DTC	C1246/46	MALFUNCTION IN MASTER CYLINDER PRESSURE SENSOR

CIRCUIT DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
C1246/46	Any of following 1. , 2. , 3. , 4. or 5. is detected: 1. The condition that IG1 terminal voltage is 19 to 32 V and VCM terminal voltage is out of range of 4.4 to 5.6 V continues for 1.2 sec. or more 2. Condition that PMC terminal voltage is out of range of 0.14 to 4.05 V continues for 1.2 sec. or more 3. Condition that stop lamp switch is OFF and PMC terminal voltage is more than 0.86 V or less than 0.3 V continues for 5 sec. or more 4. Vehicle speed is 7 km/h (4 mph) or more and condition that PMC terminal voltage is more than 0.86 V and voltage fluctuation is within 0.01 V continues for 30 sec. 5. Vehicle speed is 10 km/h (6.2 mph) or more and condition that PMC terminal receives noise occurs 7 times or more within 5 sec.	• Stop lamp switch • Master cylinder pressure sensor • Master cylinder pressure sensor circuit

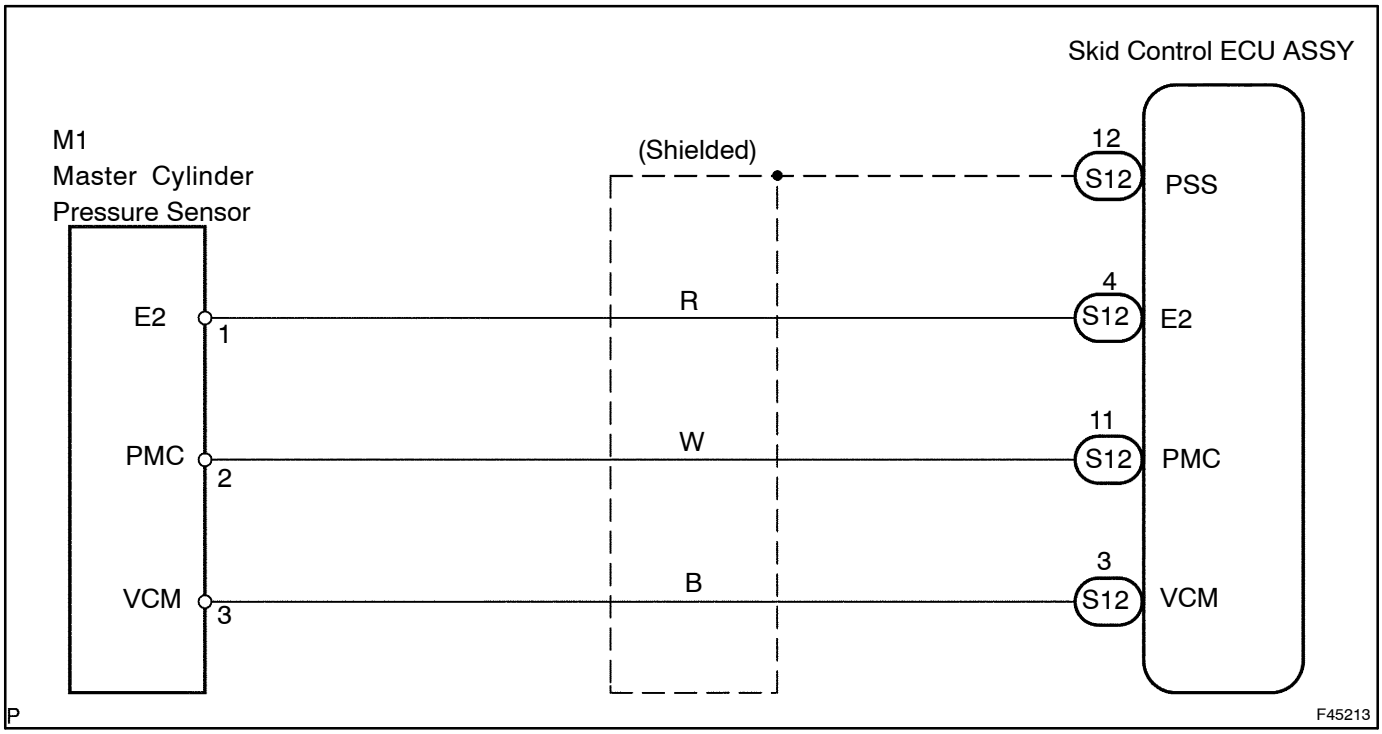
Fail–safe function:

If any trouble occurs in the master cylinder pressure sensor circuit, the ECU will prohibit the BRAKE ASSIST.

