KARMA

Service Communication

SC-18-90-01

MODEL: Karma Revero

DATE: May 2018

First Release

TITLE: Key Fob Function

PRIORITY: On Complaint

APPLICABILITY: All Karma Revero

MARKET REGION: North America

PURPOSE: Functional description of the Key Fob to verify proper operation

This key fob function document will aid the technician to verify key fob operation.

The vehicle security system, door locks, and ignition are controlled by the key fob (fig. 1). The doors and trunk can be locked or unlocked using the key fob. The key fob is part of the immobilizer system. It operates in the manner described below. You can configure the vehicle's lights and horn to provide feedback on locking, unlocking, security system and mirrors.

Each Revero is supplied with two key fobs and separate mechanical key blades.

When Presented with key fob concerns consider the following:

I. Using the Key Fob - How to (page 2)

II. Verifying Key Fob Functions

III. Key Fob Antennas

IV. In Car Settings

V. Key Fob Battery

fig 1

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I. USING THE KEY FOB - How to:

The buttons on the key fob operate as follows (fig 2):

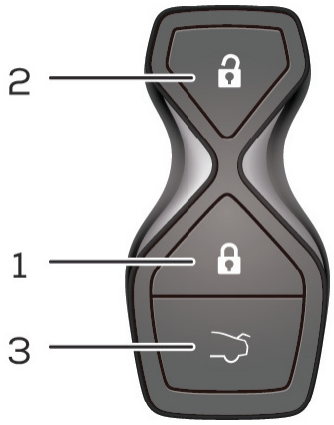

fig 2

Button 1: Key Fob Lock: Remote Keyless Entry (“RKE”)
- Press once (1x) to lock the vehicle and activate the vehicle’s securit system (anti-theft alarm is armed)

The vehicle’s lights will briefly flash to confirm system is active. Audible and Visual feedback is dependent on the selection made by the user in the Settings Menu on the Touch Panel Interface (“TPI”)

Passive Lock:
- When exiting the vehicle, press the switch on the exterior door handle and close the door. All doors should lock and the parking lights should flash once, indicating the security system is active

Note: All other doors must be closed when Passive Locking the vehicle
Passive Lock can only be conducted using the front doors
A Key Fob must be within 1.5 meters of the outside rearview mirror

Remote Cabin Pre-Conditioning (“CPC”): First make sure these settings are active in the touch panel, the following pages have a description on set up.
- Press lock once (1x), then press and hold the lock button for two (2) seconds to activate the remote preconditioning feature. The lights will flash twice; one short and one long, to signal successful activation. The power button will alternate green and amber when CPC is active.

Button 2: Key Fob Unlock: Remote Keyless Entry (“RKE”)
- Press unlock button once (1x) to unlock the driver door. Press a second time to unlock all doors
- The park lights should flash and the mirrors may unfold, if configured, to confirm unlock this is dependent on the user selection in the Settings menu on the TPI

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Passive Unlock:

- When a programmed key fob is in your possession within the specified range (1.5m), activate an exterior front door handle. Dependent on your vehicle settings, either a single door, the entire side of the vehicle, or all doors will open (if a key is seen as inside the vehicle it will not be able to authorize a passive unlock request, until it is no longer “seen” (or reported by the vehicle) as inside the passenger compartment.
- The park lights should flash (again dependent on the User settings in the Settings menu in the TPI).

Button 3: Trunk Release:

- Press and hold the trunk release button for three (3) seconds to release the trunk

With a new full capacity and properly inserted battery you can expect the following operation:

- Remote Keyless Entry, trunk opening, and CPC actions are available within **10 meters (minimum)**
- Passive Entry is available to activate between **1 and 2 meters** from front doors of the vehicle
- Vehicle Start will operate with the key fob inside passenger compartment

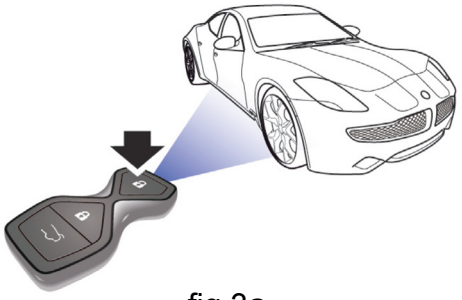

fig 3a

It is not necessary to point the key fob at the vehicle (fig. 3a) but you must be within operating range. The operating range will vary according to the condition of the key fob battery and other physical factors. If the vehicle cannot be locked or unlocked using the buttons on the key fob, you may need to change the key fob battery.

