

COMFORT+



TOYOTA

+12V Trickle Charger and COMFORT+ System

GB User guide

FR Manuel utilisateur



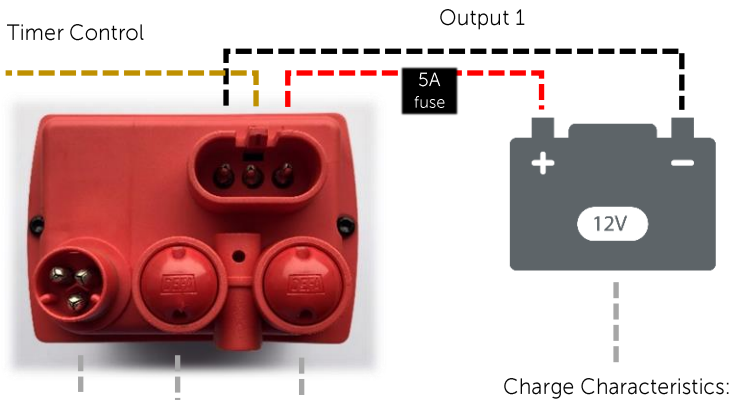
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Charger Specifications:

Input (V/A): 120V ~ 60Hz / 15A
 Output 1 (V/A): 12V DC / 3A (Full charge mode)
 Output 2 (V/A): 120V ~ 60Hz/14.5A
 Float voltage: 13.7V DC (Maintenance mode)
 Fuse rating: 5A (+12V DC)
 IP Rating: IP44
 Operating Temperature: -40C to +40C
 Certifications: UL Std. 1236, CSA Std. C22.2 NO. 107.2

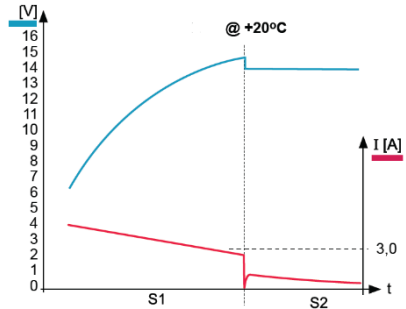


Input
(120V~60Hz)
 Output 2 (120V~60Hz)

Charge Indicator



Charge Characteristics:



S1: Charging - Charges with 3A until voltage reaches 14.7V.
 S2: Float voltage 13.7V.

Important Safety Instructions:

1. **SAVE THESE INSTRUCTIONS** – This manual contains important safety and operating instructions for the Toyota COMFORT+ Trickle Charger and related accessories
2. This battery charger is designed for permanent installation on your vehicle and must be installed in accordance to the installation instructions applicable to your vehicle model.
3. Refrain from exposing charger or electrical cables to rain, snow, or water spray.
4. Do not modify the trickle charger and do not use any attachment(s) not recommended or sold by Toyota as this may result in a risk of fire, electrical shock, or injury to persons and/or property.
5. To prevent damage to the Home Power Cable, always grasp the cable by the connector when connecting and disconnecting the charger.
6. An extension cord should not be used unless absolutely necessary. Use of improper extension cord could result in a risk of fire and electric shock. If an extension cord must be used, make sure:
 - a) That the plugs of the extension cord are the same size, and shape as those of plug on charger (see Figure A, on page 6);
 - b) That the extension cord is properly wired and in good electrical condition; and
 - c) That wire size of the extension cord conductors are large enough for the length of cord as specified in following Table:

Minimum conductor AWG* size for extension cords for Toyota Comfort+				
Cord Length:	25ft (7.6m)	50ft (15.2m)	100ft (30.5m)	150ft (45.6m)
Min. Wire Size:	14 AWG (2.5mm²)	12AWG (4mm²)	10 AWG (6mm²)	8AWG (10mm²)

*AWG = American Wire Gauge,

NOTE: Genuine Toyota Comfort + Home Power Cables are available in 5.0m (PK5A4-89J42) and 10m (PK5A4-89J44) lengths.

7. Do not operate charger with a damaged cord or plug – replace the cord or plug immediately.
8. Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified Toyota service center.
9. Do not disassemble charger; take it to a qualified Toyota service center when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
10. To reduce risk of electric shock, unplug the power supply cable before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.

11. WARNING – RISK OF EXPLOSIVE GASES.

- a) WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT YOU FOLLOW THE INSTRUCTIONS EACH TIME YOU USE THE CHARGER.
- b) To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer.
- c) NEVER smoke or allow a spark or flame in vicinity of battery or engine.
- d) Use charger for charging a +12V LEAD-ACID battery only. It is not intended to supply power to a low voltage electrical system other than in a starter-motor application. Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.
- e) NEVER charge a frozen battery. Likelihood of battery freezing depends on several factors, among them its state of charge (SOC). The lower the SOC, the easier the battery may freeze. As reference, a lead-acid battery with normal SOC might freeze after being exposed to temperature of -22C for about 15 hours continuously.
- f) If necessary to remove battery from vehicle for whatever reason, disconnect the power supply to the charger and remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.