HINT:

If the brake pedal is depressed firmly, the brake force may be lowered.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
Start the inspection from step 1 when using the hand–held tester and start from step 2 when not using the hand–held tester.

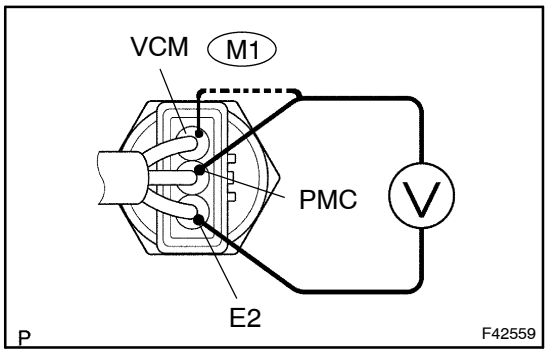
1	READ VALUE OF HAND–HELD TESTER (MASTER CYLINDER PRESSURE SENSOR OUTPUT VALUE)

(a) Select the item ”MAS CYL PRESS1” in the DATA LIST and read its value displayed on the hand–held tester.
(b) Check that the brake fluid pressure value of the master cylinder pressure sensor displayed on the hand–held tester is changing while depressing the brake pedal.
Standard:
Brake fluid pressure value is changing.

OK → **Go to step 4**

NG

2	CHECK MASTER CYLINDER PRESSURE SENSOR



(a) Measure the voltage between terminals VCM and E2 of the M1 connector.
Standard:
4.85 – 5.15 V
(b) Install the LSPV gauge to the front caliper bleeder plug portion and bleed the LSPV gauge.
(c) Remove the air cleaner inlet and battery clamp cover.
(d) Start the engine and depress the brake pedal, and then check the relation between the fluid pressure and voltage between the PMC and E2 terminals of the sensor with the M1 connector still connected.
Standard:

Front Brake Caliper Fluid Pressure	Voltage
0 MPa (0 Kgf/cm^2, 0 psi)	0.5 V
9.8 MPa (100 kgf/cm^2, 1,422 psi)	2.5 V
19.6 MPa (200 kgf/cm^2, 2,844 psi)	4.5 V

NG → **REPLACE MASTER CYLINDER PRESSURE SENSOR**

OK

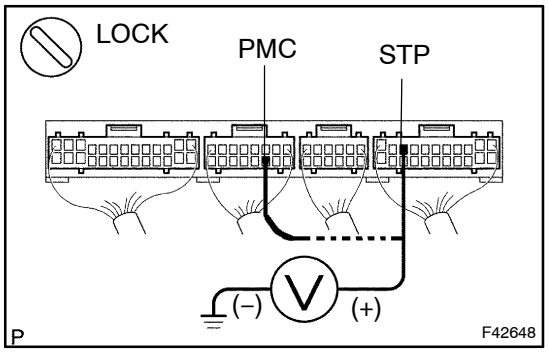
3	CHECK WIRE HARNESS (MASTER CYLINDER PRESSURE SENSOR ⇔ SKID CONTROL ECU ASSY)

(a) Check for open and short circuit in the harness and connector between the M1 sensor and S12 ECU (See page 01–27).

NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4	CHECK SKID CONTROL ECU ASSY (STP AND PMC TEPMINAL VOLTAGE)



(a) Remove the ECU with the connectors still S12 connected.
(b) Measure the voltage between terminal STP of the S12 ECU connector and the body ground when the brake pedal is depressed.
Standard:
20 – 28 V
(c) Measure the voltage between terminal STP of the S12 ECU connector and the body ground when the brake pedal is released.
Standard:
Below 2.0 V
(d) Check whether or not the ECU terminal STP input voltage changes when the stop lamp switch is turned on and off.
(e) Measure the voltage between terminal PMC of the S12 ECU connector and the body ground when the stop lamp switch is turned on and off before STP ON.
Standard:
0.3 V < PMC voltage before STP ON < 0.86 V

NG → CHECK STOP LIGHT SWITCH CIRCUIT

OK

CHECK AND REPLACE SKID CONTROL ECU ASSY (See page 01–27)