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Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: ADVANCED DRIVER ASSISTANCE SYSTEM: MILLIMETER WAVE RADAR SENSOR: DRIVING ADJUSTMENT; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DRIVING ADJUSTMENT

CAUTION / NOTICE / HINT

CAUTION:

Radiofrequency radiation exposure information:

- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
- This equipment should be kept with minimum distance of 20 cm (7.87 in.) between the radiator (antenna) and your body at all times during adjustment.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

NOTICE:

- Make sure to read "Before Starting Driving Adjustment" before proceeding with work.

  Click here INFO
- Make sure that the alignment is suitable and non-standard tires are not installed.
- Make sure to perform the transition to online axis alignment mode with the vehicle stopped.
- Transitioning to online axis alignment mode will erase the learning value, so make sure to complete the adjustment.
- Turning the ignition switch off while in online axis alignment mode will cause the system to exit online axis alignment mode, so to continue with the adjustment, it is necessary to transition to online axis alignment mode again.
- All of the driving support system functions will be inoperative while the adjustment is in progress.
- When driving the vehicle with the GTS connected, be careful with how the wires are routed.
- If the adjustment does not complete within a total cumulative time of 15 minutes when the vehicle is driven with all conditions met, perform the adjustment on another route.
- If the adjustment does not complete within a total cumulative time of 30 minutes when the vehicle is driven with all conditions met, perform the adjustment using target recognition.
- After adjustment is complete, to start the various systems it is necessary to turn the ignition switch off and then to ON again.
- In situations such as when the online axis alignment terminates abnormally, to perform online axis alignment again, turn the ignition switch off and then back to ON and enter online axis alignment mode again.

PROCEDURE

1. PERFORM MILLIMETER WAVE RADAR SENSOR OPTICAL AXIS LEARNING (When driving with GTS connected to vehicle)

(a) Adjust the tire pressures to the standard values.

Click here INFO

(b) Make sure the surfaces of the radiator grille garnish and millimeter wave radar sensor assembly are clean and have no dirt, snow, or other matter adhering to them.

(c) Clean away any foreign matter adhering to the surface of the radiator grille garnish.

(d) Check that there is no damage or deformation around the front exterior area of the vehicle.

(e) Check that the radiator grille and front bumper assembly are securely installed, and that there is no damage or deformation around the installation areas. If any abnormalities are found, repair or replace parts as necessary.

(f) Perform Transition to Online Axis Alignment Mode.

(1) With the ignition switch off, connect the GTS to the DLC3.

(2) Turn the ignition switch to ON.

(3) Enter the following menus: Body Electrical / Front Radar Sensor / Utility / Transition to Online Axis Alignment Mode.

for Type A:

Body Electrical > Front Radar Sensor > Utility

TESTER DISPLAY
Transition to Online Axis Alignment Mode

for Type B:

Body Electrical > Front Radar Sensor > Utility

TESTER DISPLAY
Transition to Online Axis Alignment Mode

(4) Confirm the conditions displayed on the screen and then press "Next".

(5) Select "Front radar sensor" and then press "Next".

(6) Check the GTS screen and confirm that it has transitioned to online axis alignment mode.

(7) Press "Next".

(g) Online axis adjustment (Optical Axis Learning)

(1) Drive the vehicle to perform optical axis learning.

HINT:

If the alignment is performed with the GTS connected to the vehicle, the alignment progress can be monitored through 5 stages on the GTS screen.

(2) If the online axis alignment completes normally, the buzzer will sound intermittently for 2 seconds.

NOTICE:

- If the alignment terminates abnormally, the buzzer will sound for 3 seconds continuously.
- If an error code is displayed, perform troubleshooting according to the following table, then perform the beam axis alignment again.