12. PREPARING TO CHARGE

- a) Be sure the area around the vehicle is well ventilated while battery is being charged.
- b) Ensure that the battery being charged is in good operating condition.
- c) Do not operate trickle charger in ambient conditions above +25 Celsius as this may damage the battery charger and battery.

13. GROUNDING AND AC POWER CORD CONNECTION INSTRUCTIONS

It is recommended that a Ground Fault Interrupt (GFI) electrical outlet be used at all times when using this accessory to reduce the possibility of electrical shock.

Charger should be grounded to reduce risk of electric shock. Charger is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a GFI electrical outlet that is properly installed and grounded in accordance with all local codes and ordinances.

This battery charger is intended for use with a nominal 120-volt circuit, which has a grounding plug that looks like the plug illustrated in Figure A. Do not attempt to use an adapter or extension cord which does not have a dedicated ground connection as shown in Figure A.

DANGER – Never alter AC cord or plug provided. If an electrical outlet does not have a dedicated ground as shown in Figure A, do not use the charger or related accessories until a correct outlet has been installed by a qualified electrician. Improper connection can result in electric shock.

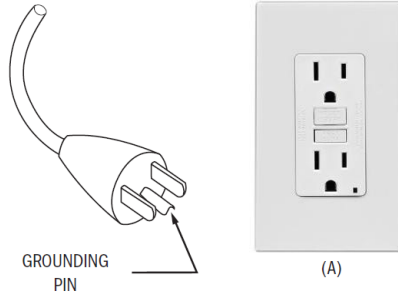


Figure A

15. Replace battery charger external fuse with one having the same rating: Automotive ATO 5A fuse only.

16. Read and follow the instructions/warnings located on the Home Power Cable:

BEFORE USE

- A cord set Not Marked For Outdoor Use Is To be Used Indoors Only. See Label For Outdoor Marking.
- Inspect Thoroughly Before Each Use.

DO NOT USE IF DAMAGED.

- Look For the **NUMBER OF WATTS** On Appliances To Be Plugged Into Cord.
- See **PRODUCT** or **LABEL** Markings for **SPECIFIC WATTAGE**.
- Do Not Plug More Than the **SPECIFIED NUMBER OF WATTS** Into This Cord.
- Do Not Run Through Doorways, Holes in Ceilings, Walls or Floors.
- Make sure Appliance is OFF Before Connecting Cord to Outlet.
- FULLY INSERT** Plug Into Outlet.
- Do Not Remove, Bend or Modify Any Metal Prongs or Pings of Cord.
- Do Not Use Excessive Force to Make Connections.
- Do Not Connect a Three-Prong Plug To a Two-Hole Cord



THIS IS A POLARIZED CORD

DURING USE

- Keep Away From Water.
- DO NOT USE WHEN WET.**



- Keep Children and Pets Away From Cord.
- Do Not Plug One Extension Cord Into Another
- AVOID OVERHEATING.** Uncoil Cord and Do Not Cover it With any Material.
- Do Not Drive, Drag or Place Objects Over Cord.
- Do Not Walk on Cord.



AFTER USE

- GRASP PLUG** to Remove From Outlet
- Always Store Cord **INDOORS**.
- Always Unplug When Not In Use.
- Do Not Unplug By Pulling On Cord.



DO NOT REMOVE THIS TAG

No Text on This Page



Charger Operating Instructions:

Trickle Charger function and typical uses

Thank you for purchasing the Toyota COMFORT+ Trickle Charger and related accessories. The Toyota COMFORT+ Trickle Charger is an automatic +12V lead-acid battery charger that maintains your vehicle's battery at an optimal state of charge, ensuring it is ready to start your engine and power your vehicle's electrical systems.

The trickle charger automatically switches between full-charge mode and maintenance mode to ensure your battery is being charged at the correct rate.

The Toyota COMFORT+ Trickle Charger can be used throughout the year to maintain a healthy battery state of charge. It is especially useful in the winter months, when temperatures can weaken your battery, and during prolonged periods of vehicle non-use. However, prolonged use of trickle charger (more than 2hr/week) at temperatures greater than 25C is not recommended as it may be detrimental to battery life.

Connecting the Trickle Charger

The trickle charger kit is provided with a specialty 2.5m Home Power Cable which allows you to connect your household electrical supply to the vehicle/trickle charger via a bumper mounted socket. Genuine Toyota COMFORT+ Home Power Cables are also available in 5.0m (PK5A4-89J42) and 10m (PK5A4-89J44) lengths.

The bumper mounted socket has a spring-loaded flap to prevent dirt and contamination from entering the electrical contacts. Lift the lid of the socket to connect the Home Power Cable.

CAUTION: Read and follow all the important safety instructions on pages 4-7 before using the charger. The trickle charger and related COMFORT+ accessories should only be used when the vehicle is turned OFF and parked with no occupants or pets inside.

NOTE: The *Home Power Cable* should always be plugged into a GFI electrical outlet that is properly installed and grounded in accordance with all local codes and ordinances. To prevent damage to the charger *Home Power Cable*, always grasp the cable by the connector.



Home Power Cable



Bumper Mounted Socket



Lift Socket Flap to Connect

When does the Trickle Charger turn ON?

