

DTC	P0A4B/253	GENERATOR POSITION SENSOR CIRCUIT
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DTC	P0A4C/513	GENERATOR POSITION SENSOR CIRCUIT RANGE/PERFORMANCE
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DTC	P0A4D/255	GENERATOR POSITION SENSOR CIRCUIT LOW
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CIRCUIT DESCRIPTION

The generator resolver detects the position of the magnetic poles, which are indispensable for ensuring the highly efficient control of the MG1 and MG2. The construction of the generator resolver and how it is connected to the HV control ECU are the same as those of the motor resolver (see the circuit description on page [05-542](#)).

DTC No.	INF Code	DTC Detection Condition	Trouble Area
P0A4B	253	Interphase short in generator resolver circuit	<ul style="list-style-type: none"> • Wire harness or connector • Hybrid vehicle generator • HV control ECU
P0A4C	513	Generator resolver output is out of normal range	<ul style="list-style-type: none"> • Wire harness or connector • Hybrid vehicle generator • HV control ECU
P0A4D	255	Open or short in generator resolver circuit	<ul style="list-style-type: none"> • Wire harness or connector • Hybrid vehicle generator • HV control ECU

MONITOR DESCRIPTION

The HV control ECU monitors the generator resolver output signal. If the HV control ECU detects output signals that are out of the normal range or specification, it will conclude that there is a malfunction of the generator resolver. The HV control ECU will illuminate the MIL and set a DTC.

MONITOR STRATEGY

Related DTCs	P0A4B (INF 253): Generator position sensor circuit malfunction / Short circuit between phases P0A4C (INF 513): Generator position sensor circuit malfunction / Range check P0A4D (INF 255): Generator position sensor circuit malfunction / Circuit discontinuity or short circuit
Required sensor/components	Generator resolver
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
No other condition	–

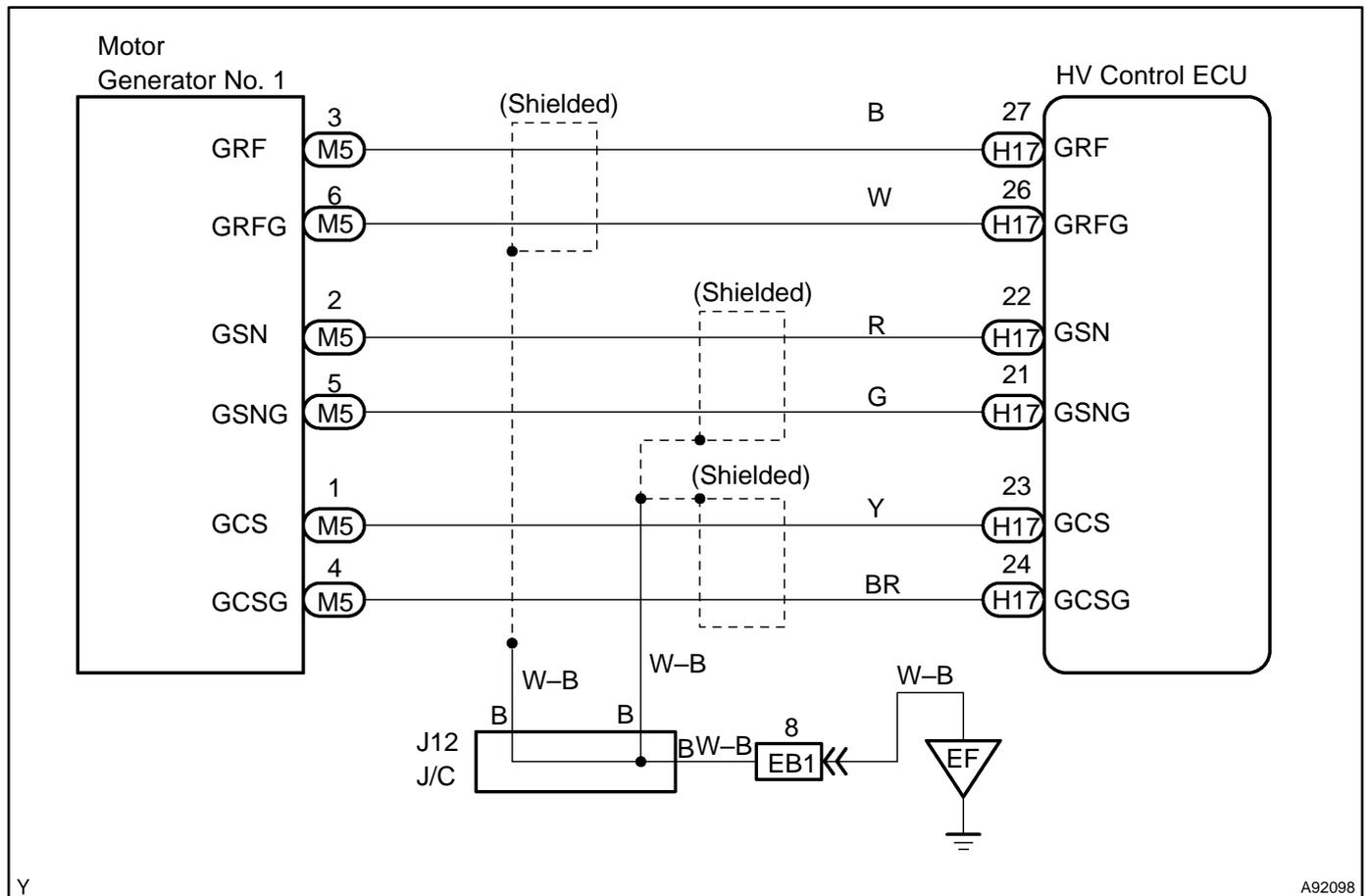
TYPICAL MALFUNCTION THRESHOLDS

Generator resolver	Circuit malfunction (interphase shot, open or short), or abnormal output
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COMPONENT OPERATING RANGE

