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Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HYBRID / BATTERY CONTROL: HYBRID BATTERY SYSTEM (for PHEV Model): DATA LIST / ACTIVE TEST; 2023 - 2024 MY Prius Prime [03/2023 -]		

DATA LIST / ACTIVE TEST

Data List

NOTICE:

- Some Data List values may vary significantly if there are slight differences in the environment in which the vehicle is operating when measurements are obtained. Variations may also occur due to aging of the vehicle. Due to these considerations, it is not always possible to provide definite values to be used for judgment of malfunctions. It is possible that a malfunction may be present even if measured values are within the reference range.
- In the event of a problem with intricate symptoms, collect sample data from another vehicle of the same model operating under identical conditions in order to reach an overall judgment by comparing all the items in the Data List.

(a) Check the results by referring to the following table.

HINT:

- When reviewing Data List information, try to select only the specific Data List items related to the inspection being performed. If all items are selected when checking the Data List, the interval between updates for each item will be longer, resulting in delayed or incorrect data.
- Using a custom list makes it possible to easily select smaller groups of related Data List items.
- The following custom lists are available:
  - All Data
  - Hybrid/EV Battery
  - Hybrid/EV Battery (Exc IR)
  - Hybrid/EV Battery Temperature

Powertrain > HV Battery > Data List

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Vehicle Speed	Vehicle speed Vehicle stopped: 0 km/h (0 mph) While driving at a constant speed: No significant fluctuation	-
Target Engine Power	Target engine power While driving with the engine running: Varies depending on vehicle operating conditions	-
Engine Speed	Engine speed Engine stopped: 0 rpm While engine running at a constant speed: No significant fluctuation	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Calculate Load	Engine load (value increases in proportion to increase in load)	-
Coolant Temperature	Engine coolant temperature Cold start→Fully warmed up: Gradually rises After warming up: 75 to 100°C (167 to 212°F)	-
Engine Run Time	Elapsed time after starting engine	Elapsed time from initial engine start until the ignition switch is turned off.
Accelerator Position	Accelerator pedal depressed angle Accelerator pedal depressed: Changes with accelerator pedal position	-
Throttle Position Sensor No.1 Voltage %	Throttle position sensor	Throttle valve status
Shift Position	Shift position of control Matches currently selected shift position: P, R, N, D or B	-
Atmospheric Pressure	Atmospheric pressure Constant: Atmosphere pressure	-
Ambient Temperature	Ambient air temperature Constant: Almost same as ambient air temperature	-
BATT Voltage	Auxiliary battery voltage (Battery ECU assembly power source voltage) Constant: 11.00 to 15.00 V	-
Smoothed Value of BATT Voltage	Smoothed value of auxiliary battery voltage Constant: 11.00 to 15.00 V	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Warmup Cycle Cleared DTC	The number of times the engine is warmed up after clearing DTCs MIL OFF, engine coolant temperature increases from below 22°C (71.6°F) before starting the engine to above 70°C (158°F) after starting the engine: Increases once	-
Distance from DTC Cleared	Drive distance after clearing DTCs	-
Time after DTC Cleared	Elapsed time after clearing DTCs	Time elapsed after DTCs are cleared (Not counted when the ignition switch is off).
MIL	MIL status	-
Running Time from MIL ON	Running time from MIL on	-
Total Distance Traveled	Drive total distance	-
Total Distance Traveled - Unit	Drive total distance unit	-
MIL ON Run Distance	Drive distance from MIL on	-
Number of Emission DTC	Emissions-related DTCs	-
IGB Signal Status	IGB signal status Ignition switch ON or ON (READY): ON	-
IG2 Signal Status	IG2 signal status Ignition switch ON or ON (READY): ON	-
Ready Signal	Ready signal status Ignition switch ON (READY): ON	-
Ready ON Prevention Status	Ready ON prevention status	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
IG OFF Time of Last Trip	IG OFF time of last trip	-
HV/EV Activate Condition	Hybrid vehicle control system power source mode status Hybrid Vehicle Control System started using ignition switch: Normal Hybrid vehicle control system started using remote climate control function: Hybrid vehicle control system started using remote starter: Remote	-
SMRG Control Status	Commanded state of SMRG Ignition switch ON (READY): ON	-
SMRB Control Status	Commanded state of SMRB Ignition switch ON (READY): ON	-
SMRP Control Status	Commanded state of SMRP Immediately after the ignition switch ON (ST-ON) state occurred: ON After the above timing: OFF	-
WIN Control Limit Power	WIN control limit power -40.00 kW or more	-
WOUT Control Limit Power	WOUT control limit power 68.00 kW or less	-
A/C Consumption Power	A/C consumption power While the air conditioning system is operating: 0.00 to 5.00 kW	-
A/C System Status	A/C system status	-
Stop Light Switch	Stop light switch assembly condition Brake pedal depressed: ON	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Airbag Status (Collision)	Airbag ECU assembly collision detection Collision detection by the airbag ECU assembly: ON	-
Airbag Status (Safing)	Safing state of the airbag ECU assembly When safing state of the airbag ECU assembly: ON	-
Airbag Status (Normal)	Control state of airbag ECU assembly When the airbag ECU assembly is operating normally: ON	-
Generator Revolution	Generator (MG1) speed (detected by resolver sensor) Generator (MG1) speed is set to obtain requested target engine speed During charge or discharge: Varies depending on vehicle operating conditions	-
Target Generator Torque	Generator (MG1) torque request value During charge or discharge: Varies depending on vehicle operating conditions	-
Motor Revolution	Motor (MG2) speed (detected by resolver sensor) Motor (MG2) speed changes in proportion to vehicle speed. Motor (MG2) speed is not influenced by accelerator pedal opening angle, engine speed or generator (MG1) speed. While driving: Varies depending on vehicle speed	-
Target Motor Torque	Motor (MG2) torque request value While driving: Varies depending on vehicle operating conditions	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Request Motor Regenerative Brake Torque	Requested motor (MG2) regenerative braking torque While braking: Varies depending on vehicle operation conditions	When regenerative braking is being performed, current flows from the motor (MG2) to charge the HV battery and braking torque is generated. Electronically controlled brake system
Motor Regenerate Brake Execution Torque	Motor (MG2) regenerative braking execution torque While braking: Varies depending on vehicle operation conditions	-