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II. Verifying Key Fob Functions

Key Fob activation (and key fob ID, 1, 2, or 3.) is available to view in Live Data.
This is found in: Module Diagnosis -> Body ->Vehicle Control Module Security -> Measurement Values.

Exercise typical Use Case Scenarios:
Test at the specified distances from every side of the vehicle for remote entry and trunk opening.

1. Starting with the vehicle in “OFF_AWAKE”, all doors closed, and the key fob outside, 45 seconds before this state expires. Lock the vehicle as soon as you exit.
2. Press button 1, the lock button, then verify the vehicle locks
3. Allow vehicle to sleep (power vehicle off and wait seven (7) minutes
4. Passive unlock the vehicle, with assistance place the key 10 meters away and attempt to passively open the locked vehicle, for every attempt bring the fob closer by a meter until the specified distance of 1 - 2 meters.
5. Open driver door, enter vehicle
6. Place key upright in front cup holder
7. Close all doors
8. Turn vehicle on (Karma start button turns green)
9. Open and Close door
10. Turn vehicle off
11. Exit vehicle with key
12. Passive Lock vehicle
    a. Key outside of vehicle (within 1.5m of outside rear view mirror), all doors closed except for the one where passive locking will be requested (must be a front door)
    b. While the door is open, press the exterior door button at the handle once
    c. Close door
    d. Move key fob 15 meters or more from the vehicle, confirm the vehicle is locked

Continued on next page

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13. Allow vehicle to sleep (power vehicle off and wait seven (7) minutes
14. RKE unlock vehicle
15. Open driver door
16. Place key upright in front cup holder
17. Turn vehicle on (Karma start button turns green)
18. Close all doors
19. Turn the vehicle off
20. Exit vehicle with key
21. Press button 1, the lock button, then verify the vehicle locks
22. Allow vehicle to sleep (power vehicle off and wait seven (7) minutes)
23. Open the Trunk using the key fob, press and hold button 3 for three (3) or more seconds

If the key fobs do not operate in this capacity, begin with battery replacement.

If this key fob still does not function, test the antenna connections- see below.

Replace as needed (normal warranty rates apply) for the affected parts for replacement and diagnosis.

III. Key Fob Antennas:

Antennas which detect the presence of the key fob are located in the following locations on the Revero (fig. 3b):

1. Behind the dashboard
2. Beneath the center console
3. Underneath the rear parcel shelf
4. In both external mirrors

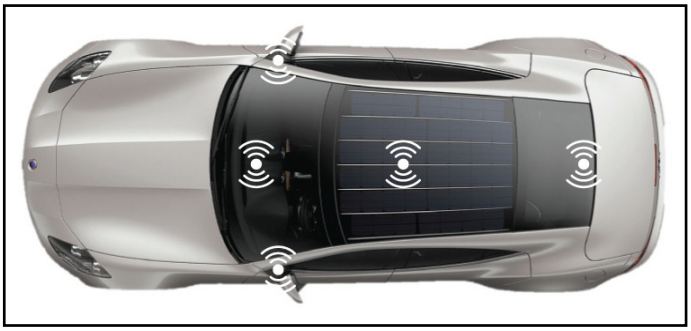

fig 3b

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Note: Interference from other radio equipment operating on a similar frequency may also affect the operation of the key fob. Metal objects and mobile phones or devices held against or in close proximity to the fob may affect signal reception. If this happens, operate the key fob as close to a vehicle antenna as possible. If you are still unable to unlock the vehicle with the key fob, use the manual door lock located on the passenger side front door.

If a problem persists inspection of the antennas may be required.
Measure Low Frequency ("LF") Antenna resistance value at module connector.
The target resistance value is 1.5 ohms +/- 0.6 ohms.

ECU	LF Antenna Location	Connector and Pins
VCM	Left OSRVM	CN7-16 & 17
VCM	Center Console	CN7-08 & 20
VCM	Right OSRVM	CN7-18 & 19
DML (Door Module Left)	Trunk Shelf	CN2-14 & 28
DMR (Door Module Right)	Instrument Panel	CN2-14 & 28

Remember that the RKE operations: Lock & Unlock from Front, Rear, Left and Right of the vehicle operate at a minimum distance of **10 meters.**

Received Signal Strength Indicator ("RSSI"):

Available in Live Data (as above in section II), to visualize as the key fob signal is sent, as measured in mV.

