

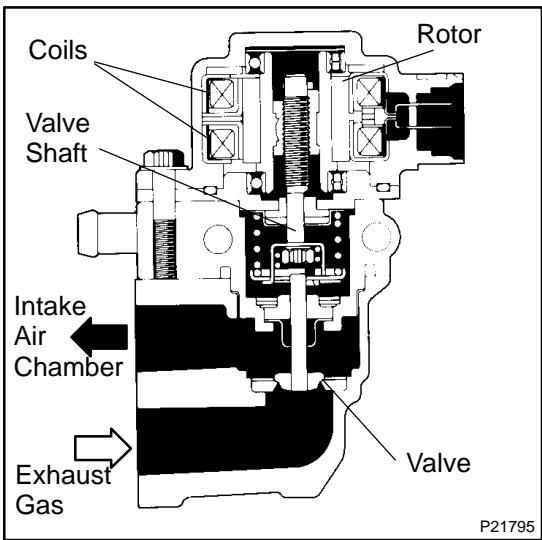
<b>DTC</b>	<b>P0401</b>	<b>Exhaust Gas Recirculation Flow Insufficient Detected</b>
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### CIRCUIT DESCRIPTION

The EGR system recirculates exhaust gas, which is controlled to the proper quantity to suit the driving conditions, into the intake air mixture to slow down combustion, reduce the combustion temperature and reduce NOx emissions.

The lift amount of the EGR valve is controlled by a step motor operated by the ECM. The ECM operates the motor only a preprogrammed amount in response to the engine operating conditions (RPM, intake air volume to adjust the EGR volume to the target value.)

Under the following conditions, EGR is cut to maintain driveability.



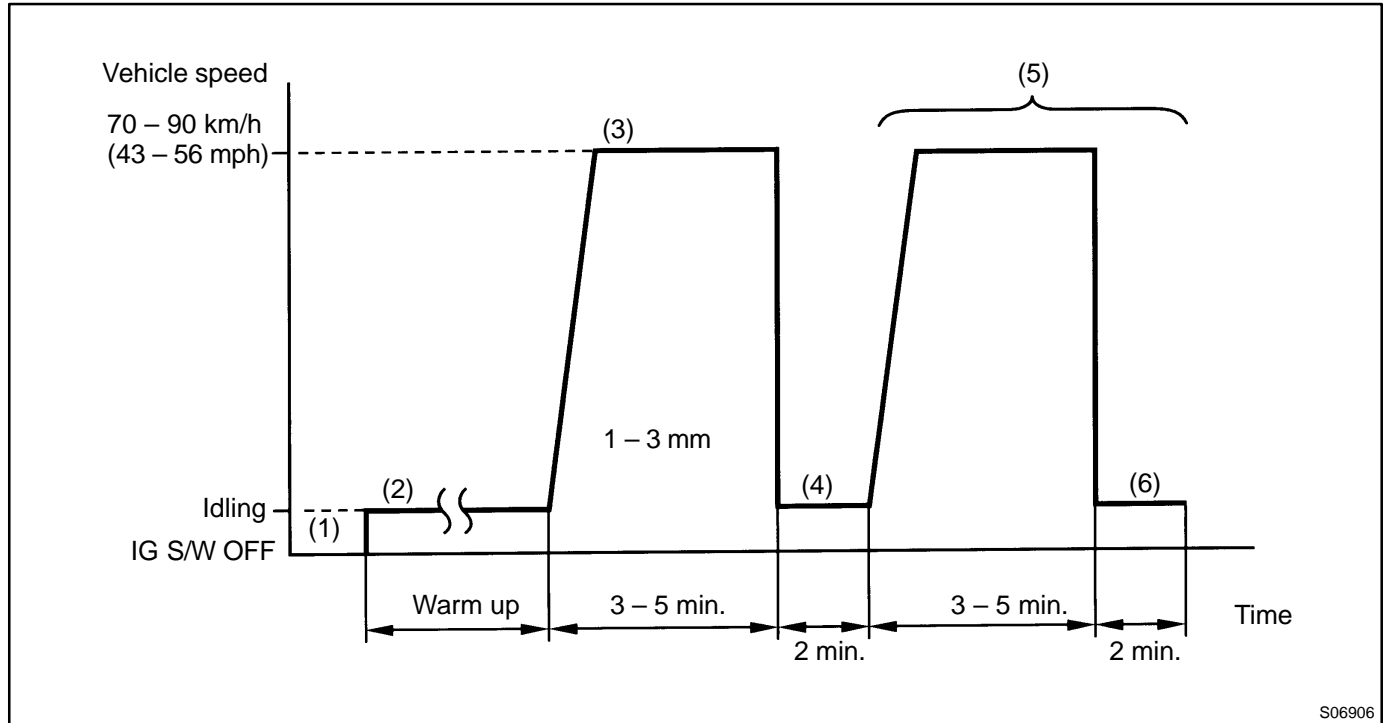
- Before the engine is warmed up
- During deceleration (throttle valve closed)
- Light engine load (amount of intake air very small)
- Engine speed over 4,000 rpm
- Engine idling
- Park/neutral position switch ON

DTC No.	DTC Detecting Condition	Trouble Area
P0401	After the engine is warmed up and run at 80 km/h (50 mph) for 3 to 5 minutes, the EGR gas temperature sensor value does not exceed 46°C (115°F) above the ambient air temperature (2 trip detection logic)	<ul style="list-style-type: none"> <li>• EGR valve stuck closed</li> <li>• Open in EGR gas temp. sensor circuit</li> <li>• EGR step motor circuit</li> <li>• ECM</li> </ul>

## SYSTEM CHECK DRIVING PATTERN

Purpose of the driving pattern

- (a) To simulate DTC detecting condition after DTC is recorded.
- (b) To check that the malfunction is corrected when the repair is completed confirming that DTC is no longer detected.