The trickle charger turns ON as soon as it is plugged into an AC electrical supply. Once powered, the trickle charger will automatically begin charging your vehicles' battery at the correct charge rate.

How do I know it's working?

When powered, the trickle charger will automatically switch between full charge mode and maintenance mode. When the trickle charger is in full charge mode, the amber LED charge indicator will illuminate. To verify whether the charger is functioning correctly; unplug the Home Power Cable from the vehicle and wait 10 minutes. Upon reconnecting the Home Power Cable, the LED charge indicator should illuminate, indicating correct operation at full charge mode.



Charge Indicator

Maintenance of Toyota COMFORT+ system

At the beginning and end of each winter season, clean and lubricate the contacts of the *Home Power Cable* and the bumper mounted socket with electronic parts cleaner and lubricant. After cleaning and lubrication of the *Home Power Cable* is complete, cover the terminals with the supplied rubber cap.

CAUTION: Some electronic parts cleaners and lubricants can damage the surface of your vehicle. Avoid contact between the cleaner and vehicle paint and plastics.

Storage

Always store the Home Power Cable indoors, in a cool, dry place.
Store the cable neatly to prevent damage.
Unplug charger and Home Power Cable when not in use.

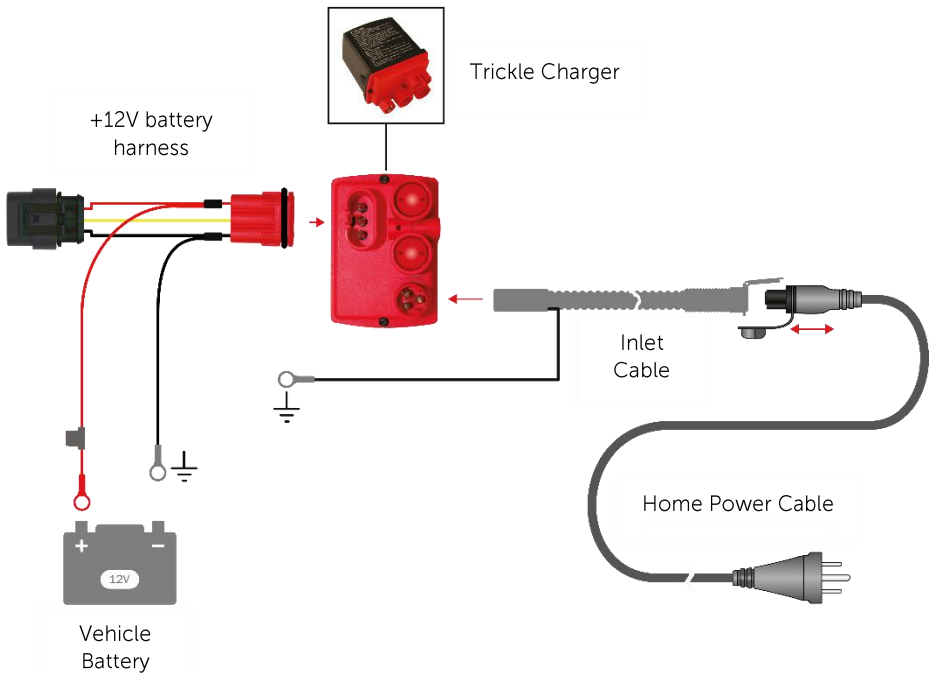
System Configurations:

The trickle charger can be used as a standalone unit or combined with additional accessories such as an engine block heater and cabin heater. The available Bluetooth® Hub module enables the user to control the optional accessories using the Toyota COMFORT+ smart phone application.

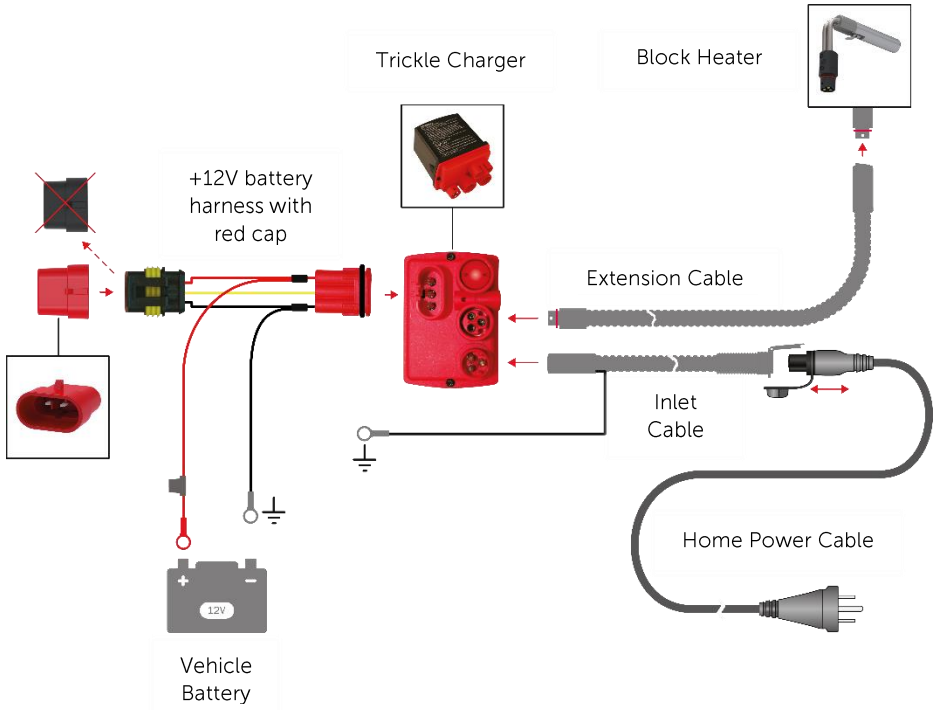
Non-Smart Configurations (non-programmable)

