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Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HYBRID / BATTERY CONTROL: HYBRID CONTROL 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:
  - Primary
  - Hybrid Battery
  - Hybrid Battery Temperature
  - Inverter
  - Hybrid Coolant Temperature
  - Shift
  - Insulation Abnormal
  - SMR
  - Ready ON
  - DC/DC Converter
  - Auxiliary Battery
  - Resolver Learning

Powertrain > Hybrid Control > 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	-
Vehicle Speed when DC Quick Charging Connector Connect	Vehicle speed when connected to plug-in charger inlet	-
Target Engine Power	Target engine power	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
	While driving with the engine running: Varies depending on vehicle operating conditions	
Execute Engine Power	Execute engine power While driving with the engine running: Varies depending on vehicle operating conditions	-
Target Engine Revolution	Target engine speed 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	-
Calculate Load	Calculate load	-
Coolant Temperature	Engine coolant temperature Cold start→Fully warmed up: Gradually rises After warming up: After warming up:	-
Starter Switch Signal	Starter ON / OFF signal Starter ON: ON	-
Engine Idling Request	Engine idling request Requesting idle: ON	-
Engine Start Request (A/C)	Engine idling request from air conditioning amplifier assembly While an engine start is requested from the air conditioning amplifier assembly: ON	-
Engine Start Request (Engine Warm-up)	Engine idling request to warm up engine While an engine warm-up is requested: ON After the engine is warmed up: OFF	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Engine Start Request (Hybrid/EV Battery Charging)	Engine idling request to charge HV battery Requesting HV battery charging: ON	-
Engine Mode	Engine status Engine stopped: Stop Engine stopping: Stop Process While the engine starting: Startup Process Engine running: Running	-
Engine Run Time	Elapsed time after starting engine	-
Engine Stop Request	Engine stop request Requesting engine stop: ON	-
Engine Stop F/C Status	Engine fuel cut status While engine fuel cut: ON	-
Lack of Fuel	Lack of fuel Fuel level low: ON	-
Accelerator Position	Accelerator pedal depressed angle Accelerator pedal fully depressed: 100.0% Accelerator pedal released: 0.0%	-
Accelerator Pedal Status	Accelerator pedal status Accelerator pedal depressed: ON Accelerator pedal released: OFF	-
Accelerator Position Sensor No.1 Voltage %	Accelerator pedal position sensor No. 1 Accelerator pedal depressed: Changes with accelerator pedal position	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Accelerator Position Sensor No.2 Voltage %	Accelerator pedal position sensor No. 2 Accelerator pedal depressed: Changes with accelerator pedal position	-
Throttle Position Sensor No.1 Voltage %	Throttle position sensor	-
Master Cylinder Control Torque	Braking torque equivalent to master cylinder brake fluid pressure (Total braking torque) Brake pedal depressed: Changes with the brake pedal pressure	-
Brake Cancel Switch	Brake cancel switch Brake pedal depressed: OFF Brake pedal released: ON	-
Shift Position	Current shift state Matches currently selected shift state: P, R, N, D or B	-
Shift Position (Meter)	Shift position of meter display Matches currently selected shift state: P, R, N, D or B	-
Shift Switch Status (N,P Position)	Shift position status (N or P position) Shift lever in P, N: ON	-
Sports Shift Position	Sports shift position	-
FR Wheel Speed	Front wheel speed RH Vehicle stopped: 0 km/h (0 mph) Vehicle being driven at a constant speed: No large fluctuations in displayed speed	-
FL Wheel Speed	Front wheel speed LH Vehicle stopped: 0 km/h (0 mph) Vehicle being driven at a constant speed:	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
	No large fluctuations in displayed speed	
RR Wheel Speed	Rear wheel speed RH Vehicle stopped: 0 km/h (0 mph) Vehicle being driven at a constant speed: No large fluctuations in displayed speed	-
