2. Diagnostic Trouble Code (DTC) Detecting Criteria

A: DTC P0500 VEHICLE SPEED SENSOR “A”

1. OUTLINE OF DIAGNOSIS

- Judge the malfunction of VDC wheel speed sensor.
- Judge as NG when the wheel speed sensor normal status signal from VDC is cleared.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10.9 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Signal of malfunction from Vehicle Dynamics Control Module NOTE: The VDC controller detects malfunction if one of the speed sensors does not output a signal and the other vehicle speed sensor output signal is above 7.46 MPH.	ON

Time Needed for Diagnosis: 2.5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

B: DTC P0601 INTERNAL CONTROL MODULE MEMORY CHECKSUM ERROR

1. OUTLINE OF DIAGNOSIS

- Judge the malfunction in ROM area of the TCM.
- Judge as NG when the consistency in the ROM area is lost.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Checksum (ROM)	Error

Time Needed for Diagnosis: Immediately
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

C: DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR

1. OUTLINE OF DIAGNOSIS

- Judge the malfunction in RAM area of the TCM.
- Judge as NG if an attempt to write to RAM area failed.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Writing-check (RAM) NOTE: This check is carried out about the RAM only used for CAN communication.	Error

Time Needed for Diagnosis: Immediately
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

D: DTC P062F INTERNAL CONTROL MODULE EEPROM ERROR

1. OUTLINE OF DIAGNOSIS

Diagnosis 1
- Judge the malfunction in EEPROM area of the TCM.
- Judge as NG if an attempt to write to EEPROM area failed.

Diagnosis 2
- Judge the malfunction in EEPROM area of the TCM.
- Judge as malfunction when the consistency in the EEPROM area is lost.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Diagnosis 1	
12 V battery system voltage	≥ 9 V
Diagnosis 2	
12 V battery system voltage	≥ 9 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Diagnosis 1	
Writing-check (EEPROM)	Error
Diagnosis 2	
Checksum (EEPROM)	Error

Time Needed for Diagnosis: Immediately
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

E: DTC P0705 TRANSMISSION RANGE SENSOR CIRCUIT (PRNDL INPUT)

1. OUTLINE OF DIAGNOSIS

- Detect the malfunction of Range Switch.
- Judge as NG if more than one input of Range Switch are detected.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Engine speed	≥ 1500 rpm

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Two or more transmission range switches ON NOTE: “Transmission range switch ON” is defined as transmission range switch input voltage < 1.7 V.	True

Time Needed for Diagnosis: 5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

F: DTC P0708 AT RANGE SWITCH NOT INPUTTED

1. OUTLINE OF DIAGNOSIS

- Detect the malfunction of Range Switch.
- Judge as NG if there is no input from all Range Switches.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Vehicle speed (calculated from secondary pulley shaft speed)	≥ 6 MPH

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
All transmission range switches OFF NOTE: “Transmission range switch OFF” is defined as transmission range switch input voltage ≥ 3.4 V.	True

Time Needed for Diagnosis: 3 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

G: DTC P0711 ATF TEMP. SENSOR CIRCUIT RANGE/PERFORMANCE

1. OUTLINE OF DIAGNOSIS

Diagnosis 1
• Judge the malfunction of transmission oil temperature sensor characteristics (stuck to low temperature side).
• Judge as NG if the amount of oil temperature change since ignition ON is equal to or below the predetermined value.
Diagnosis 2
• Judge the malfunction of transmission oil temperature sensor characteristics (stuck to high temperature side).
• Judge as malfunction when the difference of engine coolant temperature and CVT oil temperature at starting is a predetermined value or more.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Diagnosis 1	
12 V battery system voltage	≥ 10 V
Engine speed (The timer is held when the following conditions are not satisfied.)	> 600 rpm
Transmission range	Drive
Vehicle speed (calculated from secondary pulley shaft speed)	≥ 21.9 MPH
Diagnosis 2	
12 V battery system voltage	≥ 10 V
Engine coolant temperature at the end of the previous drive cycle – Engine coolant temperature at engine start	≥ 40 degC

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Diagnosis 1	
Absolute change of measured Transmission fluid temperature sensor input voltage	≤ 0.049 V
Transmission fluid temperature	< 20 degC
Diagnosis 2	
Transmission fluid temperature – Engine coolant temperature at engine start	> 46 degC

Time Needed for Diagnosis:
- **Diagnosis 1:** 600 s
- **Diagnosis 2:** 300 s

Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

H: DTC P0712 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT LOW INPUT

1. OUTLINE OF DIAGNOSIS

- Detect the ground short circuit of transmission oil temperature sensor.
- Judge as NG if the detected voltage of transmission oil temperature sensor is lower than the predetermined value.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Measured Transmission fluid temperature sensor input voltage (Transmission fluid temperature)	< 0.117 V (> 146 degC)

Time Needed for Diagnosis: 1 second
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

I: DTC P0713 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT HIGH INPUT

1. OUTLINE OF DIAGNOSIS

- Detect open circuit or short circuit to power supply of the transmission oil temperature sensor 5 V system.
- Judge as NG if the detected voltage of transmission oil temperature sensor is higher than the predetermined value.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V
Vehicle speed (calculated from secondary pulley speed)	≥ 6.3 MPH
Above condition satisfied for	≥ 50 s

