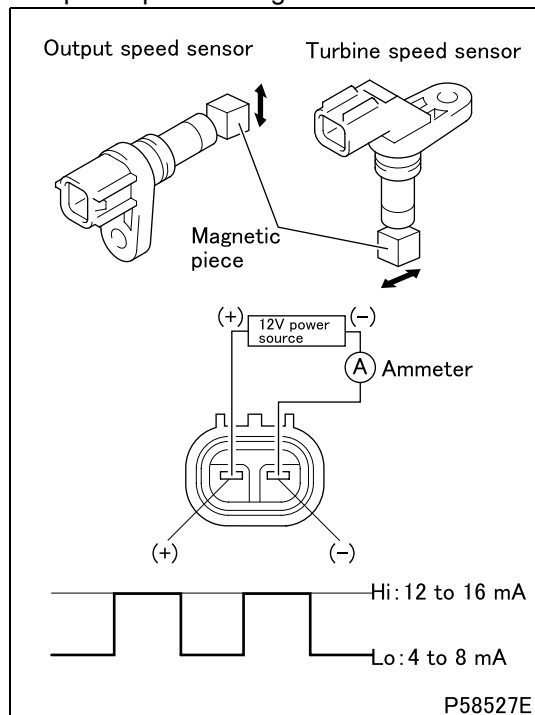
Step 2	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
NO		Modify connector.	

Step 3	Inspection items	Inspection of sensor connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Modify connector.	

Step 4	Inspection items	Inspection of sensor unit	
	Maintenance item	Measure current between terminals.	
	Inspection condition	<ul style="list-style-type: none"> • Wire sensor as illustrated. • Move magnetic piece at sensor tip in illustrated direction. (Distance between sensor and magnetic piece: Within 5 mm [0.20 in.]) 	
	Requirements	<ul style="list-style-type: none"> • Hi: 12 to 16 mA • Low: 4 to 8 mA 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Replacement of sensor	

TROUBLESHOOTING

<Step 4 inspection diagram>



Step 5	Inspection items	Inspection of harness between sensor and electronic control unit (signal)		
	Maintenance item	Check circuit between sensor connector terminal No. 2 and electronic control unit connector (CY24A) terminal No. 1.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of harness	

Step 6	Inspection items	Inspection of harness between sensor and electronic control unit (ground)		
	Maintenance item	Check circuit between sensor connector terminal No. 1 and electronic control unit connector (CY24A) terminal No. 2.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Replacement of harness	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<Multi-Use Tester not used> Check for recurrence of the same diagnosis code. <Multi-Use Tester used> Measure item No. 25 "VEH Speed 2" of Service Data.		
	Inspection condition	-		
	Requirements	<Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit. <Multi-Use Tester used> During vehicle run: Synchronous with speedometer.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Replacement of electronic control unit	

[Fault code]

Diagnosis code: P0722/Flash code: 25

[Monitor ID]

3

[Fault (outline)]

Failure of output speed sensor

[Diagnosis check]

- Output speed sensor is monitored for fault during vehicle run (after at least 4 seconds of running at 5 km/h or more)

[Code generation condition]

- Input signal from output speed sensor is missing when vehicle speed sensor output is normal.

[Diagnosis check timing]

- Fault diagnosis is performed once at the minimum during the driving cycle.

[Diagnostic requirement]

- Vehicle speed: above 5 km/h {3 mph} (not less than 4 sec.)
- Shift position: other than P or N range
- Vehicle speed sensor related diagnosis code (P0500, P0501) does not occur.

[Control effected by electronic control unit during fault]

- Control is effected using vehicle speed sensor.
- Oil pressure control by linear solenoids 1, 2 and 3 is switched from vehicle speed feedback to controlling in accordance with elapsed time from speed change.
- Braking force control is inhibited.

[Probable cause of trouble]

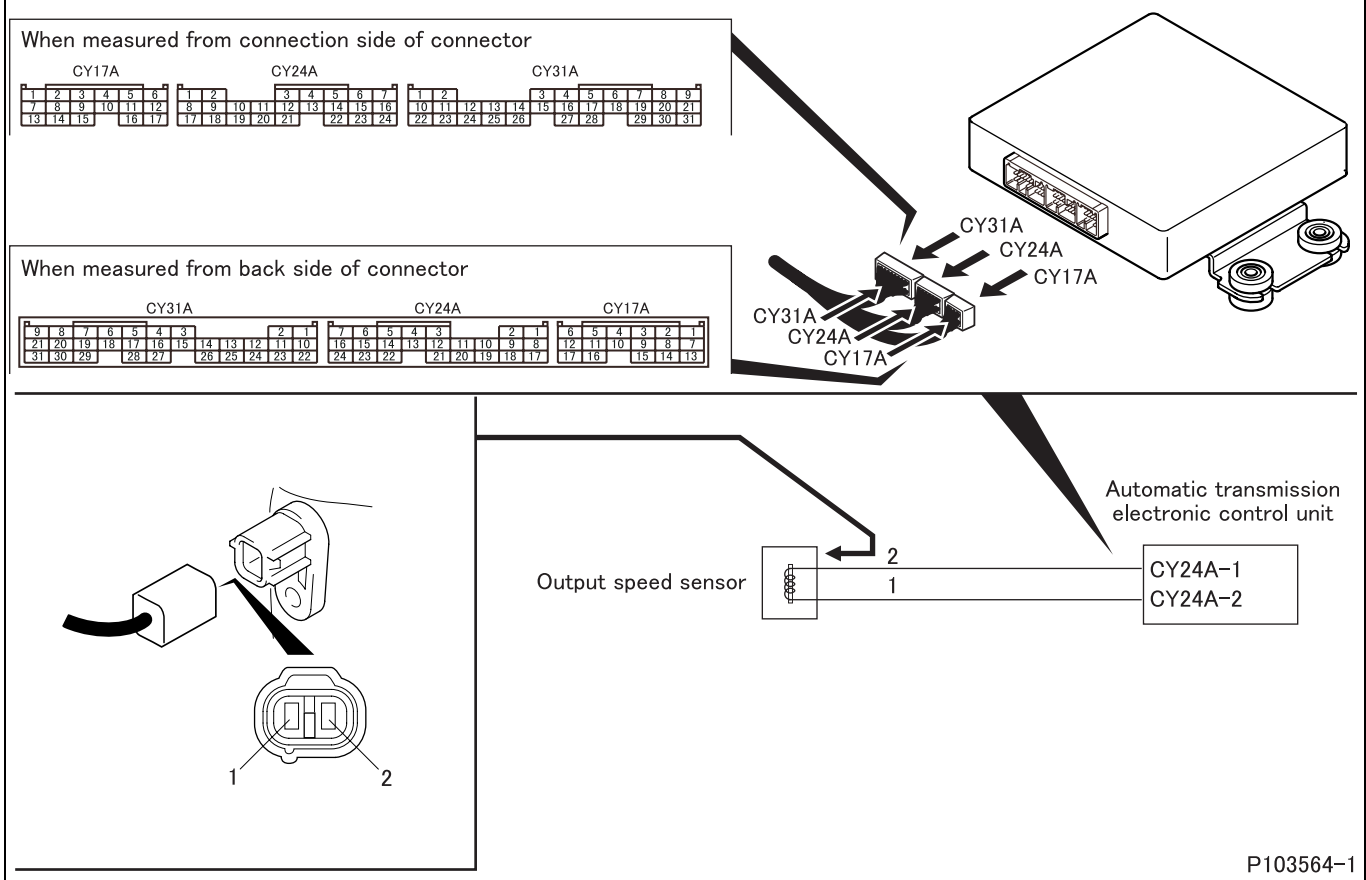
- Open-circuit or short-circuit of harness between electronic control unit and output speed sensor
- Malfunction of each connector
- Malfunction of output speed sensor
- Malfunction of electronic control unit

[Recoverability]

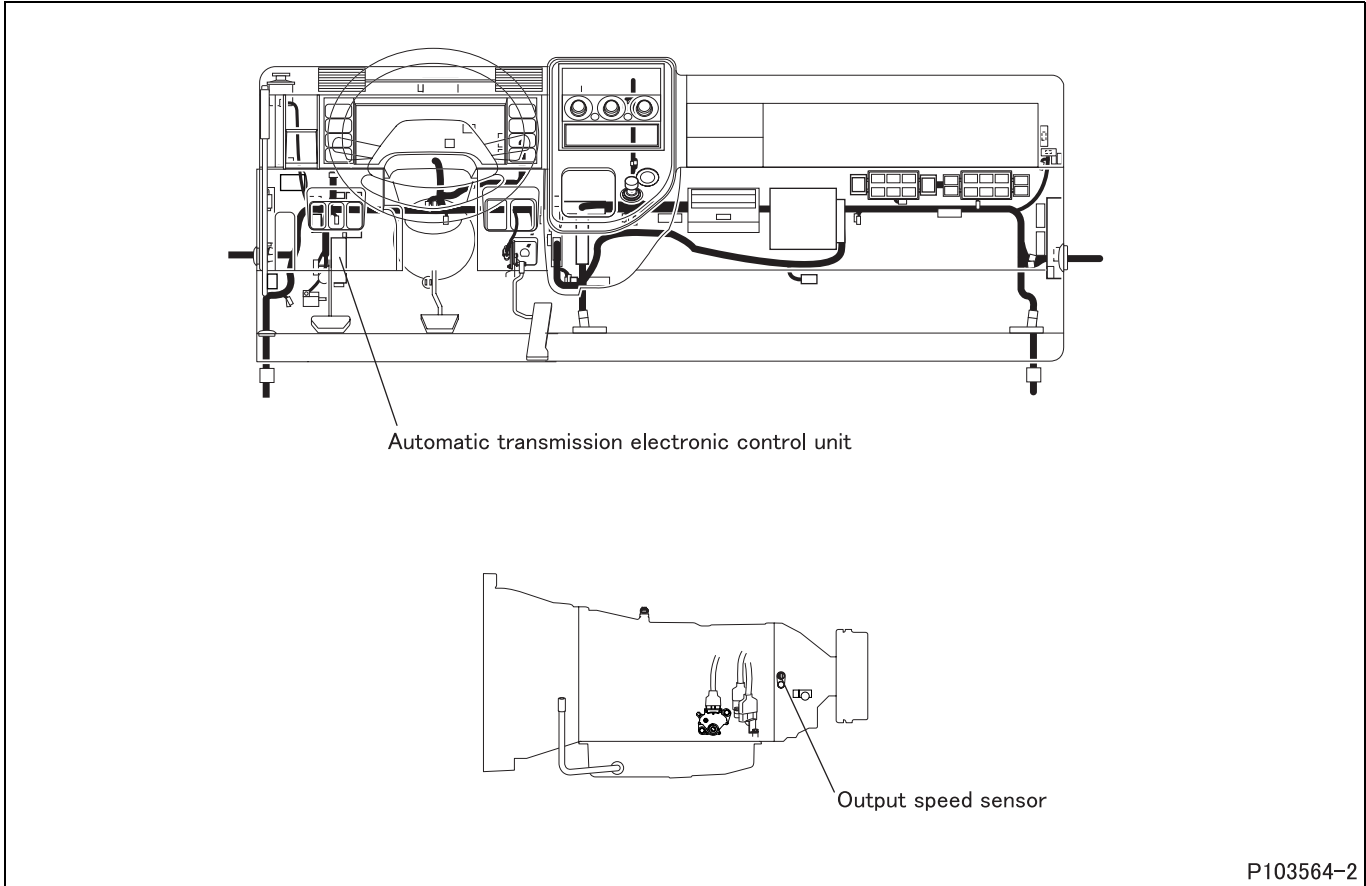
- Recovered if signal becomes normal with starter switch in ON position.

TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 25 "VEH Speed 2" of Service Data.	
	Inspection condition	-	
	Requirements	During vehicle run: Synchronous with speedometer.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 2.	

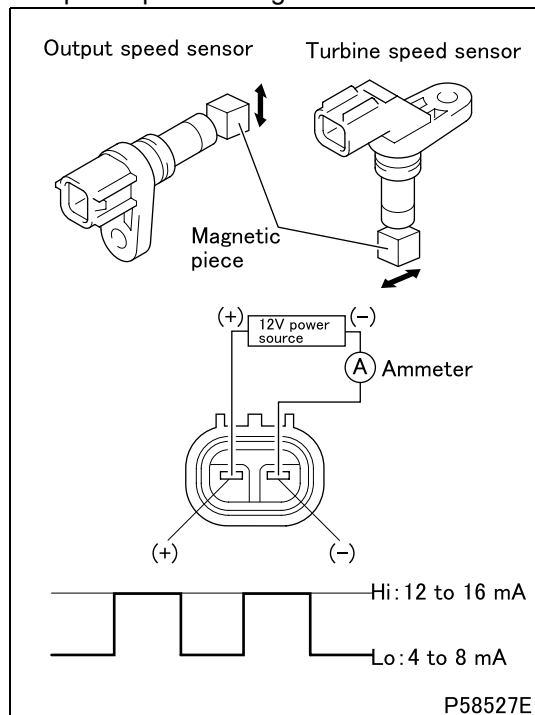
Step 2	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
NO		Modify connector.	

Step 3	Inspection items	Inspection of sensor connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Modify connector.	

Step 4	Inspection items	Inspection of sensor unit	
	Maintenance item	Measure current between terminals.	
	Inspection condition	<ul style="list-style-type: none"> • Wire sensor as illustrated. • Move magnetic piece at sensor tip in illustrated direction. (Distance between sensor and magnetic piece: Within 5 mm [0.20 in.]) 	
	Requirements	<ul style="list-style-type: none"> • Hi: 12 to 16 mA • Low: 4 to 8 mA 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Replacement of sensor	

TROUBLESHOOTING

<Step 4 inspection diagram>



Step 5	Inspection items	Inspection of harness between sensor and electronic control unit (signal)		
	Maintenance item	Check circuit between sensor connector terminal No. 2 and electronic control unit connector (CY24A) terminal No. 1.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of harness	

Step 6	Inspection items	Inspection of harness between sensor and electronic control unit (ground)		
	Maintenance item	Check circuit between sensor connector terminal No. 1 and electronic control unit connector (CY24A) terminal No. 2.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Replacement of harness	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<Multi-Use Tester not used> Check for recurrence of the same diagnosis code. <Multi-Use Tester used> Measure item No. 25 "VEH Speed 2" of Service Data.		
	Inspection condition	-		
	Requirements	<Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit. <Multi-Use Tester used> During vehicle run: Synchronous with speedometer.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Replacement of electronic control unit	

[Fault code]

Diagnosis code: P0726/Flash code: 15

[Monitor ID]

6

[Fault (outline)]

Abnormality of engine speed signal

[Diagnosis check]

- Engine speed signal from engine electronic control unit is monitored during vehicle run.

[Code generation condition]

- Engine speed signal from engine electronic control unit remains less than specified (300 rpm) for 4 seconds.

[Diagnosis check timing]

- Fault diagnosis is performed once at the minimum during the driving cycle.

[Diagnostic requirement]

- Output shaft speed: above 1000 rpm
- Shift position: other than P or N range

[Control effected by electronic control unit during fault]

- Control is effected with engine speed at specified value (Specified values differ by type of control.)
- Braking force control is inhibited.

[Probable cause of trouble]

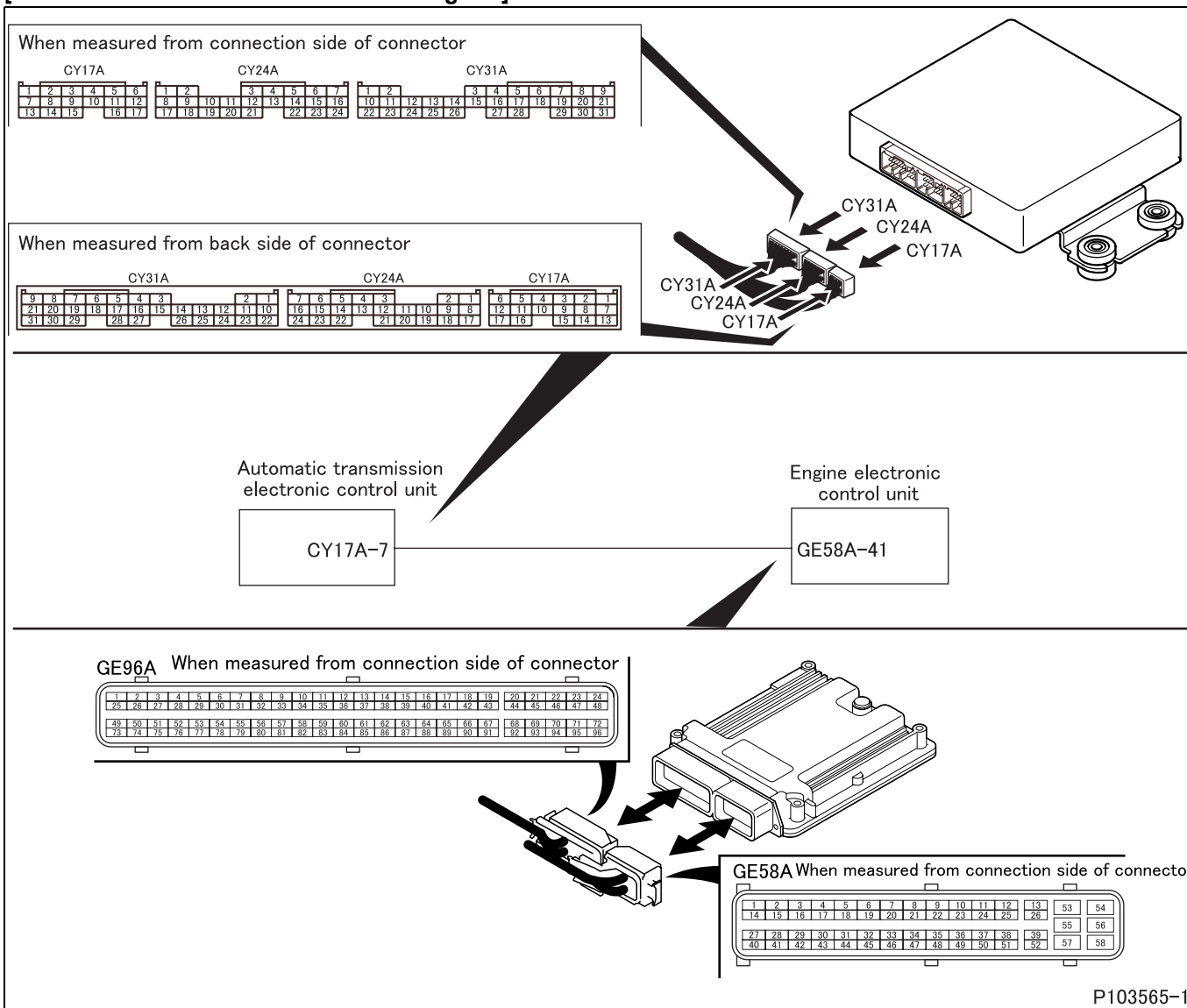
- Open-circuit or short-circuit between electronic control unit and engine electronic control unit or between engine electronic control unit and engine speed sensor
- Malfunction of each connector
- Malfunction of engine speed sensor
- Malfunction of electronic control unit
- Malfunction of engine electronic control unit

[Recoverability]

- Recovered if signal becomes normal with starter switch in ON position.

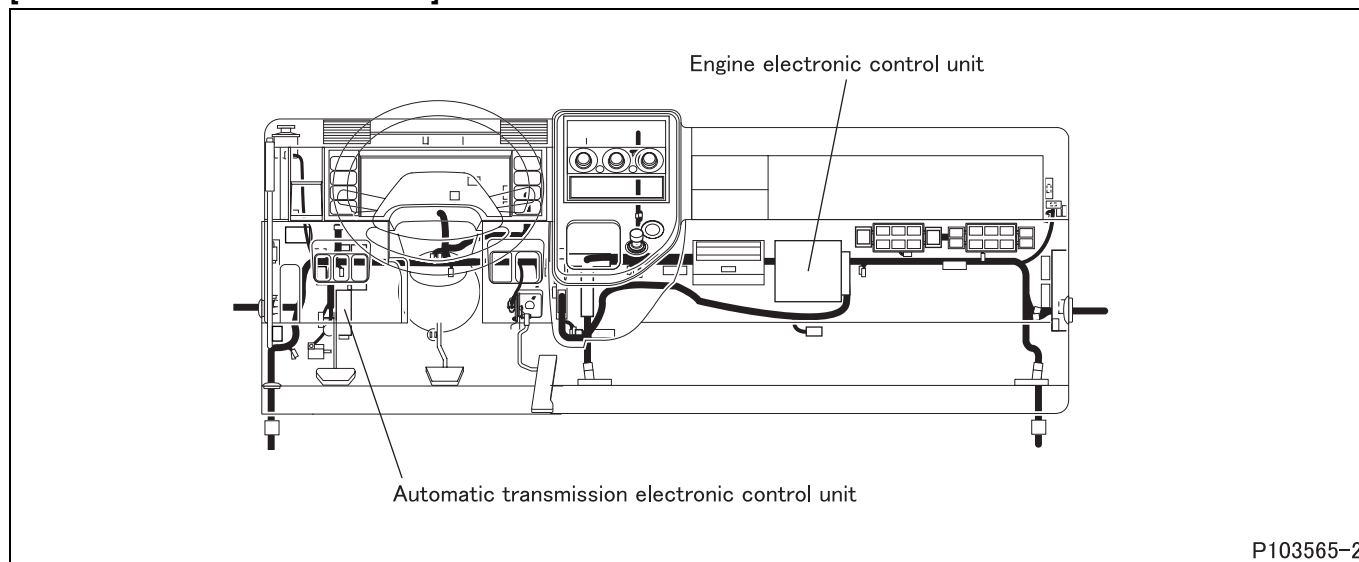
TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]



P103565-1

[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 15 "Engine Speed" of Service Data.	
	Inspection condition	-	
	Requirements	Racing (engine in operation): Synchronous with tachometer	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 2.	

Step 2	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
NO		Modify connector.	

Step 3	Inspection items	Inspection of engine electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Modify connector.	

Step 4	Inspection items	Inspection of engine electronic control unit	
	Maintenance item	Inspection of engine electronic control unit	
	Inspection condition	-	
	Requirements	Free of errors related to engine speed	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Perform troubleshooting on engine electronic control unit (See Gr13EA.).	

Step 5	Inspection items	Inspection of harness between electronic control unit and engine electronic control unit	
	Maintenance item	Check circuit between electronic control unit connector (CY17A) terminal No. 7 and engine electronic control unit connector (GE58A) terminal No. 41.	
	Inspection condition	Disconnect each electronic control unit from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify harness.	

TROUBLESHOOTING

Step 6	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Check for recurrence of the same diagnosis code.</p> <p><Multi-Use Tester used> Measure item No. 15 "Engine Speed" of Service Data.</p>
	Inspection condition		–
	Requirements		<p><Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit. (If replacement of electronic control unit does not eliminate trouble, replace engine electronic control unit.)</p> <p><Multi-Use Tester used> Racing (engine in operation): Synchronous with tachometer</p>
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Replacement of harness (If replacement of electronic control unit does not eliminate trouble, replace engine electronic control unit.)	

[Fault code]

Diagnosis code: P0730/Flash code: 37

[Monitor ID]

7, 8

[Fault (outline)]

Incorrect gear ratio

[Diagnosis check]

- Turbine speed sensor, output speed sensor and ongoing gear ratio are monitored to determine whether control is effected at optimal gear ratio.

[Code generation condition]

- The difference of more than 500 rpm between turbine speed and output shaft speed × gear ratio continues for 0.5 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the applicable gear speed is selected.

[Diagnostic requirement]

- Each solenoid, oil pressure switch, inhibitor switch, output speed sensor, or turbine speed sensor related diagnosis code does not occur.
- Automatic transmission fluid temperature: above -10°C { 14°F }
- Output shaft speed: above 250 rpm
- Shift position: D, 3 or 2 range
- Shift solenoids: Disengaged
- Accelerator pedal position: 5% or more <1st>
- Turbine speed is 100 rpm slower than the engine speed <1st>

[Control effected by electronic control unit during fault]

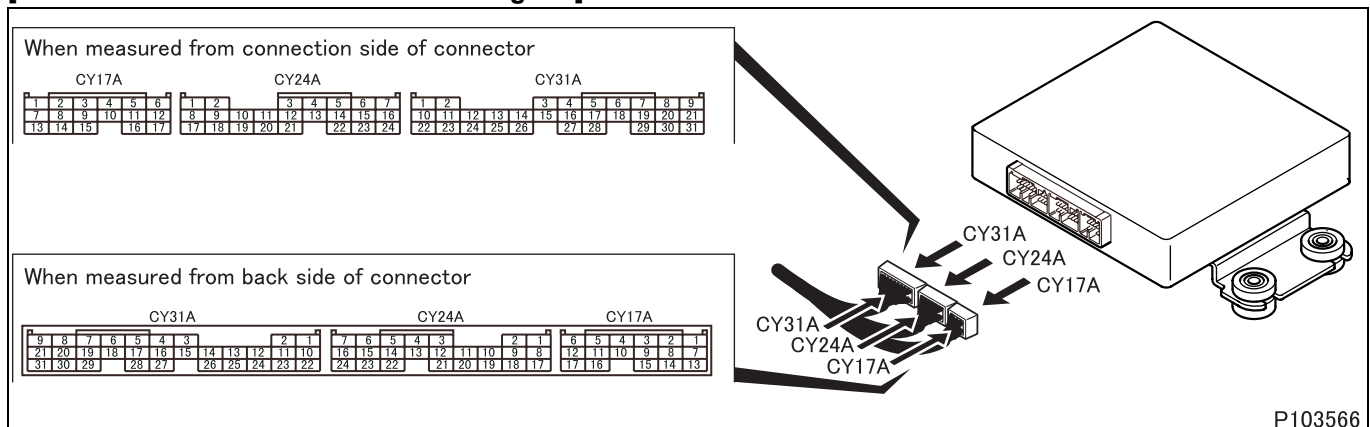
- Control is effected on fixed speed gear output (3rd).

[Probable cause of trouble]

- Open-circuit or short-circuit between electronic control unit and turbine speed sensor/output speed sensor
- Malfunction of each connector
- Malfunction of turbine speed sensor or output speed sensor
- Malfunction of electronic control unit
- Malfunction of automatic transmission

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]

P103566

TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 16 "Turbine Speed", No. 25 "VEH Speed 2" and No. 56 "Gear Pos." of Service Data.	
	Inspection condition	<ul style="list-style-type: none"> Output shaft speed [rpm]: Item No. 25 "VEH Speed 2" [MPH] × 4.268 × final gear ratio/tire radius [m] Turbine speed [rpm]: Item No. 16 "Turbine Speed" Calculated gear ratio: Turbine speed/Output shaft speed Specified gear ratio: 1st (3.742), 2nd (2.003), 3rd (1.343), 4th (1.000), 5th (0.773), 6th (0.634), Rev (3.539) 	
	Requirements	Specified and calculated gear ratios at corresponding gear position: Matched	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

Step 2	Inspection items	Inspection of automatic transmission	
	Maintenance item	<Multi-Use Tester not used> Measure values of voltage between the following terminals. <ul style="list-style-type: none"> Oil pressure switch 1: Electronic control unit connector (CY17A) terminal No. 6 (+) - Connector (CY24A) terminal No. 8 (-) Oil pressure switch 2: Electronic control unit connector (CY17A) terminal No. 12 (+) - Connector (CY24A) terminal No. 8 (-) Oil pressure switch 3: Electronic control unit connector (CY17A) terminal No. 17 (+) - Connector (CY24A) terminal No. 8 (-) Oil pressure switch 4: Electronic control unit connector (CY17A) terminal No. 5 (+) - Connector (CY24A) terminal No. 8 (-) Oil pressure switch 5: Electronic control unit connector (CY17A) terminal No. 11 (+) - Connector (CY24A) terminal No. 8 (-) Oil pressure switch 6: Electronic control unit connector (CY17A) terminal No. 16 (+) - Connector (CY24A) terminal No. 8 (-) Shift solenoid 1: Electronic control unit connector (CY31A) terminal No. 1 (+) - Connector (CY24A) terminal No. 8 (-) Shift solenoid 2: Electronic control unit connector (CY31A) terminal No. 2 (+) - Connector (CY24A) terminal No. 8 (-) Shift solenoid 3: Electronic control unit connector (CY31A) terminal No. 3 (+) - Connector (CY24A) terminal No. 8 (-) <Multi-Use Tester used> Measure item No. 31 "Shift Valve 1", No. 32 "Shift Valve 2", No. 33 "Shift Valve 3", No. 56 "Gear Pos.", No. 61 "Oil Press SW1", No. 62 "Oil Press SW2", No. 63 "Oil Press SW3", No. 64 "Oil Press SW4", No. 65 "Oil Press SW5" and No. 66 "Oil Press SW6".	
	Inspection condition	Operating status of oil pressure switches 1 through 6 and shift solenoids 1 through 3 is checked for match with respective gear positions (1st, 2nd ... 6th). <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> Matched (oil pressure switch: O if 0 V; shift solenoid: O if 12 V) <Multi-Use Tester used> Matched	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Replacement of automatic transmission	

<Step 2 operating status diagram>

	1st	2nd	3rd	4th	5th	6th
Oil pressure switch 1		○		○		○
Oil pressure switch 2	○		○		○	
Oil pressure switch 3			○	○		
Oil pressure switch 4				○	○	○
Oil pressure switch 5	○					
Oil pressure switch 6	○					
Shift solenoid 1			○	○		
Shift solenoid 2				○	○	○
Shift solenoid 3	○					

○ : ON P60524E

Step 3	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Check for recurrence of the same diagnosis code.</p> <p><Multi-Use Tester used> Measure item No. 16 "Turbine Speed", No. 25 "VEH Speed 2" and No. 56 "Gear Pos." of Service Data.</p>	
	Inspection condition	<ul style="list-style-type: none"> • Output shaft speed [rpm]: Item No. 25 "VEH Speed 2" [MPH] × 4.268 × final gear ratio/tire radius [m] • Turbine speed [rpm]: Item No. 16 "Turbine Speed" • Calculated gear ratio: Turbine speed/Output shaft speed • Specified gear ratio: 1st (3.742), 2nd (2.003), 3rd (1.343), 4th (1.000), 5th (0.773), 6th (0.634), Rev (3.539) 	
	Requirements	<p><Multi-Use Tester not used> If the same diagnosis code occurs, replace automatic transmission.</p> <p><Multi-Use Tester used> Specified and calculated gear ratios at corresponding gear position: Matched</p>	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Replacement of automatic transmission	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0746/Flash code: 41

[Monitor ID]

38, 39

[Fault (outline)]

Linear solenoid 1 binds in OFF state.

[Diagnosis check]

- Linear solenoid 1 is monitored for fault when switched from low to high pressure according to the response of oil pressure switch 1.

[Code generation condition]

- Linear solenoid 1 is judged faulty when oil pressure switch 1 remains OFF (low pressure) for 1.5 second, then N, R or P range is selected and oil pressure switch 8 remains OFF for 0.5 second (check if stuck ON).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Oil pressure switch 8: ON
- Shift position: D, 3 or 2 range
- Automatic transmission fluid temperature: above -10°C { 14°F } <used for a part of judgment>

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

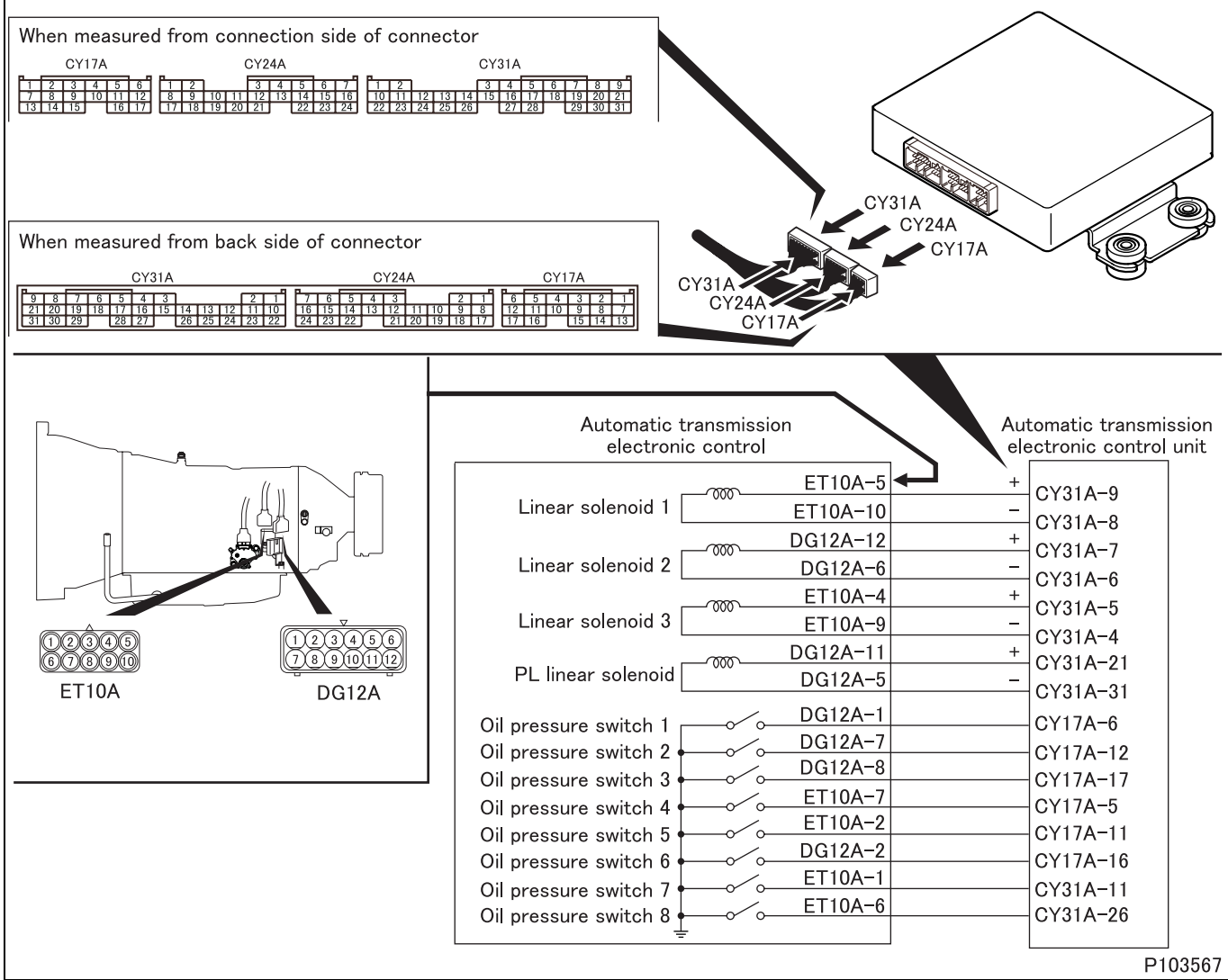
[Probable cause of trouble]

- Open-circuit or short-circuit between electronic control unit and linear solenoid 1/oil pressure switch 1
- Malfunction of each connector
- Malfunction of linear solenoid 1/oil pressure switch 1
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

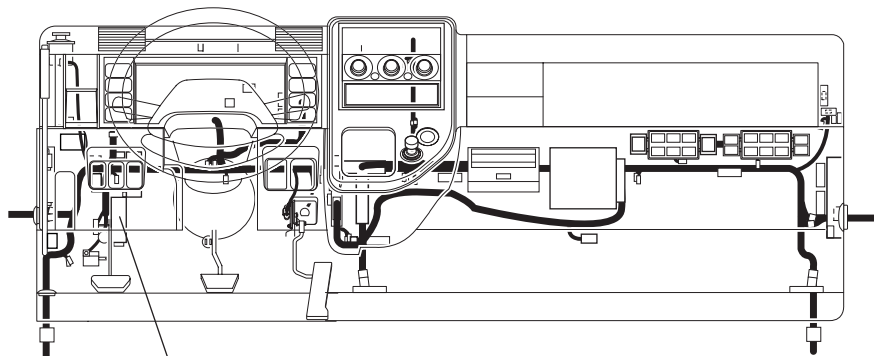
[Electronic Control Unit Connection Diagram]



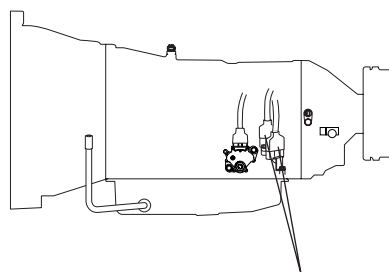
P103567

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside), shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data	
Step 1	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 26 "Linear Sol Press 1" of Service Data.	
	Inspection condition	Vehicle run	
	Requirements	<ul style="list-style-type: none"> • During speed change (1st to 2nd, 3rd to 4th, 5th to 6th): Rises • During speed change (2nd to 3rd, 4th to 5th): Declines 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
		NO	Go to step 2.

Step 2	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY17A) terminal No. 6 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 61 "Oil Press SW 1" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: 0 V • In 1st, 3rd, 5th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: ON • In 1st, 3rd, 5th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 9 and 8.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	5.5 ± 0.5 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Go to step 5.	

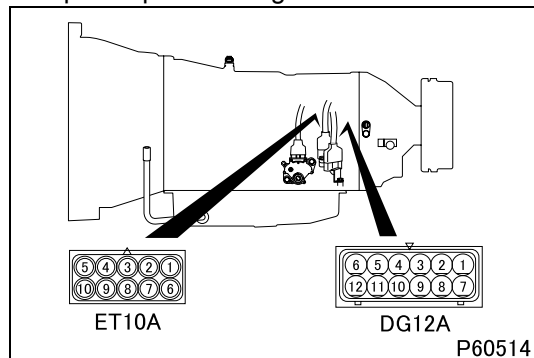
Step 4	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 9.
NO		Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify connector.	

TROUBLESHOOTING

Step 6	Inspection items		Inspection of solenoid unit			
	Maintenance item		Measure value of resistance between connector (ET10A) terminal No. 5 and 10.			
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector and measure solenoid side. Starter switch: OFF 			
	Requirements		$5.5 \pm 0.5 \Omega$			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 7.</td> </tr> <tr> <td>NO</td> <td>Replacement of solenoid (contact an Aisin Service Station)</td> </tr> </table>	YES	Go to step 7.	NO
YES	Go to step 7.					
NO	Replacement of solenoid (contact an Aisin Service Station)					

<Step 6 inspection diagram>



Step 7	Inspection items		Inspection of harness between solenoid and electronic control unit (power supply)			
	Maintenance item		Check circuit between connector (ET10A) terminal No. 5 and electronic control unit connector (CY31A) terminal No. 9.			
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.			
	Requirements		There is continuity.			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 8.</td> </tr> <tr> <td>NO</td> <td>Modify harness.</td> </tr> </table>	YES	Go to step 8.	NO
YES	Go to step 8.					
NO	Modify harness.					

Step 8	Inspection items		Inspection of harness between solenoid and electronic control unit (ground)			
	Maintenance item		Check circuit between connector (ET10A) terminal No. 10 and electronic control unit connector (CY31A) terminal No. 8.			
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.			
	Requirements		There is continuity.			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 9.</td> </tr> <tr> <td>NO</td> <td>Modify harness.</td> </tr> </table>	YES	Go to step 9.	NO
YES	Go to step 9.					
NO	Modify harness.					

Step 9	Inspection items		Inspection by control data			
	Maintenance item		<p><Multi-Use Tester not used> Check for recurrence of the same diagnosis code.</p> <p><Multi-Use Tester used> Measure item No. 26 "Linear Sol Press 1" of Service Data.</p>			
	Inspection condition		Vehicle run			
	Requirements		<p><Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> During speed change (1st to 2nd, 3rd to 4th, 5th to 6th): Rises During speed change (2nd to 3rd, 4th to 5th): Declines 			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to transient fault (See Gr00.).</td> </tr> <tr> <td>NO</td> <td>Go to step 10.</td> </tr> </table>	YES	Go to transient fault (See Gr00.).	NO
YES	Go to transient fault (See Gr00.).					
NO	Go to step 10.					

Step 10	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY17A) terminal No. 6 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 61 "Oil Press SW 1" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: 0 V • In 1st, 3rd, 5th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: ON • In 1st, 3rd, 5th gears: OFF
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of oil pressure switch 1 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0747/Flash code: 41

[Monitor ID]

40

[Fault (outline)]

Linear solenoid 1 binds in ON state.

[Diagnosis check]

- Linear solenoid 1 is monitored for fault when switched from high to low pressure according to the response of oil pressure switch 1.

[Code generation condition]

- Oil pressure switch 1 remains ON (high pressure).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- After linear solenoid 1 switched from high to low pressure

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (4th).

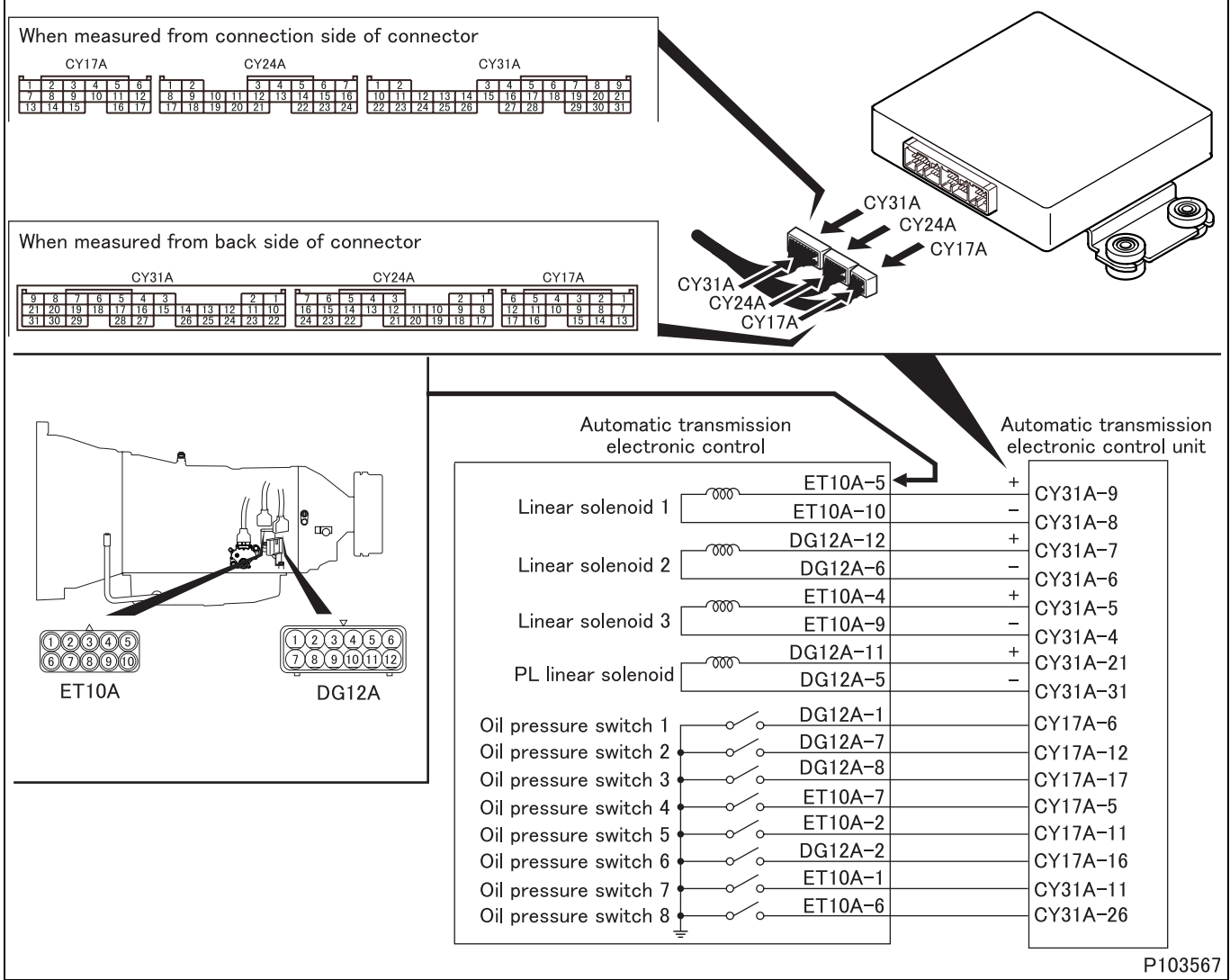
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and linear solenoid 1 or oil pressure switch 1
- Malfunction of each connector
- Malfunction of linear solenoid 1 or oil pressure switch 1
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

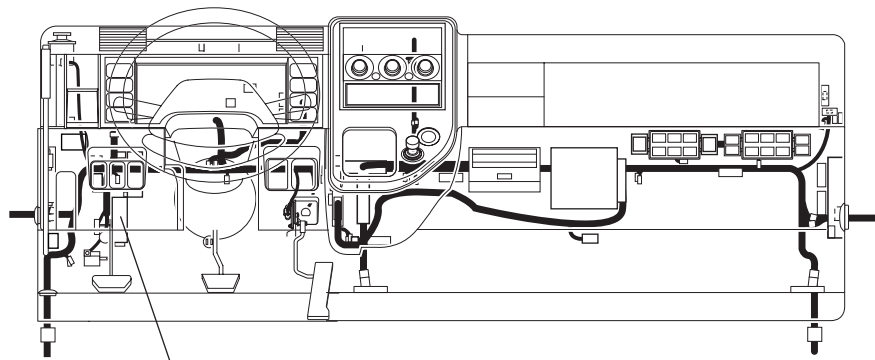
[Electronic Control Unit Connection Diagram]



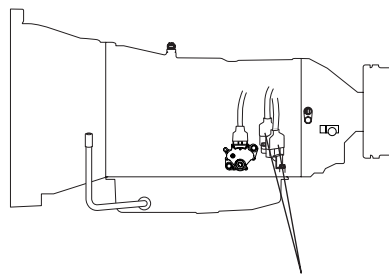
P103567

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside), shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data	
Step 1	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 26 "Linear Sol Press 1" of Service Data.	
	Inspection condition	Vehicle run	
	Requirements	<ul style="list-style-type: none"> • During speed change (1st to 2nd, 3rd to 4th, 5th to 6th): Rises • During speed change (2nd to 3rd, 4th to 5th): Declines 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
		NO	Go to step 2.

Step 2	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY17A) terminal No. 6 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 61 "Oil Press SW 1" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: 0 V • In 1st, 3rd, 5th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: ON • In 1st, 3rd, 5th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 9 and 8.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	5.5 ± 0.5 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
	NO	Go to step 5.	

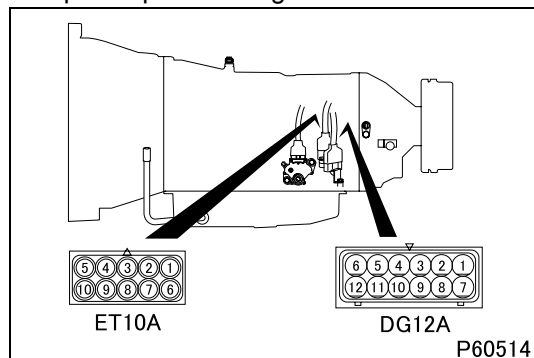
Step 4	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 9.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
	NO	Modify connector.	

TROUBLESHOOTING

Step 6	Inspection items	Inspection of solenoid unit		
	Maintenance item	Measure value of resistance between connector (ET10A) terminal No. 5 and 10.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector and measure solenoid side. • Starter switch: OFF 		
	Requirements	5.5 ± 0.5 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Replacement of solenoid (contact an Aisin Service Station)	

<Step 6 inspection diagram>



Step 7	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (ET10A) terminal No. 5 and electronic control unit connector (CY31A) terminal No. 9.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.	
		NO	Modify harness.	

Step 8	Inspection items	Inspection of harness between solenoid and electronic control unit (ground)		
	Maintenance item	Check circuit between connector (ET10A) terminal No. 10 and electronic control unit connector (CY31A) terminal No. 8.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 9.	
		NO	Modify harness.	

Step 9	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Check for recurrence of the same diagnosis code.</p> <p><Multi-Use Tester used> Measure item No. 26 "Linear Sol Press 1" of Service Data.</p>		
	Inspection condition	Vehicle run		
	Requirements	<p><Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • During speed change (1st to 2nd, 3rd to 4th, 5th to 6th): Rises. • During speed change (2nd to 3rd, 4th to 5th): Declines. 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Go to step 10.	

Step 10	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY17A) terminal No. 6 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 61 "Oil Press SW 1" of Service Data.</p>
	Inspection condition		<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: 0 V • In 1st, 3rd, 5th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: ON • In 1st, 3rd, 5th gears: OFF
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of oil pressure switch 1 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0748/Flash code: 26

[Monitor ID]

21, 22

[Fault (outline)]

Linear solenoid 1 is open-circuited or short-circuited.

[Diagnosis check]

- Resistance and current value in linear solenoid 1 is monitored for fault.

[Code generation condition]

Linear solenoid is judged faulty in either of the following cases.

- Resistance across the linear solenoid 1 remains higher than the specification (100 k Ω) for 0.065 second (open-circuited or circuit shorted to power supply).
- Current flowing in the linear solenoid 1 remains higher than the specification (4A) for 0.065 second (circuit shorted to ground).

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd for open-circuit, 4th for short-circuit).

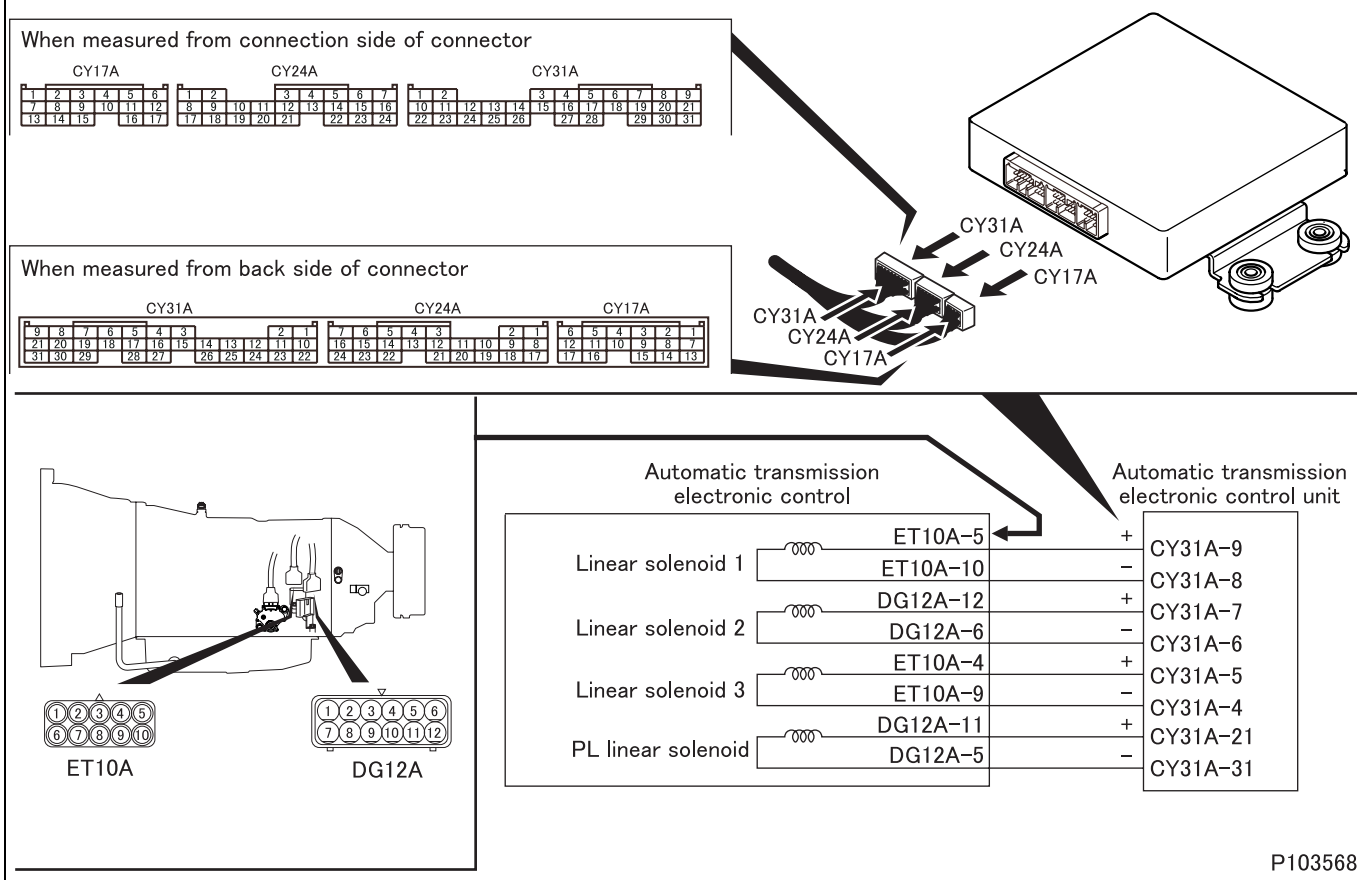
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and linear solenoid 1
- Malfunction of each connector
- Malfunction of linear solenoid 1
- Malfunction of electronic control unit

[Recoverability]

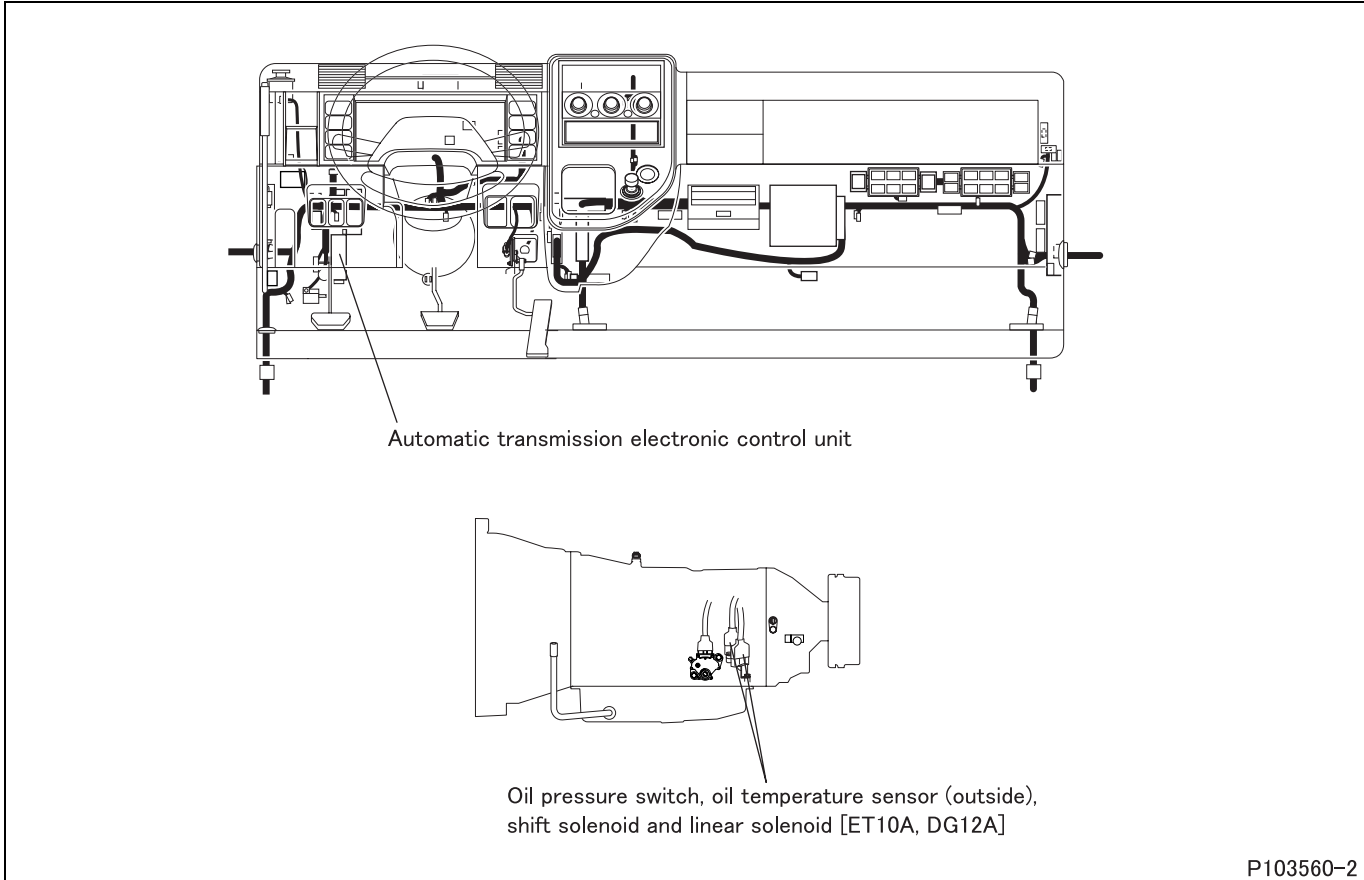
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



P103568

[Parts Identification and Location]



P103560-2

TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 26 "Linear Sol Press 1" of Service Data.	
	Inspection condition	Vehicle run	
	Requirements	<ul style="list-style-type: none"> During speed change (1st to 2nd, 3rd to 4th, 5th to 6th): Rises During speed change (2nd to 3rd, 4th to 5th): Declines 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 2.	

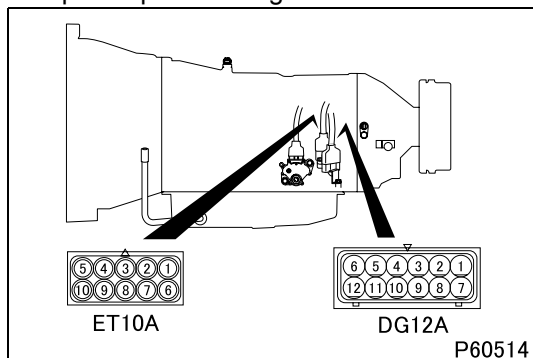
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 9 and 8.	
	Inspection condition	<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF 	
	Requirements	5.5 ± 0.5 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
NO		Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify connector.	

Step 4	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Modify connector.	

Step 5	Inspection items	Inspection of solenoid unit	
	Maintenance item	Measure value of resistance between connector (ET10A) terminal No. 5 and 10.	
	Inspection condition	<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF 	
	Requirements	5.5 ± 0.5 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Replacement of solenoid (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (ET10A) terminal No. 5 and electronic control unit connector (CY31A) terminal No. 9.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection of harness between solenoid and electronic control unit (ground)		
	Maintenance item	Check circuit between connector (ET10A) terminal No. 10 and electronic control unit connector (CY31A) terminal No. 8.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.	
		NO	Modify harness.	

Step 8	Inspection items	Inspection by control data		
	Maintenance item	<Multi-Use Tester not used> Check for recurrence of the same diagnosis code. <Multi-Use Tester used> Measure item No. 26 "Linear Sol Press 1" of Service Data.		
	Inspection condition	Vehicle run		
	Requirements	<Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit. <Multi-Use Tester used> <ul style="list-style-type: none"> • During speed change (1st to 2nd, 3rd to 4th, 5th to 6th): Rises • During speed change (2nd to 3rd, 4th to 5th): Declines 		
	Inspection result (Is the judging standard satisfied?)	YES	If the diagnosis code remains after actual run, replace the electronic control unit.	
		NO	Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0751/Flash code: 45

[Monitor ID]

52

[Fault (outline)]

Shift solenoid 1 binds in OFF state.

[Diagnosis check]

- Shift solenoid 1 is monitored for fault when switched from pressure OFF to pressure ON according to the response of oil pressure switch 3

[Code generation condition]

- Oil pressure switch 3 remains OFF (low pressure).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- After shift solenoid 1 switched from pressure OFF to ON

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

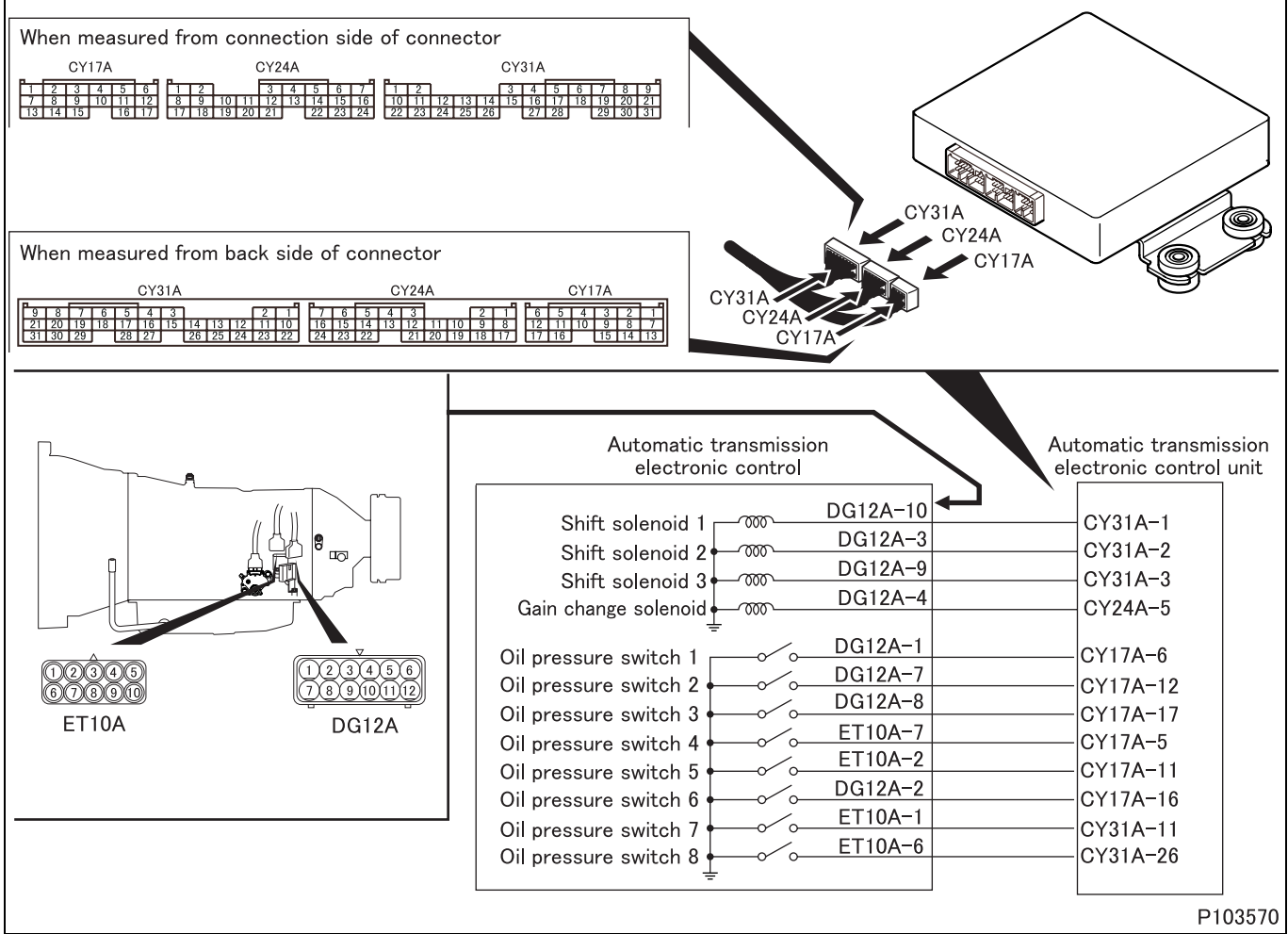
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and shift solenoid 1 or oil pressure switch 3
- Malfunction of each connector
- Malfunction of shift solenoid 1 or oil pressure switch 3
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

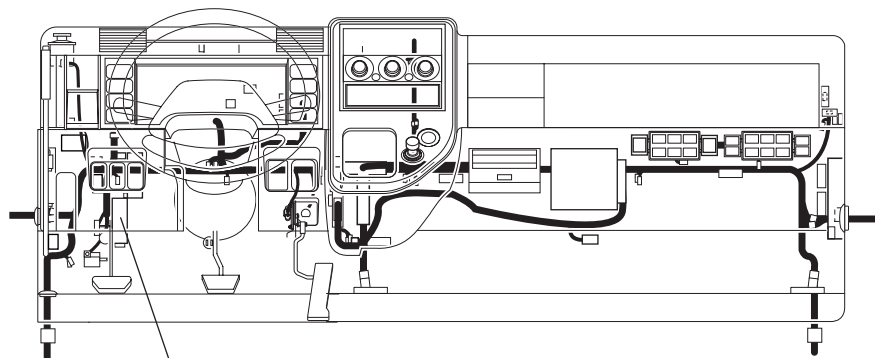
[Electronic Control Unit Connection Diagram]



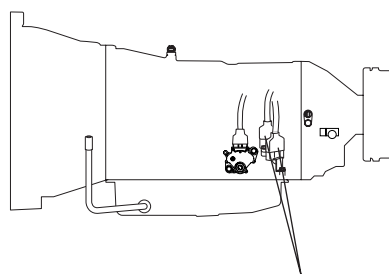
P103570

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside), shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY31A) terminal No. 1 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 31 "Shift Valve 1" and No. 71 "Shift Valve Press 1" of Service Data.</p>	
	Inspection condition	Vehicle run <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 31 "Shift Valve 1"></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In any gears except above: OFF <p><No. 71 "Shift Valve Press 1"></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: HIGH • In any gears except above: LOW 	
Inspection result (Is the judging standard satisfied?)		YES	Go to transient fault (See Gr00.).
		NO	Go to step 2.

Step 2	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY17A) terminal No. 17 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 63 "Oil Press SW 3" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 3rd, 4th gears: 0 V • In 1st, 2nd, 5th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In 1st, 2nd, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 1 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Go to step 5.	

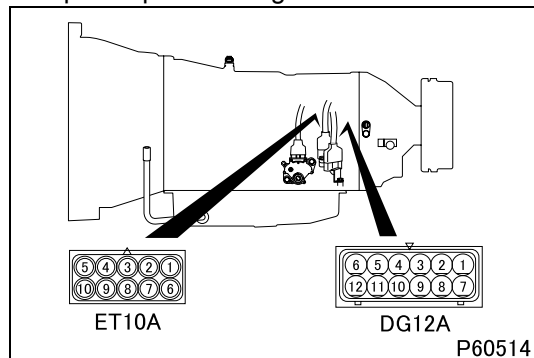
Step 4	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify connector.	

TROUBLESHOOTING

Step 6	Inspection items	Inspection of solenoid unit		
	Maintenance item	Measure value of resistance between connector (DG12A) terminal No. 10 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure solenoid side terminal. • Starter switch: OFF 		
	Requirements	13 ± 2 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Replacement of solenoid (contact an Aisin Service Station)	

<Step 6 inspection diagram>



Step 7	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 10 and electronic control unit connector (CY31A) terminal No. 1.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.	
		NO	Modify harness.	

Step 8	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY31A) terminal No. 1 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 31 "Shift Valve 1" and No. 71 "Shift Valve Press 1" of Service Data.</p>		
	Inspection condition	<p>Vehicle run</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 31 "Shift Valve 1"></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In any gears except above: OFF <p><No. 71 "Shift Valve Press 1"></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: HIGH • In any gears except above: LOW 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Go to step 9.	

Step 9	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY17A) terminal No. 17 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 63 "Oil Press SW 3" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: 0 V • In 1st, 2nd, 5th, 6th gear: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In 1st, 2nd, 5th, 6th gear: OFF
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of oil pressure switch 3 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0752/Flash code: 45

[Monitor ID]

51

[Fault (outline)]

Shift solenoid 1 binds in ON state.

[Diagnosis check]

- Shift solenoid 1 is monitored for fault when switched from pressure ON to pressure OFF according to the response of oil pressure switch 3

[Code generation condition]

- Oil pressure switch 3 remains ON (high pressure).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- After shift solenoid 1 switched from pressure ON to OFF

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

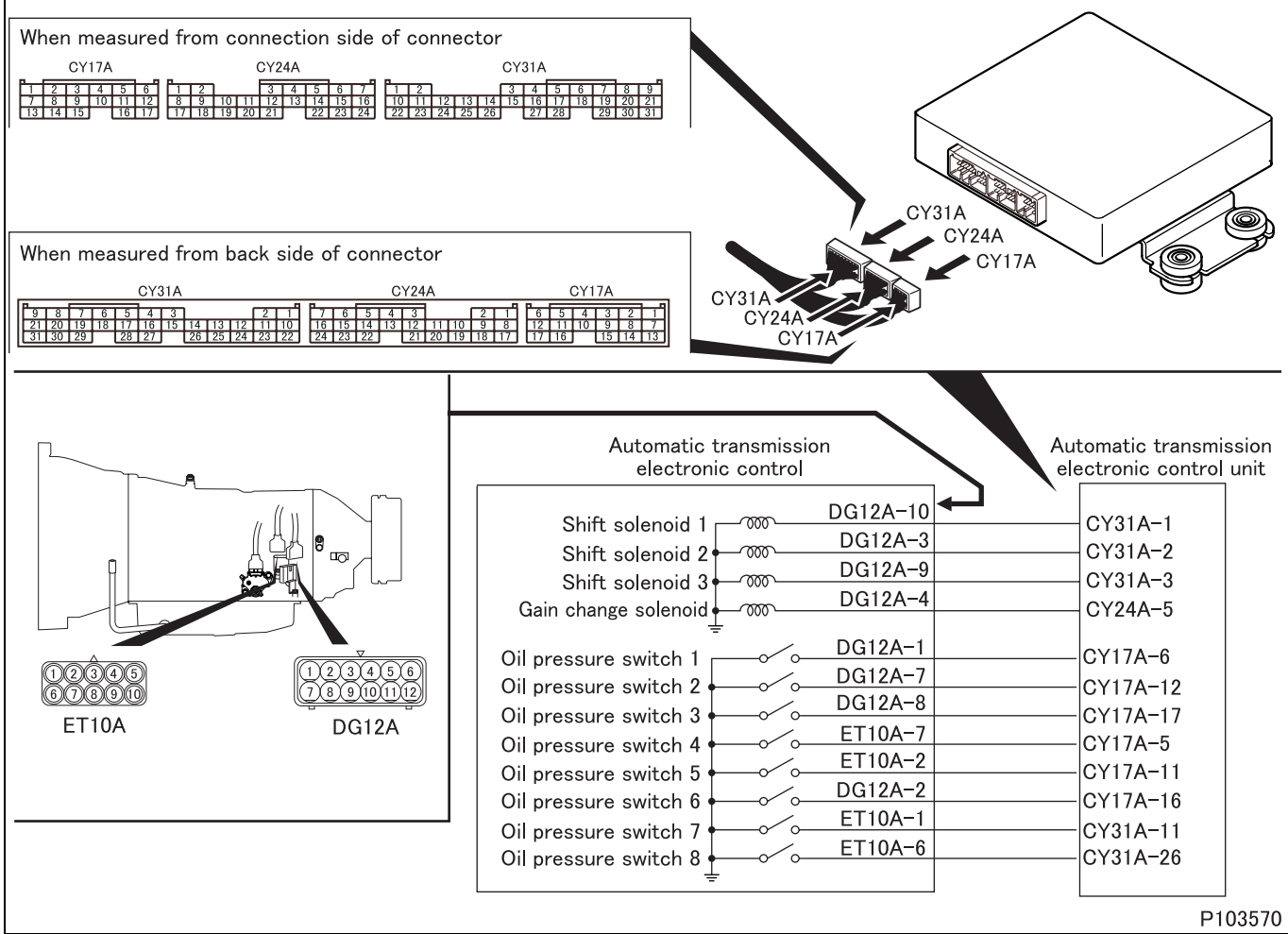
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and shift solenoid 1 or oil pressure switch 3
- Malfunction of each connector
- Malfunction of shift solenoid 1 or oil pressure switch 3
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

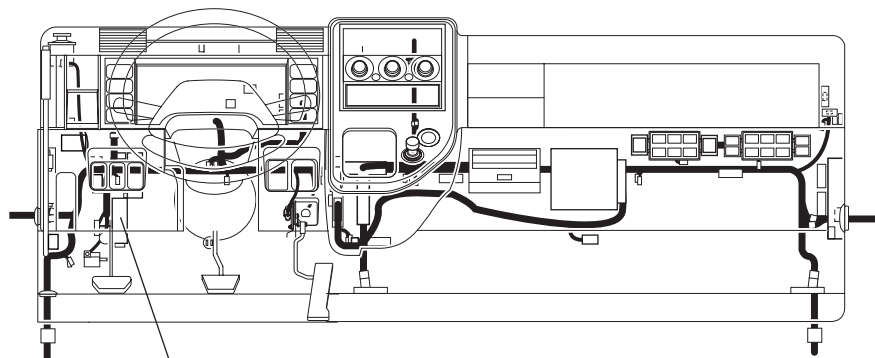
[Electronic Control Unit Connection Diagram]



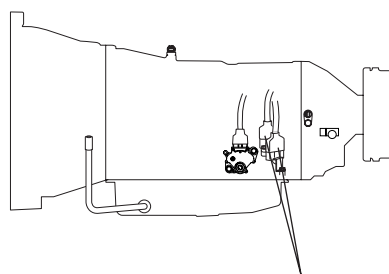
P103570

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside), shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data
Step 1	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY31A) terminal No. 1 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 31 "Shift Valve 1" and No. 71 "Shift Valve Press 1" of Service Data.</p>
	Inspection condition	<p>Vehicle run</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 31 "Shift Valve 1"></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In any gears except above: OFF <p><No. 71 "Shift Valve Press 1"></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: HIGH • In any gears except above: LOW
	Inspection result (Is the judging standard satisfied?)	<p>YES</p> <p>NO</p>

Step 2	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY17A) terminal No. 17 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 63 "Oil Press SW 3" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 3rd, 4th gears: 0 V • In 1st, 2nd, 5th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In 1st, 2nd, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 1 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
	NO	Go to step 5.	

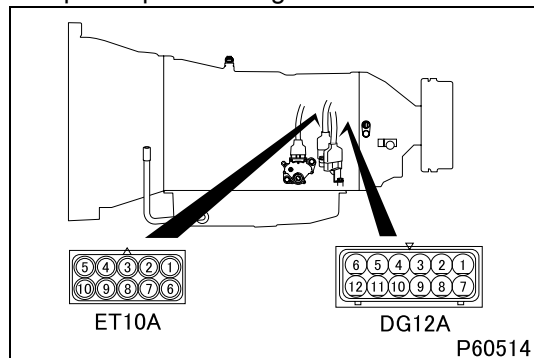
Step 4	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
	NO	Modify connector.	

TROUBLESHOOTING

Step 6	Inspection items	Inspection of solenoid unit		
	Maintenance item	Measure value of resistance between connector (DG12A) terminal No. 10 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure solenoid side terminal. • Starter switch: OFF 		
	Requirements	13 ± 2 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Replacement of solenoid (contact an Aisin Service Station)	

<Step 6 inspection diagram>



Step 7	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 10 and electronic control unit connector (CY31A) terminal No. 1.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.	
		NO	Modify harness.	

Step 8	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY31A) terminal No. 1 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 31 "Shift Valve 1" and No. 71 "Shift Valve Press 1" of Service Data.</p>		
	Inspection condition	<p>Vehicle run</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 31 "Shift Valve 1"></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In any gears except above: OFF <p><No. 71 "Shift Valve Press 1"></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: HIGH • In any gears except above: LOW 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Go to step 9.	

Step 9	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY17A) terminal No. 17 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 63 "Oil Press SW 3" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: 0 V • In 1st, 2nd, 5th, 6th gear: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In 1st, 2nd, 5th, 6th gear: OFF
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of oil pressure switch 3 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0756/Flash code: 46

[Monitor ID]

56

[Fault (outline)]

Shift solenoid 2 binds in OFF state.