RL Wheel Speed	Rear wheel speed LH Vehicle stopped: 0 km/h (0 mph) Vehicle being driven at a constant speed: No large fluctuations in displayed speed	-
Atmospheric Pressure	Atmospheric pressure Constant: Atmosphere pressure	-
Intake Manifold Absolute Pressure	Intake manifold pressure of engine Ignition switch ON or engine stopped: Atmosphere pressure	-
Ambient Temperature	Ambient air temperature Ignition switch ON: Same as ambient air temperature	-
Intake Air Temperature	Engine intake air temperature Constant: Almost same as ambient air temperature	-
Vehicle Information (Sub CPU)	Vehicle information (sub CPU)	-
BATT Voltage	Auxiliary battery voltage 11.00 to 15.00 V	-
Smoothed Value of BATT Voltage	Smoothed value of auxiliary battery voltage 11.000 to 15.000 V	-
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:	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
	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	-
IGB Keeping Status	IGB Keeping Status Ignition switch ON or during charging: ON	-
IG2 Signal Status	IG2 signal status Ignition switch ON or ON (READY): ON	-
MRL2 Signal Status	MRL2 Signal Status IGCT relay Operating: ON	-
IGBD Status	IGBD Status Ignition switch ON or during charging: ON	-
IGBD Signal Status	IGBD Signal Status	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
	IGB relay Operating: ON	
ACC Signal	ACC signal status	-
Ready Signal	Ready signal status Ignition switch ON (READY): ON	-
IGR	IGR terminal status Ignition switch ON or ON (READY): ON	-
IGP Signal Status	IGP signal status Ignition switch ON or ON (READY):	-
IGR Signal Status	IGR signal status Ignition switch ON or ON (READY):	-
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 air control system function: Remote Air Control System Hybrid vehicle control system started using remote starter: Remote	-
MG Activate Condition	Motor generator control system status Ignition switch ON or ON (READY): ON	-
DSS Control Status	DSS (Driving Support System) control status	-
Generate Torque (Request from DSS)	Requested generate torque from DSS (Driving Support System)	-
Primary Driving Force Adjustment Result	Result of adjustment between drive force of DSS (Driving Support System) and drive force requested by accelerator pedal operation Drive force requested by Accelerator pedal operation selected: Accelerator Drive force requested by DSS selected:	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
	DSS	
SMRG Status	Operating state of SMRG (primary circuit monitor) Ignition switch ON (READY): ON	-
SMRG Control Status	Commanded state of SMRG Ignition switch ON (READY): ON	-
SMRG Connect Retry Counter	Number of times of SMRG connect retry	-
SMRB Status	Operating state of SMRB (primary circuit monitor) Ignition switch ON (READY): ON	-
SMRB Control Status	Commanded state of SMRB Ignition switch ON (READY): ON	-
SMRB Connect Retry Counter	Number of times of SMRB connect retry	-
WIN Control Limit Power	WIN control limit power	-
WOUT Control Limit Power	WOUT control limit power	-
Voltage Deviation between before Boosting and after Boosting during SMR Precharge	Difference in voltage before boosting and after boosting during system main relay precharge	-
A/C Consumption Power	A/C consumption power While the air conditioning system is operating: 0.00 to 5.00 kW	-
A/C Useable Power	A/C useable power	-
Electric Component Actuation Restriction Count	Electric component actuation restriction count	-
Drive Mode Switch-	Powertrain drive mode switch status	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Drive Mode Switch+	Powertrain drive mode switch status	-
HV/EV Mode Switch	HV EV CHG HOLD mode switch condition	-
EVMS Signal Status	AUTO EV/HV mode switch signal condition	-
EV Mode Status	EV mode status	-
Drive Mode	Hybrid vehicle control ECU recognized drive mode	-
Snow Mode Status	Snow mode status	-
Hybrid/EV Control System Control Mode	Hybrid vehicle control ECU controlled vehicle mode	-
Inter Lock Switch	Interlock switch condition Ignition switch ON, service plug grip not installed: ON	-
Inter Lock Switch (MG)	Interlock switch condition Ignition switch ON, inverter cover not installed or rear traction motor cable disconnected: ON	-
