



东风乘用车

# 电动门锁、智能钥匙及防 盗系统



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# Electric Door Lock, PEPS and Anti-theft System



- 1、熟悉E70电动门锁、智能钥匙及防盗系统的组成及各部件的功用
- 2、熟悉E70电动门锁、智能钥匙及防盗系统的工作原理
- 3、能对E70电动门锁、智能钥匙及防盗系统进行电路的故障诊断与排除
- 4、掌握E70电动门锁、智能钥匙及防盗系统相关部件的拆装更换方法及注意事项



1. Familiar with the compositions of the electric door lock, PEPS and anti-theft system and functions of their components
2. Familiar with the working principle of the electric door lock, PEPS and anti-theft system
3. Troubleshoot the electric door lock, PEPS and anti-theft system
4. Master the removal and refitting and replacement methods and precautions of the related components of the electric door lock, PEPS and anti-theft system

# 一、E70电动门锁、智能钥匙及防盗系统概述



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**作用：**通过以上系统，可实现车辆门锁的电动控制、无钥匙进入以及一键启动功能，同时用于实现E70的防盗功能。



# I. Overview of electric door lock, PEPS and anti-theft system



**Function:** Through the , the electric control of the vehicle door locks, passive entry and start-stop function, as well as the E70 anti-theft function can be realized via the above systems.



