

## EGR Control Circuit

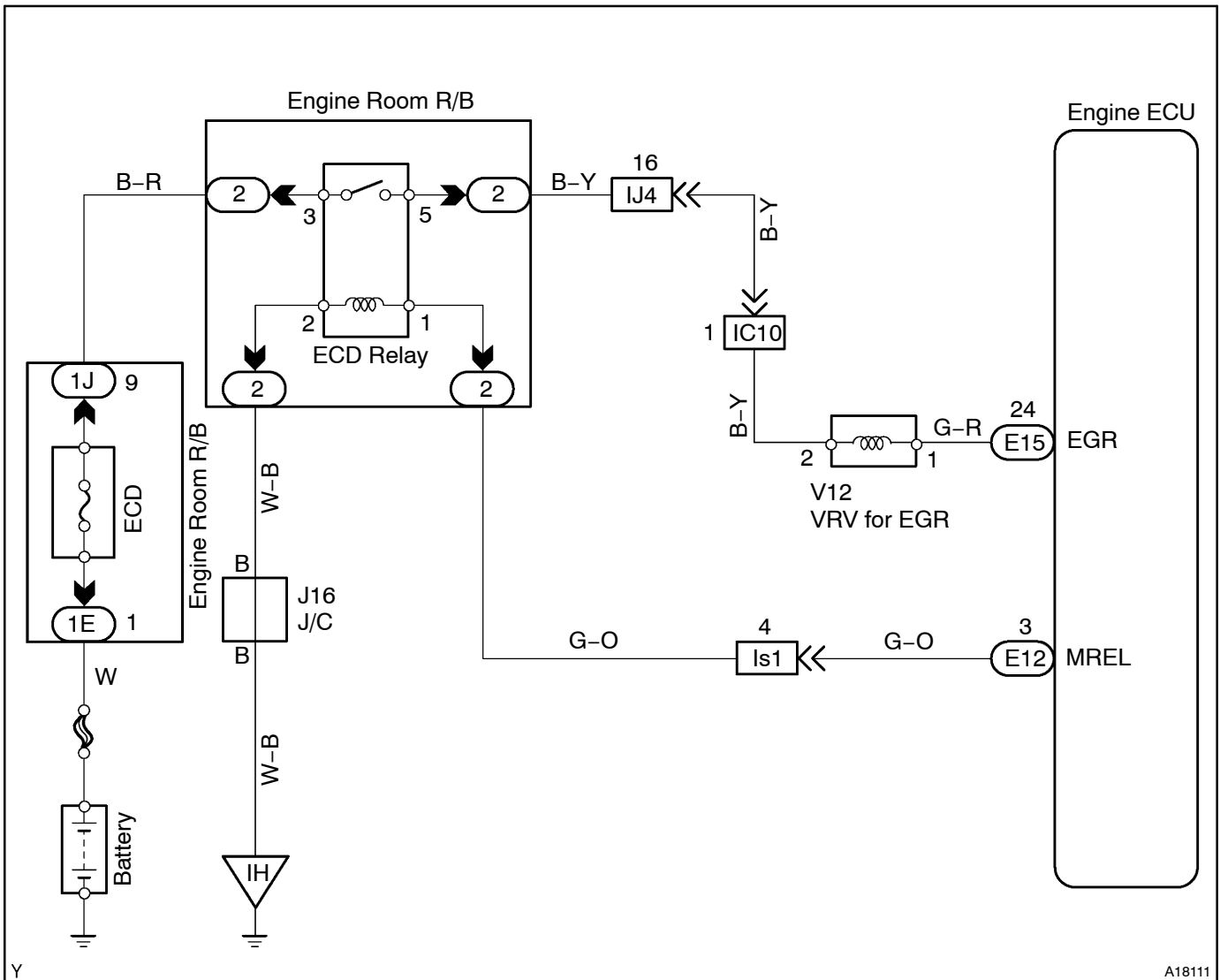
### CIRCUIT DESCRIPTION

In the EGR system, exhaust gas circulates through the intake side and controlled to the proper quantity to suit the driving conditions. This causes the exhaust gas and intake air to be mixed together, and consequently the combustion becomes slow, the combustion temperature becomes low and NOx emissions is reduced. The circulation amount of the exhaust gas is determined by the lift amount of the EGR valve that is controlled by the vacuum. This vacuum is regulated by the VRV and the VRV is controlled by the engine ECU.

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

- Before the engine is warmed up
- During deceleration (Diesel throttle valve closed)
- Light engine load (amount of intake air very small)
- Full speed over 3,200 rpm

### WIRING DIAGRAM



## INSPECTION PROCEDURE

## When using hand-held tester

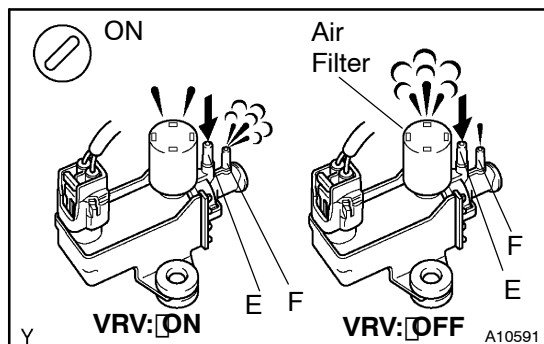
- 1 Check the connection of vacuum hose between vacuum pump and VRV for EGR, VRV for EGR and EGR valve.