Stop Light Switch	Stop light switch assembly condition Brake pedal depressed: ON	-
VSC/TRC OFF Switch	VSC condition	-
AC100V Accessory Outlet Switch	Power outlet switch condition	-
Airbag Status (Collision)	Airbag ECU assembly collision detection Collision detection by the airbag ECU assembly: ON	-
Airbag Status (Collision) (CAN)	Airbag sensor assembly collision detection (CAN)	-
Airbag Status (Normal)	Control state of airbag ECU assembly	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
	When the airbag ECU assembly is operating normally: ON	
Crank Position	Crankshaft position	-
TC Terminal	TC terminal state Active Test item [Connect the TC and TE1] support data.	-
Body Control with Torque Demand	Body Control with Torque Demand status Under the Body Control with Torque Demand: ON	-
Power Supply Control Driver Operation Status	Power supply control driver operation status	-
Elapsed time from HV/EV ECU Boot Up	Time elapsed since hybrid vehicle control ECU started	-
IG OFF Elapsed Time	Cumulative time since ignition switch turned off (from ECM)	-
IG ON Duration Time	IG ON duration time	-
IG OFF Duration Time	IG OFF duration time	-
Hybrid/EV Control Output Invalidation Signal (Sub)	Hybrid/EV control output invalidation signal (sub)	-
DDFS Control Switching Request	DDFS control switching request	-
SMR One Side Welding	SMR one side Welding	-
WIN after Arbitration by System Control	WIN after arbitration by system control	-
WOUT after Arbitration by System Control	WOUT after arbitration by system control	-
Emergency Shutdown Signal (Main)	Emergency shutdown signal (main)	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Emergency Shutdown Signal (Sub)	Emergency shutdown signal (sub)	-
Generator Revolution	Generator (MG1) speed (detected by resolver) 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	-
Generator Torque	Generator (MG1) torque execution value One second after engine automatically starts with shift lever in P (Condition before engine start: Ignition switch ON (READY), engine stopped, A/C fan speed high and headlights on): Within +/- 20% of Target Generator Torque	-
Motor Revolution	Motor (MG2) speed (detected by resolver) While driving: Varies depending on vehicle speed	-
Target Motor Torque	Motor (MG2) torque request value While driving: Varies depending on vehicle operating conditions	-
Motor Torque	Motor (MG2) torque execution value After full-load acceleration with ignition switch ON (READY) and engine stopped: Within +/-20% of Target Motor Torque	-
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.	-
Motor Regenerate Brake Execution Torque	Motor (MG2) regenerative braking execution torque	-
Generator Inverter Temperature	Generator inverter temperature Vehicle left for 1 day at an ambient temperature of 25°C (77°F):	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
	15 to 35°C (59 to 95°F) While driving at an ambient temperature of 25°C (77°F): 25 to 120°C (77 to 248°F)	
Generator Inverter Temperature just after IG ON	Generator inverter temperature soon after ignition switch ON	-
Generator Inverter Maximum Temperature	Maximum generator inverter temperature after ignition switch turned to ON in current trip	-
Motor Inverter Temperature	Motor inverter temperature Vehicle left for 1 day at an ambient temperature of 25°C (77°F): 15 to 35°C (59 to 95°F) While driving at an ambient temperature of 25°C (77°F): 25 to 120°C (77 to 248°F)	-
Motor Inverter Temperature just after IG ON	Motor inverter temperature soon after ignition switch ON	-
Motor Inverter Maximum Temperature	Maximum motor inverter temperature after ignition switch turned to ON in current trip	-
Boosting Converter Temperature (Upper)	Boost converter temperature (upper) Vehicle left for 1 day at an ambient temperature of 25°C (77°F): 15 to 35°C (59 to 95°F) While driving at an ambient temperature of 25°C (77°F): 25 to 120°C (77 to 248°F)	-
Boosting Converter Temperature (Lower)	Boost converter temperature (lower) Vehicle left for 1 day at an ambient temperature of 25°C (77°F): 15 to 35°C (59 to 95°F) While driving at an ambient temperature of 25°C (77°F): 25 to 120°C (77 to 248°F)	-