[Diagnosis check]

- Shift solenoid 2 is monitored for fault when switched from pressure OFF to pressure ON according to the response of oil pressure switch 4

[Code generation condition]

- Oil pressure switch 4 remains OFF (low pressure).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- After shift solenoid 2 switched from pressure OFF to ON

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

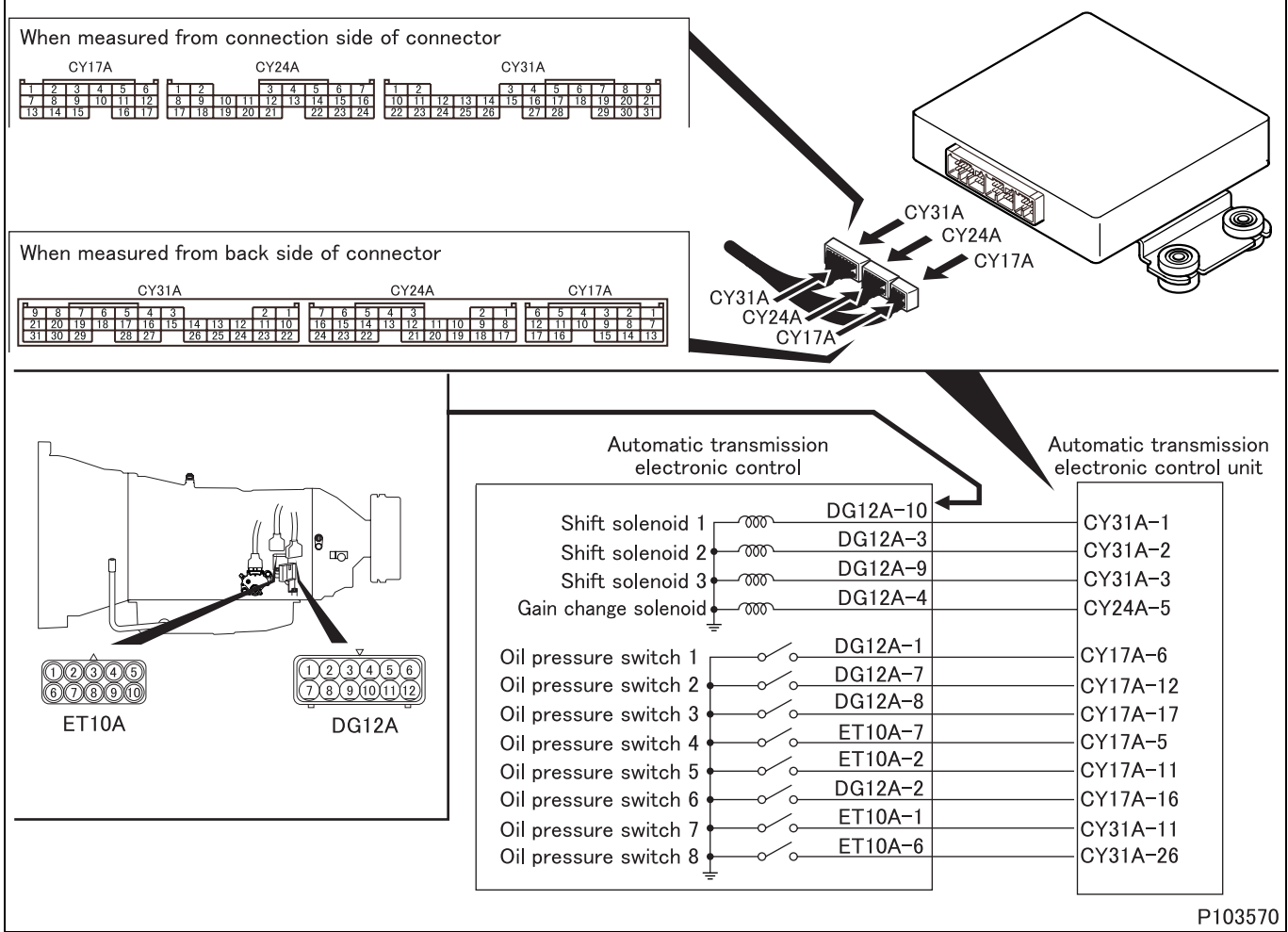
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and shift solenoid 2 or oil pressure switch 4
- Malfunction of each connector
- Malfunction of shift solenoid 2 or oil pressure switch 4
- Malfunction of electronic control unit

[Recoverability]

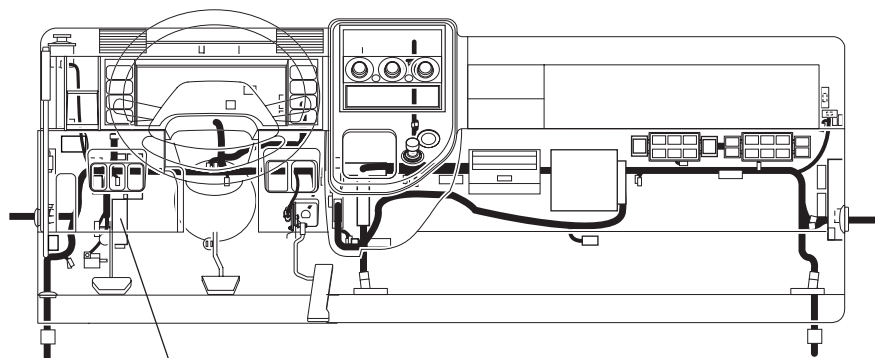
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]

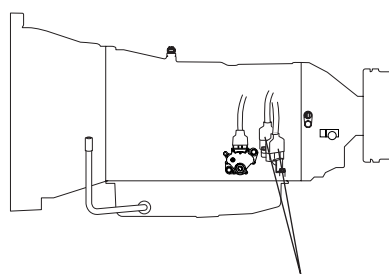


TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside),
shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY31A) terminal No.2 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 32 "Shift Valve 2" and No. 72 "Shift Valve Press 2" of Service Data.</p>	
	Inspection condition	<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 4th, 5th, and 6th gears: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 32 "Shift Valve 2"></p> <ul style="list-style-type: none"> • In 4th, 5th, and 6th gears: ON • In any gears except above: OFF <p><No. 72 "Shift Valve Press 2"></p> <ul style="list-style-type: none"> • In 4th, 5th, and 6th gears: HIGH • In any gears except above: LOW 	
Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
	NO	Go to step 2.	

Step 2	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 5 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 64 "Oil Press SW 4" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: 0 V • In 1st, 2nd, 3rd gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: ON • In 1st, 2nd, 3rd gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 2 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
	NO	Go to step 5.	

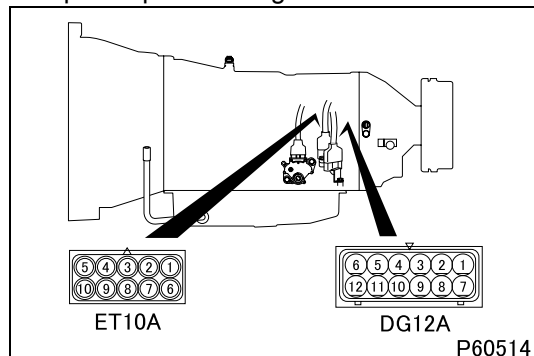
Step 4	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
	NO	Modify connector.	

TROUBLESHOOTING

Step 6	Inspection items		Inspection of solenoid unit			
	Maintenance item		Measure value of resistance between connector (DG12A) terminal No. 3 and automatic transmission case.			
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF 			
	Requirements		$13 \pm 2 \Omega$			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 7.</td> </tr> <tr> <td>NO</td> <td>Replacement of solenoid (contact an Aisin Service Station)</td> </tr> </table>	YES	Go to step 7.	NO
YES	Go to step 7.					
NO	Replacement of solenoid (contact an Aisin Service Station)					

<Step 6 inspection diagram>



Step 7	Inspection items		Inspection of harness between solenoid and electronic control unit (power supply)			
	Maintenance item		Check circuit between connector (DG12A) terminal No. 3 and electronic control unit connector (CY31A) terminal No. 2.			
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.			
	Requirements		There is continuity.			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 8.</td> </tr> <tr> <td>NO</td> <td>Modify harness.</td> </tr> </table>	YES	Go to step 8.	NO
YES	Go to step 8.					
NO	Modify harness.					

Step 8	Inspection items		Inspection by control data			
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY31A) terminal No. 1 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 32 "Shift Valve 2" and No. 72 "Shift Valve Press 2" of Service Data.</p>			
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>			
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 4th, 5th, and 6th gears: 12 V In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 32 "Shift Valve 2"></p> <ul style="list-style-type: none"> In 4th, 5th, and 6th gears: ON In any gears except above: OFF <p><No. 72 "Shift Valve Press 2"></p> <ul style="list-style-type: none"> In 4th, 5th, and 6th gears: HIGH In any gears except above: LOW 			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to transient fault (See Gr00.).</td> </tr> <tr> <td>NO</td> <td>Go to step 9.</td> </tr> </table>	YES	Go to transient fault (See Gr00.).	NO
YES	Go to transient fault (See Gr00.).					
NO	Go to step 9.					

Step 9	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 5 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 64 "Oil Press SW 4" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: 0 V • In 1st, 2nd, 3rd gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: ON • In 1st, 2nd, 3rd gears: OFF
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of oil pressure switch 4 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0757/Flash code: 46

[Monitor ID]

55

[Fault (outline)]

Shift solenoid 2 binds in ON state.

[Diagnosis check]

- Shift solenoid 2 is monitored for fault when switched from pressure ON to pressure OFF according to the response of oil pressure switch 4

[Code generation condition]

- Oil pressure switch 4 remains ON (high pressure).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- After shift solenoid 2 switched from pressure ON to OFF

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (5th).

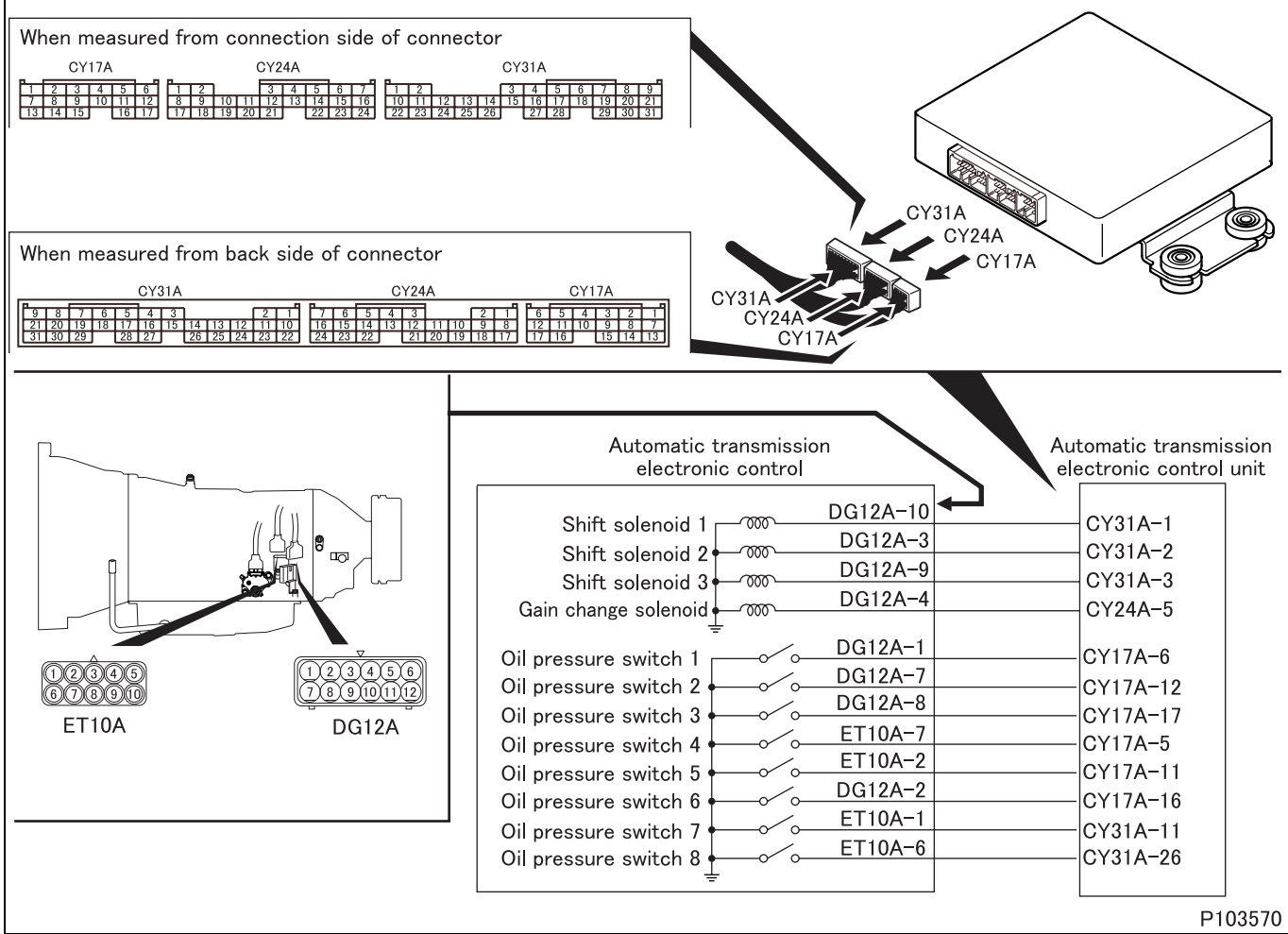
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and shift solenoid 2 or oil pressure switch 4
- Malfunction of each connector
- Malfunction of shift solenoid 2 or oil pressure switch 4
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

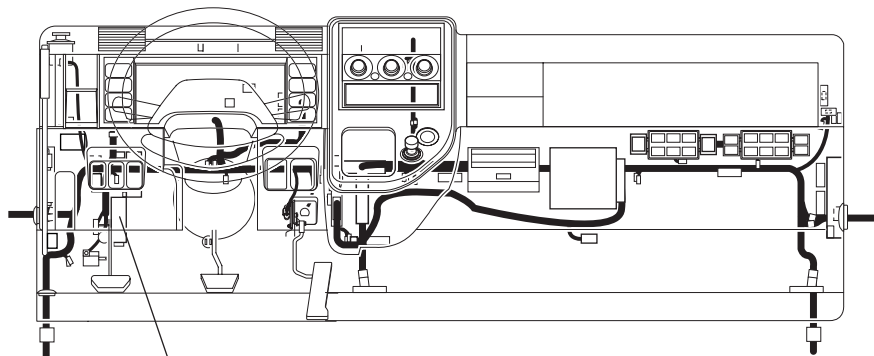
[Electronic Control Unit Connection Diagram]



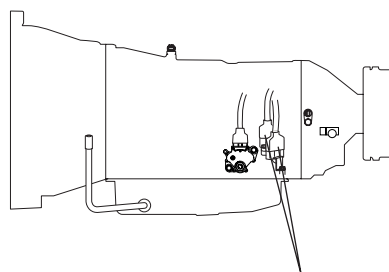
P103570

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside), shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY31A) terminal No. 2 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 32 "Shift Valve 2" and No. 72 "Shift Valve Press 2" of Service Data.</p>	
	Inspection condition	<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 4th, 5th, and 6th gears: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 32 "Shift Valve 2"></p> <ul style="list-style-type: none"> • In 4th, 5th, and 6th gears: ON • In any gears except above: OFF <p><No. 72 "Shift Valve Press 2"></p> <ul style="list-style-type: none"> • In 4th, 5th, and 6th gears: HIGH • In any gears except above: LOW 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

Step 2	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 5 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 64 "Oil Press SW 4" of Service Data.</p>	
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: 0 V • In 1st, 2nd, 3rd gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: ON • In 1st, 2nd, 3rd gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 2 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Go to step 5.	

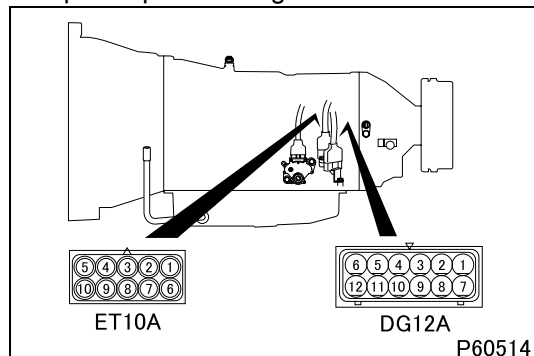
Step 4	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify connector.	

TROUBLESHOOTING

Step 6	Inspection items		Inspection of solenoid unit			
	Maintenance item		Measure value of resistance between connector (DG12A) terminal No. 3 and automatic transmission case.			
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF 			
	Requirements		$13 \pm 2 \Omega$			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 7.</td> </tr> <tr> <td>NO</td> <td>Replacement of solenoid (contact an Aisin Service Station)</td> </tr> </table>	YES	Go to step 7.	NO
YES	Go to step 7.					
NO	Replacement of solenoid (contact an Aisin Service Station)					

<Step 6 inspection diagram>



Step 7	Inspection items		Inspection of harness between solenoid and electronic control unit (power supply)			
	Maintenance item		Check circuit between connector (DG12A) terminal No. 3 and electronic control unit connector (CY31A) terminal No. 2.			
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.			
	Requirements		There is continuity.			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 8.</td> </tr> <tr> <td>NO</td> <td>Modify harness.</td> </tr> </table>	YES	Go to step 8.	NO
YES	Go to step 8.					
NO	Modify harness.					

Step 8	Inspection items		Inspection by control data			
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between electronic control unit connector (CY31A) terminal No. 1 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 32 "Shift Valve 2" and No. 72 "Shift Valve Press 2" of Service Data.</p>			
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>			
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 4th, 5th, and 6th gears: 12 V In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 32 "Shift Valve 2"></p> <ul style="list-style-type: none"> In 4th, 5th, and 6th gears: ON In any gears except above: OFF <p><No. 72 "Shift Valve Press 2"></p> <ul style="list-style-type: none"> In 4th, 5th, and 6th gears: HIGH In any gears except above: LOW 			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to transient fault (See Gr00.).</td> </tr> <tr> <td>NO</td> <td>Go to step 9.</td> </tr> </table>	YES	Go to transient fault (See Gr00.).	NO
YES	Go to transient fault (See Gr00.).					
NO	Go to step 9.					

Step 9	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 5 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 64 "Oil Press SW 4" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: 0 V • In 1st, 2nd, 3rd gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: ON • In 1st, 2nd, 3rd gears: OFF
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of oil pressure switch 4 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0761/Flash code: 47

[Monitor ID]

60

[Fault (outline)]

Shift solenoid 3 binds in OFF state.

[Diagnosis check]

- Shift solenoid 3 (shift solenoid valve 3) is monitored for fault when switched from pressure OFF to pressure ON according to the response of oil pressure switch 5

[Code generation condition]

- Oil pressure switch 5 remains OFF.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- After shift solenoid 3 (shift solenoid valve 3) switched from pressure OFF to ON

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (2nd).

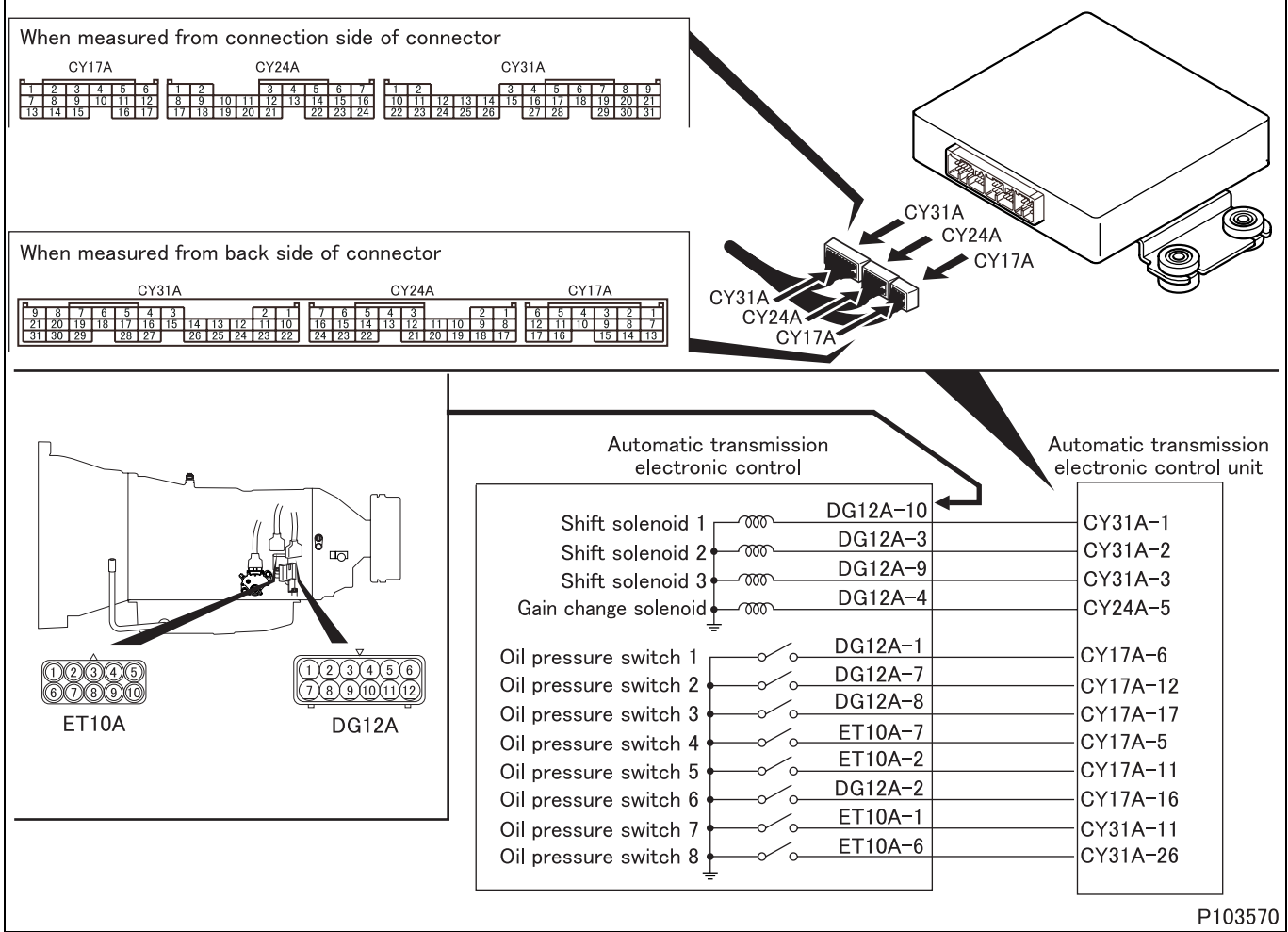
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and shift solenoid 3 or oil pressure switch 5
- Malfunction of each connector
- Malfunction of shift solenoid 3 or oil pressure switch 5
- Malfunction of electronic control unit

[Recoverability]

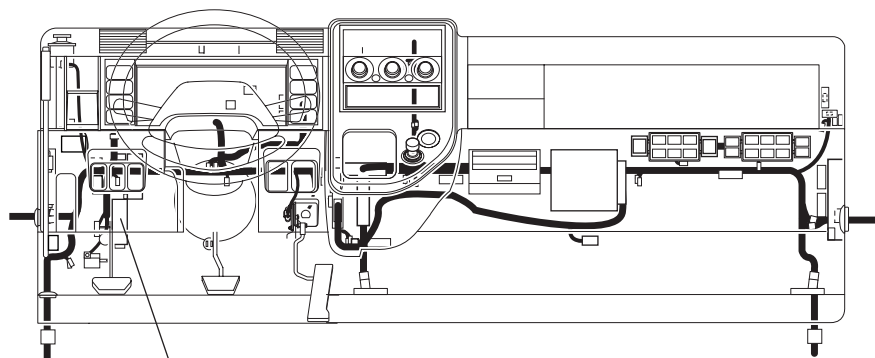
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]

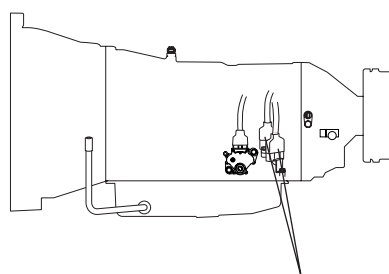


TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside),
shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 33 "Shift Valve 3" and No. 73 "Shift Valve Press 3" of Service Data.</p>	
	Inspection condition	<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 33 "Shift Valve 3"></p> <ul style="list-style-type: none"> • In 1st gear: ON • In any gears except above: OFF <p><No. 73 "Shift Valve Press 3"></p> <ul style="list-style-type: none"> • In 1st gear: HIGH • In any gears except above: LOW 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

Step 2	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 11 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 65 "Oil Press SW 5" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 1st gear: 0 V • In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 1st gear: ON • In 2nd, 3rd, 4th, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 3 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Go to step 5.	

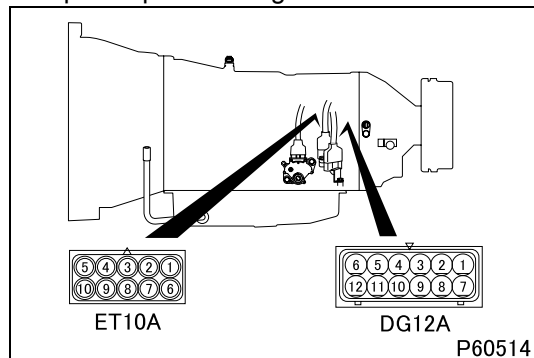
Step 4	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify connector.	

TROUBLESHOOTING

Step 6	Inspection items		Inspection of solenoid unit			
	Maintenance item		Measure value of resistance between connector (DG12A) terminal No. 9 and automatic transmission case.			
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF 			
	Requirements		$13 \pm 2 \Omega$			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 7.</td> </tr> <tr> <td>NO</td> <td>Replacement of solenoid (contact an Aisin Service Station)</td> </tr> </table>	YES	Go to step 7.	NO
YES	Go to step 7.					
NO	Replacement of solenoid (contact an Aisin Service Station)					

<Step 6 inspection diagram>



Step 7	Inspection items		Inspection of harness between solenoid and electronic control unit (power supply)			
	Maintenance item		Check circuit between connector (DG12A) terminal No. 9 and electronic control unit connector (CY31A) terminal No. 3.			
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.			
	Requirements		There is continuity.			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 8.</td> </tr> <tr> <td>NO</td> <td>Modify harness.</td> </tr> </table>	YES	Go to step 8.	NO
YES	Go to step 8.					
NO	Modify harness.					

Step 8	Inspection items		Inspection by control data			
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 33 "Shift Valve 3" and No. 73 "Shift Valve Press 3" of Service Data.</p>			
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>			
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 1st gear: 12 V In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 33 "Shift Valve 3"></p> <ul style="list-style-type: none"> In 1st gear: ON In any gears except above: OFF <p><No. 73 "Shift Valve Press 3"></p> <ul style="list-style-type: none"> In 1st gear: HIGH In any gears except above: LOW 			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to transient fault (See Gr00.).</td> </tr> <tr> <td>NO</td> <td>Go to step 9.</td> </tr> </table>	YES	Go to transient fault (See Gr00.).	NO
YES	Go to transient fault (See Gr00.).					
NO	Go to step 9.					

Step 9	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 11 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 65 "Oil Press SW 5" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 0 V • In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 1st gear: ON • In 2nd, 3rd, 4th, 5th, 6th gears: OFF
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of oil pressure switch 5 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0762/Flash code: 47

[Monitor ID]

59

[Fault (outline)]

Shift solenoid 3 binds in ON state.

[Diagnosis check]

- Shift solenoid 3 (shift solenoid valve 3) is monitored for fault when switched from pressure ON to pressure OFF according to the response of oil pressure switch 5

[Code generation condition]

- Oil pressure switch 5 remains ON (high pressure).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- After shift solenoid 3 (shift solenoid valve 3) switched from pressure ON to OFF

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (2nd).

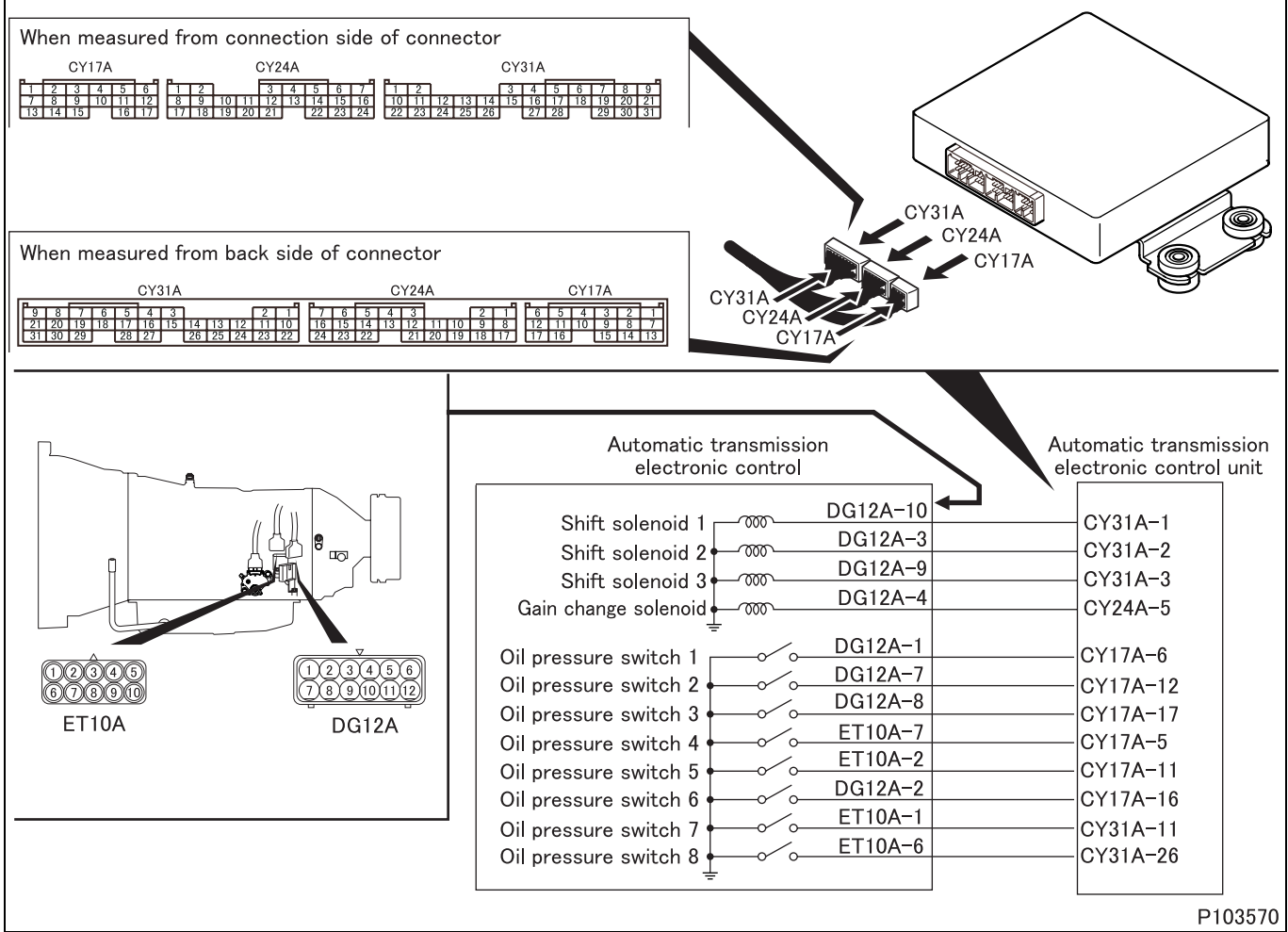
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and shift solenoid 3 or oil pressure switch 5
- Malfunction of each connector
- Malfunction of shift solenoid 3 or oil pressure switch 5
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

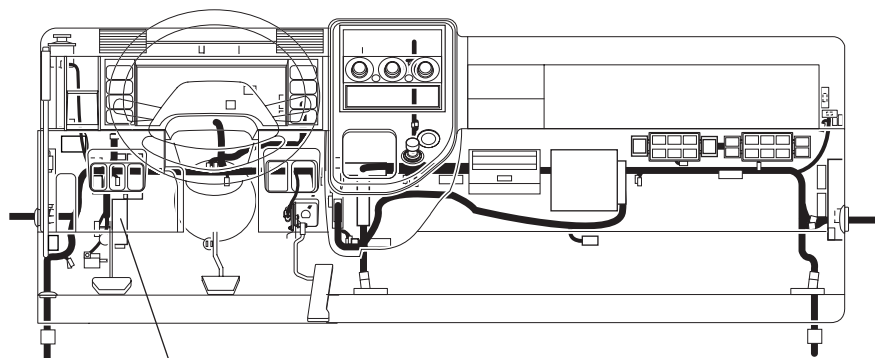
[Electronic Control Unit Connection Diagram]



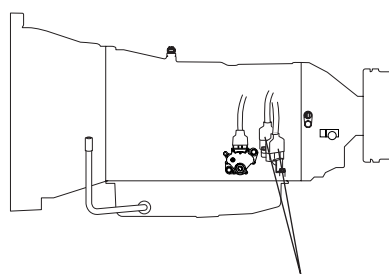
P103570

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside),
shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data
Step 1	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 33 "Shift Valve 3" and No. 73 "Shift Valve Press 3" of Service Data.</p>
	Inspection condition	<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 33 "Shift Valve 3"></p> <ul style="list-style-type: none"> • In 1st gear: ON • In any gears except above: OFF <p><No. 73 "Shift Valve Press 3"></p> <ul style="list-style-type: none"> • In 1st gear: HIGH • In any gears except above: LOW
	Inspection result (Is the judging standard satisfied?)	<p>YES</p> <p>NO</p>

Step 2	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 11 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 65 "Oil Press SW 5" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 1st gear: 0 V • In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 1st gear: ON • In 2nd, 3rd, 4th, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 3 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Go to step 5.	

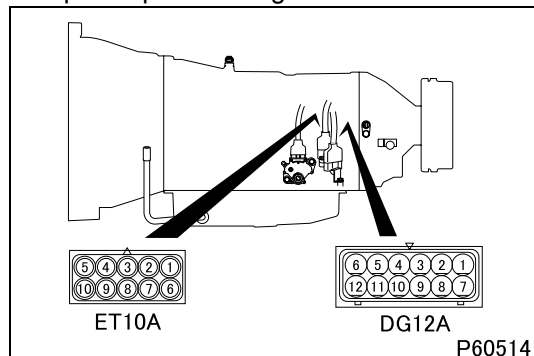
Step 4	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify connector.	

TROUBLESHOOTING

Step 6	Inspection items	Inspection of solenoid unit		
	Maintenance item	Measure value of resistance between connector (DG12A) terminal No. 9 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure solenoid side terminal. • Starter switch: OFF 		
	Requirements	13 ± 2 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Replacement of solenoid (contact an Aisin Service Station)	

<Step 6 inspection diagram>



Step 7	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 9 and electronic control unit connector (CY31A) terminal No. 3.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.	
		NO	Modify harness.	

Step 8	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 33 "Shift Valve 3" and No. 73 "Shift Valve Press 3" of Service Data.</p>		
	Inspection condition	<Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 33 "Shift Valve 3"></p> <ul style="list-style-type: none"> • In 1st gear: ON • In any gears except above: OFF <p><No. 73 "Shift Valve Press 3"></p> <ul style="list-style-type: none"> • In 1st gear: HIGH • In any gears except above: LOW 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Go to step 9.	

Step 9	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 11 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 65 "Oil Press SW 5" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 0 V • In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 1st gear: ON • In 2nd, 3rd, 4th, 5th, 6th gears: OFF
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of oil pressure switch 5 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0766/Flash code: 55

[Monitor ID]

64

[Fault (outline)]

Shift solenoid 3 binds in OFF state.

[Diagnosis check]

- Shift solenoid 3 (shift solenoid valve 4) is monitored for fault when switched from pressure OFF to pressure ON according to the response of oil pressure switch 6

[Code generation condition]

- Oil pressure switch 6 remains OFF (low pressure).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- After shift solenoid 3 (shift solenoid valve 4) switched from pressure OFF to ON

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (2nd).

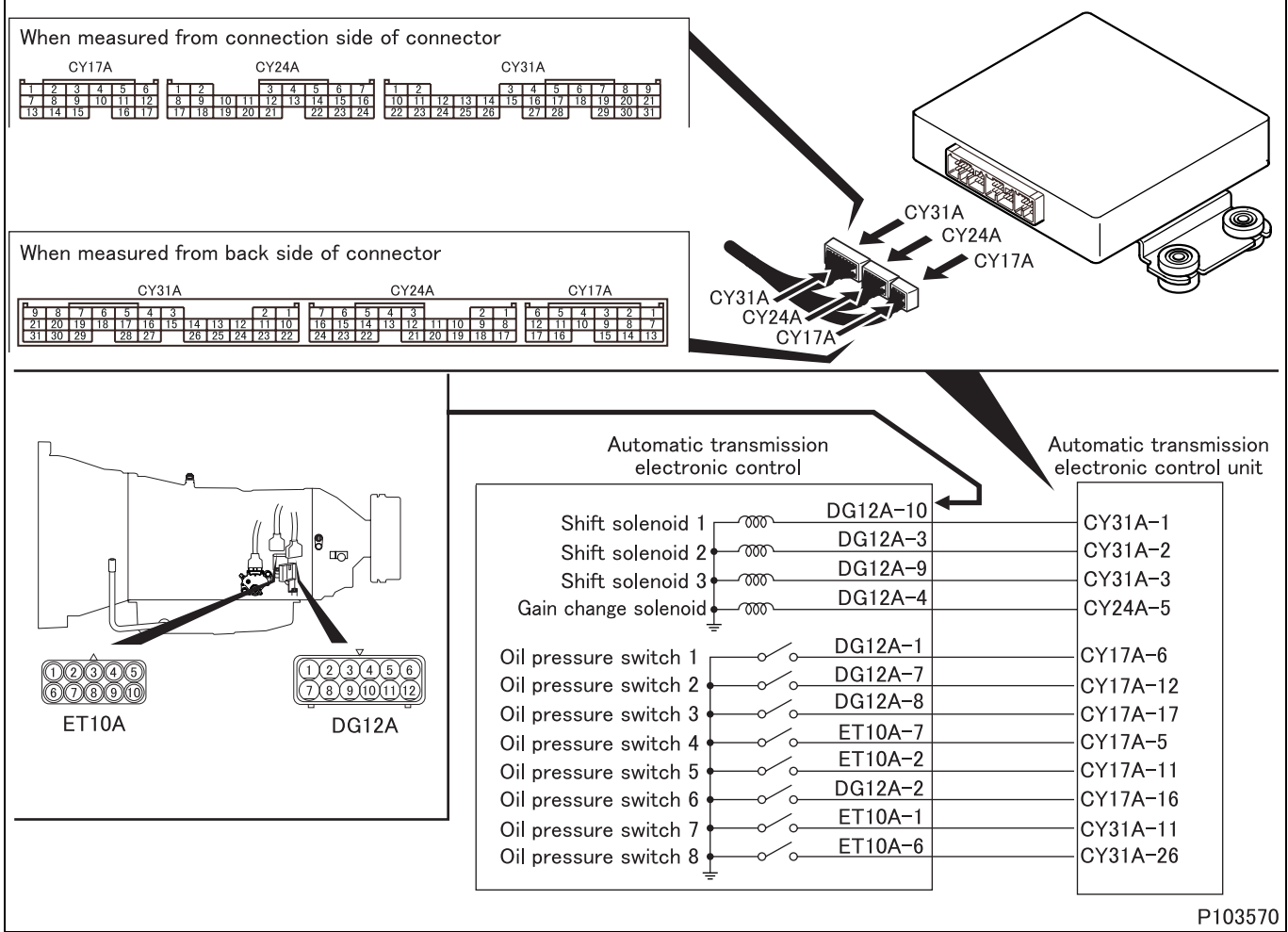
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and shift solenoid 3 or oil pressure switch 6
- Malfunction of each connector
- Malfunction of shift solenoid 3 or oil pressure switch 6
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

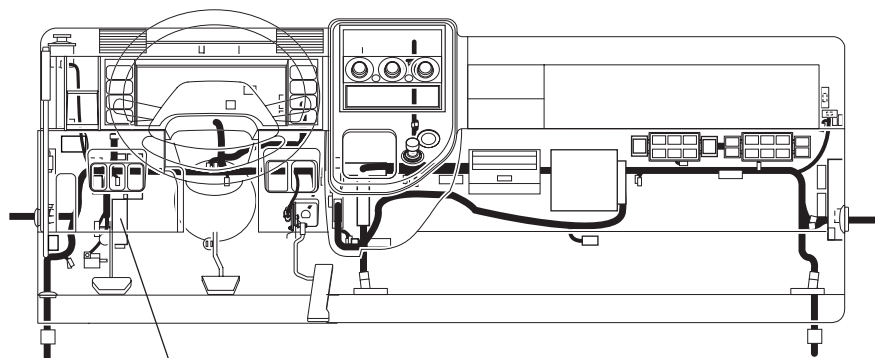
[Electronic Control Unit Connection Diagram]



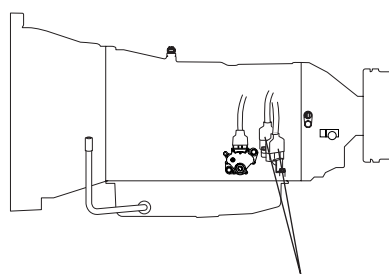
P103570

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside), shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data
Step 1	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 33 "Shift Valve 3" and No. 73 "Shift Valve Press 3" of Service Data.</p>
	Inspection condition	<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 33 "Shift Valve 3"></p> <ul style="list-style-type: none"> • In 1st gear: ON • In any gears except above: OFF <p><No. 73 "Shift Valve Press 3"></p> <ul style="list-style-type: none"> • In 1st gear: HIGH • In any gears except above: LOW
	Inspection result (Is the judging standard satisfied?)	<p>YES</p> <p>NO</p>

Step 2	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 16 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 66 "Oil Press SW 6" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 1st gear: 0 V • In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 1st gear: ON • In 2nd, 3rd, 4th, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY24A) terminal No. 5 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Go to step 5.	

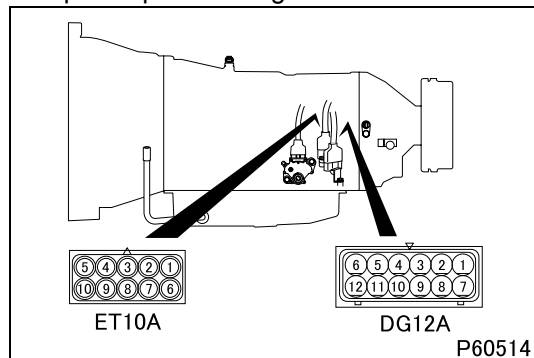
Step 4	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify connector.	

TROUBLESHOOTING

Step 6	Inspection items		Inspection of solenoid unit
	Maintenance item		Measure value of resistance between connector (DG12A) terminal No. 4 and automatic transmission case.
	Inspection condition		<ul style="list-style-type: none"> • Disconnect connector, and measure solenoid side terminal. • Starter switch: OFF
	Requirements		$13 \pm 2 \Omega$
	Inspection result (Is the judging standard satisfied?)		YES NO

<Step 6 inspection diagram>



Step 7	Inspection items		Inspection of harness between solenoid and electronic control unit (power supply)
	Maintenance item		Check circuit between connector (DG12A) terminal No. 4 and electronic control unit connector (CY24A) terminal No. 5.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 8	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 33 "Shift Valve 3" and No. 73 "Shift Valve Press 3" of Service Data.</p>
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 33 "Shift Valve 3"></p> <ul style="list-style-type: none"> • In 1st gear: ON • In any gears except above: OFF <p><No. 73 "Shift Valve Press 3"></p> <ul style="list-style-type: none"> • In 1st gear: HIGH • In any gears except above: LOW
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 9	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 16 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 66 "Oil Press SW 6" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 0 V • In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 1st gear: ON • In 2nd, 3rd, 4th, 5th, 6th gears: OFF
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of oil pressure switch 6 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0767/Flash code: 55

[Monitor ID]

63

[Fault (outline)]

Shift solenoid 3 binds in ON state.

[Diagnosis check]

- Shift solenoid 3 (shift solenoid valve 4) is monitored for fault when switched from pressure ON to pressure OFF according to the response of oil pressure switch 6

[Code generation condition]

- Oil pressure switch 6 remains ON (high pressure).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- After shift solenoid 3 (shift solenoid valve 4) switched from pressure ON to OFF

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (2nd).

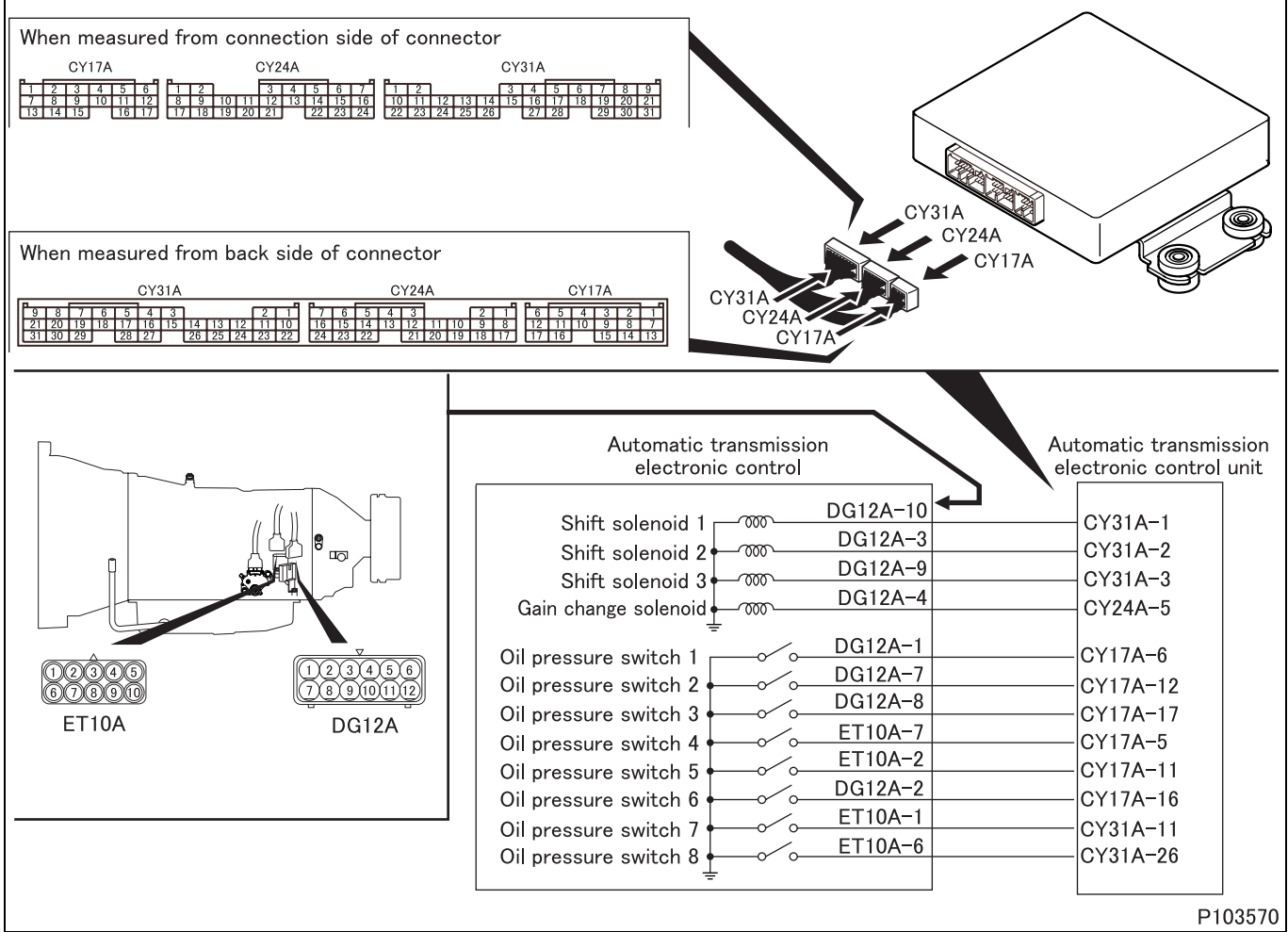
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and shift solenoid 3 or oil pressure switch 6
- Malfunction of each connector
- Malfunction of shift solenoid 3 or oil pressure switch 6
- Malfunction of electronic control unit

[Recoverability]

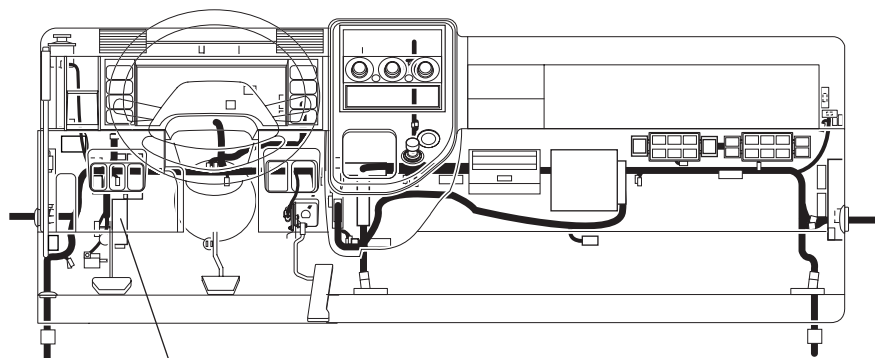
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]

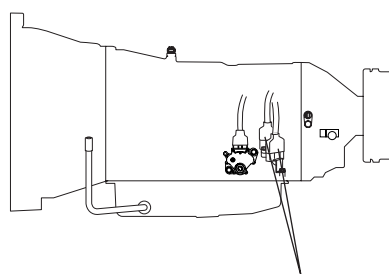


TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside),
shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data
Step 1	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 33 "Shift Valve 3" and No. 73 "Shift Valve Press 3" of Service Data.</p>
	Inspection condition	<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 33 "Shift Valve 3"></p> <ul style="list-style-type: none"> • In 1st gear: ON • In any gears except above: OFF <p><No. 73 "Shift Valve Press 3"></p> <ul style="list-style-type: none"> • In 1st gear: HIGH • In any gears except above: LOW
	Inspection result (Is the judging standard satisfied?)	<p>YES</p> <p>NO</p>

Step 2	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 16 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 66 "Oil Press SW 6" of Service Data.</p>	
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 0 V • In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 1st gear: ON • In 2nd, 3rd, 4th, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY24A) terminal No. 5 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Go to step 5.	

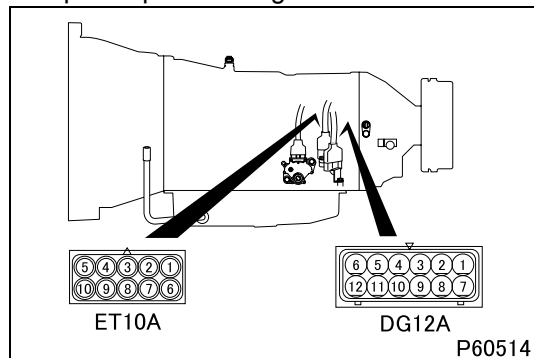
Step 4	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify connector.	

TROUBLESHOOTING

Step 6	Inspection items		Inspection of solenoid unit
	Maintenance item		Measure value of resistance between connector (DG12A) terminal No. 4 and automatic transmission case.
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF
	Requirements		$13 \pm 2 \Omega$
	Inspection result (Is the judging standard satisfied?)		YES NO

<Step 6 inspection diagram>



Step 7	Inspection items		Inspection of harness between solenoid and electronic control unit (power supply)
	Maintenance item		Check circuit between connector (DG12A) terminal No. 4 and electronic control unit connector (CY24A) terminal No. 5.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 8	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 33 "Shift Valve 3" and No. 73 "Shift Valve Press 3" of Service Data.</p>
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 1st gear: 12 V In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 33 "Shift Valve 3"></p> <ul style="list-style-type: none"> In 1st gear: ON In any gears except above: OFF <p><No. 73 "Shift Valve Press 3"></p> <ul style="list-style-type: none"> In 1st gear: HIGH In any gears except above: LOW
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 9	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 16 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 66 "Oil Press SW 6" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 0 V • In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 1st gear: ON • In 2nd, 3rd, 4th, 5th, 6th gears: OFF
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of oil pressure switch 6 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0776/Flash code: 42

[Monitor ID]

43, 44

[Fault (outline)]

Linear solenoid 2 binds in OFF state.

[Diagnosis check]

- Linear solenoid 2 is monitored for fault when switched from low to high pressure according to the response of oil pressure switch 2

[Code generation condition]

- Oil pressure switch 2 remains OFF (low pressure).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- After linear solenoid 2 switched from low to high pressure
- Automatic transmission fluid temperature: above -10°C { 14°F } <used for a part of judgment>

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (4th).

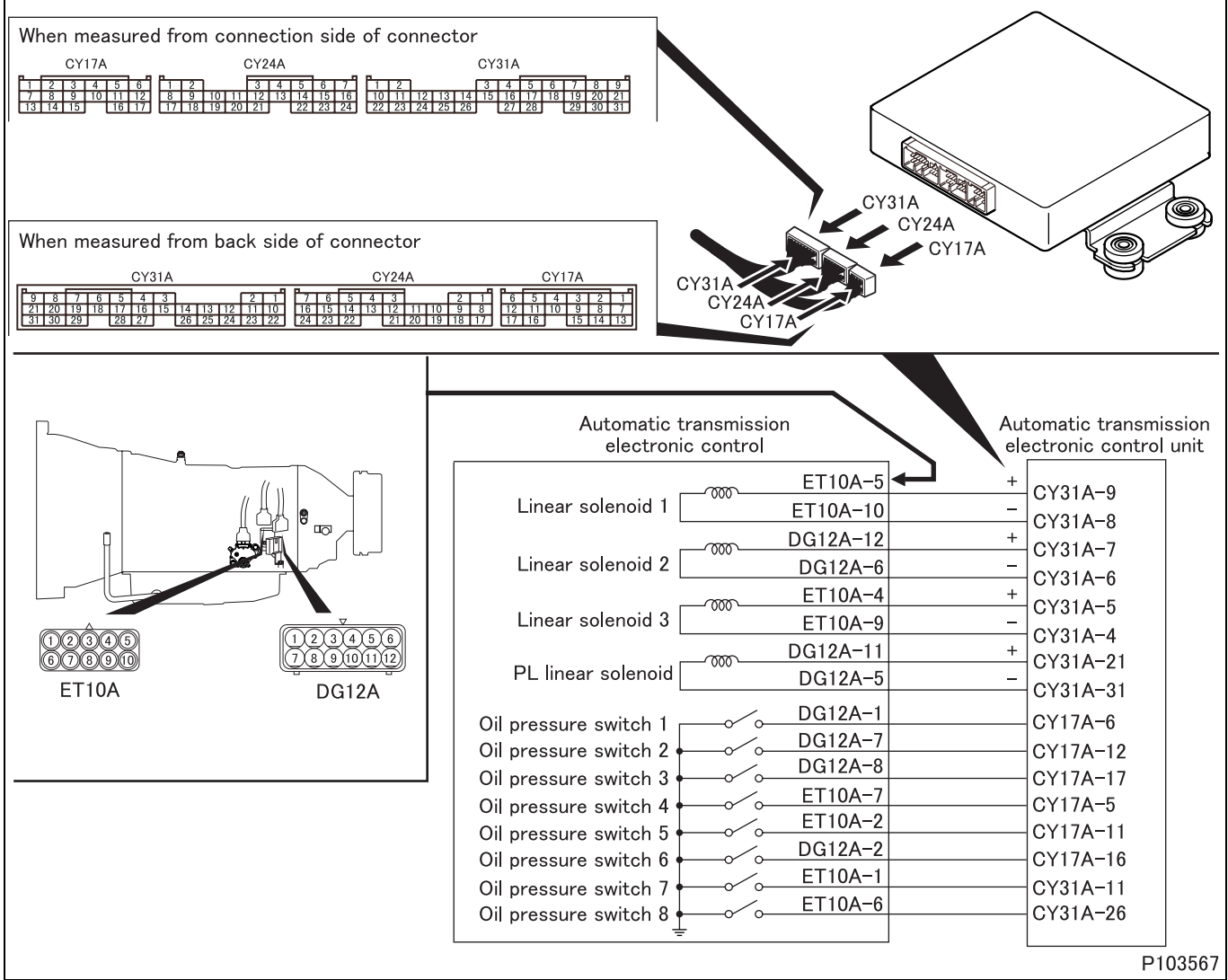
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and linear solenoid 2 or oil pressure switch 2
- Malfunction of each connector
- Malfunction of linear solenoid 2 or oil pressure switch 2
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

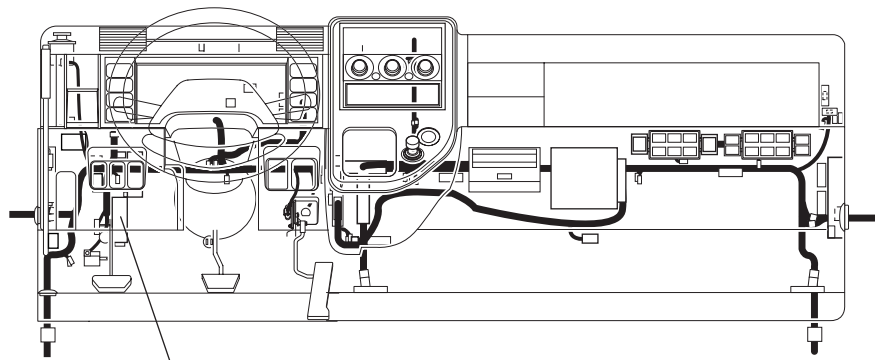
[Electronic Control Unit Connection Diagram]



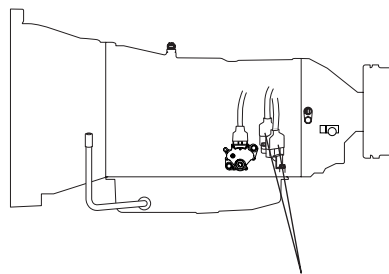
P103567

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside),
shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data	
Step 1	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 27 "Linear Sol Press 2" of Service Data.	
	Inspection condition	Vehicle run	
	Requirements	<ul style="list-style-type: none"> • During speed change (2nd to 3rd, 4th to 5th): Rises • During speed change (1st to 2nd, 3rd to 4th, 5th to 6th): Declines 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
		NO	Go to step 2.

Step 2	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of resistance between connector (CY17A) terminal No. 12 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 62 "Oil Press SW 2" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: 0 V • In 2nd, 4th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: ON • In 2nd, 4th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 6 and 7.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	5.5 ± 0.5 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Go to step 5.	

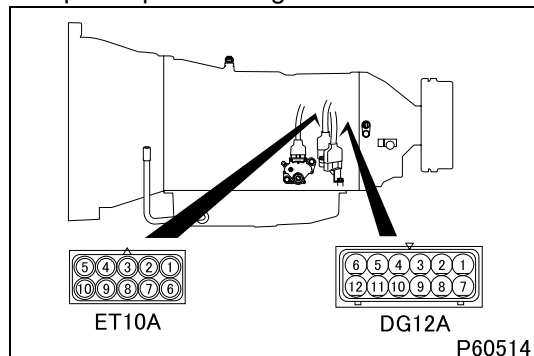
Step 4	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 9.
NO		Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify connector.	

TROUBLESHOOTING

Step 6	Inspection items		Inspection of solenoid unit			
	Maintenance item		Measure value of resistance between connector (DG12A) terminal No. 6 and 12.			
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF 			
	Requirements		$5.5 \pm 0.5 \Omega$			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 7.</td> </tr> <tr> <td>NO</td> <td>Replacement of solenoid (contact an Aisin Service Station)</td> </tr> </table>	YES	Go to step 7.	NO
YES	Go to step 7.					
NO	Replacement of solenoid (contact an Aisin Service Station)					

<Step 6 inspection diagram>



Step 7	Inspection items		Inspection of harness between solenoid and electronic control unit (power supply)			
	Maintenance item		Check circuit between connector (DG12A) terminal No. 12 and electronic control unit connector (CY31A) terminal No. 7.			
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.			
	Requirements		There is continuity.			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 8.</td> </tr> <tr> <td>NO</td> <td>Modify harness.</td> </tr> </table>	YES	Go to step 8.	NO
YES	Go to step 8.					
NO	Modify harness.					

Step 8	Inspection items		Inspection of harness between solenoid and electronic control unit (ground)			
	Maintenance item		Check circuit between connector (DG12A) terminal No. 6 and electronic control unit connector (CY31A) terminal No. 6.			
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.			
	Requirements		There is continuity.			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 9.</td> </tr> <tr> <td>NO</td> <td>Modify harness.</td> </tr> </table>	YES	Go to step 9.	NO
YES	Go to step 9.					
NO	Modify harness.					

Step 9	Inspection items		Inspection by control data			
	Maintenance item		<p><Multi-Use Tester not used> Check for recurrence of the same diagnosis code.</p> <p><Multi-Use Tester used> Measure item No. 27 "Linear Sol Press 2" of Service Data.</p>			
	Inspection condition		Vehicle run			
	Requirements		<p><Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> During speed change (2nd to 3rd, 4th to 5th): Rises During speed change (1st to 2nd, 3rd to 4th, 5th to 6th): Declines 			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to transient fault (See Gr00.).</td> </tr> <tr> <td>NO</td> <td>Go to step 10.</td> </tr> </table>	YES	Go to transient fault (See Gr00.).	NO
YES	Go to transient fault (See Gr00.).					
NO	Go to step 10.					

Step 10	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of resistance between connector (CY17A) terminal No. 12 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 62 "Oil Press SW 2" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: 0 V • In 2nd, 4th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: ON • In 2nd, 4th, 6th gears: OFF
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Inspection of oil pressure switch 2 is performed.	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0777/Flash code: 42

[Monitor ID]

45

[Fault (outline)]

Linear solenoid 2 binds in ON state.

[Diagnosis check]

- Linear solenoid 2 is monitored for fault when switched from high to low pressure according to the response of oil pressure switch 2

[Code generation condition]

- Oil pressure switch 2 remains ON (high pressure).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- After linear solenoid 2 switched from high to low pressure

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

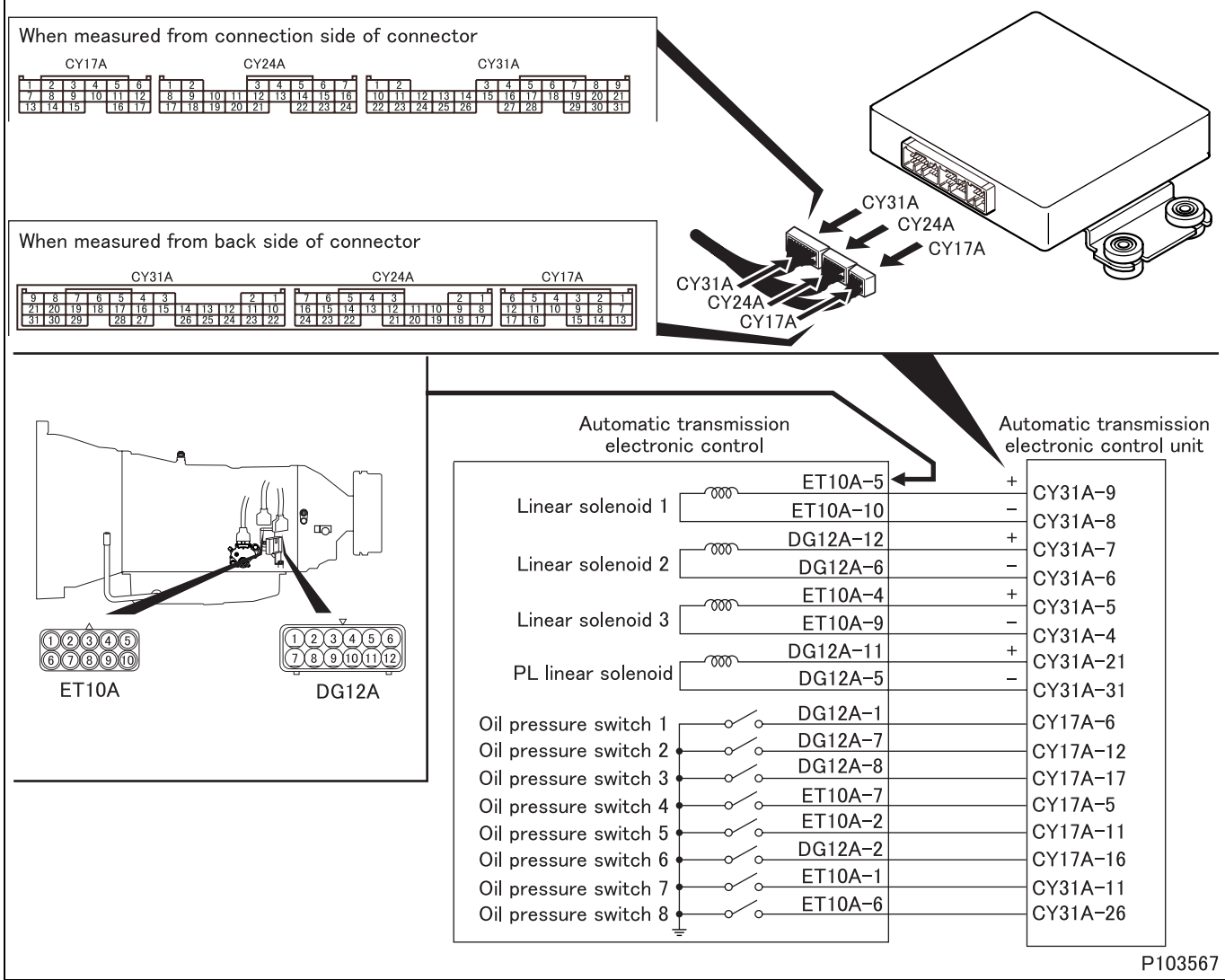
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and linear solenoid 2 or oil pressure switch 2
- Malfunction of each connector
- Malfunction of linear solenoid 2 or oil pressure switch 2
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

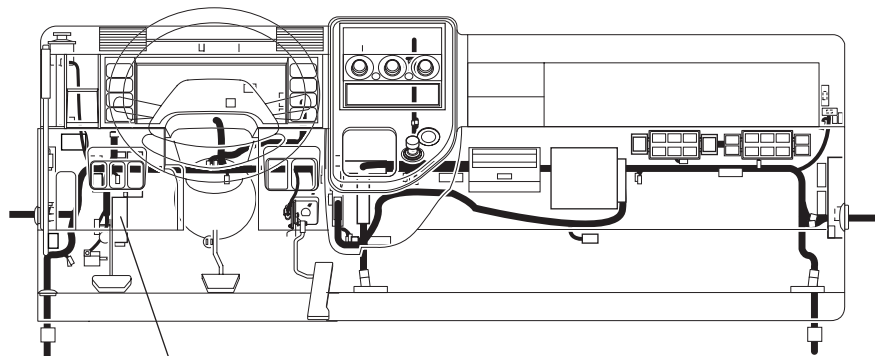
[Electronic Control Unit Connection Diagram]



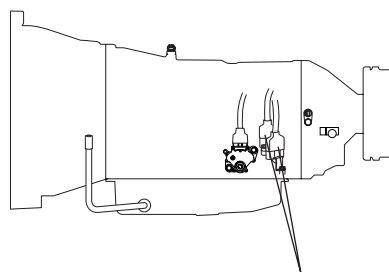
P103567

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside), shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data	
Step 1	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 27 "Linear Sol Press 2" of Service Data.	
	Inspection condition	Vehicle run	
	Requirements	<ul style="list-style-type: none"> • During speed change (2nd to 3rd, 4th to 5th): Rises • During speed change (1st to 2nd, 3rd to 4th, 5th to 6th): Declines 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
		NO	Go to step 2.

Step 2	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of resistance between connector (CY17A) terminal No. 12 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 62 "Oil Press SW 2" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: 0 V • In 2nd, 4th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: ON • In 2nd, 4th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 6 and 7.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	5.5 ± 0.5 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Go to step 5.	

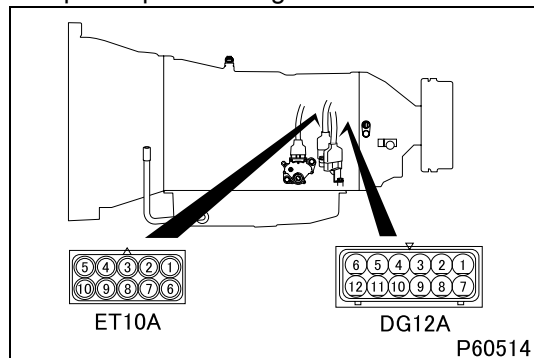
Step 4	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 9.
NO		Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify connector.	

TROUBLESHOOTING

Step 6	Inspection items		Inspection of solenoid unit			
	Maintenance item		Measure value of resistance between connector (DG12A) terminal No. 6 and 12.			
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF 			
	Requirements		$5.5 \pm 0.5 \Omega$			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 7.</td> </tr> <tr> <td>NO</td> <td>Replacement of solenoid (contact an Aisin Service Station)</td> </tr> </table>	YES	Go to step 7.	NO
YES	Go to step 7.					
NO	Replacement of solenoid (contact an Aisin Service Station)					

<Step 6 inspection diagram>



Step 7	Inspection items		Inspection of harness between solenoid and electronic control unit (power supply)			
	Maintenance item		Check circuit between connector (DG12A) terminal No. 12 and electronic control unit connector (CY31A) terminal No. 7.			
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.			
	Requirements		There is continuity.			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 8.</td> </tr> <tr> <td>NO</td> <td>Modify harness.</td> </tr> </table>	YES	Go to step 8.	NO
YES	Go to step 8.					
NO	Modify harness.					

Step 8	Inspection items		Inspection of harness between solenoid and electronic control unit (ground)			
	Maintenance item		Check circuit between connector (DG12A) terminal No.6 and electronic control unit connector (CY31A) terminal No. 6.			
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.			
	Requirements		There is continuity.			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 9.</td> </tr> <tr> <td>NO</td> <td>Modify harness.</td> </tr> </table>	YES	Go to step 9.	NO
YES	Go to step 9.					
NO	Modify harness.					

Step 9	Inspection items		Inspection by control data			
	Maintenance item		<p><Multi-Use Tester not used> Check for recurrence of the same diagnosis code.</p> <p><Multi-Use Tester used> Measure item No. 27 "Linear Sol Press 2" of Service Data.</p>			
	Inspection condition		Vehicle run			
	Requirements		<p><Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> During speed change (2nd to 3rd, 4th to 5th): Rises During speed change (1st to 2nd, 3rd to 4th, 5th to 6th): Declines 			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to transient fault (See Gr00.).</td> </tr> <tr> <td>NO</td> <td>Go to step 10.</td> </tr> </table>	YES	Go to transient fault (See Gr00.).	NO
YES	Go to transient fault (See Gr00.).					
NO	Go to step 10.					

Step 10	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of resistance between connector (CY17A) terminal No. 12 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 62 "Oil Press SW 2" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: 0 V • In 2nd, 4th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: ON • In 2nd, 4th, 6th gears: OFF
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Inspection of oil pressure switch 2 is performed.	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0778/Flash code: 27

[Monitor ID]

23, 24

[Fault (outline)]

Linear solenoid 2 is open-circuited or short-circuited.

[Diagnosis check]

- Resistance and current value in linear solenoid 2 is monitored for fault.

[Code generation condition]

Linear solenoid is judged faulty in either of the following cases.

- Resistance across the linear solenoid 2 remains higher than the specification (100 Ω) for 0.065 second (open-circuited or circuit shorted to power supply).
- Current flowing in the linear solenoid 2 remains higher than the specification (4A) for 0.065 second (circuit shorted to ground).

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (4th for open-circuit, 3rd for short-circuit).

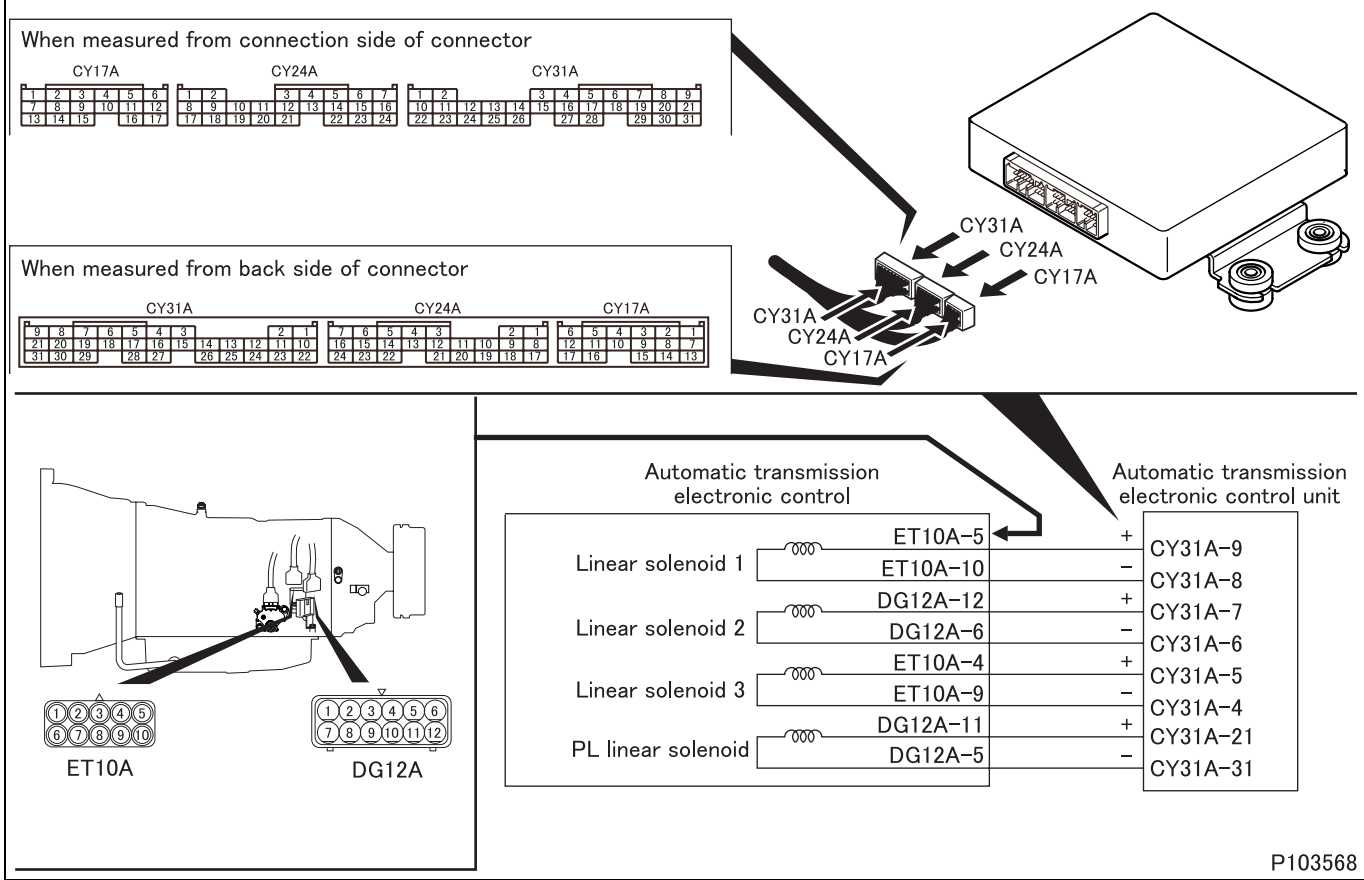
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and linear solenoid 2
- Malfunction of each connector
- Malfunction of linear solenoid 2
- Malfunction of electronic control unit

[Recoverability]

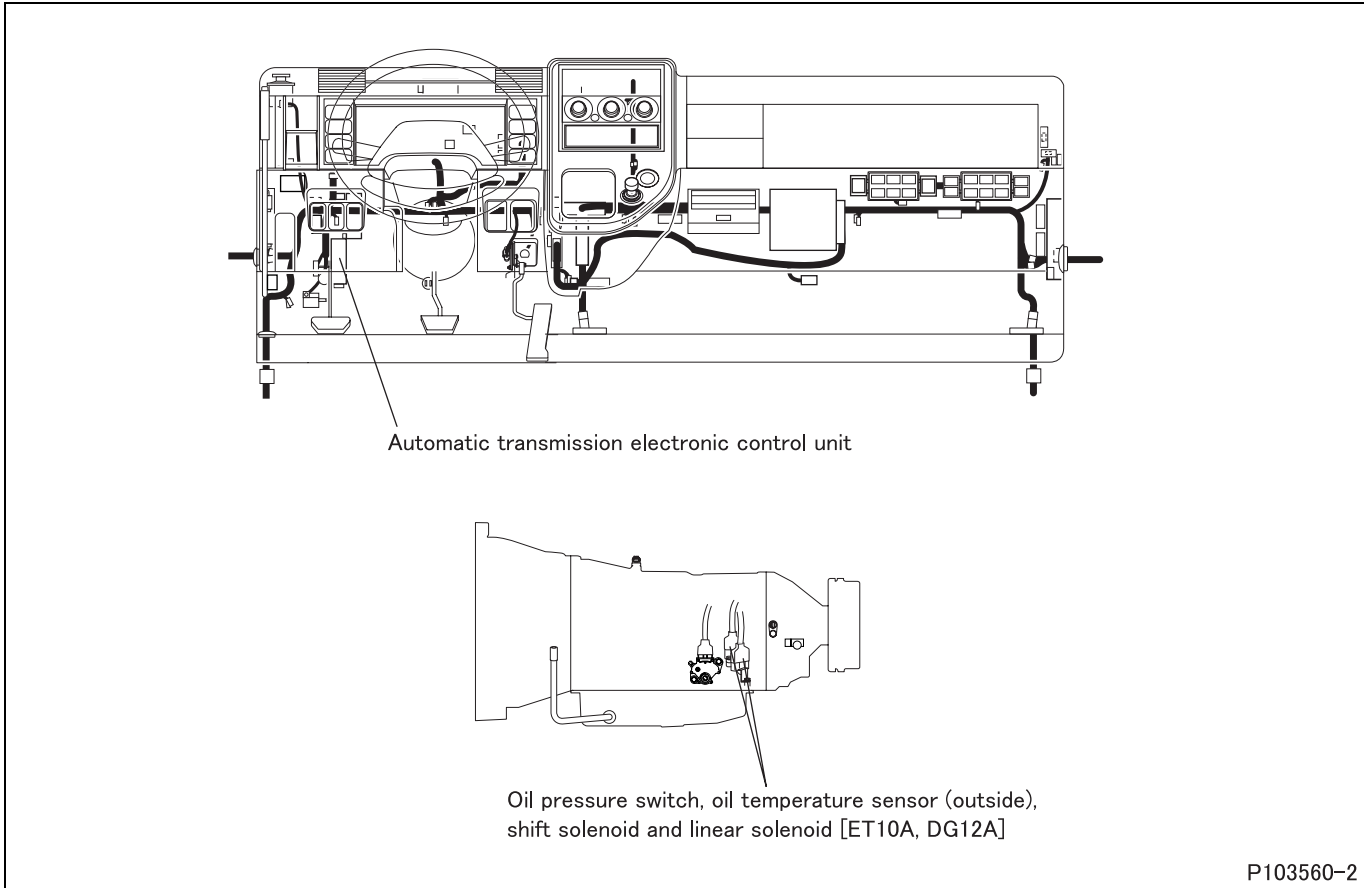
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



P103568

[Parts Identification and Location]



P103560-2

TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items		Inspection by control data
	Maintenance item		<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 27 "Linear Sol Press 2" of Service Data.
	Inspection condition		Vehicle run
	Requirements		<ul style="list-style-type: none"> During speed change (2nd to 3rd, 4th to 5th): Rises During speed change (1st to 2nd, 3rd to 4th, 5th to 6th): Declines
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Go to step 2.	