## 二、E70电动门锁系统概述



### 电动门锁组成



# II. Overview of E70 electric door lock system



## Composition of electric door lock



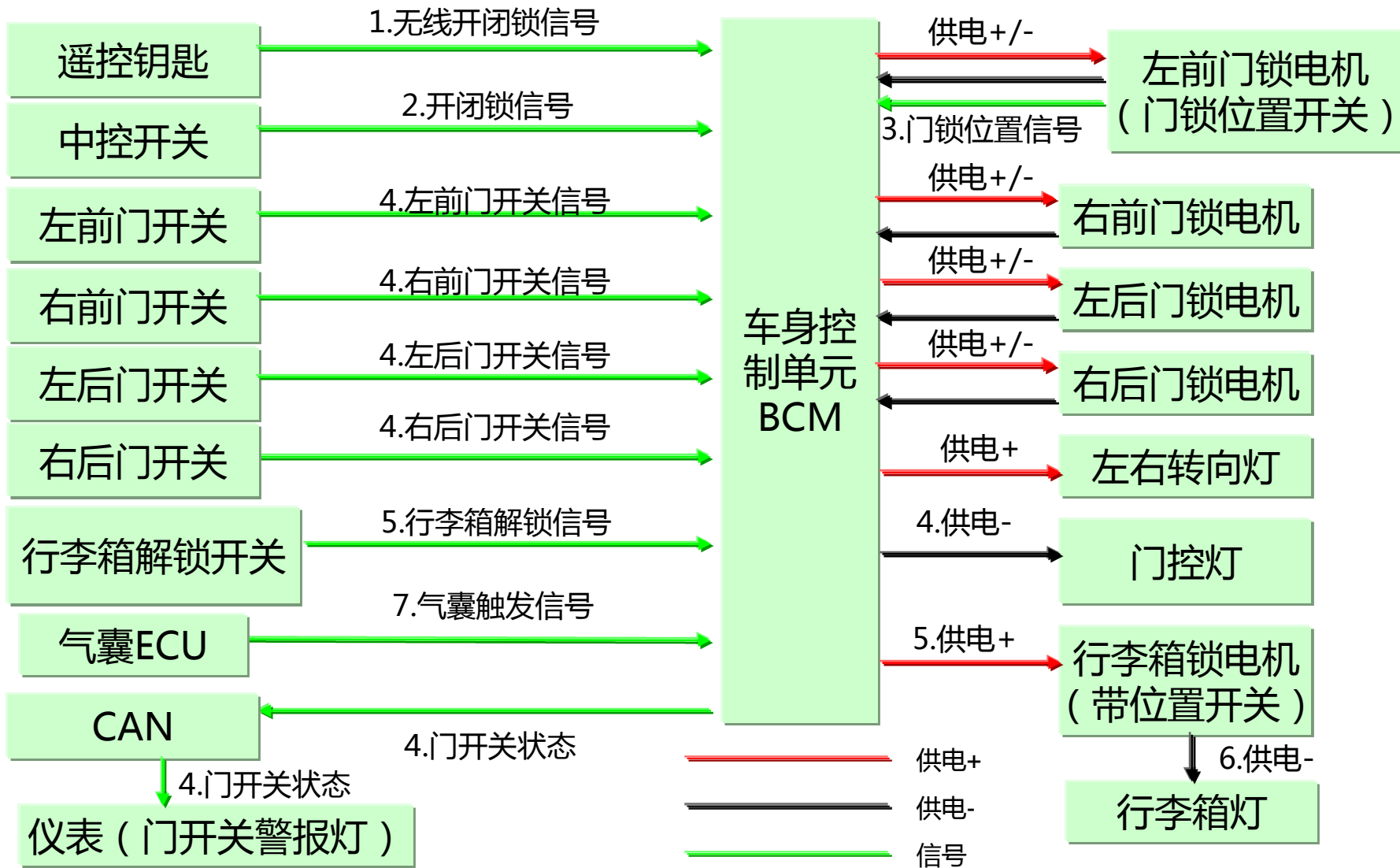


# 三、E70电动门锁系统工作原理及电路图



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## 电动门锁控制的基本原理及电路图分析

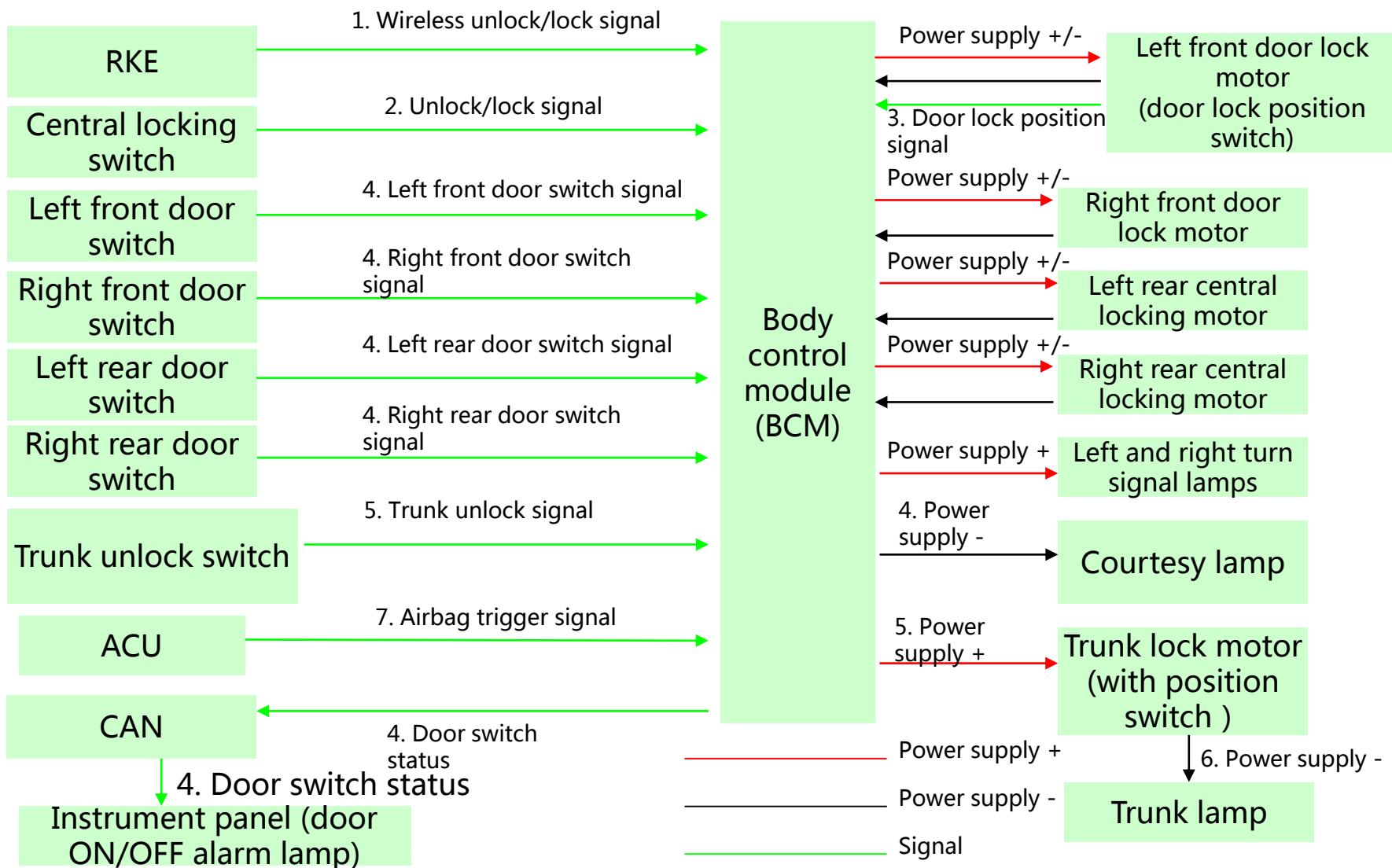


# III. Working principle and circuit diagram of E70 electric door lock system



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## Analysis of working principle and circuit diagram of electric door lock control

