

SECTION 1-3

FEATURES ON NEW TOYOTA RAV4 EV

Charging

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Charging procedure

When charging the traction batteries, always apply a full charge.

- If you do not drive your vehicle for a long time, make sure to charge the batteries fully.
- **For daily vehicle use, always apply a full charge.**

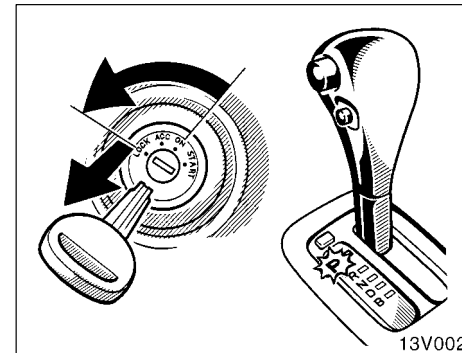
After the batteries are fully charged, the charger automatically stops, and the SOC meter indicates "F" with the key turned "ON". When the key is turned "OFF", the SOC meter will indicate "E".

If the vehicle is left for a long period of time in a burning sun even after charging is completed, the SOC meter will be slightly depleted from "F" mark due to battery self-discharge.

However, if you stop the operation, the traction batteries may not be fully charged even if the SOC meter indicates "F". Unless the traction batteries are charged fully, the SOC meter may not indicate the correct value and the driving range will also be shortened.

If you interrupt full charging often, the SOC meter may not indicate the correct value. Whenever possible, avoid interrupting the full charging cycle.

NOTE: Normal full charging is recommended a minimum of once per week to maximize battery life.



PREPARATION

1. Make sure the selector lever is in "P" and that the parking brake has been applied.

CAUTION

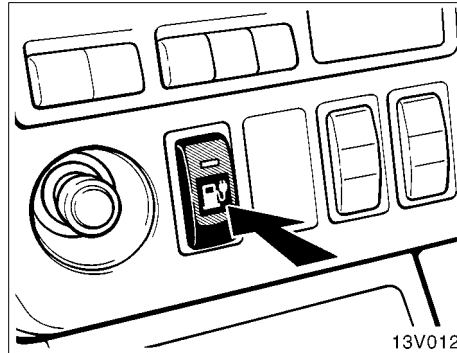
If the vehicle moves during charging, an accident may occur.

2. Turn the motor switch to "LOCK" and remove the key.

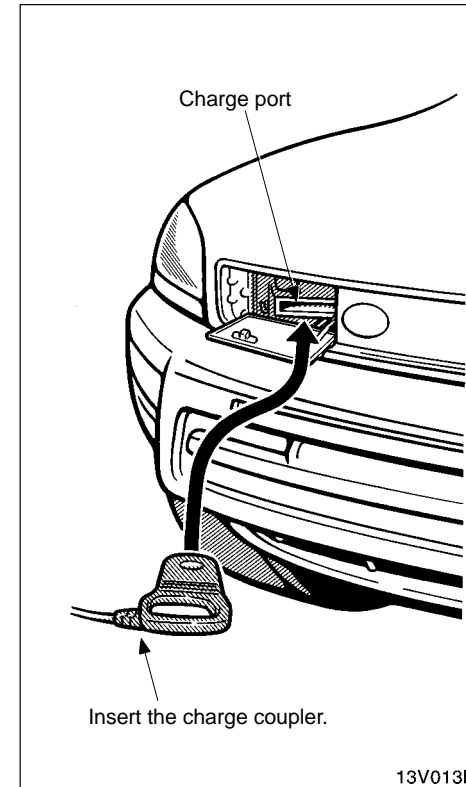
NOTE: If the motor key is left in either the "ON" or "ACC" position, the auxiliary battery may be discharged, even after charging the traction batteries.

⚠ CAUTION

- When charging the traction batteries, select a well ventilated area. Underwriter's Laboratories (UL) has certified the RAV4 EV as having no hydrogen gas emissions during charging. However, under certain circumstances a battery cell failure could result in the release of a small amount of this flammable gas. To reduce the likelihood of explosion or fire, charge the traction batteries in a well ventilated area.
- Avoid charging under high temperatures or direct sunlight.



3. Push the button to open the charge port door.



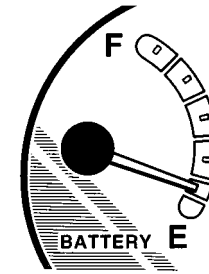
4. Insert the charge coupler into the charge port in the front grill completely.

Please read the manufacturer's manual for Off-Board Charger operation. If the timer is equipped on the charger, be sure to turn it off.