The 'non-smart' combinations of accessories do not utilize the Bluetooth® Hub to control the connected accessories. Instead, the connected accessories are powered ON as soon as the system is connected to power supply.

The following diagrams show the range of "non-smart" accessory configurations:



Trickle Charger (Standalone)

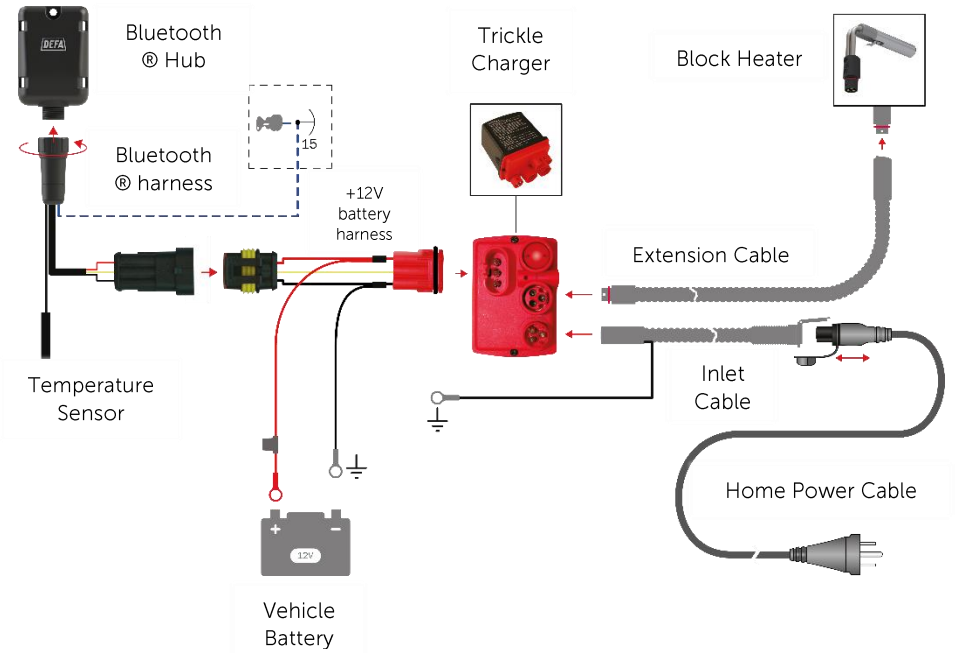


Trickle Charger and Block Heater (Non-Smart)

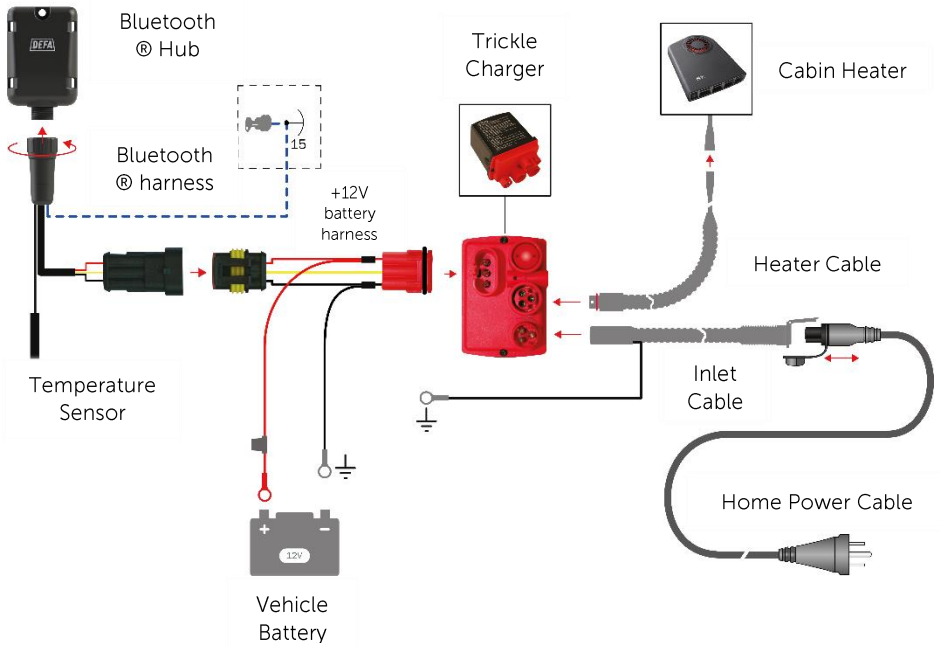
Smart Configurations (programmable)

The “smart” combinations of accessories utilize the Bluetooth® Hub to control the connected accessories. The Bluetooth® Hub and associated Toyota COMFORT+ mobile phone application allows you to turn ON and OFF the connected accessories automatically, manually, or according to a user-programmable schedule. Strategically controlling the connected accessories allows the user to reduce electricity consumption by turning on the accessories only when required.