- (1) Connect the OBDII scan tool or LEXUS hand-held tester to the DLC3.
- (2) Start and warm it up the engine with all accessories switched OFF.
- (3) Run the vehicle at 70 – 90 km/h (43 – 56 mph) for 3 minutes or more.
- (4) Idle the engine for about 2 minutes.
- (5) Do steps (3) and (4) again.
- (6) Check the "READINESS TESTS" mode on the OBDII scan tool or LEXUS hand-held tester. If "COMPL" is displayed and the MIL does not light up, the system is normal. If "INCMPL" is displayed and the MIL does not light up, run the vehicle step (5) for some times and check it.

### HINT:

"INCMPL" is displayed when either condition (a) or (b) exists.

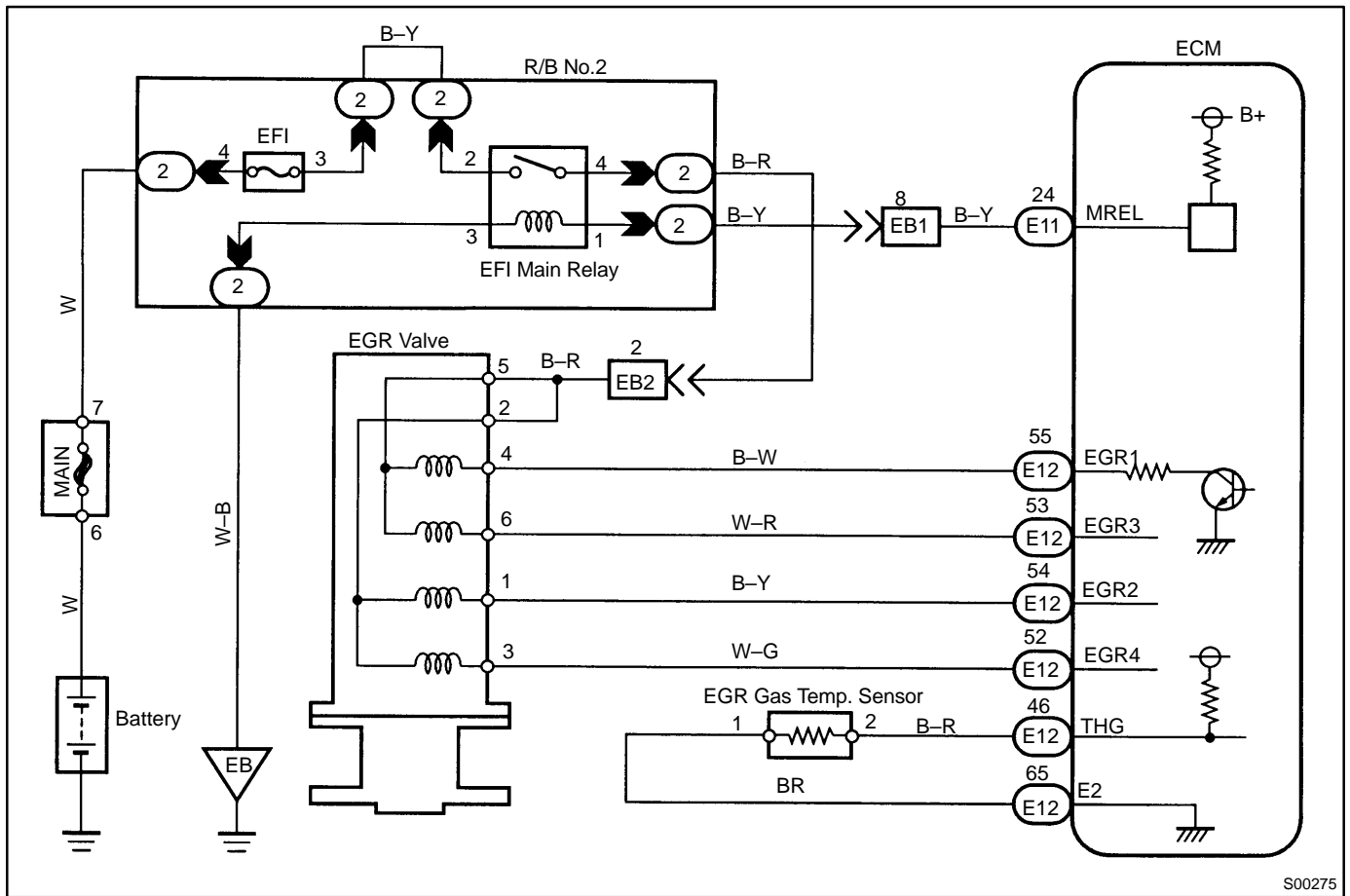
- (a) The system check is incomplete.
- (b) There is a malfunction in the system.