Boosting Converter Temperature just after IG ON	Boost converter temperature soon after ignition switch ON	-
Boosting Converter Maximum Temperature	Maximum converter temperature after ignition switch turned to ON in current trip	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Boosting Converter B Temperature (Upper)	Boost converter B temperature (upper) Vehicle left for 1 day at an ambient temperature of 25°C (77°F): 15 to 35°C (59 to 95°F) While driving at an ambient temperature of 25°C (77°F): 25 to 120°C (77 to 248°F)	-
Boosting Converter B Temperature (Lower)	Boost converter B temperature (lower) Vehicle left for 1 day at an ambient temperature of 25°C (77°F): 15 to 35°C (59 to 95°F) While driving at an ambient temperature of 25°C (77°F): 25 to 120°C (77 to 248°F)	-
Boosting Converter B Temperature just after IG ON	Boost converter B temperature soon after ignition switch ON	-
Boosting Converter B Maximum Temperature	Maximum converter B temperature after ignition switch turned ON in current trip	-
Step Down Current Limit	Step down current limit	-
Generator Inverter Operation Request	Generator inverter operation request	-
Generator Inverter Fail	Generator inverter stopped Generator inverter stopped: ON Normal: OFF	-
Generator Inverter Shutdown Status	Generator inverter shutdown status Generator inverter shutdown: Shutdown Normal: Awake	-
Motor Inverter Operation Request	Motor inverter operation request	-
Motor Inverter Fail	Motor inverter stopped Motor inverter stopped: ON	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
	Normal: Normal:	
Motor Inverter Shutdown Status	Motor inverter shutdown status Motor inverter shutdown: Shutdown Normal: Awake	-
Boosting Converter Operation Request	Boost converter operation request	-
Boosting Converter Fail	Boost converter stopped Boost converter stopped: ON Normal: OFF	-
Boosting Converter Shutdown Status	Boost converter shutdown status Boost converter shutdown: Shutdown Normal: Awake	-
Generator Carrier Frequency	Generator (MG1) carrier frequency	-
Generator Control Mode	Generator (MG1) control mode	-
Motor Carrier Frequency	Motor (MG2) carrier frequency	-
Motor Control Mode	Motor (MG2) control mode	-
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 shift lever in P: After boosted voltage to below approximately 650 V	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Boost Ratio	Boost converter boost ratio	-
V Phase Generator Current	V phase generator current	-
W Phase Generator Current	W phase generator current	-
V Phase Motor Current	V phase motor current	-
W Phase Motor Current	W phase motor current	-
DC/DC Converter Operation Status	DC/DC converter operation status	-
DC/DC Converter Drive Request	DC/DC converter drive request	-
Target DC/DC Converter Voltage	Target DC/DC converter voltage	-
DC/DC Converter Operation Status Notification	DC/DC converter operation status notification	-
DC/DC Converter Voltage Sensor (High Voltage Side) Unavailable Status	DC/DC converter voltage sensor (high voltage side) unavailable status	-
DC/DC Converter CAN Unreceivable Status	DC/DC converter CAN unreceivable status	-
DC/DC Converter Unavailable Status	DC/DC converter unavailable status	-
DC/DC Converter Over Temperature Protection Status	DC/DC converter over temperature protection status	-
DC/DC Converter Stopping Status	DC/DC converter stopping status	-
DC/DC Converter Drooping Operation Status	DC/DC converter drooping operation status	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
DC/DC Converter Activate Condition	DC/DC converter activate condition	-
DC/DC Converter Output Current	DC/DC converter output current	-
DC/DC Converter Voltage (Low Voltage Side)	DC/DC converter voltage (low voltage side)	-
DC/DC Converter Voltage (High Voltage Side)	DC/DC converter voltage (high voltage side)	-
Target DC/DC Converter Precharge Voltage	Target DC/DC converter precharge voltage	-
DC/DC Converter Precharge Abnormal	DC/DC converter precharge abnormal	-
DC/DC Converter Diagnosis Status	DC/DC converter diagnosis status	-