RSSI value provides a means of identifying the signal strength received by the vehicle. It allows the person conducting the troubleshooting exercise to assess the noise floor and compare it to the received signal. Comparatively a VCM without an RKE antenna connected will show a lower RSSI value compared to when an RKE antenna is connected. The RSSI also allows to monitor when an RKE signal has been received.

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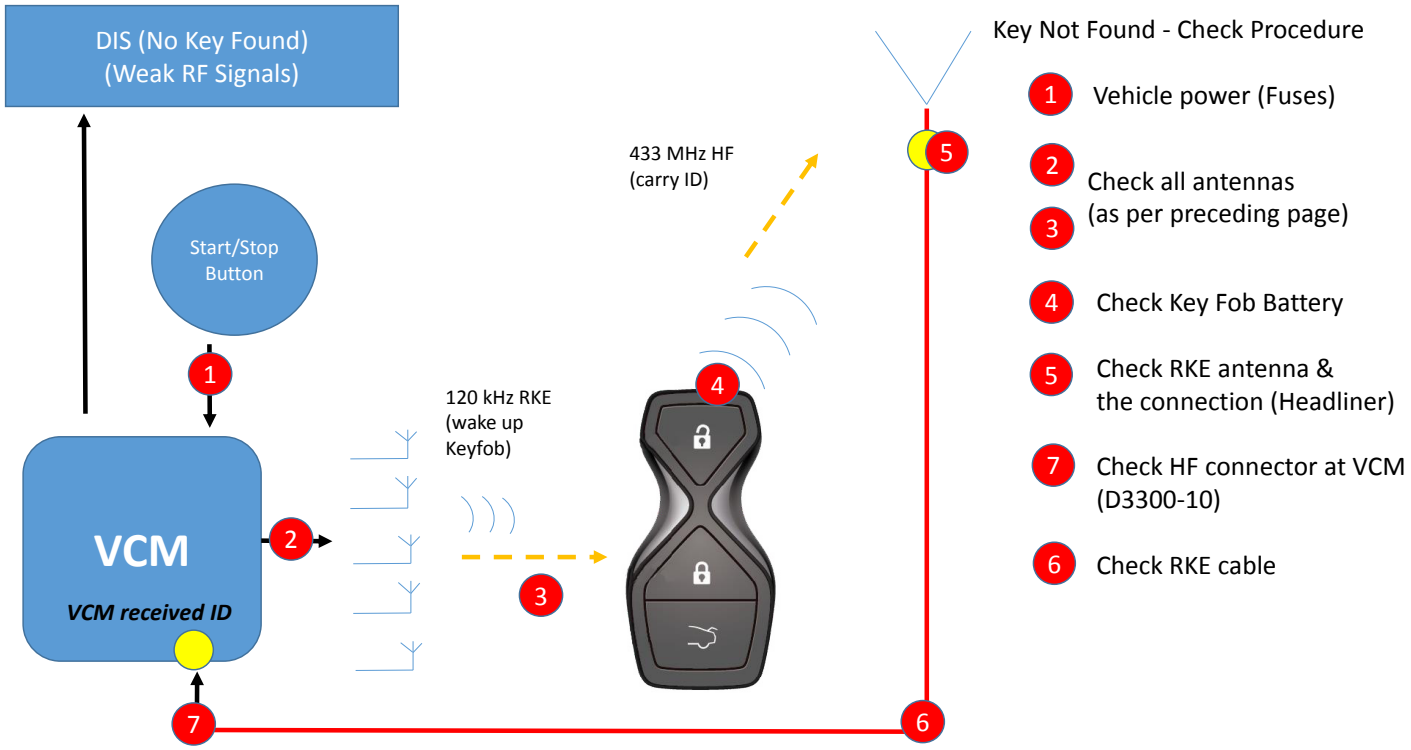
As a diagnostic aid the following diagram is available.



When the key fob is not detected, place the key fob on the external rear view mirror base (fig.3c). This will energize the fob enough to transmit a signal and allow for the security system to recognize the fob in order to allow operation.