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Measured Transmission fluid temperature sensor input voltage	> 4.507 V
(Transmission fluid temperature)	(< – 52 degC)

Time Needed for Diagnosis: 1 second
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

J: DTC P0716 TORQUE CONVERTER TURBINE SPEED

1. OUTLINE OF DIAGNOSIS

- Detect the malfunction of turbine speed sensor signal characteristics.
- Judge as NG if the turbine speed against the engine speed is outside the possible range considering the hardware capabilities.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Measured turbine shaft speed	≥ 50 rpm

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Engine Speed – Measured turbine shaft speed	> Table 1 rpm

Table 1

Measured turbine shaft speed (rpm)	0	500	1000	1500	2000	2500	3000	3500
Engine Speed – Measured turbine shaft speed (rpm)	3700	3227	2755	2282	1856	1519	1213	956

Measured turbine shaft speed (rpm)	4000	4500	5000	5500	6000	6500	7000
Engine Speed – Measured turbine shaft speed (rpm)	786	713	651	601	569	544	520

Time Needed for Diagnosis: 10 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

K: DTC P0717 INPUT/TURBINE SPEED SENSOR "A" CIRCUIT NO SIGNAL

1. OUTLINE OF DIAGNOSIS

- Detect the no input signal from the turbine speed sensor.
- Judge as NG if there is no input signal from the turbine speed sensor, while the primary speed sensor on the same shaft has the input signal with the forward/reverse clutch engaged.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Engine speed	≥ 400 rpm
Transmission range	Drive or Reverse
Measured primary pulley shaft speed	≥ 500 rpm

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Measured turbine shaft speed	0 rpm

Time Needed for Diagnosis: 0.5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

L: DTC P0719 BRAKE SWITCH CIRCUIT LOW

1. OUTLINE OF DIAGNOSIS

- Detect no input from the brake signal.
- Judge as NG if a predetermined number of deceleration occurs while the cruise control is set to OFF and the brake is OFF.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Cruise control	OFF
Malfunctions listed on the right column are not detected:	P0717

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Number of times that vehicle speed changes from 30 km/h to 1 km/h while the brake SW is OFF	> 10 count

Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

M: DTC P0724 BRAKE SWITCH CIRCUIT HIGH

1. OUTLINE OF DIAGNOSIS

- Detect the brake signal stuck to ON.
- Judge as NG if a predetermined number of acceleration occurs while the cruise control is set to OFF and the brake is ON.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Cruise control	OFF
Malfunctions listed on the right column are not detected:	P0717

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Number of times that vehicle speed changes from 1 km/h to 30 km/h while the brake SW is ON	> 10 count

Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

N: DTC P0730 GEARSHIFT CONTROL PERFORMANCE ABNORMAL

1. OUTLINE OF DIAGNOSIS

- Detect the abnormality in transmission gear ratio control function.
- Judge as NG if a discrepancy between the transmission target gear ratio (as internal data) and the actual gear ratio becomes the specified value or more. (Compare the value of "Gear Ratio Target × Secondary pulley speed ≈ Target primary speed equivalent value" with the value of primary pulley speed sensor.)

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Engine speed	≥ 500 rpm
Transmission range	Drive

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
|Target primary pulley shaft speed – Measured primary pulley shaft speed|	≥ 600 rpm
(Commanded duty of shift up pressure control solenoid valve	≥ 90%
or	
Commanded duty of shift down pressure control solenoid valve)	≥ 90%

Time Needed for Diagnosis: 5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

O: DTC P0746 PRESSURE CONTROL SOLENOID "A" PERFORMANCE/STUCK OFF

1. OUTLINE OF DIAGNOSIS

• Detect the malfunction of transmission line pressure solenoid and hydraulic circuit (stuck to low pressure side).
• Judge as NG if “Target line pressure – Actual line pressure” becomes the predetermined value or more, while the actual line pressure is equal to or more than the predetermined value.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Engine speed	≥ 1000 rpm
Measured line pressure control solenoid valve current	≤ 0.78 A

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Measured line pressure	< Map1 kPa

Map 1

		Engine speed (rpm)						
		0	500	1000	1500	2000	2500	3000
Transmission fluid temperature (degC)	– 40	0	0	340	404	478	558	643
	– 20	0	0	340	404	478	558	643
	0	0	0	324	382	454	532	616
	20	0	0	366	425	490	565	649
	40	0	0	345	400	466	536	613
	60	0	0	341	389	447	512	591
	80	0	0	319	371	429	488	571
	100	0	0	298	356	412	476	551
	120	0	0	271	329	384	451	519
	140	0	0	243	302	357	425	487

		Engine speed (rpm)						
		3500	4000	4500	5000	5500	6000	6500
Transmission fluid temperature (degC)	– 40	751	883	1042	1167	1264	1292	1274
	– 20	751	883	1042	1167	1264	1342	1424
	0	722	840	991	1135	1240	1319	1395
	20	751	861	1000	1160	1258	1350	1417
	40	708	817	943	1103	1223	1312	1385
	60	677	779	906	1064	1187	1266	1339
	80	652	748	874	1000	1135	1223	1299
	100	629	719	831	947	1069	1181	1251
	120	593	678	780	880	990	1109	1171
	140	557	637	728	813	911	1037	1090