Generator resolver	DTCs P0A4B (INF 253) P0A4C (INF 513) and P0A4D (INF 255) are not detected
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WIRING DIAGRAM

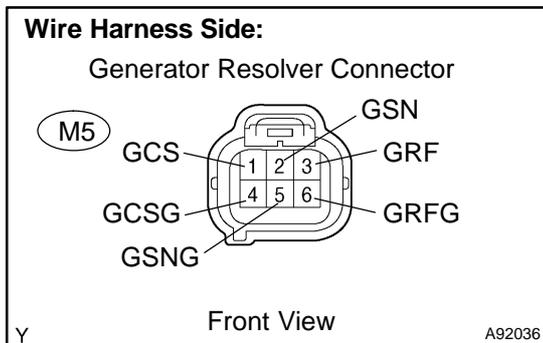
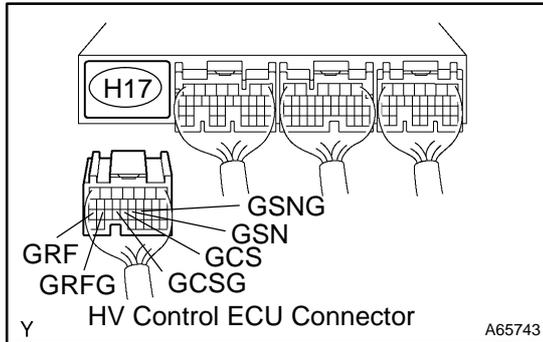


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INSPECTION PROCEDURE

1 CHECK HARNESS AND CONNECTOR(HYBRID VEHICLE CONTROL ECU - GENERATOR RESOLVER)



- (a) Disconnect the H17 HV control ECU connector.
- (b) Disconnect the M5 generator resolver connector.
- (c) Turn the power switch ON (IG).
- (d) Measure the voltage between the terminals of the HV control ECU connector and body ground.

Standard:

Tester Connection	Specified Condition
GRF (H17-27) - Body ground	Below 1 V
GRFG (H17-26) - Body ground	Below 1 V
GSN (H17-22) - Body ground	Below 1 V
GSNG (H17-21) - Body ground	Below 1 V
GCS (H17-23) - Body ground	Below 1 V
GCSG (H17-24) - Body ground	Below 1 V

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

Standard (Check for open):

Tester Connection	Specified Condition
GRF (H17-27) - GRF (M5-3)	Below 1 Ω
GRFG (H17-26) - GRFG (M5-6)	Below 1 Ω
GSN (H17-22) - GSN (M5-2)	Below 1 Ω
GSNG (H17-21) - GSNG (M5-5)	Below 1 Ω
GCS (H17-23) - GCS (M5-1)	Below 1 Ω
GCSG (H17-24) - GCSG (M5-4)	Below 1 Ω

Standard (Check for short):

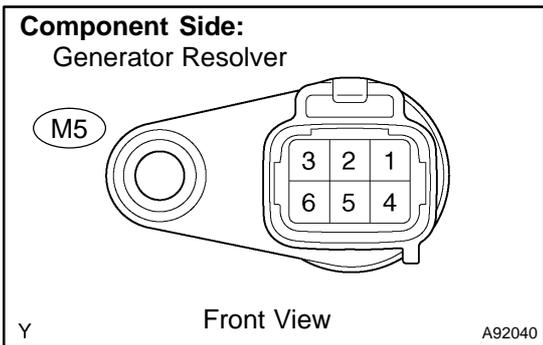
Tester Connection	Specified Condition
GRF (H17-27) or GRF (M5-3) - Body ground	10 kΩ or higher
GRFG (H17-26) or GRFG (M5-6) - Body ground	10 kΩ or higher
GSN (H17-22) or GSN (M5-2) - Body ground	10 kΩ or higher
GSNG (H17-21) or GSNG (M5-5) - Body ground	10 kΩ or higher
GCS (H17-23) or GCS (M5-1) - Body ground	10 kΩ or higher
GCSG (H17-24) or GCSG (M5-4) - Body ground	10 kΩ or higher

- (g) Reconnect the generator resolver connector.
- (h) Reconnect the HV control ECU connector.

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2 INSPECT GENERATOR RESOLVER



- (a) Measure the resistance between the terminals of the generator resolver.

Standard:

Tester Connection	Specified Condition
GCS (M5-1) – GCSG (M5-4)	12.6 to 16.8 Ω
GSN (M5-2) – GSNG (M5-5)	12.6 to 16.8 Ω
GRF (M5-3) – GRFG (M5-6)	7.65 to 10.2 Ω
Each terminal listed above – Transaxle housing	10 kΩ or higher

NG → **REPLACE HYBRID VEHICLE GENERATOR ASSY**

OK

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