Inverter Coolant Water Temperature	Inverter coolant temperature Cold start→Fully warmed up: Gradually rises System operating normally: Controlled at 65°C (149°F) or less	-
Inverter Water Pump	Inverter water pump assembly status During Active Test: ON	-
Inverter Water Pump Duty Ratio	Inverter water pump motor driver request duty Ignition switch ON (READY): 40.00 to 85.00%	-
Inverter Water Pump Revolution	Inverter water pump assembly speed Ignition switch ON (READY): 1051 to 8617 rpm	-
Overvoltage Input to Inverter	Overvoltage detection into inverter Overvoltage is detected into inverter: ON Normal:	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
	OFF	
Inverter Input Current	Inverter input current	-
Overvoltage Input to Boosting Converter	Overvoltage detection into boost converter Overvoltage is detected into boost converter: ON Normal: OFF	-
Motor/Generator Reactor Current before SMR Precharge	Reactor current before system main relay precharge	-
Motor/Generator Reactor Maximum Current during SMR Precharge	Highest reactor current during system main relay precharge	-
Motor/Generator Reactor Current-Carrying Status during SMR Precharge	Current flowing through reactor during system main relay precharge	-
Motor/Generator Reactor Noncurrent-Carrying Status during SMR Precharge	Current not flowing through reactor during system main relay precharge	-
Inverter Water Pump Status	Inverter water pump assembly status	-
Number of Specification Information Switching	Number of functions related to the vehicle specification information change	-
Suspension Control Module Specification Information Switching	Whether the vehicle specification information has changed for the suspension system	-
Suspension Control Module Specification Information	Whether there is vehicle specification information for the suspension system	-
IGS Available Specification Information Switching	Whether there is IGS terminal vehicle specification information change for the shift control ECU	-
IGS Available Specification Information	Whether there is IGS terminal vehicle specification information for the shift control ECU	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Advanced Park Available Specification Information Switching	Whether there is advanced park vehicle specification information change for the shift control ECU	-
Advanced Park Available Specification Information	Whether there is advanced park vehicle specification information change for the shift control ECU	-
Solar Available Specification Information Switching	Whether the vehicle specification information has changed for the solar system	-
Solar Available Specification Information	Whether there is vehicle specification information for the solar system	-
Power Steering Available Specification Information Switching	Whether the vehicle specification information has changed for the power steering system	-
Power Steering Available Specification Information	Whether there is vehicle specification information for the power steering system	-
Hybrid/EV Battery SOC	HV battery state of charge Constant: 0.00 to 100.00% Primary calculated from charging and discharging amperage	-
Hybrid/EV Battery SOC of Immediately 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 (READY): 150.00 to 300.00 V	-
Hybrid/EV Battery Current	HV battery current Ignition switch ON (READY): -200.0 to 200.0 A	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Charging Voltage for Hybrid/EV Battery	HV battery charging voltage (VCHG sensor value)	-
Hybrid/EV Battery Charging and Discharging Permission Status with Hybrid/EV Battery Thermal Keep	HV battery charge/discharge state during temperature adjustment	-
Hybrid/EV Battery Maximum Temperature	HV battery highest temperature during current trip	-
Hybrid/EV Battery Minimum Temperature	HV battery lowest temperature during current trip	-
Hybrid/EV Battery Cooling Fan Low Speed Request	Battery cooling blower assembly Lo speed requested Constant: ON or OFF	-
Hybrid/EV Battery Cooling Necessity before Charging	HV battery cooling necessary before charging	-
High Voltage Power Supply Line Abnormal	High voltage power supply line abnormal	-