Time Needed for Diagnosis: 5 seconds
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

P: DTC P0747 PRESSURE CONTROL SOLENOID "A" STUCK ON

1. OUTLINE OF DIAGNOSIS

• Detect the malfunction of transmission line pressure solenoid and hydraulic circuit (stuck to high pressure side).
• Judge as NG if “Target line pressure – Actual line pressure” becomes the predetermined value or less, while the actual line pressure is equal to or more than the predetermined value.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Engine speed	≥ 1000 rpm
Measured line pressure control solenoid valve current	≥ 0.5 A

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Measured line pressure	> Map1 kPa

Map 1

		Engine speed (rpm)						
		0	500	1000	1500	2000	2500	3000
Transmission fluid temperature (degC)	– 40	25600	25600	6231	6302	6341	6375	6404
	– 20	25600	25600	6231	6302	6341	6375	6404
	0	25600	25600	5977	6055	6102	6138	6120
	20	25600	25600	5624	5708	5764	5801	5836
	40	25600	25600	5547	5659	5726	5769	5804
	60	25600	25600	5420	5420	5540	5600	5643
	80	25600	25600	5351	5351	5487	5568	5609
	100	25600	25600	5422	5422	5422	5514	5553
	120	25600	25600	5266	5266	5266	5375	5444
	140	25600	25600	5236	5236	5236	5236	5335

		Engine speed (rpm)						
		3500	4000	4500	5000	5500	6000	6500
Transmission fluid temperature (degC)	– 40	6428	6462	6498	6532	6562	6588	6613
	– 20	6428	6462	6498	6532	6562	6588	6613
	0	6147	6184	6224	6260	6288	6314	6338
	20	5867	5905	5950	5988	6013	6041	6062
	40	5838	5878	5920	5956	5983	6008	6036
	60	5678	5718	5755	5785	5816	5836	5880
	80	5646	5680	5718	5745	5785	5816	5859
	100	5596	5635	5677	5711	5743	5780	5817
	120	5489	5522	5564	5600	5639	5682	5685
	140	5381	5408	5451	5489	5535	5585	5552

Time Needed for Diagnosis: 5 seconds
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

Q: DTC P0751 SHIFT SOLENOID "A" PERFORMANCE/STUCK OFF

1. OUTLINE OF DIAGNOSIS

• Detect the malfunction of shift-up fluid pressure control solenoid characteristics and hydraulic circuit characteristics (stuck to low pressure side).
• Judge as NG if the amount of gear rate change per second is equal to or larger than the predetermined value, even though the up-shift command is issued.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Engine speed	≥ 1000 rpm
Commanded duty of shift down pressure control solenoid	0%
Actual pulley ratio *	> 1.5 and < 2.549

* Actual pulley ratio: Measured primary pulley shaft speed / Measured secondary pulley shaft speed

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Actual pulley ratio change for 1 second	> – 0.08
Commanded duty of shift up pressure control solenoid	≥ 90%

Time Needed for Diagnosis: 1 second
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

R: DTC P0752 SHIFT SOLENOID "A" STUCK ON

1. OUTLINE OF DIAGNOSIS

• Detect the malfunction of shift-up fluid pressure control solenoid and hydraulic circuit characteristics (stuck to high pressure side).
• Judge as NG if the amount of gear rate change per second is within the predetermined value, even though the down-shift command is issued.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Engine speed	≥ 1000 rpm
Commanded duty of shift up pressure control solenoid	0%
Actual pulley ratio *	< 0.5

* Actual pulley ratio: Measured primary pulley shaft speed / Measured secondary pulley shaft speed

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Actual pulley ratio change for 1 second	> – 0.08 and < 0.08
Commanded duty of shift down pressure control solenoid	> 80%

Time Needed for Diagnosis: 1 second
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

S: DTC P0756 SHIFT SOLENOID "B" PERFORMANCE/STUCK OFF

1. OUTLINE OF DIAGNOSIS

• Detect the malfunction of shift-down fluid pressure control solenoid characteristics and hydraulic circuit characteristics (stuck to low pressure side).
• Judge as NG if the amount of gear rate change per second is within the predetermined value, even though the down-shift command is issued.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Engine speed	≥ 1000 rpm
Commanded duty of shift up pressure control solenoid	0%
Actual pulley ratio *	≥ 0.406 and ≤ 2.549

* Actual pulley ratio: Measured primary pulley shaft speed / Measured secondary pulley shaft speed

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Actual pulley ratio change for 1 second	> – 0.08 and < 0.08
Commanded duty of shift down pressure control solenoid	> 80%

Time Needed for Diagnosis: 1 second
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

T: DTC P0757 SHIFT SOLENOID "B" STUCK ON

1. OUTLINE OF DIAGNOSIS

• Detect the malfunction of shift-down fluid pressure control solenoid characteristics and hydraulic circuit characteristics (stuck to high pressure side).
• Judge as NG if the amount of gear rate change per second is equal to or larger than the predetermined value, even though the up-shift command is issued.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Engine speed	≥ 1000 rpm
Commanded duty of shift down pressure control solenoid	0%
Actual pulley ratio *	≥ 0.406 and ≤ 2.549