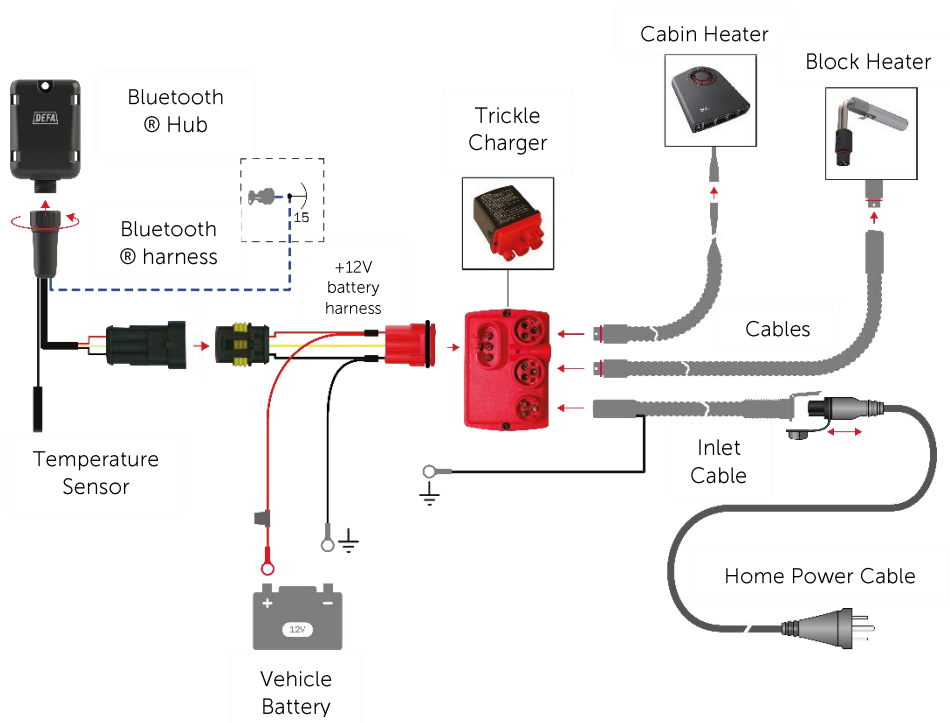
The following diagrams show the range of “smart” accessory configurations:



Trickle Charger, Block Heater, and Bluetooth® Hub (Smart)



Trickle Charger, Cabin Heater, and Bluetooth® Hub (Smart)



Trickle Charger, Block Heater, Cabin Heater, and Bluetooth® Hub (Smart)

120V Outputs (Output 2):

As described in the previous section, the trickle charger can be used to connect and control optional accessories such as the engine block heater and cabin heater via the two Output 2 connectors.

An internal relay inside the trickle charger is used to supply 120V~60Hz to both Output 2 connectors simultaneously.

In the "non-smart" configurations where a block heater is added to the trickle charger, both Output 2 connectors are turned ON whenever the charger is connected to a power supply and remain ON until the power supply is disconnected.

In the "smart" configurations, both Output 2 connectors are turned ON when the charger is connected to a power supply and the Bluetooth® Hub commands the internal relay to ON. Similarly, both Output 2 connectors can be turned OFF by disconnecting the power supply or when the Bluetooth® Hub command the internal relay to turn OFF.

Connector seals

The trickle charger is provided with two weatherproof seals that can be removed by the installer when connecting additional accessories such as the block heater and cabin heater.



CAUTION: Do not attempt to remove the connector seals or connect other devices to the Output 2 connectors due to risk of electrical shock or fire.

Connecting optional accessories

The trickle charger can be used to connect and control optional accessories such as the engine block heater and cabin heater via the two Output 2 connectors. Refer to the "System Configurations" section for more information on possible configurations.

Controlling optional accessories (Non-Smart)

The "non-smart" combinations of accessories do not utilize the Bluetooth® Hub to control the connected accessories. Instead, the connected accessories are powered ON as soon as the power supply is connected to the charger.

Controlling optional accessories (Smart)

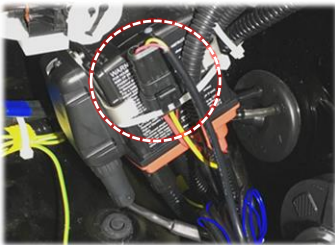
The "smart" combinations of accessories utilize the Bluetooth® Hub to control the connected accessories. The Bluetooth® Hub and associated Toyota COMFORT+ mobile phone application allows you to turn ON and OFF the connected accessories automatically, manually, or according to a user-programmable schedule. Strategically controlling the connected accessories allows the user to reduce electricity consumption by turning on the accessories only when required.