Generator Carrier Frequency	Generator (MG1) carrier frequency	-
Motor Carrier Frequency	Motor (MG2) carrier frequency	-
Boosting Converter Carrier Frequency	Boost converter signal carrier frequency	-
VL-Voltage before Boosting	High voltage before it is boosted Ignition switch ON (READY): Practically the same as the HV battery voltage	-
VH-Voltage after Boosting	High voltage after it is boosted Engine revving up with park (P) selected: After boosted voltage to below approximately 600 V	-
Boost Ratio	Boost converter boost ratio	-
Hybrid/EV Battery SOC	HV battery state of charge Primary calculated from charging and discharging amperage Constant: 0.0 to 100.0%	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Delta SOC	Difference between maximum and minimum values of SOC READY indicator on, engine stopped and no electrical load: 0.0 to 60.0%	-
Hybrid/EV Battery SOC just after IG-ON	HV battery state of charge soon after ignition switch ON	-
Hybrid/EV Battery Maximum SOC	Maximum SOC after ignition switch turned to ON in current trip	-
Hybrid/EV Battery Minimum SOC	Minimum SOC after ignition switch turned to ON in current trip	-
Hybrid/EV Battery Voltage	HV battery voltage Ignition switch ON: 200.00 to 400.00 V	-
Hybrid/EV Battery Current	HV battery current Ignition switch ON: -6.20 to 6.20 A	-
Hybrid/EV Battery Current for Hybrid/EV Battery Control	HV battery current for hybrid battery control	-
Hybrid/EV Battery Current for Hybrid/EV Battery Control (Sub)	HV battery current for HV battery control (Sub)	-
Hybrid/EV Battery Current for Driving Control	HV battery current for driving control	-
Hybrid/EV Battery Current (IBL)	HV battery current (IBL)	-
Hybrid/EV Battery Current Sensor Voltage for Hybrid/EV Battery Control	Hybrid battery current sensor voltage for hybrid battery control	-
Hybrid/EV Battery Current Sensor Voltage for	Hybrid battery current sensor voltage for hybrid battery control (Sub)	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Control (Sub)		
Hybrid/EV Battery Current Sensor Voltage (IBL)	Hybrid battery current sensor voltage (IBL)	-
Hybrid/EV Battery Control Mode	HV battery control mode	-
Hybrid/EV Battery Current Sensor Power Supply Voltage	Hybrid battery current sensor power supply voltage	-
Hybrid/EV Battery Current Sensor Offset Learning Value	Hybrid battery current sensor offset learning value	-
Hybrid/EV Battery Current Sensor Offset	Hybrid battery current sensor offset	-
Hybrid/EV Battery Current Sensor Offset Learning Value (Sub)	Hybrid battery current sensor offset learning value (Sub)	-
Hybrid/EV Battery Current Sensor Offset (Sub)	Hybrid battery current sensor offset (Sub)	-
Hybrid/EV Battery Current Sensor Offset Learning Value (IBL)	Hybrid battery current sensor offset learning value (IBL)	-
Hybrid/EV Battery Current Sensor Offset (IBL)	Hybrid battery current sensor offset (IBL)	-
Short Wave Highest Value	The insulation malfunction detection circuit voltage in the battery ECU assembly Wait for 2 minutes or more after ignition switch ON (READY) and "VL-Voltage before Boosting" is approximately the same as "VH-Voltage after Boosting": 4.00 V or higher	High-voltage circuit
Hybrid/EV Battery Load Status (Latest)	Hybrid/EV battery load status (latest)	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
High Voltage Battery State of Certified Energy	High voltage battery state of certified energy	-
High Voltage Battery State of Certified Range	High voltage battery state of certified range	-
Hybrid/EV Battery Cell Circuit Open Information for Monitoring IC 1	HV battery cell circuit open information for monitoring IC 1	-
Hybrid/EV Battery Cell Circuit Open Information for Monitoring IC 2	HV battery cell circuit open information for monitoring IC 2	-
Hybrid/EV Battery Cell Circuit Open Information for Monitoring IC 3	HV battery cell circuit open information for monitoring IC 3	-
Lost Communication with Hybrid/EV Battery Monitoring IC	Lost communication with HV battery monitoring IC	-
Hybrid/EV Battery Monitoring IC 1 Internal Malfunction (Determinable)	HV battery monitoring IC 1 internal malfunction (Determinable)	-
Hybrid/EV Battery Monitoring IC 2 Internal Malfunction (Determinable)	HV battery monitoring IC 2 internal malfunction (Determinable)	-
Hybrid/EV Battery Monitoring IC 3 Internal Malfunction (Determinable)	HV battery monitoring IC 3 internal malfunction (Determinable)	-
Hybrid/EV Battery Monitoring IC Internal Malfunction (Unidentifiable)	HV battery monitoring IC internal malfunction (Unidentifiable)	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Monitoring IC 1 Power Supply Malfunction	HV battery monitoring IC 1 power supply malfunction	-
Hybrid/EV Battery Monitoring IC 2 Power Supply Malfunction	HV battery monitoring IC 2 power supply malfunction	-
Hybrid/EV Battery Monitoring IC 3 Power Supply Malfunction	HV battery monitoring IC 3 power supply malfunction	-
Hybrid/EV Battery Monitoring IC 1 Cell Voltage Detection Malfunction	HV battery monitoring IC 1 cell voltage detection malfunction	-
Hybrid/EV Battery Monitoring IC 2 Cell Voltage Detection Malfunction	HV battery monitoring IC 2 cell voltage detection malfunction	-
Hybrid/EV Battery Monitoring IC 3 Cell Voltage Detection Malfunction	HV battery monitoring IC 3 cell voltage detection malfunction	-
Hybrid/EV Battery Stack 1 Cell Average Voltage	No. 1 HV supply stack sub-assembly cell average voltage Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Stack 2 Cell Average Voltage	No. 2 HV supply stack sub-assembly cell average voltage Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Stack 3 Cell Average Voltage	No. 3 HV supply stack sub-assembly cell average voltage Ignition switch ON: 3.00 to 4.00 V	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Block 1 Cell Average Voltage	HV battery block 1 cell average voltage Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Block 2 Cell Average Voltage	HV battery block 2 cell average voltage Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Block 3 Cell Average Voltage	HV battery block 3 cell average voltage Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell Maximum Voltage Up to 1 trip before	HV battery cell maximum voltage up to 1 trip before Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell Minimum Voltage Up to 1 trip before	HV battery cell minimum voltage up to 1 trip before Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 1 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 2 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 3 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 4 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 5 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Cell 6 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 7 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 8 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 9 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 10 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 11 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 12 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 13 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 14 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 15 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 16 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Cell 17 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 18 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	