* Actual pulley ratio: Measured primary pulley shaft speed / Measured secondary pulley shaft speed

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Actual pulley ratio change for 1 second	> 0.04
Commanded duty of shift up pressure control solenoid	> 50%

Time Needed for Diagnosis: 1 s × 10 times
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

U: DTC P0776 PRESSURE CONTROL SOLENOID "B" PERFORMANCE/STUCK OFF

1. OUTLINE OF DIAGNOSIS

• Detect the malfunction of transmission forward/reverse clutch pressure solenoid and hydraulic circuit characteristics (stuck to low pressure side).
• Judge as NG if the value calculated by “turbine speed – primary pulley speed” becomes the predetermined value or more, even though the forward/reverse clutch is engaged.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Diagnosis 1	
12 V battery system voltage	≥ 10 V
Transmission range	Drive
Measured turbine shaft speed	≥ 100 rpm
Measured primary pulley shaft speed	≥ 100 rpm
Vehicle speed (from vehicle dynamics control module)	≥ 6 MPH
Commanded forward & reverse clutch pressure control solenoid current	< 0.9 A
Engine speed	≥ 500 rpm
Diagnosis 2	
12 V battery system voltage	≥ 10 V
Transmission range	Drive
Measured turbine shaft speed	> 2000 rpm
Vehicle speed (from vehicle dynamics control module)	< 6 MPH
Commanded forward & reverse clutch pressure control solenoid current	< 0.9 A
Accelerator pedal position (from ECM)	> 6%
Engine speed	≥ 500 rpm

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Diagnosis 1	
|Measured turbine shaft speed – Measured primary pulley shaft speed|	> Table 1 rpm
Diagnosis 2	
Measured turbine shaft speed	> 2000 rpm

Table 1

Vehicle speed (MPH)	0	13	25	38	50	63	75
|Measured turbine shaft speed – Measured primary pulley shaft speed|(rpm)	150	100	100	100	100	100	100

Vehicle speed (MPH)	88	100	113	125	138	150	159
|Measured turbine shaft speed – Measured primary pulley shaft speed|(rpm)	100	100	100	100	100	100	100

Time Needed for Diagnosis: 5 seconds
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

V: DTC P0801 REVERSE INHIBIT CONTROL CIRCUIT

1. OUTLINE OF DIAGNOSIS

- Detect the malfunction of shift lock solenoid or circuit.
- Judge as NG if abnormal signal from the integrated unit is received, when bus off is not detected and there is no trouble in CAN between the integrated unit.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Malfunctions listed on the right column are not detected:	U0073 U0140, U0422

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Shift lock solenoid system circuit abnormal (received from BIU)	ON

Time Needed for Diagnosis: 1 second
Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

W: DTC P0841 SECONDARY OIL PRESSURE SENSOR PERFORMANCE

1. OUTLINE OF DIAGNOSIS

- Detect the malfunction of transmission fluid pressure control function.
- Judge as NG if a discrepancy between the target secondary oil pressure (as internal data) and the detected value of the secondary oil pressure sensor becomes the specified value or more.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Engine speed	≥ Table 1 rpm

Table 1

Target line pressure (kPa)	0	500	1000	1500	2000	3000	4000	5000	6000
Engine speed (rpm)	400	600	965	1180	1370	1670	1930	2150	2340

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
|Target line pressure – Measured line pressure|	≥ 500 kPa

Time Needed for Diagnosis: 5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

X: DTC P0842 SECONDARY OIL PRESSURE SENSOR CIRCUIT (LOW)

1. OUTLINE OF DIAGNOSIS

- Detect the ground short circuit of the transmission line pressure sensor.
- Judge as NG if the detected voltage of transmission line pressure sensor is lower than the predetermined value.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Measured line pressure sensor input voltage (Line pressure)	< 0.195 V (< – 574 kPa)

Time Needed for Diagnosis: 0.5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

Y: DTC P0843 SECONDARY OIL PRESSURE SENSOR CIRCUIT (HIGH)

1. OUTLINE OF DIAGNOSIS

- Detect short circuit to power supply or open circuit of the transmission line pressure sensor 5 V system.
- Judge as NG if the detected voltage of the transmission line pressure sensor is higher than the predetermined value.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Measured line pressure sensor input voltage (Line pressure)	> 4.883 V (> 8200 kPa)

Time Needed for Diagnosis: 1.5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

Z: DTC P0890 AT SELF-SHUT RELAY DIAGNOSIS (LOW)

1. OUTLINE OF DIAGNOSIS

- Detect the malfunction of transmission fluid pressure solenoid drive power supply relay circuit.
- Judge as NG if the transmission fluid pressure solenoid drive power supply voltage is lower than the predetermined value.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V
Ignition state	Run or Crank

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Measured TCM input voltage which is supplied from 12 V battery system through the TCM Power Relay	< 2 V

Time Needed for Diagnosis: 0.5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AA:DTC P0951 MANUAL SWITCH

1. OUTLINE OF DIAGNOSIS

- Detect the GND-output short (ground-fault) in manual SW circuit.
- Judge as NG if the manual SW is ON in P, R or N range.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Malfunctions listed on the right column are not detected:	P0705, P0708