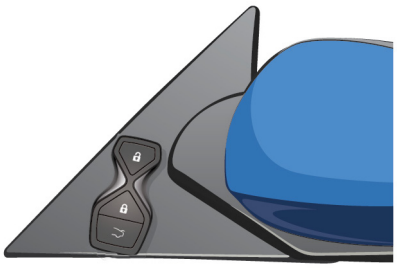


fig. 3c

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IN CAR SETTINGS:

There are nine different options offered through the touch panel (fig 4a).
To get to the these settings press:
1. My Karma
2. Settings
3. Doors & Mirrors

The following key fob action descriptions assume that all of these settings have been enabled.

The key fob can also be used to activate the Cabin Pre-Condition (“CPC”) feature (fig 4b). This feature enables the fob to remotely turn on the climate control system and adjust the temperature inside the vehicle to the pre-configured setting.
To configure CPC press:
1. My Karma
2. Settings
3. Seats & Keys

Under Seats & Keys scroll to CPC Target Temperature and/or CPC Confirmation.

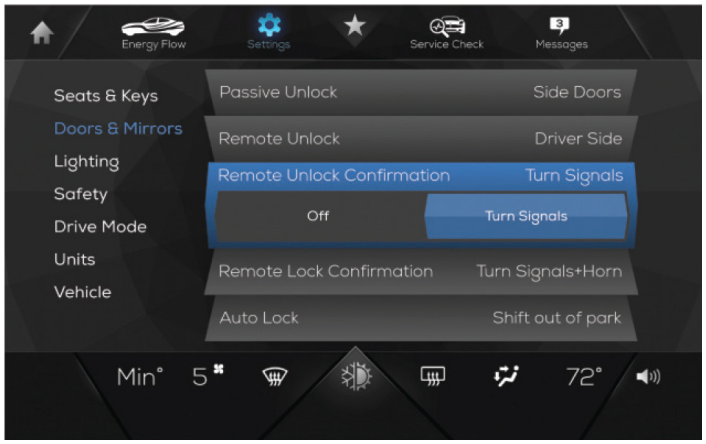

fig 4a

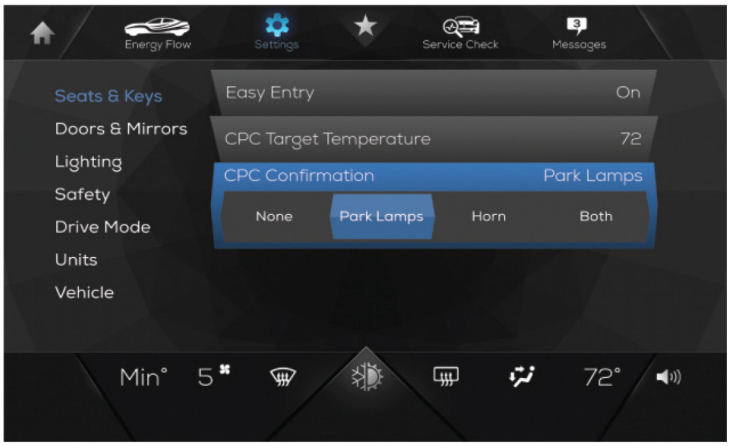

fig 4b

Passive entry to the vehicle is allowed when you activate the exterior door handle switch and you have a registered key close to the vehicle (in you pocket for example).The doors can be programmed to use the Passive Lock feature.

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KEY FOB BATTERY

Replacing the Key Fob Battery:

fig 5a

If the vehicle detects that the key fob battery is low, a message will be displayed in the touch panel: “Key Fob Battery Low” (fig 5a).
Key Fob battery voltage above 3V, is best
Battery thickness at least 3.12mm, make sure it is correct size to make proper contact!
Note: Proper care to not short-circuit the battery must be taken if thickness is measured using a metal caliper.

If the key fob battery is low at the time of service, replace as part of the normal service procedure (normal warranty as applicable).

To change the key fob battery:(fig 5b, 5c, 5d)
1. Place the key fob button side up on a soft surface so as not to mar or scratch any surface
2. Carefully release the battery tray lock. Slide the battery tray out to access the battery
3. Remove the battery and replace with a new battery (type CR2032, 3V) Ensure proper polarity of coin cell battery when installing. Positive Terminal must face down.

Note: Ensure battery tray is fully inserted when reinstalling the battery tray in the key fob (there is an audible “click” when fully inserted).

fig 5b

fig 5c

fig 5d

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