Short Wave Highest Value Level	Waveform voltage level in abnormal insulation detection circuit in battery ECU assembly Judgment not completed: Not Judge Normal: Normal condition Medium low level: Insulation Lower LV2 Severe low level: Insulation Lower LV3	-
Insulation Resistance Division Check Completion using MG Inv	Insulation resistance division check completion using MG inverter Decreased insulation resistance judgment for motor and generator inverter has completed: Complete After turning the ignition switch from ON (READY) to off, compare the value of Data List item "Short Wave Highest Value Level" before and after the motor and generator inverter are shut down.	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Insulation Resistance Division Check Completion using A/C Inv	Insulation resistance division check completion using A/C inverter Decreased insulation resistance judgment for the air conditioning inverter has completed: Complete Check the value of Data List item "Short Wave Highest Value Level" before and after the air conditioning inverter is shut down.	-
Insulation Resistance Division Check Completion using SMR	Insulation resistance division check completion using SMR Decreased insulation resistance judgment for the system main relays has completed: Complete Check the value of Data List item "Short Wave Highest Value Level" before and after the system main relays are turned off.	-
Insulation Resistance Division Check Completion using AC Charging Area	Insulation resistance division check completion using CHR area Decreased insulation resistance judgment for the CHR relays has completed: Complete Check the value of Data List item "Short Wave Highest Value Level" before and after the CHR relays are turned off.	-
Short Wave Highest Value Availability just after MG Inv On/Off	Short wave highest value availability just after MG inverter on/off The value of Data List item "Short Wave Highest Value Level" cannot be checked immediately after the motor and generator inverter are turned on/off: No	-
Short Wave Highest Value Availability just after A/C Inv On/Off	Short wave highest value availability just after A/C inverter on/off The value of Data List item "Short Wave Highest Value Level" cannot be checked immediately after air conditioning inverter turned on/off: No	-
Short Wave Highest Value Availability just after SMR On/Off	Short wave highest value availability just after SMR on/off The value of Data List item "Short Wave Highest Value Level" cannot be checked immediately after system main relays turned on/off: No	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Short Wave Highest Value Availability just after AC Charging Relay On/Off	Short wave highest value availability just after CHR relay on/off The value of Data List item "Short Wave Highest Value Level" cannot be checked immediately after CHR relays turned on/off: No	-
Immobiliser Communication	Immobiliser communication line status	-
Permit Start by Immobiliser	Status of starting permission by immobiliser (immobiliser to hybrid vehicle control ECU)	-
Auxiliary Battery Voltage	Auxiliary battery voltage When ignition switch ON (READY): approx. 12.5 to 15.0 V. When ignition switch ON: same as auxiliary battery voltage (approx. 12 V). If the voltage becomes 11 V or less when the ignition switch is ON (READY), the hybrid vehicle control ECU stores inverter with converter assembly DTCs. If the voltage becomes 9.5 V or less, the ignition switch will not be able to be turned ON (READY).	-
Auxiliary Battery Voltage just before SMR Precharge	Auxiliary battery voltage just before SMR precharge	-
Auxiliary Battery Current	Auxiliary battery current	-
Smoothed Value of Auxiliary Battery Temperature	Smoothed value of auxiliary battery temperature	-
Auxiliary Battery Voltage Low Times	Auxiliary battery voltage low times	-
Auxiliary Battery Voltage at Low Voltage Checking Initiation	Voltage of auxiliary battery voltage low judgment	-
Auxiliary Battery Charging Integrated Current	Cumulative battery charging integrated current value since vehicle was built	-