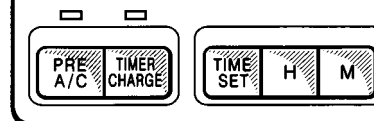
 CAUTION

- Do not modify the charge coupler.
- The charge coupler should be firmly installed without any tension on the cable.
- If the charge coupler is damaged, replace it immediately. Do not use a damaged charge coupler, as you may be burned or receive an electric shock.

- Keep flammable objects such as cigarettes or sparks away from the traction batteries. Since flammable gas may be produced from the traction batteries, a fire or explosion may occur.



CHARGE CONTROLLER



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BATTERY CHARGE CONTROLLER FUNCTION AND OPERATION

RAV4 EV has 4 types of settings for charging as shown below:

- (1) Normal charge (See page 29.)**
- (2) Charge by timer (See page 30.)**
- (3) Charging and preheating/precooling for vehicle interior (See page 31.)**
- (4) Setting preheating/precooling for vehicle interior only (See page 31.)**

Tips for Battery Charging:

- ***When ambient temperature is low, such as during winter conditions, charging capacity may be reduced due to battery characteristics. When ambient temperature is low, it is recommended to charge indoors. When ambient temperature is high, charge indoors, in the shade or at night.***
- ***Do not disconnect the charge coupler unless you must stop charging in the middle of operation. Even if the charge coupler is reinserted, charging may stop soon.***

In “Preheating/precooling mode”:

You can recharge your RAV4 EV at any convenient or cost effective time (for example, during off-peak hours), by using the battery charge timer. The battery charge timer can also be used to preheat or precool the vehicle interior. Preheating and precooling will operate anytime you use your Home Charge Device.

NOTE: If the preheating/precooling function is set to turn on prior to completing a normal full charge; battery charging will terminate at the set time allowing the preheating/precooling function to initiate.

(1) Normal charge

1. When you insert the charge coupler into the charge port, charging starts automatically after a few seconds.
2. When the batteries are fully charged, the charger stops automatically. If it is necessary to stop or interrupt the charging process, remove the charge coupler from the charge port.

(2) Charge by timer

PROCEDURE

1. Push the "TIME SET" button to show the current time on the display. If the displayed time is not correct, enter the correct time with the "H" and "M" buttons.
2. Push the "TIME SET" button again to show the charging start time on the display. To change the start time, enter the desired start time with the "H" and "M" buttons.
3. Push the "TIME SET" button again to show the preheating/precooling start time on the display. If preheating/precooling is not needed, proceed to the next step.
4. Push the "TIME SET" button again. The display goes out and the timer setting completes.
5. Push the "TIMER CHARGE" button. The charger enters the timer charging mode and the "TIMER CHARGE" light comes on.

6. Insert the charge coupler within 3 minutes from step 5.

Charging starts and stops automatically when the traction batteries are charged. To cancel the setting, push the "TIMER CHARGE" button again.

If you insert the charge coupler after the set start charging time, charging starts at the set time of the next day.

Do not remove the charge coupler until charging is completed. Although the message on the indicator panel on the charger remains the same as charging, the timer's charge mode on the vehicle is cancelled.

If the charge coupler is pulled out, once put it back in the charger holder. After setting the timer for charging again, insert the charge coupler into the charge port on the vehicle.

(3) Charging and preheating/precooling for vehicle interior

The battery charge timer can also be used to preheat/precool the vehicle interior.

PROCEDURE

1. Push the "TIME SET" button to show the current time on the display. If the displayed time is not correct, enter the correct time with the "H" and "M" buttons.
2. Push the "TIME SET" button again to show the charge start time on the display. To change the start time, enter the desired start time with the "H" and "M" buttons.
3. Push the "TIME SET" button again to show the preheating/precooling start time on the display. To change the time, enter the desired start time with the "H" and "M" buttons in consideration with the time you start driving. Move the temperature selector lever toward "WARM" or "COLD". You do not need to operate the fan speed selector at this time.

4. Push the "TIME SET" button again. The display goes out and the timer setting completes.

If you fail to push the "TIME SET" button here, the timer cannot be set.

5. Push the "TIMER CHARGE" button. The charger enters the timer charging mode and the "TIMER CHARGE" light comes on.
6. Push the "PRE A/C" button.
7. Insert the charge coupler within 3 minutes from step 5.

Charging starts and stops automatically when the traction batteries are charged. To cancel the timer setting, push the "TIMER CHARGE" button again.

If you insert the charge coupler after the set start charging time, charging starts at the set time of the next day.

8. To stop charging in the middle of the operation, pull out the charge coupler.

Do not remove the charge coupler until the preheating/precooling start time. The "TIMER SET" function on the vehicle will be canceled.

If the charge coupler is removed from the charge port before the "SET TIME" function is activated, perform the following steps.

- Place the charge coupler back in the holder of the EVSE to reset the timer unit.
- Reset the "TIME SET" function for the appropriate time.
- Insert the charge coupler back into the charge port.