ERROR NO.	ERROR DESCRIPTION	CAUSE OF ERROR	ACTION TO BE TAKEN
6	Target angle abnormality	◦ The beam axis of the millimeter wave radar sensor assembly is outside the automatic correction range.	Check the condition of the millimeter wave radar sensor assembly, radiator grille and front bumper assembly.
7	Radar abnormality	◦ Operation of the millimeter wave radar sensor assembly is abnormal.	Replace the millimeter wave radar sensor assembly.
8	Radar dirtiness	◦ There is dirt on the radiator grille garnish or millimeter wave radar sensor assembly.	◦ Clean the radiator grille garnish or millimeter wave radar sensor assembly. ◦ Check that there is no foreign matter between the millimeter

ERROR NO.	ERROR DESCRIPTION	CAUSE OF ERROR	ACTION TO BE TAKEN
			wave radar sensor assembly and radiator grille garnish.
9	Temperature abnormality	◦ The temperature around the millimeter wave radar sensor assembly is too high.	Wait until the temperature drops to the operable range (-30 to 50°C).
10	Voltage abnormality	◦ IG power source voltage is outside the operable range of the millimeter wave radar sensor assembly.	Check the auxiliary battery voltage (specified condition: 10 to 16 V). ◦ for M20A-FXS: Click here INFO INFO ◦ for 2ZR-FXE: Click here INFO
11	External communication abnormality	◦ CAN communication between forward recognition camera and the millimeter wave radar sensor assembly is abnormal.	Check the condition of the connectors and wire harness.
12	Radar axis aiming failure upward	◦ The beam axis of the millimeter wave radar sensor assembly is deviated.	Check the condition of the millimeter wave radar sensor assembly, radiator grille and front bumper assembly.
13	Radar axis aiming failure downward	◦ The beam axis of the millimeter wave radar sensor assembly is deviated.	Check the condition of the millimeter wave radar sensor assembly, radiator grille and front bumper assembly.
14	Vehicle speed abnormality	◦ The vehicle is moving.	Ensure that the vehicle remains stationary.
15	Other	◦ Operation of the yaw rate sensor is abnormal. ◦ Driving beam axis alignment was forcibly terminated.	Check for DTCs (Front Recognition Camera). Check for DTCs (ABS / VSC / TRC).
16	Time out	◦ The vehicle cannot communicate with GTS normally. ◦ Operation of the millimeter wave radar sensor assembly is abnormal.	◦ Ensure that the vehicle is connected with the GTS correctly. ◦ Perform online axis adjustment again and replace the millimeter wave radar sensor assembly if the same error code is output.
18	Vehicle information undefined	◦ CAN communication between forward recognition camera and the millimeter wave radar sensor assembly is abnormal.	Check the connectors of the millimeter wave radar sensor assembly, forward recognition camera and the junction block are firmly connected.

(3) Press "Exit" to exit the Online axis adjustment mode.

(4) Turn the ignition switch off.

(5) Turn the ignition switch to ON and check that the warning light turns off.

(6) Turn the ignition switch off.

(7) Disconnect the GTS from the DLC3.

(h) Millimeter wave radar sensor assembly optical axis learning is complete.

(i) After beam axis adjustment completes, clear the following system vehicle control history entries.

(1) Clear vehicle control history (Front Radar Sensor System).

Click here INFO INFO

(2) Clear vehicle control history (Front Camera System).

Click here INFO INFO

2. PERFORM MILLIMETER WAVE RADAR SENSOR OPTICAL AXIS LEARNING (When driving with GTS not connected to vehicle)

(a) Adjust the tire pressures to the standard values.

Click here INFO

(b) Make sure the surfaces of the radiator grille garnish and millimeter wave radar sensor assembly are clean and have no dirt, snow, or other matter adhering to them.

(c) Clean away any foreign matter adhering to the surface of the radiator grille garnish.

(d) Check that there is no damage or deformation around the front exterior area of the vehicle.

(e) Check that the radiator grille and front bumper assembly are securely installed, and that there is no damage or deformation around the installation areas. If any abnormalities are found, repair or replace parts as necessary.

(f) Perform Transition to Online Axis Alignment Mode.

(1) With the ignition switch off, connect the GTS to the DLC3.

(2) Turn the ignition switch to ON.

(3) Enter the following menus: Body Electrical / Front Radar Sensor / Utility / Transition to Online Axis Alignment Mode.

for Type A:

Body Electrical > Front Radar Sensor > Utility

TESTER DISPLAY
Transition to Online Axis Alignment Mode

for Type B:

Body Electrical > Front Radar Sensor > Utility

TESTER DISPLAY
Transition to Online Axis Alignment Mode

(4) Confirm the conditions displayed on the screen and then press "Next".