Auxiliary Battery Discharging Integrated Current	Cumulative battery discharging integrated current value since vehicle was built	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Auxiliary Battery Capacity after IG ON	Auxiliary battery capacity after ignition switch ON	-
Auxiliary Battery Capacity after IG OFF	Auxiliary battery capacity after ignition switch off	-
Auxiliary Battery Status of Full Charge	Auxiliary battery status when full charge	-
Auxiliary Battery Charging Rate Accuracy	Auxiliary battery charging rate accuracy	-
Integrated Ready ON Time	Cumulative time ignition switch has been ON (READY) since vehicle was built	-
Number of Long Term Leaving with IG OFF	Number of times ignition switch not changed from off for long period of time (1440 hours (60 days))	-
Auxiliary Battery Integrated Thermal Load	Cumulative auxiliary battery thermal load since vehicle was built	-
Auxiliary Battery Voltage Low Status by Hybrid/EV Control ECU	Auxiliary battery voltage drop	-
Auxiliary Battery Voltage Low Status from Hybrid/EV Battery Control ECU	Existence of auxiliary battery voltage drop signal (from battery ECU)	-
Auxiliary Battery Voltage Low Status from Solar Charging Control ECU	Existence of auxiliary battery voltage drop signal (from solar energy control ECU)	-
Auxiliary Battery Current Sensor Value	Auxiliary battery current sensor value	-
Auxiliary Battery Warning (Low Voltage)	Auxiliary battery warning (low voltage)	-
Auxiliary Battery Warning (Over Voltage)	Auxiliary battery warning (over voltage)	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Total Distance Indicated after Long Term Leaving with IG OFF (1st)	Cumulative distance before 1st long term ignition switch off period of time (1440 hours (60 days))	-
Total Distance Indicated after Long Term Leaving with IG OFF (2nd)	Cumulative distance before 2nd long term ignition switch off period of time (1440 hours (60 days))	-
Total Distance Indicated after Long Term Leaving with IG OFF (3rd)	Cumulative distance before 3rd long term ignition switch off period of time (1440 hours (60 days))	-
Time of Long Term Leaving with IG OFF (1st)	Number of days of 1st long term ignition switch off period of time (1440 hours (60 days))	-
Time of Long Term Leaving with IG OFF (2nd)	Number of days of 2nd long term ignition switch off period of time (1440 hours (60 days))	-
Time of Long Term Leaving with IG OFF (3rd)	Number of days of 3rd long term ignition switch off period of time (1440 hours (60 days))	-
Auxiliary Battery Average Current during IG OFF 1 Trip before	Average auxiliary battery current when ignition switch off 1 trip before	-
Auxiliary Battery Average Current during IG OFF 2 Trip before	Average auxiliary battery current when ignition switch off 2 trips before	-
Auxiliary Battery Average Current during IG OFF 3 Trip before	Average auxiliary battery current when ignition switch off 3 trips before	-
Auxiliary Battery Average Current during IG OFF 4 Trip before	Average auxiliary battery current when ignition switch off 4 trips before	-
Auxiliary Battery Average Current during IG OFF 5 Trip before	Average auxiliary battery current when ignition switch off 5 trips before	-
Total Distance Up to 1 Trip before	Cumulative distance traveled 1 trip before	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Total Distance Up to 2 Trip before	Cumulative distance traveled 2 trips before	-
Total Distance Up to 3 Trip before	Cumulative distance traveled 3 trips before	-
Total Distance Up to 4 Trip before	Cumulative distance traveled 4 trips before	-
Total Distance Up to 5 Trip before	Cumulative distance traveled 5 trips before	-
IG OFF Time before 1 trip	Number of days ignition switch was off 1 trip before	-
IG OFF Time before 2 trip	Number of days ignition switch was off 2 trips before	-
IG OFF Time before 3 trip	Number of days ignition switch was off 3 trips before	-
IG OFF Time before 4 trip	Number of days ignition switch was off 4 trips before	-
IG OFF Time before 5 trip	Number of days ignition switch was off 5 trips before	-
IG ON Time Up to 1 trip before	Time ignition switch was ON 1 trip before	-
IG ON Time Up to 2 trip before	Time ignition switch was ON 2 trips before	-