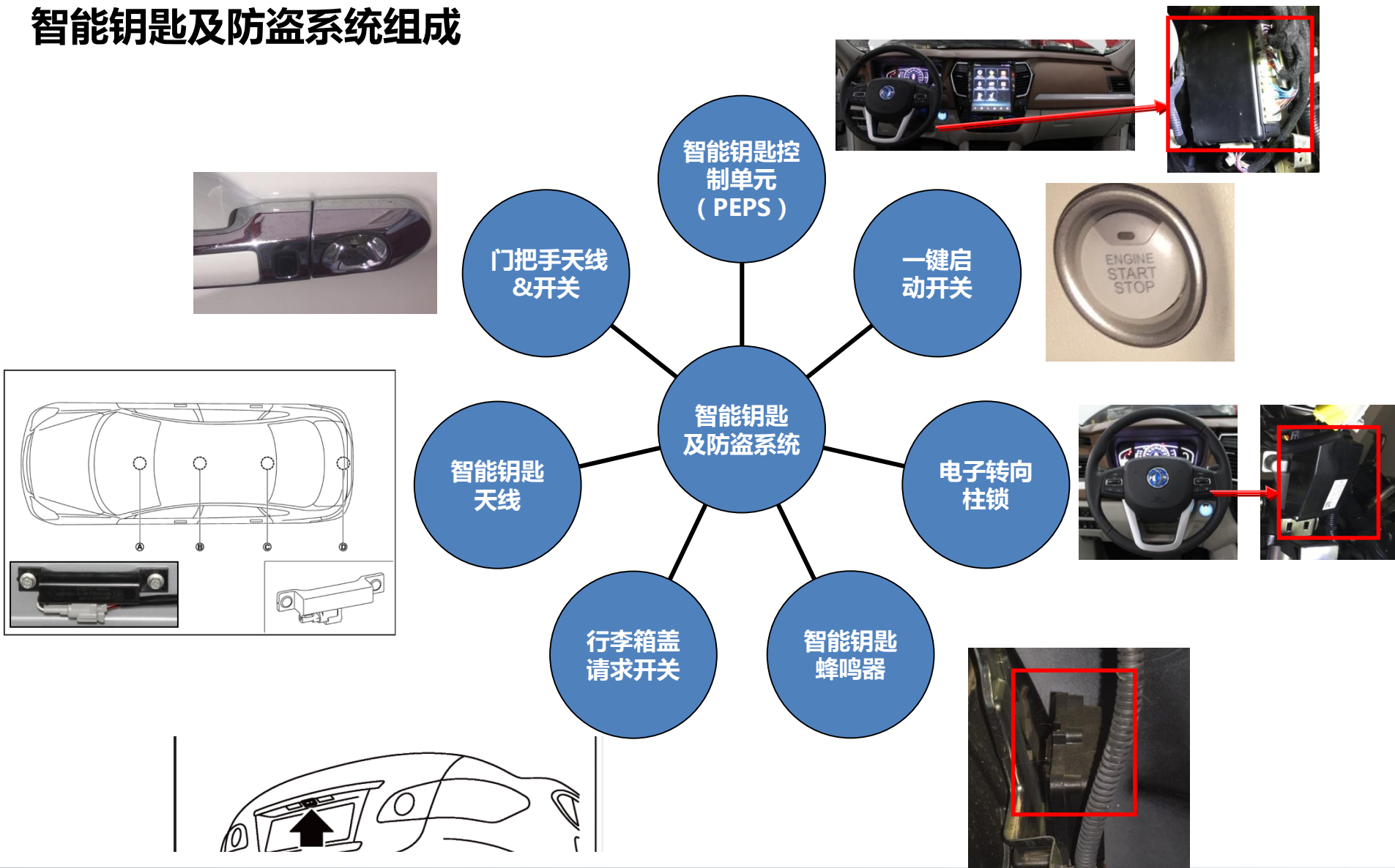


# 四、E70智能钥匙及防盗系统概述



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## 智能钥匙及防盗系统组成

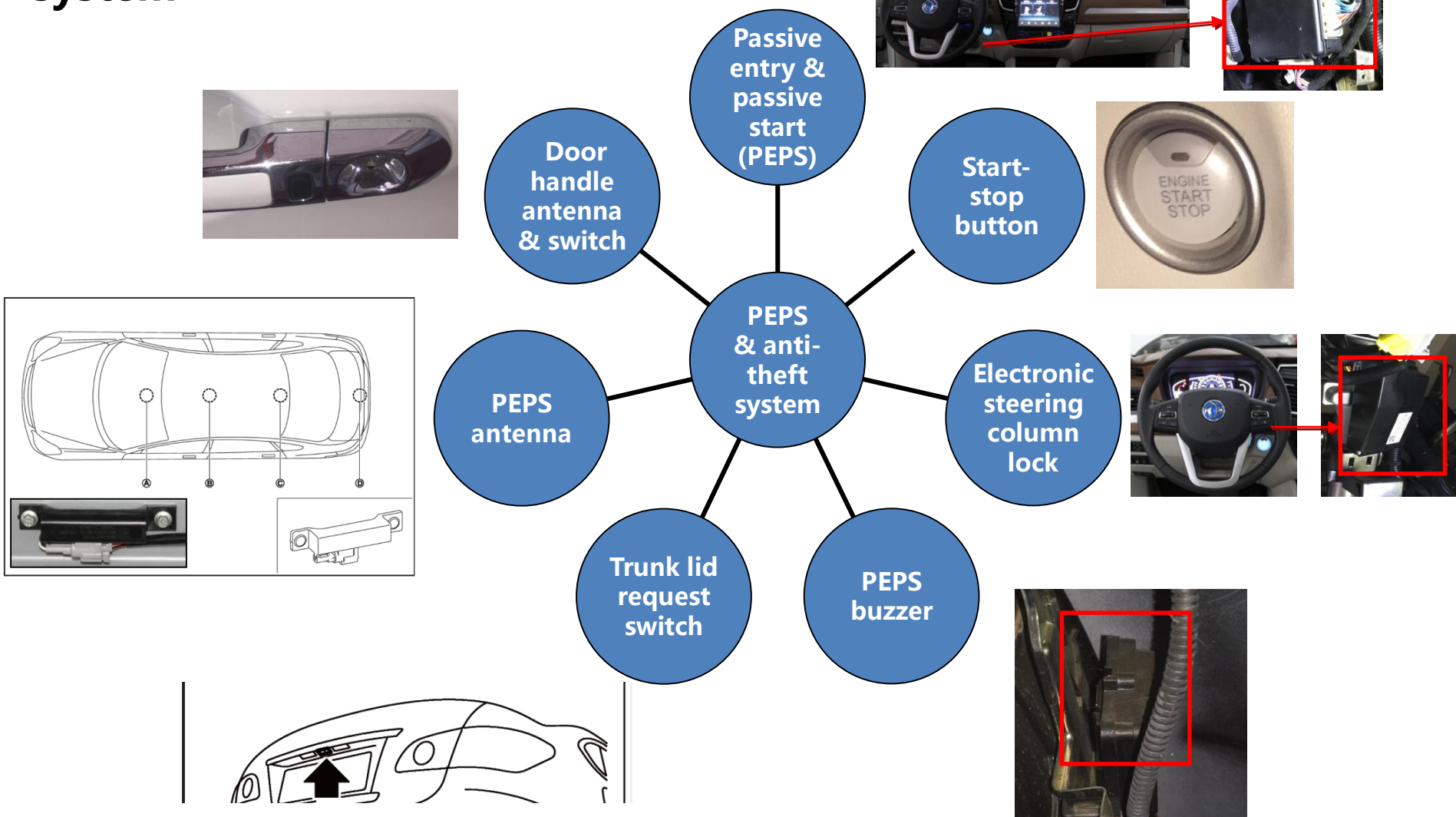


# IV. Overview of E70 PEPS and anti-theft system



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## Composition of PEPS and anti-theft system



## 四、E70智能钥匙及防盗系统概述



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### 智能钥匙及防盗系统使用说明

- 操作范围是距离各请求开关的距离在0.8m 范围内。
- 只有当智能钥匙与请求开关之间距离在操作范围内时，才可以使用智能钥匙功能。
- 智能钥匙电池耗尽或操作位置存在强无线电波时，智能钥匙系统的操作范围会变小，智能钥匙也可能无法正常工作。
- 如果智能钥匙过于接近车门玻璃、把手或后保险杠，请求开关也可能无法使用。



# IV. Overview of E70 PEPS and anti-theft system



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## Instructions for PEPS and anti-theft system

- Operating distance means the distance between the PEPS and the request switches is within 0.8 m.
- The smart key functions only when the distance between the smart key and the request switches is within the operating distance.
- If the smart key battery is exhausted or the operating site has strong radio waves, the operating distance of the PEPS will shorten and the smart key may fail to function.
- If the smart key is too close to the door window, handle or rear bumper, the request switches may fail to function.