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Manual SW status in other than D range	ON

Time Needed for Diagnosis: 5 s
Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

AB:DTC P0961 PRESSURE CONTROL SOLENOID "A" CONTROL CIRCUIT RANGE/PERFORMANCE

1. OUTLINE OF DIAGNOSIS

- Detect the malfunction of transmission line pressure solenoid drive circuit.
- Judge as NG when the deviation between target current and actual current of the transmission line pressure solenoid becomes equal to or larger than the predetermined value.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
| Target line pressure control solenoid valve current – Measured line pressure control solenoid valve current |	> 0.2 A

Time Needed for Diagnosis: 5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AC:DTC P0962 SECONDARY SOLENOID CIRCUIT (LOW)

1. OUTLINE OF DIAGNOSIS

Diagnosis 1
- Detect the ground short of the transmission line pressure solenoid drive circuit.
- Judge as NG if the transmission line pressure solenoid drive current is higher than the predetermined value.

Diagnosis 2
- Detect the ground short of the transmission line pressure solenoid drive circuit.
- Judge as NG if an overcurrent is detected more than 10 times in the transmission line pressure solenoid drive circuit.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Diagnosis 1	
12 V battery system voltage	≥ 9 V
Commanded line pressure control solenoid valve current	≥ 0.1 A
Diagnosis 2	
12 V battery system voltage	≥ 9 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Diagnosis 1	
Measured line pressure control solenoid valve current	≥ 1.1 A
Diagnosis 2	
Signal of malfunction from solenoid driver IC	ON
As defined by:	
Measured line pressure control solenoid valve current ≥ 1.2 A	

Time Needed for Diagnosis: 0.5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AD:DTC P0963 SECONDARY SOLENOID CIRCUIT (HIGH)

1. OUTLINE OF DIAGNOSIS

- Detect short circuit to power supply or open circuit of the transmission line pressure solenoid drive circuit.
- Judge as NG if the transmission line pressure solenoid drive current is lower than the predetermined value.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V
Commanded line pressure control solenoid valve current	≥ 0.2 A

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Measured line pressure control solenoid valve current	< 0.1 A

Time Needed for Diagnosis: 0.5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AE:DTC P0965 FORWARD & REVERSE SOLENOID FUNCTION

1. OUTLINE OF DIAGNOSIS

Diagnosis 1
• Detect the malfunction of transmission forward/reverse clutch pressure solenoid drive circuit characteristics.
• Judge as NG when the deviation between set current and actual current of the transmission forward/reverse clutch pressure solenoid drive circuit becomes equal to or larger than the predetermined value.
Diagnosis 2
• Detect the malfunction of transmission forward/reverse clutch pressure solenoid drive circuit characteristics.
• Judge as NG when the transmission forward/reverse clutch pressure solenoid drive current is within the predetermined value.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Diagnosis 1	
12 V battery system voltage	≥ 9 V
Diagnosis 2	
12 V battery system voltage	≥ 9 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Diagnosis 1	
|Target forward & reverse clutch pressure control solenoid current – Measured forward & reverse clutch pressure control solenoid current|	> 0.2 A
Diagnosis 2	
Measured forward & reverse clutch pressure control solenoid current	> 1.08 A and ≤ 1.6 A

Time Needed for Diagnosis: 5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AF:DTC P0966 FORWARD & REVERSE SOLENOID CIRCUIT (LOW)

1. OUTLINE OF DIAGNOSIS

- Detect the GND-output short in transmission forward/reverse clutch pressure solenoid circuit.
- Judge as NG if an overcurrent is detected more than 10 times in the transmission forward/reverse clutch pressure solenoid drive circuit.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Signal of malfunction from solenoid driver IC As defined by: Measured forward & reverse clutch pressure control solenoid current > 1.6 A	ON

Time Needed for Diagnosis: 0.02 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AG:DTC P0967 FORWARD & REVERSE LINEAR SOLENOID CIRCUIT (HIGH)

1. OUTLINE OF DIAGNOSIS

• Detect open circuit or power supply-output short circuit in the transmission forward/reverse clutch pressure solenoid circuit.
• Judge as NG if the transmission forward/reverse clutch pressure solenoid drive current is lower than the predetermined value.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V
Target forward & reverse clutch pressure control solenoid current	≥ 0.3 A

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Signal of malfunction from solenoid driver IC	ON
As defined by:	
Measured forward & reverse clutch pressure control solenoid current < 5.9 mA	

Time Needed for Diagnosis: 1 second
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AH:DTC P0970 TRANSFER SOLENOID CIRCUIT (LOW)

1. OUTLINE OF DIAGNOSIS

- Detect the GND-output short in transfer solenoid circuit.
- Judge as NG if a ground short circuit is detected more than 10 times via the detection circuit for the transfer solenoid drive circuit.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Target duty cycle	0%

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Malfunction signal from solenoid driver IC	≥ 10 count

Time Needed for Diagnosis: Immediately
Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

AI: DTC P0971 TRANSFER SOLENOID CIRCUIT (HIGH)

