



## Failure Diagnosis

1. In principle, ESC and TCS controls are prohibited in case of ABS failure.
2. When ESC or TCS fails, only the failed system control is prohibited.
3. However, when the solenoid valve relay should be turned off in case of ESC failure, refer to the ABS fail-safe.
4. Information on ABS fail-safe is identical to the fail-safe in systems where ESC is not installed.

## Memory of Fail Code

1. It keeps the code as far as the backup lamp power is connected. (O)
2. It keeps the code as far as the HCU power is on. (X)

## Failure Checkup

1. Initial checkup is performed immediately after the HECU power on.
2. Valve relay checkup is performed immediately after the IG2 ON.
3. It executes the checkup all the time while the IG2 power is on.

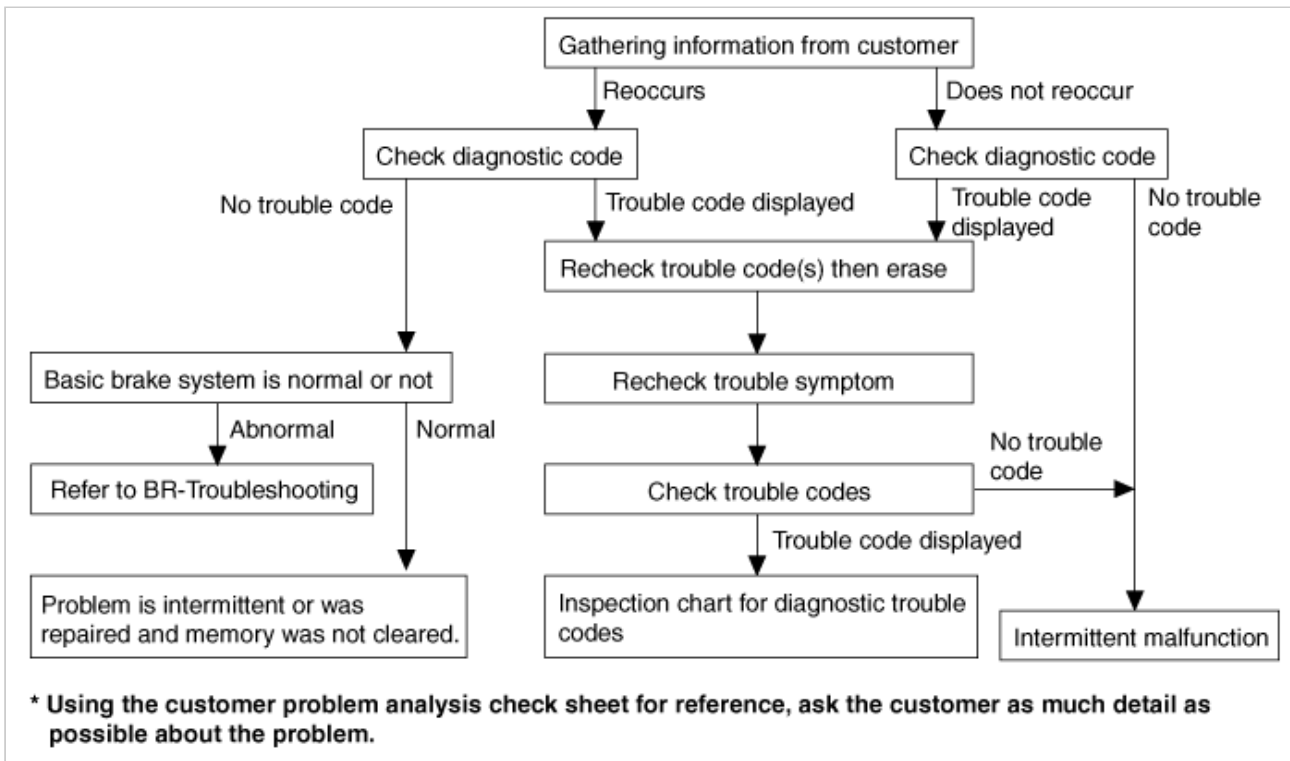
## Countermeasures in Fail

1. Turn the system down and perform the following actions and wait for HECU power OFF.
2. Turn the valve relay off.
3. Stop the control during the operation and do not execute any until the normal condition recovers.