## 四、E70智能钥匙及防盗系统概述

### 车辆应急启动

智能钥匙内电池电压不足时，按压一键启动开关不能够启动车辆。此时可按如下方法进行操作：

1. 将智能钥匙有品牌标识的一面垂直指向一键启动开关；
2. 为确保启动成功，钥匙紧贴一键启动开关按键表面；
3. 起动时对于档位需在P 档或N 档。
4. 踩下制动踏板；
5. 按下一键启动开关。

遇到此种情况时，请更换智能钥匙的电池。



## IV. Overview of E70 PEPS and anti-theft system



### Emergency start of vehicle

When the battery in the PEPS has low voltage, the vehicle can not be started by pressing the start-stop button. Please operate as follows:

1. Keep one side of key with the logo vertical to the start-stop button;
  2. To ensure successful start, the key must be fitted closely with the ENGINE START/STOP button surface;
  3. The gear must be at "P" or "N" position before start;
  4. Depress the brake pedal;
  5. Press the ENGINE START/STOP button.
- In this case, please replace the battery of smart key.







### 防盗系统术语

- KEY ID：钥匙出厂固化自带，唯一的特征码；
- VIN码：车辆出厂固化自带，唯一的特征码；
- PIN码：车辆生产厂家通过加密算法，由VIN码计算得来的身份识别码，用于进入下线匹配及诊断系统的授权码；
- ESK码：车辆生产厂家通过加密算法，由VIN码计算得来，用于防盗系统进行数据加密的密钥；

## V. Working principle and circuit diagram of E70 PEPS and anti-theft system



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### Terms of anti-theft system

- KEY ID: the unique feature code attached to the key since delivery from the factory;
- VIN: the unique feature code attached to the vehicle since delivery from the factory;
- PIN: the identification number calculated by the vehicle manufacturer through the encryption algorithm based on the VIN, and the authorization code for access to the offline matching and diagnosis system;
- ESK code: the key calculated by the vehicle manufacturer through the encryption algorithm based on the VIN, and used for data encryption of the anti-theft system;