1. OUTLINE OF DIAGNOSIS

- Detect open circuit or power supply-output short circuit in the transfer solenoid circuit.
- Judge as NG if an open circuit or a short circuit to ground is detected more than 10 times via the detection circuit in the transfer solenoid drive circuit.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Target duty cycle	100%

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Malfunction signal from solenoid driver IC	≥ 10 count

Time Needed for Diagnosis: Immediately
Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

AJ:DTC P0973 PRIMARY SOLENOID SYSTEM A CIRCUIT (LOW)

1. OUTLINE OF DIAGNOSIS

- Detect the ground short of the shift-up fluid pressure control solenoid drive circuit.
- Judge as NG if a ground short circuit is detected more than 10 times in the shift-up fluid pressure control solenoid drive circuit.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V
Commanded duty of shift up pressure control solenoid	100%

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Signal of malfunction from solenoid driver IC As defined by: Measured shift up pressure control solenoid voltage ≤ 0.8 V	ON

Time Needed for Diagnosis: 0.2 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AK:DTC P0974 PRIMARY SOLENOID SYSTEM A CIRCUIT (HIGH)

1. OUTLINE OF DIAGNOSIS

• Detect short circuit to power supply or open circuit of the shift-up fluid pressure control solenoid drive circuit.
• Judge as NG if an open circuit or a power-supply short circuit is detected more than 10 times in the shift-up fluid pressure control solenoid drive circuit.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V
Commanded duty of shift up pressure control solenoid	0%

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Signal of malfunction from solenoid driver IC	ON
As defined by:	
Measured shift up pressure control solenoid voltage ≥ 2.5 V	

Time Needed for Diagnosis: 0.2 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AL:DTC P0976 PRIMARY SOLENOID SYSTEM B CIRCUIT (LOW)

1. OUTLINE OF DIAGNOSIS

- Detect the ground short of the shift-down fluid pressure control solenoid drive circuit.
- Judge as NG if a ground short circuit is detected more than 10 times in the shift-down fluid pressure control solenoid drive circuit.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V
Commanded duty of shift down pressure control solenoid	100%

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Signal of malfunction from solenoid driver IC As defined by: Measured shift down pressure control solenoid voltage ≤ 0.8 V	ON

Time Needed for Diagnosis: 0.2 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AM:DTC P0977 PRIMARY SOLENOID SYSTEM B CIRCUIT (HIGH)

1. OUTLINE OF DIAGNOSIS

• Detect short circuit to power supply or open circuit of the shift-down fluid pressure control solenoid drive circuit.
• Judge as NG if an open circuit or a power-supply short circuit is detected more than 10 times in the shift-down fluid pressure control solenoid drive circuit.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V
Commanded duty of shift down pressure control solenoid	0%

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Signal of malfunction from solenoid driver IC As defined by: Measured shift down pressure control solenoid voltage ≥ 2.5 V	ON

Time Needed for Diagnosis: 0.2 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AN:DTC P160A RANDOM ACCESS MEMORY (RAM) ERROR

1. OUTLINE OF DIAGNOSIS

- Judge the malfunction in RAM area of the TCM.
- Judge as NG if an attempt to write to RAM area failed.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Writing-check (RAM) NOTE: This check is carried out about the RAM used except for CAN communication.	Error

Time Needed for Diagnosis: Immediately
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

AO:DTC P170A L-RANGE SW SYSTEM

1. OUTLINE OF DIAGNOSIS

- Detect the GND-output short (ground-fault) in L range SW circuit.
- Judge as NG if the L range SW is ON in P, R or N range.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Malfunctions listed on the right column are not detected:	P0705, P0708

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
L range SW status in other than D range	ON

Time Needed for Diagnosis: 5 s
Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

AP:DTC P2158 VEHICLE SPEED SENSOR "B"

1. OUTLINE OF DIAGNOSIS

- Judge the malfunction of VDC wheel speed sensor.
- Judge as NG when the wheel speed sensor normal status signal from VDC is cleared.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10.9 V

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Signal of malfunction from Vehicle Dynamics Control Module NOTE: The VDC controller detects malfunction if one of the speed sensors does not output a signal and the other vehicle speed sensor output signal is above 7.46 MPH.	ON

Time Needed for Diagnosis: 2.5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AQ:DTC P2530 IGNITION SWITCH RUN POSITION CIRCUIT

1. OUTLINE OF DIAGNOSIS

- Detect the malfunction of ignition SW circuit.
- Judge as NG if the ignition SW signals are lost 5 times or more even though the engine is ON.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10.9 V
Engine speed	≥ 500 rpm

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Count of temporarily discontinuous input of ignition switch	≥ 5 count

Time Needed for Diagnosis: 5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AR:DTC P2746 PRIMARY PULLEY REVOLUTION SPEED SENSOR CIRCUIT

1. OUTLINE OF DIAGNOSIS

Diagnosis 1
- Detect the malfunction of primary speed sensor signal characteristics.
- Judge as NG if the primary speed, compared with the speeds of other parts, is outside the possible range considering the hardware capabilities.