Hybrid/EV Battery Cell 19 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 20 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 21 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 22 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 23 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 24 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 25 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 26 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 27 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Cell 28 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 29 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 30 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 31 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 32 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 33 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 34 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 35 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 36 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 37 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 38 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Cell 39 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 40 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 41 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 42 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 43 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 44 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 45 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 46 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 47 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 48 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 49 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Cell 50 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 51 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 52 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 53 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 54 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 55 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 56 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 57 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 58 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 59 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 60 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Cell 61 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 62 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 63 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 64 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 65 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 66 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 67 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 68 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 69 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 70 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 71 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Cell 72 Voltage	HV battery cell voltage of each battery cell Ignition switch ON: 3.00 to 4.00 V	-
Hybrid/EV Battery Cell 1 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 2 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 3 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 4 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 5 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 6 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 7 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 8 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 9 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 10 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 11 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 12 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Cell 13 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 14 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 15 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 16 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 17 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 18 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 19 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 20 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 21 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 22 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 23 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 24 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 25 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 26 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Cell 27 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 28 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 29 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 30 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 31 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 32 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 33 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 34 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 35 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 36 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 37 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 38 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 39 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 40 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Cell 41 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 42 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 43 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 44 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 45 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 46 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 47 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 48 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 49 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 50 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 51 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 52 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 53 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 54 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Cell 55 