If there is a malfunction in the system, the MIL will light up after steps (2) to (5) above are done again.

### NOTICE:

**If the conditions in this test are not strictly followed, detection of the malfunction will not be possible.**

## WIRING DIAGRAM



## INSPECTION PROCEDURE

### LEXUS hand-held tester

<b>1</b>	<b>Connect the LEXUS hand-held tester and read value of EGR gas temperature value.</b>
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#### **PREPARATION:**

- (a) Connect the LEXUS hand-held tester to the DLC3.
- (b) Turn ignition switch ON and LEXUS hand-held tester main switch ON.

#### **CHECK:**

Read EGR gas temperature on LEXUS hand-held tester.

#### **OK:**

**EGR gas temp.: 10°C (50°F) or more.**

#### **HINT:**

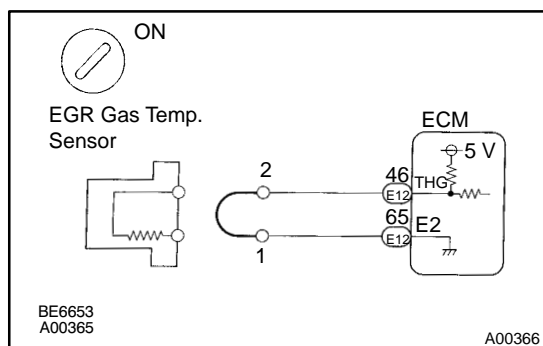
If there is an open circuit, the LEXUS hand-held tester indicates 3.1°C (37.6°F).

**OK**

**Go to step 4.**

**NG**

<b>2</b>	<b>Check for open in harness or ECM.</b>
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#### **PREPARATION:**

- (a) Disconnect the EGR gas temp. sensor connector.
- (b) Connect sensor wire harness terminals together.
- (c) Turn ignition switch ON.

#### **CHECK:**

Read EGR gas temperature on the LEXUS hand-held tester.

#### **OK:**

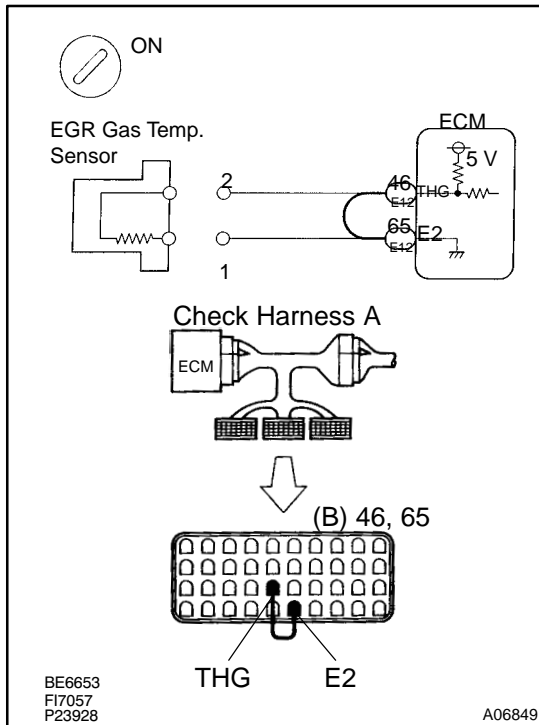
**EGR gas temp.: 159.3°C (318.7°F)**

**OK**

**Confirm good connection at sensor.  
If OK, replace EGR gas temp. sensor.**

**NG**

### 3 Check for open in harness or ECM.



#### PREPARATION:

- Connect the Check Harness A.
- Connect between terminals THG and E2 of ECM connectors.

#### HINT:

EGR gas temp. sensor connector is disconnected.

Before checking, do a visual check and contact pressure check for the ECM connector (See page [IN-29](#)).

#### CHECK:

Read EGR gas temperature on the LEXUS hand-held tester.

#### OK:

EGR gas temp.: 159.3°C (318.7°F)

OK

Open in harness between terminals E2 or THG. Repair or replace harness.

NG

Confirm connection at ECM.  
If OK, replace ECM.

### 4 Check operation for EGR valve (See page [EC-11](#)).

NG

Replace EGR valve.

OK

Check and replace ECM (See page [IN-29](#)).

**OBDII scan tool (excluding LEXUS hand-held tester)**

**1** Check resistance of EGR gas temp. sensor (See page SF-63).

**NG**

Replace EGR gas temp. sensor.

**OK**

**2** Check for open and short in harness and connector between EGR gas temp. sensor and ECM (See page IN-29).

**NG**

Repair or replace harness or connector.

**OK**

**3** Check operation for EGR valve (See page EC-11).

**NG**

Replace EGR valve.

**OK**

Check and replace ECM (See page IN-29).