Diagnosis 2
- Detect the malfunction of primary speed sensor signal characteristics.
- Judge as NG if the primary speed exceeds the predetermined value.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Diagnosis 1	
12 V battery system voltage	≥ 9 V
Transmission range	Drive or Reverse
(Measured turbine shaft speed / Measured secondary pulley shaft speed)	≥ 0.4 and ≤ 2.55
Diagnosis 2	
12 V battery system voltage	≥ 9 V
Transmission range	Drive or Reverse
(Measured turbine shaft speed / Measured secondary pulley shaft speed)	≥ 0.4 and ≤ 2.55

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Diagnosis 1	
(Measured primary pulley shaft speed / Measured secondary pulley shaft speed)	< 0.36 or > 2.80
Diagnosis 2	
Measured primary pulley shaft speed	> 7140 rpm

Time Needed for Diagnosis: 5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AS:DTC P2747 INTERMEDIATE SHAFT SPEED SENSOR "B" CIRCUIT NO SIGNAL

1. OUTLINE OF DIAGNOSIS

- Detect the no input signal from the primary speed sensor.
- Judge as NG if there is no input signal from the primary pulley speed sensor, while the secondary pulley speed sensor has the input signal although the primary and secondary pulleys are interlocked via the chain.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V
Measured secondary pulley shaft speed	≥ 500 rpm

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Measured primary pulley shaft speed	0 rpm

Time Needed for Diagnosis: 0.5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AT:DTC P2750 SEC. PULLEY REVOLUTION SPEED SENSOR CIRCUIT

1. OUTLINE OF DIAGNOSIS

- Detect the malfunction of the secondary speed sensor characteristics.
- Judge as NG if the deviation of vehicle speed between VDC and the secondary speed sensor becomes the predetermined value or more.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Vehicle speed (from vehicle dynamics control module)	≥ 5 MPH

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
|Vehicle speed (calculated from secondary pulley shaft speed) – Vehicle speed (from vehicle dynamics control module)|	> 10 MPH

Time Needed for Diagnosis: 5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AU:DTC P2751 INTERMEDIATE SHAFT SPEED SENSOR "C" CIRCUIT NO SIGNAL

1. OUTLINE OF DIAGNOSIS

- Detect the no input signal from the secondary speed sensor.
- Judge as NG if there is no input signal from the secondary pulley speed sensor, while the primary pulley speed sensor has the input signal although the primary and secondary pulleys are interlocked via the chain.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V
Transmission range	Drive or Reverse
Measured primary pulley shaft speed	≥ 1000 rpm

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Measured secondary pulley shaft speed	0 rpm

Time Needed for Diagnosis: 0.5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AV:DTC P2757 TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT PERFORMANCE/STUCK OFF

1. OUTLINE OF DIAGNOSIS

• Detect the malfunction of lock-up fluid pressure control solenoid, and hydraulic circuit, or drive circuit characteristics (stuck to low pressure side).
• Judge as NG if the deviation between engine speed and turbine speed is the predetermined value or more, even though the lock-up request has been issued.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Engine speed	≥ 1000 rpm
Transmission range	Drive
Commanded duty of torque converter clutch pressure control solenoid	≥ 95%

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
|Engine speed – Measured turbine shaft speed|	> Table1 rpm

Table 1

Measured turbine shaft speed (rpm)	0	500	1000	1500	2000	2500	3000	3500
|Engine speed – Measured turbine shaft speed|(rpm)	200	200	200	200	200	200	200	200

Measured turbine shaft speed (rpm)	4000	4500	5000	5500	6000	6500	7000
|Engine speed – Measured turbine shaft speed|(rpm)	200	200	200	200	200	200	200

Time Needed for Diagnosis: 10 seconds
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

AW:DTC P2758 TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT STUCK ON

1. OUTLINE OF DIAGNOSIS

• Detect the malfunction of lock-up fluid pressure control solenoid, and hydraulic circuit, or drive circuit characteristics (stuck to high pressure side).
• Judge as NG if the deviation between engine speed and turbine speed is the predetermined value or less, even though the lock-up open request has been issued.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Engine speed	≥ 1000 rpm
Transmission range	Drive
Engine torque	> Table 1 N·m
Commanded duty of torque converter clutch pressure control solenoid	≤ 0%

Table 1

Engine coolant temperature (degC)	– 40	– 20	0	20	40	60	80	100
Engine torque (N·m)	80	80	80	80	80	50	50	50

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
|Engine speed – Measured turbine shaft speed|	< Table 2 rpm

Table 2

Measured turbine shaft speed	0	500	1000	1500	2000	2500	3000	3500
|Engine speed – Measured turbine shaft speed|(rpm)	0	0	50	50	50	50	50	50

Measured turbine shaft speed	4000	4500	5000	5500	6000	6500	7000
|Engine speed – Measured turbine shaft speed|(rpm)	50	50	50	50	50	50	50

Time Needed for Diagnosis: 10 seconds
Malfunction Indicator Light Illumination: Illuminates when malfunction occurs in 2 continuous driving cycles.