Refer to the "Bluetooth® Hub and mobile APP" section of this manual to learn more.

Output 2 emergency override (Smart)

In the event when the Toyota COMFORT+ mobile phone application cannot be used to turn ON the accessories connected to Output 2, a temporary Override Plug can be used to turn ON the connected accessories. The override plug is intended for use in emergency situations and should be used as a temporary way to turn on the block heater or cabin heater.

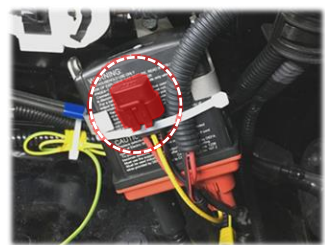
Before using the override plug, ensure the vehicle is turned off and the system is disconnected from the power supply. Locate and disconnect the Bluetooth® Hub connector secured to the side of the trickle charger. Obtain red Override Plug and connect it to the Bluetooth® Hub connector.



1. Locate and disconnect the Bluetooth® Hub connector



2. Obtain red dust cap



3. Connect red dust cap to Bluetooth® Hub connector

Bluetooth® Hub and mobile APP:

Phone compatibility

To operate the Toyota COMFORT+ mobile application (APP) on your smartphone, the following hardware and software requirements must be met:

- a) Your mobile phone must be capable of Bluetooth® Smart (not classic Bluetooth®).
- b) Refer to the App Store to see which iOS versions are currently supported, and to the Google Play Store to see which Android versions are currently supported by the Toyota COMFORT+ app. Please note that OS requirements are subject to change without notification.

Downloading the APP

The "Toyota COMFORT+" mobile APP is available for download, free of charge, from the Apple APP Store and Google Play Store respectively.

Once the APP is downloaded and installed on your smartphone, ensure that the Bluetooth® function is turned on and enabled within your phone settings.

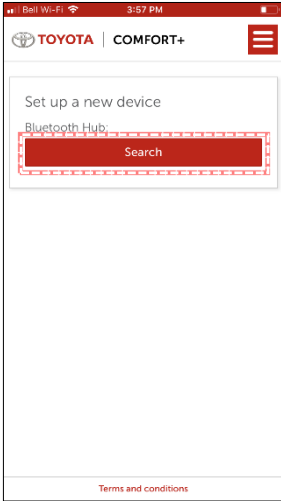
Setting up Bluetooth® Hub (Pairing)

The Bluetooth® Hub installed on your vehicle needs to be paired with the Toyota COMFORT+ APP and your smartphone to control the Toyota COMFORT+ system.

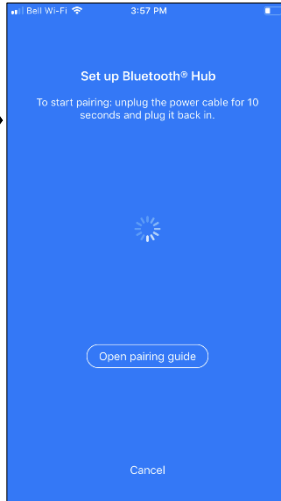
NOTE: IOS version shown, Android may differ slightly.

To pair the Bluetooth® hub with your smartphone the following steps must be followed:

- a) You must be in close proximity to your vehicle.
- b) You must have the Home Power Cable ready and plugged into a household electrical supply (do not connect to vehicle at this time).
- c) Launch the Toyota COMFORT+ APP and select "Search" for Bluetooth® Hub.
- d) The Bluetooth® Hub search screen should appear.
- e) Connect the Home Power Cable to the vehicle to power up the COMFORT+ system.
- f) When the Bluetooth® hub serial number is recognized, select "Pair this device" to complete the pairing process.
- g) The connected Bluetooth® Hub will now appear as "Bluetooth® Hub".
- h) Install any required updates to the Bluetooth® Hub to ensure correct functionality of the system.



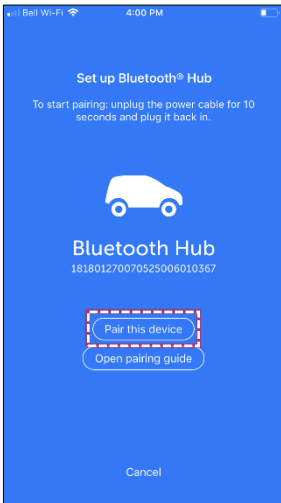
c)



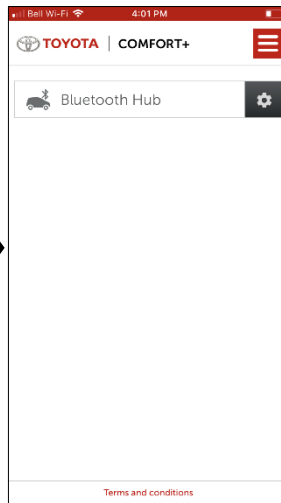
d)



e)



f)