NG

Repair or replace.

OK

- 2 Check VRV for EGR operation.

**PREPARATION:**

- Disconnect the vacuum hoses from the VRV for EGR.
- Connect the hand-held tester to the DLC3.
- Turn the ignition switch ON and push hand-held tester main switch ON.
- Select the active test mode on the hand-held tester.

**CHECK:**

Check the VRV for EGR operation on a hand-held tester.

**OK:**

- VRV ON:  
Air from pipe E is flowing out through pipe F.
- VRV OFF:  
Air from pipe E is flowing out through the air filter.

OK

Go to step 5.

NG

- 3 Check VRV for EGR (See page EC-6)

NG

Replace VRV for EGR.

OK

|   |                                                                                                                                                  |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 | Check for open and short in harness and connector between VRV for EGR and engine ECU, VRV for EGR and ECD relay (Marking: ECD) (See page IN-19). |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------|

|    |                                         |
|----|-----------------------------------------|
| NG | Repair or replace harness or connector. |
|----|-----------------------------------------|

OK

|   |                                  |
|---|----------------------------------|
| 5 | Check EGR valve (See page EC-6). |
|---|----------------------------------|

|    |                    |
|----|--------------------|
| NG | Replace EGR valve. |
|----|--------------------|

OK

|   |                                   |
|---|-----------------------------------|
| 6 | Check EGR system (See page EC-4). |
|---|-----------------------------------|

|    |                    |
|----|--------------------|
| NG | Repair or replace. |
|----|--------------------|

OK

|                                                                                      |  |
|--------------------------------------------------------------------------------------|--|
| Proceed to next circuit inspection shown on problem symptoms table (See page DI-18). |  |
|--------------------------------------------------------------------------------------|--|

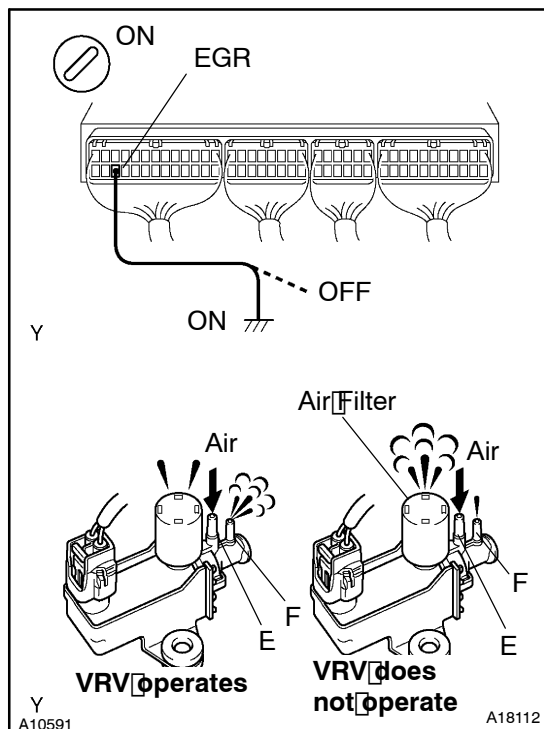
### When not using hand-held tester

|   |                                                                                                     |
|---|-----------------------------------------------------------------------------------------------------|
| 1 | Check the connection of vacuum hose between vacuum pump and VRV for EGR, VRV for EGR and EGR valve. |
|---|-----------------------------------------------------------------------------------------------------|

|    |                    |
|----|--------------------|
| NG | Repair or replace. |
|----|--------------------|

OK

## 2 Check VRV for EGR operation.



### PREPARATION:

- Disconnect the connector of the engine ECU.
- Turn the ignition switch ON.

### CHECK:

- Connect the EGR terminal and the body ground (VRV operates).
- Disconnect the EGR terminal from the body ground (VRV does not operate).

### OK:

- When VRV operates:  
Air from pipe E is flowing out through pipe F.
- When VRV does not operate:  
Air from pipe E is flowing out through the air filter.

OK

Go to step 5.

NG

## 3 Check VRV for EGR (See page EC-6)

NG

Replace VRV for EGR.

OK

## 4 Check for open and short in harness and connector between VRV for EGR and engine ECU, VRV for EGR and ECD relay (Marking ECD) (See page IN-19)

NG

Repair or replace harness or connector.

OK

## Check and replace engine ECU (See page IN-19)

|   |                                   |
|---|-----------------------------------|
| 5 | Check EGR valve (See page IN-19). |
|---|-----------------------------------|

|    |                    |
|----|--------------------|
| NG | Replace EGR valve. |
|----|--------------------|

OK

|   |                                   |
|---|-----------------------------------|
| 6 | Check EGR system (See page EC-4). |
|---|-----------------------------------|

|    |                    |
|----|--------------------|
| NG | Repair or replace. |
|----|--------------------|

OK

|                                                                                      |  |
|--------------------------------------------------------------------------------------|--|
| Proceed to next circuit inspection shown on problem symptoms table (See page DI-18). |  |
|--------------------------------------------------------------------------------------|--|