(5) Select "Front radar sensor" and then press "Next".

(6) Check the GTS screen and confirm that it has transitioned to online axis alignment mode.

(7) Press "Next".

(8) In accordance with the instructions on the screen press "Exit" and then disconnect the GTS from the DLC3.

(g) Online axis adjustment (Optical Axis Learning)

(1) Drive the vehicle to perform optical axis learning.

(2) If the online axis alignment completes normally, the buzzer will sound intermittently for 2 seconds.

NOTICE:

- If the alignment terminates abnormally, the buzzer will sound for 3 seconds continuously.
- When the system terminates abnormally, connect the GTS and refer to the following error code table, then perform beam axis alignment again.

Click here INFO

ERROR NO.	ERROR DESCRIPTION	CAUSE OF ERROR	ACTION TO BE TAKEN
6	Target angle abnormality	◦ The beam axis of the millimeter wave radar sensor assembly is outside the automatic correction range.	Check the condition of the millimeter wave radar sensor assembly, radiator grille and front bumper assembly.
7	Radar abnormality	◦ Operation of the millimeter wave radar sensor assembly is abnormal.	Replace the millimeter wave radar sensor assembly.
8	Radar dirtiness	◦ There is dirt on the radiator grille garnish or millimeter wave radar sensor assembly.	◦ Clean the radiator grille garnish or millimeter wave radar sensor assembly. ◦ Check that there is no foreign matter between the millimeter wave radar sensor assembly and radiator grille garnish.
9	Temperature abnormality	◦ The temperature around the millimeter wave radar sensor assembly is too high.	Wait until the temperature drops to the operable range (-30 to 50°C).
10	Voltage abnormality	◦ IG power source voltage is outside the operable range of the millimeter wave radar sensor assembly.	Check the auxiliary battery voltage (specified condition: 10 to 16 V). ◦ for M20A-FXS: Click here INFO INFO ◦ for 2ZR-FXE: Click here INFO
11	External communication abnormality	◦ CAN communication between forward recognition camera and the millimeter wave radar sensor assembly is abnormal.	Check the condition of the connectors and wire harness.
12	Radar axis aiming failure upward	◦ The beam axis of the millimeter wave radar sensor assembly is deviated.	Check the condition of the millimeter wave radar sensor assembly, radiator grille and front bumper assembly.
13	Radar axis aiming failure downward	◦ The beam axis of the millimeter wave radar sensor assembly is deviated.	Check the condition of the millimeter wave radar sensor assembly, radiator grille and front bumper assembly.
14	Vehicle speed abnormality	◦ The vehicle is moving.	Ensure that the vehicle remains stationary.

ERROR NO.	ERROR DESCRIPTION	CAUSE OF ERROR	ACTION TO BE TAKEN
15	Other	◦ Operation of the yaw rate sensor is abnormal. ◦ Driving beam axis alignment was forcibly terminated.	Check for DTCs (Front Recognition Camera). Check for DTCs (ABS / VSC / TRC).
16	Time out	◦ The vehicle cannot communicate with GTS normally. ◦ Operation of the millimeter wave radar sensor assembly is abnormal.	◦ Ensure that the vehicle is connected with the GTS correctly. ◦ Perform online axis adjustment again and replace the millimeter wave radar sensor assembly if the same error code is output.
18	Vehicle information undefined	◦ CAN communication between forward recognition camera and the millimeter wave radar sensor assembly is abnormal.	Check the connectors of the millimeter wave radar sensor assembly, forward recognition camera and the junction block are firmly connected.

(3) Turn the ignition switch off.

(4) Turn the ignition switch to ON and check that the warning light turns off.

(5) Turn the ignition switch off.

(h) Millimeter wave radar sensor assembly optical axis learning is complete.

(i) After beam axis adjustment completes, clear the following system vehicle control history entries.

(1) Clear vehicle control history (Front Radar Sensor System).

Click here INFO INFO

(2) Clear vehicle control history (Front Camera System).

Click here INFO INFO