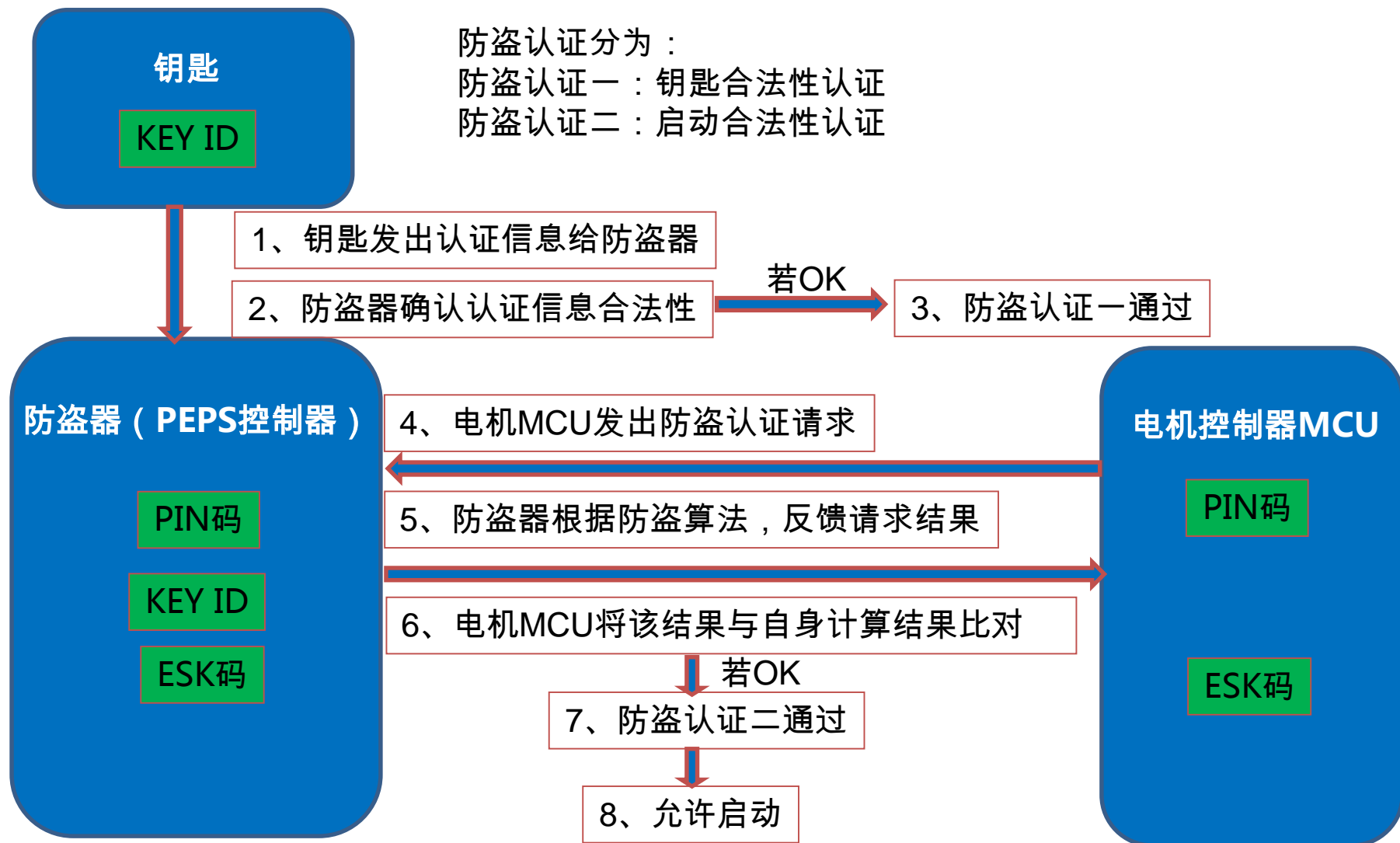
## 五、E70智能钥匙及防盗系统工作原理及电路图



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### 防盗系统认证流程

防盗认证分为：  
防盗认证一：钥匙合法性认证  
防盗认证二：启动合法性认证

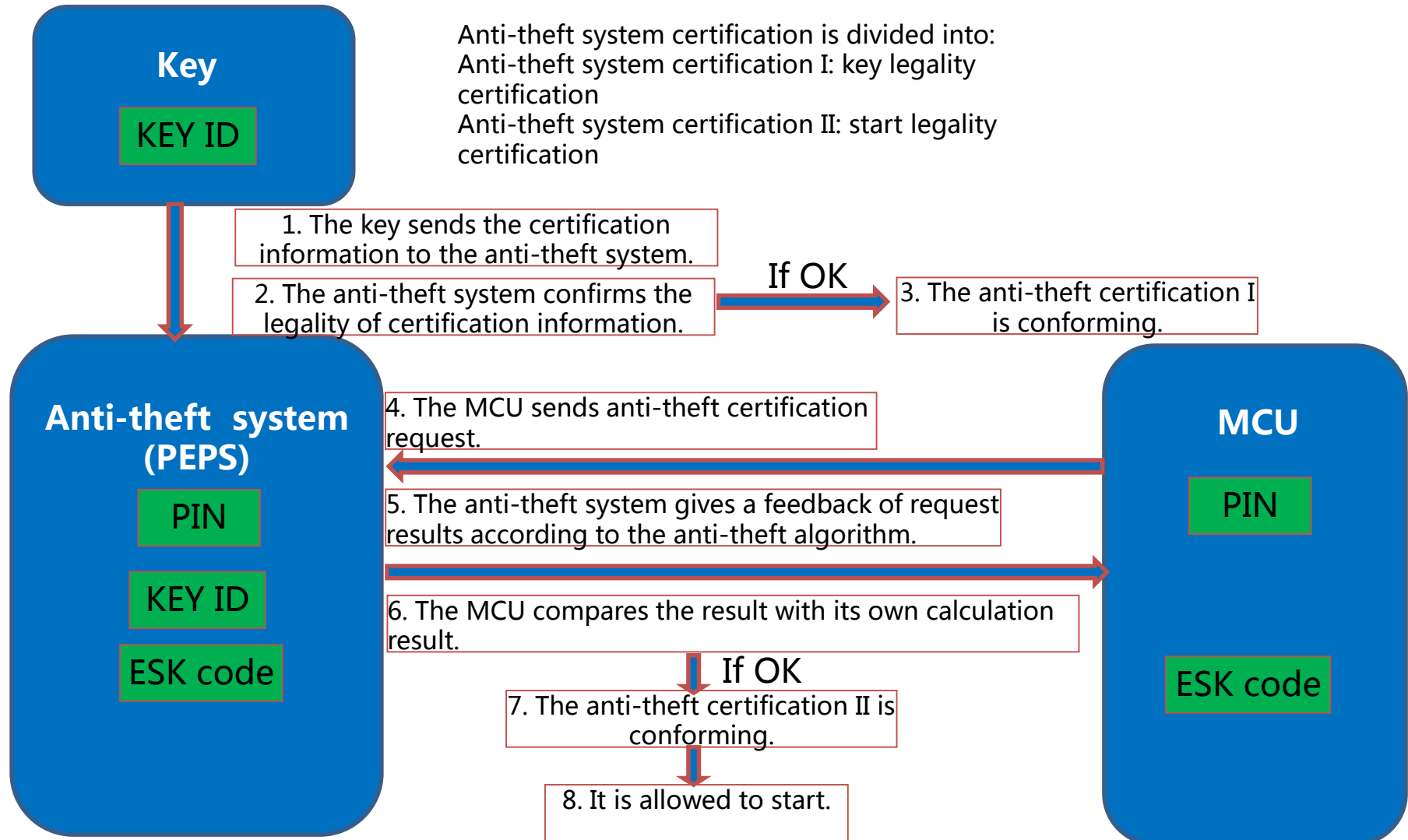


# V. Working principle and circuit diagram of E70 PEPS and anti-theft system



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## Certification process of anti-theft system



# 五、E70智能钥匙及防盗系统工作原理及电路图



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## 智能钥匙及防盗系统基本原理及电路图分析(无钥匙进入)