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 56 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 57 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 58 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 59 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 60 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 61 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 62 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 63 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 64 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 65 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 66 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 67 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 68 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Cell 69 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 70 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 71 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Cell 72 Internal Resistance	Internal resistance of each battery cell Always: 0.006 Ω or less	-
Hybrid/EV Battery Temperature 1	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 2	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 3	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 4	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 5	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 6	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 7	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 8	Battery module temperature Vehicle left for 1 day:	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
	Same as ambient air temperature	
Hybrid/EV Battery Temperature 9	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 10	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 11	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 12	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 13	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 14	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature 15	Battery module temperature Vehicle left for 1 day: Same as ambient air temperature	-
Hybrid/EV Battery Temperature Sensor Voltage 1	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-
Hybrid/EV Battery Temperature Sensor Voltage 2	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-
Hybrid/EV Battery Temperature Sensor Voltage 3	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Temperature Sensor Voltage 4	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-
Hybrid/EV Battery Temperature Sensor Voltage 5	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-
Hybrid/EV Battery Temperature Sensor Voltage 6	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-
Hybrid/EV Battery Temperature Sensor Voltage 7	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-
Hybrid/EV Battery Temperature Sensor Voltage 8	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-
Hybrid/EV Battery Temperature Sensor Voltage 9	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-
Hybrid/EV Battery Temperature Sensor Voltage 10	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-
Hybrid/EV Battery Temperature Sensor Voltage 11	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-
Hybrid/EV Battery Temperature Sensor Voltage 12	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-
Hybrid/EV Battery Temperature Sensor Voltage 13	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	
Hybrid/EV Battery Temperature Sensor Voltage 14	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Temperature Sensor Voltage 15	HV battery temperature sensor voltage 4.75 (-40°C (-40°F)) to 0.46 V (90°C (194°F))	-
Hybrid/EV Battery Cooling Fan Low Speed Request	Battery cooling blower assembly Low speed requested	-
Hybrid/EV Battery Heater 1 Temperature	No. 1 traction battery heater temperature	-
Hybrid/EV Battery Heater 2 Temperature	No. 2 traction battery heater temperature	-
Hybrid/EV Battery Heater 1 Temperature Sensor Voltage	HV battery heater temperature sensor 0 voltage	-
Hybrid/EV Battery Heater 2 Temperature Sensor Voltage	HV battery heater temperature sensor 1 voltage	-
Hybrid/EV Battery Heater Relay	Operating state of heater relay Battery ECU assembly requesting heater relay operation: ON	-
Hybrid/EV Battery Thermal Keep Control Mode Status	Hybrid battery thermal keep control mode status ON: Enabled OFF: Disabled	-
Hybrid/EV Battery Cooling Request Level	HV battery cooling request level	-
Hybrid/EV Battery Cooling Status (A/C)	HV battery cooling status (A/C)	-
Hybrid/EV Battery Refrigerant Cooling Control Status	HV battery refrigerant cooling control status	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Refrigerant Temperature (Duct Inlet 1)	Hybrid/EV battery refrigerant temperature (duct inlet 1)	-
Hybrid/EV Battery Refrigerant Temperature (Duct Outlet 1)	Hybrid/EV battery refrigerant temperature (duct outlet 1)	-
Hybrid/EV Battery Refrigerant Temperature Sensor Voltage (Duct Inlet 1)	HV battery refrigerant temperature sensor voltage (duct inlet 1)	-
Hybrid/EV Battery Refrigerant Temperature Sensor Voltage (Duct Outlet 1)	HV battery refrigerant temperature sensor voltage (duct outlet 1)	-
Hybrid/EV Battery Refrigerant Pressure 1	HV battery refrigerant pressure 1	-
Hybrid/EV Battery Refrigerant Pressure Sensor 1 Voltage	HV battery refrigerant pressure sensor 1 voltage	-
Target Hybrid/EV Battery Refrigerant Cooling Expansion Valve 1 Position	Target HV battery refrigerant cooling expansion valve 1 position	-
Actual Hybrid/EV Battery Refrigerant Cooling Expansion Valve 1 Position	Actual HV battery refrigerant cooling expansion valve 1 position	-
Hybrid/EV Battery Refrigerant Cooling Expansion Valve 1 Drive Status	HV battery refrigerant cooling expansion valve 1 drive status	-
Hybrid/EV Battery Refrigerant Cooling Expansion Valve 1 IC Malfunction	HV battery refrigerant cooling expansion valve 1 IC malfunction	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Hybrid/EV Battery Refrigerant Cooling Expansion Valve 1 Circuit Open	HV battery refrigerant cooling expansion valve 1 circuit open	-
Hybrid/EV Battery Refrigerant Cooling Expansion Valve 1 Overcurrent	HV battery refrigerant cooling expansion valve 1 overcurrent	-
AC Charging Negative Relay Drive Request	Commanded state of CHRG Battery ECU assembly requesting CHRG relay operation: ON	-
AC Charging Positive Relay Drive Request	Commanded state of CHRB Battery ECU assembly requesting CHRB relay operation: ON	-
AC Charging Precharge Relay Drive Request	Commanded state of CHRP Battery ECU assembly requesting CHRP relay operation: ON	-
AC Charging Negative Relay Status	Operating state of CHRG CHRG relay operating: ON	-
AC Charging Positive Relay Status	Operating state of CHRB CHRB relay operating: ON	-
AC Charging Precharge Relay Status	Operating state of CHRP CHRP relay operating: ON	-
AC Charging Relay Permission Signal Status	AC charging relay permission signal status	-