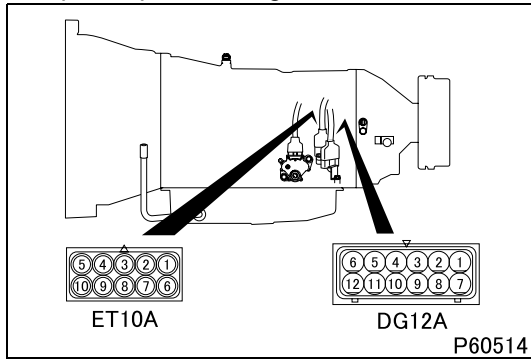
Step 2	Inspection items		Inspection by electronic control unit connector (signal)
	Maintenance item		Measure value of resistance between connector (CY31A) terminal No. 6 and 7.
	Inspection condition		<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF
	Requirements		$5.5 \pm 0.5 \Omega$
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
NO		Go to step 4.	

Step 3	Inspection items		Inspection of electronic control unit connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify connector.	

Step 4	Inspection items		Inspection of solenoid connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Modify connector.	

Step 5	Inspection items		Inspection of solenoid unit
	Maintenance item		Measure value of resistance between connector (DG12A) terminal No. 6 and 12.
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF
	Requirements		$5.5 \pm 0.5 \Omega$
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Replacement of solenoid (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 12 and electronic control unit connector (CY31A) terminal No. 7.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection of harness between solenoid and electronic control unit (ground)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 6 and electronic control unit connector (CY31A) terminal No. 6.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.	
		NO	Modify harness.	

Step 8	Inspection items	Inspection by control data		
	Maintenance item	<Multi-Use Tester not used> Check for recurrence of the same diagnosis code. <Multi-Use Tester used> Measure item No. 27 "Linear Sol Press 2" of Service Data.		
	Inspection condition	Vehicle run		
	Requirements	<Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit. <Multi-Use Tester used> <ul style="list-style-type: none"> • During speed change (2nd to 3rd, 4th to 5th): Rises • During speed change (1st to 2nd, 3rd to 4th, 5th to 6th): Declines 		
	Inspection result (Is the judging standard satisfied?)	YES	If the diagnosis code remains after actual run, replace the electronic control unit.	
		NO	Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0796/Flash code: 48

[Monitor ID]

47

[Fault (outline)]

Linear solenoid 3 is binds in OFF state.

[Diagnosis check]

- When the garage control (selector lever is shifted from N to D or R range) is terminated, the linear solenoid 3 is monitored for flow of the maximum oil pressure according to the response of oil pressure switch 7 and its condition is decided by the electronic control unit.

[Code generation condition]

- Oil pressure switch 7 remains OFF (low pressure).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Garage control: termination

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

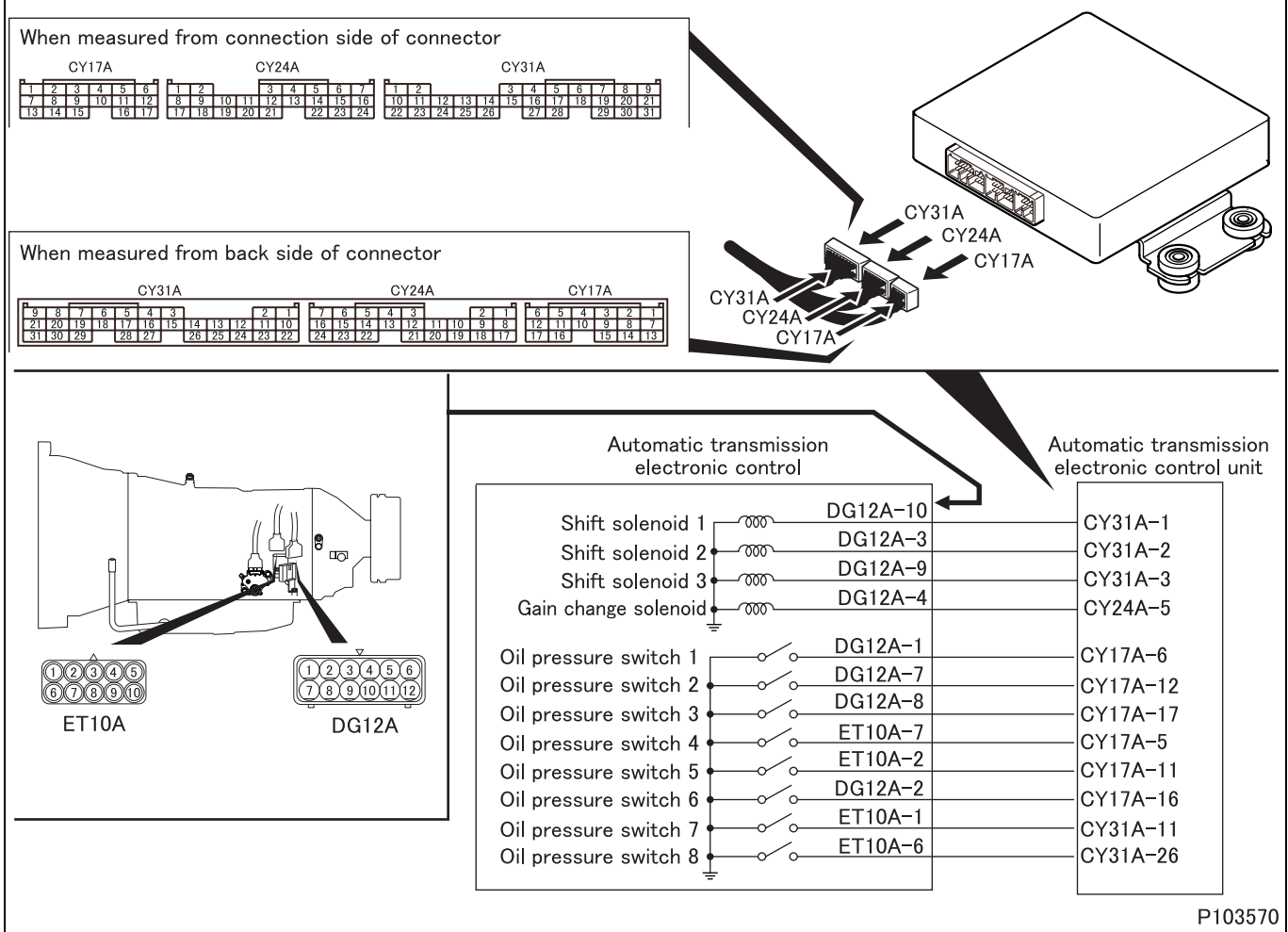
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and linear solenoid 3 or oil pressure switch 7
- Malfunction of each connector
- Malfunction of linear solenoid 3 or oil pressure switch 7
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

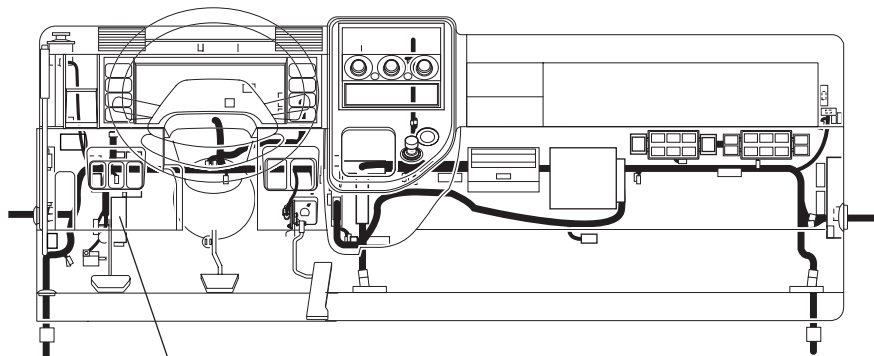
[Electronic Control Unit Connection Diagram]



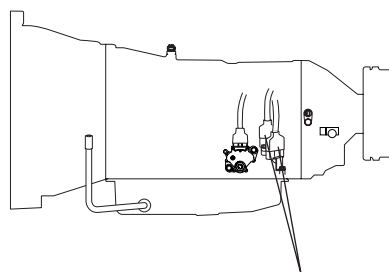
P103570

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside),
shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data	
Step 1	Maintenance item	<p><Multi-Use Tester not used> Go to step 2.</p> <p><Multi-Use Tester used> Measure item No. 35 "Linear Sol Press 3" of Service Data.</p>	
	Inspection condition	<p>Engine in operation <When shifting from N to D> With the brake pedal pressed down, shift the range selector lever (from N to D). <In lock-up state></p> <ul style="list-style-type: none"> • Item No. 13 "A/T Oil Temp (OP)" indicates 25°C {77°F} or higher. • Lock-up speed (2nd gear, accelerator pedal fully pressed down): 15 to 17 km/h {9.3 to 10.6 mph} 	
	Requirements	<ul style="list-style-type: none"> • When shifting from N to D: Varies • In lock-up state: 100 lbf/in² 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
		NO	Go to step 2.

Step 2	Inspection items	Inspection by control data		
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No.11 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 67 "Oil Press SW 7" of Service Data.		
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.		
	Requirements	<Multi-Use Tester not used> When shifting N to D: 12 V → 0 V → 12 V <Multi-Use Tester used> When shifting N to D: OFF → ON → OFF		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)		
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 5 and 4.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 		
	Requirements	5.5 ± 0.5 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.	
		NO	Go to step 5.	

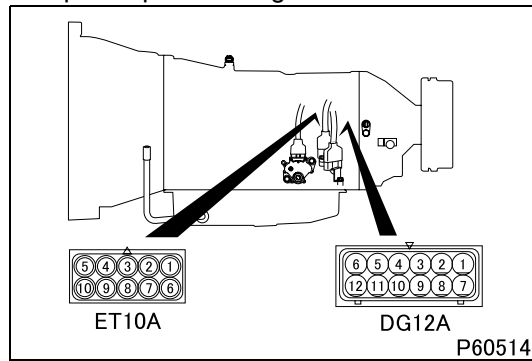
Step 4	Inspection items	Inspection of electronic control unit connector		
	Maintenance item	Inspection of connector		
	Inspection condition	-		
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 9.	
		NO	Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector		
	Maintenance item	Inspection of connector		
	Inspection condition	-		
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Modify connector.	

Step 6	Inspection items	Inspection of solenoid unit		
	Maintenance item	Measure value of resistance between connector (ET10A) terminal No. 4 and 9.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure solenoid side terminal. • Starter switch: OFF 		
	Requirements	5.5 ± 0.5 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Replacement of solenoid (contact an Aisin Service Station)	

TROUBLESHOOTING

<Step 6 inspection diagram>



Step 7	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (ET10A) terminal No. 4 and electronic control unit connector (CY31A) terminal No. 5.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.	
		NO	Modify harness.	

Step 8	Inspection items	Inspection of harness between solenoid and electronic control unit (ground)		
	Maintenance item	Check circuit between connector (ET10A) terminal No. 9 and electronic control unit connector (CY31A) terminal No. 4.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 9.	
		NO	Modify harness.	

Step 9	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Check for recurrence of the same diagnosis code.</p> <p><Multi-Use Tester used> Measure item No. 35 "Linear Sol Press 3" of Service Data.</p>		
	Inspection condition	<p>Engine in operation <When shifting from N to D> With the brake pedal pressed down, shift the range selector lever (from N to D). <In lock-up state></p> <ul style="list-style-type: none"> Item No. 13 "A/T Oil Temp (OP)" indicates 25°C {77°F} or higher. Lock-up speed (2nd gear, accelerator pedal fully pressed down): 15 to 17 km/h {9.3 to 10.6 mph} 		
	Requirements	<p><Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> When shifting from N to D: Varies In lock-up state: 100 lbf/in² 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Go to step 10.	

Step 10	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No.11 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 67 "Oil Press SW 7" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used> When shifting N to D: 12 V → 0 V → 12 V <Multi-Use Tester used> When shifting N to D: OFF → ON → OFF</p>
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of oil pressure switch 7 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0797/Flash code: 48

[Monitor ID]

46

[Fault (outline)]

Linear solenoid 3 is binds in ON state.

[Diagnosis check]

- Linear solenoid 3 is monitored for fault when switched from high to low pressure with the oil pressure switch 6 turned ON (gain change solenoid ON) according to the response of oil pressure switch 7

[Code generation condition]

- Oil pressure switch 7 remains ON (high pressure).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Oil pressure switch 6: ON

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (2nd).

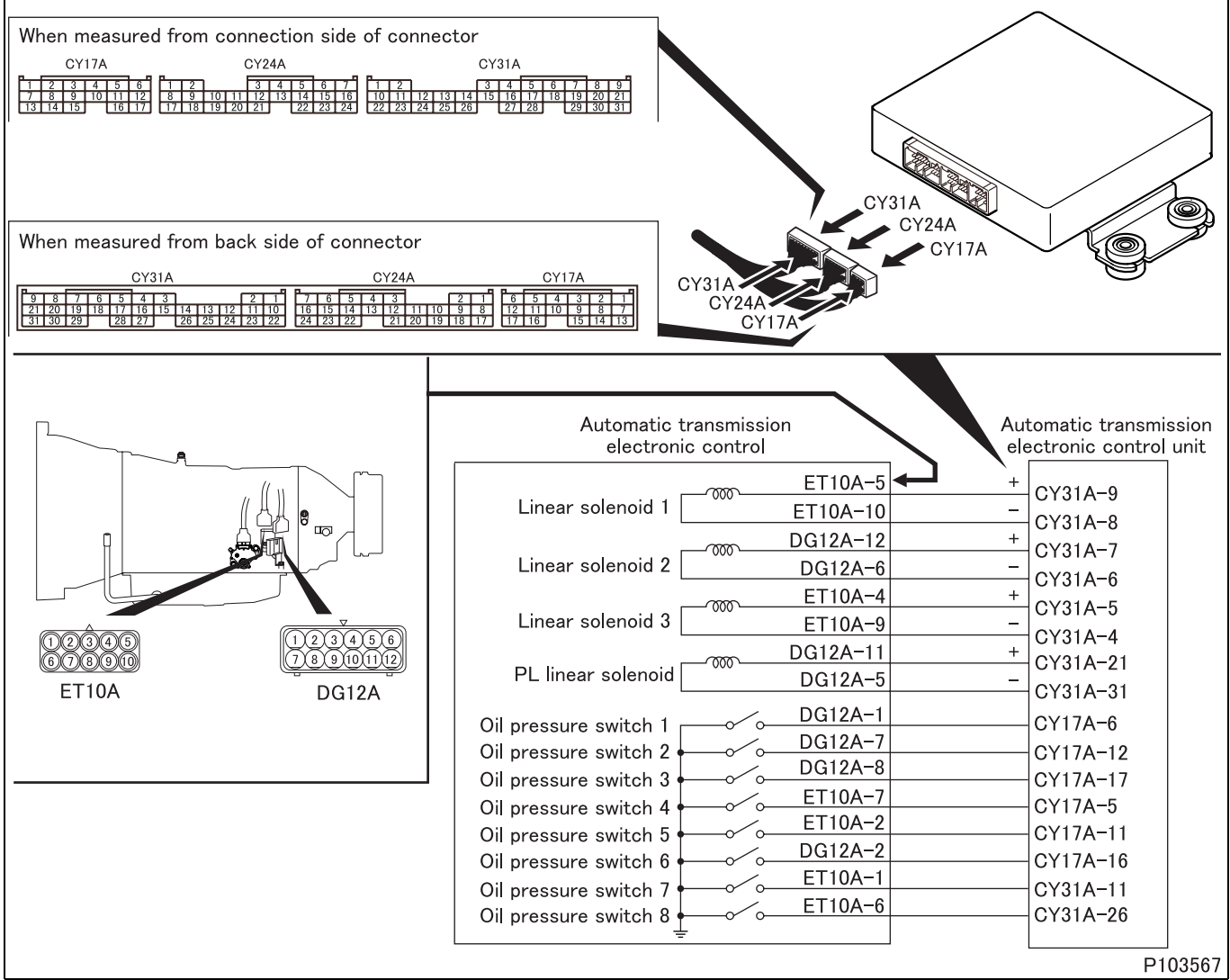
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and linear solenoid 3 or oil pressure switch 7
- Malfunction of each connector
- Malfunction of linear solenoid 3 or oil pressure switch 7
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

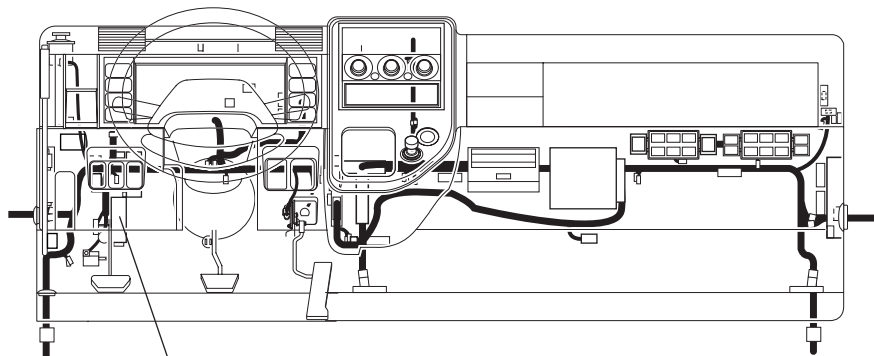
[Electronic Control Unit Connection Diagram]



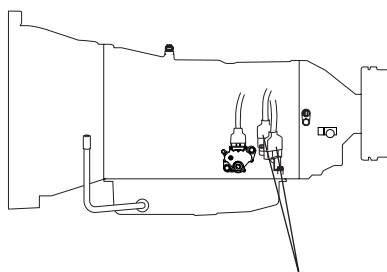
P103567

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside), shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data			
Step 1	Maintenance item	<p><Multi-Use Tester not used> Go to step 2.</p> <p><Multi-Use Tester used> Measure item No. 35 "Linear Sol Press 3" of Service Data.</p>			
	Inspection condition	<p>Engine in operation <When shifting from N to D> With the brake pedal pressed down, shift the range selector lever (from N to D). <In lock-up state></p> <ul style="list-style-type: none"> • Item No. 13 "A/T Oil Temp (OP)" indicates 25°C {77°F} or higher. • Lock-up speed (2nd gear, accelerator pedal fully pressed down): 15 to 17 km/h {9.3 to 10.6 mph} 			
	Requirements	<ul style="list-style-type: none"> • When shifting from N to D: Varies • In lock-up state: 100 lbf/in² 			
	Inspection result (Is the judging standard satisfied?)	<table border="1"> <tr> <td>YES</td> <td>Go to transient fault (See Gr00.).</td> </tr> <tr> <td>NO</td> <td>Go to step 2.</td> </tr> </table>	YES	Go to transient fault (See Gr00.).	NO
YES	Go to transient fault (See Gr00.).				
NO	Go to step 2.				

Step 2	Inspection items	Inspection by control data		
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 11 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 67 "Oil Press SW 7" of Service Data.		
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.		
	Requirements	<Multi-Use Tester not used> When shifting N to D: 12 V → 0 V → 12 V <Multi-Use Tester used> When shifting N to D: OFF → ON → OFF		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Go to step 3.	

Step 3	Inspection items	Inspection by electronic control unit connector (signal)		
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 5 and 4.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 		
	Requirements	5.5 ± 0.5 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.	
		NO	Go to step 5.	

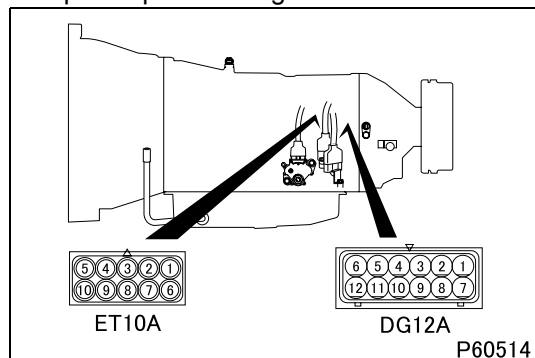
Step 4	Inspection items	Inspection of electronic control unit connector		
	Maintenance item	Inspection of connector		
	Inspection condition	-		
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 9.	
		NO	Modify connector.	

Step 5	Inspection items	Inspection of solenoid connector		
	Maintenance item	Inspection of connector		
	Inspection condition	-		
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Modify connector.	

Step 6	Inspection items	Inspection of solenoid unit		
	Maintenance item	Measure value of resistance between connector (ET10A) terminal No. 4 and 9.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure solenoid side terminal. • Starter switch: OFF 		
	Requirements	5.5 ± 0.5 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Replacement of solenoid (contact an Aisin Service Station)	

TROUBLESHOOTING

<Step 6 inspection diagram>



Step 7	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (ET10A) terminal No. 4 and electronic control unit connector (CY31A) terminal No. 5.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.	
		NO	Modify harness.	

Step 8	Inspection items	Inspection of harness between solenoid and electronic control unit (ground)		
	Maintenance item	Check circuit between connector (ET10A) terminal No. 9 and electronic control unit connector (CY31A) terminal No. 4.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 9.	
		NO	Modify harness.	

Step 9	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Check for recurrence of the same diagnosis code.</p> <p><Multi-Use Tester used> Measure item No. 35 "Linear Sol Press 3" of Service Data.</p>		
	Inspection condition	<p>Engine in operation <When shifting from N to D> With the brake pedal pressed down, shift the range selector lever (from N to D). <In lock-up state></p> <ul style="list-style-type: none"> Item No. 13 "A/T Oil Temp (OP)" indicates 25°C {77°F} or higher. Lock-up speed (2nd gear, accelerator pedal fully pressed down): 15 to 17 km/h {9.3 to 10.6 mph} 		
	Requirements	<p><Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> When shifting from N to D: Varies In lock-up state: 100 lbf/in² 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Replacement of electronic control unit	

Step 10	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No.11 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 67 "Oil Press SW 7" of Service Data.</p>
	Inspection condition		<p>Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used> When shifting N to D: 12 V → 0 V → 12 V <Multi-Use Tester used> When shifting N to D: OFF → ON → OFF</p>
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of oil pressure switch 7 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P083D/Flash code: 48

[Monitor ID]

48

[Fault (outline)]

Failure of oil pressure switch 7

[Diagnosis check]

- With the oil pressure switch 6 turned ON (gain change solenoid ON), oil pressure switch 7 is monitored for fault when the linear solenoid 3 is deenergized (low pressure).

[Code generation condition]

- Oil pressure switch 7 remains ON (high pressure) for 0.18 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Oil pressure switch 6: ON
- Linear solenoid 3 is low pressure

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (2nd).

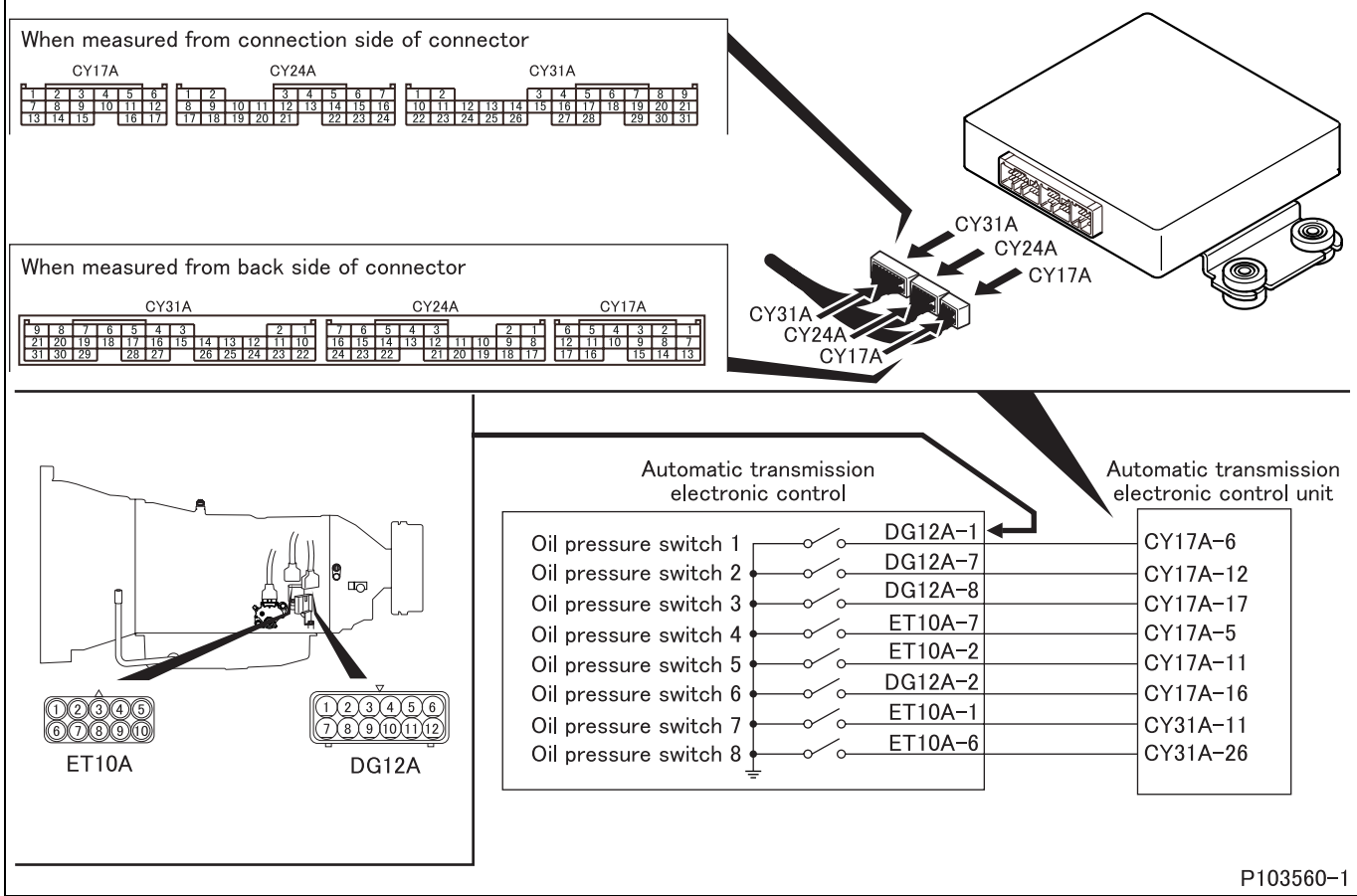
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 7 or linear solenoid 3
- Malfunction of each connector
- Malfunction of oil pressure switch 7 or linear solenoid 3
- Malfunction of electronic control unit

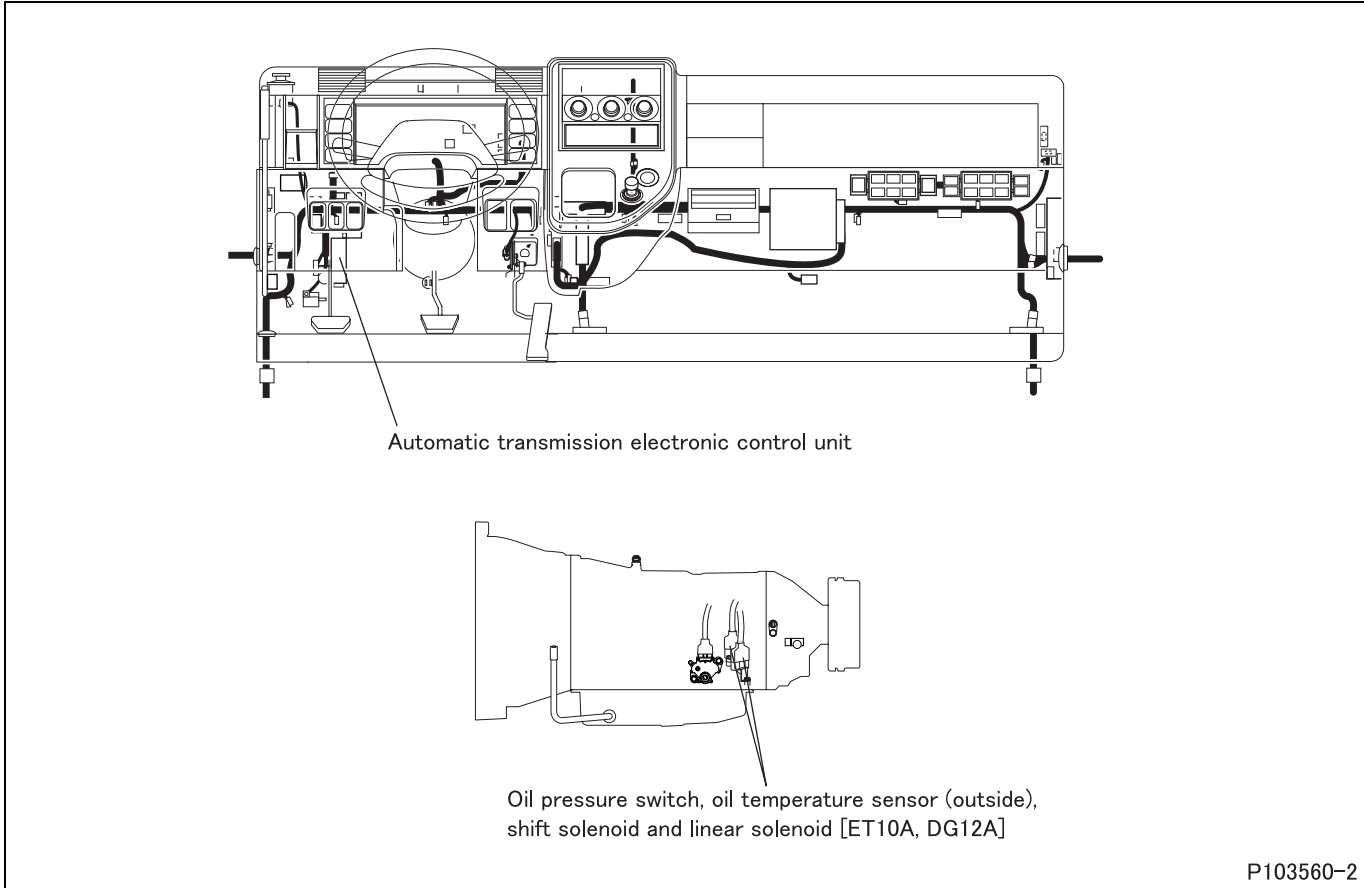
[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 11 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 67 "Oil Press SW 7" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> When shifting from N to D: 12 V → 0 V → 12 V <Multi-Use Tester used> When shifting from N to D: OFF → ON → OFF	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

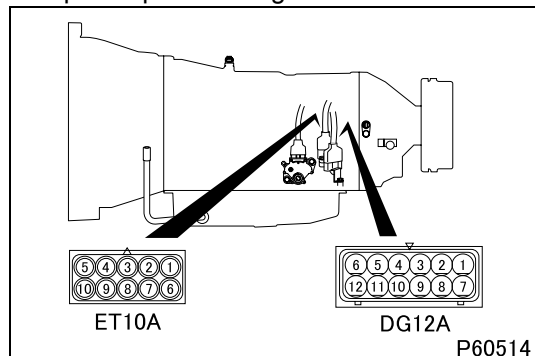
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure continuity between connector (CY31A) terminal No. 11 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF 	
	Requirements	There is no continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of switch unit		
	Maintenance item	Check continuity between connector (ET10A) terminal No. 1 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure switch side terminal. • Starter switch: OFF 		
	Requirements	There is no continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of oil pressure switch (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between switch and electronic control unit (signal)		
	Maintenance item	Check circuit between connector (ET10A) terminal No. 1 and electronic control unit connector (CY31A) terminal No. 11.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 11 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 67 "Oil Press SW 7" of Service Data.</p>		
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>		
	Requirements	<p><Multi-Use Tester not used> When shifting from N to D: 12 V → 0 V → 12 V</p> <p><Multi-Use Tester used> When shifting from N to D: OFF → ON → OFF</p>		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	<ul style="list-style-type: none"> • Inspection of linear solenoid 3 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0842/Flash code: 41

[Monitor ID]

37

[Fault (outline)]

Failure of oil pressure switch 1

[Diagnosis check]

- Oil pressure switch 1 is monitored for fault when the linear solenoid 1 is energized (high pressure).

[Code generation condition]

- Oil pressure switch 1 is judged faulty when the oil pressure switch 1 remains OFF (low pressure) for 2 seconds, then N, R or P range is selected and the oil pressure switch 8 remains OFF for 0.5 second (check if stuck ON).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Oil pressure switch 8: ON
- Shift position: D, 3 or 2 range
- Linear solenoid 1 is high pressure

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

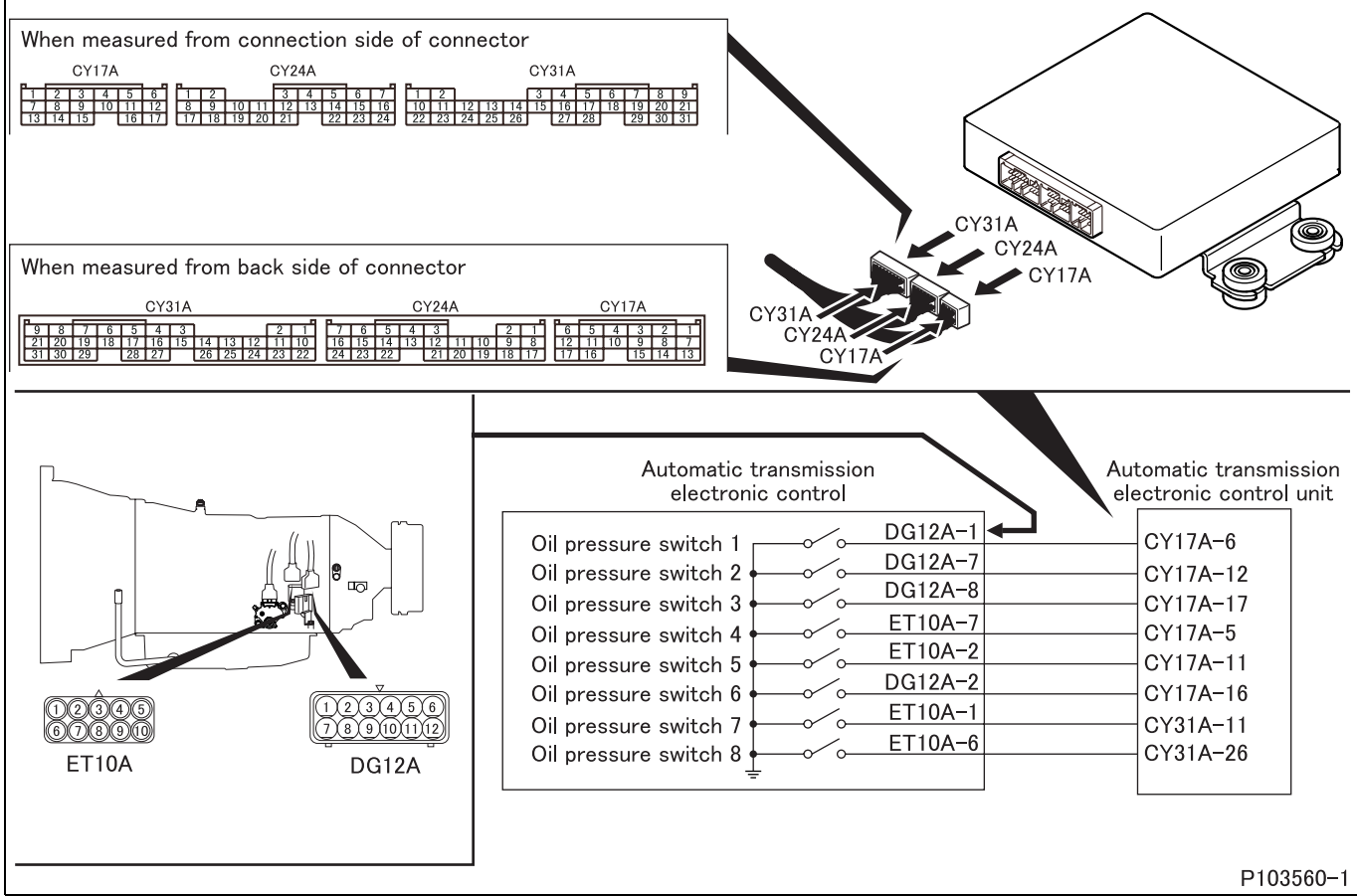
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 1 or linear solenoid 1
- Malfunction of each connector
- Malfunction of oil pressure switch 1 or linear solenoid 1
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

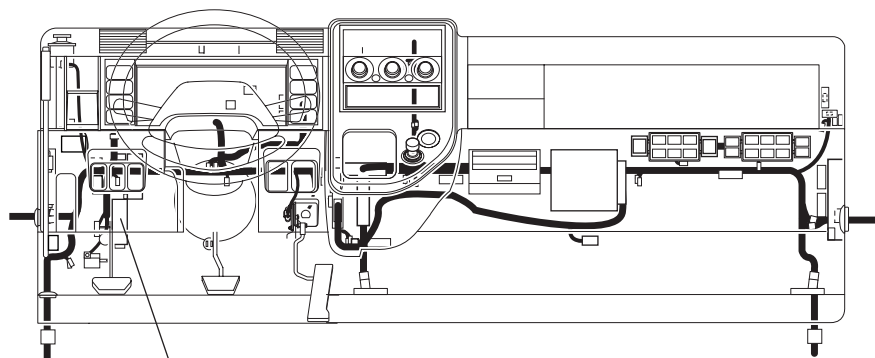
[Electronic Control Unit Connection Diagram]



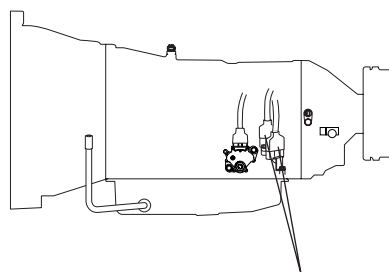
P103560-1

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside),
shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data	
Step 1	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 6 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 61 "Oil Press SW 1" of Service Data.</p>	
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: 0 V • In 1st, 3rd, 5th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: ON • In 1st, 3rd, 5th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
		NO	Go to step 2.

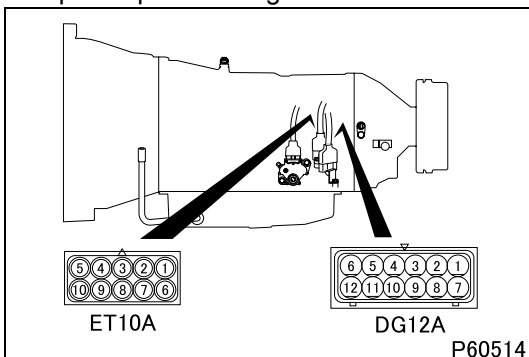
Step 2	Inspection items	Inspection by electronic control unit connector (signal)		
	Maintenance item	Measure continuity between connector (CY17A) terminal No. 6 and chassis ground.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 		
	Requirements	There is no continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.	
		NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector		
	Maintenance item	Inspection of connector		
	Inspection condition	-		
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify connector.	

Step 4	Inspection items	Inspection of switch connector		
	Maintenance item	Inspection of connector		
	Inspection condition	-		
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.	
		NO	Modify connector.	

Step 5	Inspection items	Inspection of switch unit		
	Maintenance item	Check continuity between connector (DG12A) terminal No. 1 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure switch side terminal. • Starter switch: OFF 		
	Requirements	There is no continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of oil pressure switch (contact an Aisin Service Station)	

<Step 5 inspection diagram>



TROUBLESHOOTING

Step 6	Inspection items	Inspection of harness between switch and electronic control unit (signal)	
	Maintenance item	Check circuit between connector (DG12A) terminal No. 1 and electronic control unit connector (CY17A) terminal No. 6.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

Step 7	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 6 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 61 "Oil Press SW 1" of Service Data.</p>	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: 0 V • In 1st, 3rd, 5th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: ON • In 1st, 3rd, 5th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of linear solenoid 1 is performed. • Replacement of electronic control unit 	

[Fault code]

Diagnosis code: P0843/Flash code: 41

[Monitor ID]

36

[Fault (outline)]

Failure of oil pressure switch 1

[Diagnosis check]

- Oil pressure switch 1 is monitored for fault when the linear solenoid 1 is deenergized (low pressure).

[Code generation condition]

- Oil pressure switch 1 remains ON (high pressure) for 0.1 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Linear solenoid 1 is low pressure

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (4th).

[Probable cause of trouble]

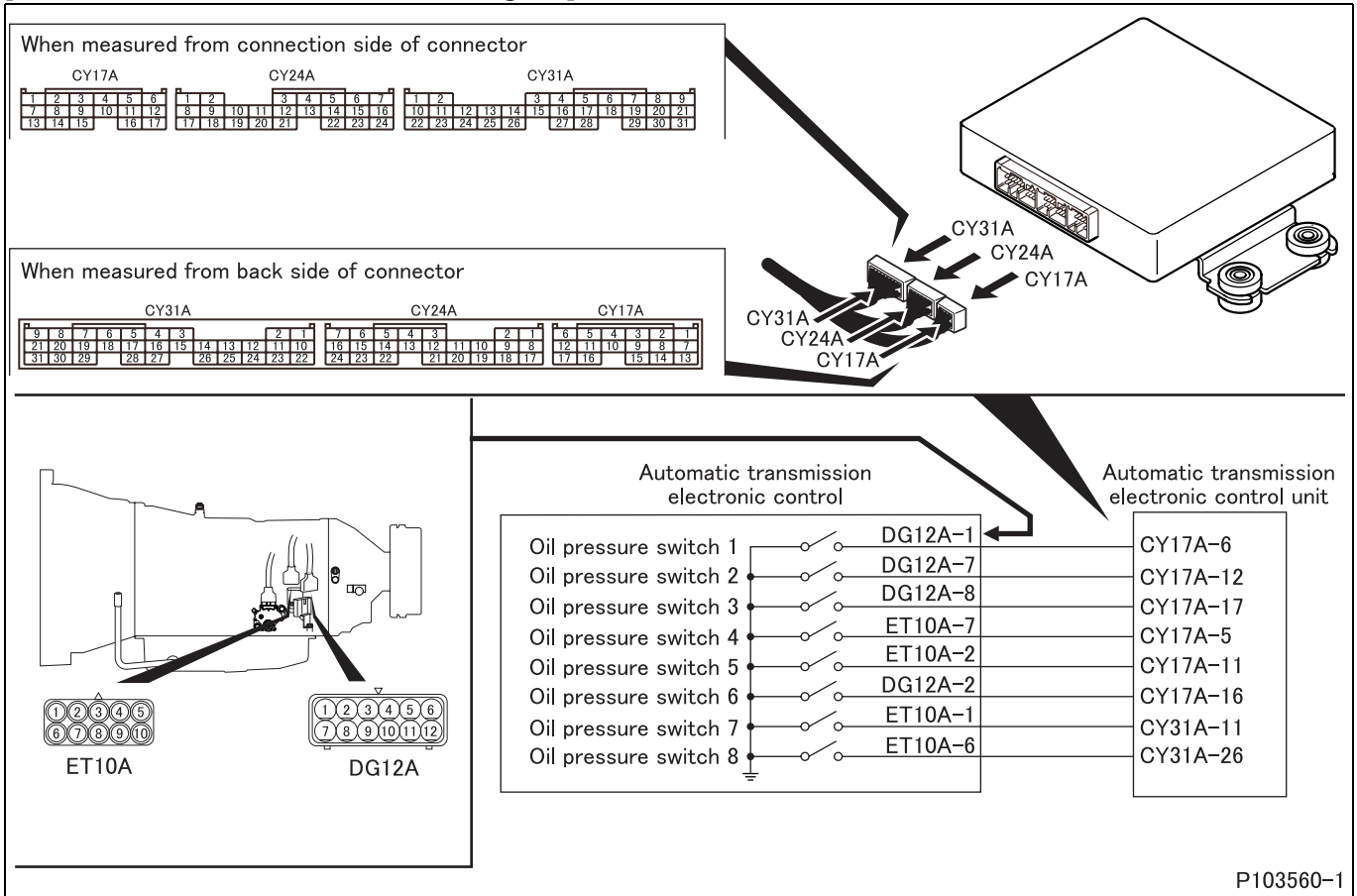
- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 1 or linear solenoid 1
- Malfunction of each connector
- Malfunction of oil pressure switch 1 or linear solenoid 1
- Malfunction of electronic control unit

[Recoverability]

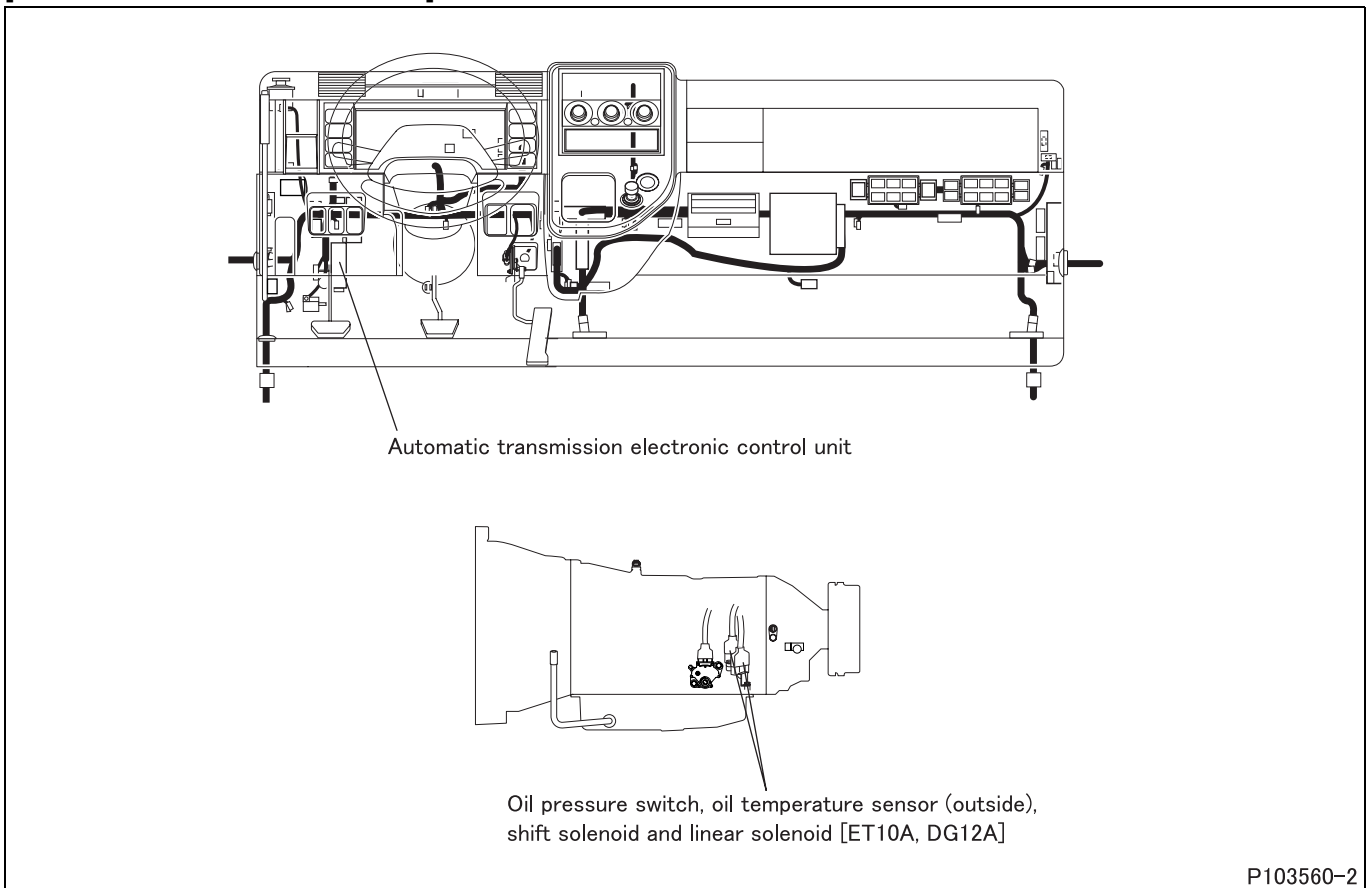
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 6 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 61 "Oil Press SW 1" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: 0 V • In 1st, 3rd, 5th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: ON • In 1st, 3rd, 5th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure continuity between connector (CY17A) terminal No. 6 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	There is no continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

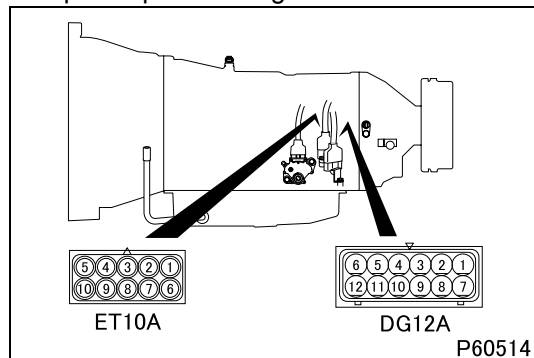
Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

TROUBLESHOOTING

Step 5	Inspection items		Inspection of switch unit
	Maintenance item		Check continuity between connector (DG12A) terminal No. 1 and automatic transmission case.
	Inspection condition		<ul style="list-style-type: none"> • Disconnect connector, and measure switch side terminal. • Starter switch: OFF
	Requirements		There is no continuity.
	Inspection result (Is the judging standard satisfied?)		YES NO

<Step 5 inspection diagram>



Step 6	Inspection items		Inspection of harness between switch and electronic control unit (signal)
	Maintenance item		Check circuit between connector (DG12A) terminal No. 1 and electronic control unit connector (CY17A) terminal No. 6.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 7	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 6 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 61 "Oil Press SW 1" of Service Data.</p>
	Inspection condition		<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: 0 V • In 1st, 3rd, 5th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 2nd, 4th, 6th gears: ON • In 1st, 3rd, 5th gears: OFF
	Inspection result (Is the judging standard satisfied?)		YES NO

[Fault code]

Diagnosis code: P0847/Flash code: 42

[Monitor ID]

42

[Fault (outline)]

Failure of oil pressure switch 2

[Diagnosis check]

- Oil pressure switch 2 is monitored for fault when the linear solenoid 2 is energized (high pressure).

[Code generation condition]

- Oil pressure switch 2 remains OFF (low pressure) for 2 seconds.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Linear solenoid 2 is high pressure

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (4th).

[Probable cause of trouble]

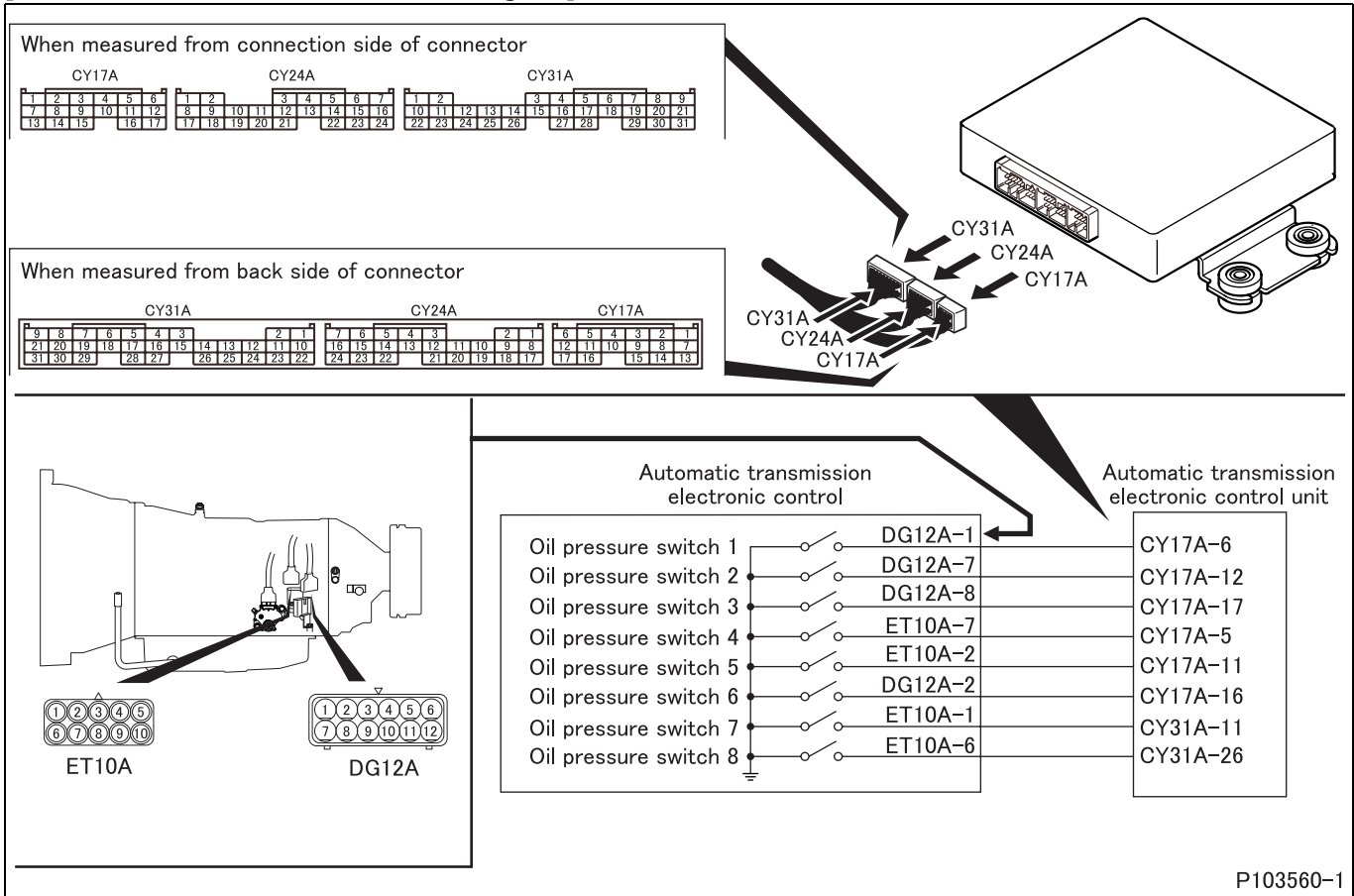
- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 2 or linear solenoid 2
- Malfunction of each connector
- Malfunction of oil pressure switch 2 or linear solenoid 2
- Malfunction of electronic control unit

[Recoverability]

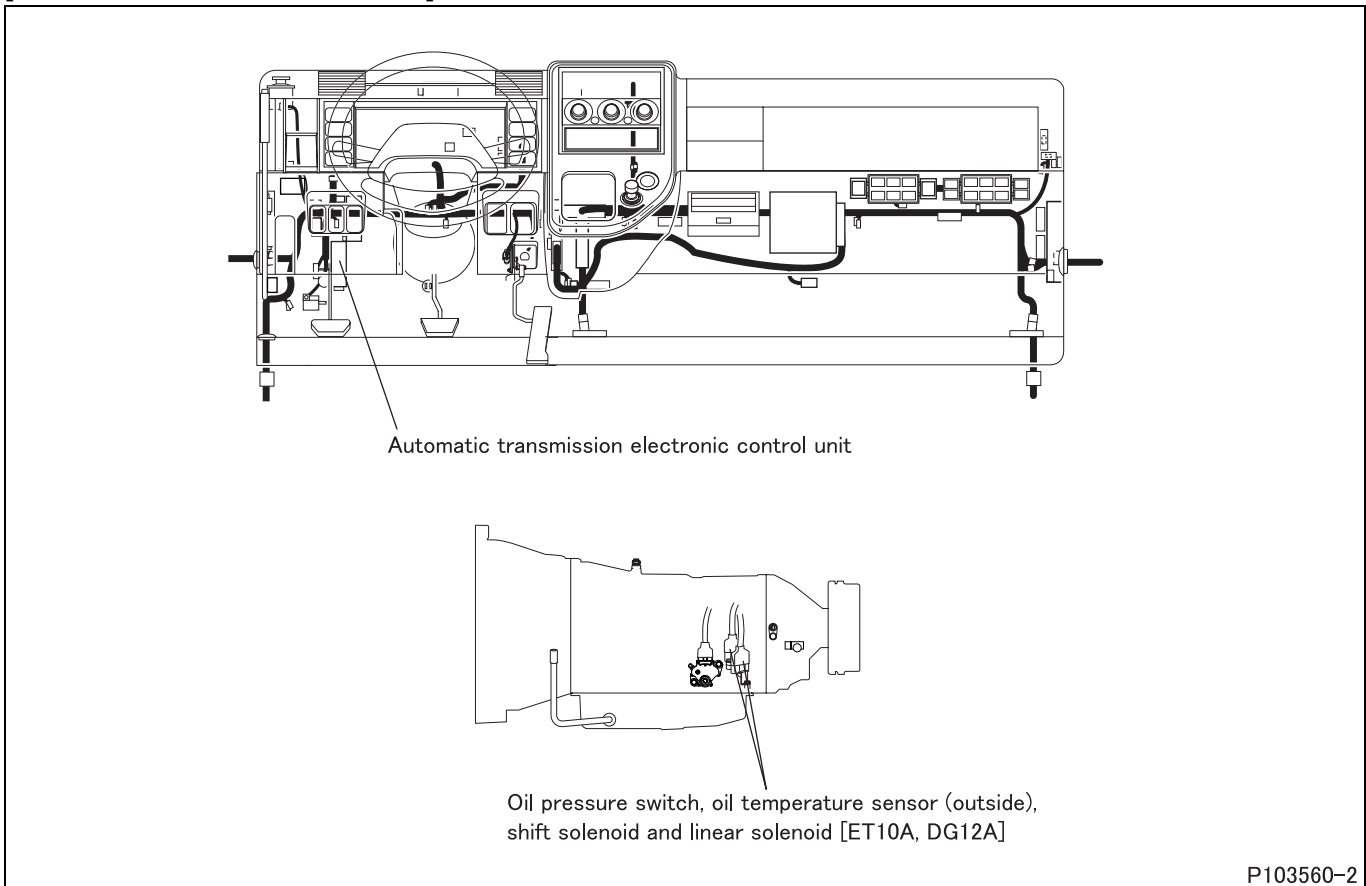
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 12 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 62 "Oil Press SW 2" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: 0 V • In 2nd, 4th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: ON • In 2nd, 4th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure continuity between connector (CY17A) terminal No. 12 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	There is no continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

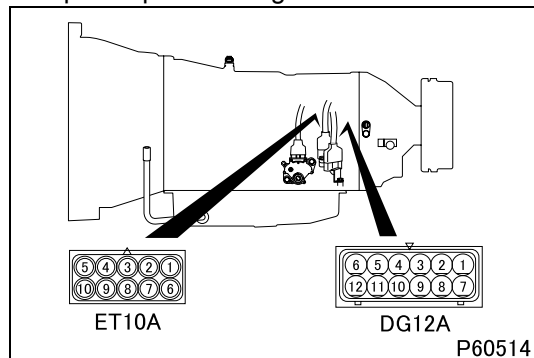
Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

TROUBLESHOOTING

Step 5	Inspection items		Inspection of switch unit
	Maintenance item		Check continuity between connector (DG12A) terminal No. 7 and automatic transmission case.
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure switch side terminal. Starter switch: OFF
	Requirements		There is no continuity.
	Inspection result (Is the judging standard satisfied?)		YES NO

<Step 5 inspection diagram>



Step 6	Inspection items		Inspection of harness between switch and electronic control unit (signal)
	Maintenance item		Check circuit between connector (DG12A) terminal No. 7 and electronic control unit connector (CY17A) terminal No. 12.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 7	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 12 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 62 "Oil Press SW 2" of Service Data.</p>
	Inspection condition		<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 1st, 3rd, 5th gears: 0 V In 2nd, 4th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> In 1st, 3rd, 5th gears: ON In 2nd, 4th, 6th gears: OFF
	Inspection result (Is the judging standard satisfied?)		YES NO

[Fault code]

Diagnosis code: P0848/Flash code: 42

[Monitor ID]

41

[Fault (outline)]

Failure of oil pressure switch 2

[Diagnosis check]

- Oil pressure switch 2 is monitored for fault when the linear solenoid 2 is deenergized (low pressure).

[Code generation condition]

- Oil pressure switch 2 remains ON (high pressure) for 0.1 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Linear solenoid 2 is low pressure

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

[Probable cause of trouble]

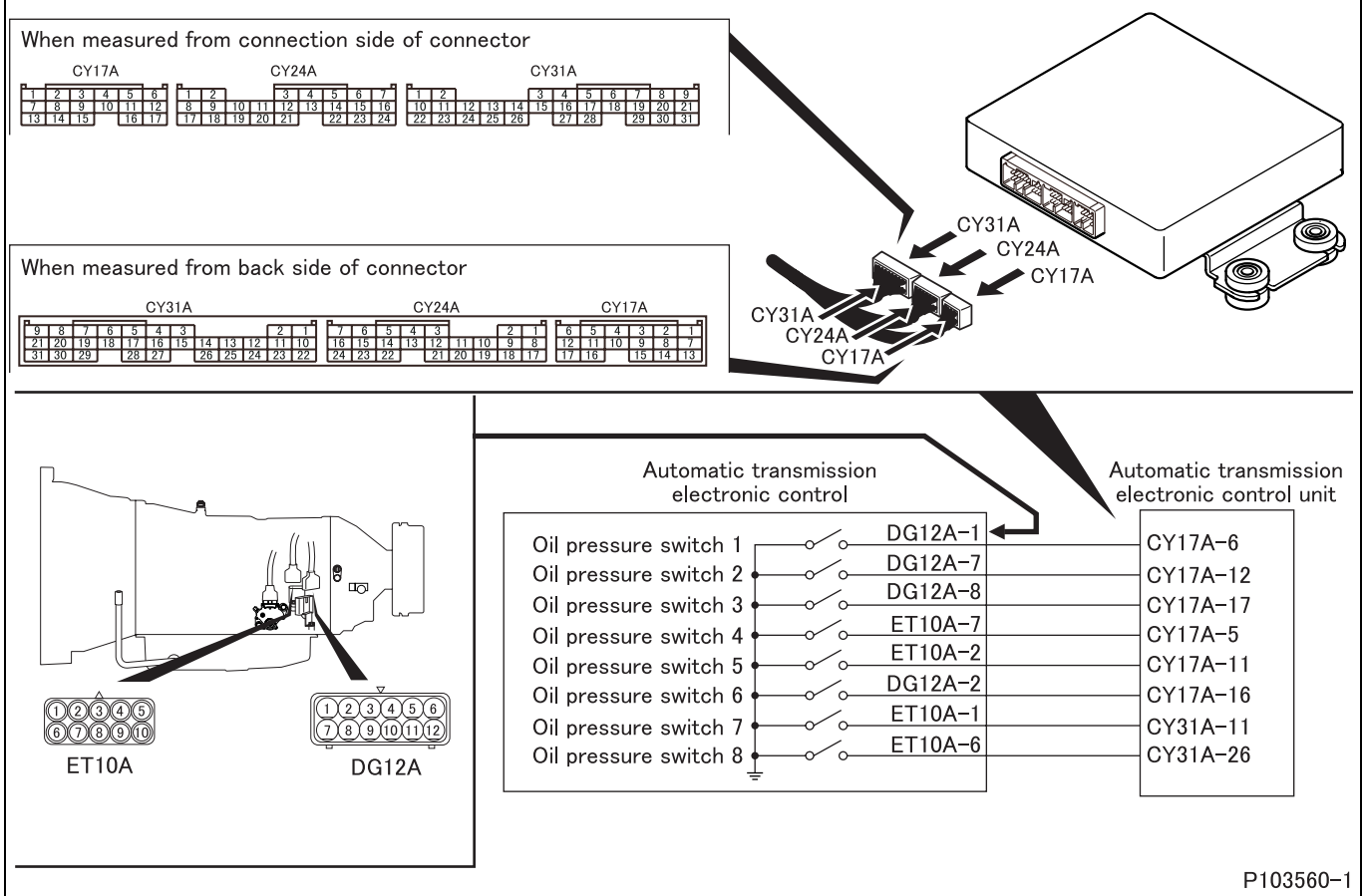
- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 2 or linear solenoid 2
- Malfunction of each connector
- Malfunction of oil pressure switch 2 or linear solenoid 2
- Malfunction of electronic control unit

[Recoverability]

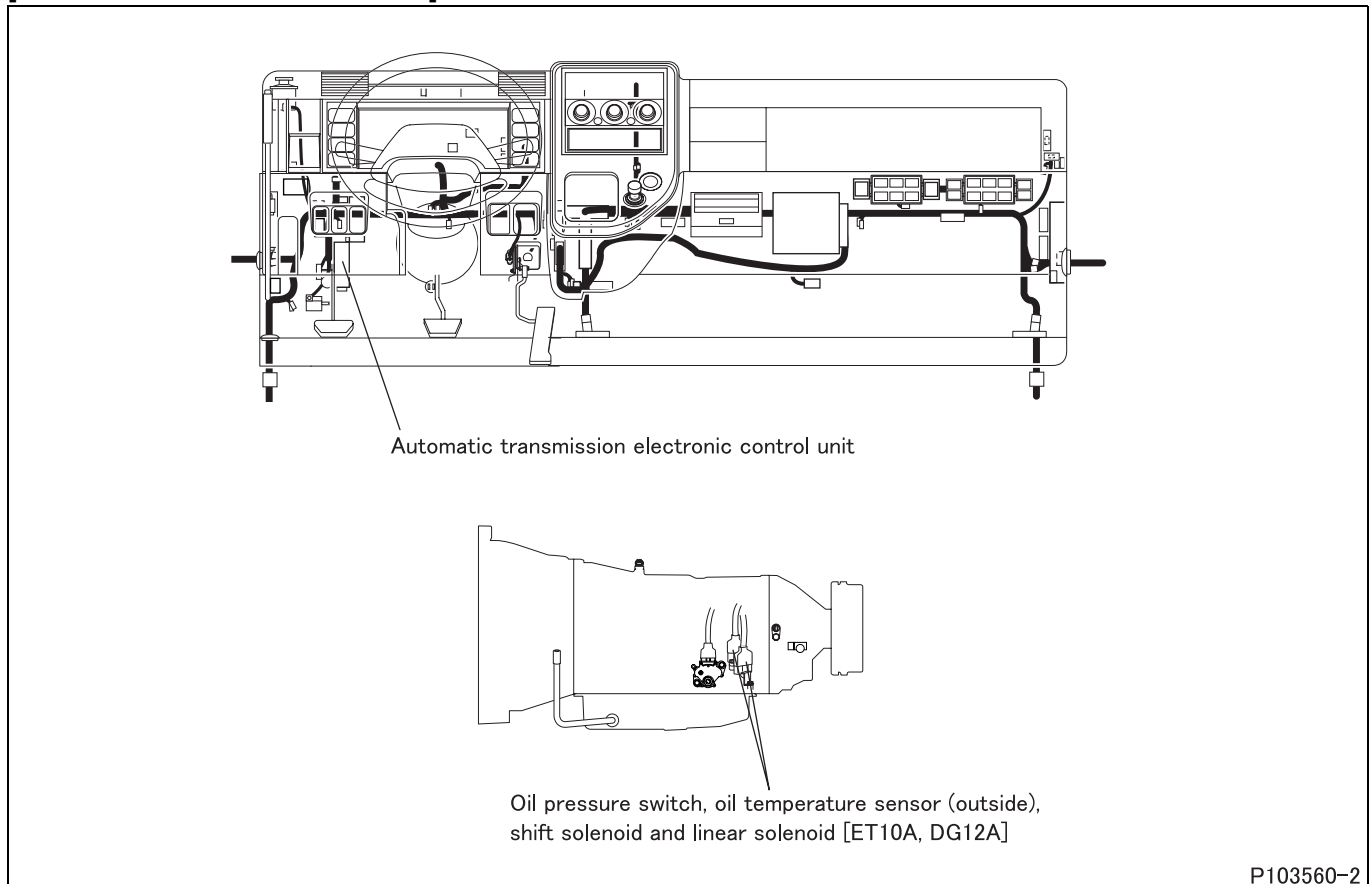
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 12 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 62 "Oil Press SW 2" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: 0 V • In 2nd, 4th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: ON • In 2nd, 4th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure continuity between connector (CY17A) terminal No. 12 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	There is no continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

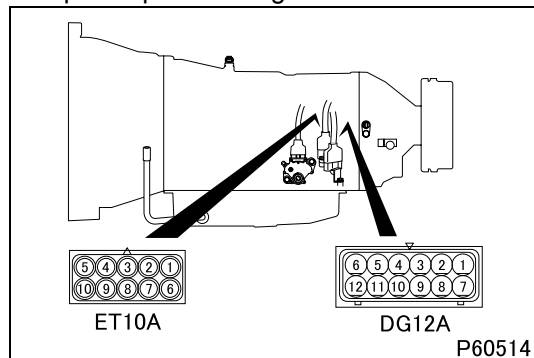
Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

TROUBLESHOOTING

Step 5	Inspection items	Inspection of switch unit		
	Maintenance item	Check continuity between connector (DG12A) terminal No. 7 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure switch side terminal. • Starter switch: OFF 		
	Requirements	There is no continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of oil pressure switch (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between switch and electronic control unit (signal)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 7 and electronic control unit connector (CY17A) terminal No. 12.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 12 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 62 "Oil Press SW 2" of Service Data.</p>		
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: 0 V • In 2nd, 4th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 1st, 3rd, 5th gears: ON • In 2nd, 4th, 6th gears: OFF 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	<ul style="list-style-type: none"> • Inspection of linear solenoid 2 is performed. • Replacement of electronic control unit 	

[Fault code]

Diagnosis code: P0863/Flash code: 88

[Monitor ID]

67

[Fault (outline)]

Abnormality in controller area network communication

[Diagnosis check]

- Controller area network communication is monitored for abnormality according to the controller area network signal to be received 5 seconds after the starter switch is turned ON.

[Code generation condition]

- No controller area network signals are received for 1 second.

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Change point control and lock-up control are effected with accelerator pedal position at 0% (shift-up and lock-up vehicle speeds are switched to low side).
- Line pressure control is effected with accelerator pedal position at 100% (speed change shock occurs).
- Garage control is effected at 0% during idling and 50% otherwise (speed change shock occurs).

[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and controller area network resistor
- Malfunction of each connector
- Malfunction of controller area network resistor
- Malfunction of electronic control unit

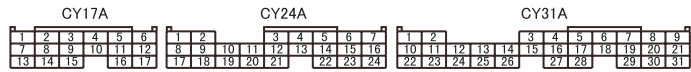
[Recoverability]

- Recovered if signal becomes normal with starter switch in ON position.

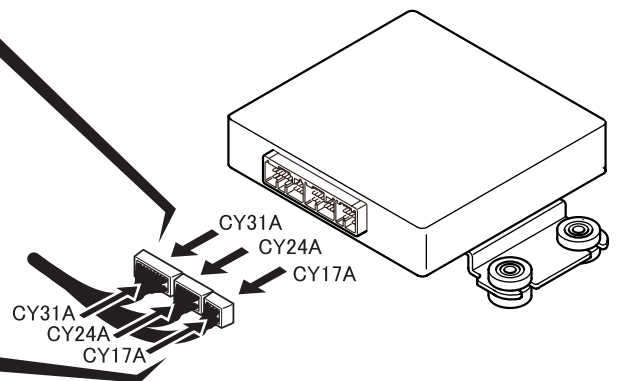
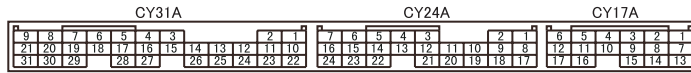
TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]

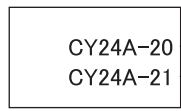
When measured from connection side of connector



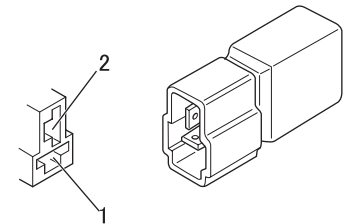
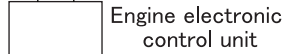
When measured from back side of connector



Automatic transmission electronic control unit

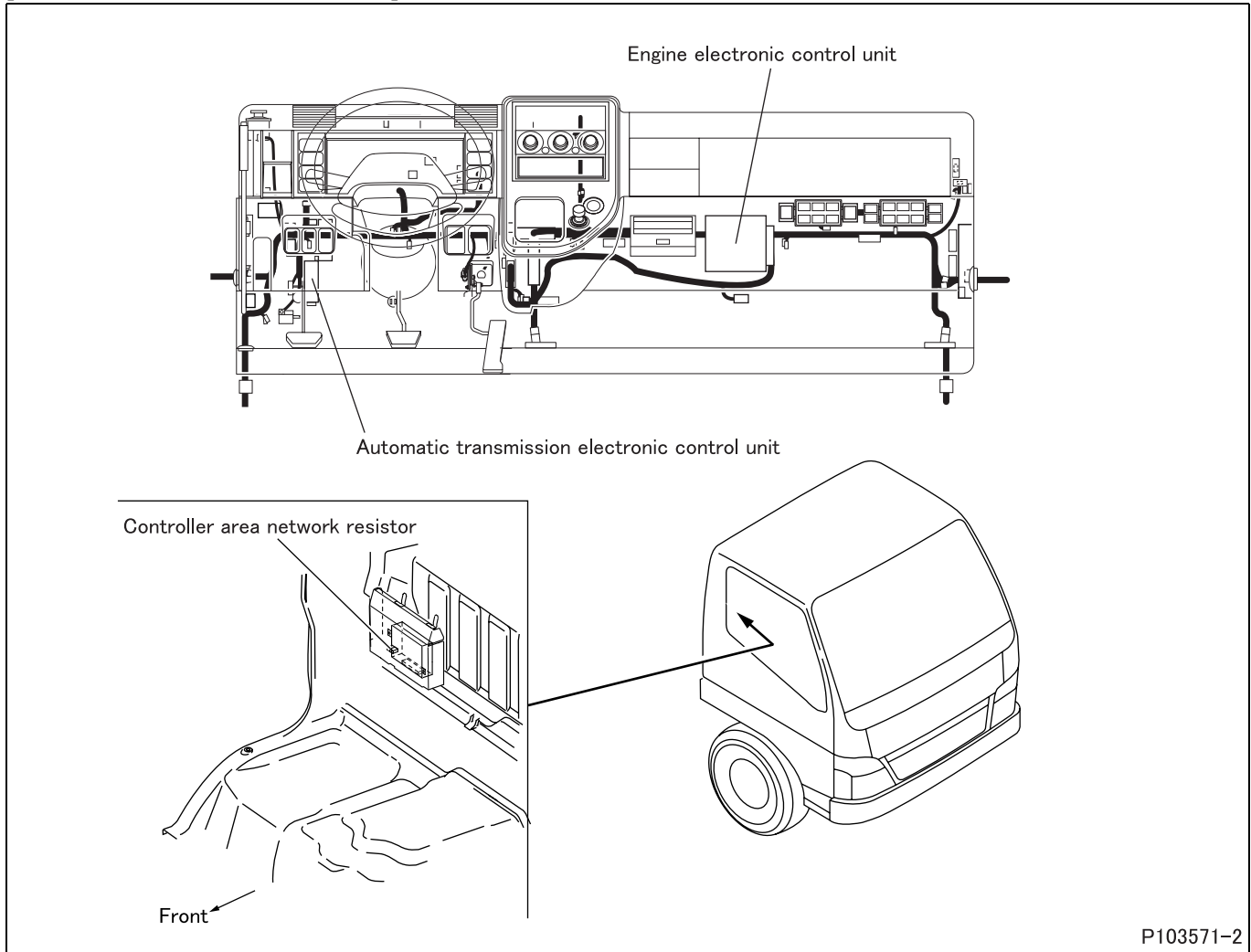


Controller area network resistor



P103571-1

[Parts Identification and Location]



P103571-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by electronic control unit connector		
	Maintenance item	Measure value of resistance between connector (CY24A) terminal No. 20 and 21.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect the engine electronic control unit and automatic transmission electronic control unit connectors, and measure from connection side of harness connector. • Starter switch: OFF 		
	Requirements	120 ± 6 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Go to step 2.	

