

|            |                  |   |
|------------|------------------|---|
| <b>DTC</b> | <b>P0AA4/228</b> | <b>HYBRID BATTERY NEGATIVE CONTACTOR<br/>CIRCUIT STUCK CLOSED</b> |
|------------|------------------|---|

|            |                  |   |
|------------|------------------|---|
| <b>DTC</b> | <b>P0AA5/229</b> | <b>HYBRID BATTERY NEGATIVE CONTACTOR<br/>CIRCUIT STUCK OPEN</b> |
|------------|------------------|---|

## CIRCUIT DESCRIPTION

Refer to DTC P0AA1 (INF 224) on page [05-760](#).

The HV control ECU monitors the proper operation of the system main relay No. 3 (CON3) to check for malfunction.

| DTC No. | INF Code | DTC Detection Condition                             | Trouble Area   |
|---------|----------|---|--|
| P0AA4   | 228      | Open or +B short in system main relay No. 3 circuit | <ul style="list-style-type: none"> <li>• Wire harness or connector</li> <li>• System main relay No. 3</li> <li>• HV control ECU</li> </ul> |
| P0AA5   | 229      | GND short in system main relay No. 3 circuit        | <ul style="list-style-type: none"> <li>• Wire harness or connector</li> <li>• System main relay No. 3</li> <li>• HV control ECU</li> </ul> |

## MONITOR DESCRIPTION

### DTC P0AA4 (INF 228):

The HV control ECU monitors the proper operation of the system main relay No. 3 (CON3). If the HV control ECU detects an open or short malfunction of the relay circuit, the HV control ECU illuminates the MIL and sets a DTC.

## MONITOR STRATEGY

|                            |  |
|----------------------------|--|
| Related DTCs               | P0AA4 (INF 228): SMR circuit/Rationality (cont3 malfunction) |
| Required sensor/components | System main relay No.3                                       |
| Frequency of operation     | Continuous   |
| Duration                   | TOYOTA's intellectual property                               |
| MIL operation              | Immediately  |
| Sequence of operation      | None   |

## TYPICAL ENABLING CONDITIONS

|  |                                |
|--|--------------------------------|
| The monitor will run whenever the following DTCs are not present | TOYOTA's intellectual property |
| Other conditions belong to TOYOTA's intellectual property        | –                              |

## TYPICAL MALFUNCTION THRESHOLDS

|                                 |               |
|---------------------------------|---------------|
| System main relay No. 3 circuit | Open or short |
|---------------------------------|---------------|

## COMPONENT OPERATING RANGE

|                        |                                     |
|------------------------|-------------------------------------|
| System main relay No.3 | DTC P0AA4 (INF 228) is not detected |
|------------------------|-------------------------------------|

## WIRING DIAGRAM

Refer to DTC P0AA1 (INF 224) on page [05-760](#).

## INSPECTION PROCEDURE

### CAUTION:

- Before inspecting the high-voltage system, take safety precautions to prevent electrical shocks, such as wearing insulated gloves and removing the service plug grip. After removing the service plug grip, put it in your pocket to prevent other technicians from reconnecting it while you are servicing the high-voltage system.
- After disconnecting the service plug grip, wait at least for 5 minutes before touching any of the high-voltage connectors or terminals.

### HINT:

At least 5 minutes is required to discharge the high-voltage condenser inside the inverter.

|          |  |
|----------|--|
| <b>1</b> | <b>INSPECT SYSTEM MAIN RELAY NO.3 (See page 21-40)</b> |
|----------|--|

|           |  |
|-----------|--|
| <b>NG</b> | <b>REPLACE SYSTEM MAIN RELAY NO.3 (See page 21-90)</b> |
|-----------|--|

|           |
|-----------|
| <b>OK</b> |
|-----------|

|          |  |
|----------|--|
| <b>2</b> | <b>CHECK HARNESS AND CONNECTOR(HYBRID VEHICLE CONTROL ECU - SYSTEM MAIN RELAY NO. 3)</b> |
|----------|--|

### CAUTION:

**Wear insulated gloves before performing the following operation.**

- Turn the power switch OFF.
- Remove the service plug grip (see page 21-116).

### NOTICE:

**Turning the power switch ON (READY) with the service plug grip removed could cause malfunction. Therefore, never turn the power switch ON (READY) in this state.**

- Disconnect the H16 HV control ECU connector.
- Disconnect the S22 system main relay No. 3 connector.
- Turn the power switch ON (IG).

### HINT:

DTCs for the interlock switch system are output when turning the power switch ON (IG) with the service plug grip removed.

- Measure the voltage between the terminal of the HV control ECU connector and body ground.

### Standard:

| Tester Connection          | Specified Condition |
|----------------------------|---------------------|
| CON3 (H16-3) - Body ground | Below 1 V           |

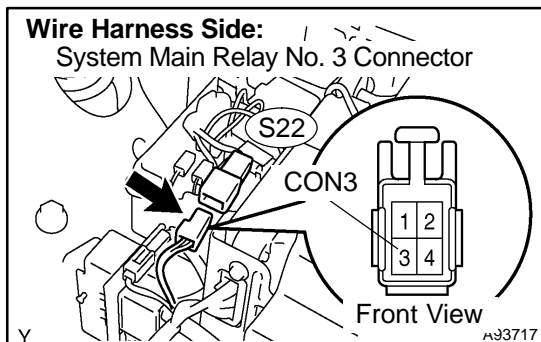
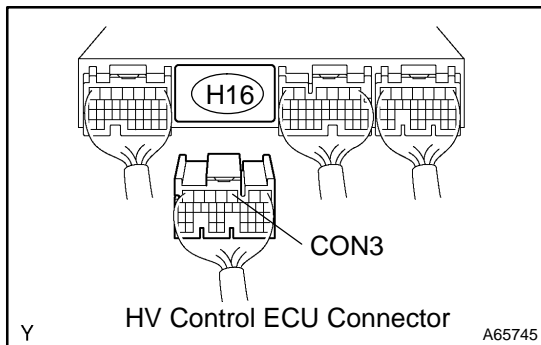
- Turn the power switch OFF.
- Check the resistance between the wire harness side connectors.

### Standard (Check for open):

| Tester Connection           | Specified Condition |
|-----------------------------|---------------------|
| CON3 (H16-3) - CON3 (S22-3) | Below 1 Ω           |

### Standard (Check for short):

| Tester Connection                          | Specified Condition |
|--|---------------------|
| CON3 (H16-3) or CON3 (S22-3) - Body ground | 10 kΩ or higher     |



- (i) Reconnect the system main relay No. 3 connector.
- (j) Reconnect the HV control ECU connector.
- (k) Reinstall the service plug grip (see page [21-116](#)).

**NG****REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****REPLACE HYBRID VEHICLE CONTROL ECU (See page [21-124](#))**