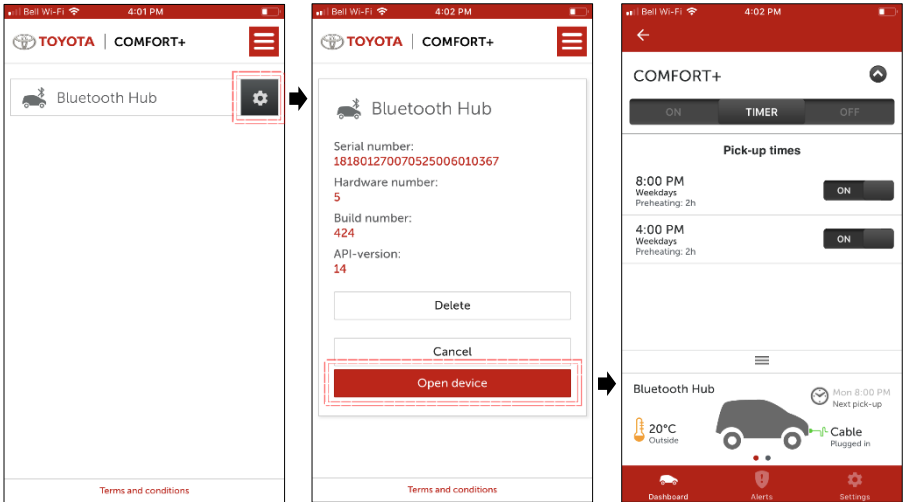
g)

NOTE: Up to 5 smart phones can be paired to one Bluetooth® Hub, however, only one phone can be connected and operating the COMFORT+ system at one time. The first phone that enters the range of the hub will connect automatically. After initial setup and programming, the COMFORT+ system operates even if you disable Bluetooth® on your phone. However, you must enable Bluetooth® and stay in range to be able to change programming and settings.

APP user guide

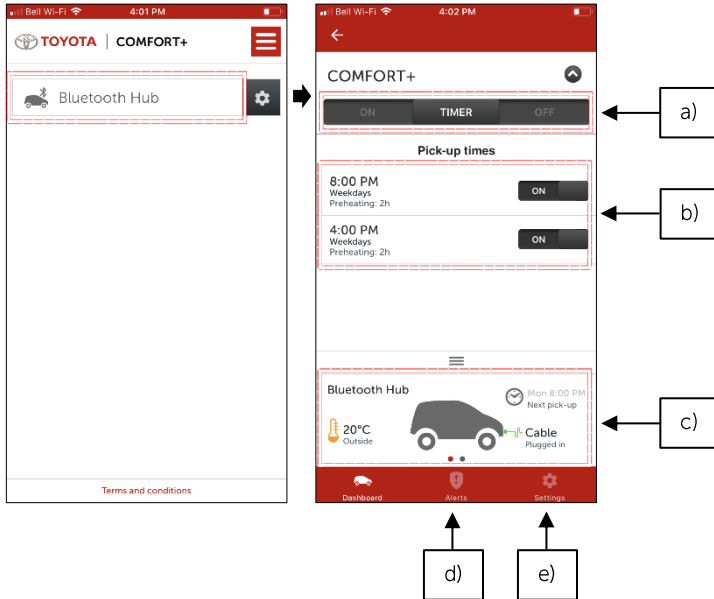
Once a Bluetooth® Hub has been paired with your smartphone, you must be within Bluetooth® range of the vehicle to modify the Bluetooth® Hub settings.

To modify and/or view the Bluetooth® Hub settings, select the settings icon. The Bluetooth® Hub's; serial number, hardware number, build number, and API are shown. You also have the option of deleting (unpairing) the Bluetooth® Hub, cancelling, or proceeding to programming by selecting the "Open device" button.



To modify and/or view the Bluetooth® Hub programming, select the programming icon. The dashboard of the COMFORT+ APP will show the following:

- a) System toggle switch (ON, TIMER, OFF)
- b) Pickup time programming buttons.
- c) Vehicle status (outside temperature, next pickup time, power supply cable and battery charging status)
- d) Alerts tab
- e) Settings tab (different than Bluetooth® Hub settings)



System toggle switch (a)

The “system toggle switch” can be used to turn the system ON, allow the system to operate according to the TIMER, or to turn the system OFF.

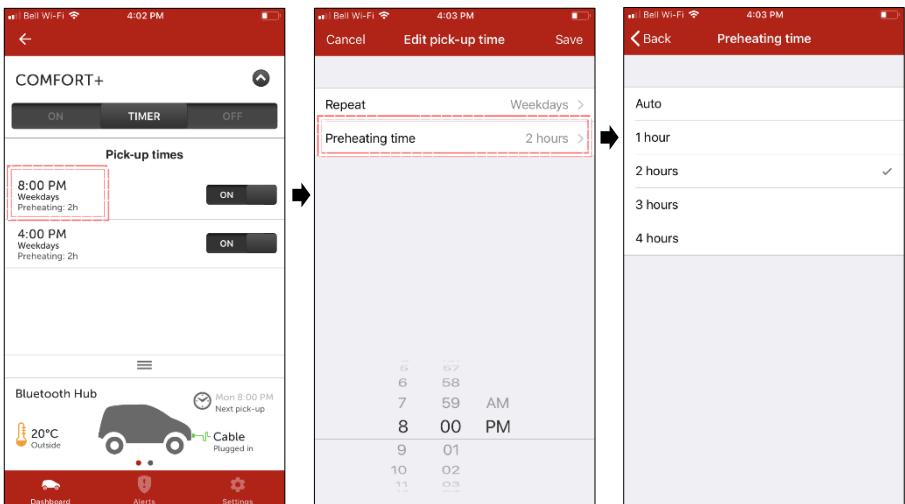
Pickup time programming buttons (b)