## Warning Lamp ON

1. ESC warning lamp turn on for 3sec after IGN ON.
2. ESC function lamp blinks when ESC Act.
3. If ESC fail occurred, ESC warning turns ON.
4. ESC OFF lamp turn on in case of
  - ESC Switch OFF
  - 3sec after IGN ON

## Standard Flow of Diagnostic Troubleshooting



## Notes With Regard To Diagnosis

The phenomena listed in the following table are not abnormal.

Condition	Explanation
System check sound	When starting the engine, a thudding sound can sometimes be heard coming from inside the engine compartment. This is because the system operation check is being performed.
ABS operation sound	1) Sound of the motor inside the ABS hydraulic unit operation (whine). 2) Sound is generated along with vibration of the brake pedal (scraping). 3) When ABS operates, sound is generated from the vehicle chassis due to repeated brake application and release (Thump : suspension; squeak: tires)
ABS operation (Long braking distance)	For road surfaces such as snow-covered and gravel roads, the braking distance for vehicles with ABS can sometimes be longer than that for other vehicles. Accordingly, advise the customer to drive safely on such roads by lowering the vehicle speed.
Diagnosis detection conditions can vary depending on the diagnosis code. When checking the trouble symptom after the diagnosis code has been erased, ensure that the requirements listed in "Comment" are met.	

## ABS Check Sheet

## ABS Check Sheet

 Inspector's  
Name \_\_\_\_\_

<b>Customer's Name</b>		<b>Registration No.</b>	
		<b>Registration Year</b>	/   /
		<b>VIN.</b>	
<b>Date Vehicle Brought In</b>	/   /	<b>Odometer</b>	Km Miles

<b>Date the Problem First Occurred</b>	/   /
<b>Frequency of Occurrence of Problem</b>	<input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent (   times a day)

<b>Symptoms</b>	<input type="checkbox"/> ABS does not operate.		
	<input type="checkbox"/> ABS does not operate efficiently.		<input type="checkbox"/> Intermittent (   times a day)
	<b>ABS Warning Lamp Abnormal</b>	<input type="checkbox"/> Remains ON	<input type="checkbox"/> Does not light up

<b>Diagnostic Trouble Code Check</b>	<b>1st Time</b>	<input type="checkbox"/> Normal Code	<input type="checkbox"/> Malfunction Code (Code   )
	<b>2nd Time</b>	<input type="checkbox"/> Normal Code	<input type="checkbox"/> Malfunction Code (Code   )

### Problem Symptoms Table

Symptom	Suspect Area
ABS does not operate.	Only when 1 - 4 are all normal and the problem is still occurring, replace the HECU. 1) Check the DTC reconfirming that the normal code is output. 2) Power source circuit. 3) Speed sensor circuit. 4) Check the hydraulic circuit for leakage.
ABS does not operate intermittently.	Only when 1 - 4 are all normal and the problem is still occurring, replace the ABS actuator assembly. 1) Check the DTC reconfirming that the normal code is output. 2) Wheel speed sensor circuit. 3) Stop lamp switch circuit. 4) Check the hydraulic circuit for leakage.
Communication with KDS is not possible. (Communication with any system is not possible)	1) Power source circuit 2) CAN line
Communication with KDS	1) Power source circuit

is not possible. (Communication with ABS only is not possible)	2) CAN line 3) HECU
When ignition key is turned ON (engine OFF), the ABS warning lamp does not light up.	1) ABS warning lamp circuit 2) HECU
Even after the engine is started, the ABS warning lamp remains ON.	1) ABS warning lamp circuit 2) HECU

**⚠ CAUTION**

- During ABS operation, the brake pedal may vibrate or may not be able to be depressed. Such phenomena are due to intermittent changes in hydraulic pressure inside the brake line to prevent the wheels from locking and is not an abnormality.

**ABS Does Not Operate.**

**Detecting condition**

Trouble Symptoms	Possible Cause
Brake operation varies depending on driving conditions and road surface conditions, so diagnosis can be difficult. However if a normal DTC is displayed, check the following probable cause. When the problem is still occurring, replace the ESC control module.	<ul style="list-style-type: none"><li>– Faulty power source circuit</li><li>– Faulty wheel speed sensor circuit</li><li>– Faulty hydraulic circuit for leakage</li><li>– Faulty HECU</li></ul>