Active Test

Using the GTS to perform Active Tests allows relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may

be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

NOTICE:

- It is necessary to use caution, because if the tester DLC connector becomes disconnected or if a communication error occurs during an Active Test, the vehicle could become inoperative (the READY light may go off).
- After performing the Active Test, turn the ignition switch off before proceeding to the next step.

(a) According to the display on the GTS perform the appropriate Active Test.

Powertrain > HV Battery > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	RESTRICT CONDITION	DIAGNOSTIC NOTE
Hybrid/EV Battery Heater Relay	To activate the traction battery heater continuously	ON / OFF	• Ignition switch ON • HV battery system normal • Auxiliary battery voltage is 9.5 V or higher • HV battery temperature is normal range	Activate the traction battery heater relay and rise traction battery heater temperature. **Related Data List** • Hybrid/EV Battery Heater 1 Temperature • Hybrid/EV Battery Heater 1 Temperature Sensor Voltage • Hybrid/EV Battery Heater 2 Temperature • Hybrid/EV Battery Heater 2 Temperature Sensor Voltage • Hybrid/EV Battery Heater Relay
Hybrid/EV Battery Refrigerant Cooling Valve	To activate the HV battery refrigerant cooling valve continuously	ON / OFF	Ignition switch ON	-
Hybrid/EV Battery Refrigerant Cooling Control	To check operation of the HV battery refrigerant cooling control	ON / OFF	• Ignition switch ON • Ignition switch ON (READY) • Auxiliary battery voltage is 9.5 V or higher • HV battery temperature is 11°C or higher • Refrigerant temperature	-

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	RESTRICT CONDITION	DIAGNOSTIC NOTE
			inside the HV battery is 0°C or higher	