When the “system toggle switch” is set to TIMER mode, the system will turn on and off according to the two pickup times. The customizable pickup times can be programmed according to your daily schedule. To activate the pickup time, slide the pickup time toggle switch to ON.

To change the pickup time schedule, select the pickup time you want to edit. The pickup time you choose represents the time when you want to use your vehicle. The preheating time represents how long before your pickup time the COMFORT+ will turn on and begin preheating.

You can manually set a preheating time or you can allow the built-in temperature sensor to determine when heating is required by selecting the “Auto” feature.

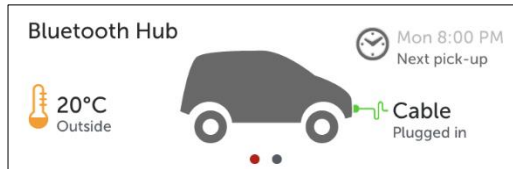
NOTE: the “Auto” feature does not operate the system above +10C.



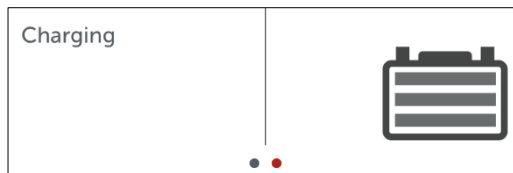
Vehicle status (c)

The vehicle status panels display key information about your vehicle and COMFORT+ system. Swipe left and right to toggle between them.

The exterior temperature, next pickup time, and power supply cable status is available on tile 1:



The battery charging status is available on tile 2:



Alerts tab (d)

A cable alarm is used to notify the user that the vehicle has been turned ON with the power supply cable still connected to the vehicle. This alarm is meant to prevent the user from driving off while still connected to the Home Power Cable.

For the cable alarm feature to function, the following conditions must be met:

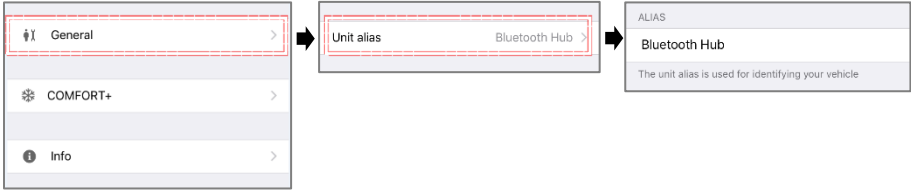
- Mobile phone must be running the Toyota COMFORT+ APP.
- Mobile phone must have Bluetooth® enabled.
- Mobile phone must be within Bluetooth® range of the vehicle.
- Vehicle must be plugged in to a power supply.
- Vehicle engine start is detected.

NOTE: Some hybrid vehicles may not support the cable alarm feature.

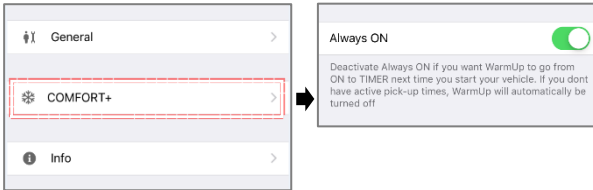
Settings tab (e)

Additional system settings are accessible via the "Settings" tab.

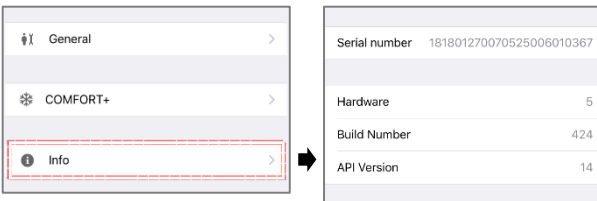
You can assign a custom name/alias to your vehicle by selecting the "General" tab:



If the system toggle switch is set to ON, the Toyota COMFORT+ system will operate each time you connect a power supply, this is referred to as "Always ON" mode. If you want the system to default back to TIMER the next time the vehicle is connected to a power supply, turn off the "Always ON" feature accessible by selecting the "COMFORT+" tab:



Bluetooth® Hub serial number, hardware, build number, and API version is accessible in the "Info" tab:



Fuse Replacement:

The battery charger wire harness is equipped with a 5A fuse (12V DC). To replace the fuse, locate the fuse holder near the positive battery terminal. Remove the clear plastic cover by prying both tabs simultaneously. Remove the fuse by pulling straight up.

WARNING: Always replace the fuse with the same type and rating to prevent risk of fire and vehicle damage.



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