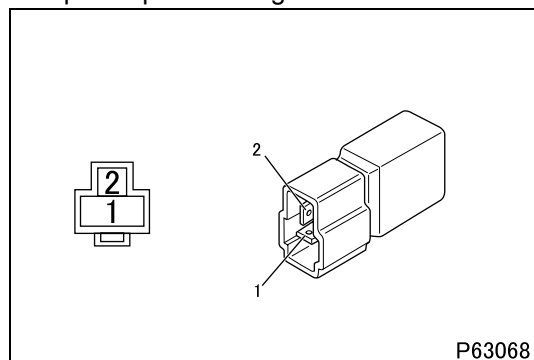
Step 2	Inspection items	Inspection of electronic control unit connector		
	Maintenance item	Inspection of connector		
	Inspection condition	-		
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.	
		NO	Modify connector.	

TROUBLESHOOTING

Step 3	Inspection items	Inspection of controller area network resistor connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Modify connector.	

Step 4	Inspection items	Inspection of controller area network resistor unit	
	Maintenance item	Measure value of resistance between connector terminals No. 1 and 2.	
	Inspection condition	-	
	Requirements	120 ± 6 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Replacement of controller area network resistor	

<Step 4 inspection diagram>



Step 5	Inspection items	Inspection of harness between electronic control unit and controller area network resistor (HIGH)	
	Maintenance item	Check circuit between controller area network resistor connector terminal No. 1 and electronic control unit connector (CY24A) terminal No. 20.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify harness.	

Step 6	Inspection items	Inspection of harness between electronic control unit and controller area network resistor (LOW)	
	Maintenance item	Check circuit between controller area network resistor connector terminal No. 2 and electronic control unit connector (CY24A) terminal No. 21.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

Step 7	Inspection items		Inspection by Multi-Use Tester diagnosis code
	Maintenance item		Check for occurrence of the diagnosis code No. P0863 "CAN Communication".
	Inspection condition		Starter switch: ON
	Requirements		No codes occur.
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Perform troubleshooting for the controller area network communication system in the engine electronic control. If the fault is not still removed, replace the automatic transmission electronic control unit.	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0872/Flash code: 45

[Monitor ID]

54

[Fault (outline)]

Failure of oil pressure switch 3

[Diagnosis check]

- Oil pressure switch 3 is monitored for fault when the shift solenoid 1 is energized (high pressure).

[Code generation condition]

- Oil pressure switch 3 remains OFF (low pressure) for 0.1 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Shift solenoid 1 is ON

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

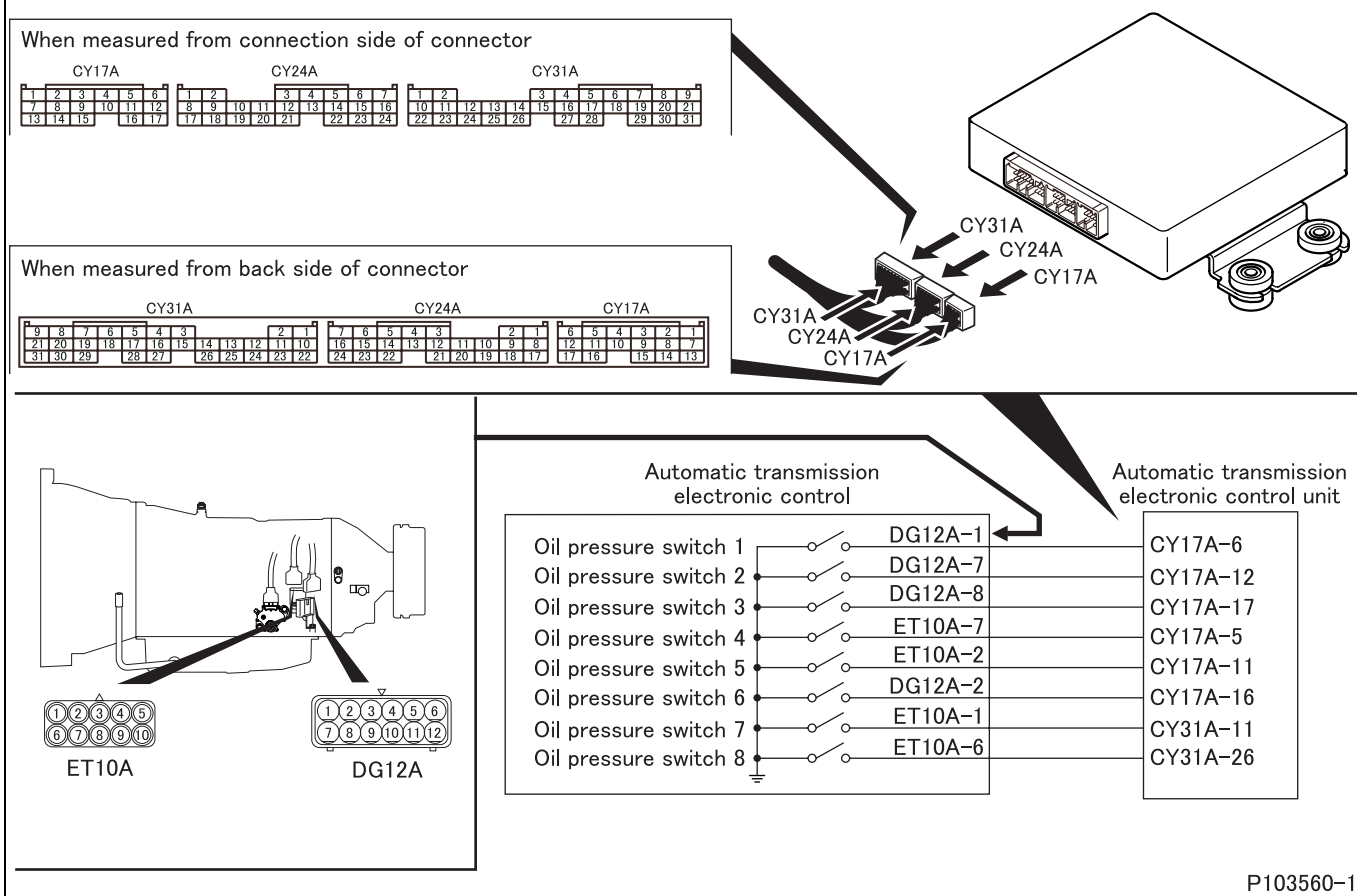
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 3 or shift solenoid 1
- Malfunction of each connector
- Malfunction of oil pressure switch 3 or shift solenoid 1
- Malfunction of electronic control unit

[Recoverability]

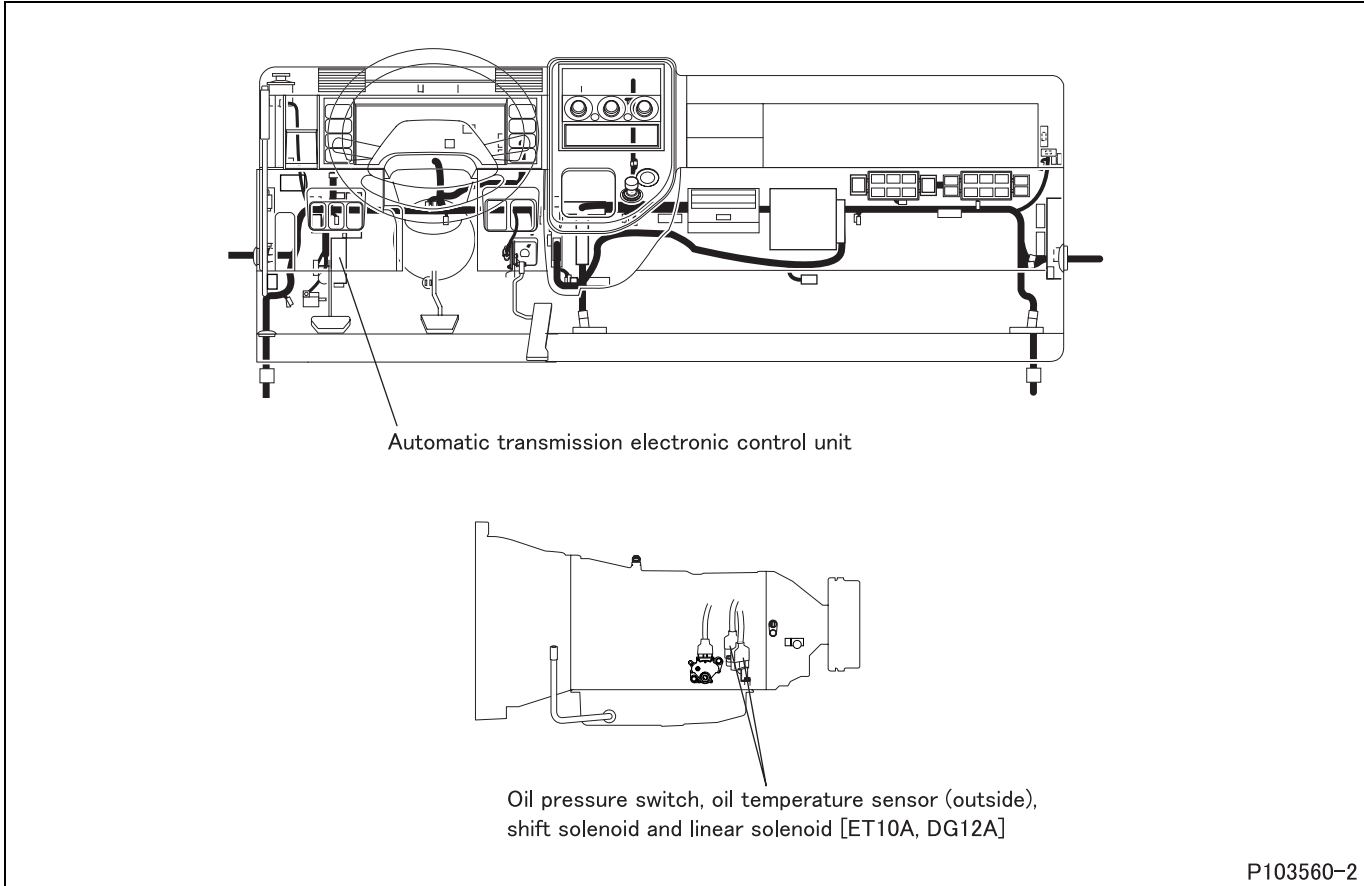
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



P103560-1

[Parts Identification and Location]



P103560-2

TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 17 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 63 "Oil Press SW 3" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 3rd, 4th gears: 0 V • In 1st, 2nd, 5th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In 1st, 2nd, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

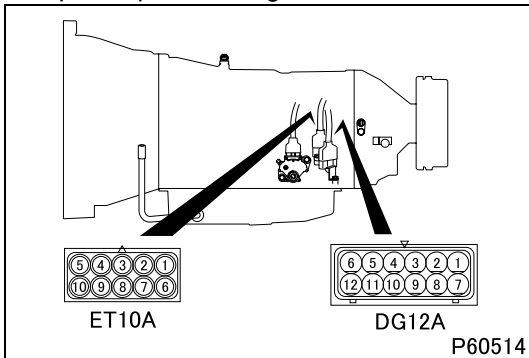
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure continuity between connector (CY17A) terminal No. 17 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	There is no continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of switch unit		
	Maintenance item	Check continuity between connector (DG12A) terminal No. 8 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure switch side terminal. • Starter switch: OFF 		
	Requirements	There is no continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of oil pressure switch (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between switch and electronic control unit (signal)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 8 and electronic control unit connector (CY17A) terminal No. 17.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 17 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 63 "Oil Press SW 3" of Service Data.</p>		
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: 0 V • In 1st, 2nd, 5th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In 1st, 2nd, 5th, 6th gears: OFF 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	<ul style="list-style-type: none"> • Inspection of shift solenoid 1 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0873/Flash code: 45

[Monitor ID]

53

[Fault (outline)]

Failure of oil pressure switch 3

[Diagnosis check]

- Oil pressure switch 3 is monitored for fault when the shift solenoid 1 is deenergized (low pressure).

[Code generation condition]

- Oil pressure switch 3 remains ON (high pressure) for 0.1 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Shift solenoid 1 is OFF

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

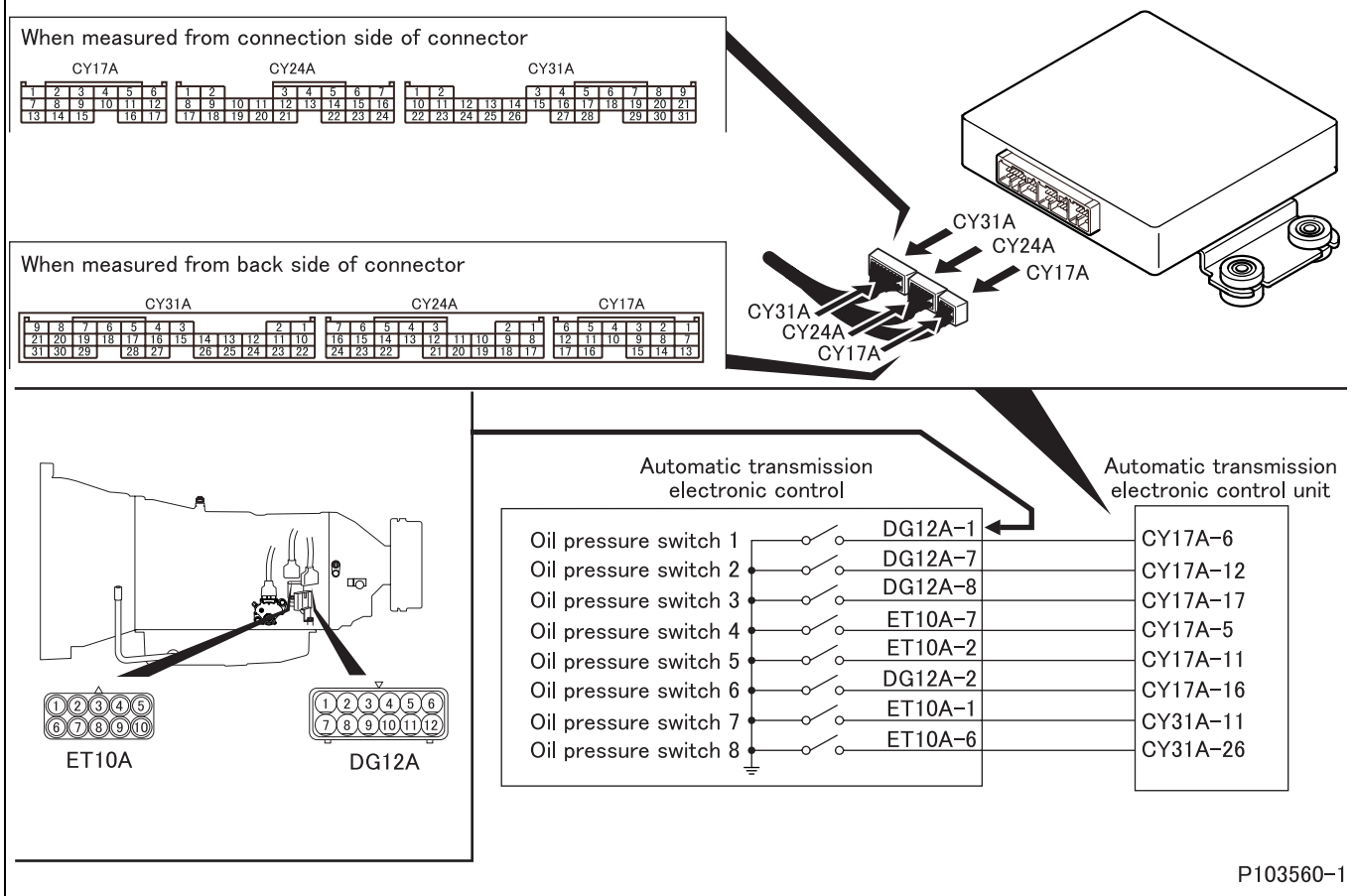
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 3 or shift solenoid 1
- Malfunction of each connector
- Malfunction of oil pressure switch 3 or shift solenoid 1
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

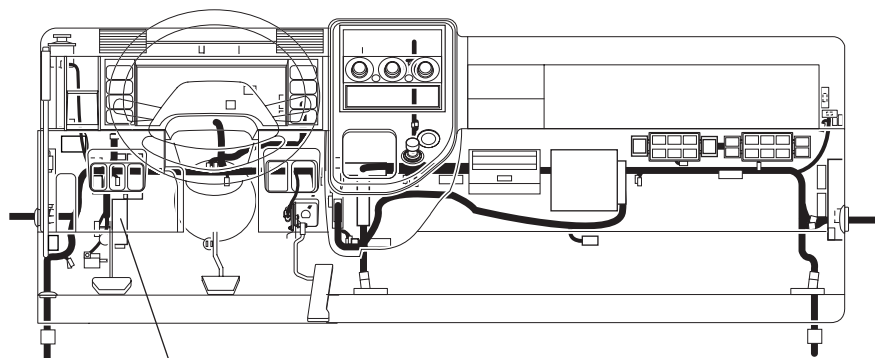
[Electronic Control Unit Connection Diagram]



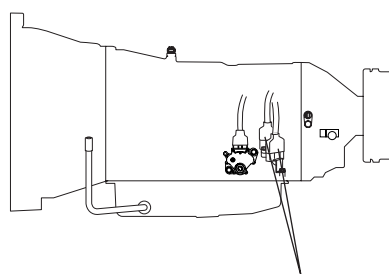
P103560-1

TROUBLESHOOTING

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside),
shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data	
Step 1	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 17 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 63 "Oil Press SW 3" of Service Data.</p>	
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: 0 V • In 1st, 2nd, 5th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In 1st, 2nd, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
		NO	Go to step 2.

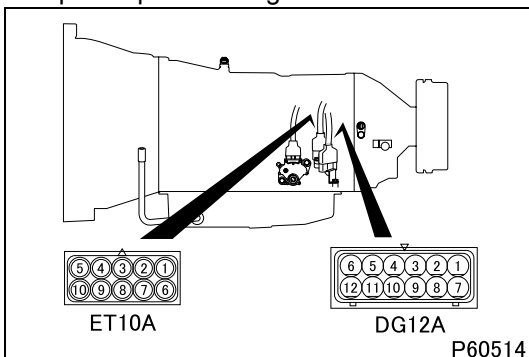
Step 2	Inspection items	Inspection by electronic control unit connector (signal)		
	Maintenance item	Measure continuity between connector (CY17A) terminal No. 17 and chassis ground.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 		
	Requirements	There is no continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.	
		NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector		
	Maintenance item	Inspection of connector		
	Inspection condition	-		
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify connector.	

Step 4	Inspection items	Inspection of switch connector		
	Maintenance item	Inspection of connector		
	Inspection condition	-		
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.	
		NO	Modify connector.	

Step 5	Inspection items	Inspection of switch unit		
	Maintenance item	Check continuity between connector (DG12A) terminal No. 8 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure switch side terminal. • Starter switch: OFF 		
	Requirements	There is no continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of oil pressure switch (contact an Aisin Service Station)	

<Step 5 inspection diagram>



TROUBLESHOOTING

Step 6	Inspection items	Inspection of harness between switch and electronic control unit (signal)	
	Maintenance item	Check circuit between connector (DG12A) terminal No. 8 and electronic control unit connector (CY17A) terminal No. 17.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

Step 7	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 17 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 63 "Oil Press SW 3" of Service Data.</p>	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: 0 V • In 1st, 2nd, 5th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In 1st, 2nd, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of shift solenoid 1 is performed. • Replacement of electronic control unit 	

[Fault code]

Diagnosis code: P0877/Flash code: 46

[Monitor ID]

58

[Fault (outline)]

Failure of oil pressure switch 4

[Diagnosis check]

- Oil pressure switch 4 is monitored for fault when the shift solenoid 2 is energized (high pressure).

[Code generation condition]

- Oil pressure switch 4 remains OFF (low pressure) for 0.1 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Shift solenoid 2 is ON

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 4 or shift solenoid 2
- Malfunction of each connector
- Malfunction of oil pressure switch 4 or shift solenoid 2
- Malfunction of electronic control unit

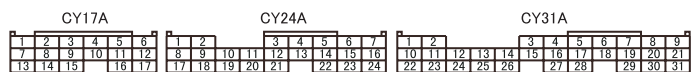
[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

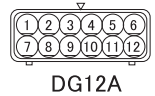
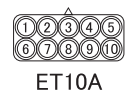
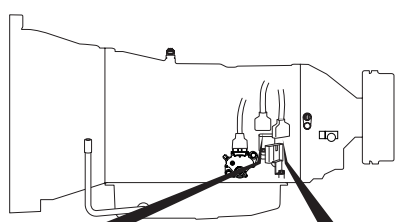
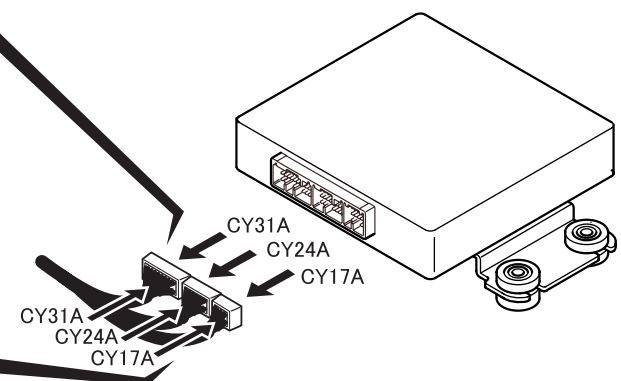
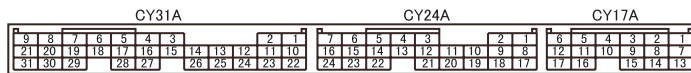
TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]

When measured from connection side of connector

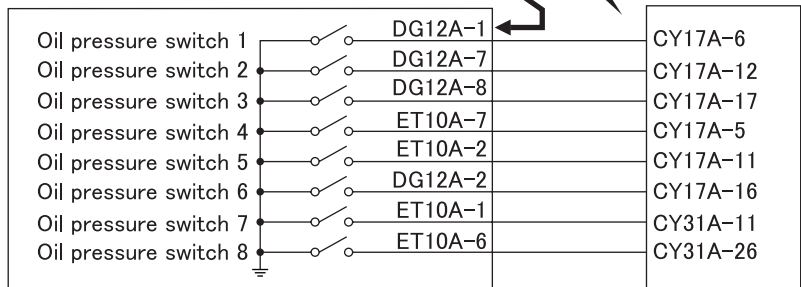


When measured from back side of connector



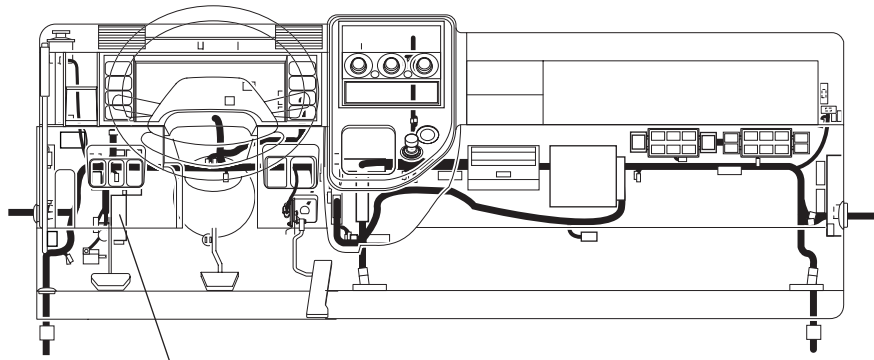
Automatic transmission electronic control

Automatic transmission electronic control unit

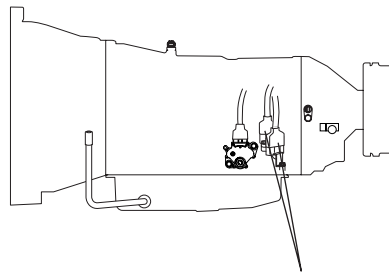


P103560-1

[Parts Identification and Location]



Automatic transmission electronic control unit



Oil pressure switch, oil temperature sensor (outside), shift solenoid and linear solenoid [ET10A, DG12A]

P103560-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data
Step 1	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 5 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 64 "Oil Press SW 4" of Service Data.</p>
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: 0 V • In 1st, 2nd, 3rd gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: ON • In 1st, 2nd, 3rd gears: OFF
	Inspection result (Is the judging standard satisfied?)	<p>YES Go to transient fault (See Gr00.).</p> <p>NO Go to step 2.</p>

TROUBLESHOOTING

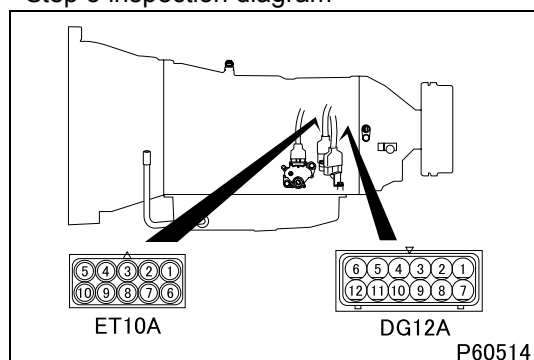
Step 2	Inspection items		Inspection by electronic control unit connector (signal)
	Maintenance item		Measure continuity between connector (CY17A) terminal No. 5 and chassis ground.
	Inspection condition		<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF
	Requirements		There is no continuity.
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 3	Inspection items		Inspection of electronic control unit connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 4	Inspection items		Inspection of switch connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES NO

Step 5	Inspection items		Inspection of switch unit
	Maintenance item		Check continuity between connector (ET10A) terminal No. 7 and automatic transmission case.
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure switch side terminal. Starter switch: OFF
	Requirements		There is no continuity.
	Inspection result (Is the judging standard satisfied?)		YES NO

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between switch and electronic control unit (signal)	
	Maintenance item	Check circuit between connector (ET10A) terminal No. 7 and electronic control unit connector (CY17A) terminal No. 5.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

Step 7	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 5 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 64 "Oil Press SW 4" of Service Data.</p>	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: 0 V • In 1st, 2nd, 3rd gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: ON • In 1st, 2nd, 3rd gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		<ul style="list-style-type: none"> • Inspection of shift solenoid 2 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0878/Flash code: 46

[Monitor ID]

57

[Fault (outline)]

Failure of oil pressure switch 4

[Diagnosis check]

- Oil pressure switch 4 is monitored for fault when the shift solenoid 2 is deenergized (low pressure).

[Code generation condition]

- Oil pressure switch 4 remains ON (high pressure) for 0.1 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Shift solenoid 2 is OFF

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (5th).

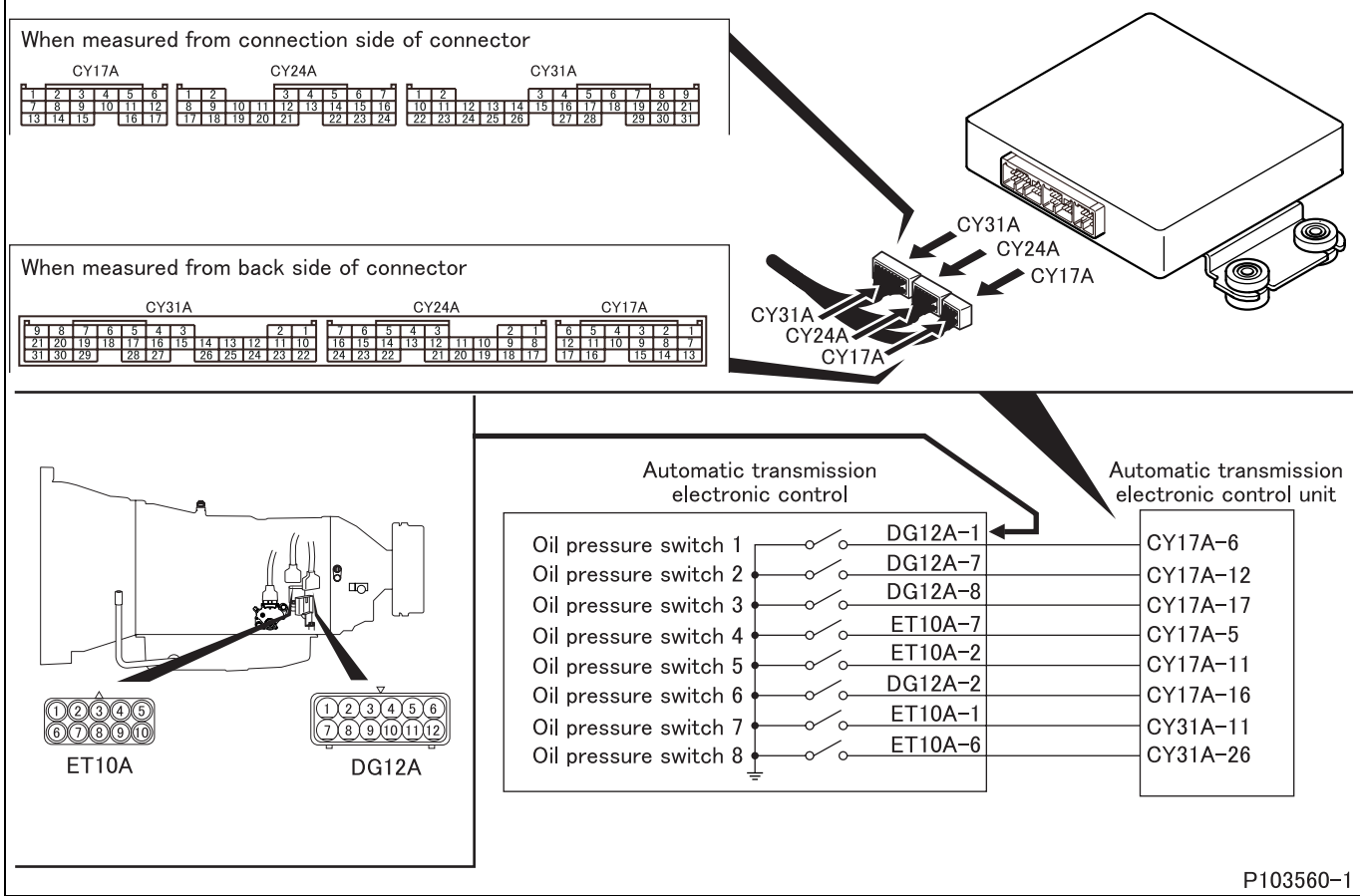
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 4 or shift solenoid 2
- Malfunction of each connector
- Malfunction of oil pressure switch 4 or shift solenoid 2
- Malfunction of electronic control unit

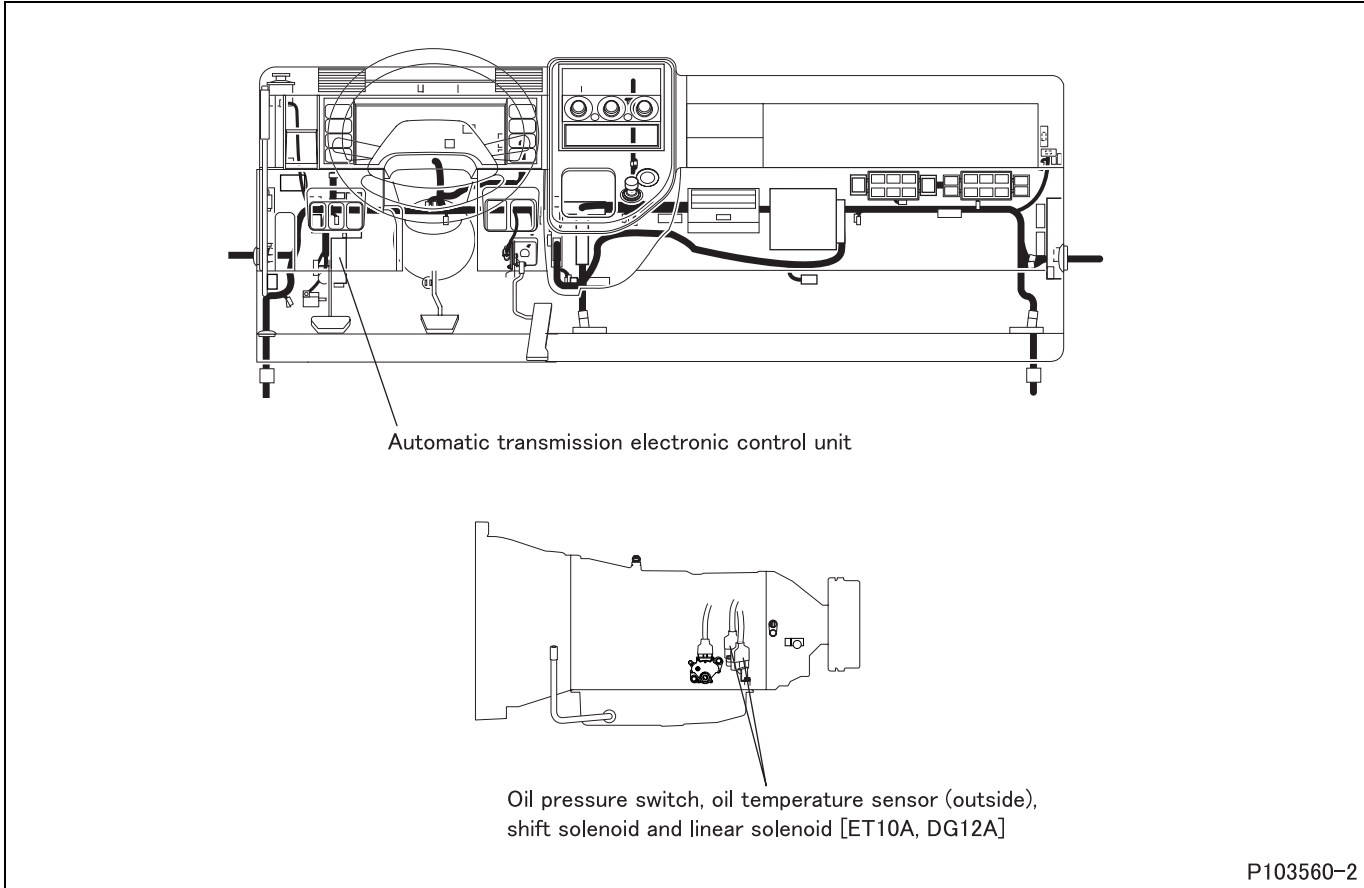
[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 5 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 64 "Oil Press SW 4" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: 0 V • In 1st, 2nd, 3rd gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: ON • In 1st, 2nd, 3rd gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

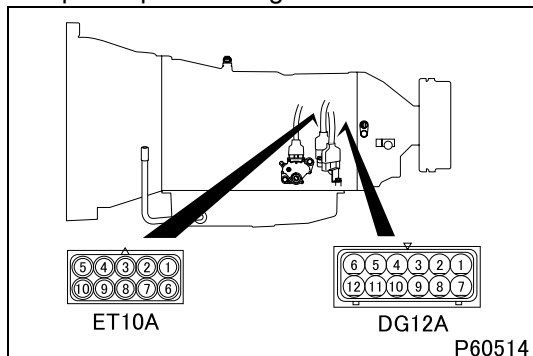
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure continuity between connector (CY17A) terminal No. 5 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	There is no continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of switch unit		
	Maintenance item	Check continuity between connector (ET10A) terminal No. 7 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure switch side terminal. • Starter switch: OFF 		
	Requirements	There is no continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of oil pressure switch (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between switch and electronic control unit (signal)		
	Maintenance item	Check circuit between connector (ET10A) terminal No. 7 and electronic control unit connector (CY17A) terminal No. 5.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 5 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 64 "Oil Press SW 4" of Service Data.</p>		
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: 0 V • In 1st, 2nd, 3rd gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: ON • In 1st, 2nd, 3rd gears: OFF 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	<ul style="list-style-type: none"> • Inspection of shift solenoid 2 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0973/Flash code: 31

[Monitor ID]

29

[Fault (outline)]

Failure of shift solenoid 1

[Diagnosis check]

- Current in the shift solenoid 1 is monitored for fault.

[Code generation condition]

- Current in the shift solenoid 1 remains at or above the specified value (4A) for 0.1 second (short-circuit in ground side).

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

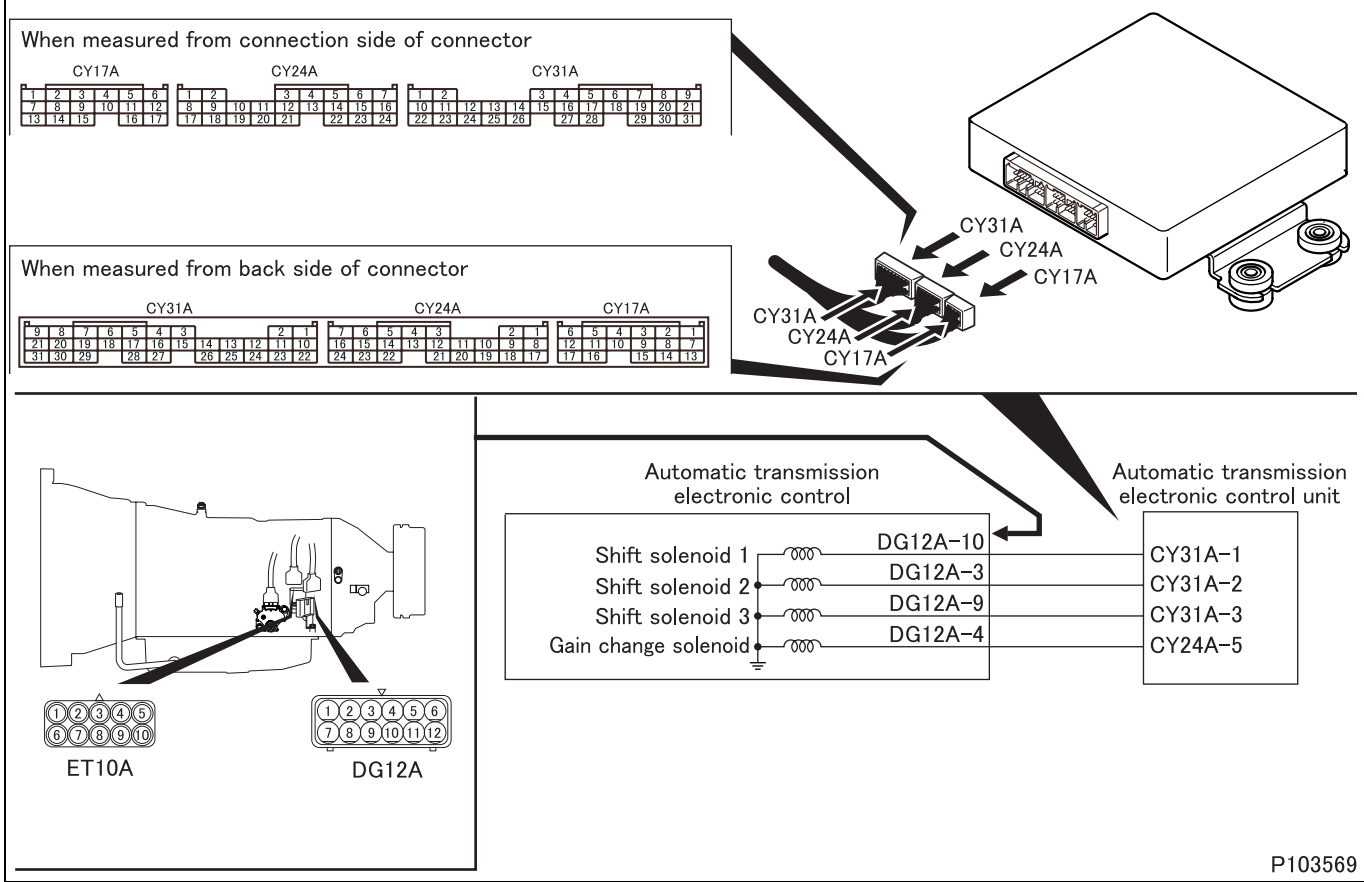
[Probable cause of trouble]

- Short-circuit of harness between electronic control unit and shift solenoid 1
- Malfunction of each connector
- Malfunction of shift solenoid 1
- Malfunction of electronic control unit

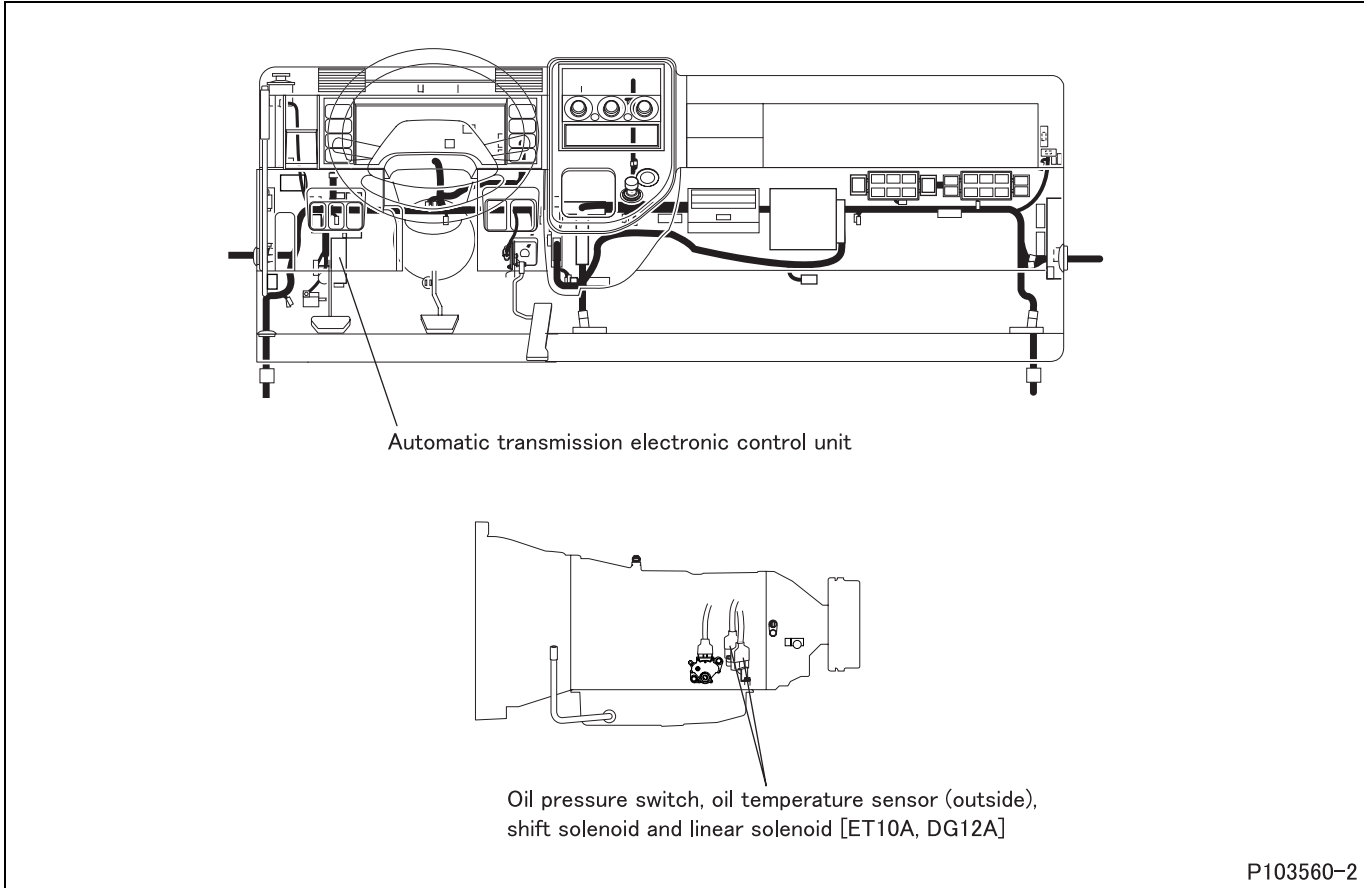
[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 1 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 31 "Shift Valve 1" and No. 71 "Shift Valve Press 1" of Service Data.</p>	
	Inspection condition	<p>Vehicle run</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 3rd, 4th gears: 12 V In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 31 "Shift Valve 1"></p> <ul style="list-style-type: none"> In 3rd, 4th gears: ON In any gears except above: OFF <p><No. 71 "Shift Valve Press 1"></p> <ul style="list-style-type: none"> In 3rd, 4th gears: HIGH In any gears except above: LOW 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

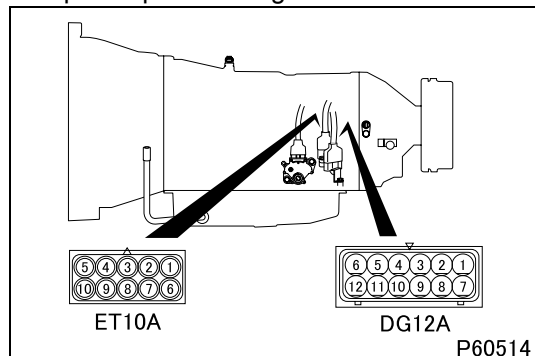
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 1 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of solenoid unit		
	Maintenance item	Measure value of resistance between connector (DG12A) terminal No. 10 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure solenoid side terminal. • Starter switch: OFF 		
	Requirements	13 ± 2 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of solenoid (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 10 and electronic control unit connector (CY31A) terminal No. 1.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 1 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 31 "Shift Valve 1" and No. 71 "Shift Valve Press 1" of Service Data.</p>		
	Inspection condition	<p>Vehicle run</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 31 "Shift Valve 1"></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: ON • In any gears except above: OFF <p><No. 71 "Shift Valve Press 1"></p> <ul style="list-style-type: none"> • In 3rd, 4th gears: HIGH • In any gears except above: LOW 		
	Inspection result (Is the judging standard satisfied?)	YES	If the diagnosis code remains after actual run, replace the electronic control unit.	
		NO	Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0974/Flash code: 31

[Monitor ID]

30

[Fault (outline)]

Failure of shift solenoid 1

[Diagnosis check]

- Resistance in the shift solenoid 1 is monitored for fault.

[Code generation condition]

- Resistance in the shift solenoid 1 remains at or above the specified value (100 k Ω) for 0.1 second (open-circuit or short-circuit in power supply side).

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

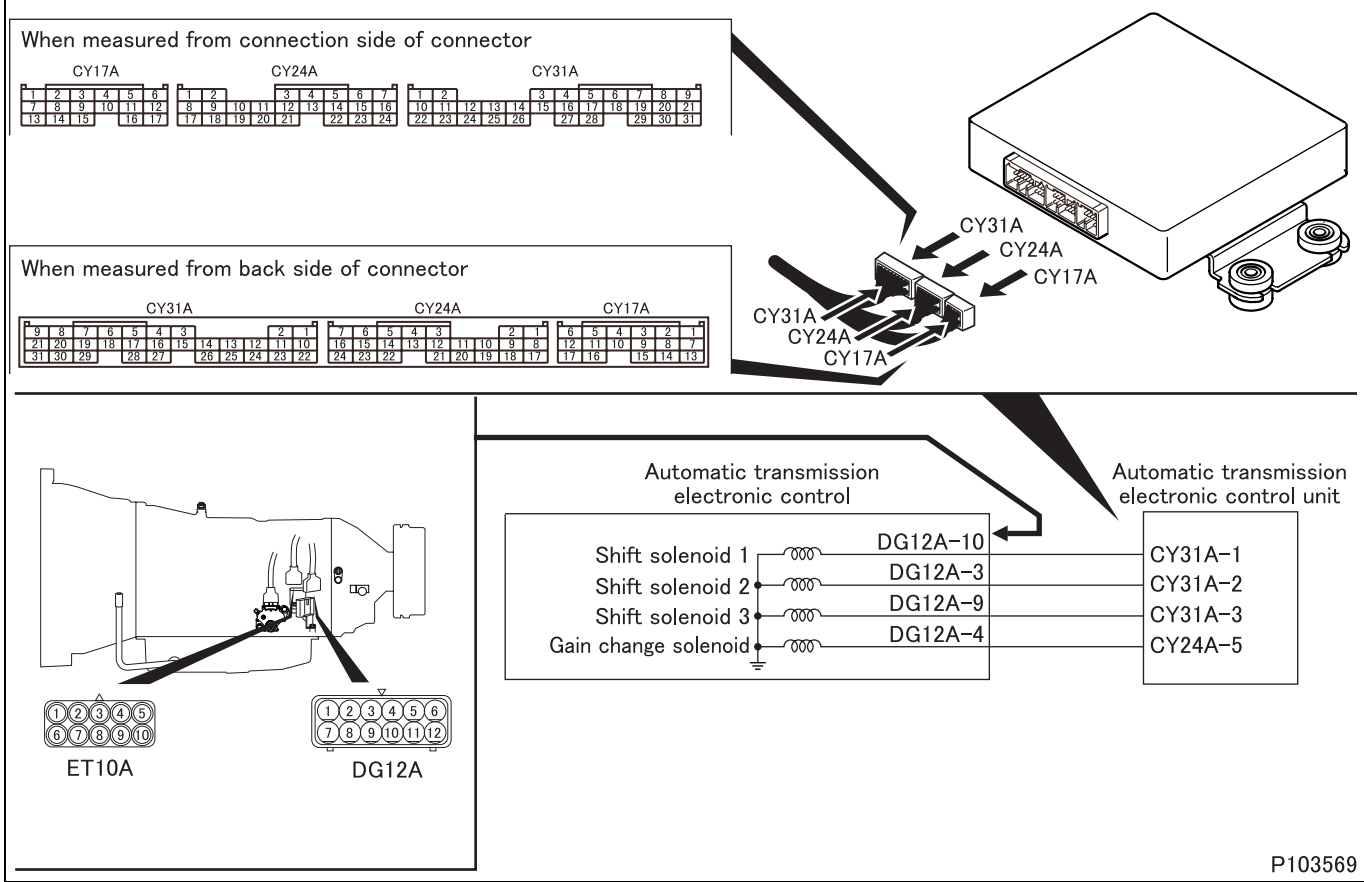
[Probable cause of trouble]

- Short-circuit of harness between electronic control unit and shift solenoid 1
- Malfunction of each connector
- Malfunction of shift solenoid 1
- Malfunction of electronic control unit

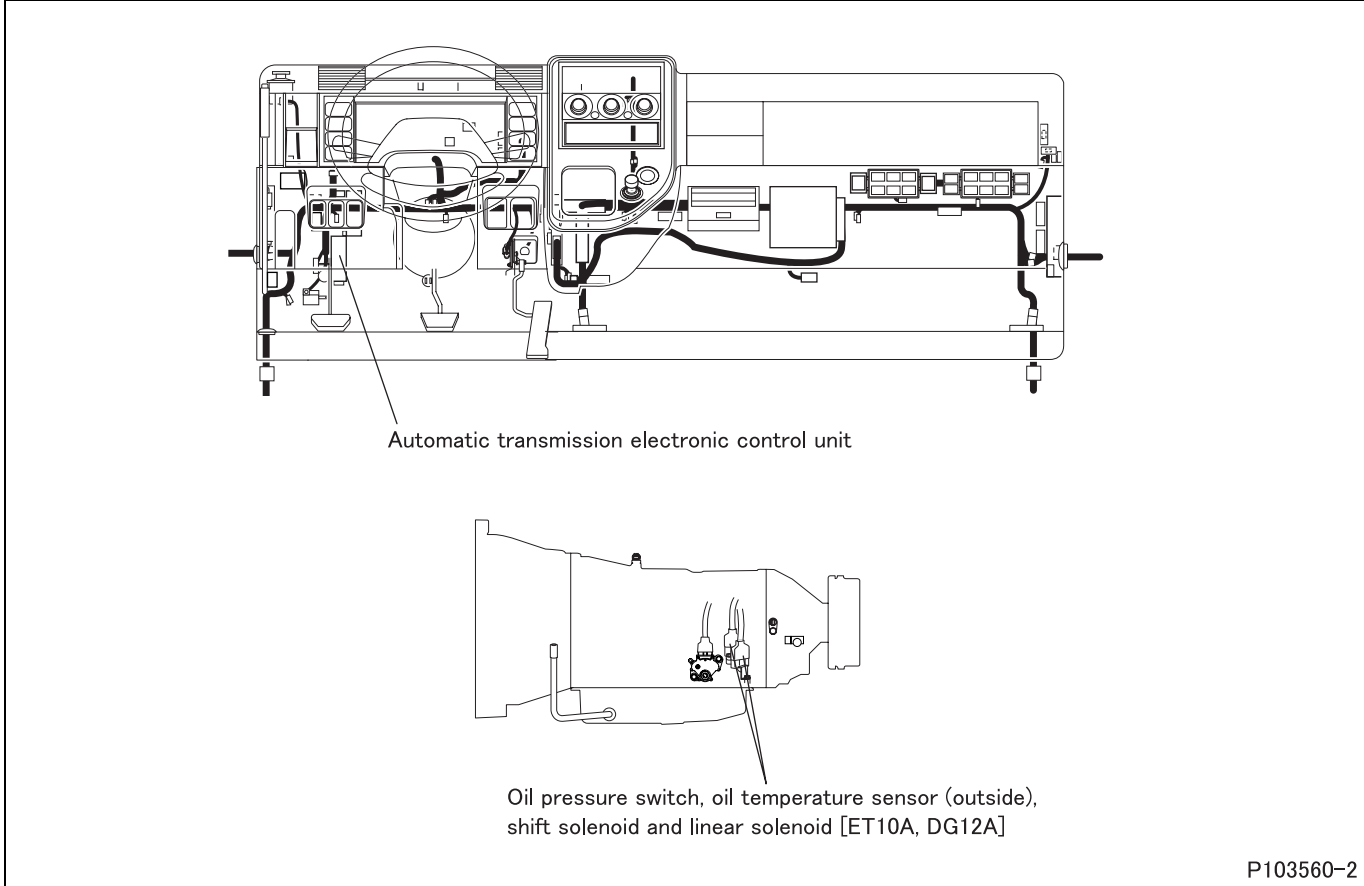
[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 1 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure items No. 31 "Shift Valve 1" and No. 71 "Shift Valve Press 1" of Service Data.</p>	
	Inspection condition	Vehicle run <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> In 3rd, 4th gears: 12 V In any gears except above: 0 V <Multi-Use Tester used> <p><No. 31 "Shift Valve 1"></p> <ul style="list-style-type: none"> In 3rd, 4th gears: ON In any gears except above: OFF <p><No. 71 "Shift Valve Press 1"></p> <ul style="list-style-type: none"> In 3rd, 4th gears: HIGH In any gears except above: LOW 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

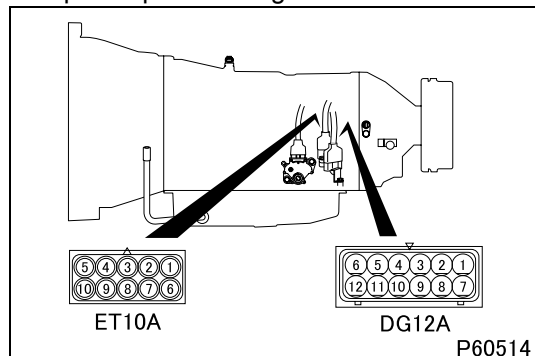
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 1 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of solenoid unit		
	Maintenance item	Measure value of resistance between connector (DG12A) terminal No. 10 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF 		
	Requirements	13 ± 2 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of solenoid (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 10 and electronic control unit connector (CY31A) terminal No. 1.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 1 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 31 "Shift Valve 1" and No. 71 "Shift Valve Press 1" of Service Data.</p>		
	Inspection condition	<p>Vehicle run</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 3rd, 4th gears: 12 V In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 31 "Shift Valve 1"></p> <ul style="list-style-type: none"> In 3rd, 4th gears: ON In any gears except above: OFF <p><No. 71 "Shift Valve Press 1"></p> <ul style="list-style-type: none"> In 3rd, 4th gears: HIGH In any gears except above: LOW 		
	Inspection result (Is the judging standard satisfied?)	YES	If the diagnosis code remains after actual run, replace the electronic control unit.	
		NO	Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0976/Flash code: 32

[Monitor ID]

31

[Fault (outline)]

Failure of shift solenoid 2

[Diagnosis check]

- Current in the shift solenoid 2 is monitored for fault.

[Code generation condition]

- Current in the shift solenoid 2 remains at or above the specified value (4A) for 0.1 second (short-circuit in ground side).

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (5th).

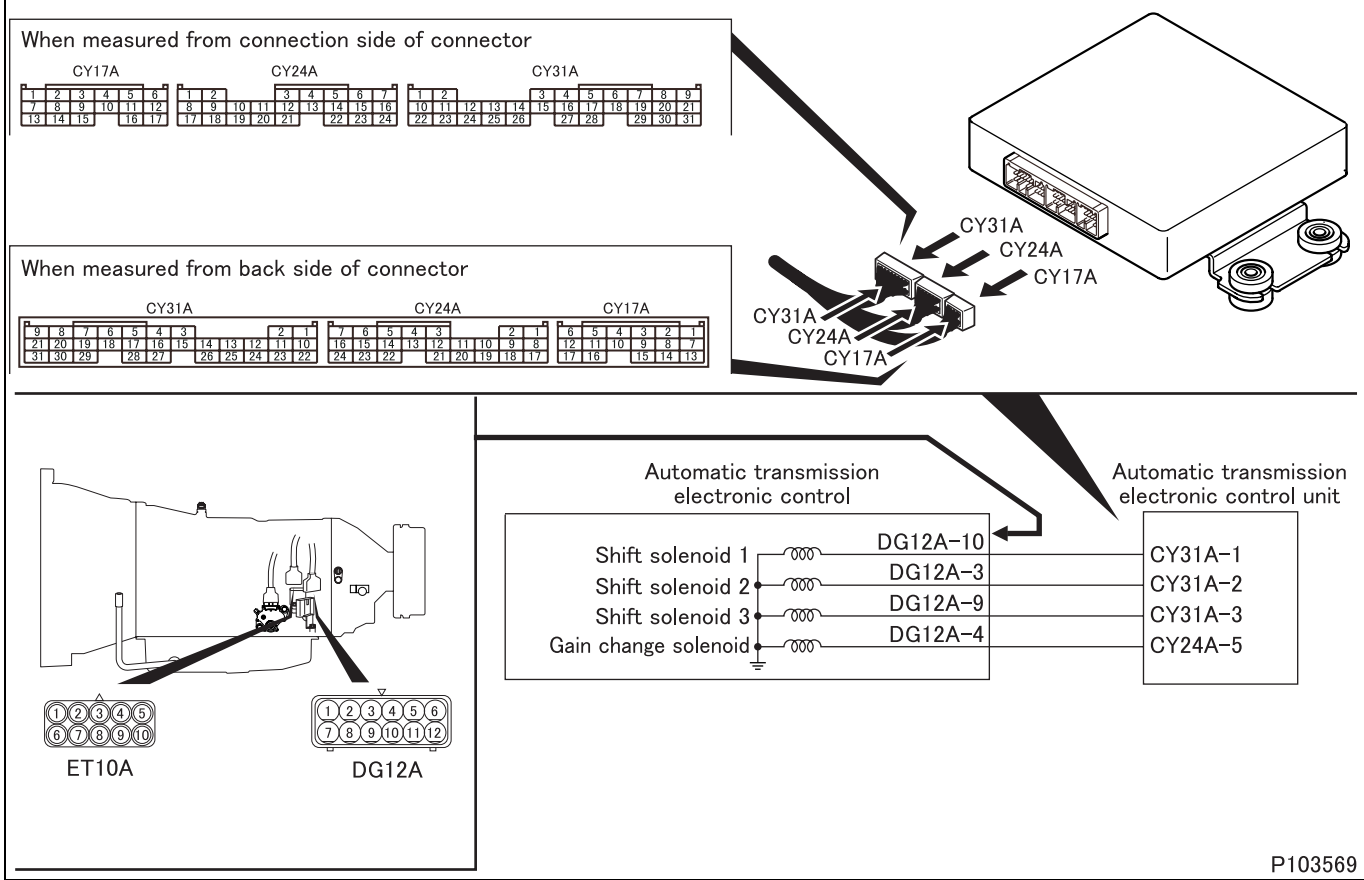
[Probable cause of trouble]

- Short-circuit of harness between electronic control unit and shift solenoid 2
- Malfunction of each connector
- Malfunction of shift solenoid 2
- Malfunction of electronic control unit

[Recoverability]

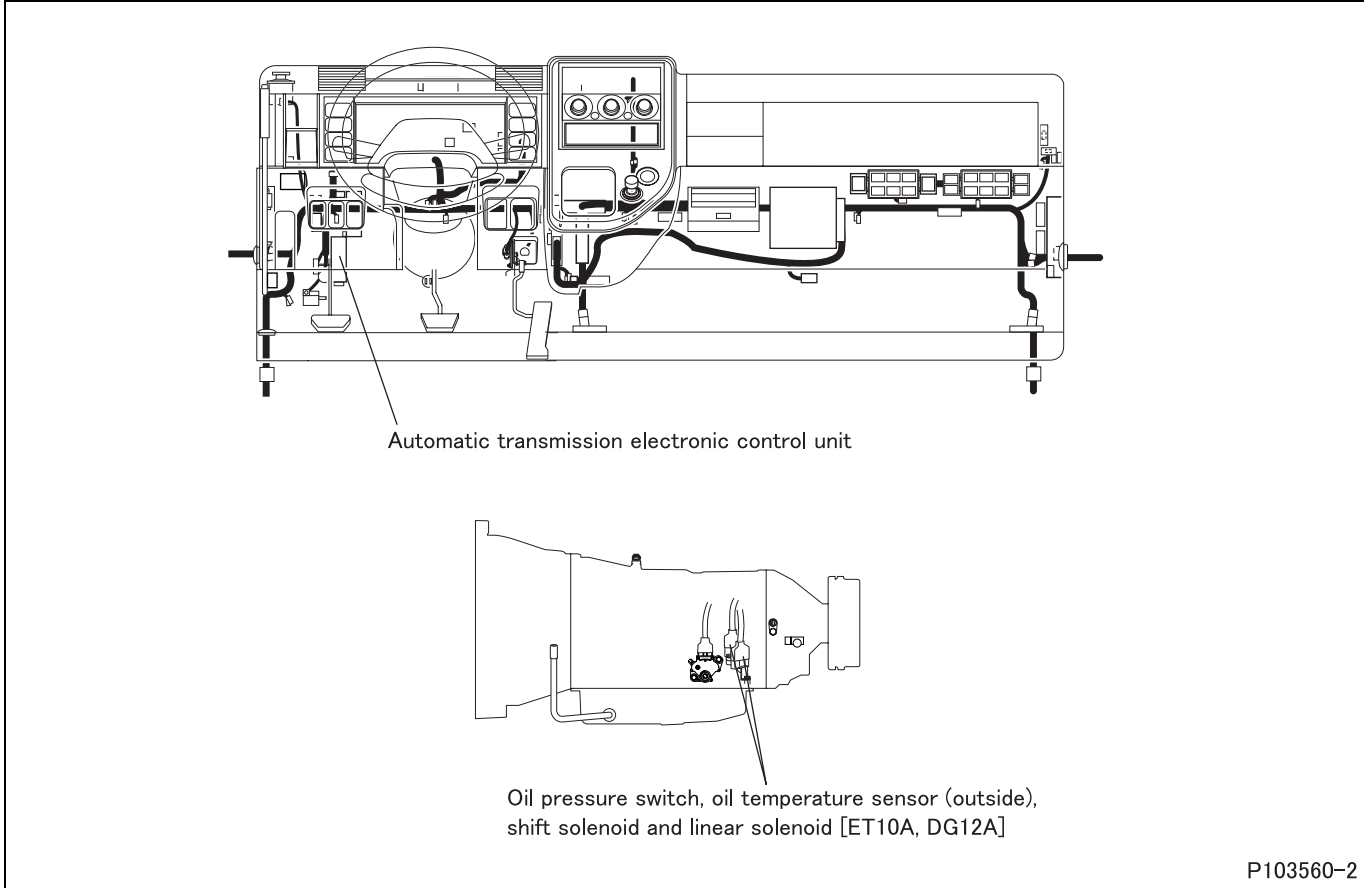
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



P103569

[Parts Identification and Location]



P103560-2

TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 2 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 32 "Shift Valve 2" and No. 72 "Shift Valve Press 2" of Service Data.</p>	
	Inspection condition	<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 4th, 5th, 6th gears: 12 V In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 32 "Shift Valve 2"></p> <ul style="list-style-type: none"> In 4th, 5th, 6th gears: ON In any gears except above: OFF <p><No. 72 "Shift Valve Press 2"></p> <ul style="list-style-type: none"> In 4th, 5th, 6th gears: HIGH In any gears except above: LOW 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

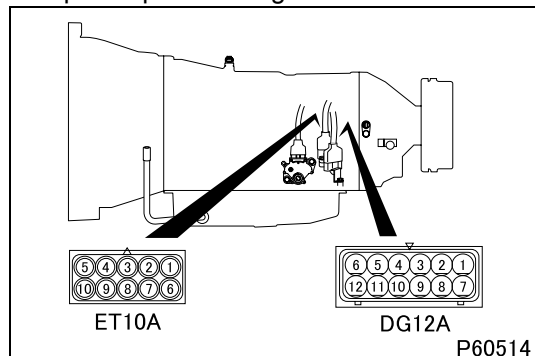
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 2 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of solenoid unit		
	Maintenance item	Measure value of resistance between connector (DG12A) terminal No. 3 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF 		
	Requirements	13 ± 2 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of solenoid (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 3 and electronic control unit connector (CY31A) terminal No. 2.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 2 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 32 "Shift Valve 2" and No. 72 "Shift Valve Press 2" of Service Data.</p>		
	Inspection condition	<Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 4th, 5th, 6th gears: 12 V In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 32 "Shift Valve 2"></p> <ul style="list-style-type: none"> In 4th, 5th, 6th gears: ON In any gears except above: OFF <p><No. 72 "Shift Valve Press 2"></p> <ul style="list-style-type: none"> In 4th, 5th, 6th gears: HIGH In any gears except above: LOW 		
	Inspection result (Is the judging standard satisfied?)	YES	If the diagnosis code remains after actual run, replace the electronic control unit.	
		NO	Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0977/Flash code: 32

[Monitor ID]

32

[Fault (outline)]

Failure of shift solenoid 2

[Diagnosis check]

- Resistance in the shift solenoid 2 is monitored for fault.

[Code generation condition]

- Resistance in the shift solenoid 2 remains at or above the specified value (100 k Ω) for 0.1 second (open-circuit or short-circuit in power supply side).

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Faulty solenoid is turned OFF
- Lockup control is turned OFF
- Control is effected on fixed speed gear output (5th).

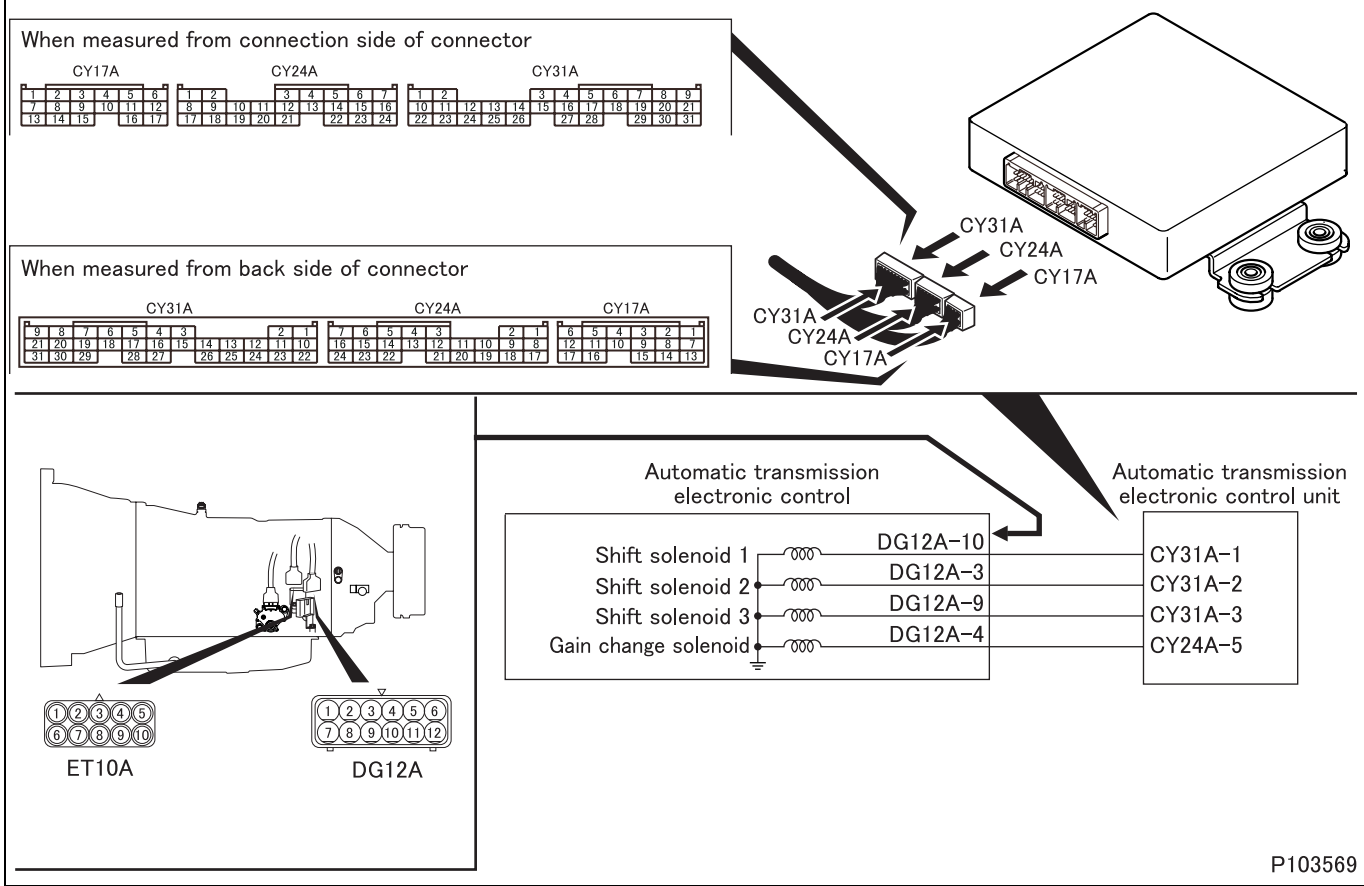
[Probable cause of trouble]

- Short-circuit of harness between electronic control unit and shift solenoid 2
- Malfunction of each connector
- Malfunction of shift solenoid 2
- Malfunction of electronic control unit

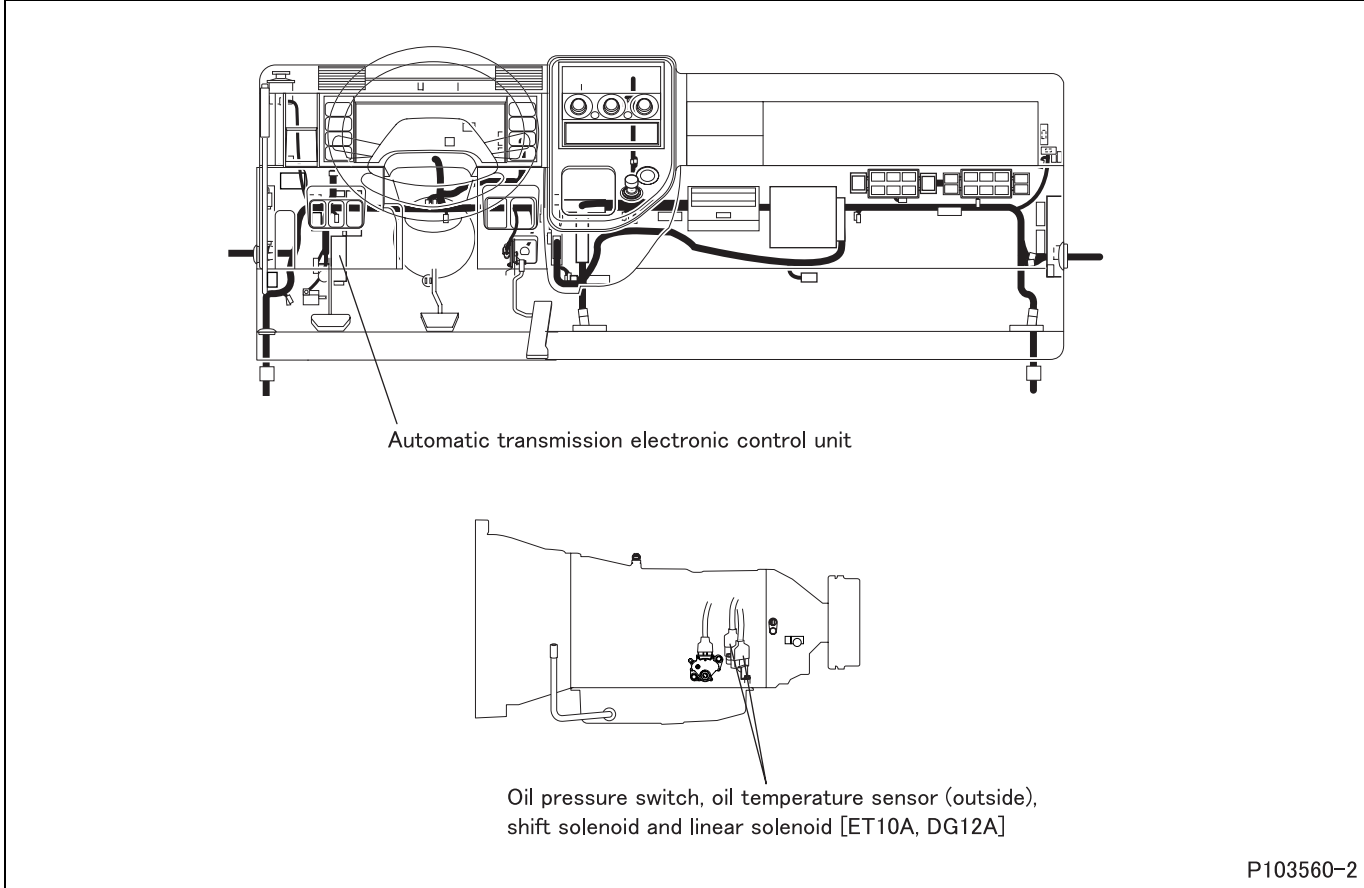
[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 2 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 32 "Shift Valve 2" and No. 72 "Shift Valve Press 2" of Service Data.</p>
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 32 "Shift Valve 2"></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: ON • In any gears except above: OFF <p><No. 72 "Shift Valve Press 2"></p> <ul style="list-style-type: none"> • In 4th, 5th, 6th gears: HIGH • In any gears except above: LOW
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Go to step 2.

