

|            |                  |                                       |
|------------|------------------|---------------------------------------|
| <b>DTC</b> | <b>P0A7A/520</b> | <b>GENERATOR INVERTER PERFORMANCE</b> |
|------------|------------------|---------------------------------------|

## CIRCUIT DESCRIPTION

See the description of the inverter on page [05-562](#).

Upon receiving a generator gate shutdown signal from the HV control ECU, the inverter forcefully stops the operation of the MG1 by turning OFF the power transistors that are actuating the MG1.

The HV control ECU monitors the generator gate shutdown signal and detects malfunction.

| DTC No. | INF Code | DTC Detection Condition                           | Trouble Area  |
|---------|----------|---|---|
| P0A7A   | 520      | Generator gate shutdown (GSDN) signal malfunction | <ul style="list-style-type: none"> <li>• Wire harness or connector</li> <li>• HV control ECU</li> </ul> |

## MONITOR DESCRIPTION

The HV control ECU monitors the generator gate shutdown (GSDN) signal. If the HV control ECU detects a fault in the GSDN signal, it illuminates the MIL and sets a DTC.

## MONITOR STRATEGY

|                            |   |
|----------------------------|---|
| Related DTCs               | P0A7A (INF 520): Generator inverter/Generator inverter shutdown signal line malfunction |
| Required sensor/components | Generator inverter  |
| 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

|  |              |
|--|--------------|
| Actual status of shutdown command signal and its monitoring result | Inconsistent |
|--|--------------|

## COMPONENT OPERATING RANGE

|                    |                                     |
|--------------------|-------------------------------------|
| Generator inverter | DTC P0A7A (INF 520) is not detected |
|--------------------|-------------------------------------|

## WIRING DIAGRAM

Refer to DTC P0A7A (INF 342) on page [05-652](#).

## 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.

**1 READ OUTPUT DTC(HV ECU)**

- (a) Connect the hand-held tester to the DLC3.
- (b) Turn the power switch ON (IG).
- (c) Turn the hand-held tester ON.
- (d) On the hand-held tester, enter the following menus: DIAGNOSIS / ENHANCED OBD II / HV ECU / DTC INFO / TROUBLE CODES.
- (e) Read DTCs.

**Result: DTC P0A7A (INF 520) and other DTCs are output**

HINT:

If any other codes besides P0A7A (INF 520) are output, perform troubleshooting for those DTCs first.

|            |   |
|------------|---|
| <b>YES</b> | <b>GO TO RELEVANT DTC CHART</b><br>(See page <a href="#">05-440</a> ) |
|------------|---|

**NO**

**2 CHECK HARNESS AND CONNECTOR(HYBRID VEHICLE CONTROL ECU - INVERTER)**

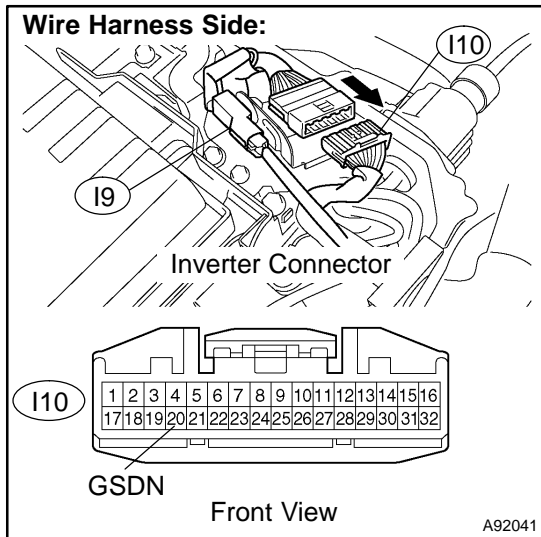
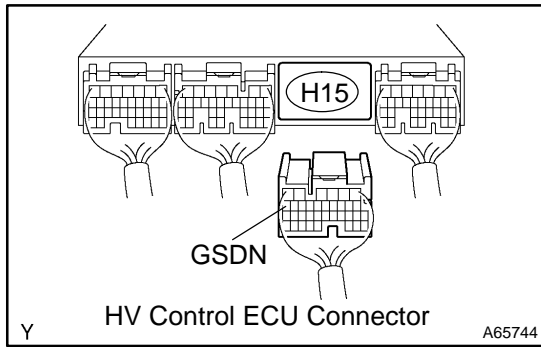
**CAUTION:**

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

- (a) Turn the power switch OFF.
- (b) 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.**



- (c) Disconnect the H15 HV control ECU connector.
- (d) Remove the inverter cover (see page 21-23).
- (e) Disconnect the I10 inverter connector.
- (f) Turn the power switch ON (IG).

**HINT:**

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

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

**Standard:**

| Tester Connection           | Specified Condition |
|-----------------------------|---------------------|
| GSDN (H15-16) - Body ground | Below 1 V           |

- (h) Turn the power switch OFF.
- (i) Check the resistance between the wire harness side connectors.

**Standard (Check for open):**

| Tester Connection             | Specified Condition |
|-------------------------------|---------------------|
| GSDN (H15-16) - GSDN (I10-20) | Below 1 Ω           |

**Standard (Check for short):**

| Tester Connection                            | Specified Condition |
|--|---------------------|
| GSDN (H15-16) or GSDN (I10-20) - Body ground | 10 kΩ or higher     |

- (j) Reconnect the inverter connector.
- (k) Reconnect the HV control ECU connector.
- (l) Reinstall the inverter cover (see page 21-23).
- (m) Reinstall the service plug grip (see page 21-116).

|           |   |
|-----------|---|
| <b>NG</b> | <b>REPAIR OR REPLACE HARNESS OR CONNECTOR</b> |
|-----------|---|

**OK**

**REPLACE HYBRID VEHICLE CONTROL ECU (See page 21-124)**