AX:DTC P2763 LOCK-UP DUTY SOLENOID CIRCUIT (HIGH)

1. OUTLINE OF DIAGNOSIS

• Detect short circuit to power supply or open circuit of the lock-up clutch pressure control solenoid drive circuit.
• Judge as NG if an open circuit or a power-supply short circuit is detected more than 10 times in the lock-up clutch pressure control solenoid drive circuit.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V
Commanded duty of torque converter clutch pressure control solenoid	0%

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Signal of malfunction from solenoid driver IC	ON
As defined by:	
Measured torque converter clutch pressure control solenoid voltage ≥ 2.5 V	

Time Needed for Diagnosis: 0.2 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AY:DTC P2764 LOCK-UP DUTY SOLENOID CIRCUIT (LOW)

1. OUTLINE OF DIAGNOSIS

- Detect the ground short of the lock-up clutch pressure control solenoid drive circuit.
- Judge as NG if a ground short circuit is detected more than 10 times in the lock-up clutch pressure control solenoid drive circuit.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 9 V
Commanded duty of torque converter clutch pressure control solenoid	100%

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
Signal of malfunction from solenoid driver IC	ON
As defined by:	
Measured torque converter clutch pressure control solenoid voltage ≤ 0.8 V	

Time Needed for Diagnosis: 0.2 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

AZ:DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF

1. OUTLINE OF DIAGNOSIS

- Detect malfunction of CAN communication.
- Judge as NG when CAN communication failure has occurred.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Measured turbine shaft speed	> 0 rpm
or	
Transmission range	Drive or Reverse

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
CAN bus condition	Bus off

Time Needed for Diagnosis: 2 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

BA:DTC U0100 LOST COMMUNICATION WITH ECM/PCM "A"

1. OUTLINE OF DIAGNOSIS

- Detect malfunction of CAN communication.
- Judge as NG when CAN communication failure occurs with the ECM.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Measured turbine shaft speed	> 0 rpm
or	
Transmission range	Drive or Reverse

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
CAN data from ECM	Lost

Time Needed for Diagnosis: 0.5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

BB:DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE

1. OUTLINE OF DIAGNOSIS

- Detect malfunction of CAN communication.
- Judge as NG when CAN communication with VDCCM is not possible.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Measured turbine shaft speed	> 0 rpm
or	
Transmission range	Drive or Reverse

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
CAN data from Vehicle Dynamics Control Module	Lost

Time Needed for Diagnosis: 0.5 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

BC:DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE

1. OUTLINE OF DIAGNOSIS

- Detect malfunction of CAN communication.
- Judge as NG when CAN communication failure occurs with the body integrated unit.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Turbine shaft speed or D range switch	> 0 rpm ON

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
CAN data from BIU	Lost

Time Needed for Diagnosis: 2 seconds
Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

BD:DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE

1. OUTLINE OF DIAGNOSIS

- Detect malfunction of CAN communication.
- Judge as NG when CAN communication failure occurs with the combination meter.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Turbine shaft speed or D range switch	> 0 rpm ON

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
CAN data from meter	Lost

Time Needed for Diagnosis: 2 seconds
Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

BE:DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM "A"

1. OUTLINE OF DIAGNOSIS

- Detect malfunction of CAN communication.
- Judge as NG when data received from ECM is not normal.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Measured turbine shaft speed	> 0 rpm
or	
Transmission range	Drive or Reverse

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
CAN data from ECM	Did not change

Time Needed for Diagnosis: 2 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

BF:DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE

1. OUTLINE OF DIAGNOSIS

- Detect malfunction of CAN communication.
- Judge as NG when data received from the VDCCM is not normal.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
12 V battery system voltage	≥ 10 V
Measured turbine shaft speed	> 0 rpm
or	
Transmission range	Drive or Reverse

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
CAN data from Vehicle Dynamics Control Module	Did not change

Time Needed for Diagnosis: 2 seconds
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

BG:DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE

1. OUTLINE OF DIAGNOSIS

- Detect malfunction of CAN communication.
- Judge as NG when data received from the body integrated unit is not normal.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Turbine shaft speed or D range switch	> 0 rpm ON

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
CAN data from BIU	Freeze

Time Needed for Diagnosis: 2 seconds
Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

BH:DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUSTER CONTROL MODULE

1. OUTLINE OF DIAGNOSIS

- Detect malfunction of CAN communication.
- Judge as NG when data received from the combination meter is not normal.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Turbine shaft speed or D range switch	> 0 rpm ON

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
CAN data from meter	Freeze

Time Needed for Diagnosis: 2 seconds
Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

BI: DTC U1235 LOST COMMUNICATION WITH EyeSight

1. OUTLINE OF DIAGNOSIS

- Detect malfunction of CAN communication.
- Judge as NG when CAN communication failure occurs with the stereo camera.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Turbine shaft speed or D range switch	> 0 rpm ON

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
CAN data from stereo camera	Lost

Time Needed for Diagnosis: 2 seconds
Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

BJ:DTC U1433 INVALID DATA RECEIVED FROM EyeSight

1. OUTLINE OF DIAGNOSIS

- Detect malfunction of CAN communication.
- Judge as NG when data received from the stereo camera is not normal.

2. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Turbine shaft speed or D range switch	> 0 rpm ON

3. DIAGNOSTIC METHOD

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

Judgment Value

Malfunction Criteria	Threshold Value
CAN data from stereo camera	Freeze

Time Needed for Diagnosis: 2 seconds
Malfunction Indicator Light Illumination: Malfunction indicator light does not illuminate.

CONTINUOUSLY VARIABLE TRANSMISSION
CVT(TH58A)