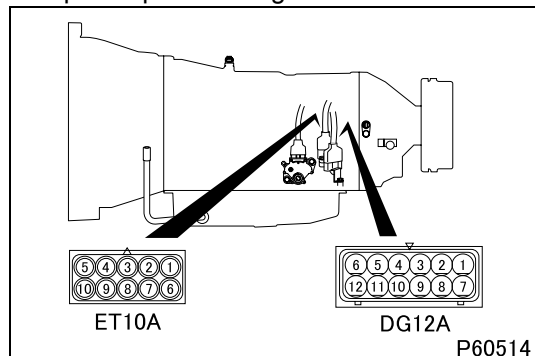
Step 2	Inspection items		Inspection by electronic control unit connector (signal)
	Maintenance item		Measure value of resistance between connector (CY31A) terminal No. 2 and chassis ground.
	Inspection condition		<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF
	Requirements		13 ± 2 Ω
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Go to step 4.

Step 3	Inspection items		Inspection of electronic control unit connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Modify connector.

Step 4	Inspection items		Inspection of solenoid connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Modify connector.

Step 5	Inspection items		Inspection of solenoid unit
	Maintenance item		Measure value of resistance between connector (DG12A) terminal No. 3 and automatic transmission case.
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF
	Requirements		$13 \pm 2 \Omega$
	Inspection result (Is the judging standard satisfied?)		YES Go to step 6. NO Replacement of solenoid (contact an Aisin Service Station)

<Step 5 inspection diagram>



Step 6	Inspection items		Inspection of harness between solenoid and electronic control unit (power supply)
	Maintenance item		Check circuit between connector (DG12A) terminal No. 3 and electronic control unit connector (CY31A) terminal No. 2.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)		YES Go to step 7. NO Modify harness.

Step 7	Inspection items		Inspection by control data
	Maintenance item		<Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 2 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure items No. 32 "Shift Valve 2" and No. 72 "Shift Valve Press 2" of Service Data.
	Inspection condition		<Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.
	Requirements		<Multi-Use Tester not used> <ul style="list-style-type: none"> In 4th, 5th, 6th gears: 12 V In any gears except above: 0 V <Multi-Use Tester used> <ul style="list-style-type: none"> <No. 32 "Shift Valve 2"> <ul style="list-style-type: none"> In 4th, 5th, 6th gears: ON In any gears except above: OFF <No. 72 "Shift Valve Press 2"> <ul style="list-style-type: none"> In 4th, 5th, 6th gears: HIGH In any gears except above: LOW
	Inspection result (Is the judging standard satisfied?)		YES If the diagnosis code remains after actual run, replace the electronic control unit. NO Replacement of electronic control unit

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0979/Flash code: 33

[Monitor ID]

33

[Fault (outline)]

Failure of shift solenoid 3

[Diagnosis check]

- Current in the shift solenoid 3 is monitored for fault.

[Code generation condition]

- Current in the shift solenoid 3 remains at or above the specified value (4A) for 0.1 second (short-circuit in ground side).

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd).

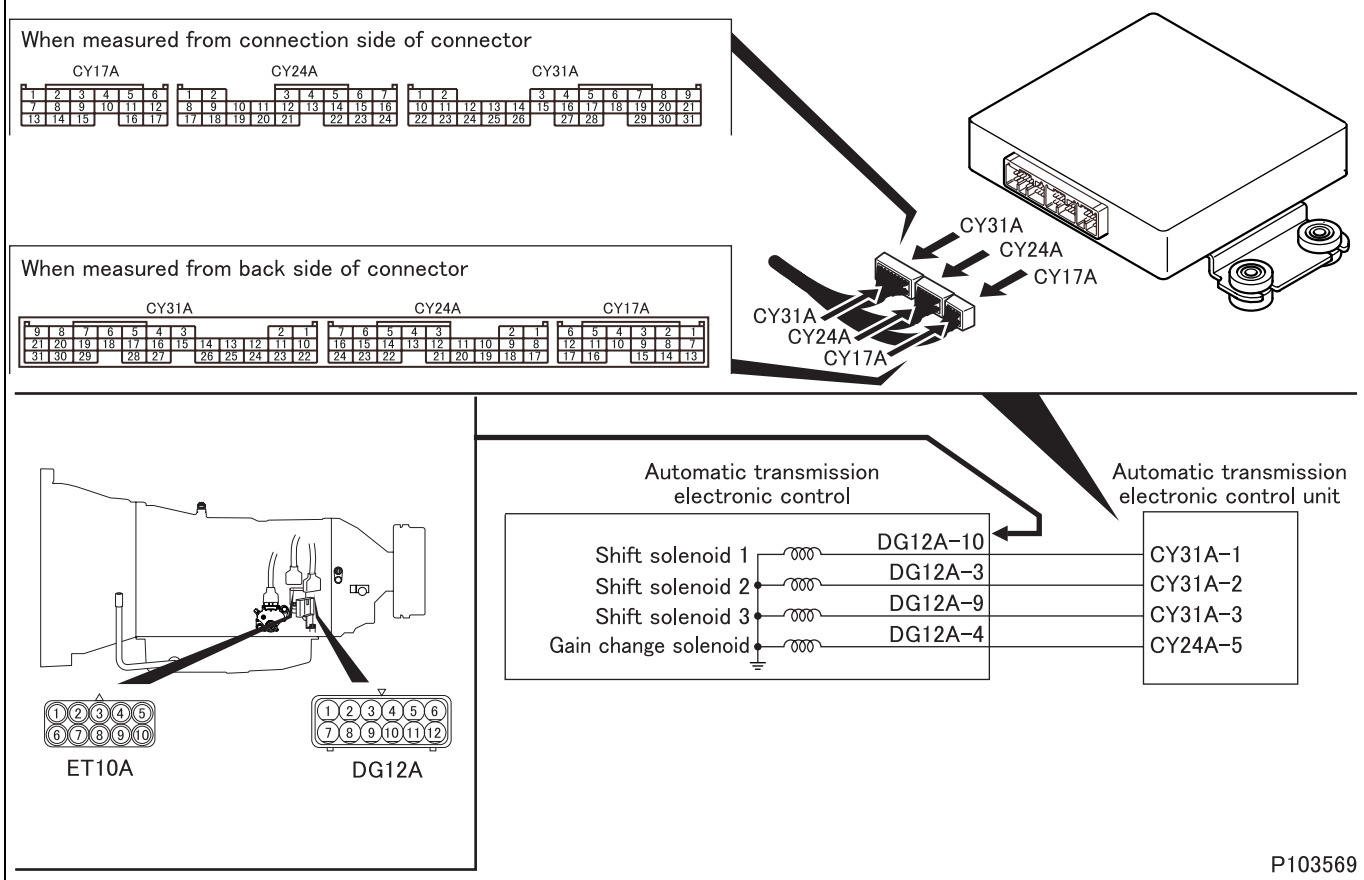
[Probable cause of trouble]

- Short-circuit of harness between electronic control unit and shift solenoid 3
- Malfunction of each connector
- Malfunction of shift solenoid 3
- Malfunction of electronic control unit

[Recoverability]

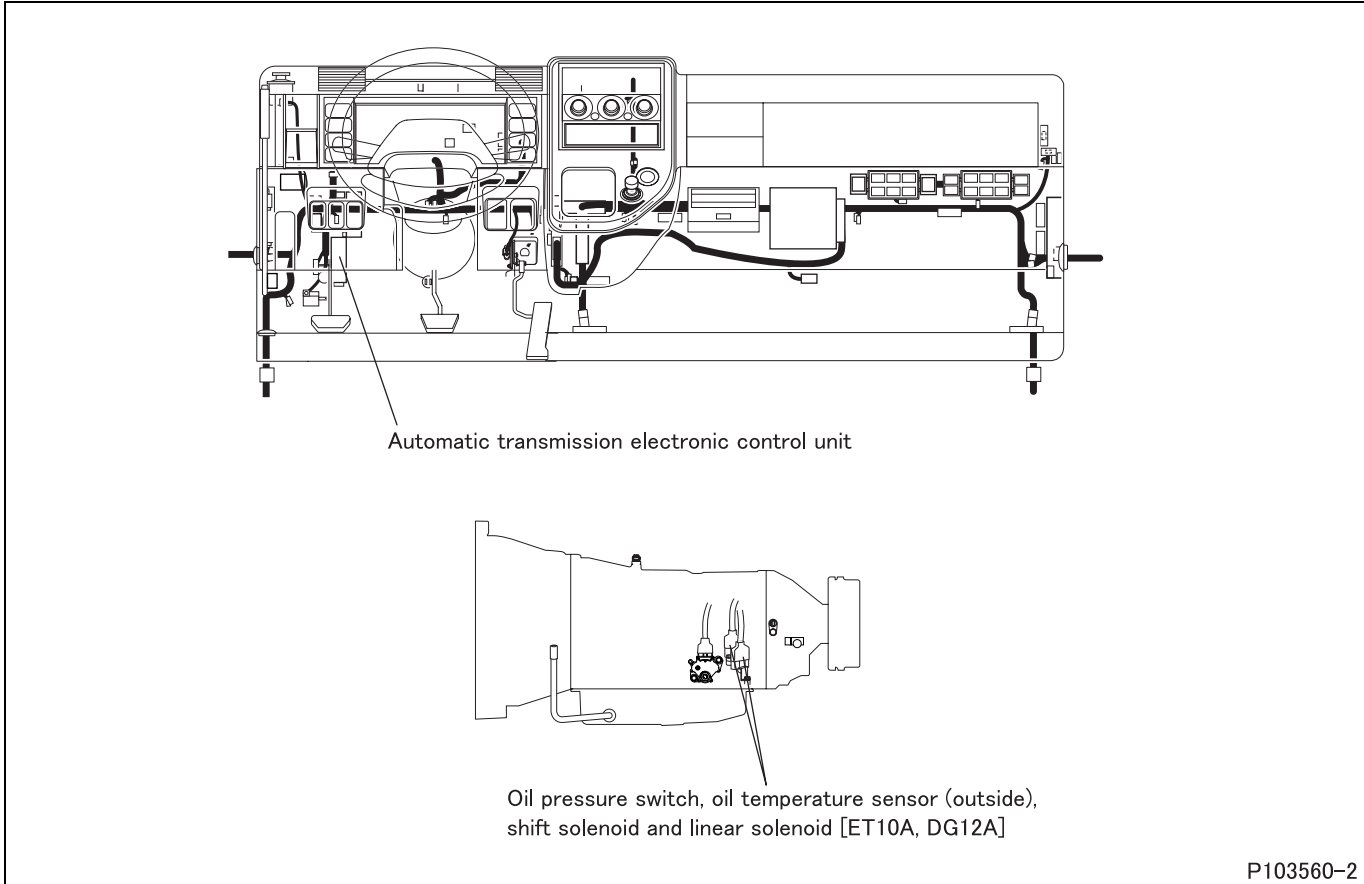
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



P103569

[Parts Identification and Location]



P103560-2

TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 33 "Shift Valve 3" and No. 73 "Shift Valve Press 3" of Service Data.</p>	
	Inspection condition	<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 1st gear: 12 V In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 33 "Shift Valve 3"></p> <ul style="list-style-type: none"> In 1st gear: ON In any gears except above: OFF <p><No. 73 "Shift Valve Press 3"></p> <ul style="list-style-type: none"> In 1st gear: HIGH In any gears except above: LOW 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

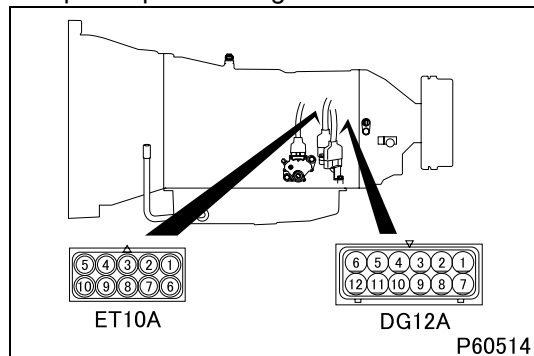
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminal No. 3 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items		Inspection of solenoid unit			
	Maintenance item		Measure value of resistance between connector (DG12A) terminal No. 9 and automatic transmission case.			
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF 			
	Requirements		$13 \pm 2 \Omega$			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 6.</td> </tr> <tr> <td>NO</td> <td>Replacement of solenoid (contact an Aisin Service Station)</td> </tr> </table>	YES	Go to step 6.	NO
YES	Go to step 6.					
NO	Replacement of solenoid (contact an Aisin Service Station)					

<Step 5 inspection diagram>



Step 6	Inspection items		Inspection of harness between solenoid and electronic control unit (power supply)			
	Maintenance item		Check circuit between connector (DG12A) terminal No. 9 and electronic control unit connector (CY31A) terminal No. 3.			
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.			
	Requirements		There is continuity.			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 7.</td> </tr> <tr> <td>NO</td> <td>Modify harness.</td> </tr> </table>	YES	Go to step 7.	NO
YES	Go to step 7.					
NO	Modify harness.					

Step 7	Inspection items		Inspection by control data			
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 33 "Shift Valve 3" and No. 73 "Shift Valve Press 3" of Service Data.</p>			
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>			
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 1st gear: 12 V In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No. 33 "Shift Valve 3"></p> <ul style="list-style-type: none"> In 1st gear: ON In any gears except above: OFF <p><No. 73 "Shift Valve Press 3"></p> <ul style="list-style-type: none"> In 1st gear: HIGH In any gears except above: LOW 			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>If the diagnosis code remains after actual run, replace the electronic control unit.</td> </tr> <tr> <td>NO</td> <td>Replacement of electronic control unit</td> </tr> </table>	YES	If the diagnosis code remains after actual run, replace the electronic control unit.	NO
YES	If the diagnosis code remains after actual run, replace the electronic control unit.					
NO	Replacement of electronic control unit					

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0980/Flash code: 33

[Monitor ID]

34

[Fault (outline)]

Failure of shift solenoid 3

[Diagnosis check]

- Resistance in the shift solenoid 3 is monitored for fault.

[Code generation condition]

- Resistance in the shift solenoid 3 remains at or above the specified value (100 k Ω) for 0.1 second (open-circuit or short-circuit in power supply side).

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (2nd).

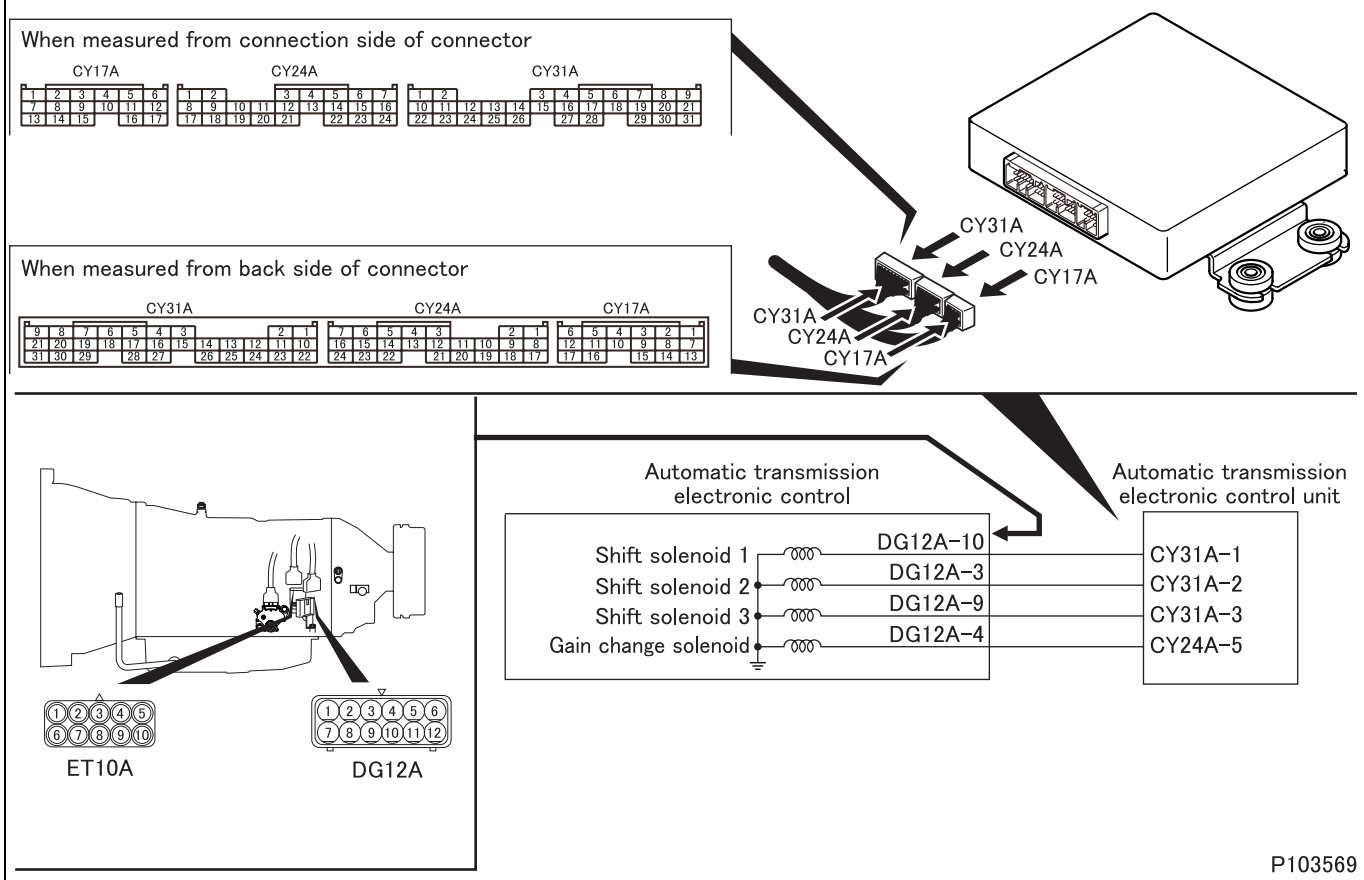
[Probable cause of trouble]

- Short-circuit of harness between electronic control unit and shift solenoid 3
- Malfunction of each connector
- Malfunction of shift solenoid 3
- Malfunction of electronic control unit

[Recoverability]

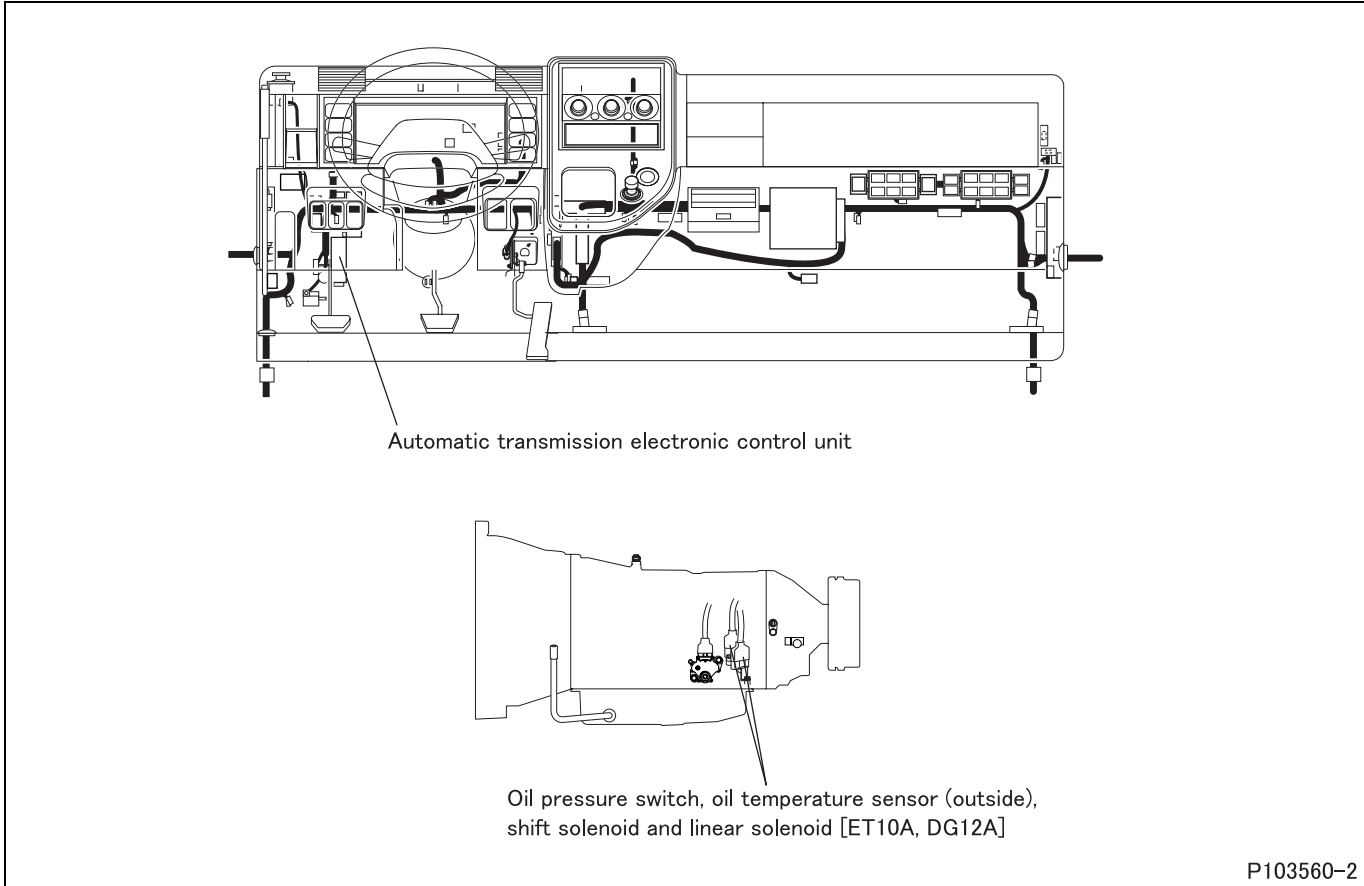
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



P103569

[Parts Identification and Location]



P103560-2

TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 33 "Shift Valve 3" and No. 73 "Shift Valve Press 3" of Service Data.</p>
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 12 V • In any gears except above: 0 V <p><Multi-Use Tester used></p> <p><No.33 "Shift Valve 3"></p> <ul style="list-style-type: none"> • In 1st gear: ON • In any gears except above: OFF <p><No. 73 "Shift Valve Press 3"></p> <ul style="list-style-type: none"> • In 1st gear: HIGH • In any gears except above: LOW
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Go to step 2.

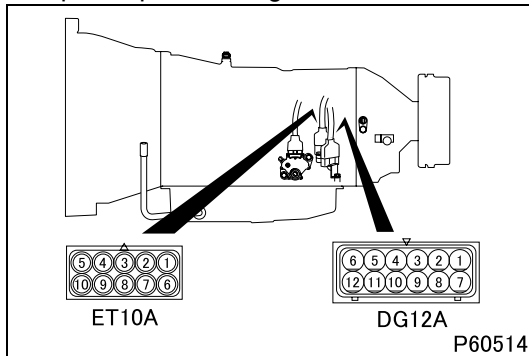
Step 2	Inspection items		Inspection by electronic control unit connector (signal)
	Maintenance item		Measure value of resistance between connector (CY31A) terminal No. 3 and chassis ground.
	Inspection condition		<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF
	Requirements		13 ± 2 Ω
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Go to step 4.

Step 3	Inspection items		Inspection of electronic control unit connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Modify connector.

Step 4	Inspection items		Inspection of solenoid connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Modify connector.

Step 5	Inspection items		Inspection of solenoid unit
	Maintenance item		Measure value of resistance between connector (DG12A) terminal No. 9 and automatic transmission case.
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF
	Requirements		$13 \pm 2 \Omega$
	Inspection result (Is the judging standard satisfied?)		YES Go to step 6. NO Replacement of solenoid (contact an Aisin Service Station)

<Step 5 inspection diagram>



Step 6	Inspection items		Inspection of harness between solenoid and electronic control unit (power supply)
	Maintenance item		Check circuit between connector (DG12A) terminal No. 9 and electronic control unit connector (CY31A) terminal No. 3.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)		YES Go to step 7. NO Modify harness.

Step 7	Inspection items		Inspection by control data
	Maintenance item		<Multi-Use Tester not used> Measure value of voltage between connector (CY31A) terminal No. 3 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure items No. 33 "Shift Valve 3" and No. 73 "Shift Valve Press 3" of Service Data.
	Inspection condition		<Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.
	Requirements		<Multi-Use Tester not used> <ul style="list-style-type: none"> In 1st gear: 12 V In any gears except above: 0 V <Multi-Use Tester used> <ul style="list-style-type: none"> <No.33 "Shift Valve 3"> <ul style="list-style-type: none"> In 1st gear: ON In any gears except above: OFF <No. 73 "Shift Valve Press 3"> <ul style="list-style-type: none"> In 1st gear: HIGH In any gears except above: LOW
	Inspection result (Is the judging standard satisfied?)		YES If the diagnosis code remains after actual run, replace the electronic control unit. NO Replacement of electronic control unit

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0985/Flash code: 52

[Monitor ID]

None

[Fault (outline)]

Failure of gain change solenoid

[Diagnosis check]

- Current in the gain change solenoid is monitored for fault.

[Code generation condition]

- Current in the gain change solenoid remains at or above the specified value (4A) for 0.1 second (short-circuit in ground side).

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Effects no special control (gearshifting performance is reduced).

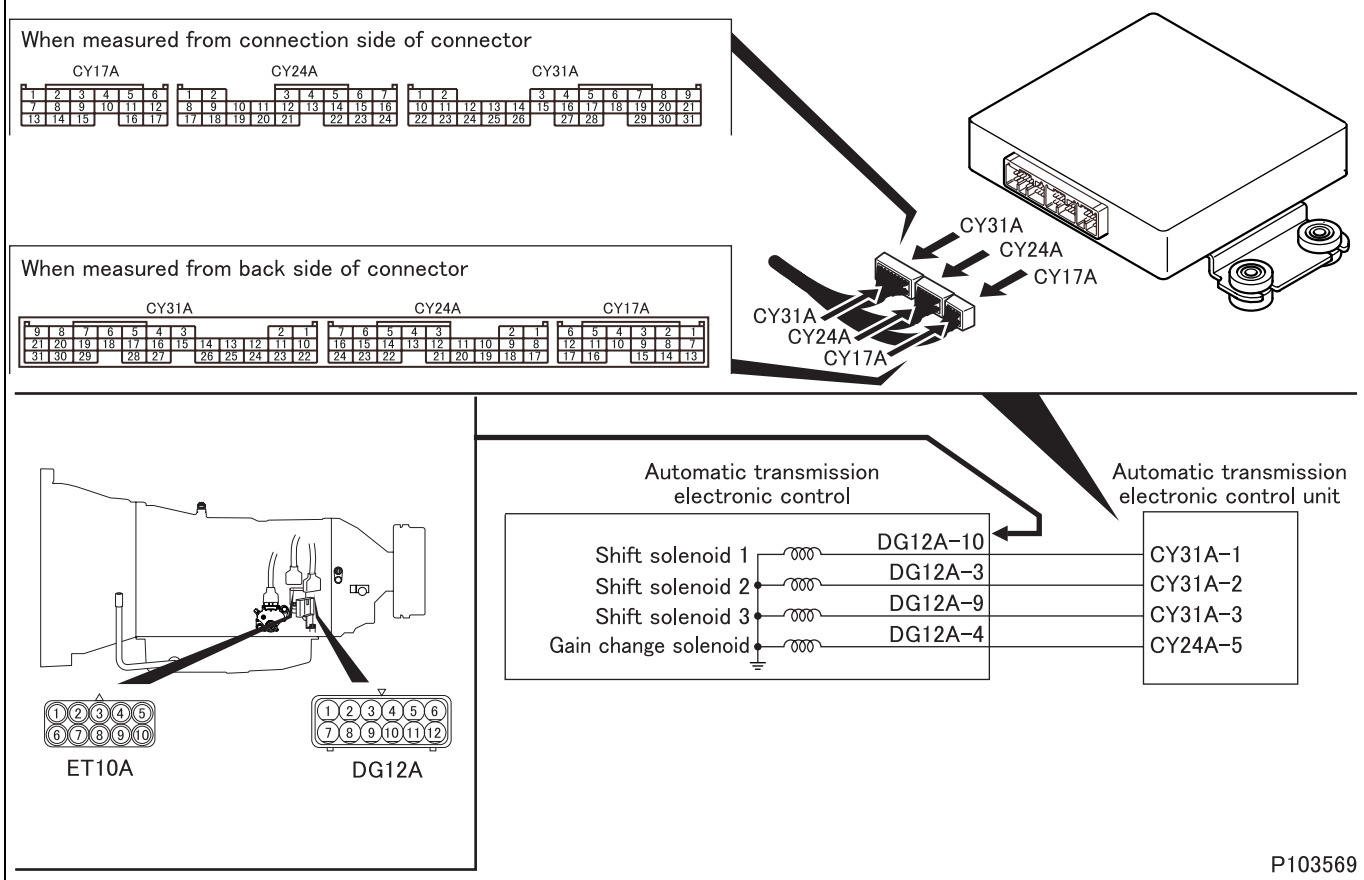
[Probable cause of trouble]

- Short-circuit of harness between electronic control unit and gain change solenoid
- Malfunction of each connector
- Malfunction of gain change solenoid
- Malfunction of electronic control unit

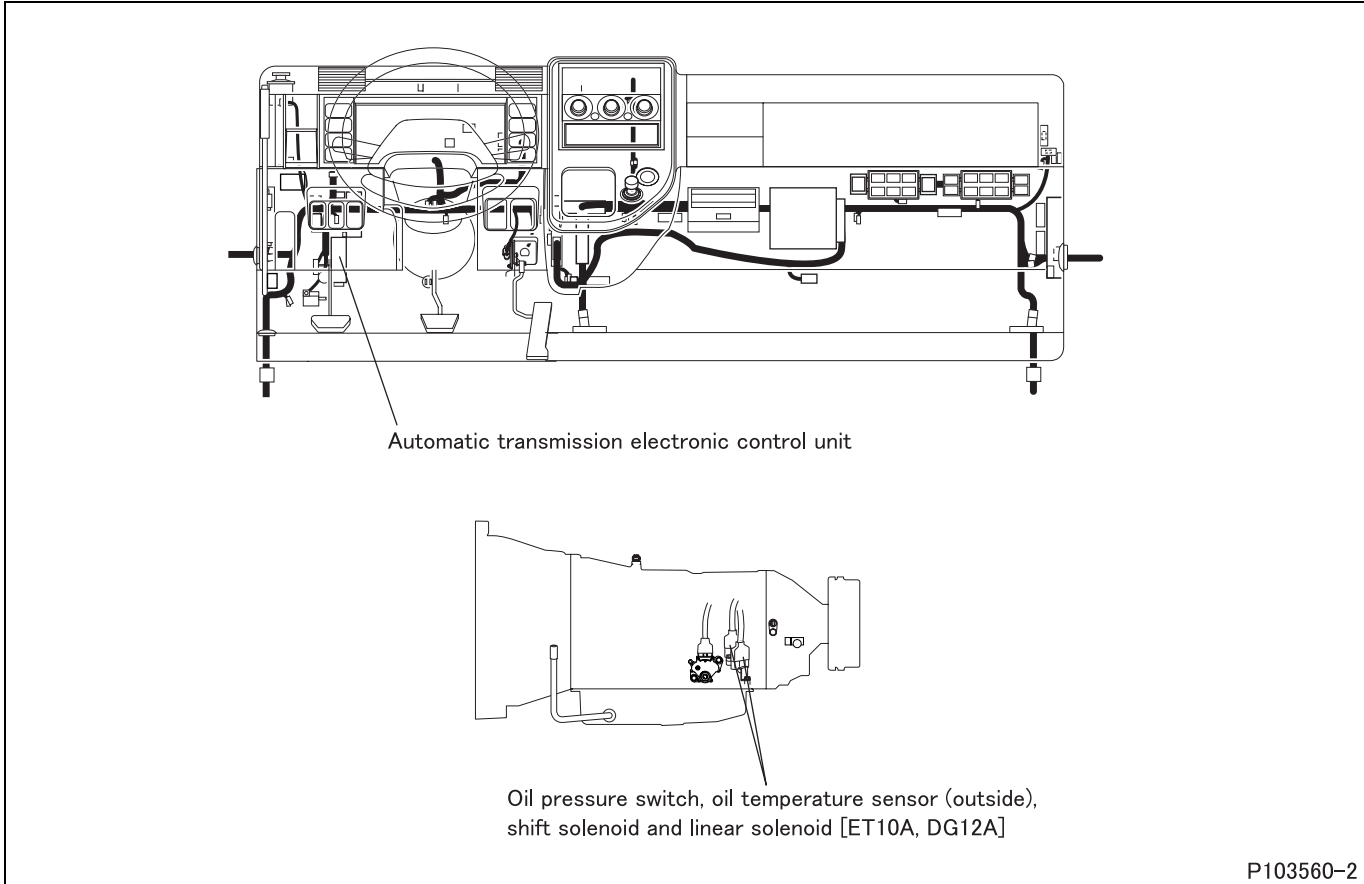
[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of voltage between connector (CY24A) terminal No. 5 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 52 "Shift Valve 4" and No. 74 "Shift Valve Press 4" of Service Data.</p>
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In R range (high accelerator pedal position): 12 V In R range (low accelerator pedal position): 0 V <p><Multi-Use Tester used></p> <p><No. 52 "Shift Valve 4"></p> <ul style="list-style-type: none"> In R range (high accelerator pedal position): OFF In R range (low accelerator pedal position): ON <p><No. 74 "Shift Valve Press 4"></p> <ul style="list-style-type: none"> In R range (high accelerator pedal position): HIGH In R range (low accelerator pedal position): LOW
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Go to step 2.

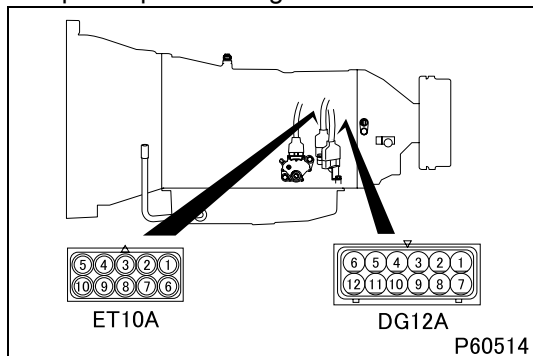
Step 2	Inspection items		Inspection by electronic control unit connector (signal)
	Maintenance item		Measure value of resistance between connector (CY24A) terminal No. 5 and chassis ground.
	Inspection condition		<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF
	Requirements		13 ± 2 Ω
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Go to step 4.

Step 3	Inspection items		Inspection of electronic control unit connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Modify connector.

Step 4	Inspection items		Inspection of solenoid connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Modify connector.

Step 5	Inspection items	Inspection of solenoid unit		
	Maintenance item	Measure value of resistance between connector (DG12A) terminal No. 4 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure solenoid side terminal. • Starter switch: OFF 		
	Requirements	13 ± 2 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of solenoid (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 4 and electronic control unit connector (CY24A) terminal No. 5.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY24A) terminal No. 5 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 52 "Shift Valve 4" and No. 74 "Shift Valve Press 4" of Service Data.</p>		
	Inspection condition	<Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In R range (high accelerator pedal position): 12 V • In R range (low accelerator pedal position): 0 V <p><Multi-Use Tester used></p> <p><No. 52 "Shift Valve 4"></p> <ul style="list-style-type: none"> • In R range (high accelerator pedal position): OFF • In R range (low accelerator pedal position): ON <p><No. 74 "Shift Valve Press 4"></p> <ul style="list-style-type: none"> • In R range (high accelerator pedal position): HIGH • In R range (low accelerator pedal position): LOW 		
	Inspection result (Is the judging standard satisfied?)	YES	If the diagnosis code remains after actual run, replace the electronic control unit.	
		NO	Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0986/Flash code: 52

[Monitor ID]

35

[Fault (outline)]

Failure of gain change solenoid

[Diagnosis check]

- Resistance in the gain change solenoid is monitored for fault.

[Code generation condition]

- Resistance in the gain change solenoid remains at or above the specified value (100 k Ω) for 0.1 second (open-circuit or short-circuit in power supply side).

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Requested to send output signals to the engine electronic control unit during engine starting.

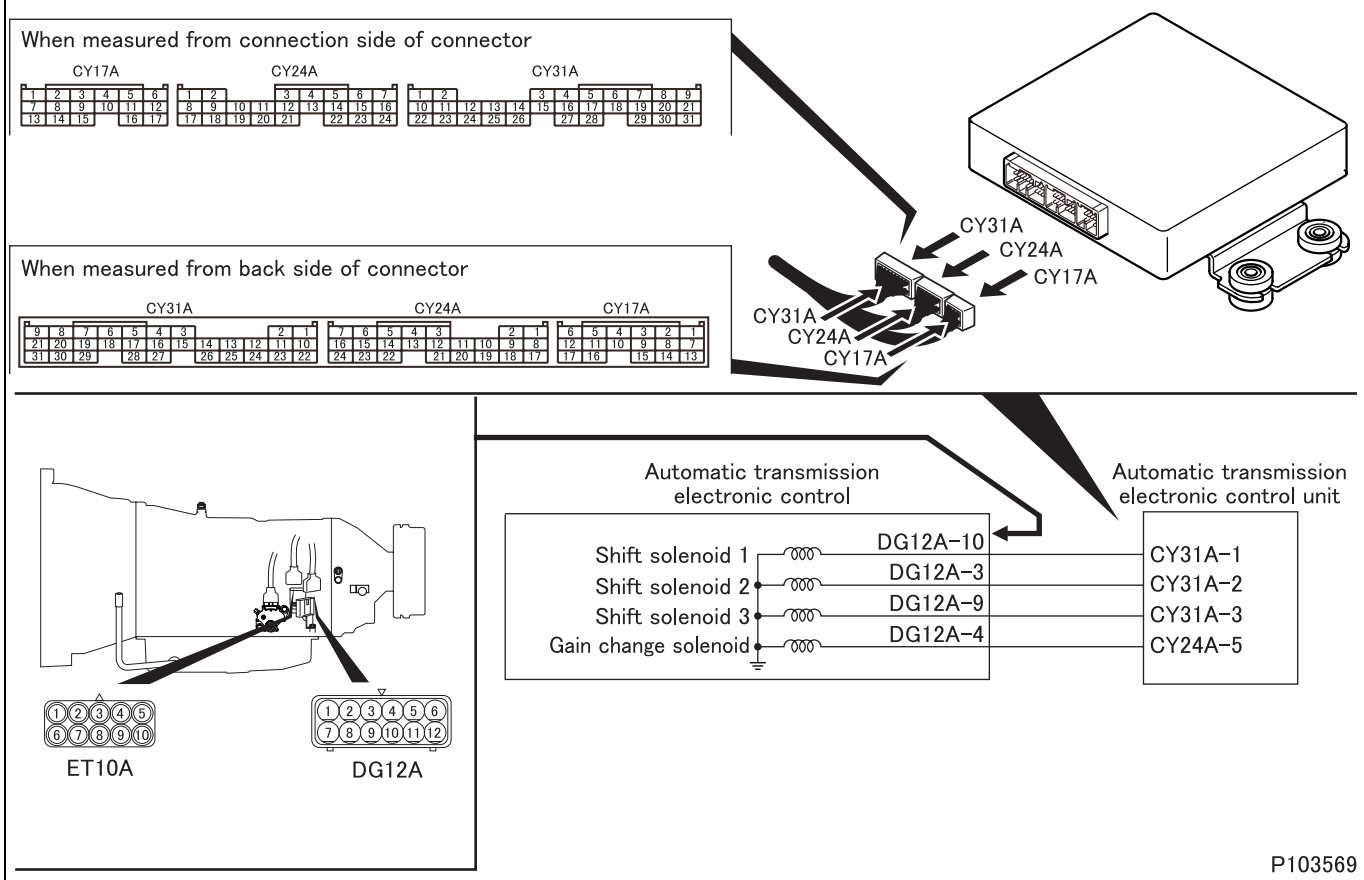
[Probable cause of trouble]

- Short-circuit of harness between electronic control unit and gain change solenoid
- Malfunction of each connector
- Malfunction of gain change solenoid
- Malfunction of electronic control unit

[Recoverability]

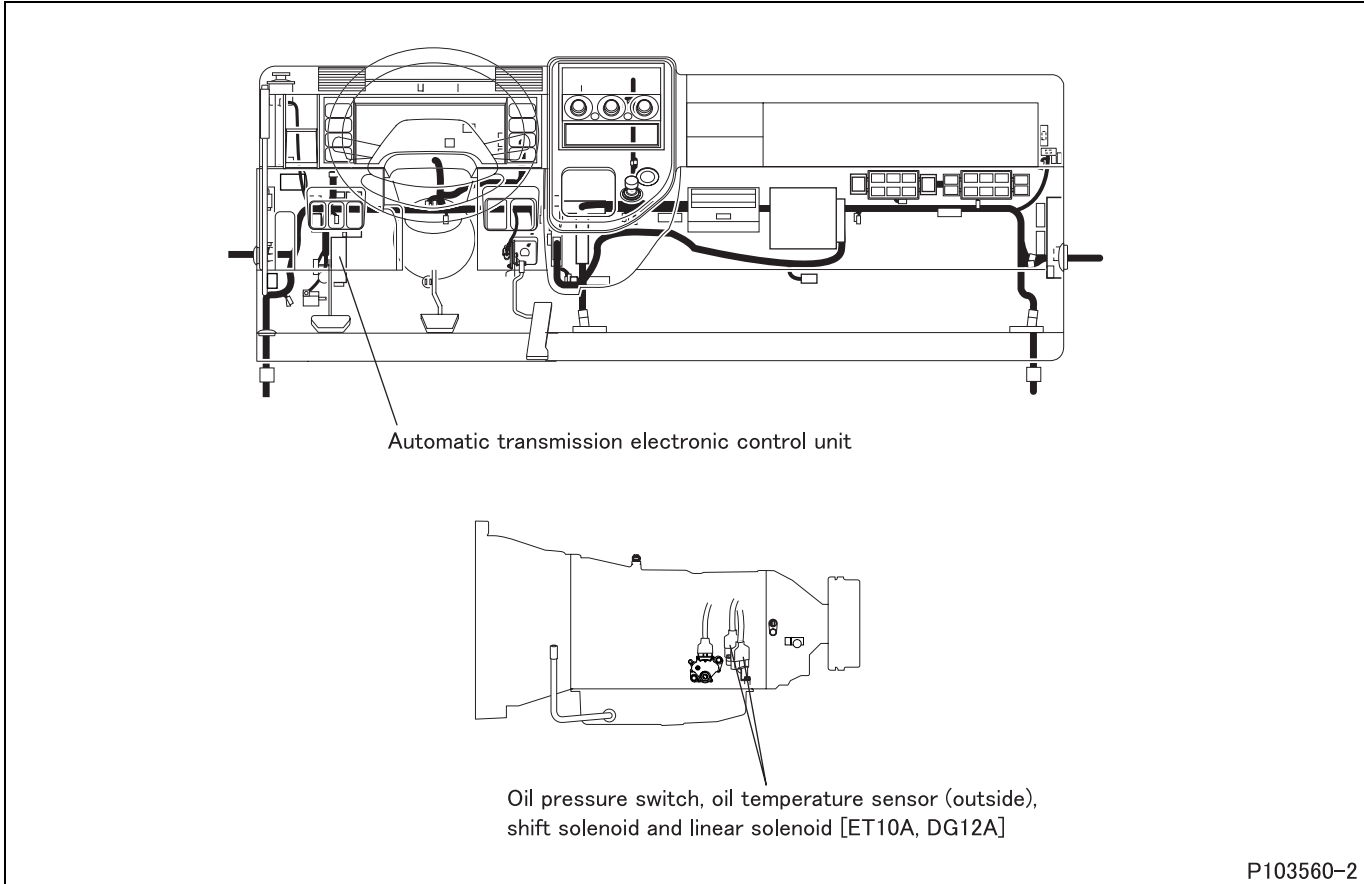
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



P103569

[Parts Identification and Location]



P103560-2

TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY24A) terminal No. 5 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure items No. 52 "Shift Valve 4" and No. 74 "Shift Valve Press 4" of Service Data.</p>	
	Inspection condition	<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>	
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In R range (high accelerator pedal position): 12 V In R range (low accelerator pedal position): 0 V <p><Multi-Use Tester used></p> <p><No. 52 "Shift Valve 4"></p> <ul style="list-style-type: none"> In R range (high accelerator pedal position): OFF In R range (low accelerator pedal position): ON <p><No. 74 "Shift Valve Press 4"></p> <ul style="list-style-type: none"> In R range (high accelerator pedal position): HIGH In R range (low accelerator pedal position): LOW 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

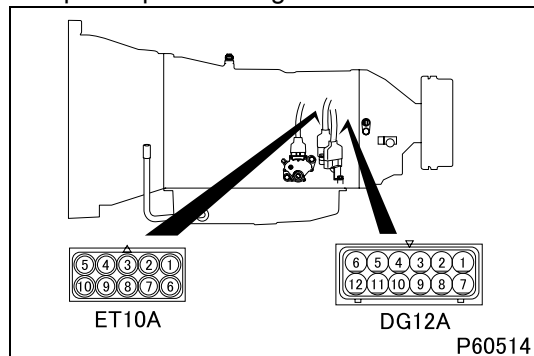
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY24A) terminal No. 5 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF 	
	Requirements	13 ± 2 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of solenoid unit		
	Maintenance item	Measure value of resistance between connector (DG12A) terminal No. 4 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure solenoid side terminal. • Starter switch: OFF 		
	Requirements	13 ± 2 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of solenoid (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 4 and electronic control unit connector (CY24A) terminal No. 5.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY24A) terminal No. 5 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure items No. 52 "Shift Valve 4" and No. 74 "Shift Valve Press 4" of Service Data.</p>		
	Inspection condition	<Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In R range (high accelerator pedal position): 12 V • In R range (low accelerator pedal position): 0 V <p><Multi-Use Tester used></p> <p><No. 52 "Shift Valve 4"></p> <ul style="list-style-type: none"> • In R range (high accelerator pedal position): OFF • In R range (low accelerator pedal position): ON <p><No. 74 "Shift Valve Press 4"></p> <ul style="list-style-type: none"> • In R range (high accelerator pedal position): HIGH • In R range (low accelerator pedal position): LOW 		
	Inspection result (Is the judging standard satisfied?)	YES	If the diagnosis code remains after actual run, replace the electronic control unit.	
		NO	Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0989/Flash code: 47

[Monitor ID]

62

[Fault (outline)]

Failure of oil pressure switch 5

[Diagnosis check]

- Oil pressure switch 5 is monitored for fault when the shift solenoid 3 is energized (high pressure).

[Code generation condition]

- Oil pressure switch 5 remains OFF (low pressure) for 0.1 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Shift solenoid 3 is ON

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (2nd).

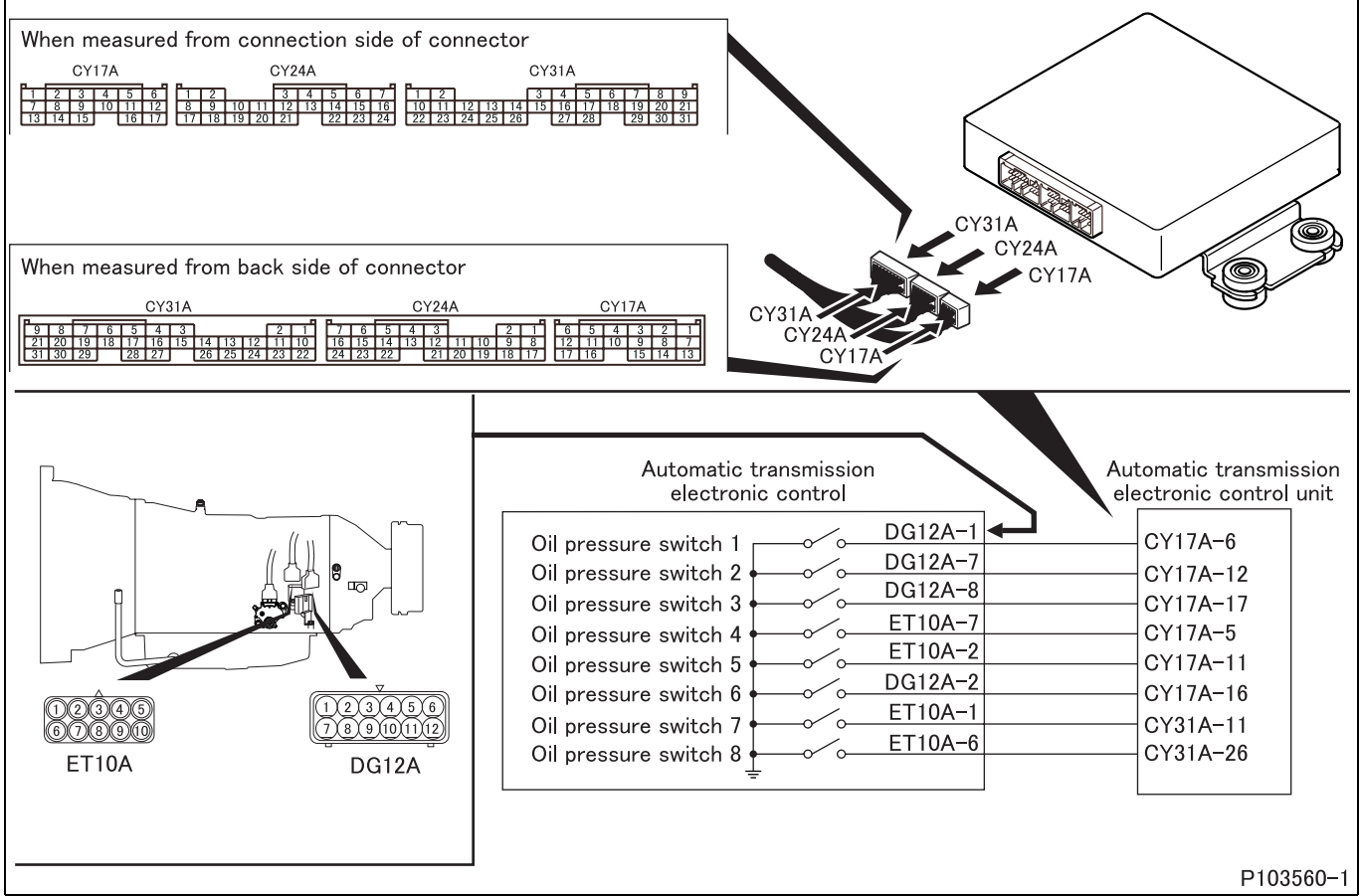
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 5 or shift solenoid 3
- Malfunction of each connector
- Malfunction of oil pressure switch 5 or shift solenoid 3
- Malfunction of electronic control unit

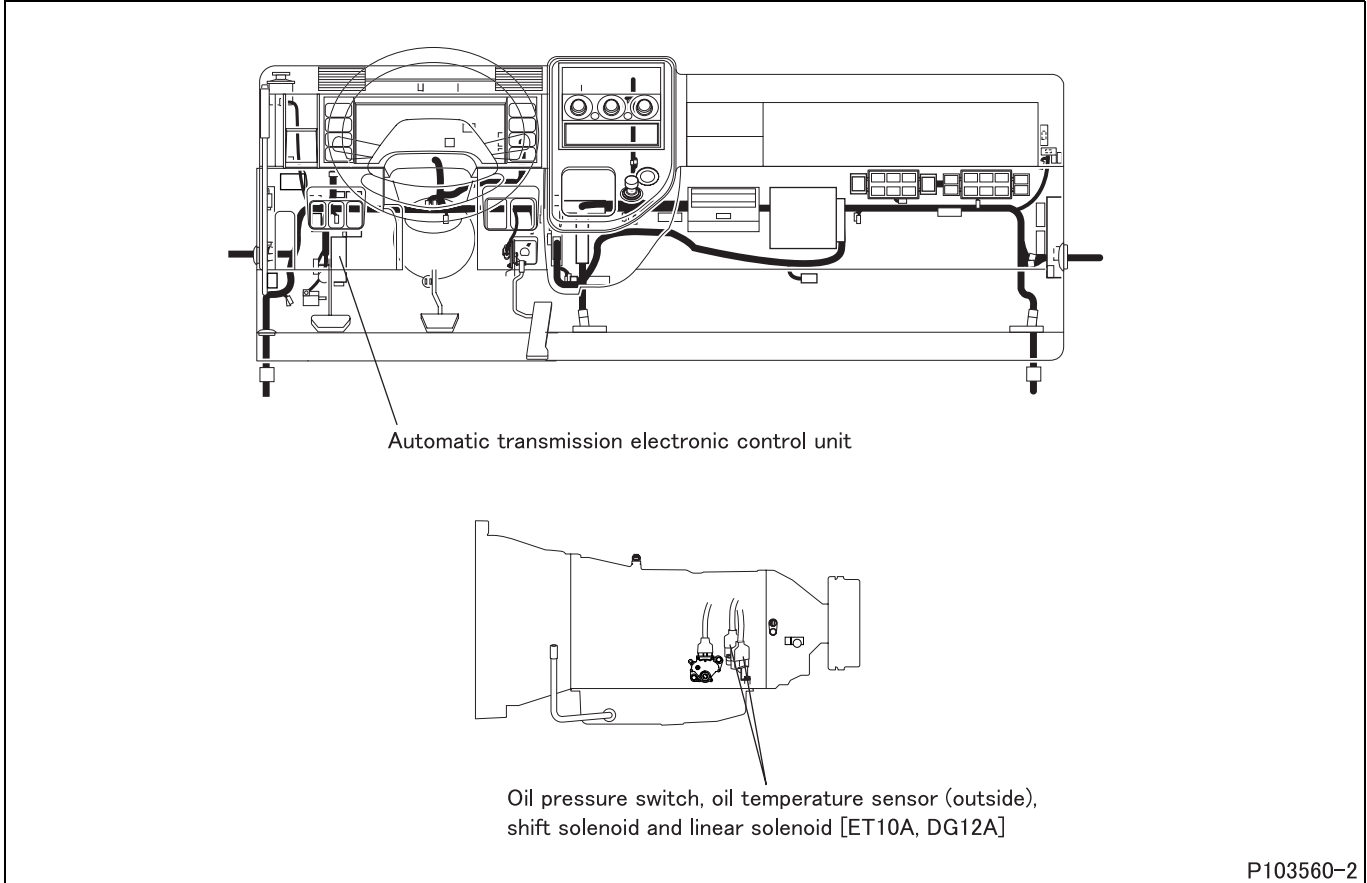
[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 11 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 65 "Oil Press SW 5" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> In 1st gear: 0 V In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> In 1st gear: ON In 2nd, 3rd, 4th, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

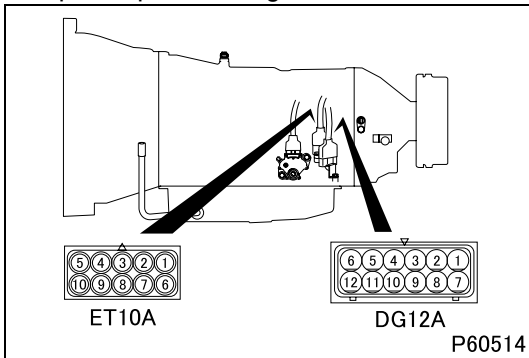
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure continuity between connector (CY17A) terminal No. 11 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF 	
	Requirements	There is no continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of switch unit		
	Maintenance item	Check continuity between connector (ET10A) terminal No. 2 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure switch side terminal. • Starter switch: OFF 		
	Requirements	There is no continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of oil pressure switch (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between switch and electronic control unit (signal)		
	Maintenance item	Check circuit between connector (ET10A) terminal No. 2 and electronic control unit connector (CY17A) terminal No. 11.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 11 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 65 "Oil Press SW 5" of Service Data.</p>		
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 0 V • In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 1st gear: ON • In 2nd, 3rd, 4th, 5th, 6th gears: OFF 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	<ul style="list-style-type: none"> • Inspection of shift solenoid 3 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0990/Flash code: 47

[Monitor ID]

61

[Fault (outline)]

Failure of oil pressure switch 5

[Diagnosis check]

- Oil pressure switch 5 is monitored for fault when the shift solenoid 3 is deenergized (low pressure).

[Code generation condition]

- Oil pressure switch 5 remains ON (high pressure) for 0.1 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Shift solenoid 3 is OFF

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (2nd).

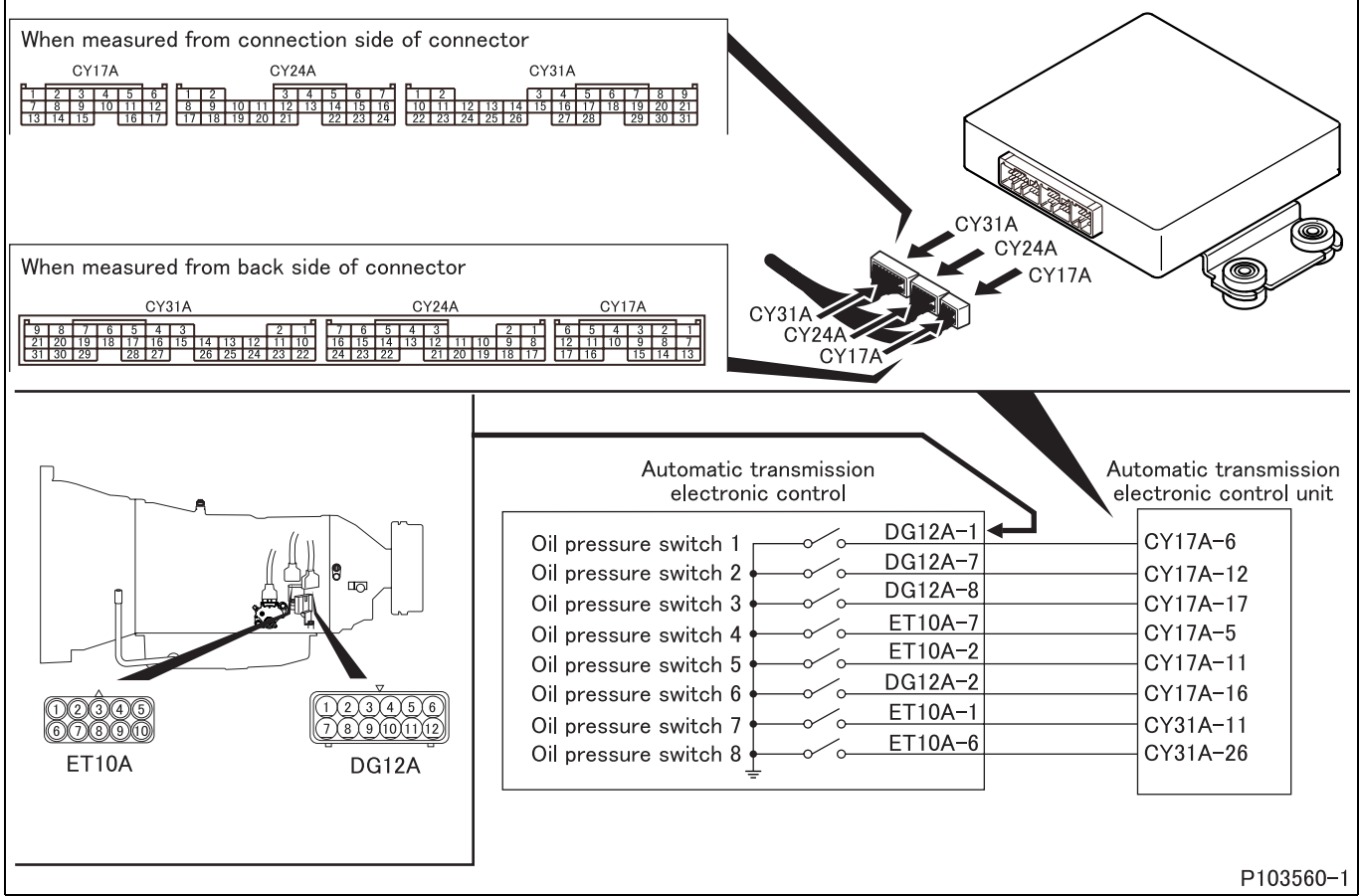
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 5 or shift solenoid 3
- Malfunction of each connector
- Malfunction of oil pressure switch 5 or shift solenoid 3
- Malfunction of electronic control unit

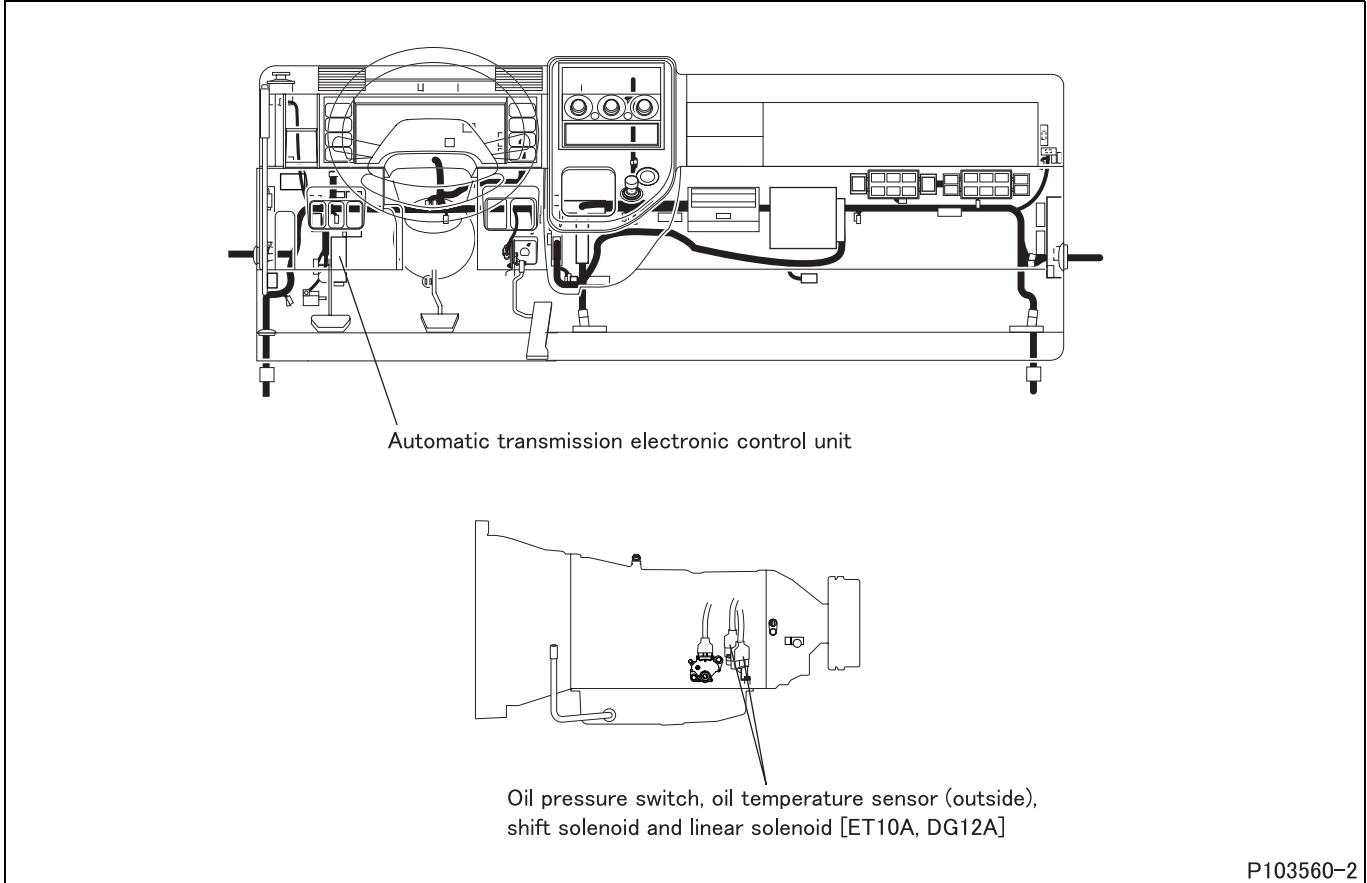
[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 11 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 65 "Oil Press SW 5" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 1st gear: 0 V • In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 1st gear: ON • In 2nd, 3rd, 4th, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

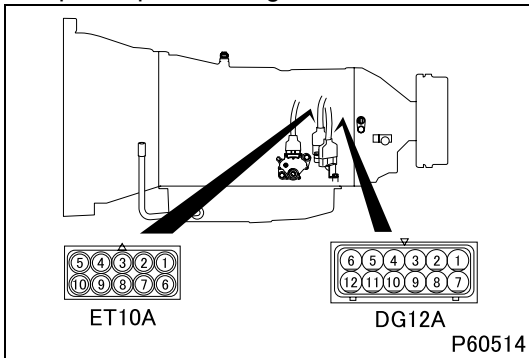
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure continuity between connector (CY17A) terminal No. 11 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	There is no continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of switch unit		
	Maintenance item	Check continuity between connector (ET10A) terminal No. 2 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect connector, and measure switch side terminal. • Starter switch: OFF 		
	Requirements	There is no continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of oil pressure switch (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between switch and electronic control unit (signal)		
	Maintenance item	Check circuit between connector (ET10A) terminal No. 2 and electronic control unit connector (CY17A) terminal No. 11.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 11 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 65 "Oil Press SW 5" of Service Data.</p>		
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> • In 1st gear: 0 V • In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In 1st gear: ON • In 2nd, 3rd, 4th, 5th, 6th gears: OFF 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	<ul style="list-style-type: none"> • Inspection of shift solenoid 3 is performed. • Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0994/Flash code: 55

[Monitor ID]

66

[Fault (outline)]

Failure of oil pressure switch 6

[Diagnosis check]

- Oil pressure switch 6 is monitored for fault when the shift solenoid 3 is energized (high pressure).

[Code generation condition]

- Oil pressure switch 6 remains OFF (low pressure) for 0.1 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Shift solenoid 3 is ON

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (2nd).

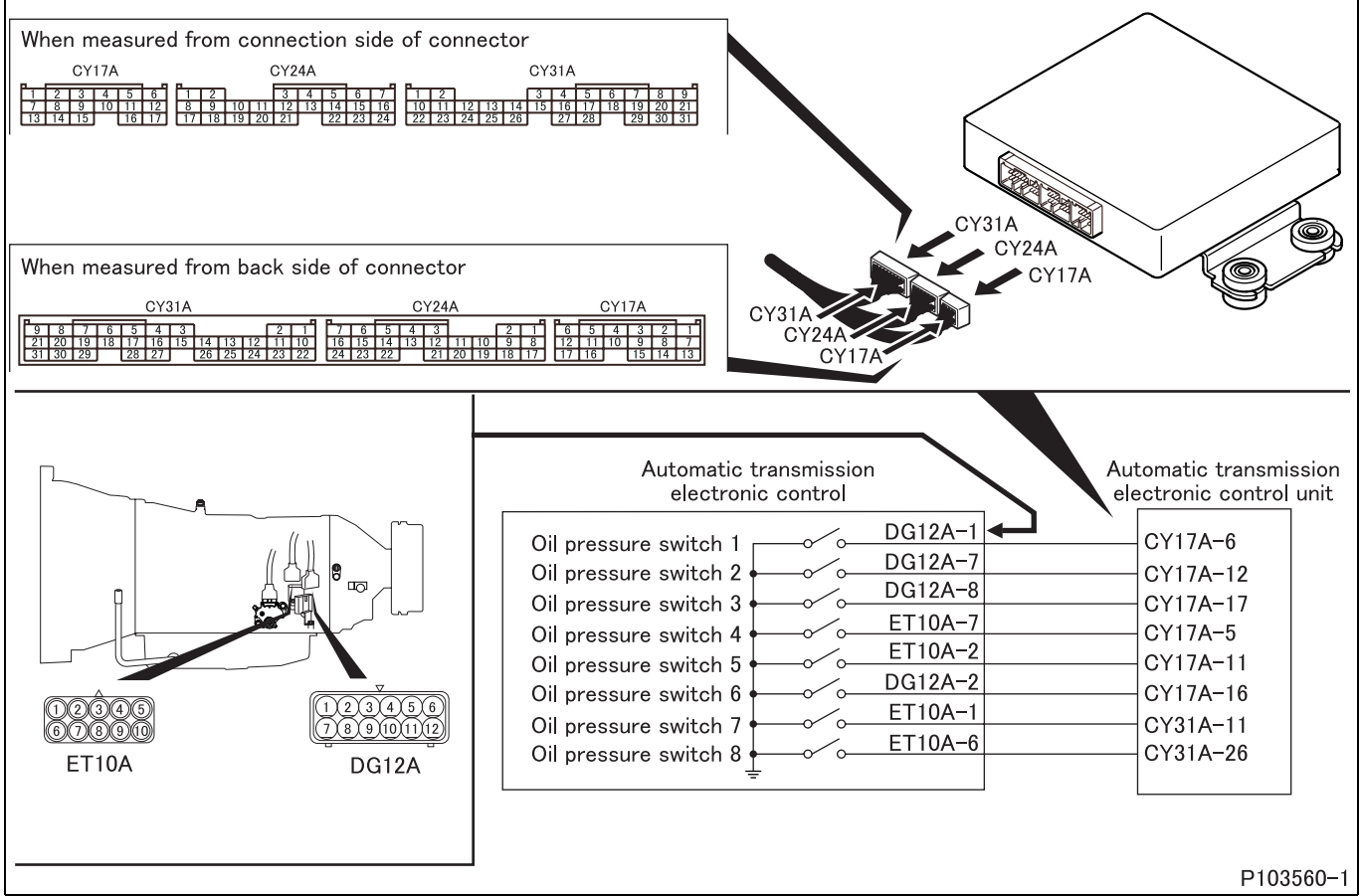
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 6 or shift solenoid 3
- Malfunction of each connector
- Malfunction of oil pressure switch 6 or shift solenoid 3
- Malfunction of electronic control unit

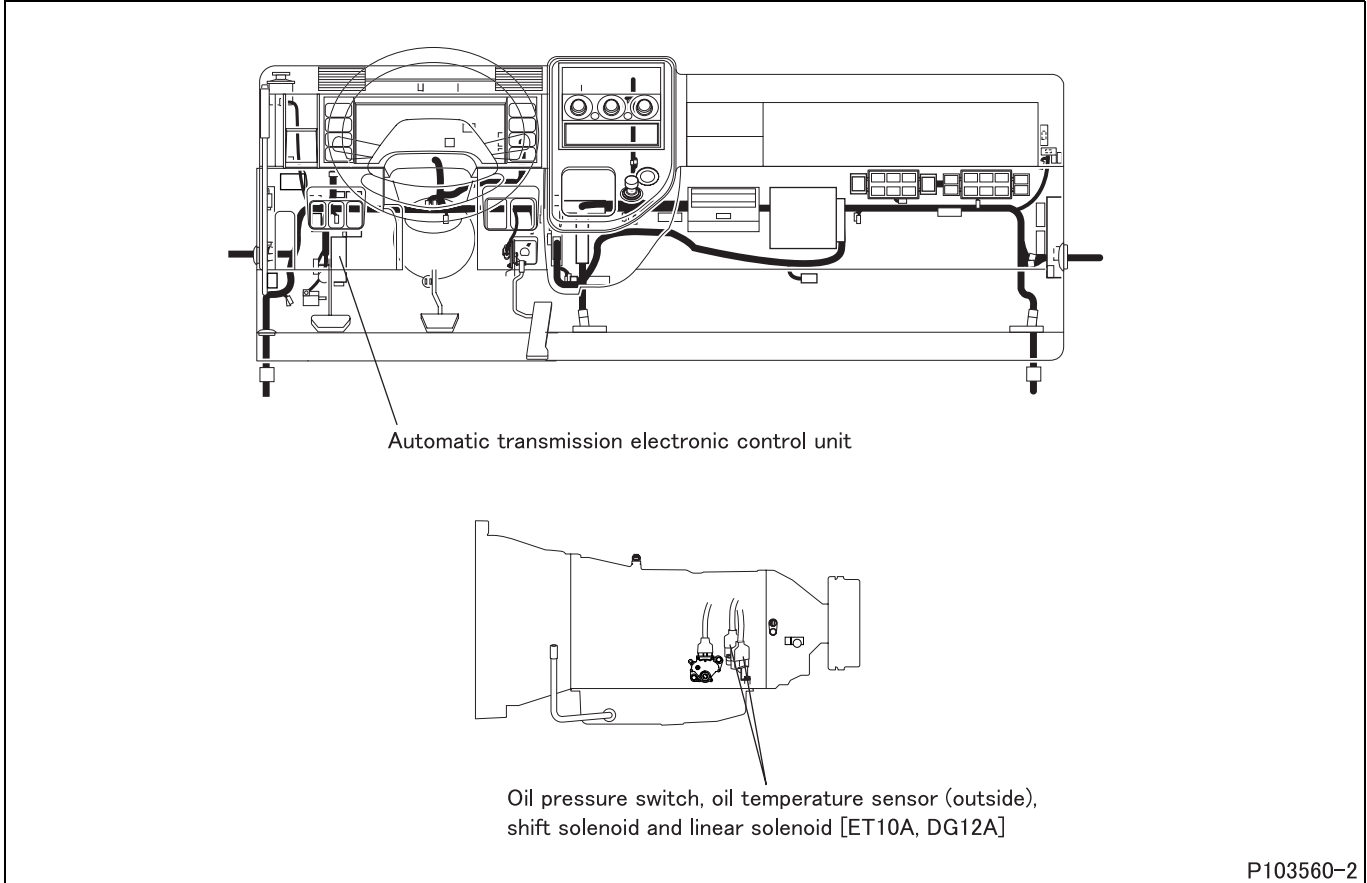
[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 16 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 66 "Oil Press SW 6" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> In 1st gear: 0 V In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> In 1st gear: ON In 2nd, 3rd, 4th, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

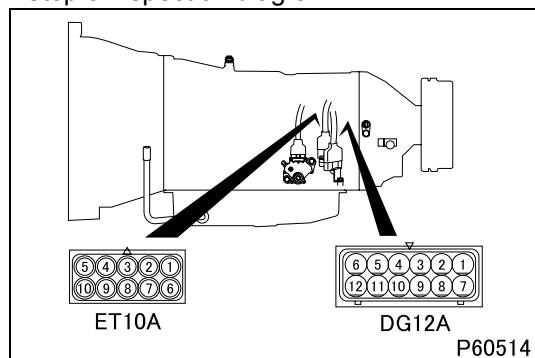
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure continuity between connector (CY17A) terminal No. 16 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF 	
	Requirements	There is no continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of switch unit		
	Maintenance item	Check continuity between connector (DG12A) terminal No. 2 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> Disconnect connector, and measure switch side terminal. Starter switch: OFF 		
	Requirements	There is no continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of oil pressure switch (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between switch and electronic control unit (signal)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 2 and electronic control unit connector (CY17A) terminal No. 16.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 16 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 66 "Oil Press SW 6" of Service Data.</p>		
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 1st gear: 0 V In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> In 1st gear: ON In 2nd, 3rd, 4th, 5th, 6th gears: OFF 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	<ul style="list-style-type: none"> Inspection of shift solenoid 3 is performed. Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P0995/Flash code: 55

[Monitor ID]

65

[Fault (outline)]

Failure of oil pressure switch 6

[Diagnosis check]

- Oil pressure switch 6 is monitored for fault when the shift solenoid 3 is deenergized (low pressure).

[Code generation condition]

- Oil pressure switch 6 remains ON (high pressure) for 0.1 second.

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Shift solenoid 3 is OFF

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (2nd).