IG ON Time Up to 3 trip before	Time ignition switch was ON 3 trips before	-
IG ON Time Up to 4 trip before	Time ignition switch was ON 4 trips before	-
IG ON Time Up to 5 trip before	Time ignition switch was ON 5 trips before	-
Ready ON Time Up to 1 trip before	Time ignition switch was ON (READY) 1 trip before	-
Ready ON Time Up to 2 trip before	Time ignition switch was ON (READY) 2 trips before	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Ready ON Time Up to 3 trip before	Time ignition switch was ON (READY) 3 trips before	-
Ready ON Time Up to 4 trip before	Time ignition switch was ON (READY) 4 trips before	-
Ready ON Time Up to 5 trip before	Time ignition switch was ON (READY) 5 trips before	-
Hybrid/EV Battery Discharging Current Upper Limit	HV battery discharging current upper limit	-
Target Sub DC/DC Converter Voltage (for Charging)	Sub DC/DC converter target output voltage	-
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	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
AC Charging Relay Permission Signal Stuck Low Status	AC charging relay permission signal stuck low status	-
AC Charging Relay Permission Signal Stuck High Status	AC charging relay permission signal stuck high status	-
AC Charging Relay Permission Signal Status (Hybrid/EV Battery)	AC charging relay permission signal status (Hybrid/EV Battery)	-
DC Quick Charging Lid Status	Plug-in charger inlet status	-
DC Charging and Discharging Mode Determination	DC charging and discharging mode determination	-
External Power Supply Inverter Indicator Status	External power supply inverter indication status	-
External Power Supply Inverter Output Monitor Status	External power supply inverter output monitor status	-
External Power Supply Inverter Operation Request by HV/EV ECU	External power supply inverter operation request (Hybrid vehicle control ECU)	-
External Power Supply Inverter Operation Request by Plug-in Control ECU	External power supply inverter operation request (Plugin charge control ECU)	-
External Power Supply Inverter Shutdown Request	External power supply inverter shutdown request	-
Power Feeding Electrical Using Status	Usage state of power supplied from external power source charging	-
Solar Charge Hybrid/EV Battery DC/DC Converter Drive Request	Solar charge DC/DC converter drive request	-
Solar Charge Hybrid/EV Battery DC/DC Converter Input Power	Solar charge DC/DC converter input power	-

TESTER DISPLAY	MEASUREMENT ITEM	DIAGNOSTIC NOTE
Smoothed Value of Solar Charge Hybrid/EV Battery DC/DC Converter Input Voltage	Smoothed value of solar charge DC/DC converter input voltage	-
Outside Stand Present Output Voltage	Outside stand present output voltage	-
Outside Stand Present Output Current	Outside stand present output current	-

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 indicator 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 > Hybrid Control > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	RESTRICT CONDITION	DIAGNOSTIC NOTE
Compression Test	To crank the engine continuously in order to measure the compression*1 Allows the engine to continue cranking by activating generator (MG1) continuously	ON / OFF	Ignition switch ON, HV system normal, not in cranking mode, and other Active Tests not being done	-
Activate the Inverter Water Pump	To activate the inverter water pump assembly continuously Before performing the Active Test of the inverter water pump assembly, check the coolant level.	ON	Ignition switch ON, HV system normal, not in maintenance mode, and other Active Tests not being performed, auxiliary battery voltage is 9.5 V or more	-

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	RESTRICT CONDITION	DIAGNOSTIC NOTE
Connect the TC and TE1	Batch display of warnings on combination meter assembly TC terminal can be switched ON/OFF	ON / OFF	Ignition switch ON	-

NOTICE:

- *1: The GTS will display a communication error and the vehicle's READY indicator will turn off when the Active Test is completed. If the GTS will be used on the vehicle again, turn the ignition switch off and then on (READY) again to restart the GTS.