(4) Setting preheating/precooling for vehicle interior only

PROCEDURE

1. Push the "TIME SET" button to show the current time on the display. If the displayed time is not correct, enter the correct time with the "H" and "M" buttons.
2. Push the "TIME SET" button again to show the charging start time on the display. Push the "H" button several times until "—" is displayed.

3. Push the "TIME SET" button again to show the preheating/precooling start time on the display. To change the time, enter the desired start time with the "H" and "M" buttons in consideration with the time you start driving. Move the temperature selector lever toward "WARM" or "COLD". You do not need to operate the fan speed selector at this time.

4. Push the "TIME SET" button again. The display goes out and the timer setting completes.

5. Push the "TIMER CHARGE" button. The charger enters the timer charge mode and the "TIMER CHARGE" light comes on.

6. Push the "PRE A/C" button.

7. Insert the charge coupler within 3 minutes from step 5.

To cancel the setting, push the "TIMER CHARGE" button again.

If you insert the charge coupler after the set start charging time, charging starts at the set time of the next day.

8. To stop preheating/precooling in the middle of the operation, pull out the charge coupler.

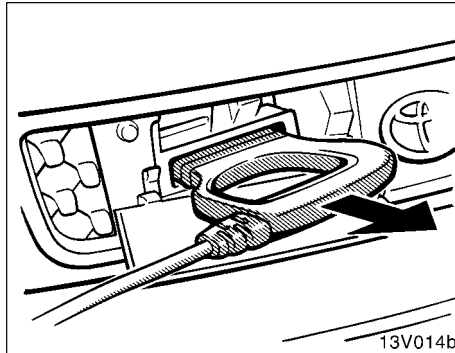
Effective operation for maximizing battery life

1. Do not charge the traction batteries or park the vehicle under the conditions below which can cause the batteries to become hot.

Do not charge just after driving on a steep hill or highway

2. If the SOC meter is only slightly depleted from the "F" mark due to limited driving, additional charging (Topping-Off) is not recommended to insure maximum battery life.
3. If charging and preheating/precooling is selected, charging will always occur first. Therefore, allow sufficient time (7 to 8 hours) between the charging start time and preheating/precooling.

If the preheating/precooling is set, the operation may finish without a full charge since charging for preheating/precooling took place first. To apply a full charge, take sufficient time (7 to 8 hours) between charging start time and preheating/precooling start time.



[AFTER CHARGING]

1. Remove the charge coupler and close the charge port door.
2. Verify that the SOC meter reads "Full".

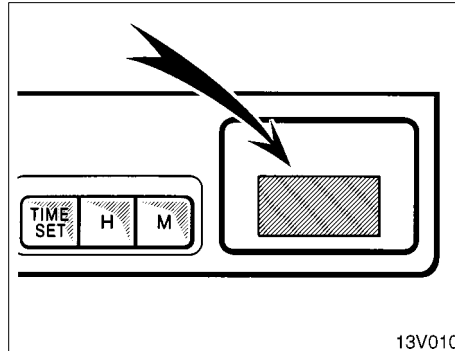
CAUTION

- Do not touch the charge coupler or charge port just after charging, because these surfaces may be hot.
- Keep flammable objects away from the vehicle during charging.
- Be careful not to drop or step on the charge coupler. If damaged, proper charging may not occur.
- Take care that water, dirt or foreign objects such as pebbles do not enter the charge port on the vehicle. This may cause a failure of the equipment.

NOTICE

- ◆ *The auxiliary battery can be discharged if the charge coupler is left inside of the charge port for a long period of time after charging is completed.*
- ◆ *The charging operation will stop in the event of a power outage or may stop for other adverse environmental conditions to protect battery life. If this occurs, the "ERR" appears on the charge controller with the motor switch turned to "ON". Apply a charge again. If charging stops in the middle of operation again, take your vehicle to your EV service station.*

Indicators on the charge controller



KEY

- CAUSE** The motor switch is at "ON".
- ACTION** Turn the motor switch to "LOCK" and remove the key.

CON

- CAUSE** The charge coupler is not securely inserted to the charge port on the vehicle.
- ACTION** Make sure the charge coupler is securely inserted to the charge port on the vehicle.

P

- CAUSE** The selector lever is not in "P".
- ACTION** Shift the selector lever into "P".

ERR

- CAUSE** Error other than listed above
- ACTION** Apply a charge again. If the same error appears again, contact your EV service station.

If the charging does not finish correctly, "ERR" appears on the display for 10 seconds by turning the motor switch to "ON" after charging.

FAN

The cooling fan is operating because the traction batteries becomes too hot after charging. When the fan stops operating, the indicator goes out.