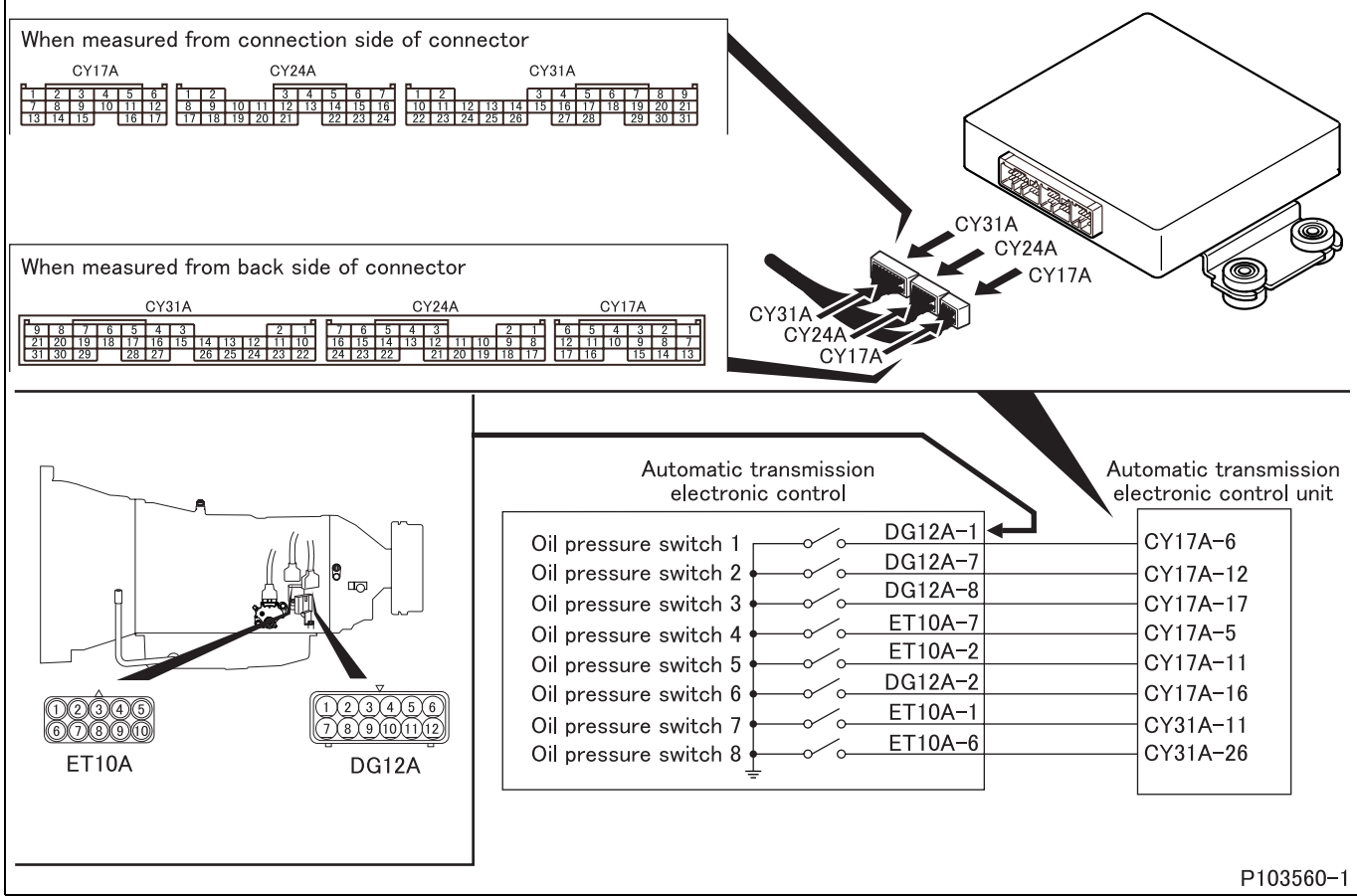
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil pressure switch 6 or shift solenoid 3
- Malfunction of each connector
- Malfunction of oil pressure switch 6 or shift solenoid 3
- Malfunction of electronic control unit

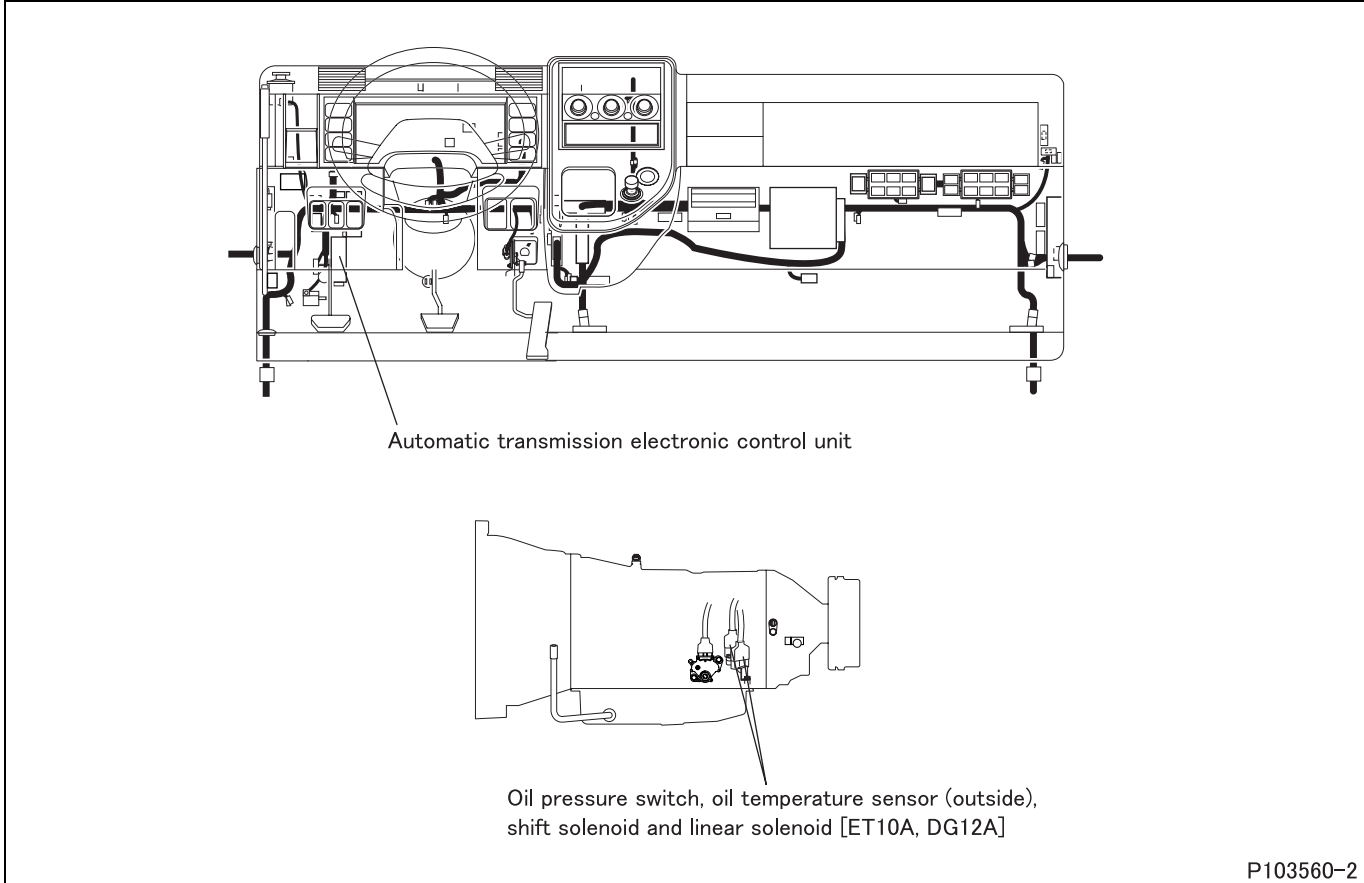
[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 16 (+) and connector (CY24A) terminal No. 8 (-). <Multi-Use Tester used> Measure item No. 66 "Oil Press SW 6" of Service Data.	
	Inspection condition	Engine in operation <Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> <ul style="list-style-type: none"> • In 1st gear: 0 V • In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <Multi-Use Tester used> <ul style="list-style-type: none"> • In 1st gear: ON • In 2nd, 3rd, 4th, 5th, 6th gears: OFF 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

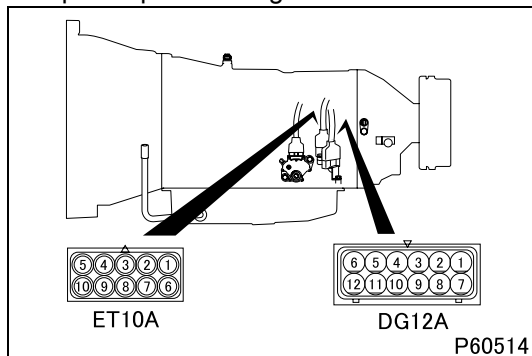
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure continuity between connector (CY17A) terminal No. 16 and chassis ground.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	There is no continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of switch connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of switch unit		
	Maintenance item	Check continuity between connector (DG12A) terminal No. 2 and automatic transmission case.		
	Inspection condition	<ul style="list-style-type: none"> Disconnect connector, and measure switch side terminal. Starter switch: OFF 		
	Requirements	There is no continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.	
		NO	Replacement of oil pressure switch (contact an Aisin Service Station)	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between switch and electronic control unit (signal)		
	Maintenance item	Check circuit between connector (DG12A) terminal No. 2 and electronic control unit connector (CY17A) terminal No. 16.		
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.		
	Requirements	There is continuity.		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.	
		NO	Modify harness.	

Step 7	Inspection items	Inspection by control data		
	Maintenance item	<p><Multi-Use Tester not used> Measure value of voltage between connector (CY17A) terminal No. 16 (+) and connector (CY24A) terminal No. 8 (-).</p> <p><Multi-Use Tester used> Measure item No. 66 "Oil Press SW 6" of Service Data.</p>		
	Inspection condition	<p>Engine in operation</p> <p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>		
	Requirements	<p><Multi-Use Tester not used></p> <ul style="list-style-type: none"> In 1st gear: 0 V In 2nd, 3rd, 4th, 5th, 6th gears: 12 V <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> In 1st gear: ON In 2nd, 3rd, 4th, 5th, 6th gears: OFF 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	<ul style="list-style-type: none"> Inspection of shift solenoid 3 is performed. Replacement of electronic control unit 	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P1604/Flash code: 24

[Monitor ID]

10

[Fault (outline)]

Abnormality in accelerator pedal position signal

[Diagnosis check]

- Accelerator pedal position signal from engine electronic control unit is monitored for abnormality.

[Code generation condition]

- Signal outputted from engine electronic control unit remains abnormal for 5 seconds. (This condition is not caused by abnormal accelerator opening but by abnormal signal.)

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Starter switch: ON

[Control effected by electronic control unit during fault]

- Oil pressure control is executed on the basis of the preset value for accelerator pedal position of 100%
- Shift point control is executed on the basis of the preset value for the accelerator pedal position of 0%
- Braking force control is inhibited.

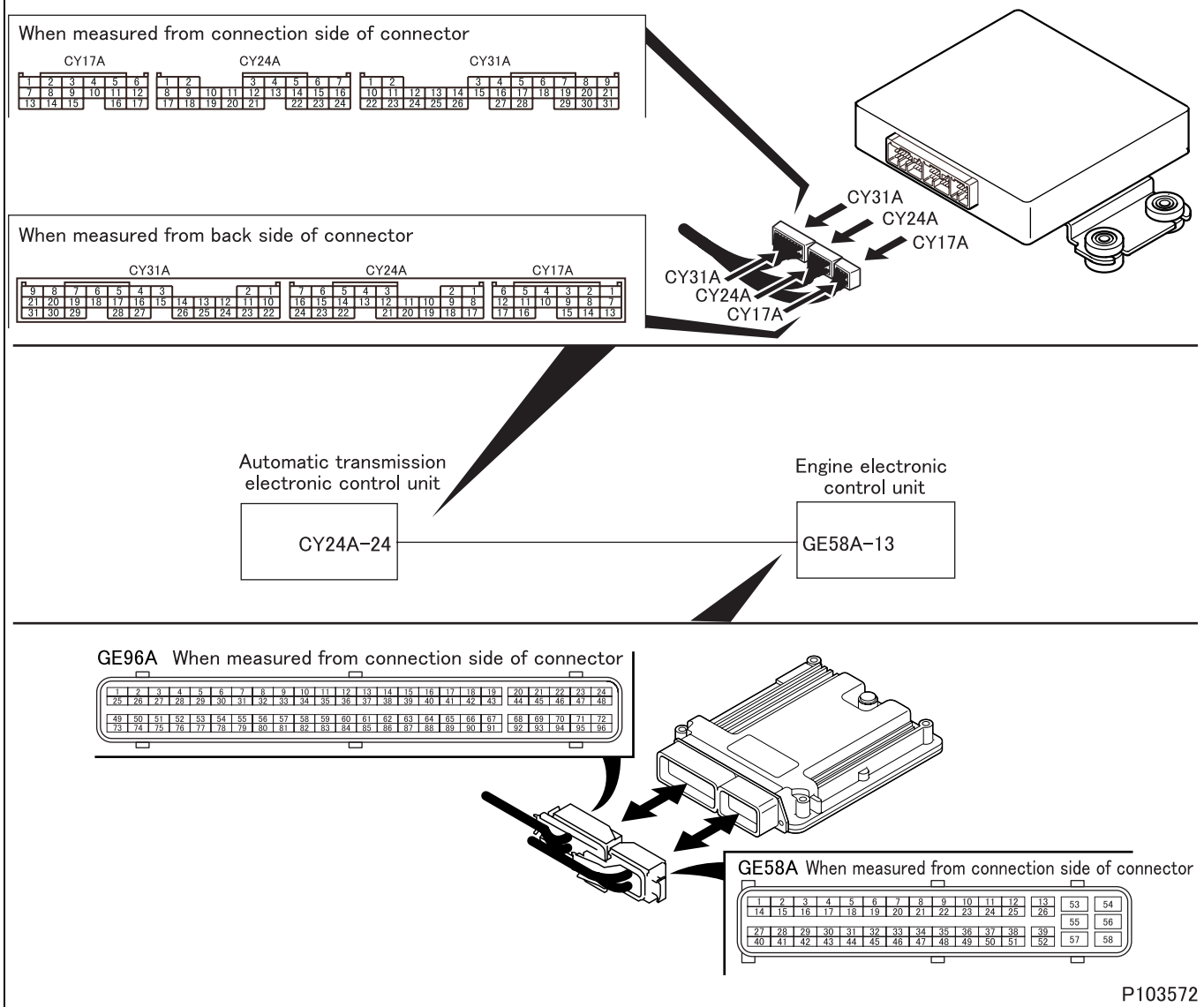
[Probable cause of trouble]

- Open-circuit or short-circuit between electronic control unit and engine electronic control unit or between engine electronic control unit and accelerator pedal position sensor
- Malfunction of each connector
- Malfunction of accelerator pedal position sensor
- Malfunction of electronic control unit
- Malfunction of engine electronic control unit

[Recoverability]

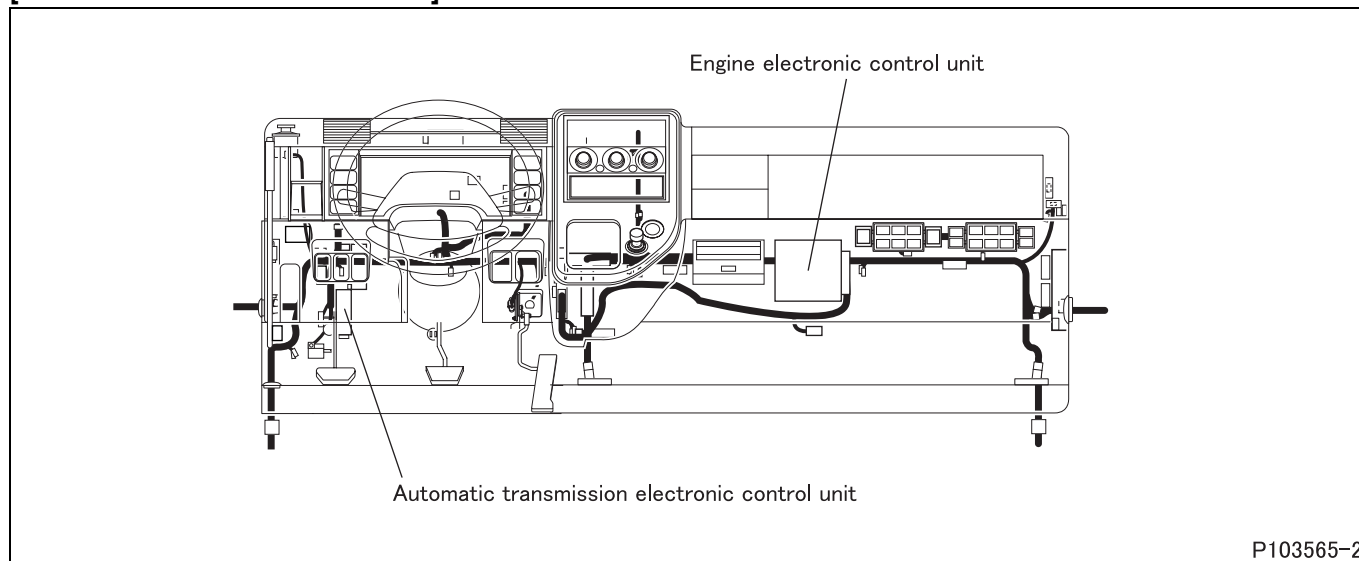
- Recovered if signal becomes normal with starter switch in ON position.

[Electronic Control Unit Connection Diagram]



TROUBLESHOOTING

[Parts Identification and Location]



P103565-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 58 "Accel Percent" of Service Data.	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Accelerator pedal released (fully closed): 0% • Accelerator pedal pressed (fully opened): 100% 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
		NO	Go to step 2.

Step 2	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
		NO	Modify connector.

Step 3	Inspection items	Inspection of engine electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
		NO	Modify connector.

Step 4	Inspection items	Inspection of engine electronic control unit	
	Maintenance item	Inspection of engine electronic control unit	
	Inspection condition	-	
	Requirements	Free of errors related to accelerator opening	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Perform troubleshooting on engine electronic control unit (See Gr13EA).	

Step 5	Inspection items	Inspection of harness between electronic control unit and engine electronic control unit	
	Maintenance item	Check circuit between connector (CY24A) terminal No. 24 and engine electronic control unit connector (GE58A) terminal No. 13.	
	Inspection condition	Disconnect each electronic control unit from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify harness.	

Step 6	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Check for recurrence of the same diagnosis code. <Multi-Use Tester used> Measure item No. 58 "Accel Percent" of Service Data.	
	Inspection condition	-	
	Requirements	<Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit. <Multi-Use Tester used> <ul style="list-style-type: none"> • Accelerator pedal released (fully closed): 0% • Accelerator pedal pressed (fully opened): 100% 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Replacement of electronic control unit (If replacement of electronic control unit does not eliminate trouble, replace engine electronic control unit.)	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P2716/Flash code: 34

[Monitor ID]

27, 28

[Fault (outline)]

PL linear solenoid is open-circuited or short-circuited.

[Diagnosis check]

- Resistance and current in the PL linear solenoid are monitored for fault.

[Code generation condition]

- Resistance in the PL linear solenoid remains at or above the specified value (100 k Ω) for 0.065 second (open-circuit or short-circuit in power supply side).
- Current in the PL linear solenoid remains at or above the specified value (4A) for 0.065 second (short-circuit in ground side).

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- PL linear solenoid is turned OFF (line pressure held in high pressure side).

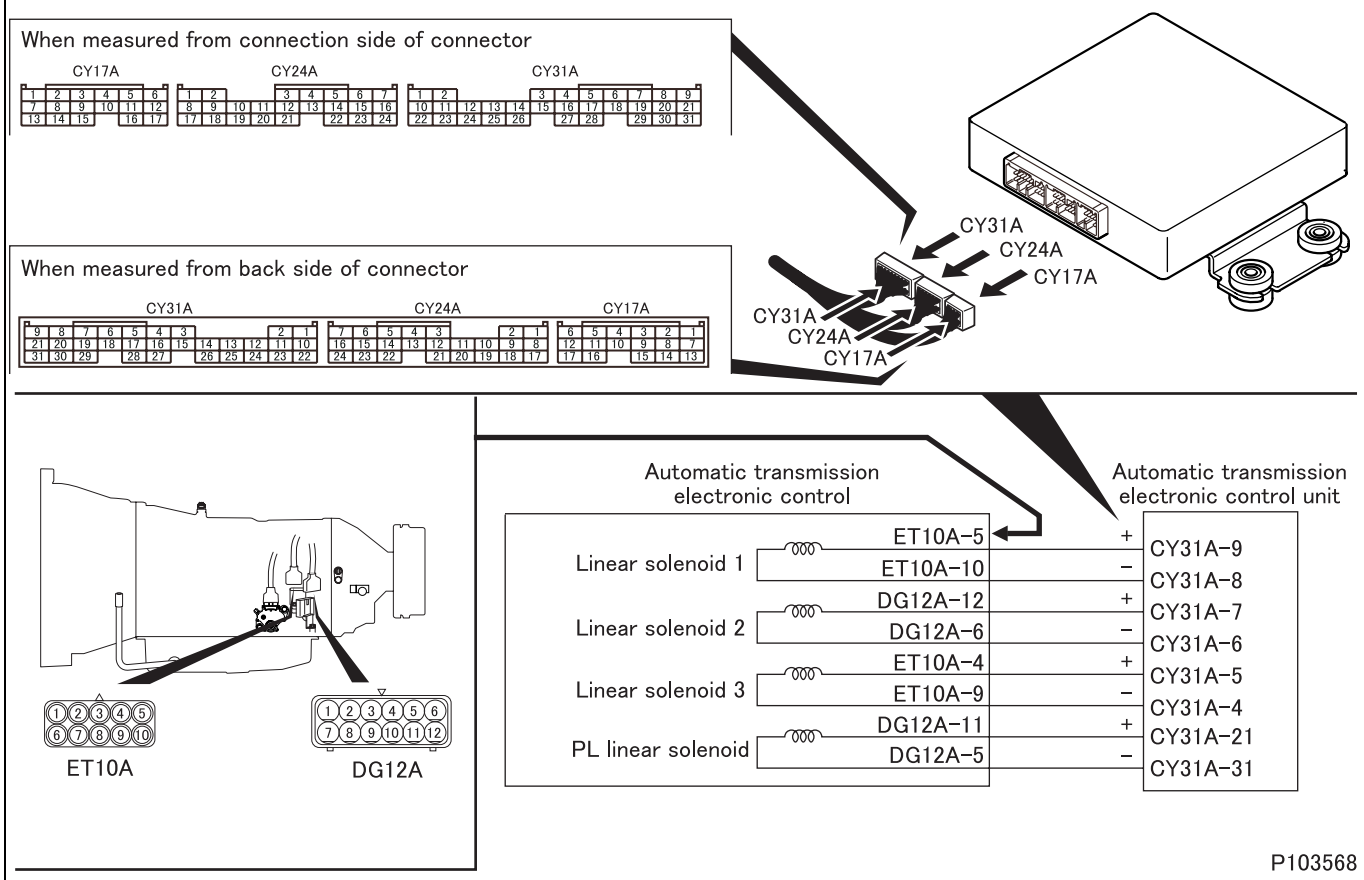
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and PL linear solenoid
- Malfunction of each connector
- Malfunction of PL linear solenoid
- Malfunction of electronic control unit

[Recoverability]

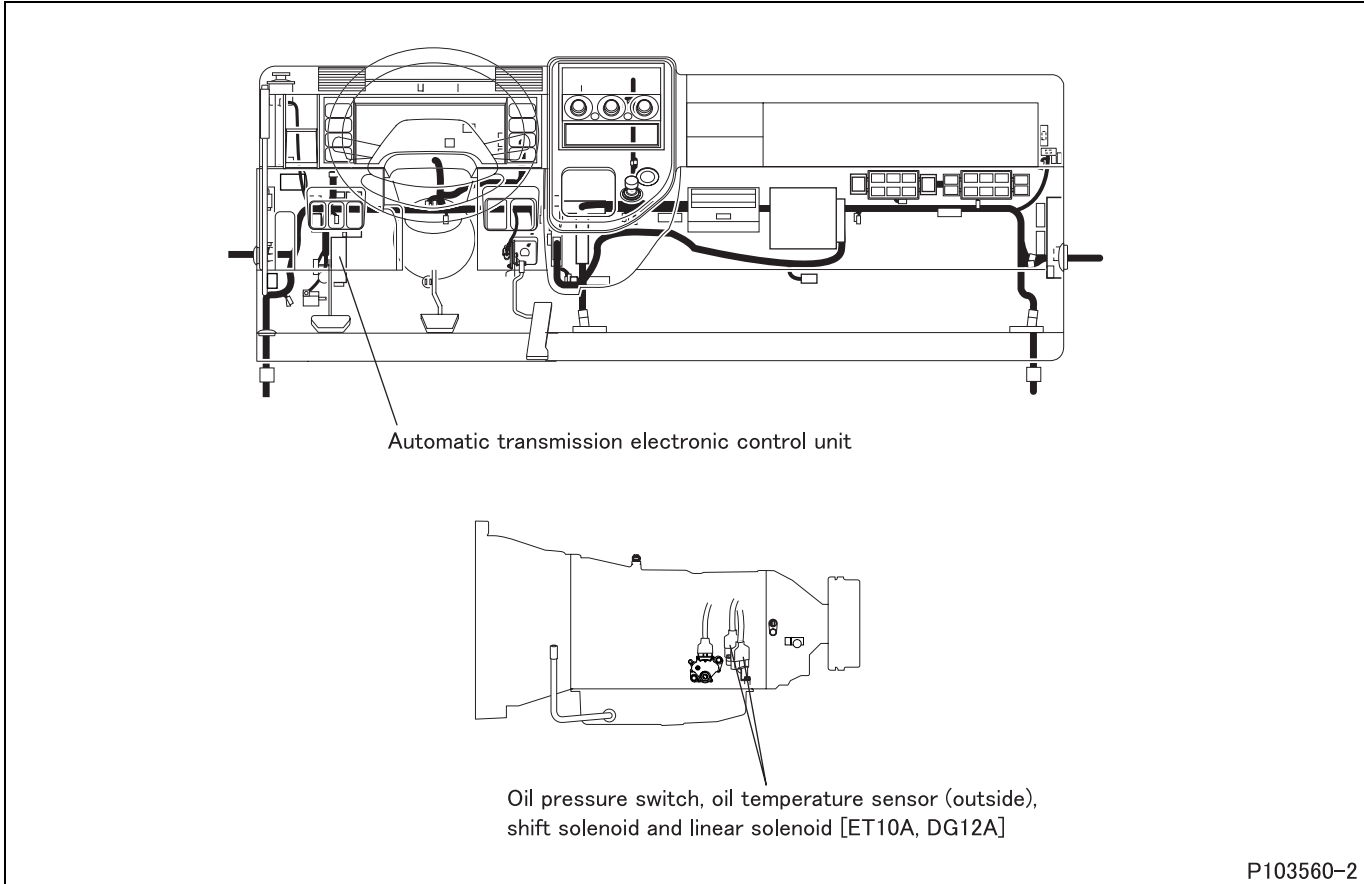
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Electronic Control Unit Connection Diagram]



P103568

[Parts Identification and Location]



P103560-2

TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items		Inspection by control data
	Maintenance item		<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 34 "Linear Sol Press 4" of Service Data.
	Inspection condition		<ul style="list-style-type: none"> Engine in operation With the brake pedal pressed down, shift the range selector lever.
	Requirements		<ul style="list-style-type: none"> In R range, 1st gear (high accelerator pedal position): 260 lbf/in² In any gears except above: 100 lbf/in²
	Inspection result (Is the judging standard satisfied?)		YES Go to transient fault (See Gr00.). NO Go to step 2.

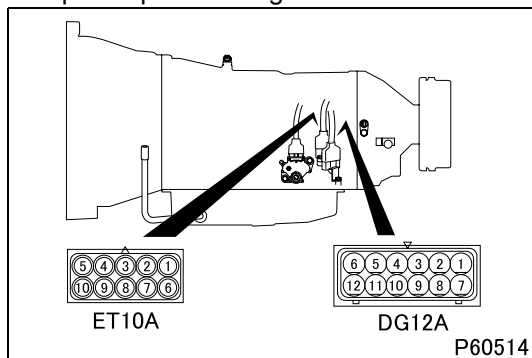
Step 2	Inspection items		Inspection by electronic control unit connector (signal)
	Maintenance item		Measure value of resistance between connector (CY31A) terminals No. 21 and 31.
	Inspection condition		<ul style="list-style-type: none"> Disconnect electronic control unit and harness, and measure from connection side of harness connector. Starter switch: OFF
	Requirements		5.5 ± 0.5 Ω
	Inspection result (Is the judging standard satisfied?)		YES Go to step 3. NO Go to step 4.

Step 3	Inspection items		Inspection of electronic control unit connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES Go to step 8. NO Modify connector.

Step 4	Inspection items		Inspection of solenoid connector
	Maintenance item		Inspection of connector
	Inspection condition		–
	Requirements		<ul style="list-style-type: none"> Connector is properly connected. No trace of water entry is found. No corrosion is found in terminal. Connection to terminal is appropriate.
	Inspection result (Is the judging standard satisfied?)		YES Go to step 5. NO Modify connector.

Step 5	Inspection items		Inspection of solenoid unit
	Maintenance item		Measure value of resistance between connector (DG12A) terminals No. 11 and 5.
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF
	Requirements		5.5 ± 0.5 Ω
	Inspection result (Is the judging standard satisfied?)		YES Go to step 6. NO Replacement of solenoid (contact an Aisin Service Station)

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between solenoid and electronic control unit (power supply)	
	Maintenance item	Check circuit between connector (DG12A) terminal No. 11 and electronic control unit connector (CY31A) terminal No. 21.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

Step 7	Inspection items	Inspection of harness between solenoid and electronic control unit (ground)	
	Maintenance item	Check circuit between connector (DG12A) terminal No. 5 and electronic control unit connector (CY31A) terminal No. 31.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify harness.	

Step 8	Inspection items	Inspection by control data	
	Maintenance item	<p><Multi-Use Tester not used> Check for recurrence of the same diagnosis code.</p> <p><Multi-Use Tester used> Measure item No. 34 "Linear Sol Press 4" of Service Data.</p>	
	Inspection condition	<ul style="list-style-type: none"> • Engine in operation • With the brake pedal pressed down, shift the range selector lever. 	
	Requirements	<p><Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • In R range, 1st gear (high accelerator pedal position): 260 lbf/in² • In any gears except above: 100 lbf/in² 	
	Inspection result (Is the judging standard satisfied?)	YES	If the diagnosis code remains after actual run, replace the electronic control unit.
NO		Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: P2742/Flash code: 17

[Monitor ID]

16

[Fault (outline)]

Failure of oil temperature sensor (outside)

[Diagnosis check]

- Automatic transmission fluid temperature is monitored by oil temperature sensor (outside).

[Code generation condition]

- Oil temperature sensor (outside) output temperature remains excessively high (over 180°C {355°F}) for 0.5 second.

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Control is effected with oil temperature at 80°C {175°F}.
- Braking force control is inhibited.

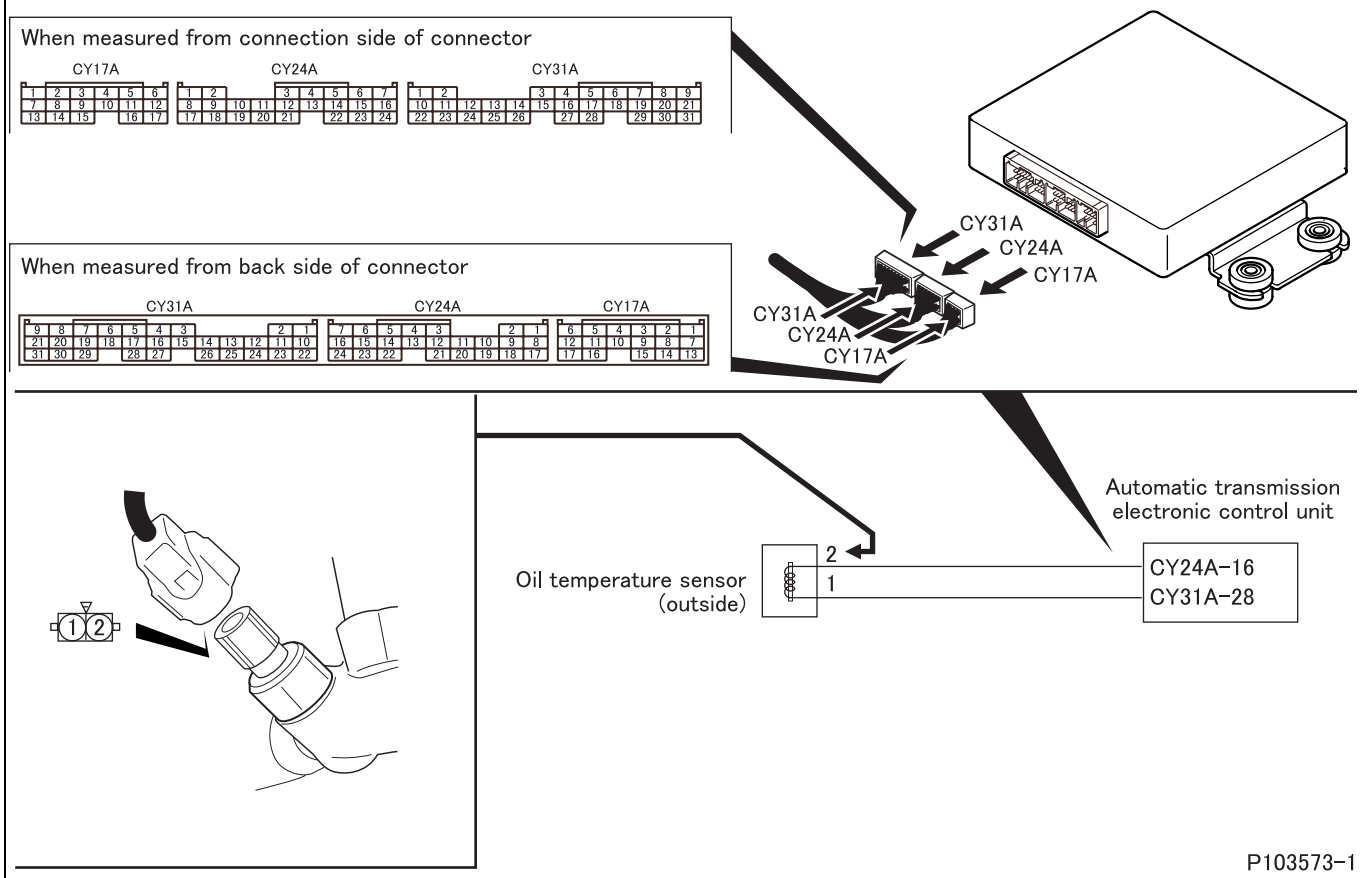
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and oil temperature sensor (outside)
- Malfunction of each connector
- Malfunction of oil temperature sensor (outside)
- Malfunction of electronic control unit

[Recoverability]

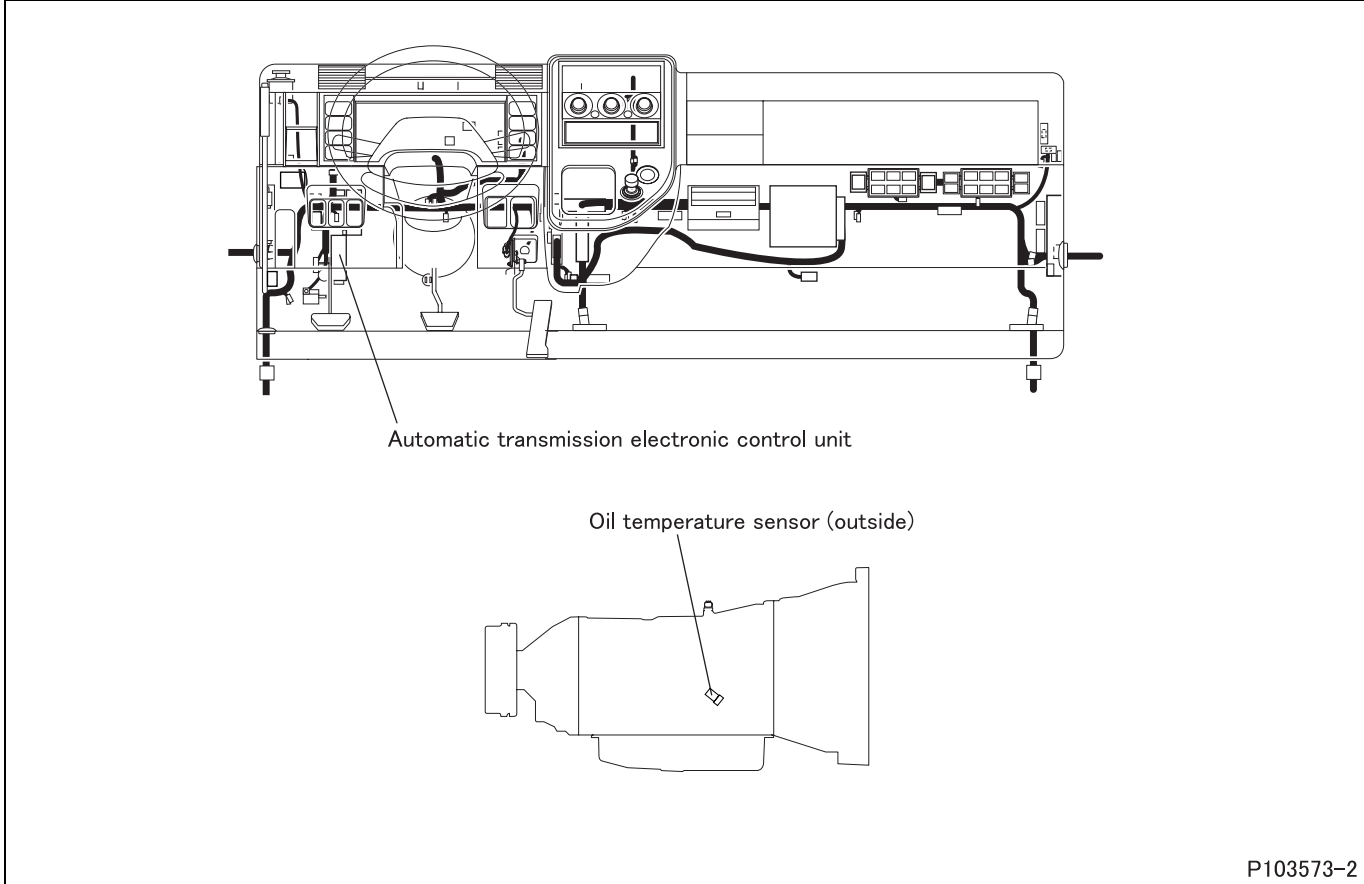
- Recovered if signal becomes normal with starter switch in ON position.

[Electronic Control Unit Connection Diagram]



P103573-1

[Parts Identification and Location]



P103573-2

TROUBLESHOOTING

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of resistance between connector (CY24A) terminal No. 16 and connector (CY31A) terminal No. 28. <Multi-Use Tester used> Measure item No. 17 "A/T Oil Temp (TC)" of Service Data.	
	Inspection condition	<Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> Cold engine → during warm-up: Resistance is gradually reduced. <Multi-Use Tester used> <ul style="list-style-type: none"> • Cold engine: Proportionate to outside air temperature • During warm-up: Gradually increased. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

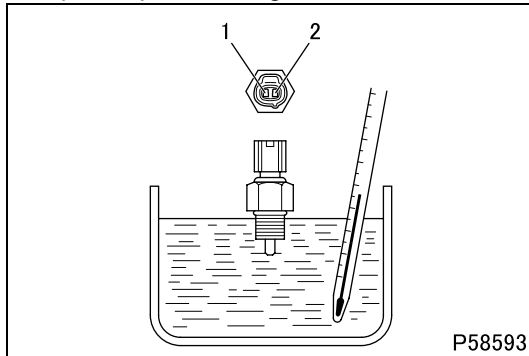
Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY24A) terminal No. 16 and connector (CY31A) terminal No. 28.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	<ul style="list-style-type: none"> • 115°C {240°F}: 655 to 730 Ω • 120°C {250°F}: 585 to 645 Ω • 145°C {295°F}: 340 to 375 Ω • 155°C {310°F}: 280 to 305 Ω 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Replacement of electronic control unit
	NO	Modify connector.	

Step 4	Inspection items	Inspection of sensor connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

Step 5	Inspection items	Inspection of sensor unit	
	Maintenance item	Measure value of resistance between connector terminal No. 1 or 2 and body.	
	Inspection condition	<ul style="list-style-type: none"> Put sensor in vessel filled with automatic transmission fluid. Measure value of resistance the sensor in each temperature (Wait for more than 5 minutes in each time to measure correct resistances). 	
	Requirements	<ul style="list-style-type: none"> 115°C {240°F}: 655 to 730 Ω 120°C {250°F}: 585 to 645 Ω 145°C {295°F}: 340 to 375 Ω 155°C {310°F}: 280 to 305 Ω 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
	NO	Replacement of sensor	

<Step 5 inspection diagram>



Step 6	Inspection items	Inspection of harness between sensor and electronic control unit (signal)	
	Maintenance item	Check circuit between connector terminal No. 2 and electronic control unit connector (CY24A) terminal No. 16.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
	NO	Modify harness.	

Step 7	Inspection items	Inspection of harness between sensor and electronic control unit (ground)	
	Maintenance item	Check circuit between connector terminal No. 1 and electronic control unit connector (CY31A) terminal No. 28.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
	NO	Modify harness.	

TROUBLESHOOTING

Step 8	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of resistance between connector (CY24A) terminal No. 16 and connector (CY31A) terminal No. 28.</p> <p><Multi-Use Tester used> Measure item No. 17 "A/T Oil Temp (TC)" of Service Data.</p>
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used> Cold engine → during warm-up: Resistance is gradually reduced.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • Cold engine: Proportionate to outside air temperature • During warm-up: Gradually increased.
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Replacement of electronic control unit

[Fault code]

Diagnosis code: P2743/Flash code: 17

[Monitor ID]

17, 18

[Fault (outline)]

Failure of oil temperature sensor (outside)

[Diagnosis check]

- Automatic transmission fluid temperature is monitored by oil temperature sensor (outside).

[Code generation condition]

Diagnosis code is generated under either of the following conditions.

- Oil temperature sensor (outside) output temperature remains excessively low (under -50°C $\{-56^{\circ}\text{F}\}$) for 0.5 second. (Lamp indication: IMD) <A>
- Engine coolant temperature is above 70°C $\{160^{\circ}\text{F}\}$ and while oil temperature sensor (inside) output temperature is less than 60°C $\{140^{\circ}\text{F}\}$, oil temperature sensor (outside) output temperature remains not less than 140°C $\{285^{\circ}\text{F}\}$ for 1 minute. (Lamp indication: 2DC)

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Control is effected with oil temperature at 80°C $\{175^{\circ}\text{F}\}$. <A>
- Braking force control is inhibited. <A>
- None

[Probable cause of trouble]

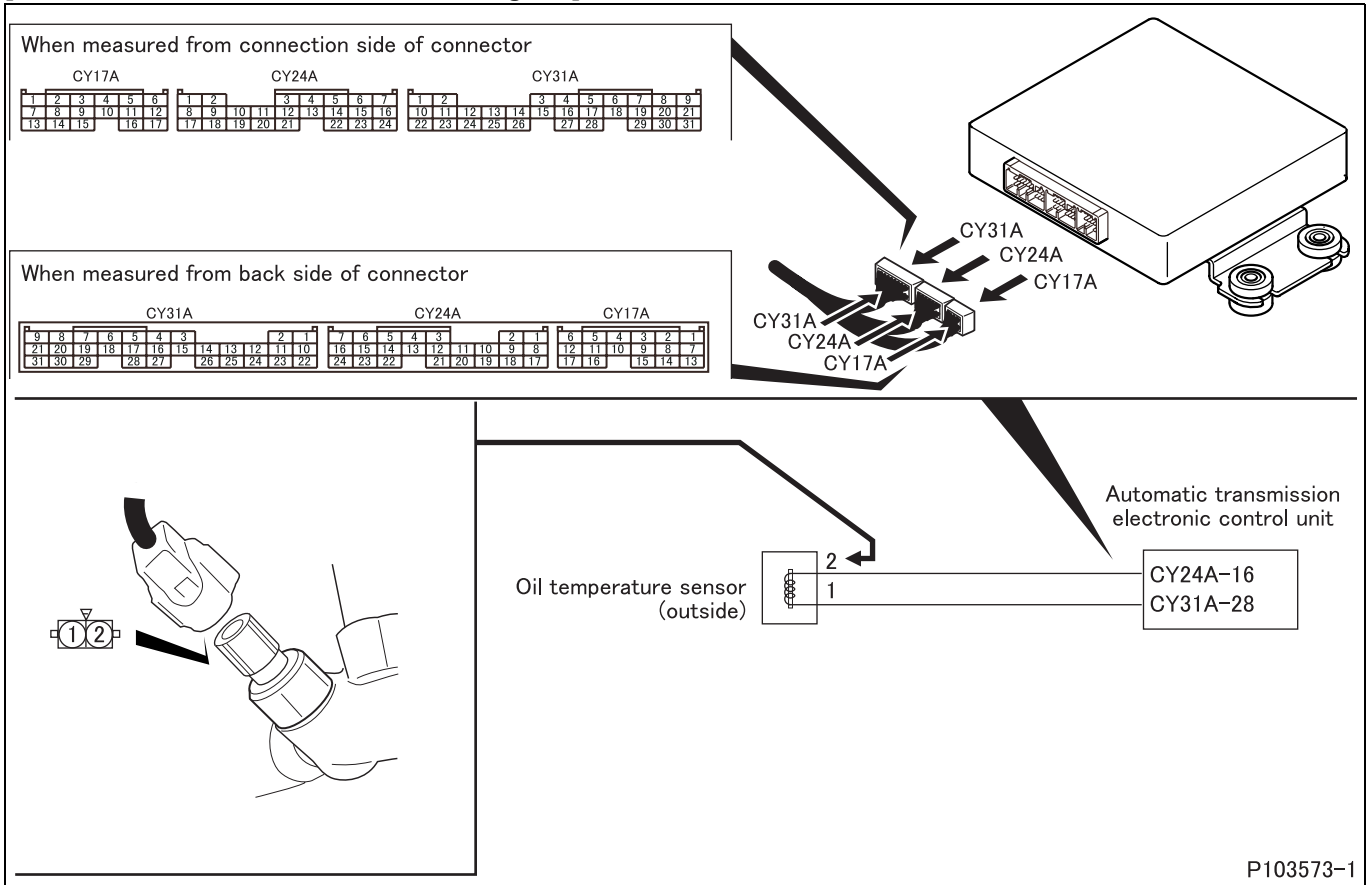
- Open-circuit or short-circuit of harness between electronic control unit and oil temperature sensor (outside)
- Malfunction of each connector
- Malfunction of oil temperature sensor (outside)
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal with starter switch in ON position. <A>

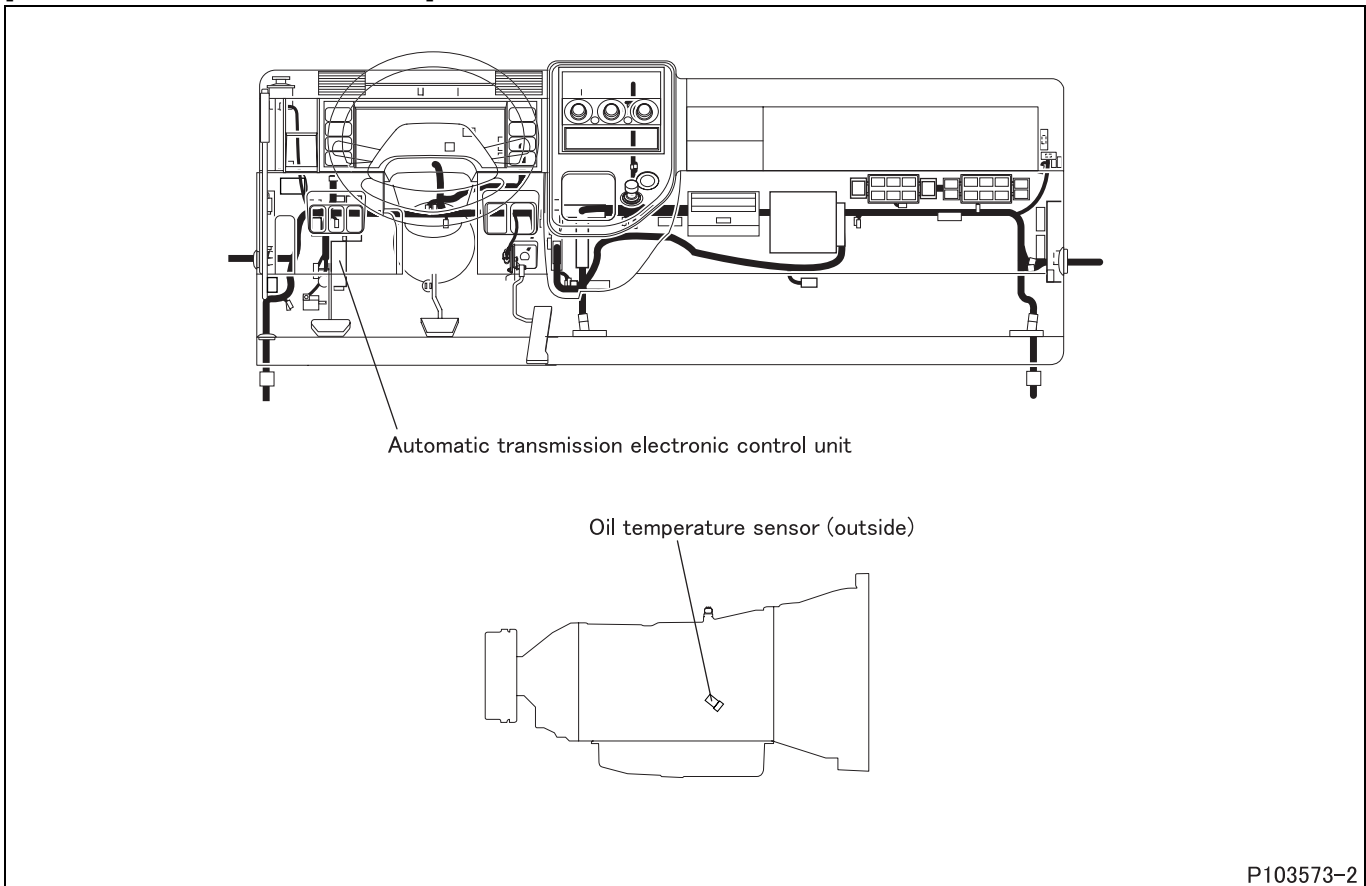
TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]



P103573-1

[Parts Identification and Location]



P103573-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Measure value of resistance between connector (CY24A) terminal No. 16 and connector (CY31A) terminal No. 28. <Multi-Use Tester used> Measure item No. 17 "A/T Oil Temp (TC)" of Service Data.	
	Inspection condition	<Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.	
	Requirements	<Multi-Use Tester not used> Cold engine → during warm-up: Resistance is gradually reduced. <Multi-Use Tester used> <ul style="list-style-type: none"> • Cold engine: Proportionate to outside air temperature • During warm-up: Gradually increased. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY24A) terminal No. 16 and connector (CY31A) terminal No. 28.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	<ul style="list-style-type: none"> • 115°C {240°F}: 655 to 730 Ω • 120°C {250°F}: 585 to 645 Ω • 145°C {295°F}: 340 to 375 Ω • 155°C {310°F}: 280 to 305 Ω 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

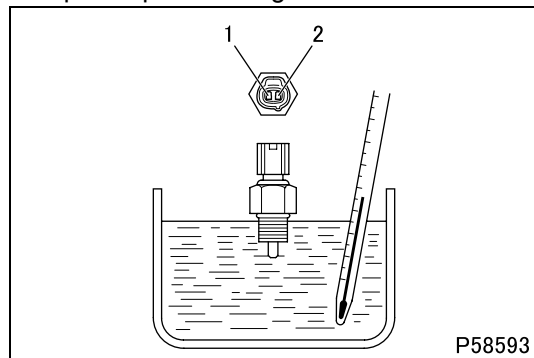
Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Replacement of electronic control unit
	NO	Modify connector.	

Step 4	Inspection items	Inspection of sensor connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

TROUBLESHOOTING

Step 5	Inspection items		Inspection of sensor unit
	Maintenance item		Measure value of resistance between connector terminal No. 1 or 2 and body.
	Inspection condition		<ul style="list-style-type: none"> Put sensor in vessel filled with automatic transmission fluid. Measure value of resistance the sensor in each temperature (Wait for more than 5 minutes in each time to measure correct resistances).
	Requirements		<ul style="list-style-type: none"> 115°C {240°F}: 655 to 730 Ω 120°C {250°F}: 585 to 645 Ω 145°C {295°F}: 340 to 375 Ω 155°C {310°F}: 280 to 305 Ω
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Replacement of sensor	

<Step 5 inspection diagram>



Step 6	Inspection items		Inspection of harness between sensor and electronic control unit (signal)
	Maintenance item		Check circuit between connector terminal No. 2 and electronic control unit connector (CY24A) terminal No. 16.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

Step 7	Inspection items		Inspection of harness between sensor and electronic control unit (ground)
	Maintenance item		Check circuit between connector terminal No. 1 and electronic control unit connector (CY31A) terminal No. 28.
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.
	Requirements		There is continuity.
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
NO		Modify harness.	

Step 8	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Measure value of resistance between connector (CY24A) terminal No. 16 and connector (CY31A) terminal No. 28.</p> <p><Multi-Use Tester used> Measure item No. 17 "A/T Oil Temp (TC)" of Service Data.</p>
	Inspection condition		<p><Multi-Use Tester not used> Measure from back side of harness connector with electronic control unit connected to harness.</p>
	Requirements		<p><Multi-Use Tester not used> Cold engine → during warm-up: Resistance is gradually reduced.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • Cold engine: Proportionate to outside air temperature • During warm-up: Gradually increased.
	Inspection result (Is the judging standard satisfied?)		YES
		NO	Replacement of electronic control unit

TROUBLESHOOTING

[Fault code]

Diagnosis code: P2757/Flash code: 61

[Monitor ID]

9

[Fault (outline)]

Failure of lockup clutch

[Diagnosis check]

- Engine speed is compared with turbine speed during lockup control.

[Code generation condition]

- Difference between engine speed and turbine speed is higher than specification (200 rpm).

[Diagnosis check timing]

- Fault diagnosis is performed each time when the control is activated.

[Diagnostic requirement]

- Lockup control: Lockup is in operation.
- Turbine speed sensor related diagnosis code does not occur.
- Engine speed sensor related diagnosis code does not occur.

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF.

[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and turbine speed sensor
- Malfunction of each connector
- Malfunction of turbine speed sensor
- Malfunction of electronic control unit
- Malfunction of automatic transmission

[Recoverability]

- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

	Inspection items	Inspection by control data	
Step 1	Maintenance item	<Multi-Use Tester not used> Replacement of automatic transmission <Multi-Use Tester used> Measure item No. 15 "Engine Speed" and No. 16 "Turbine Speed" of Service Data.	
	Inspection condition	<ul style="list-style-type: none"> • P0717 "Turbine Speed Sensor No Signal" and P0726 "Engine Speed Sensor Performance" diagnosis codes do not occur. • Item No. 13 "A/T Oil Temp (OP)" indicates 25°C {77°F} or higher. • Item No. 35 "Linear Sol Press 3": Vehicle runs at approx. 100 lbs/in² (during lockup) or the lockup speed. • Lockup speed (2nd gear, accelerator pedal fully pressed down): 15 to 17 km/h {9.3 to 10.6 mph} • Item No. 15 "Engine Speed" is compared with No. 16 "Turbine Speed" during lockup operation. 	
	Requirements	Both speeds are matched.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
		NO	Replacement of automatic transmission

[Fault code]

Diagnosis code: P2759/Flash code: 35

[Monitor ID]

25, 26

[Fault (outline)]

Linear solenoid 3 is open-circuited or short-circuited.

[Diagnosis check]

- Resistance and current in the linear solenoid 3 are monitored for fault.

[Code generation condition]

- Resistance in the linear solenoid 3 remains at or above the specified value (100 k Ω) for 0.065 second (open-circuit or short-circuit in power supply side).
- Current in the linear solenoid 3 remains at or above the specified value (4A) for 0.065 second (short-circuit in ground side).

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Continuous

[Control effected by electronic control unit during fault]

- Lockup control is turned OFF
- Control is effected on fixed speed gear output (3rd for open-circuit, 2nd for short-circuit).

[Probable cause of trouble]

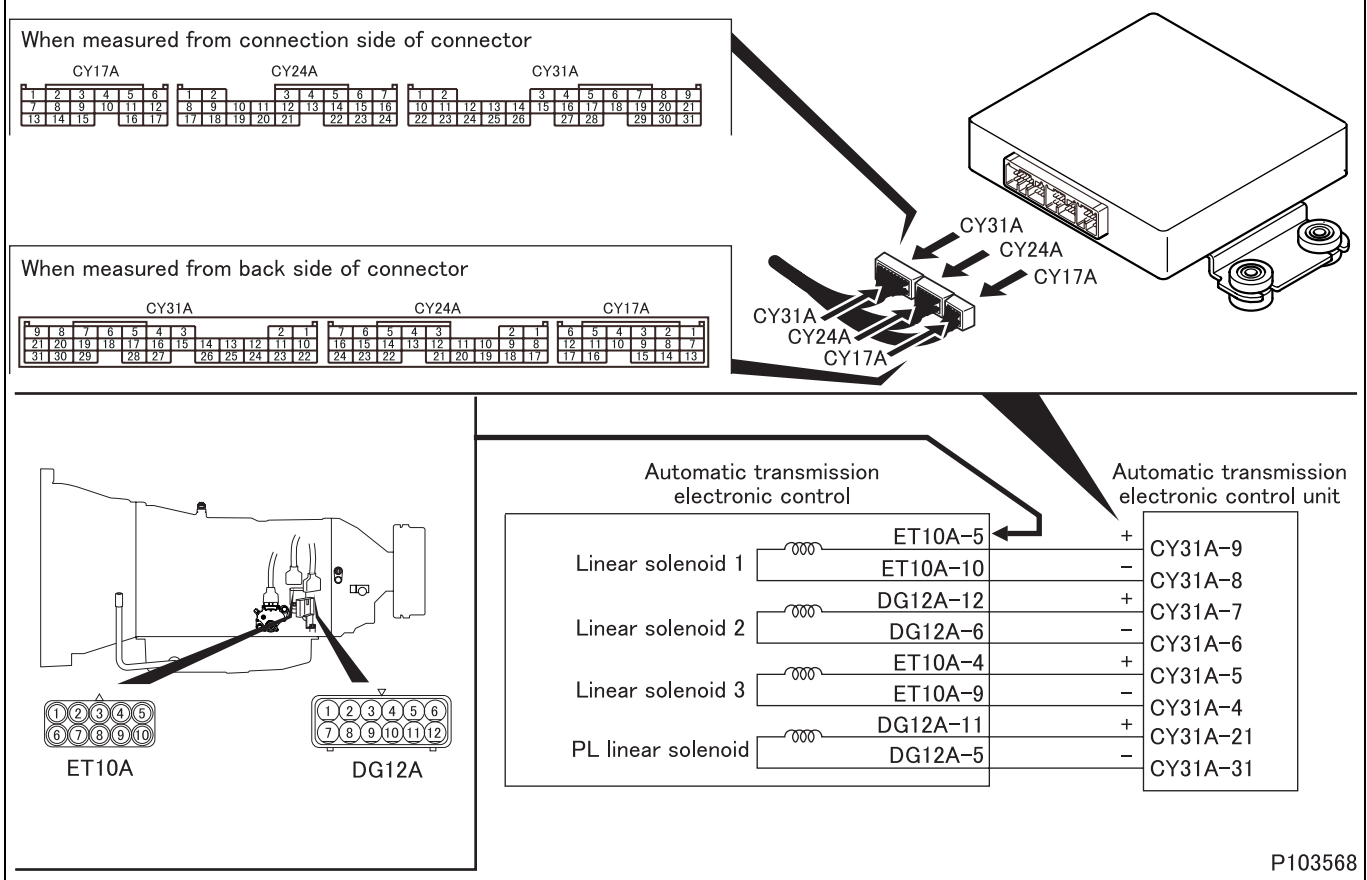
- Open-circuit or short-circuit of harness between electronic control unit and linear solenoid 3
- Malfunction of each connector
- Malfunction of linear solenoid 3
- Malfunction of electronic control unit

[Recoverability]

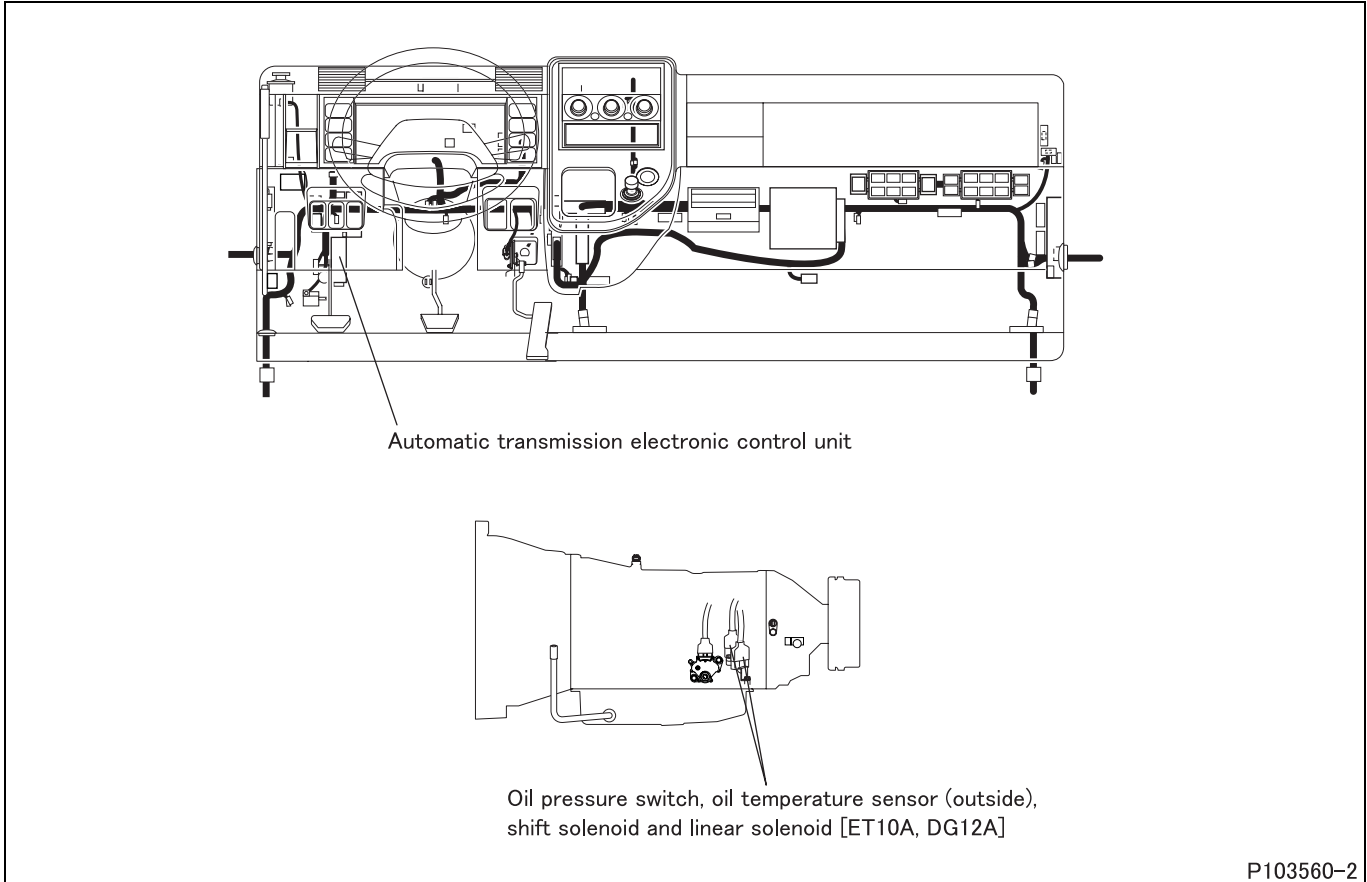
- Recovered if signal becomes normal when starter switch is turned OFF to ON (power supply resumed to electronic control unit).

TROUBLESHOOTING

[Electronic Control Unit Connection Diagram]



[Parts Identification and Location]



[Fault diagnosis]

- Perform checks in the sequence of the following steps.

Step 1	Inspection items	Inspection by control data	
	Maintenance item	<Multi-Use Tester not used> Go to step 2. <Multi-Use Tester used> Measure item No. 35 "Linear Sol Press 3" of Service Data.	
	Inspection condition	Engine in operation <When shifting from N to D> With the brake pedal pressed down, shift the range selector lever (from N to D). <In lock-up state> <ul style="list-style-type: none"> • Item No. 13 "A/T Oil Temp (OP)" indicates 25°C {77°F} or higher. • Lock-up speed (2nd gear, accelerator pedal fully pressed down): 15 to 17 km/h {9.3 to 10.6 mph} 	
	Requirements	<ul style="list-style-type: none"> • When shifting from N to D: Varies • In lock-up state: 100 lbf/in² 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
	NO	Go to step 2.	

Step 2	Inspection items	Inspection by electronic control unit connector (signal)	
	Maintenance item	Measure value of resistance between connector (CY31A) terminals No. 5 and 4.	
	Inspection condition	<ul style="list-style-type: none"> • Disconnect electronic control unit and harness, and measure from connection side of harness connector. • Starter switch: OFF 	
	Requirements	5.5 ± 0.5 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.
	NO	Go to step 4.	

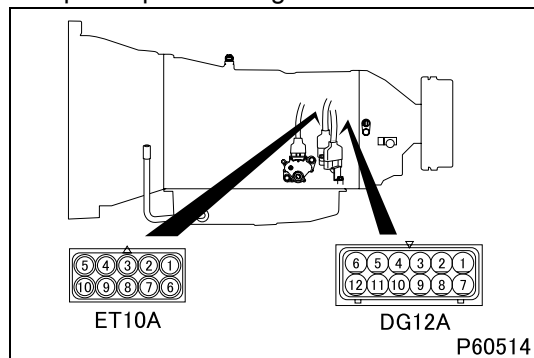
Step 3	Inspection items	Inspection of electronic control unit connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 8.
	NO	Modify connector.	

Step 4	Inspection items	Inspection of solenoid connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
	NO	Modify connector.	

TROUBLESHOOTING

Step 5	Inspection items		Inspection of solenoid unit			
	Maintenance item		Measure value of resistance between connector (ET10A) terminals No. 4 and 9.			
	Inspection condition		<ul style="list-style-type: none"> Disconnect connector, and measure solenoid side terminal. Starter switch: OFF 			
	Requirements		$5.5 \pm 0.5 \Omega$			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 6.</td> </tr> <tr> <td>NO</td> <td>Replacement of solenoid (contact an Aisin Service Station)</td> </tr> </table>	YES	Go to step 6.	NO
YES	Go to step 6.					
NO	Replacement of solenoid (contact an Aisin Service Station)					

<Step 5 inspection diagram>



Step 6	Inspection items		Inspection of harness between solenoid and electronic control unit (power supply)			
	Maintenance item		Check circuit between connector (ET10A) terminal No. 4 and electronic control unit connector (CY31A) terminal No. 5.			
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.			
	Requirements		There is continuity.			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 7.</td> </tr> <tr> <td>NO</td> <td>Modify harness.</td> </tr> </table>	YES	Go to step 7.	NO
YES	Go to step 7.					
NO	Modify harness.					

Step 7	Inspection items		Inspection of harness between solenoid and electronic control unit (ground)			
	Maintenance item		Check circuit between connector (ET10A) terminal No. 9 and electronic control unit connector (CY31A) terminal No. 4.			
	Inspection condition		Disconnect each device from harness and measure from connection side of harness connector.			
	Requirements		There is continuity.			
	Inspection result (Is the judging standard satisfied?)		<table border="1"> <tr> <td>YES</td> <td>Go to step 8.</td> </tr> <tr> <td>NO</td> <td>Modify harness.</td> </tr> </table>	YES	Go to step 8.	NO
YES	Go to step 8.					
NO	Modify harness.					

Step 8	Inspection items		Inspection by control data
	Maintenance item		<p><Multi-Use Tester not used> Check for recurrence of the same diagnosis code.</p> <p><Multi-Use Tester used> Measure item No. 35 "Linear Sol Press 3" of Service Data.</p>
	Inspection condition		<p>Engine in operation <When shifting from N to D> With the brake pedal pressed down, shift the range selector lever (from N to D). <In lock-up state></p> <ul style="list-style-type: none"> • Item No. 13 "A/T Oil Temp (OP)" indicates 25°C {77°F} or higher. • Lock-up speed (2nd gear, accelerator pedal fully pressed down): 15 to 17 km/h {9.3 to 10.6 mph}
	Requirements		<p><Multi-Use Tester not used> If the same diagnosis code occurs, replace electronic control unit.</p> <p><Multi-Use Tester used></p> <ul style="list-style-type: none"> • When shifting from N to D: Varies • In lock-up state: 100 lbf/in²
	Inspection result (Is the judging standard satisfied?)	YES	If the diagnosis code remains after actual run, replace the electronic control unit.
NO		Replacement of electronic control unit	

TROUBLESHOOTING

[Fault code]

Diagnosis code: U0100/Flash code: 88

[Monitor ID]

68, 69, 70, 71

[Fault (outline)]

Abnormality in controller area network communication

[Diagnosis check]

- Controller area network communication between engine electronic control unit is monitored for abnormality according to the controller area network signal to be received 1 second after the starter switch is turned ON.

[Code generation condition]

- Any of the signals to be received from engine electronic control unit through controller area network communication is not received for 0.5 second.

[Diagnosis check timing]

- Fault diagnosis is continuously performed.

[Diagnostic requirement]

- Starter switch ON battery voltage is higher than 10 V.
- Starter switch: ON (not less than 1 sec.)

[Control effected by electronic control unit during fault]

- Effects no special control.

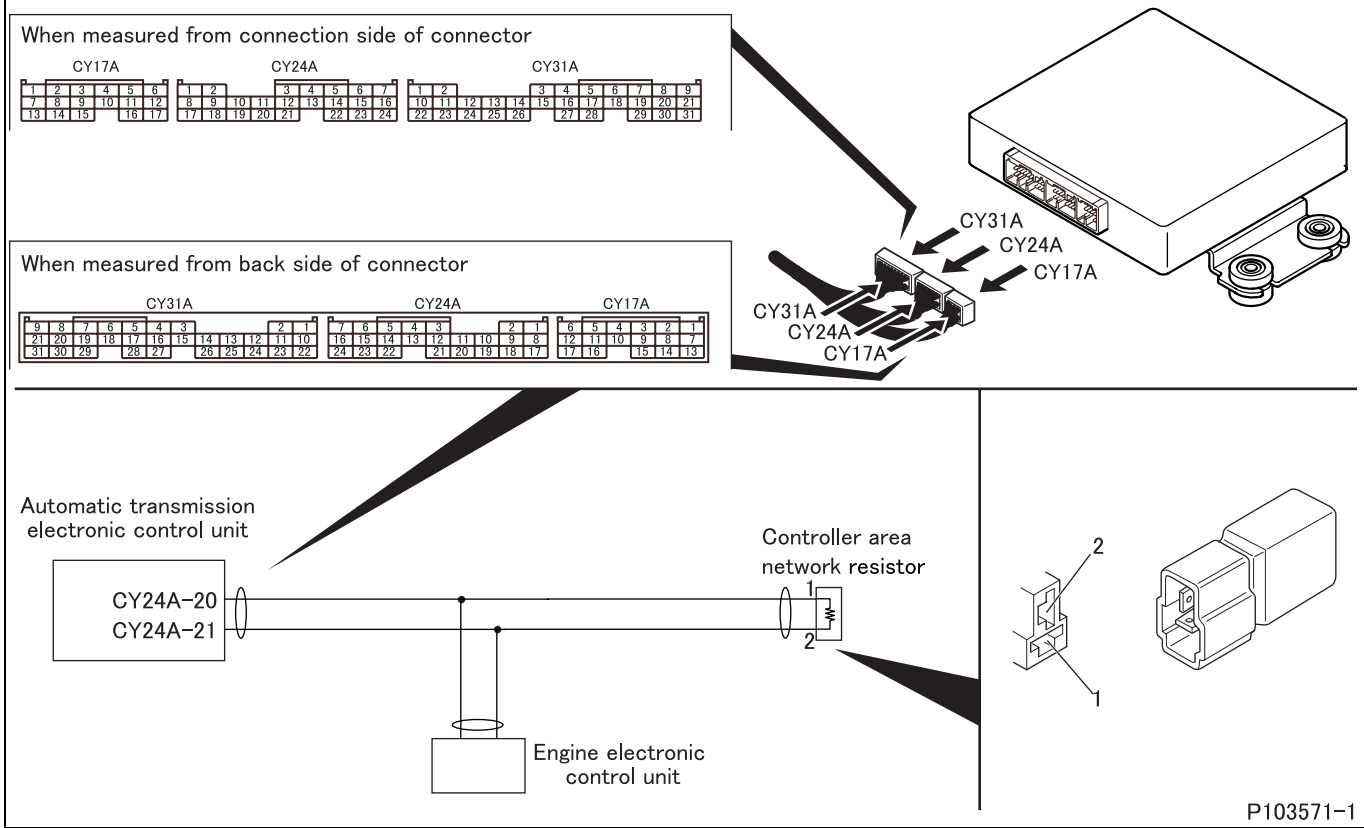
[Probable cause of trouble]

- Open-circuit or short-circuit of harness between electronic control unit and controller area network resistor
- Malfunction of each connector
- Malfunction of controller area network resistor
- Malfunction of electronic control unit

[Recoverability]

- Recovered if signal becomes normal with starter switch in ON position.

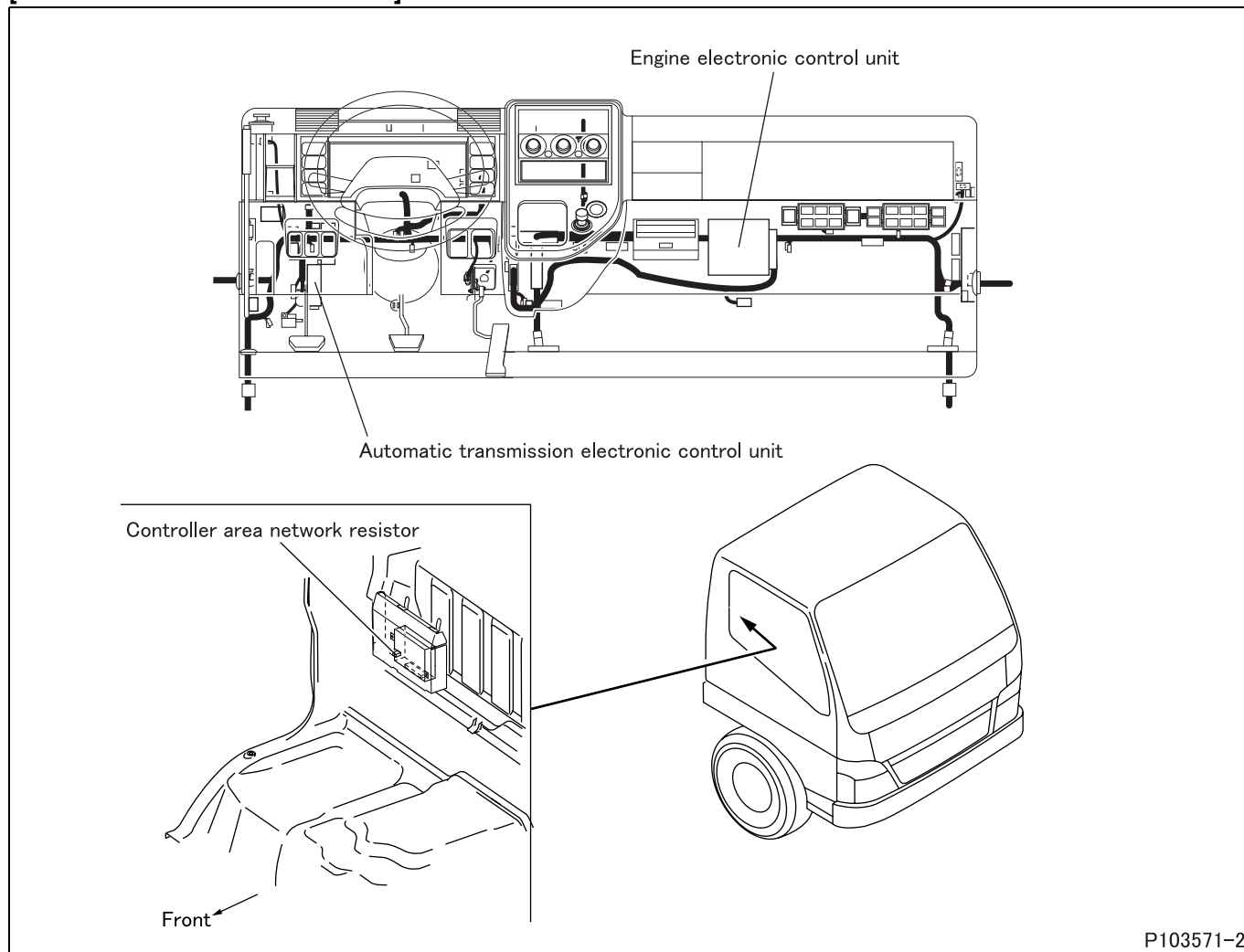
[Electronic Control Unit Connection Diagram]



P103571-1

TROUBLESHOOTING

[Parts Identification and Location]



P103571-2

[Fault diagnosis]

- Perform checks in the sequence of the following steps.

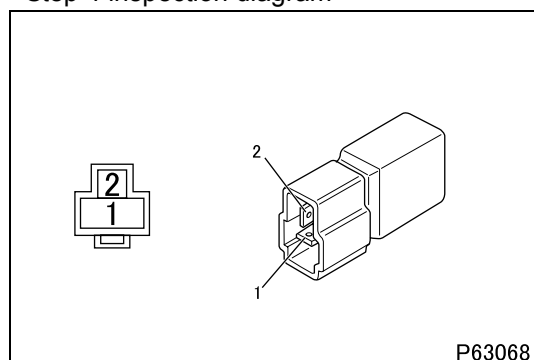
Step 1	Inspection items	Inspection by electronic control unit connector		
	Maintenance item	Measure value of resistance between connector (CY24A) terminal No. 20 and 21.		
	Inspection condition	<ul style="list-style-type: none"> • Disconnect the engine electronic control unit and automatic transmission electronic control unit connectors, and measure from connection side of harness connector. • Starter switch: OFF 		
	Requirements	120 ± 6 Ω		
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).	
		NO	Go to step 2.	

Step 2	Inspection items	Inspection of electronic control unit connector		
	Maintenance item	Inspection of connector		
	Inspection condition	-		
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 		
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 3.	
		NO	Modify connector.	

Step 3	Inspection items	Inspection of controller area network resistor connector	
	Maintenance item	Inspection of connector	
	Inspection condition	-	
	Requirements	<ul style="list-style-type: none"> • Connector is properly connected. • No trace of water entry is found. • No corrosion is found in terminal. • Connection to terminal is appropriate. 	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 4.
NO		Modify connector.	

Step 4	Inspection items	Inspection of controller area network resistor unit	
	Maintenance item	Measure value of resistance between connector terminals No. 1 and 2.	
	Inspection condition	-	
	Requirements	120 ± 6 Ω	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 5.
NO		Replacement of controller area network resistor	

<Step 4 inspection diagram>



Step 5	Inspection items	Inspection of harness between electronic control unit and controller area network resistor (HIGH)	
	Maintenance item	Check circuit between controller area network resistor connector terminal No. 1 and electronic control unit connector (CY24A) terminal No. 20.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 6.
NO		Modify harness.	

Step 6	Inspection items	Inspection of harness between electronic control unit and controller area network resistor (LOW)	
	Maintenance item	Check circuit between controller area network resistor connector terminal No. 2 and electronic control unit connector (CY24A) terminal No. 21.	
	Inspection condition	Disconnect each device from harness and measure from connection side of harness connector.	
	Requirements	There is continuity.	
	Inspection result (Is the judging standard satisfied?)	YES	Go to step 7.
NO		Modify harness.	

TROUBLESHOOTING

Step 7	Inspection items		Inspection by Multi-Use Tester diagnosis code
	Maintenance item		Check for occurrence of the diagnosis code No. P0863 "CAN Communication".
	Inspection condition		Starter switch: ON
	Requirements		No codes occur.
	Inspection result (Is the judging standard satisfied?)	YES	Go to transient fault (See Gr00.).
NO		Perform troubleshooting for the controller area network communication system in the engine electronic control. If the fault is not still removed, replace the automatic transmission electronic control unit.	

4. Multi-Use Tester Service Data

NOTE

- It is possible to see service data and actuator tests simultaneously.

No.	Item	Data	Inspection condition	Requirement
11	IG	■■■. ■V	Stater switch ON	Value matches battery voltage.
12	VEH Speed 1	■■■■. ■MPH	Vehicle being driven	Value corresponds to speedometer indication.
13	A/T Oil Temp (OP)	■■■■. °F	Engine cold	Value corresponds to ambient temperature.
			Engine in process of warming up	Value gradually increases.
15	Engine Speed	■■■■.rpm	Racing (engine running)	Value corresponds to tachometer indication.
16	Turbine Speed	■■■■.rpm	Vehicle stationary with shift lever in D position	0 rpm
			Vehicle driven from abovementioned condition	Value increases.
17	A/T Oil Temp (TC)	■■■■. °F	Engine cold	Value corresponds to ambient temperature.
			Engine in process of warming up	Value gradually increases.
19	P Pos. SW	ON/OFF	Shift lever in P position	ON
			Shift lever in position except P	OFF
20	R Pos. SW	ON/OFF	Shift lever in R position	ON
			Shift lever in position except R	OFF
21	N Pos. SW	ON/OFF	Shift lever in N position	ON
			Shift lever in position except N	OFF
22	D Pos. SW	ON/OFF	Shift lever in D position	ON
			Shift lever in position except D	OFF
24	3 Pos. SW	ON/OFF	Shift lever in 3 position	ON
			Shift lever in position except 3	OFF
25	VEH Speed 2	■■■■. ■MPH	Vehicle being driven	Value corresponds to speedometer indication.
26	Linear Sol Press 1	■■■■. ■lbf/in ²	When shifting (1→2, 3→4, 5→6)	Increase
			When shifting (2→3, 4→5)	Decrease
27	Linear Sol Press 2	■■■■. ■lbf/in ²	When shifting (2→3, 4→5)	Increase
			When shifting (1→2, 3→4, 5→6)	Decrease
28	OD-OFF SW	ON/OFF	Overdrive switch ON	ON
			Overdrive switch OFF	OFF
31	Shift Valve 1	ON/OFF	In 3rd gear and in 4th gear	ON
			In any gear except above	OFF
32	Shift Valve 2	ON/OFF	In 4th gear, in 5th gear and in 6th gear	ON
			In any gear except above	OFF
33	Shift Valve 3	ON/OFF	In 1st gear	ON
			In any gear except above	OFF
34	Linear Sol Press 4	■■■■. ■lbf/in ²	In R range and 1st gear (large throttle opening)	260 lbf/in ²
			In any range/gear except above	100 lbf/in ²

TROUBLESHOOTING

No.	Item	Data	Inspection condition	Requirement
35	Linear Sol Press 3	■■■■. ■lbf/in ²	Shift from N to D	Value changes
			During lockup	100 lbf/in ²
36	Oil Temp Lamp	ON/OFF	Oil temperature abnormal (excessively high)	ON
			Oil temperature normal	OFF
37	Brake SW	ON/OFF	Brake pedal pressed	ON
			Brake pedal not pressed	OFF
38	Exh. Brake SIG	ON/OFF	Decelerating (engine braking in progress)	ON
			Accelerating	OFF
47	ABS SW	ON/OFF	Anti-lock brake system operating	ON
			Anti-lock brake system not operating	OFF
49	Diagnosis SW	ON/OFF	Diagnosis switch fuse removed	ON
			Diagnosis switch fuse fitted	OFF
52	Shift Valve 4	ON/OFF	In R range (large throttle opening)	OFF
			In R range (small throttle opening)	ON
53	Diagnosis Lamp	ON/OFF	Warning lamp illuminated	ON
			Warning lamp not illuminated	OFF
54	Exh Brake Cut SIG	ON/OFF	Decelerate and stop	OFF → ON
			Accelerating	OFF
55	Selector Pos.	P-Range/R-Range/ N-Range/D-Range/ 3-Range/2-Range	Shift lever in P position	P-Range
			Shift lever in R position	R-Range
			Shift lever in N position	N-Range
			Shift lever in D position	D-Range
			Shift lever in 3 position	3-Range
			Shift lever in 2 position	2-Range
56	Gear Pos.	1ST/2ND/3RD/ 4TH/5TH/6TH/N/R	In 1st gear	1ST
			In 2nd gear	2ND
			In 3rd gear	3RD
			In 4th gear	4TH
			In 5th gear	5TH
			In 6th gear	6TH
			In neutral (shift lever in P or N position)	N
			Reversing	R
58	Accel Percent	■■■■%	Accelerator pedal not pressed (throttle fully closed)	0%
			Accelerator pedal pressed (throttle wide open)	100%
61	Oil Press SW1	ON/OFF	In 2nd gear, in 4th gear and in 6th gear	ON
			In 1st gear, in 3rd gear and in 5th gear	OFF
62	Oil Press SW2	ON/OFF	In 1st gear, in 3rd gear and in 5th gear	ON
			In 2nd gear, in 4th gear and in 6th gear	OFF

No.	Item	Data	Inspection condition	Requirement
63	Oil Press SW3	ON/OFF	In 3rd gear and in 4th gear	ON
			In 1st gear, in 2nd gear, in 5th gear and in 6th gear	OFF
64	Oil Press SW4	ON/OFF	In 4th gear, in 5th gear and in 6th gear	ON
			In 1st gear, in 2nd gear and in 3rd gear	OFF
65	Oil Press SW5	ON/OFF	In 1st gear	ON
			In 2nd gear, in 3rd gear, in 4th gear, in 5th gear and in 6th gear	OFF
66	Oil Press SW6	ON/OFF	In 1st gear	ON
			In 2nd gear, in 3rd gear, in 4th gear, 5th gear and in 6th gear	OFF
67	Oil Press SW7	ON/OFF	Shift from N to D	OFF → ON → OFF
68	Oil Press SW8	ON/OFF	In D range	ON
			In P, R, N range	OFF
69	Coolant Temp	■■■■.°F	Engine cold	Value corresponds to ambient temperature.
			Engine in process of warming up	Value gradually increases.
			Engine stopped after warming up	Value gradually decreases.
71	Shift Valve Press 1	HIGH/LOW	In 3rd gear and in 4th gear	HIGH
			In any gear except above	LOW
72	Shift Valve Press 2	HIGH/LOW	In 4th gear, in 5th gear and 6th gear	HIGH
			In any gear except above	LOW
73	Shift Valve Press 3	HIGH/LOW	In 1 gear	HIGH
			In any gear except above	LOW
74	Shift Valve Press 4	HIGH/LOW	In R range (large throttle opening)	HIGH
			In R range (small throttle opening)	LOW
78	2 Pos. SW	ON/OFF	Shift lever in 2 position	ON
			Shift lever in position except 2	OFF

TROUBLESHOOTING

5. Possible Causes of Symptoms

Symptoms	Abnormal movement						Shift abnormality					
	Vehicle can be driven in N range.	Transmission stays in P range when lever is moved out of P position.	Vehicle moves with lever in P position.	Vehicle does not move in any range.	Vehicle does not move in R range.	Vehicle does not move in D, 3, and 2 ranges.	Lockup point is excessively high or low.	Lockup does not occur.	Engine braking does not occur in 3 range.	Engine braking does not occur in 2 range.	Kickdown does not occur.	Shift point is excessively high or low.
Possible causes												
Abnormality in automatic transmission fluid level and condition				○	○	○						
Abnormality in automatic transmission control	○	○	○	○		○						
Abnormality in inhibitor switch									○	○		
Abnormality in throttle opening signal							○	○	○	○	○	○
Abnormality in turbine speed sensor								○				
Abnormality in output speed sensor							○	○	○	○	○	○
Abnormality in engine speed signal								○				
Abnormality in linear solenoid 1											○	
Abnormality in linear solenoid 2											○	
Abnormality in linear solenoid 3				○	○	○	○	○				
Abnormality in shift solenoid 1											○	
Abnormality in shift solenoid 2				○	○	○					○	
Abnormality in shift solenoid 3								○			○	
Abnormality in automatic transmission electronic control unit							○	○	○	○	○	○
Abnormality in torque converter				○	○	○		○				
Abnormality in automatic transmission-proper	○	○	○	○	○	○	○	○	○	○	○	

Symptoms	Shift abnormality													
	Downshifts from 6th gear to 5th gear do not take place.	Downshifts from 5th gear to 4th gear do not take place.	Downshifts from 4th gear to 3rd gear do not take place.	Downshifts from 3rd gear to 2nd gear do not take place.	Downshifts from 2nd gear to 1st gear do not take place.	Upshifts from 5th gear to 6th gear do not take place.	Upshifts from 4th gear to 5th gear do not take place.	Upshifts from 3rd gear to 4th gear do not take place.	Upshifts from 2nd gear to 3rd gear do not take place.	Upshifts from 1st gear to 2nd gear do not take place.	Engine revs during shifts from 2nd gear to 3rd gear.	Engine revs during shifts from 3rd gear to 4th gear.	Engine revs during shifts from 4th gear to 5th gear.	Engine revs during shifts from 5th gear to 6th gear.
Possible causes														
Abnormality in inhibitor switch									○	○				
Abnormality in throttle opening signal											○	○	○	○
Abnormality in vehicle speed sensor	○	○	○	○	○	○	○	○	○	○				
Abnormality in engine speed sensor											○	○	○	○
Abnormality in linear solenoid 1	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Abnormality in linear solenoid 2	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Abnormality in shift solenoid 1	○	○	○	○	○	○	○	○	○	○				
Abnormality in shift solenoid 2	○	○	○	○	○	○	○	○	○	○				
Abnormality in shift solenoid 3	○	○	○	○	○	○	○	○	○	○				
Abnormality in oil pressure switch 1	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Abnormality in oil pressure switch 2	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Abnormality in oil pressure switch 3	○	○	○	○	○	○	○	○	○	○				
Abnormality in oil pressure switch 4	○	○	○	○	○	○	○	○	○	○				
Abnormality in oil pressure switch 5	○	○	○	○	○	○	○	○	○	○				
Abnormality in oil pressure switch 6	○	○	○	○	○	○	○	○	○	○				
Abnormality in overdrive OFF switch						○	○							
Abnormality in automatic transmission electronic control unit	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Abnormality in automatic transmission-proper	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TROUBLESHOOTING

Symptoms	Excessive shift shock													
	During lockup	During shifts from 6th gear to 5th gear	During shifts from 5th gear to 4th gear	During shifts from 4th gear to 3rd gear	During shifts from 3rd gear to 2nd gear	During shifts from 2nd gear to 1st gear	During shifts from 5th gear to 6th gear	During shifts from 4th gear to 5th gear	During shifts from 3rd gear to 4th gear	During shifts from 2nd gear to 3rd gear	During shifts from 1st gear to 2nd gear	During shifts from N range to R range and from N range to D range	During shifts from N range to R range	During shifts from N range to D range
Possible causes														
Abnormality in throttle opening signal	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Abnormality in turbine speed sensor	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Abnormality in engine speed sensor	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Abnormality in linear solenoid 1		○	○	○	○	○	○	○	○	○	○			
Abnormality in linear solenoid 2		○	○	○	○		○	○	○					
Abnormality in linear solenoid 3	○											○	○	○
Abnormality in oil pressure switch 1											○			
Abnormality in automatic transmission electronic control unit	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Abnormality in torque converter	○													
Abnormality in automatic transmission-proper	○	○	○	○	○	○	○	○	○	○	○	○	○	○

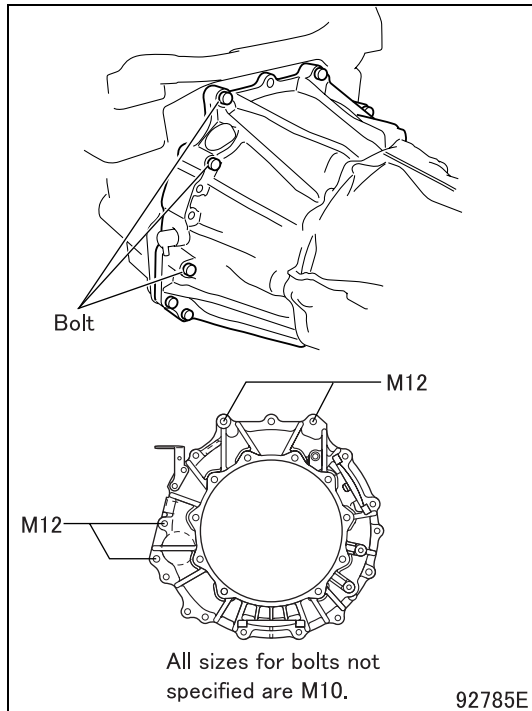
Symptoms	Clutch slippage, judder							Other				
	In 6th gear	In 5th gear	In 4th gear	In 3rd gear	In 2nd gear	In 1st gear	In R range	During forward movement and during reverse movement	Transmission overheats; oil emerges from breather.	Engine stalls when R, D, or 3, 2 range is selected or when vehicle is stationary.	Engine can be started in range except N and P.	Engine cannot be started in N and P ranges.
Possible causes												
Abnormality in automatic transmission fluid level and condition									○			
Abnormality in control linkage											○	○
Abnormality in inhibitor switch											○	○
Abnormality in throttle opening signal	○	○	○	○	○	○	○	○				
Abnormality in turbine speed sensor	○	○	○	○	○	○	○	○				
Abnormality in linear solenoid 1	○	○	○	○	○							
Abnormality in linear solenoid 2	○	○	○	○	○		○	○				
Abnormality in linear solenoid 3						○	○	○	○			
Abnormality in PL linear solenoid	○	○	○	○	○	○	○	○				
Abnormality in shift solenoid 3									○			
Abnormality in gain change solenoid	○	○	○	○	○	○	○	○				
Abnormality in automatic transmission electronic control unit	○	○	○	○	○	○	○	○	○			
Abnormality in torque converter									○	○		
Abnormality in automatic transmission-proper	○	○	○	○	○	○	○	○	○	○		

ON-VEHICLE INSPECTION AND ADJUSTMENT

1. Inspection of Area Around Automatic Transmission

Tightening torque (Unit: N·m {ft.lbs, kgf·m})

Mark	Parts to be tightened	Tightening torque	Remarks
-	Bolt (automatic transmission mounting)	47 {35, 4.8}	M10
		82 {60, 8.4}	M12



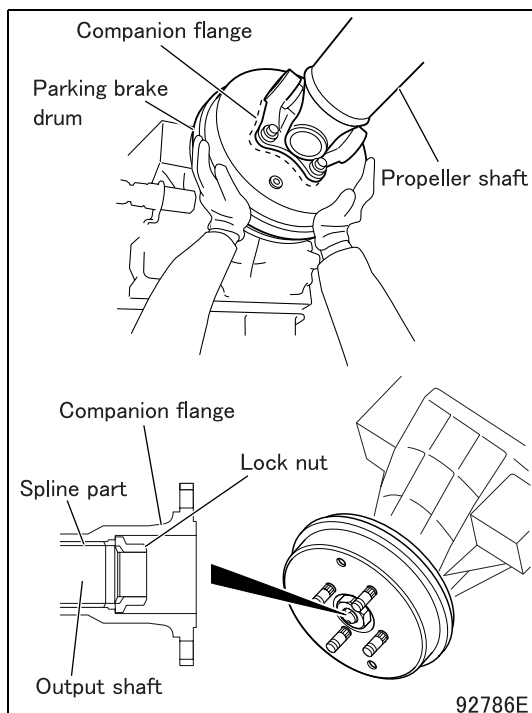
1.1 Inspection of oil leakage

- Check the area around the automatic transmission for deposits of oil leaking from the engine and elsewhere.
- Oil deposits can loosen automatic transmission mounting bolts. Repair oil leak(s), then remove the automatic transmission and clean the mounting surface and neighboring area using brake cleaner or the like.

1.2 Inspection of looseness in bolts

- Check the automatic transmission mounting bolts for looseness.
- Retighten any loose bolt to the specified torque.

2. Inspection of Play in Companion Flange and Looseness in Lock Nut



- Move the parking brake drum or companion flange in axial and vertical directions to check for excessive play between the companion flange and output shaft.
- If excessive play is detected, remove the propeller shaft, then check the lock nut for looseness and the splines on companion flange and output shaft for abnormalities.
- If found loose, tighten the lock nut to the specified torque, then crimp it at two places. (See PARKING BRAKE.)
- If the companion flange is found defective, replace the part. (See "PARKING BRAKE" section.)
- If the companion flange is not found defective, the output shaft may be defective, contact the Aisin Service Station for repair.

3. Stall Test

Service standards

Mark	Maintenance item	Standard value	Limit	Remedy
-	Stall speed	2000 ± 150 rpm	-	Contact an Aisin Service Station for repair

3.1 Purpose of stall test

- A stall test is performed to check for slipping of the frictional elements in the transmission and of the one-way clutch in the torque converter. It gives an indication of the torque converter's operating condition and of the engine's overall performance.

3.2 Test procedure

- Before performing a stall test, inspect the engine coolant, engine oil, and automatic transmission fluid levels. Then, allow the engine and transmission to warm up.
- To prevent the vehicle from moving, apply the parking brake and place chocks before and after the front and rear wheels. Also, hold down the brake pedal firmly when pressing the accelerator pedal during the test.
- Start the engine and move the range selector lever to the D position.
- Gradually press the accelerator pedal until it reaches the end of its stroke. When the engine speed stabilizes, promptly read the engine speed (this is the stall speed) and release the accelerator pedal.

CAUTION

- **The period during which the accelerator pedal is fully pressed must be shorter than 5 seconds. Complete the measurement within this period.**
- **If the engine speed does not stabilize (if the engine speed continues to gradually increase or the engine suddenly revs), immediately stop the test.**

- Move the range selector lever to the N position, then allow the engine to cool down by running it at 1200 rpm for one minutes or longer.
- Perform the test procedure similarly for the R range.

3.3 Evaluation of test results

Test result	Main causes
Stall speed is lower than standard value in each range.	Engine output is insufficient. (See Gr11.)
	One-way clutch in torque converter is malfunctioning.
Stall speed is higher than standard value in D range.	Clutch No. 1 is slipping.
	One-way clutch is malfunctioning.
	Line pressure is too low.
Stall speed is higher than standard value in R range.	Clutch No. 3 is slipping.
	Brake No. 2 is slipping.
	Line pressure is too low.

- If abnormalities are found in the automatic transmission unit itself, contact an Aisin Service Station for repair.

ON-VEHICLE INSPECTION AND ADJUSTMENT

4. Time Lag Test

Service standards

Mark	Maintenance item	Standard value	Limit	Remedy	
-	Time lag	With shift from N to D	0.7 sec	-	Contact an Aisin Service Station for repair
		With shift from N to R	1.2 sec		

4.1 Purpose of time lag test

- A time lag test is performed to check the respective conditions of the one-way clutch, clutch No. 1, clutch No. 3, and brake No. 2.

4.2 Test procedure

- Raise the oil temperature to 50 to 80°C {120 to 175°F} (the range that corresponds to normal vehicle operation).
- Apply chocks to the front and rear wheels from both sides and apply the parking brake to hold the vehicle in place.
- Start the engine and check the idling speed.
- While stepping on the brake pedal, move the range selector lever from the N position to the D position. Use a stopwatch to measure the time (time lag) that elapses until you feel shock.
- In a similar manner, measure the time lag for a shift from the N range to the R range.

4.3 Evaluation of results

Test result	Conceivable cause
Time lag with shift from N to D is too long.	Line pressure is too low.
	Clutch No. 1 is slipping.
	One-way clutch is malfunctioning.
Time lag with shift from N to R is too long.	Line pressure is too low.
	Clutch No. 3 is slipping.
	Brake No. 2 is slipping.

- If abnormalities are found in the automatic transmission unit itself, contact an Aisin Service Station for repair.

5. Line Pressure Test

Service standards

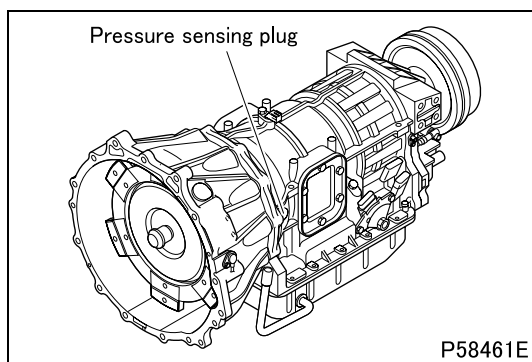
Mark	Maintenance item		Standard value	Limit	Remedy	
-	Line pressure	At idling speed	D range	1000 to 2010 kPa {145 to 290 psi, 10.2 to 20 kgf/cm ² }	-	Contact an Aisin Service Station for repair
			R range			
		At stalling speed	D range	1660 to 2010 kPa {240 to 290 psi, 17 to 20 kgf/cm ² }		
			R range			

Tightening torque (Unit: N·m {ft.lbs, kgf·m})

Mark	Parts to be tightened	Tightening torque	Remarks
-	Pressure sensing plug	27 {20, 2.8}	1/2-20 UNF

5.1 Purpose of line pressure test

- A line pressure test is performed to check the performance of the oil pump, to check the functionality of the control valve, and to check parts for oil leakage.



5.2 Test procedure

- Apply chocks to the front and rear wheels from both sides and apply the parking brake to hold the vehicle in place.
- The line pressure test should be performed by two people. One person moves away from the vehicle and checks the condition of the tires and wheel chocks. The other person performs the test.
- Remove the pressure sensing plug and fit the oil pressure gauge.
- Start the engine. Allow it to warm up until the automatic transmission fluid reaches a temperature of 50 to 80°C {120 to 175°F}. Check the idling speed.
- Press the brake pedal firmly with your left foot. While holding down the brake pedal, shift to the D range. Then, measure the oil pressure while the engine is idling.
- Fully press the accelerator pedal. Quickly measure the oil pressure at the stall speed.

CAUTION

- If the engine speed does not reach the stall level and the rear wheels start to turn, ease off the accelerator pedal and stop the test.

ON-VEHICLE INSPECTION AND ADJUSTMENT

- Take a measurement in a similar manner for the R range.
- After taking the measurements, fit the pressure sensing plug and tighten it to the specified torque.
- If the measured value does not conform to the standard value, locate the possible cause by referring to the following table and inspect.

5.3 Locating possible causes

Test result	Conceivable cause
Measured value is higher than standard value in all ranges.	Regulator valve is sticking.
Measured value is lower than standard value in all ranges.	Regulator valve is sticking.
	Oil pump is worn.
Measured value is lower than standard value in D range only.	Oil leak exists in D range system.
	Clutch No. 1 is abnormal.
Measured value is lower than standard value in R range only.	Oil leak exists in R range system.
	Clutch No. 3 is abnormal.
	Brake No. 2 is abnormal.

- If abnormalities are found in the automatic transmission unit itself, contact an Aisin Service Station for repair.

6. Road Test

Service standards (Unit: km/h {mph})

Location	Maintenance item		Standard value	Limit	Remedy	
-	Vehicle speeds during shifts (D range)	Half open (Accelerator pedal position: 4/8)	1st → 2nd	8 to 10 {4.97 to 6.21}	-	Contact an Aisin Service Station for repair
			2nd → 3rd	23 to 25 {14.3 to 15.5}	-	
			3rd → 4th	36 to 38 {22.4 to 23.6}	-	
			4th → 5th	47 to 49 {29.2 to 30.4}	-	
			5th → 6th	59 to 61 {36.7 to 37.9}	-	
		Fully open (Accelerator pedal position: 8/8)	1st → 2nd	15 to 17 {9.32 to 10.6}	-	
			2nd → 3rd	34 to 36 {21.1 to 22.4}	-	
			3rd → 4th	53 to 55 {32.9 to 34.2}	-	
			4th → 5th	73 to 75 {45.4 to 46.6}	-	
			5th → 6th	95 to 96 {59.0 to 59.7}	-	
		Fully closed (Accelerator pedal position: 0/8)	1st → 2nd	8 to 10 {4.97 to 6.21}	-	
			2nd → 3rd	18 to 20 {11.2 to 12.4}	-	
			3rd → 4th	28 to 30 {17.4 to 18.6}	-	
			4th → 5th	39 to 41 {24.2 to 25.5}	-	
			5th → 6th	55 to 57 {34.2 to 35.4}	-	
-	Vehicle speeds during lockup	Half open (Accelerator pedal position: 4/8)	2nd gear ON	15 to 17 {9.32 to 10.6}	-	Contact an Aisin Service Station for repair
			3rd gear ON	23 to 25 {14.3 to 15.5}	-	
			4th gear ON	33 to 35 {20.5 to 21.7}	-	
			5th gear ON	40 to 42 {24.9 to 26.1}	-	
			6th gear ON	49 to 51 {30.4 to 31.7}	-	
		Fully open (Accelerator pedal position: 8/8)	2nd gear ON	22 to 24 {13.7 to 14.9}	-	
			3rd gear ON	34 to 36 {21.1 to 22.4}	-	
			4th gear ON	46 to 48 {28.6 to 29.8}	-	
			5th gear ON	60 to 62 {37.3 to 38.5}	-	
			6th gear ON	73 to 75 {45.4 to 46.6}	-	
		Fully closed (Accelerator pedal position: 0/8)	2nd gear OFF	14 to 16 {8.70 to 9.94}	-	
			3rd gear OFF	21 to 23 {13.0 to 14.3}	-	
			4th gear OFF	28 to 30 {17.4 to 18.6}	-	
			5th gear OFF	37 to 39 {23.0 to 24.2}	-	
			6th gear OFF	45 to 47 {28.0 to 29.2}	-	

6.1 Test procedure

- Before performing a road test, check the fluid level and automatic transmission fluid condition and make sure the selector cable and accelerator control cable are correctly adjusted.
- During the road test, operate the automatic transmission in each range. Check the slip feel and other changes during shifts.
- Check whether the shift feel gets firmer and softer.
- Check the shift points where upshifts and downshifts occur.
- When a Multi-Use Tester is used, check the lockup points according to Multi-Use Tester Service Data No. 35 "Linear Sol Press 3."
- All data correspond to a differential ratio of 5.285 and to a tire radius of 0.387 m (215/85R16).
- If the differential ratio or tire radius is different, the speeds will be concomitantly slower or higher. Adjust the values in the table accordingly.
- If measurements deviate from specified standard values, contact an Aisin Service Station for repair.

ON-VEHICLE INSPECTION AND ADJUSTMENT

7. Inspection of Automatic Transmission Fluid

Lubricant and/or sealant

Mark	Points of application	Specified lubricant and/or sealant	Quantity
-	Automatic transmission	Mobil ATF3309 or equivalent	-

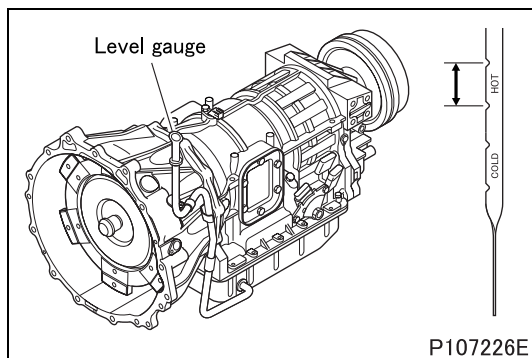
- If the automatic transmission fluid level is too low, the pump can draw in air together with the automatic transmission fluid, and the resulting air bubbles can make the automatic transmission fluid spongy, resulting in a pressure reduction that causes the clutches in the automatic transmission to slip.
- If the automatic transmission fluid level is too high owing to incorrect replenishment, rotating parts can agitate it, resulting in air bubbles that, as with an excessively low automatic transmission fluid level, make the automatic transmission fluid spongy, resulting in a pressure reduction that causes the clutches in the automatic transmission to slip.
- Whether the automatic transmission fluid level is too low or too high, air bubbles lead to overheating and to oxidation of and varnish formation by the oil, thereby impeding proper operation of the valves and clutches.
- Air bubbles can also cause foaming such that automatic transmission fluid emerges from the vent hole and filler tube of the automatic transmission. This phenomenon can be mistaken for automatic transmission fluid leakage.
- To prevent the above mentioned problems, you must check the automatic transmission fluid level accurately in accordance with the following instructions.

7.1 Inspection of automatic transmission fluid condition

- If the automatic transmission fluid smells burned and contains particles of metal and friction material, a complete overhaul of the automatic transmission is necessary. Carefully inspect the automatic transmission fluid that adheres to the level gauge. If you have any doubts about the condition of the automatic transmission fluid, take a sample and perform another check.

7.2 Inspection of automatic transmission fluid level

- Drive the vehicle until the automatic transmission fluid is adequately warm (70 to 80°C {160 to 175°F}).
- Stop the vehicle on a level surface, securely apply the parking brake, and apply chocks to the wheels.
- With the engine idling, slowly move the range selector lever from the P position to each position through L then back to the P position to ensure that the hydraulic circuit is filled with automatic transmission fluid.
- Remove all dirt from the top of the filler tube.
- With the engine still idling, withdraw the level gauge, wipe the ATF off it, and re-insert it. Then, withdraw the level gauge again and check the automatic transmission fluid level.
- The automatic transmission fluid level is acceptable if the level on the level gauge is within the HOT range.



CAUTION ⚠

- Be sure to inspect the automatic transmission fluid level with the vehicle parked on a level surface.
- Be sure to inspect the automatic transmission fluid level with the engine idling and with the N range selected. If the engine was not running during the inspection, the automatic transmission fluid level would look higher.
- Since the engine is running, you must pay attention to safety. Be careful not to get trapped or burned.
- Keep the engine idling until you have finished adjusting the automatic transmission fluid level. Do not increase the engine speed.

- If the automatic transmission fluid level is too low, add specified automatic transmission fluid through the filler tube until it reaches the specified part of the level gauge.

CAUTION ⚠

- Never use the automatic transmission fluid except the specified one.

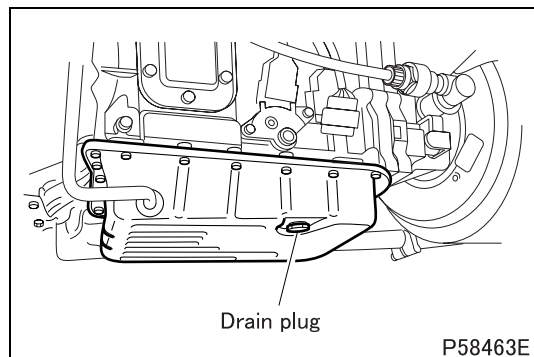
8. Replacement of Automatic Transmission Fluid

Tightening torque (Unit: N·m {ft.lbs, kgf·m})

Mark	Parts to be tightened	Tightening torque	Remarks
–	Drain plug	27 {20, 2.8}	–

Lubricant and/or sealant

Mark	Points of application		Specified lubricant and/or sealant	Quantity
–	Automatic transmission	Replaced with oil pan removed	Mobil ATF3309 or equivalent	Approx. 8.4 L {8.9 qts}
		Replaced with drain plug removed		Approx. 6.4 L {6.8 qts}



8.1 Draining

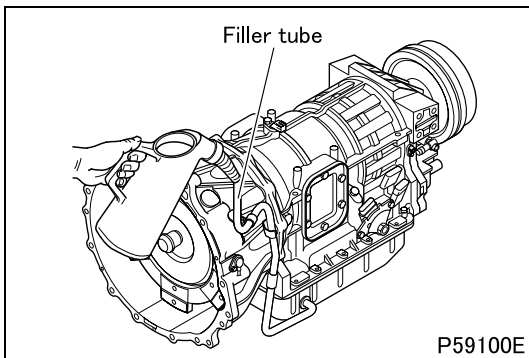
- Place a container under the transmission oil pan. Remove the drain plug near the front of the oil pan and allow the automatic transmission fluid to drain out.
- At the same time, check whether the drained automatic transmission fluid is dirty and whether it contains metallic particles. Note that the automatic transmission fluid will drain out more quickly if you warm it by allowing the engine to warm up.

ON-VEHICLE INSPECTION AND ADJUSTMENT

CAUTION

- The automatic transmission fluid is extremely hot immediately after driving. To avoid the risk of being scalded, wait for the automatic transmission fluid to cool to a safe temperature before starting work.
 - It is not possible to drain out the automatic transmission fluid that is in the hydraulic circuit, torque converter, and oil cooler.
-

- At this point, approximately 2 L {2.1 qts} of automatic transmission fluid remains in the oil pan. If you wish to replace this automatic transmission fluid, remove the oil pan.



8.2 Filling

- Make ready the new automatic transmission fluid.
- Fit the oil pan drain plug and gasket in their original conditions.
- Supply new automatic transmission fluid through the filler tube in a quantity equivalent to that of the automatic transmission fluid that drained out.

CAUTION

- **Never use the automatic transmission fluid except the specified one.**
 - **Be careful not to allow dirt and other foreign matter to enter.**
-

- Place the range selector lever in the P position. Start the engine and allow it to idle for at least 2 minutes.
- Place the range selector lever in each other position then return it to the P position.

CAUTION

- **Keep the engine idling. Do not rev the engine.**
-

- Check the automatic transmission fluid level.

8.3 Fluid leakage

- Check the torque converter housing for fluid leakage. If fluid leakage is found, locate the origin of the leakage.
 - If leakage is found on the torque converter or the surrounding area, it is not necessarily automatic transmission fluid but can possibly be leaked engine oil.
 - Automatic transmission fluid is red in color and therefore is distinguishable from engine oil.
 - If the fluid that is leaking is automatic transmission fluid, check carefully whether it is from the torque converter, or from the transmission (through the oil seal of the oil pump housing or from between the oil pump housing and transmission case).

9. Dealer Adjust

- What is Dealer Adjust?

Individual automatic transmissions have different characteristics from each other. By carrying out Adjust Steps 1 to 4, electronic control unit will learn specific characteristics of the automatic transmission that it controls and thereby compensate for improved gear shift quality.

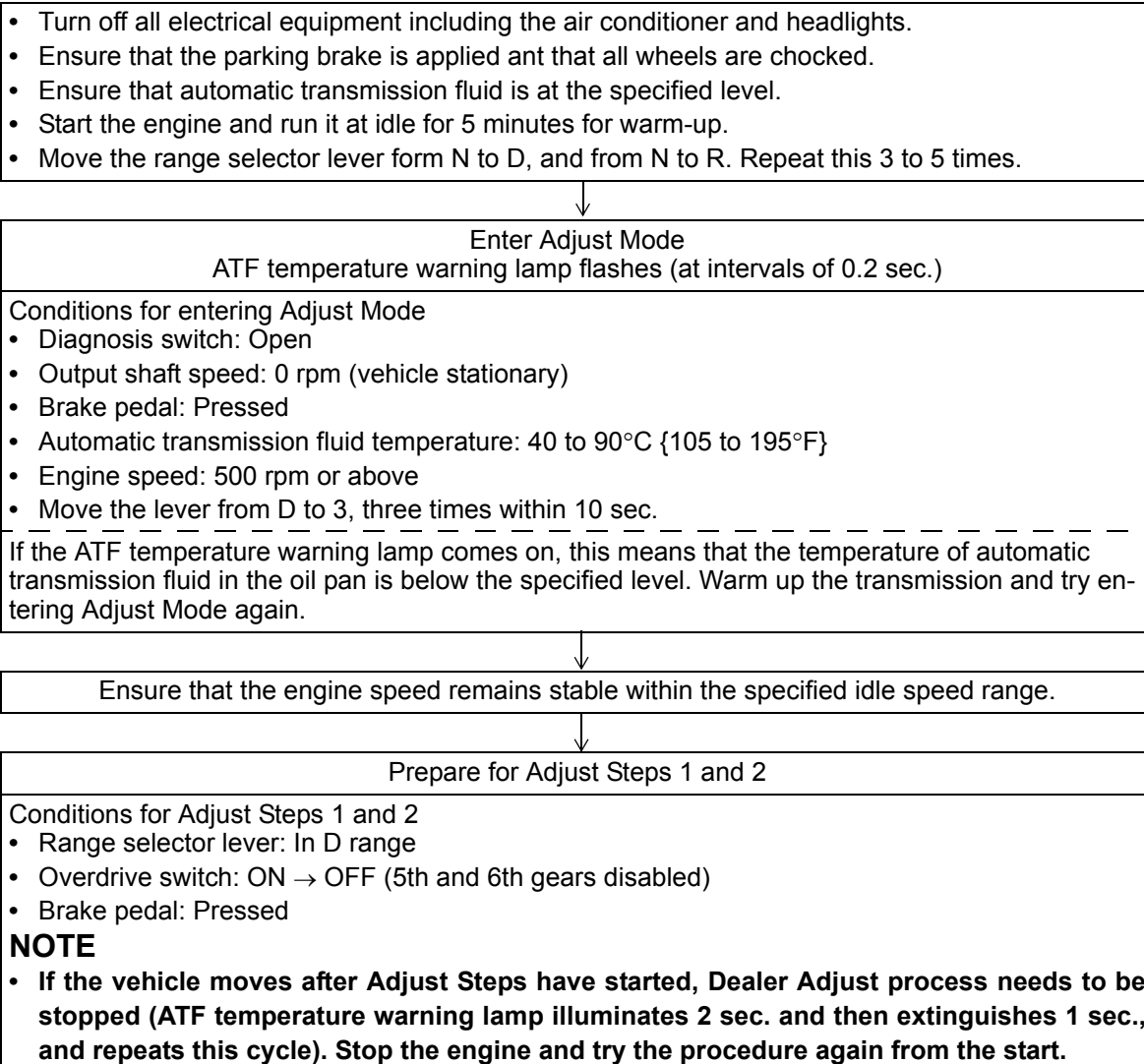
Dealer Adjust must be performed whenever:

- The automatic transmission has been replaced.
- The electronic control unit has been replaced.

NOTE

- **If the dealer adjustment has not performed, ATF temperature warning lamp stays on.**
- **During Dealer Adjust process, the clutches will be activated, which may generate shock loads and/or clutch noise.**
- **To ensure safety, chock all of the front and rear wheels and firmly apply the parking brake.**
- **When the engine speed is set at 1000 to 1500 rpm during Dealer Adjust, firmly press the brake pedal with your left foot.**

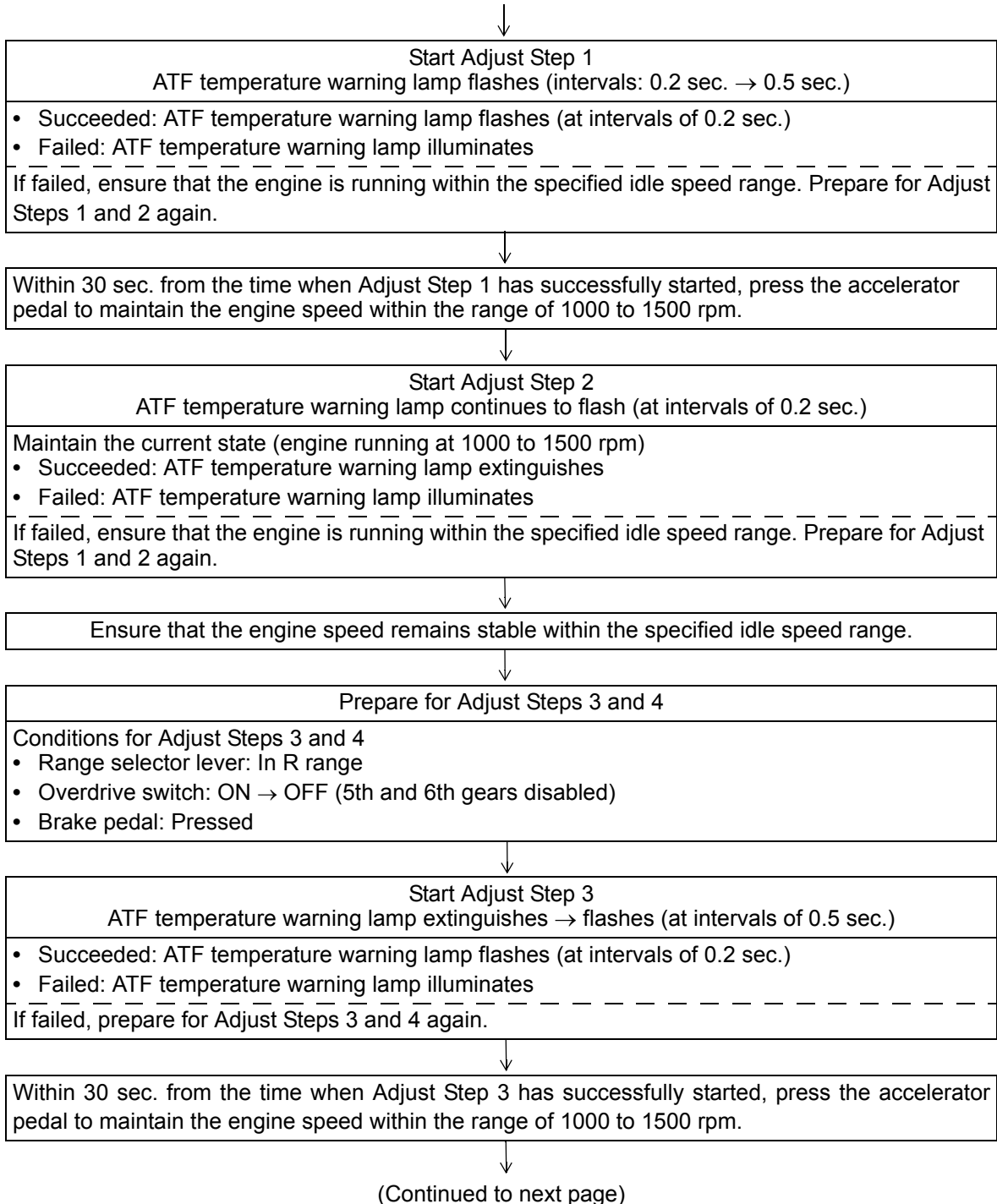
9.1 Dealer Adjust procedure



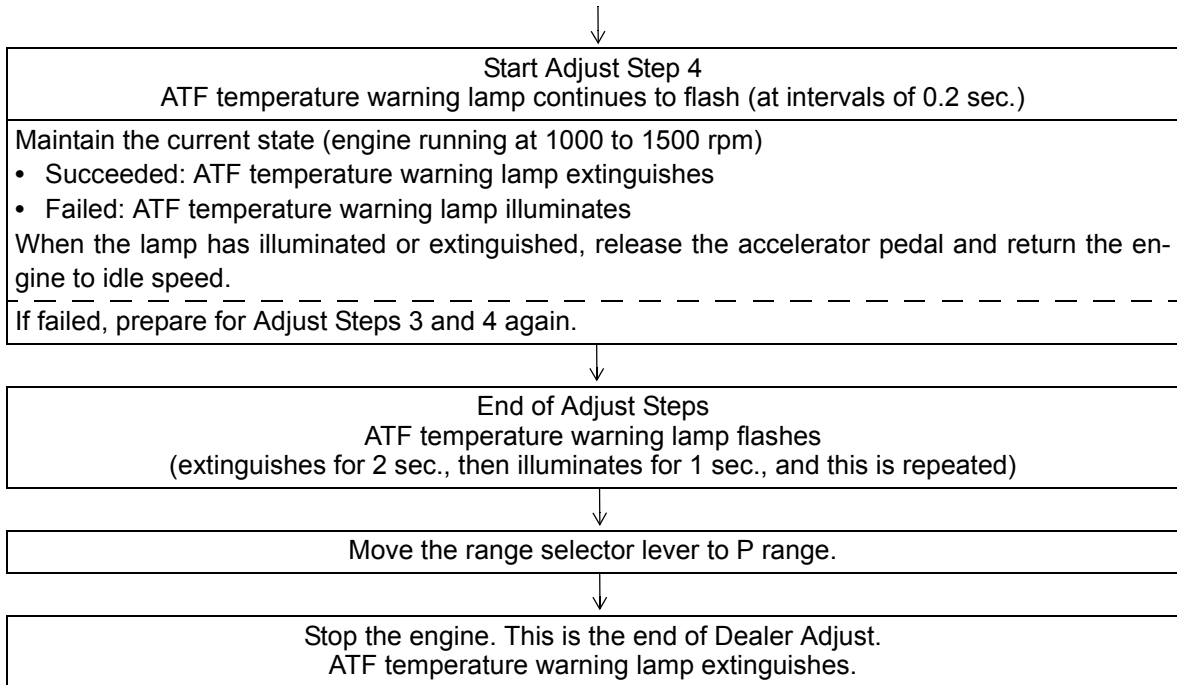
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ON-VEHICLE INSPECTION AND ADJUSTMENT

(Continued from previous page)

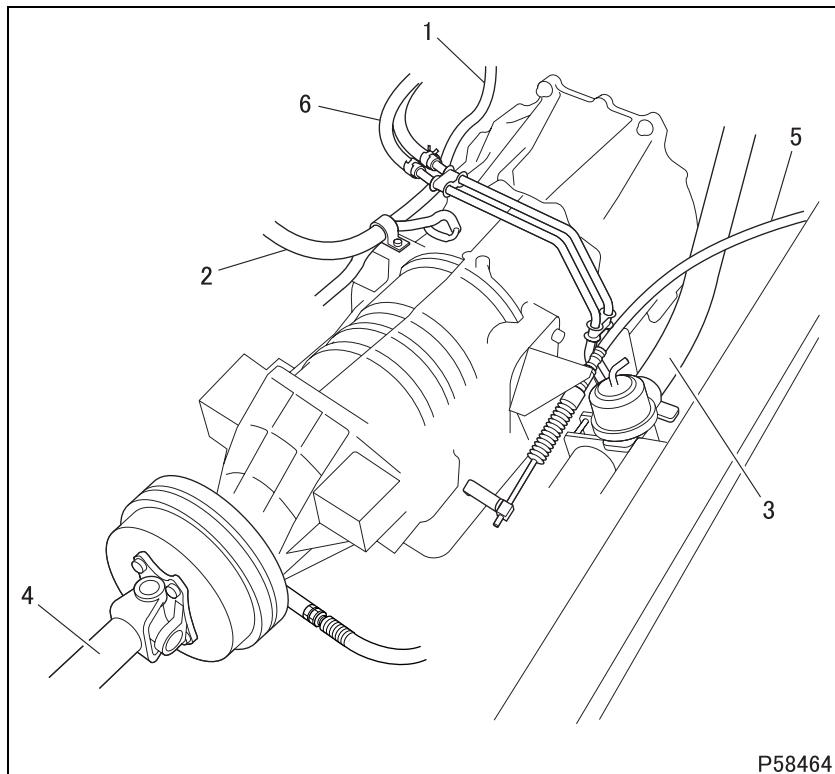


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REMOVAL AND INSTALLATION OF AUTOMATIC TRANSMISSION

Preparatory Work



● Removal sequence

- 1 Filler tube
- 2 Electrical harness
- 3 Exhaust pipe
- 4 Propeller shaft (See Gr25.)
- 5 Selector cable (See later section.)
- 6 Oil cooler hose (See later section.)

● Installation sequence

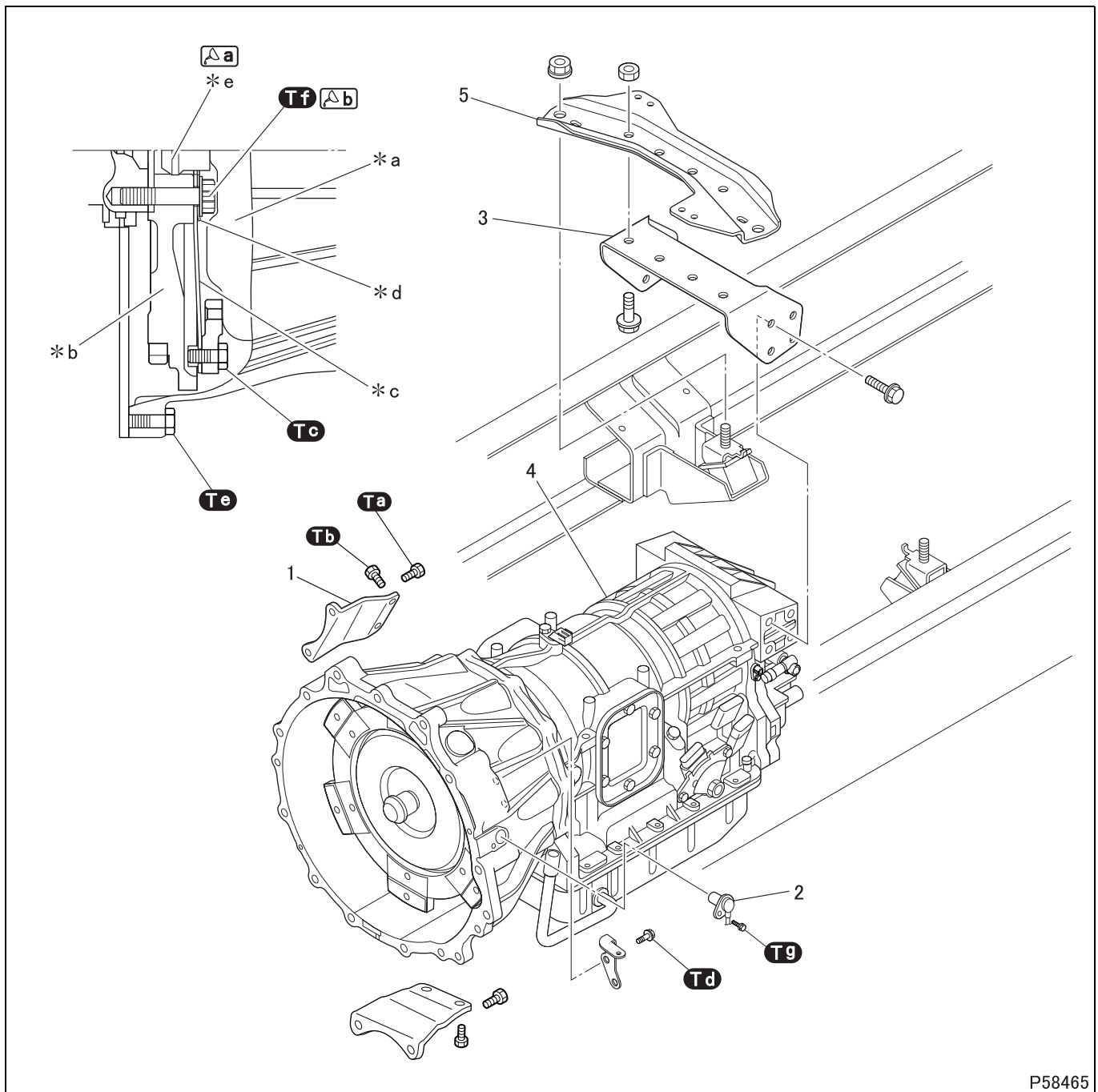
Perform installation by following the removal sequence in reverse.

CAUTION

- If the automatic transmission fluid contains a large amount of impurities when you replace the automatic transmission because of an abnormality in the main body of the automatic transmission, flush the oil cooler circuit.

M E M O

REMOVAL AND INSTALLATION OF AUTOMATIC TRANSMISSION



P58465

● Removal sequence

- 1 Dust cover
- 2 Engine speed sensor (See Gr13EA.)
- 3 Mounting bracket
- 4 Automatic transmission
- 5 Mounting support

- *a: Torque converter
- *b: Flywheel
- *c: Drive plate
- *d: Wear plate
- *e: Pilot



● Installation sequence

Follow the removal sequence in reverse.

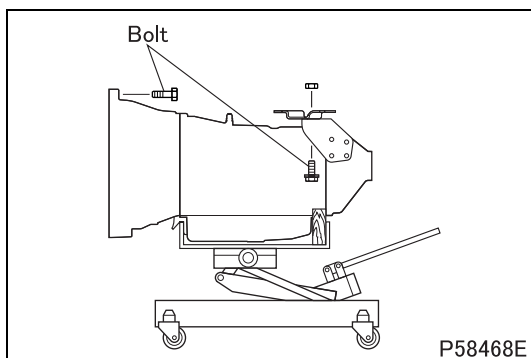
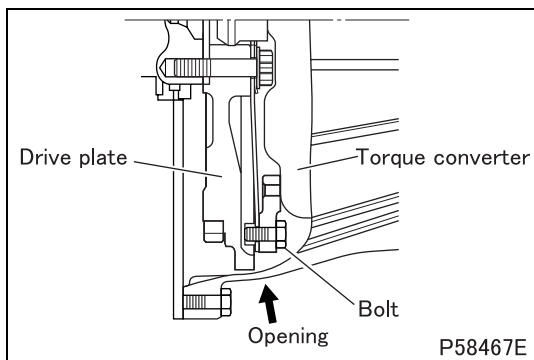
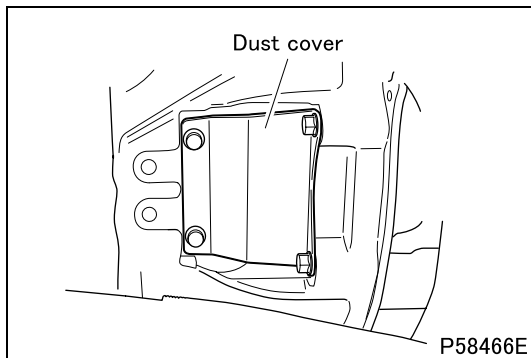
Tightening torque (Unit: N·m {ft.lbs, kgf·m})

Mark	Parts to be tightened	Tightening torque	Remarks
Ta	Bolt (dust cover and automatic transmission mounting)	47 {35, 4.8}	–
Tb	Bolt (dust cover mounting)	13 {9.6, 1.3}	–
Tc	Bolt (flywheel and drive plate mounting)	50 {37, 5.1}	–
Td	Bolt (bracket mounting)	40 {30, 4.1}	–
Te	Bolt (automatic transmission mounting)	82 {60, 8.4}	M12
		47 {35, 4.8}	M10
Tf	Bolt (drive plate mounting)	118 {87, 12} + 90°	Wet
Tg	Bolt (engine speed sensor mounting)	8 {5.9, 0.82}	–


Lubricant and/or sealant

Mark	Points of application	Specified lubricant and/or sealant	Quantity
 a	Pilot of torque converter	Molybdenum disulfide grease [NLGI No. 2 (Li soap)]	As required
 b	Bolt threads	Engine oil	As required

◆ Removal procedure ◆

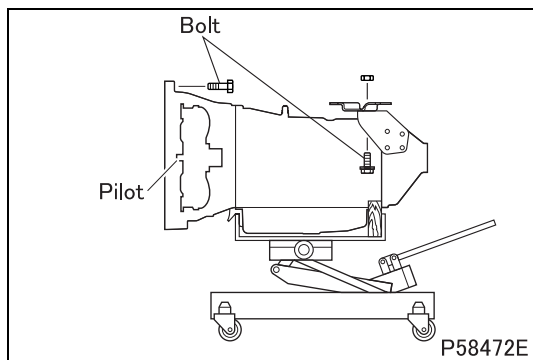
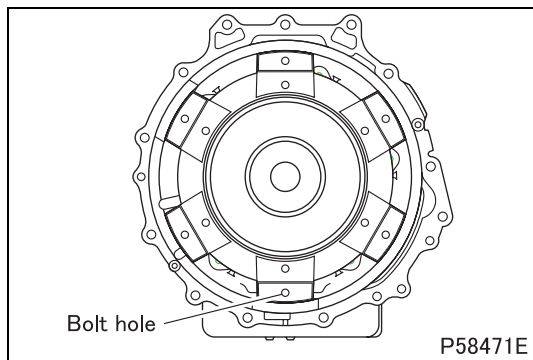
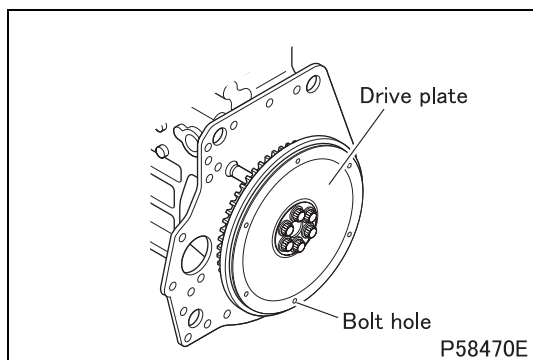
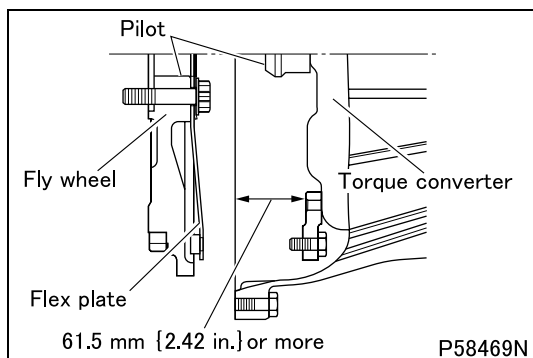


■ Removal: Automatic transmission

- Remove the dust cover.
 - Crank the engine to bring one of the bolts to the opening.
 - Remove the bolt that is accessible through the opening. Also remove all of the rest of the six bolts, cranking the engine to bring each one to the opening in turn.
 - Support the automatic transmission with a jack and remove each of the bolts.
 - Move the automatic transmission rearward to remove it.
- CAUTION** 
- Do not apply the jack to the oil pan. Doing so would deform the oil pan and the oil pan gasket.
 - The torque converter will come away by itself. Be careful not to let it drop.

REMOVAL AND INSTALLATION OF AUTOMATIC TRANSMISSION

◆ Installation procedure ◆



NOTE

- The bolts that join the automatic transmission to the engine are not all the same length. Make a note of the position of each one as you remove it.

■ Installation: Automatic transmission

- Make sure the torque converter is correctly installed on the automatic transmission. With the torque converter correctly installed, the dimension from the drive plate surface to the case mounting surface is as shown in the diagram.
- Apply grease to the pilot.

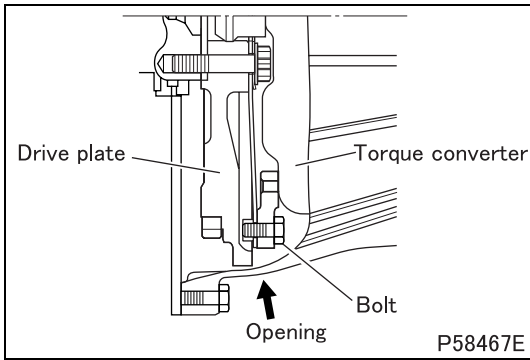
- Position one of the drive plate's mounting bolt holes at the very bottom.

- Position one of the torque converter's mounting bolt holes at the very bottom.

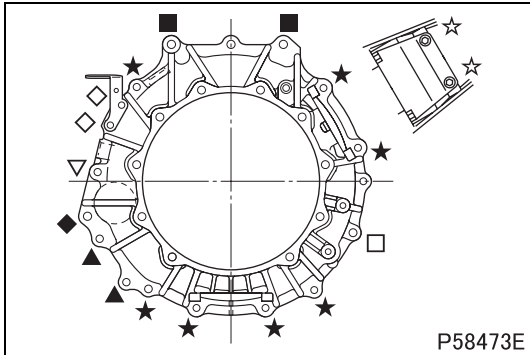
- Wipe all oil and grease off the inside wall of the torque converter housing.
- With the pilot of the torque converter and the dowel pin of the rear plate aligned with each other, slowly move the assembly onto the engine.
- Fit several of the bolts that join the automatic transmission to the engine, then tighten the rear mounting bolt to the specified torque.

NOTE

- The torque converter can easily come off by itself. Slightly lower the rear of the automatic transmission to keep the torque converter correctly positioned.

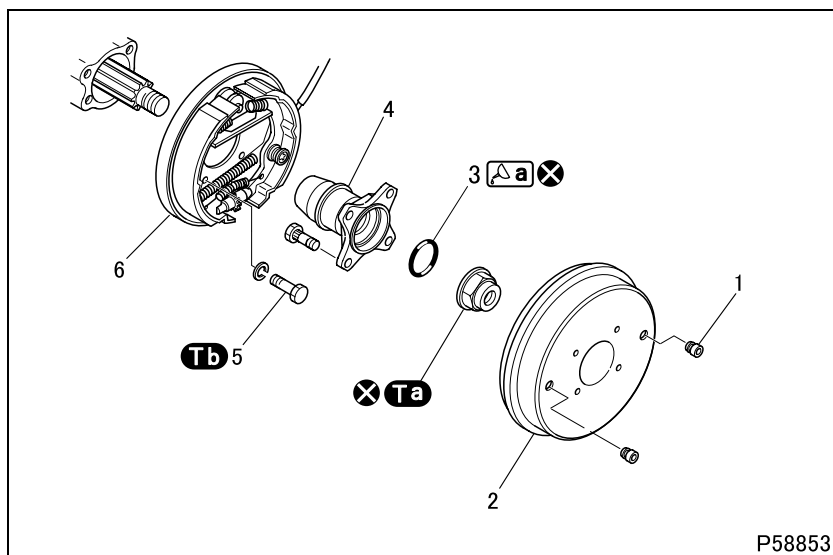


- Through the opening, align the holes for one of the bolts that join the drive plate and the torque converter and fit the bolt.
- Fit all of the rest of the six bolts, cranking the engine to bring the holes to the opening for each one. Next, tighten each bolt to specification, cranking the engine to bring each bolt to the opening in turn.



- With the dust cover and bracket mounted using the same bolts, tighten to torque all of the bolts that join the automatic transmission and engine.
 - ▲: M10 × 1.25 - 55
 - ★: M10 × 1.25 - 80
 - : M10 × 1.25 - 95
 - ◇: M10 × 1.5 - 20 (for bracket)
 - ◆: M12 × 1.75 - 45
 - : M12 × 1.75 - 60
 - ▽: M12 × 1.75 - 100
- Tighten the dust cover's remaining mounting bolts (marked ☆) to the specified torque to retain the dust cover.

PARKING BRAKE



● Removal sequence

- 1 Dust plug
- 2 Parking brake drum
- 3 O-ring
- 4 Companion flange
- 5 Reamer bolt
- 6 Parking brake (See Gr36.)

⊗: Non-reusable parts

● Installation sequence

Follow the removal sequence in reverse.

Service standards (Unit: mm {in.})

Location	Maintenance item	Standard value	Limit	Remedy	
2	Parking brake drum	Inner diameter	$\phi 190^{+0.2}_0$ {7.48 ^{+0.0079} }	$\phi 191$ {7.52}	Replace
		Squareness	0 to 0.05 {0 to 0.0020}	–	
		Concentricity	0 to 0.1 {0 to 0.0039}	–	
		Cylindricity	0 to 0.05 {0 to 0.0020}	–	
		Static rotation imbalance	0 to 0.0049 N·m {0 to 0.004 ft.lbs, 0 to 0.5 gf·m}	–	
4	Runout at socket portion of companion flange	0 to 0.15 {0.0059}	0.5 {0.020}		

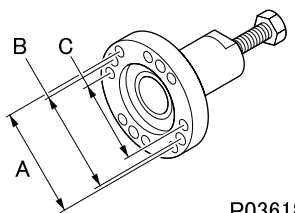
Tightening torque (Unit: N·m {ft.lbs, kgf·m})

Mark	Parts to be tightened	Tightening torque	Remarks
Ta	Lock nut (companion flange mounting)	190 {140, 19}	After tightening, crimp at two places.
Tb	Reamer bolt	52 to 66.7 {38 to 49, 5.3 to 6.8}	–

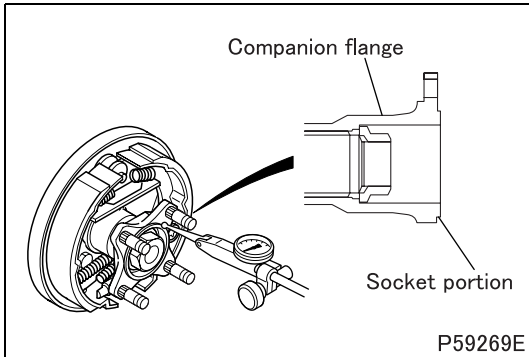
Lubricant and/or sealant

Mark	Points of application	Specified lubricant and/or sealant	Quantity
△a	O-ring	Mobil ATF3309	As required

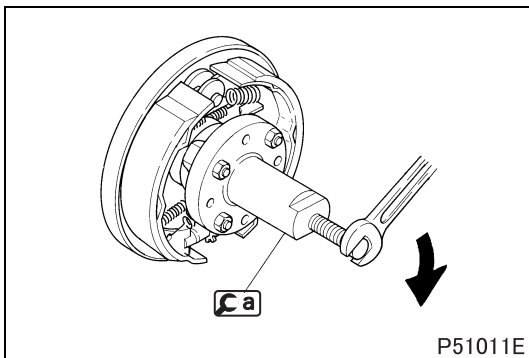
Special tools (Unit: mm {in.})

Mark	Tool name and shape	Part No.	Application						
Ca	Flange puller <table border="1" style="display: inline-table; vertical-align: middle;"> <thead> <tr> <th>A</th> <th>B</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>$\phi 95$ {3.74}</td> <td>$\phi 100$ {3.94}</td> <td>$\phi 90$ {3.54}</td> </tr> </tbody> </table> 	A	B	C	$\phi 95$ {3.74}	$\phi 100$ {3.94}	$\phi 90$ {3.54}	MH061848	Removal of companion flange
A	B	C							
$\phi 95$ {3.74}	$\phi 100$ {3.94}	$\phi 90$ {3.54}							

◆ Removal procedure ◆

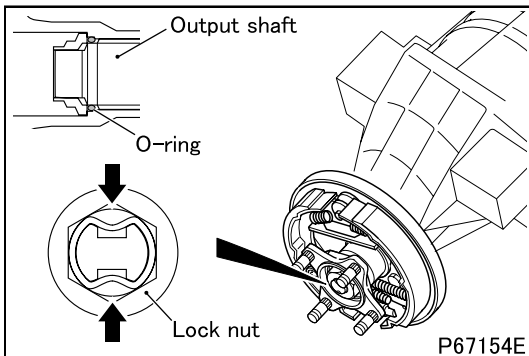


- **Inspection: Runout of socket portion of companion flange**
- If the measured value exceeds the limit, replace the companion flange.



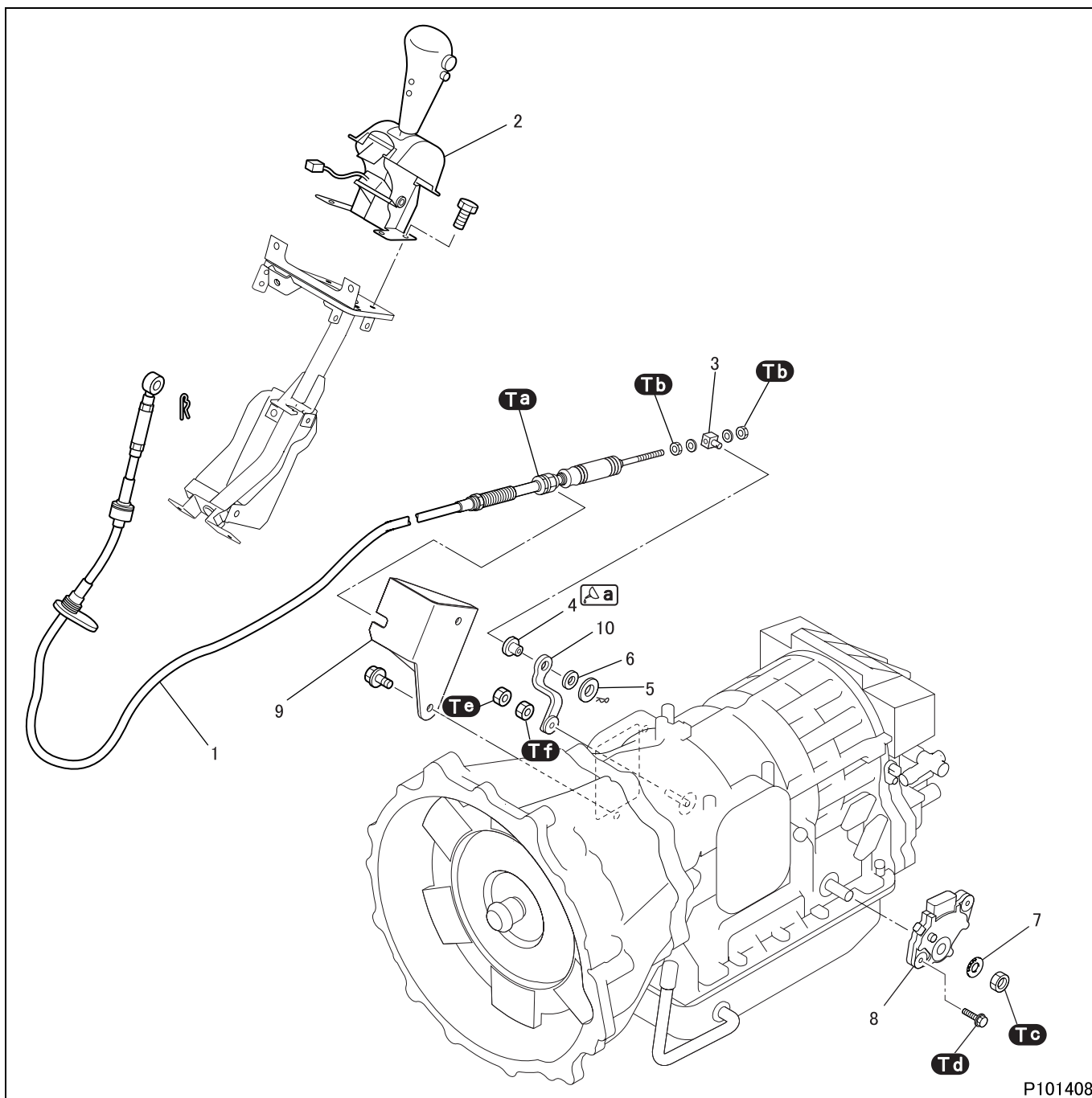
- **Removal: Companion flange**
- Attach the special tool **Ca** to the companion flange with propeller shaft mounting nut. Using **Ca**, remove the companion flange.

◆ Installation procedure ◆



- **Inspection: Companion flange**
- After installing O-ring to output shaft and tightening the lock nut to the specified torque, crimp the lock nut at two places.
 - After installing the companion flange, check the companion flange for excessive play and looseness. (See "ON-VEHICLE INSPECTION AND ADJUSTMENT.")

AUTOMATIC TRANSMISSION CONTROL



● Removal sequence

- | | |
|---|--------------------|
| 1 Selector cable | 6 Spacer |
| 2 Range selector lever (See later section.) | 7 Lock washer |
| 3 Adjuster | 8 Inhibitor switch |
| 4 Bush | 9 Bracket |
| 5 Plane washer | 10 Control lever |

● Installation sequence

Follow the removal sequence in reverse.

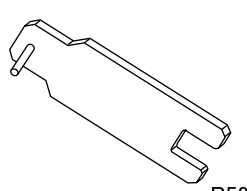
Tightening torque (Unit: N·m {ft.lbs, kgf·m})

Mark	Parts to be tightened	Tightening torque	Remarks
Ta	Selector cable (mounting on bracket)	30 to 38 {22 to 28, 3.1 to 3.9}	–
Tb	Nut (adjuster mounting)	4 to 6 {3.0 to 4.4, 0.4 to 0.6}	–
Tc	Nut (inhibitor switch mounting)	7 {5.2, 0.7}	–
Td	Bolt (inhibitor switch mounting)	12.5 {9.2, 1.3}	–
Te	Nut (control lever mounting)	15 {11, 1.5}	Outside
Tf	Nut (control lever mounting)	13 {9.6, 1.3}	Inside

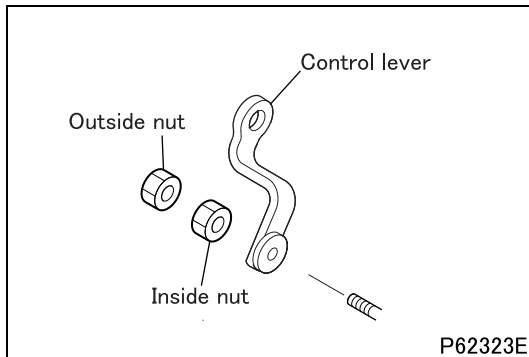
Lubricant and/or sealant

Mark	Points of application	Specified lubricant and/or sealant	Quantity
a	Part of bush that slides against adjuster	Wheel bearing grease [NLGI No. 2 (Li soap)]	As required

Special tools

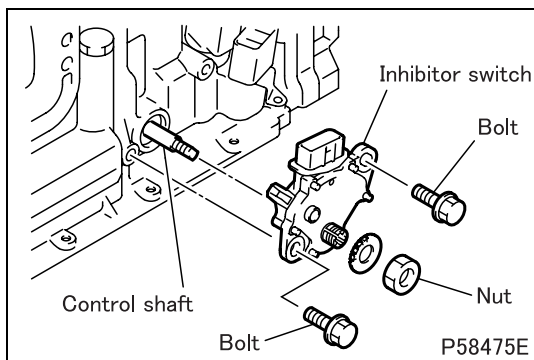
Mark	Tool name and shape	Part No.	Application
Ca	Plate 	MH063642	Locating inhibitor switch

◆ Installation procedure ◆



■ Installation: Control lever

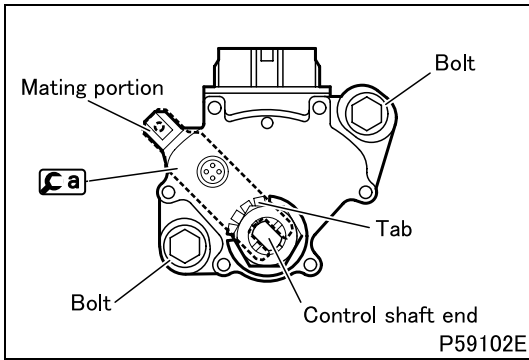
- Tighten inside nut to the specified torque and then tighten outside nut to the specified torque with holding the inside nut by spanner.



■ Installation: Inhibitor switch

- Position the inhibitor switch onto the control shaft.
- Loosely tighten the bolts (× 2).
- Tighten the nut to the specified torque.

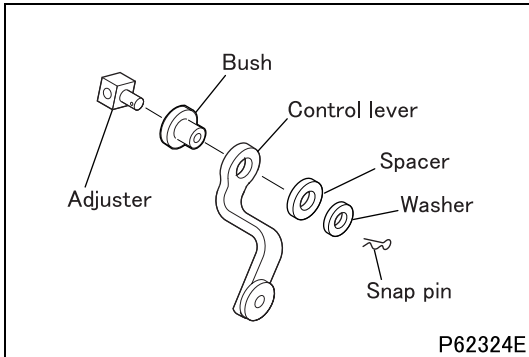
AUTOMATIC TRANSMISSION CONTROL



- Loosen the two bolts to enable the special tool **Ca** to be installed such that one end of the tool with a pin engages with the mating portion of the inhibitor switch while the other end of the tool engages with the end of the control shaft.
- While holding the inhibitor switch with one hand, tighten the two bolts to the specified torque.
- Stake the nut by bending over two of the tabs on the inhibitor switch.

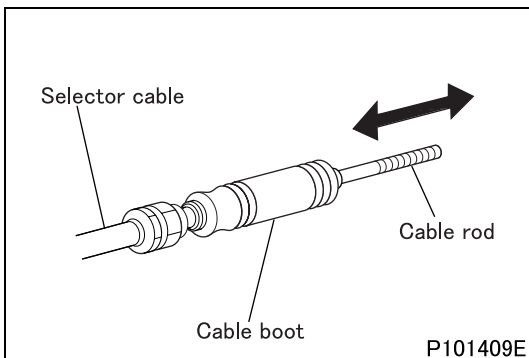
CAUTION

- **After installation, check the inhibitor switch if it is normal. This must be confirmed before commencing the following work.**



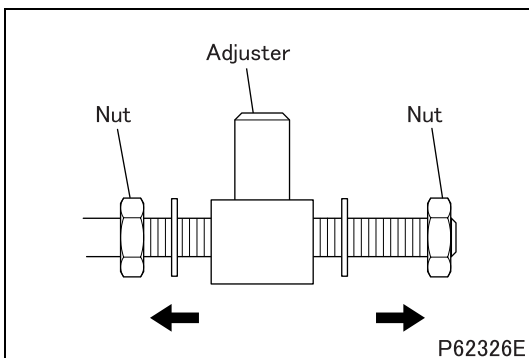
■ Installation: Adjuster

- Check if the adjuster turns smoothly to the control lever after mounting the adjuster to the control lever with the snap pin.
- When if the adjuster does not turn smoothly, replace the adjuster, plane washer, snap pin and control lever.
- Check the abrasion and damage of the brush and the spacer. This damage means dust, breakage, loosen, bend, twist, and so on.

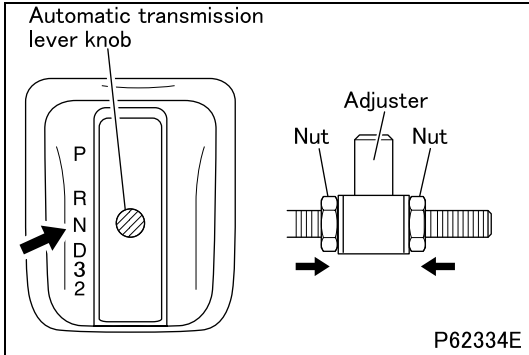
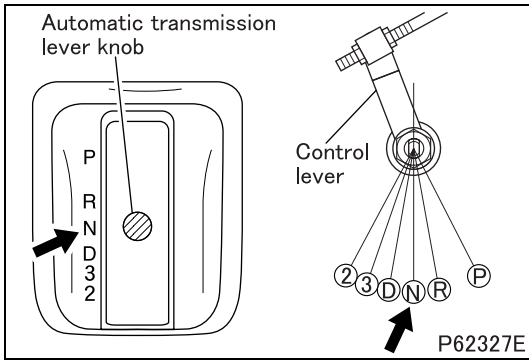


■ Installation: Selector cable

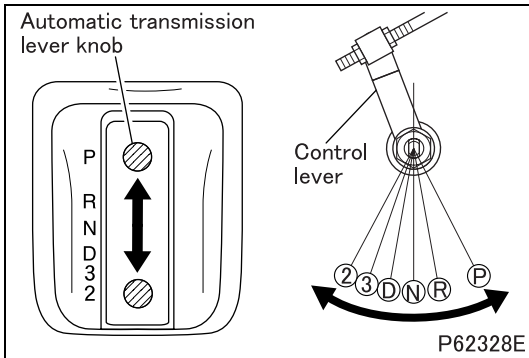
- When the selector cable stroke is not smooth, replace selector cable.
- Check the damage of the cable boot and the cable rod. Replace the selector cable if necessary. This damage means dust, breakage, loosen, bend, twist, and so on.



- Loosen the nuts to the both ends of thread.



◆ Inspection after installation ◆



- Place the automatic transmission lever knob inside the cab in the N position. Also, place the control lever on the automatic transmission main body side in the N position.

- Confirm that the automatic transmission lever knob inside the cab is in the N position, then tighten the nuts to the specified torque.

CAUTION ⚠

- Do not move the adjuster's set position when tightening the nuts.

■ Inspection: Operate performance of range selector lever

[Inspection]

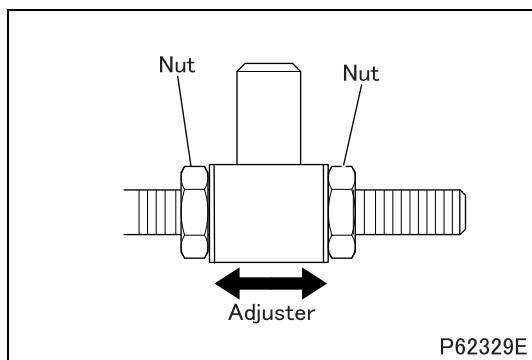
- After fixing adjuster, move the automatic transmission lever knob from the P position to the 2 position and back to the P position two or three times and check the following.
 - The automatic transmission lever knob inside the cab and the control lever on the automatic transmission main body side correctly enter each range position between the 2 position and the P position.
 - On the meter cluster, the range indicator lamp of the selected range illuminates.
 - The range selector lever operates smoothly and has a positive in-position feel in each range position.
 - The starter key can be removed from the key cylinder at the P position.
 - The backup lamp turns on and the back buzzer sounds in the R position, and the engine starter operates in the N and P position.

CAUTION ⚠

- This inspection should be performed after taking measures to prevent the vehicle from moving.
- Inspect the item (5) after confirming that there is no abnormality related to items (1) to (4).

- If there is abnormality related to items (1) through (4), adjust the selector cable. If there is abnormality related to item (5), check the backup lamp circuit and the engine starter circuit. (See Gr54.)

AUTOMATIC TRANSMISSION CONTROL



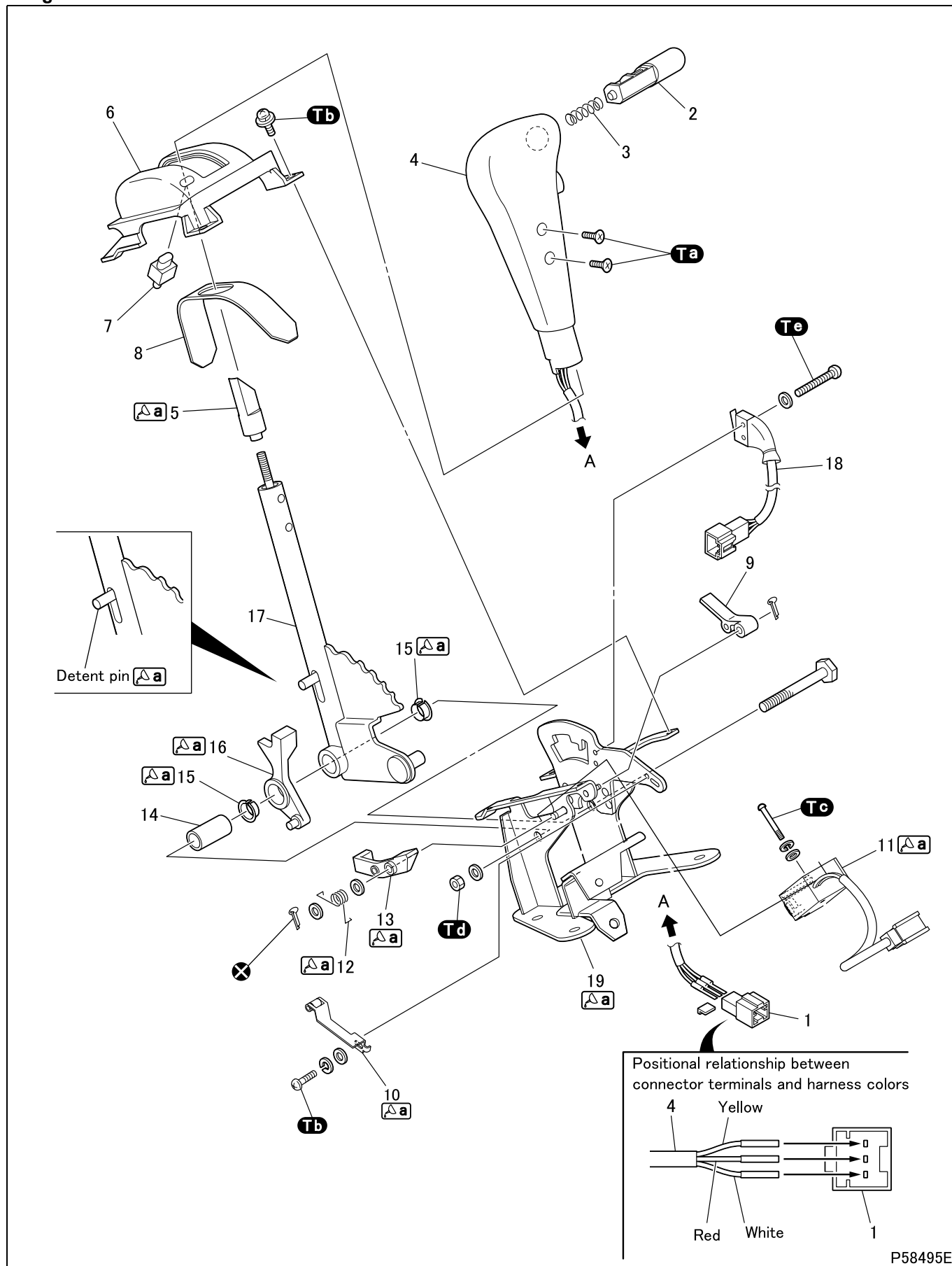
[Adjustment]

- Loosen each nut and then adjust the adjuster position in accordance with the procedure in "■Installation: Selector cable".
- If the control lever is shifted toward "2" position, move the adjuster toward the selector cable end. If the lever is shifted toward "P" position, move the adjuster in the opposite direction.
- After adjustment, recheck the operate performance of range selector lever to confirm that there is no abnormality.
- If the abnormality has not solved by the adjustment, check the indicator lamp-related circuit in the meter cluster (See Gr54.) and P range switch.

M E M O

AUTOMATIC TRANSMISSION CONTROL

Range Selector Lever



P58495E

● **Removal sequence**

- | | | |
|---|----------------------------|-------------------|
| 1 Connector housing
(for overdrive switch) | 7 Shift lock cancel button | 14 Pipe |
| 2 Push-button | 8 Slider | 15 Bushing |
| 3 Spring | 9 Cam | 16 Arm |
| 4 Knob | 10 Detent spring | 17 Lever |
| 5 Sleeve | 11 Shift lock actuator | 18 P range switch |
| 6 Indicator panel | 12 Spring | 19 Bracket |
| | 13 Arm | |

● **Installation sequence**

Follow the removal sequence in reverse.

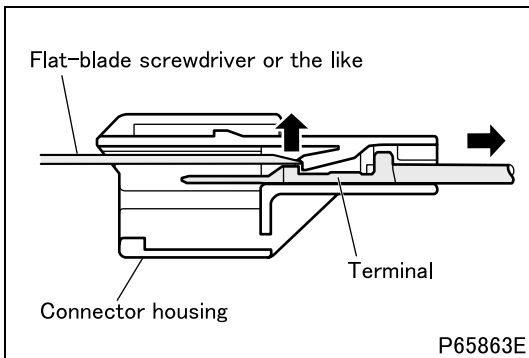
Tightening torque (Unit: N·m {ft.lbs, kgf·m})

Mark	Parts to be tightened	Tightening torque	Remarks
Ta	Screw (knob mounting)	1.5 to 2 {1.1 to 1.5, 0.15 to 0.20}	–
Tb	Screw (indicator panel mounting)	1 to 1.5 {0.7 to 1.1, 0.10 to 0.15}	–
	Screw (detent spring mounting)		
Tc	Screw (shift lock actuator mounting)	1 to 2 {0.7 to 1.5, 0.10 to 0.20}	–
Td	Nut (lever mounting)	9 to 14 {6.6 to 10, 0.92 to 1.4}	–
Te	Screw (P range switch mounting)	0.1 to 0.15 {0.074 to 0.11, 0.01 to 0.02}	–

Lubricant and/or sealant

Mark	Points of application	Specified lubricant and/or sealant	Quantity
a	Sliding part of detent spring	Chassis grease [NLGI No. 1 (Ca soap)]	As required
	Sliding parts of shift lock actuator and arm		
	Sliding parts of spring and arm		
	Bushing		
	Detent pin of lever		
	Part of bracket that makes contact with detent pin		
	Part of sleeve that makes contact with push-button, and sliding part of sleeve		

◆ **Removal procedure** ◆

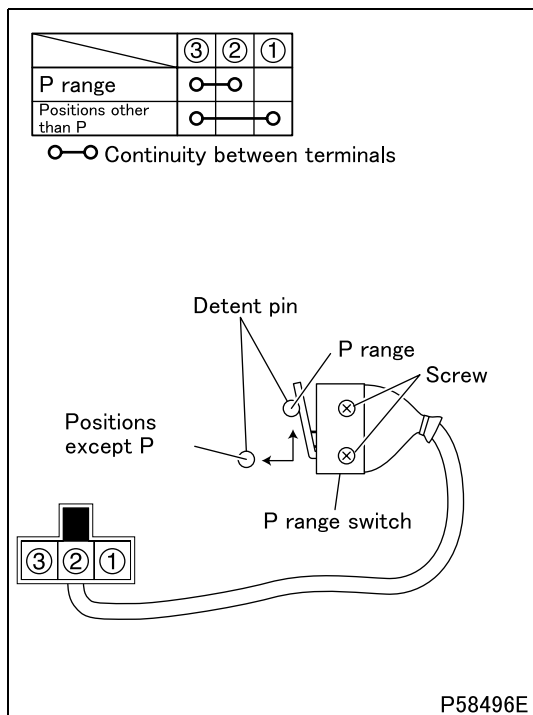


■ **Removal: Connector housing**

- Use a flat-blade screwdriver or the like to free the terminal in the connector, then remove the connector housing.

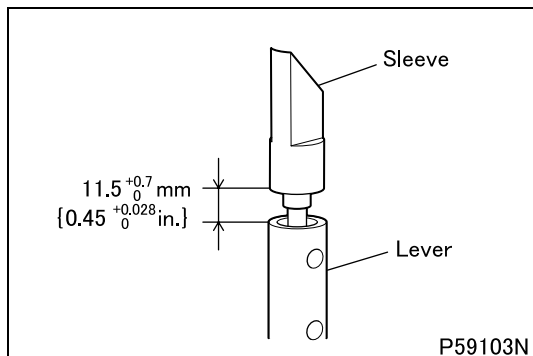
AUTOMATIC TRANSMISSION CONTROL

◆ Installation procedure ◆



■ Installation: P range switch

- Tighten the screws to the specified torque with the P range switch positioned such that the continuity of the P range switch is as shown in the illustration.

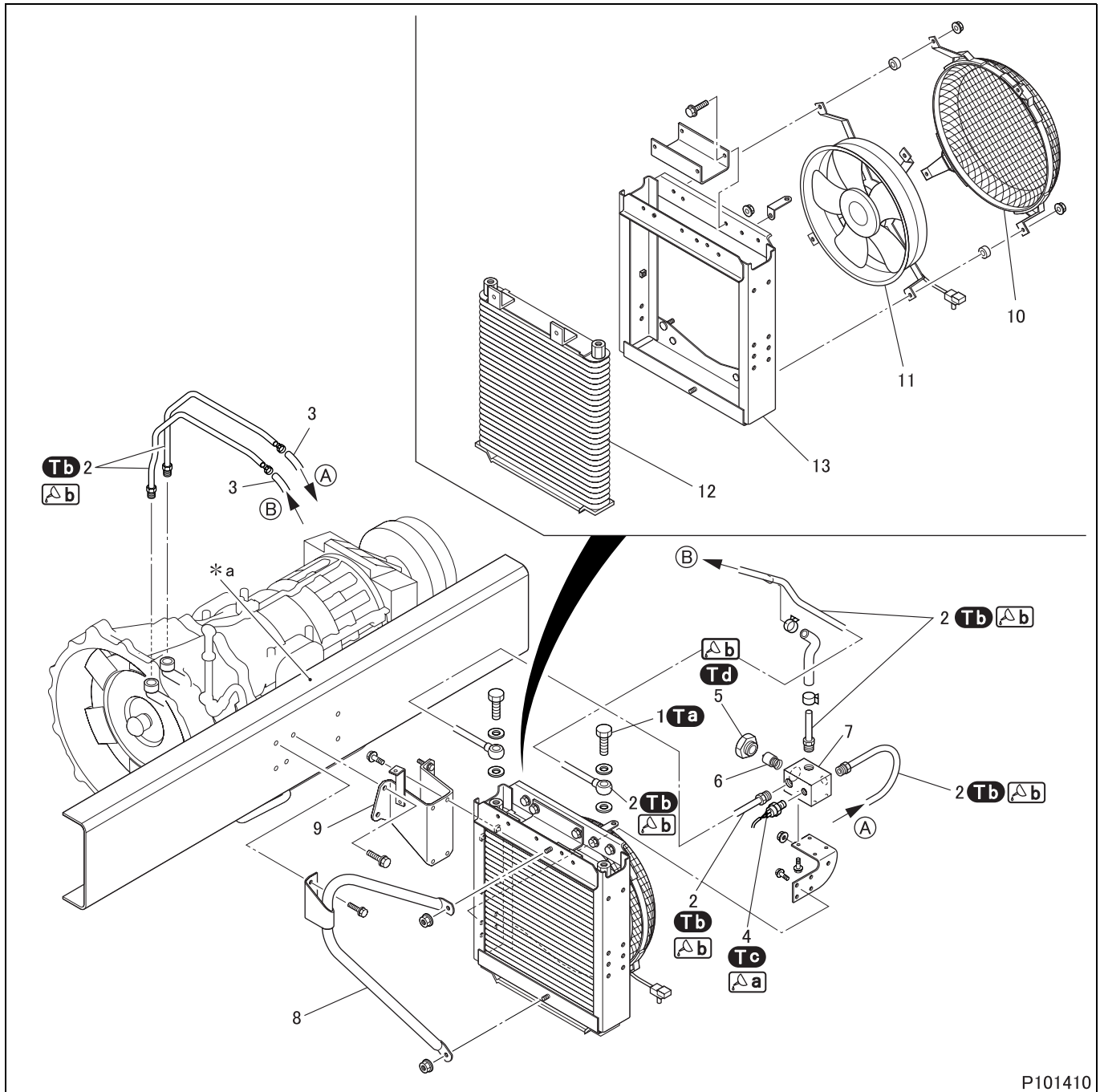


■ Installation: Sleeve

- Turn the sleeve to install it such that the dimension between the sleeve and the end of the lever is as shown in the illustration when the lever is in the R position.
- Install the sleeve with its tapered part on the same side as the push-button.

M E M O

OIL COOLER



P101410

● Removal sequence

- | | | |
|---------------------|----------------------|-------------------------|
| 1 Eyebolt | 6 Thermo valve | 11 ATF cooler fan motor |
| 2 Oil cooler tube | 7 Connector | 12 Oil cooler |
| 3 Oil cooler hose | 8 Oil cooler stay | 13 Oil cooler mount |
| 4 ATF thermo switch | 9 Oil cooler bracket | |
| 5 Plug | 10 Fan cover | |

*a: Frame



● Installation sequence

Perform installation by following the removal sequence in reverse.

Tightening torque (Unit: N·m {ft.lbs, kgf·m})

Mark	Parts to be tightened	Tightening torque	Remarks
Ta	Eyebolt	29 to 34 {21 to 25, 3.0 to 3.5}	–
Tb	Oil cooler tube (flare nut)	53 {39, 5.4}	Wet
Tc	ATF thermo switch	29 to 39 {21 to 29, 3.0 to 4.0}	Sealant
Td	Plug	167 ± 20 {125 ± 15, 17 ± 2.0}	Wet

Lubricant and/or sealant

Mark	Points of application	Specified lubricant and/or sealant	Quantity
 a	Thread of ATF thermo switch	ThreeBond 1110B	As required
 b	Thread of oil cooler tube	Mobil ATF3309 or equivalent	As required
	Thread of plug		

◆ Work before installation ◆

■ Flushing: Oil cooler circuit

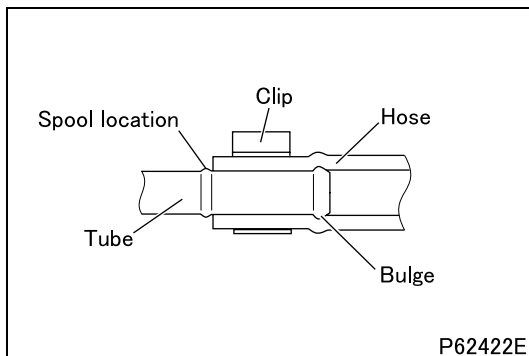
- If the oil cooler circuit contains a large amount of impurities, flush the cooler circuit.
- Remove the cooler tubes from the automatic transmission and oil cooler.
- Blow compressed air into the oil cooler and cooler tubes to clean them.

◆ Inspection after installation ◆

■ Inspection: Automatic transmission fluid level

- After oil line is removed, check the automatic transmission fluid level and replenish the fluid if necessary.

◆ Installation procedure ◆



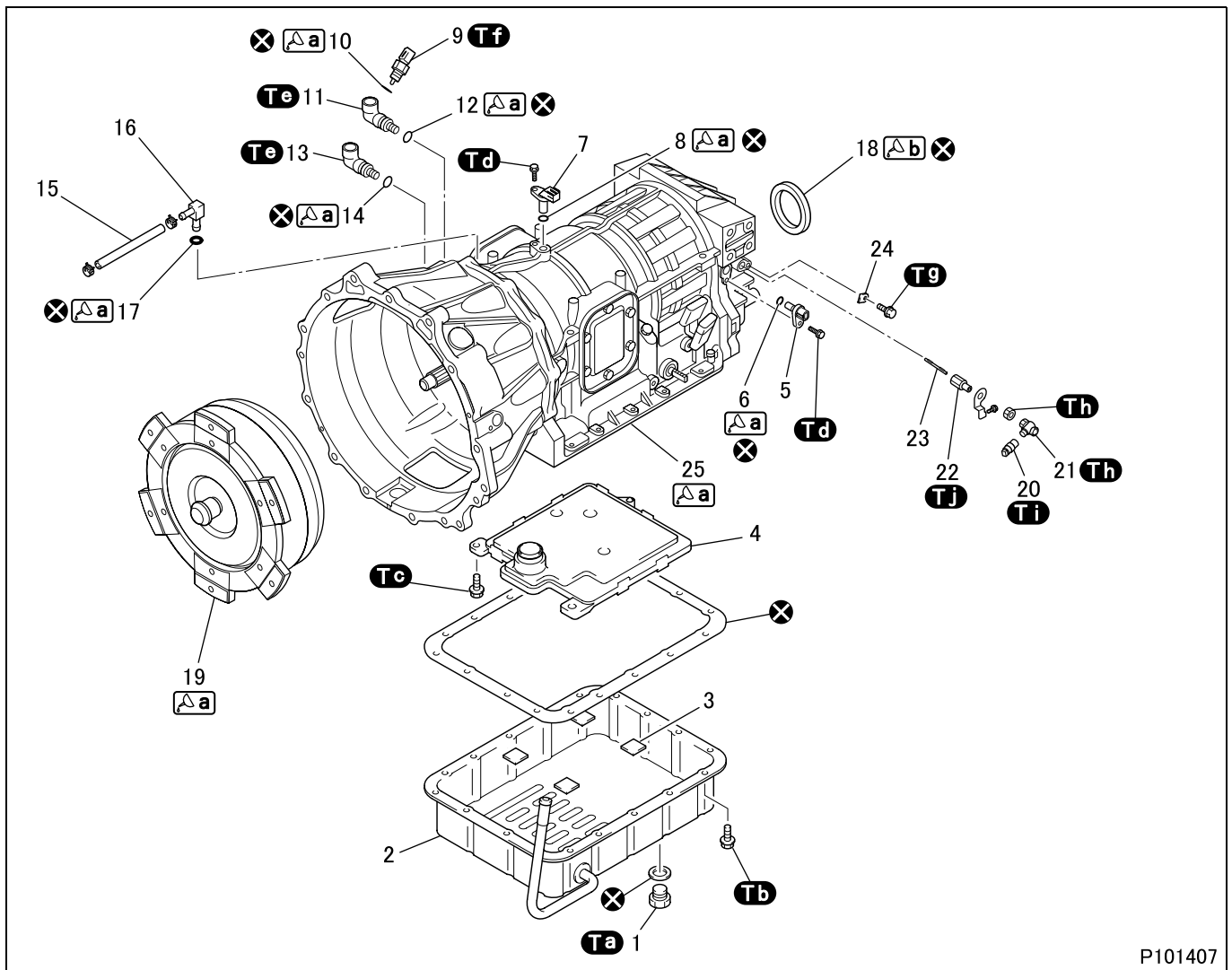
■ Installation: Oil cooler hose

- Fit the oil cooler hose all the way to the spool at the end of the oil cooler tube.
- Fasten the hose with the clip avoiding the bulge.

CAUTION

- Install the oil cooler hose without forced bend and twist.
- When installing the oil cooler hose, do not apply oil to its joints.

REPLACEMENT OF PARTS OF AUTOMATIC TRANSMISSION MAIN BODY



P101407

● Removal sequence

- | | | |
|------------------------------------|---------------------|---------------------------|
| 1 Drain plug | 10 O-ring | 20 Vehicle speed sensor |
| 2 Oil pan | 11 Elbow | 21 L-joint |
| 3 Oil cleaner magnet | 12 O-ring | 22 Speedometer joint |
| 4 Oil strainer | 13 Elbow | 23 Speedometer shaft |
| 5 Output speed sensor | 14 O-ring | 24 Lock plate |
| 6 O-ring | 15 Hose | 25 Automatic transmission |
| 7 Turbine speed sensor | 16 Breather plug | |
| 8 O-ring | 17 O-ring | |
| 9 Oil temperature sensor (outside) | 18 Rear oil seal | |
| | 19 Torque converter | |

⊗: Non-reusable parts

● Installation sequence

Perform installation by following the removal sequence in reverse.

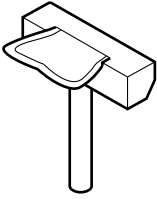
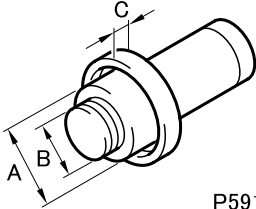
Tightening torque (Unit: N·m {ft.lbs, kgf·m})

Mark	Parts to be tightened	Tightening torque	Remarks
Ta	Drain plug	27 {20, 2.8}	Magnet attached
Tb	Bolt (oil pan mounting)	7 {5.2, 0.7}	–
Tc	Bolt (oil strainer mounting)	10 {7.4, 1.0}	–
Td	Bolt (output speed sensor and turbine speed sensor mounting)	8 {5.9, 0.8}	–
Te	Elbow mounting	32 {24, 3.3}	–
Tf	Oil temperature sensor (outside) mounting	34 {25, 3.5}	–
Tg	Bolt (lock plate mounting)	12.5 {9.2, 1.3}	–
Th	L-joint	34 to 39 {25 to 29, 3.5 to 4.0}	–
	Nut (speedometer joint mounting)		
Ti	Vehicle speed sensor	14.7 to 29.4 {11 to 22, 1.5 to 3.0}	–
Tj	Speedometer joint	20 to 30 {15 to 22, 2.0 to 3.1}	–

Lubricant and/or sealant

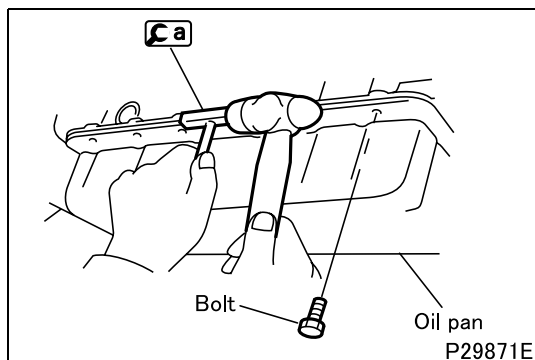
Mark	Points of application	Specified lubricant and/or sealant	Quantity
△a	O-ring	Mobil ATF3309 or equivalent	As required
	Torque converter		2 L {2.1 qts}
	Front oil seal (automatic transmission)		As required
△b	Rear oil seal lips	Wheel bearing grease [NLGI No. 2 (Li soap)]	As required

Special tools

Mark	Tool name and shape	Part No.	Application						
ㄥa	Oil pan remover  P29856	MD998727	Removal of oil pan						
ㄥb	Oil seal installer <table border="1"> <tr> <td>A</td> <td>B</td> <td>C</td> </tr> <tr> <td>φ66</td> <td>φ53</td> <td>17</td> </tr> </table>  P59105	A	B	C	φ66	φ53	17	MH063641	Installing rear oil seal
A	B	C							
φ66	φ53	17							

REPLACEMENT OF PARTS OF AUTOMATIC TRANSMISSION MAIN BODY

◆ Removal procedure ◆



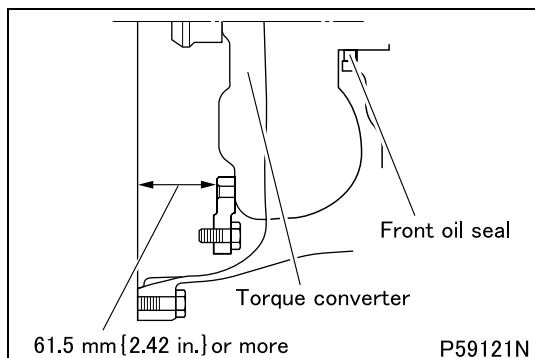
■ Removal: Oil pan

- Remove the bolts, leaving one bolt (not tightened) in every third hole to prevent the oil pan from falling.
- Remove the oil pan using the special tool **Ca** as illustrated. Insert the special tool at one corner of the oil pan.

CAUTION ⚠

- Do not deform the oil pan when tapping in the special tool **Ca**.
- Oil remains in the oil pan. Do not tip the oil pan when removing it.

◆ Installation procedure ◆



■ Installation: Torque converter

- If the torque converter is replaced and the replacement is new, fill it with fresh automatic transmission fluid up to the specified level.
- Apply automatic transmission fluid to the front oil seal, then install the torque converter on the oil pump.

CAUTION ⚠

- Do not damage the oil seal when installing the torque converter.

- Measure the dimension from the torque converter housing to the torque converter's set block. Confirm that the torque converter is correctly positioned.

■ Installation: Rear oil seal

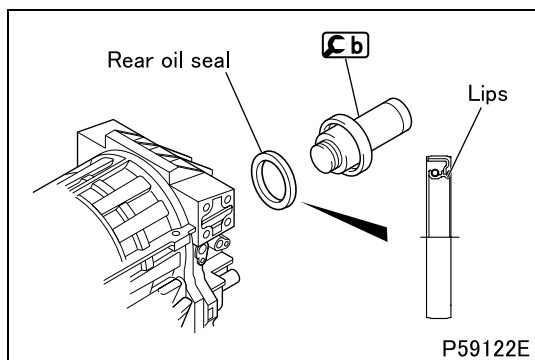
NOTE

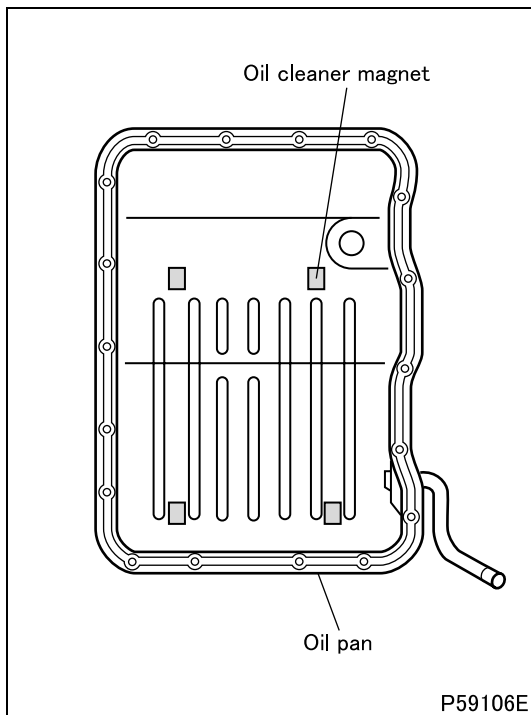
- Before installing the rear oil seal, ensure that the seal mounting face on the automatic transmission is clean.

- Apply grease to the rear oil seal lips.
- Install the rear oil seal using **Cb**. Ensure that the seal is firmly against the extension housing end face of the automatic transmission main body.

CAUTION ⚠

- Install the rear oil seal evenly throughout its periphery.
- Be careful not to deform or otherwise damage the rear oil seal.





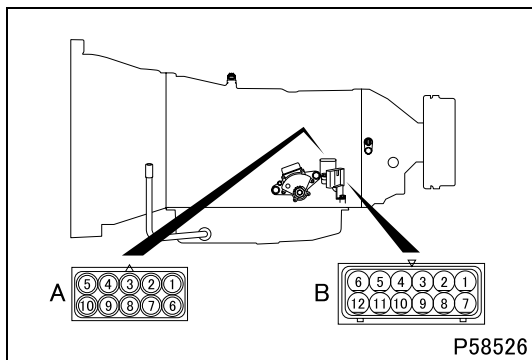
■ Installation: Oil pan

- Remove any gasket that may be remaining on the mating faces of the automatic transmission main body and the oil pan.
- Clean the oil cleaner magnet and install it onto the oil pan.
- Install new gasket onto the oil pan, then install them onto the automatic transmission main body.
- Tighten the bolts evenly in several steps, in each step tightening individual bolts a little in a set sequence to the specified torque.

CAUTION

- Ensure that the mating faces of the oil pan and the automatic transmission main body are free from automatic transmission fluid spill.
- After installing the oil pan, do not operate the automatic transmission for at least one hour.

INSPECTION OF ELECTRICAL EQUIPMENT



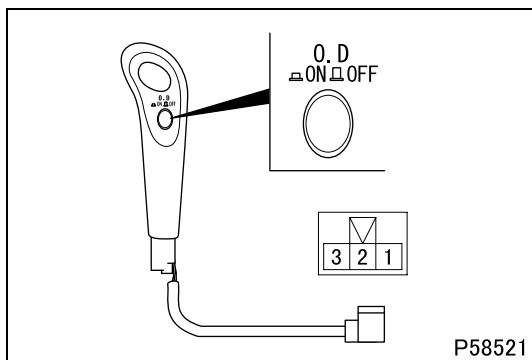
#140 Inspection of oil pressure switch

- Measure the resistance between the indicated terminals.

Standard value	Oil pressure switch 1	B1-*	No continuity (When starter switch is OFF)
	Oil pressure switch 2	B7-*	
	Oil pressure switch 3	B8-*	
	Oil pressure switch 4	A7-*	
	Oil pressure switch 5	A2-*	
	Oil pressure switch 6	B2-*	
	Oil pressure switch 7	A1-*	
	Oil pressure switch 8	A6-*	

*: Automatic transmission case

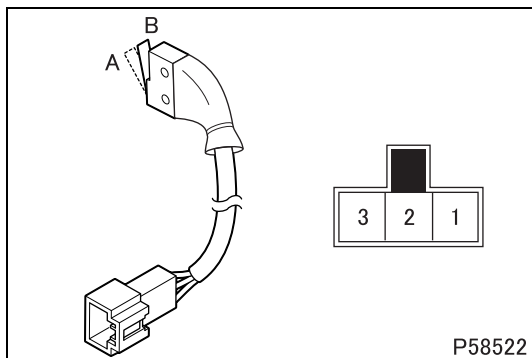
- If any measured value is out of specification, replace the relevant oil pressure switch. Have replacement performed by an Aisin service station.



#150 Inspection of overdrive switch

Switch position	Terminals with continuity
OFF	1-3
ON	2-3

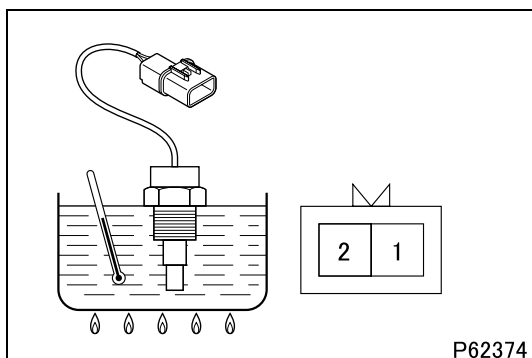
- If there is any abnormality, replace the knob.



#151 Inspection of P range switch

Switch position	Terminals with continuity
A	1-3
B	2-3

- If there is any abnormality, replace the P range switch.



#153 Inspection of ATF thermo switch

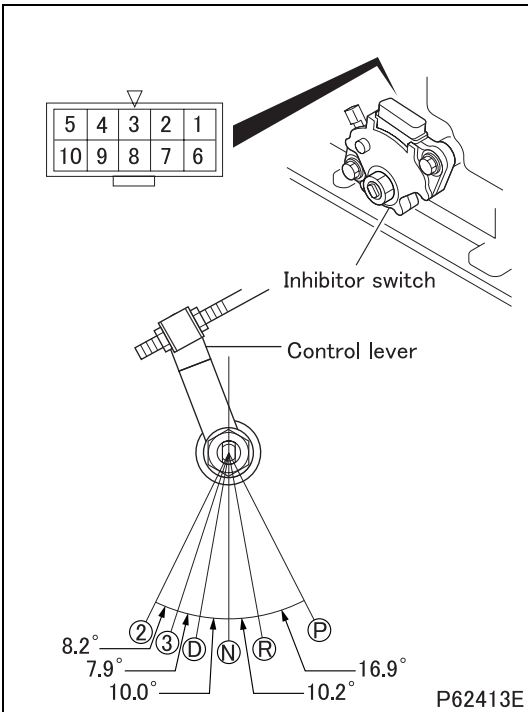
- Place the ATF thermo switch in a container filled with automatic transmission fluid and use a heater to raise the temperature of the fluid.
- Measure the temperature of the fluid at which continuity becomes established between terminals 1 and 2 and check that the measurement is within the standard value range.

Standard value (OFF to ON temperature)	$97 \pm 3^{\circ}\text{C}$ { $205 \pm 5.4^{\circ}\text{F}$ }
--	--

- Measure the temperature of the fluid at which the continuity between terminals 1 and 2 is lost and check that the measurement is within the standard value range.

Standard value (ON to OFF temperature)	90°C { 195°F } or higher
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- If any of the above measurements is not within the standard value range, replace the ATF thermo switch.

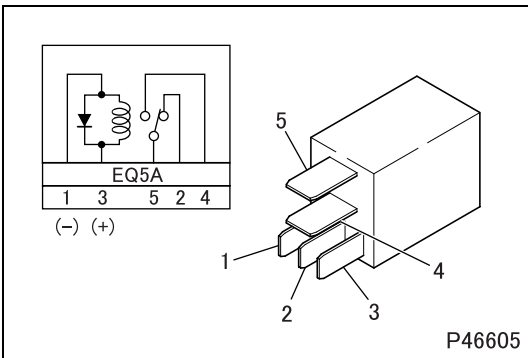


#159 Inspection of Inhibitor switch

- After installing the inhibitor switch to the automatic transmission and connecting the control lever, check the continuity in the following conditions.

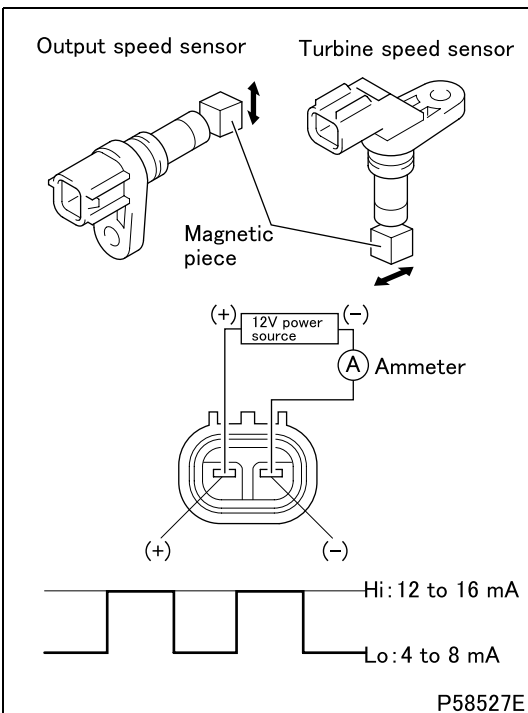
Transmission control lever position	Terminals with continuity
P	4-5, 6-10
R	4-9
N	1-4, 6-10
D	4-8
3	2-4
2	4-7

- If there is any abnormality, replace the inhibitor switch.



#201 Inspection of relay (normally open, 5-pin type)

- Perform a continuity check and an operation check. If there is any abnormality, replace the relay.



#293 Inspection of speed sensors

- Connect the speed sensor to the power source and an ammeter as illustrated.
- While moving a magnetic piece (metal that attaches to magnet) in the illustrated directions near the end of the speed sensor, read the ammeter. (Distance between sensor and magnetic piece: 5 mm {0.20 in.} or less)

Standard value (at normal temperature)	Hi	12 to 16 mA
	Lo	4 to 8 mA

- If the measured value does not conform to the standard value, replace the speed sensor.

INSPECTION OF ELECTRICAL EQUIPMENT

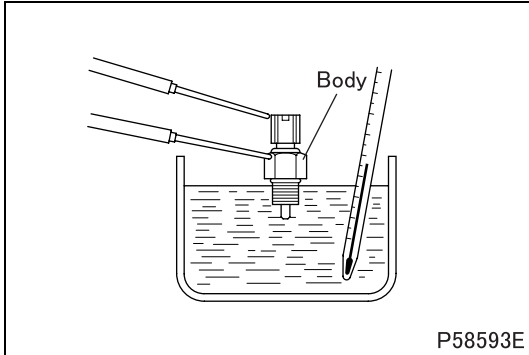
#312 Inspection of oil temperature sensor

<Outside>

- Immerse the oil temperature sensor in a container filled with automatic transmission fluid.
- Measure the resistance at the temperatures listed below. (To obtain the correct reading, the sensor needs to be exposed to the specified temperature for at least 5 minutes.)

Standard value	115°C {240°F}	655 to 730 Ω
	120°C {250°F}	585 to 645 Ω
	145°C {295°F}	340 to 375 Ω
	155°C {310°F}	280 to 305 Ω

- If there is any abnormality, replace the oil temperature sensor.

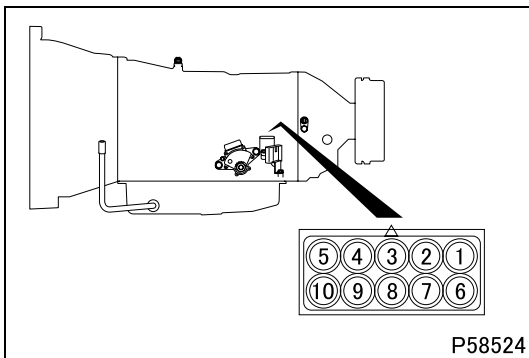


<Inside>

- Measure the resistance between terminals 3 and 8 on the automatic transmission.

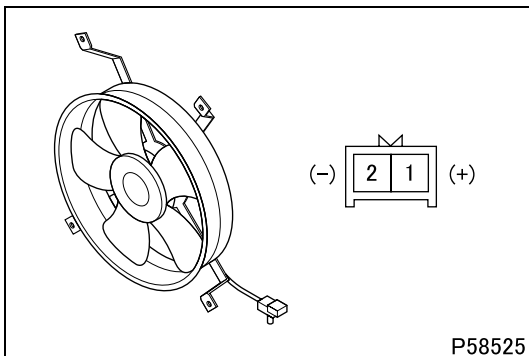
Standard value	-30°C {-22°F}	44 ± 6.6 kΩ
	10°C {50°F}	6445 ± 645 Ω
	110°C {230°F}	247 ± 16 Ω
	145°C {295°F}	111 ± 6 Ω

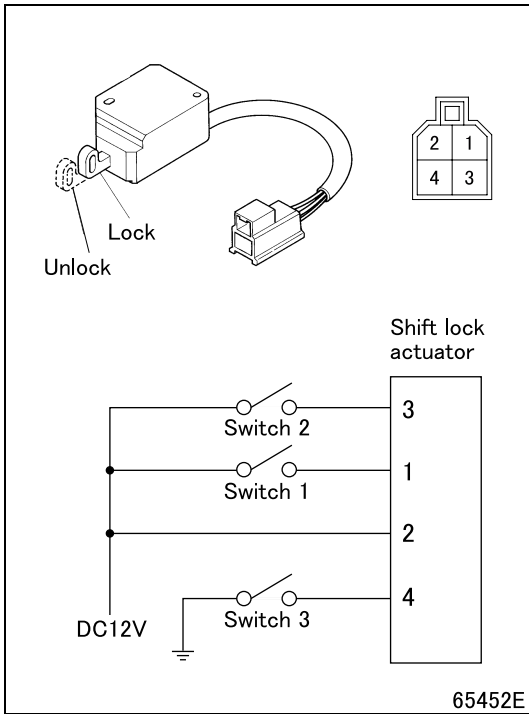
- If a measured value differs greatly from the standard value or the resistance does not change when the temperature is changed, have an Aisin service station perform the necessary work.



#489 Inspection of ATF cooler fan motor

- Check that the ATF cooler fan motor runs when the battery voltage is applied to terminals 1 and 2.
- If there is any abnormality, replace the ATF cooler fan motor.



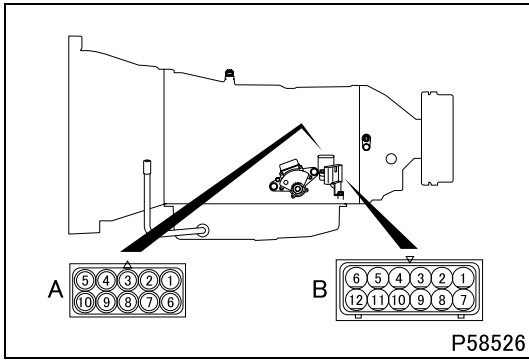


#535 Inspection of shift lock actuator

- Wire the shift lock actuator as illustrated.
- Check the lever position with each combination of switch conditions shown in the following table.

Switch 1	Switch 2	Switch 3	Lever position
ON	ON	ON	Unlock
ON	OFF	ON	Lock
ON	ON	OFF	Unlock
ON	OFF	OFF	Unlock
OFF	ON	ON	Lock
OFF	OFF	ON	Lock
OFF	ON	OFF	Unlock
OFF	OFF	OFF	Unlock

- If there is any abnormality, replace the shift lock actuator.



#585 Inspection of solenoid valves

- Measure the resistance between the indicated terminals.

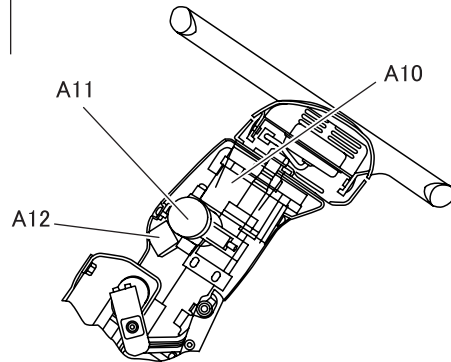
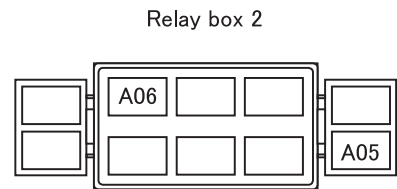
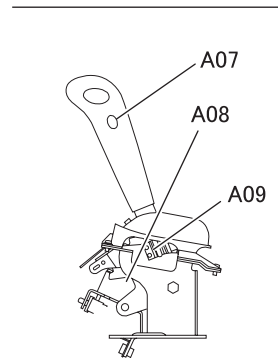
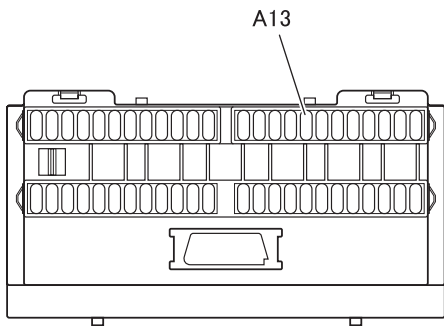
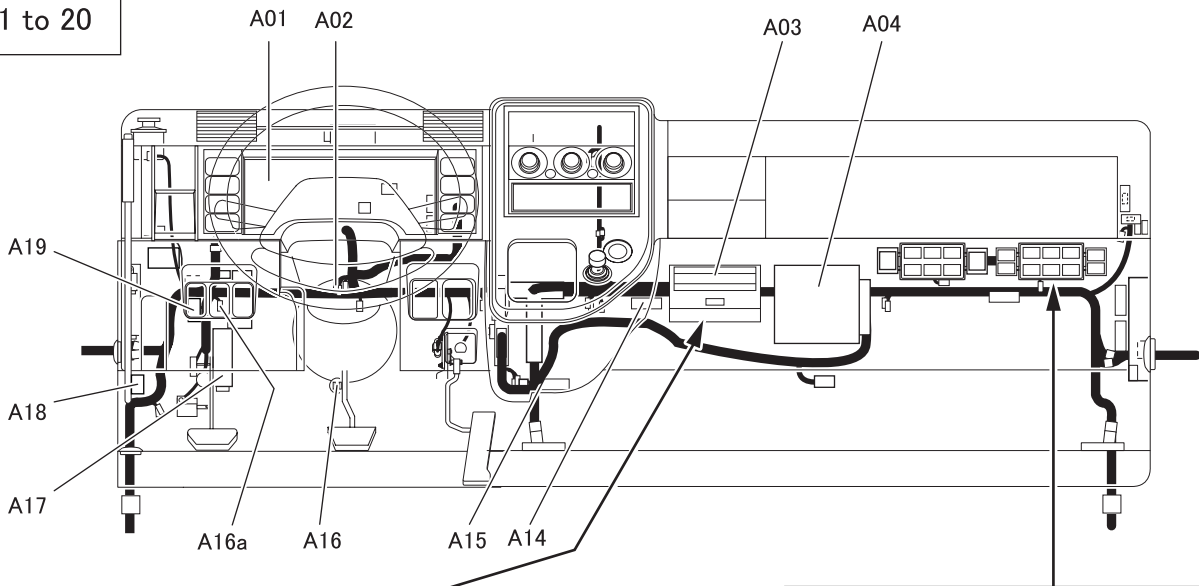
Standard value (at normal temperature)	Shift solenoid 1	B10-*	13 ± 2 Ω
	Shift solenoid 2	B3-*	
	Shift solenoid 3	B9-*	
	Gain change solenoid	B4-*	
Standard value (at normal temperature)	Linear solenoid 1	A5-A10	5.5 ± 0.5 Ω
	Linear solenoid 2	B6-B12	
	Linear solenoid 3	A4-A9	
	PL linear solenoid	B5-B11	

*: Automatic transmission case

- If any measured value is out of specification, replace the relevant solenoid valve. Have replacement performed by an Aisin service station.

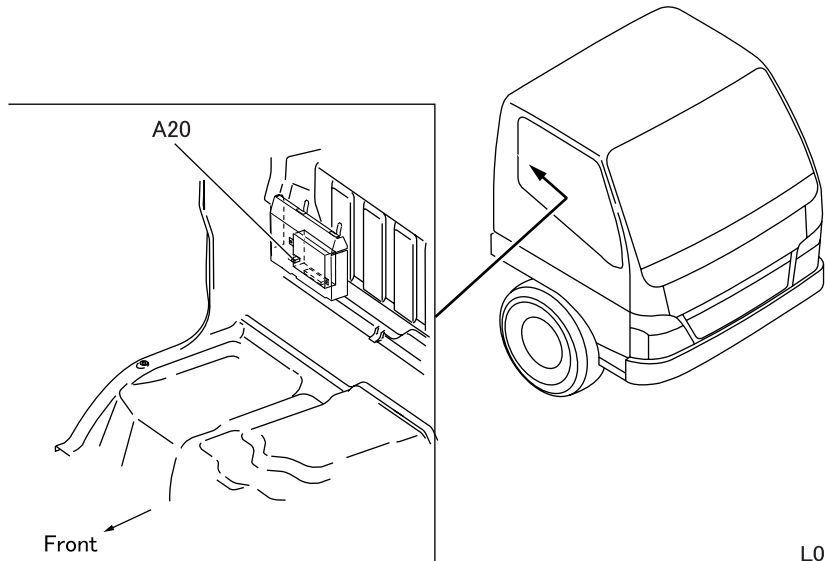
INSTALLED LOCATIONS OF PARTS

A01 to 20

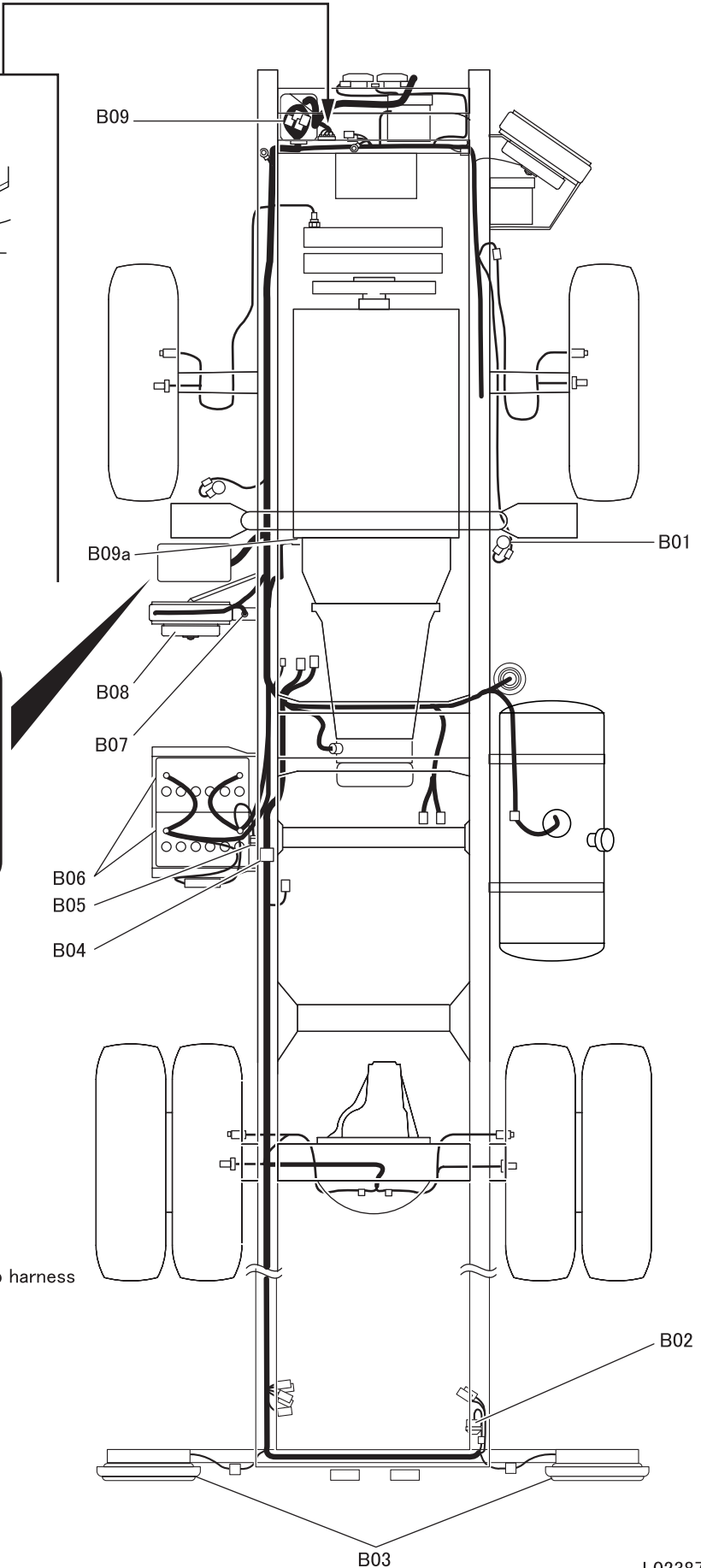
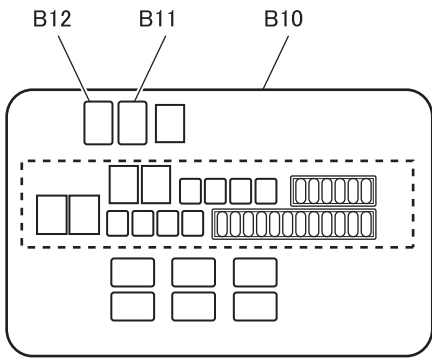
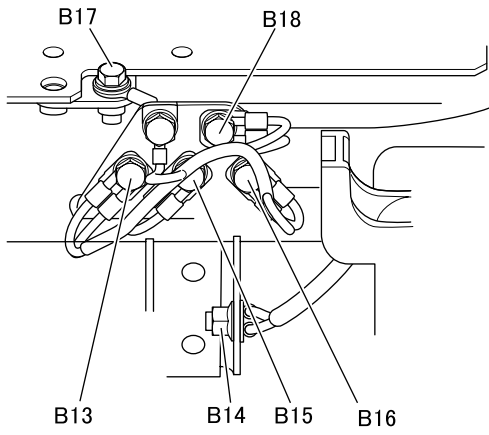


- A01 Meter cluster
- A02 Diode
- A03 Fuse box
- A04 Engine ECU
- A05 Exhaust brake cut relay
- A06 ABS exhaust brake cut relay
- A07 Overdrive switch
- A08 Shift lock actuator
- A09 P range switch
- A10 Combination switch
- A11 Starter switch
- A12 Key-interlock solenoid
- A13 Diagnosis switch
- A14 Joint connector (J/C-1)
- A15 Joint connector (J/C-M1)
- A16 Stop lamp switch
- A16a Joint connector(J/C-040)
- A17 A/T ECU
- A18 Multi-use tester connector
- A19 Key interlock control unit
- A20 Controller area network resistor

ECU : Electronic control unit
 ABS : Anti-lock brake system
 A/T : Automatic transmission
 J/C : Joint connector



B01 to 18



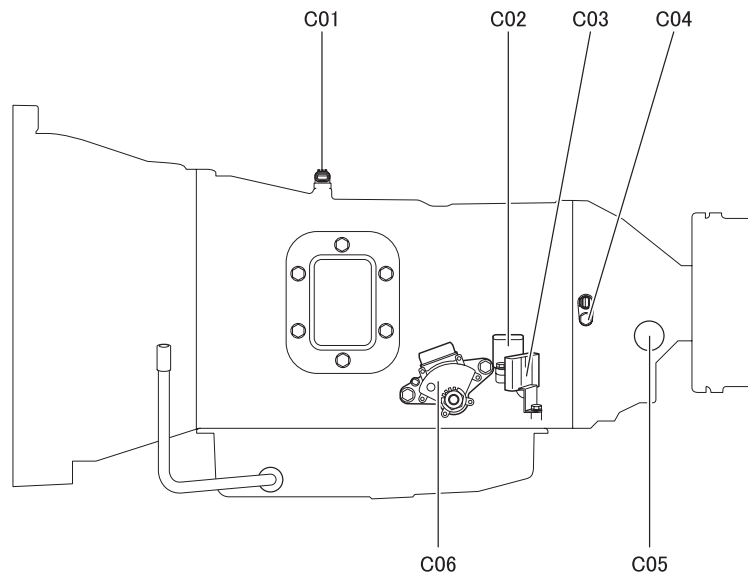
- B01 Exhaust shutter 2-way magnetic valve
- B02 Back buzzer
- B03 Rear combination lamp
- B04 Connection of chassis harness and rear chassis harness
- B05 Ground
- B06 Battery
- B07 ATF thermo switch
- B08 ATF cooler fan motor
- B09 Connection of chassis harness and cab harness
- B09a Ground
- B10 High-current fuse box
- B11 Backup lamp relay
- B12 ATF cooler fan motor relay
- B13 Ground
- B14 Ground
- B15 Ground
- B16 Ground
- B17 Ground
- B18 Ground

ATF : Automatic transmission fluid

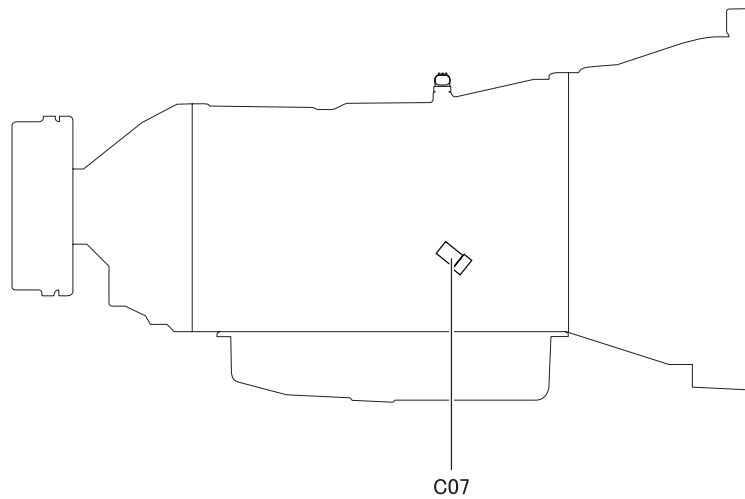
INSTALLED LOCATIONS OF PARTS

C01 to 07

Left side view

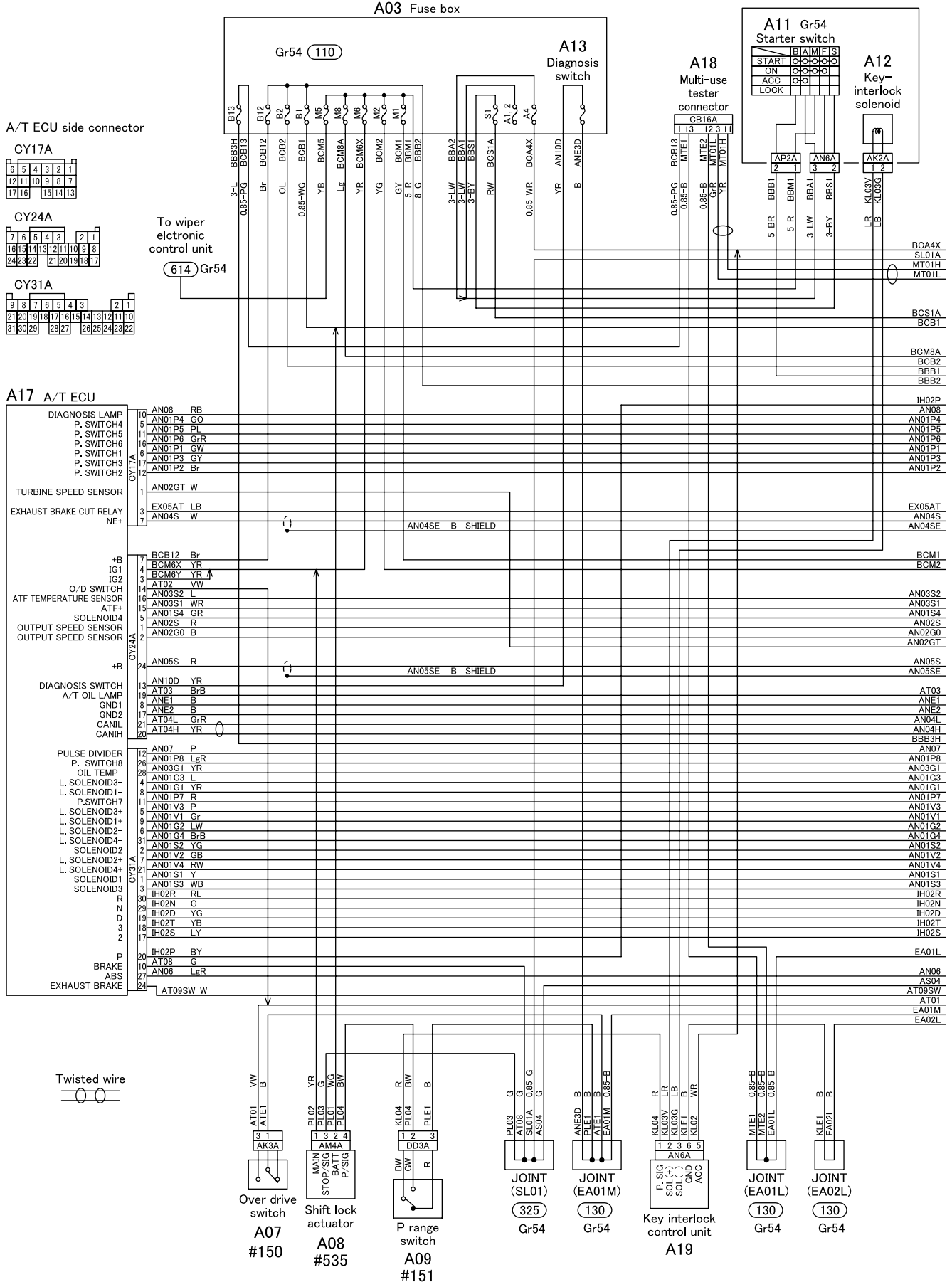


Right side view

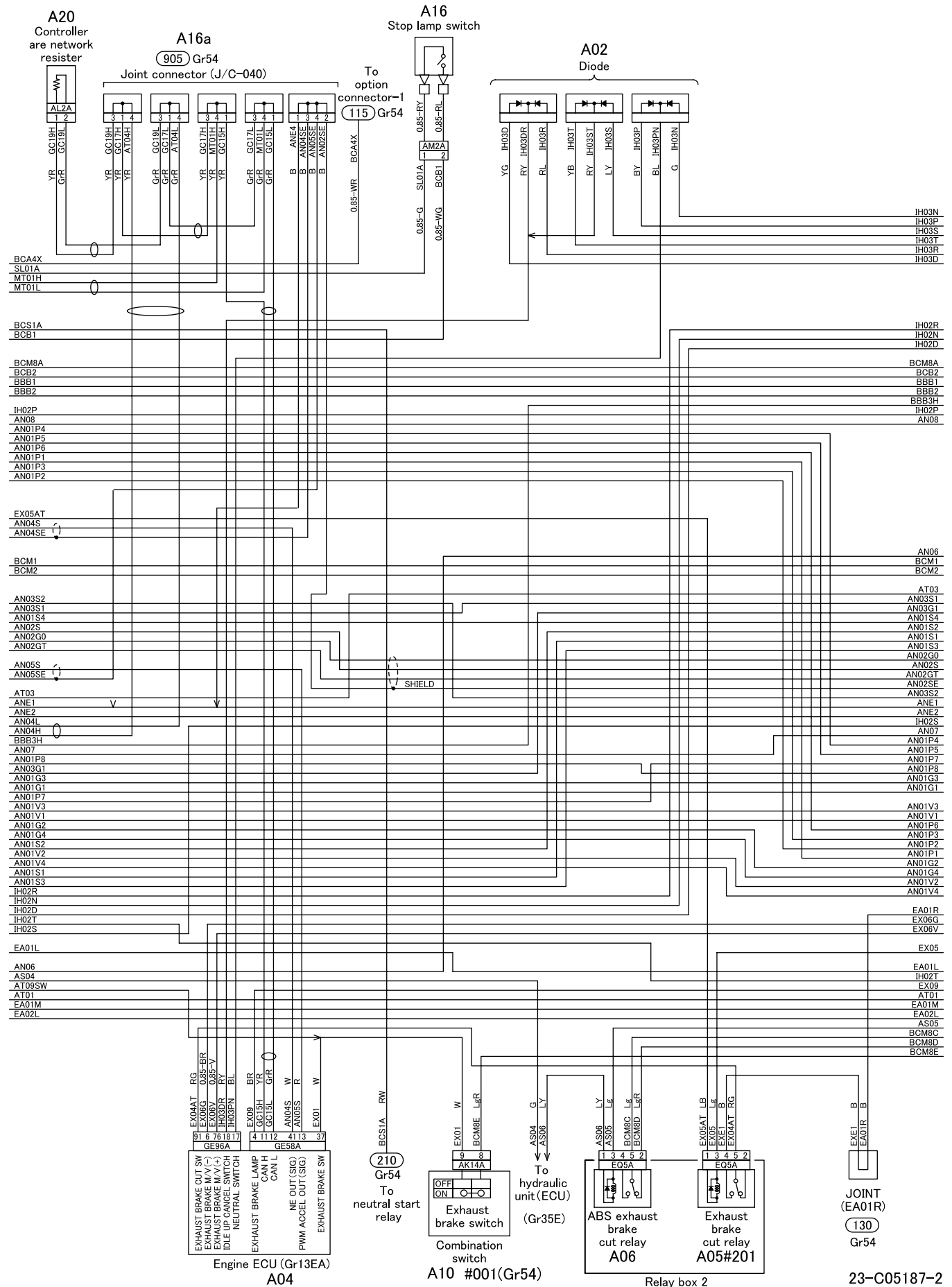


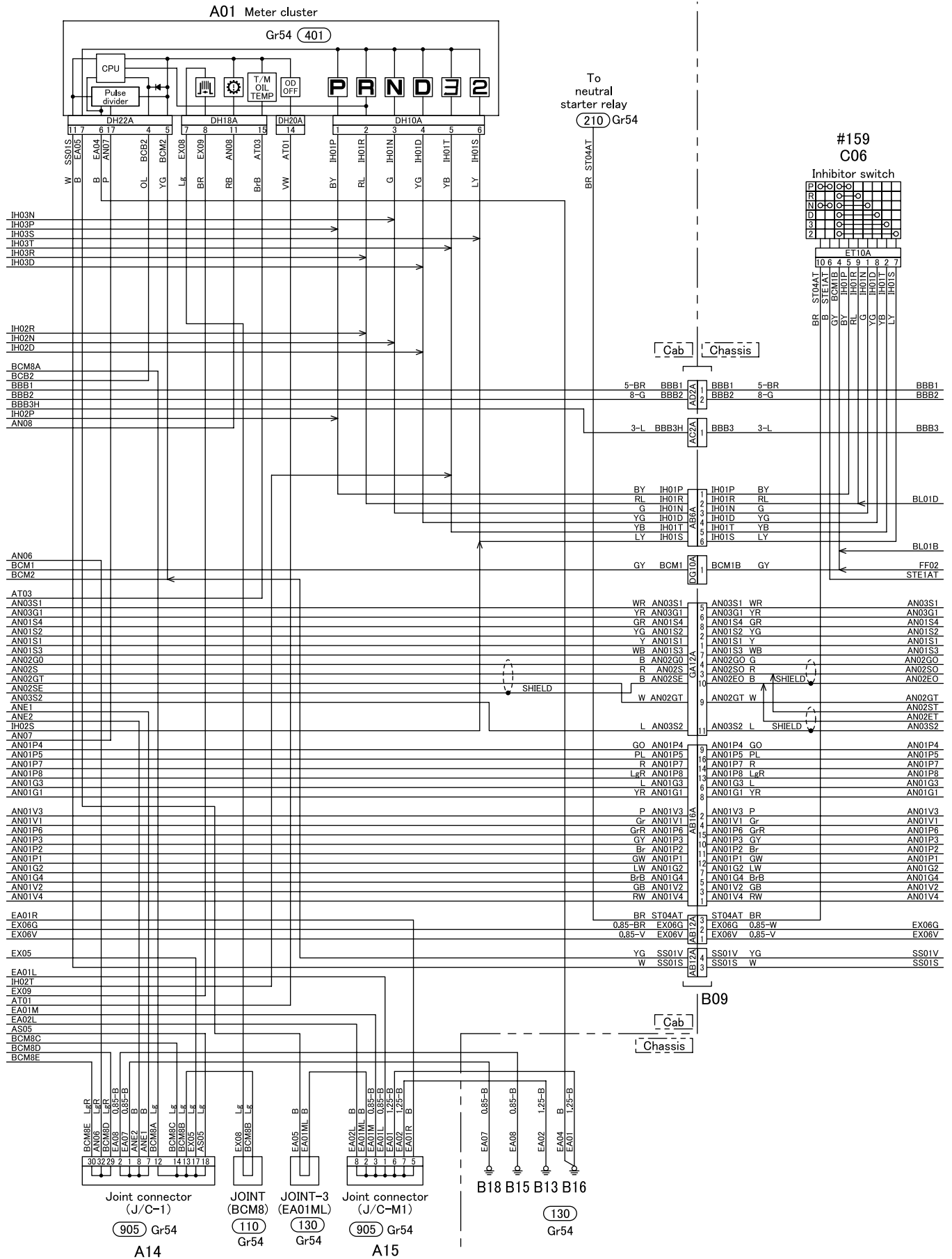
- C01 Turbine speed sensor
- C02 A/T solenoid [ET10A]
- C03 A/T solenoid [DG12A]
- C04 Output speed sensor
- C05 Vehicle speed sensor
- C06 Inhibitor switch
- C07 Oil temperature sensor (outside)

A/T : Automatic transmission



ELECTRICAL CIRCUIT DIAGRAM





ELECTRICAL CIRCUIT DIAGRAM