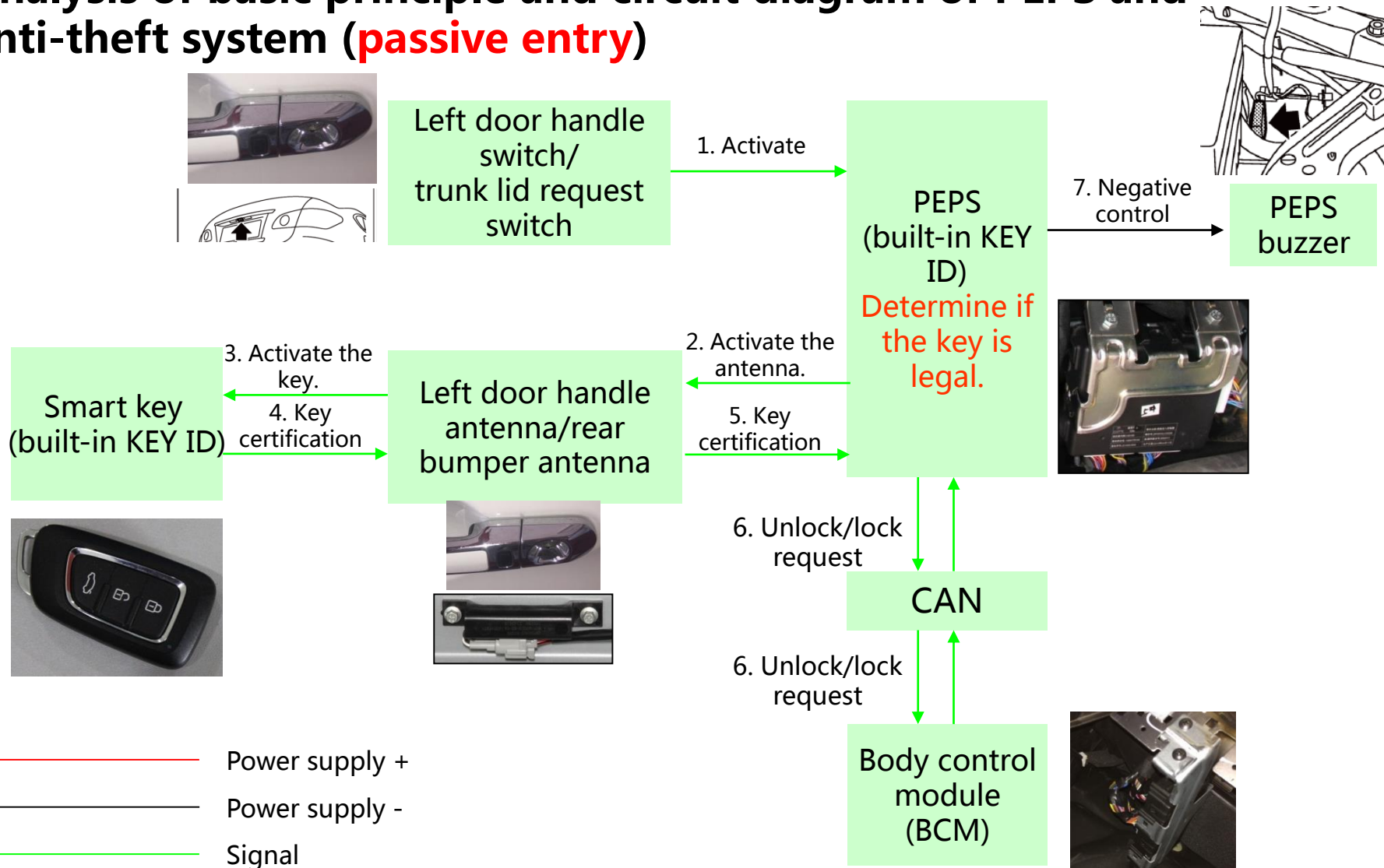


# V. Working principle and circuit diagram of E70 PEPS and anti-theft system



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## Analysis of basic principle and circuit diagram of PEPS and anti-theft system (**passive entry**)

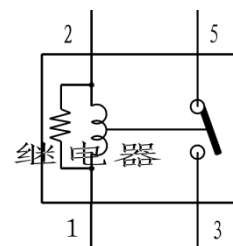
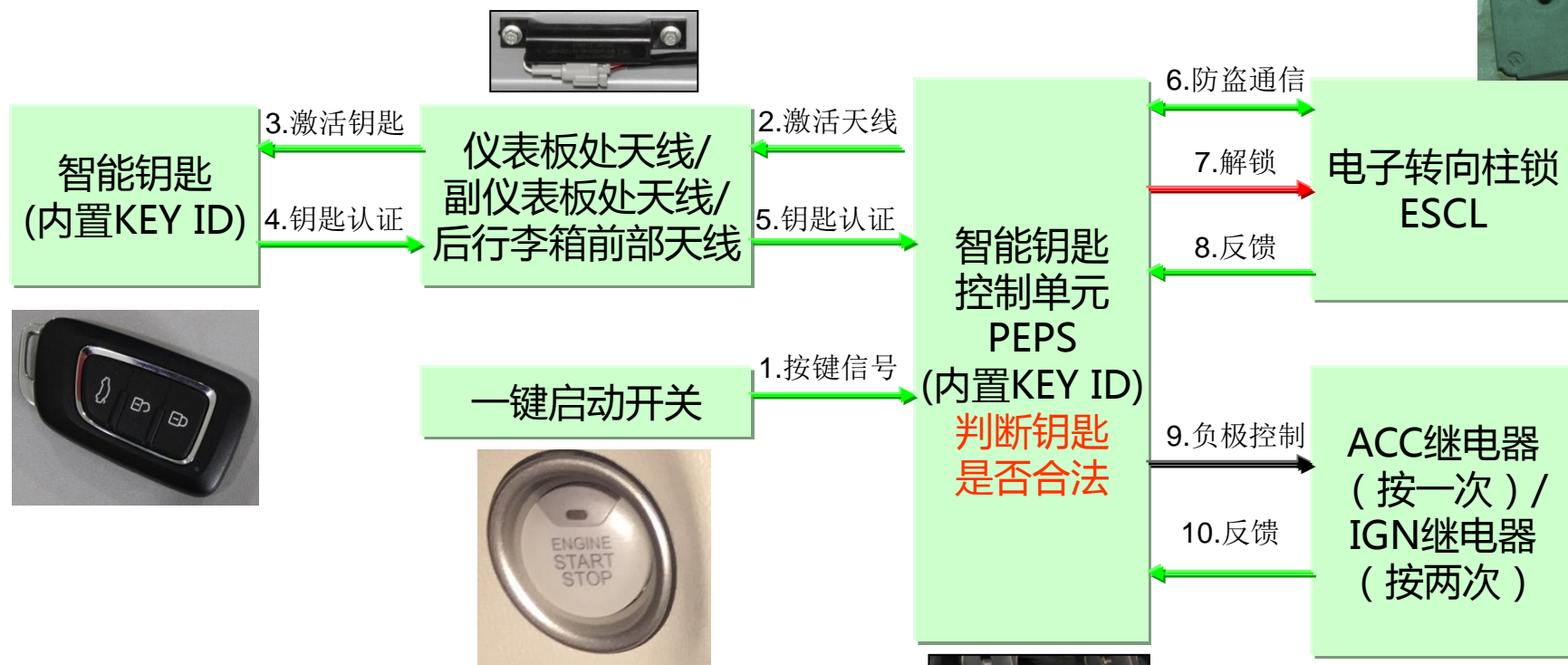


# 五、E70智能钥匙及防盗系统工作原理及电路图



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## 智能钥匙及防盗系统基本原理及电路图分析(电子转向锁及接线端控制)

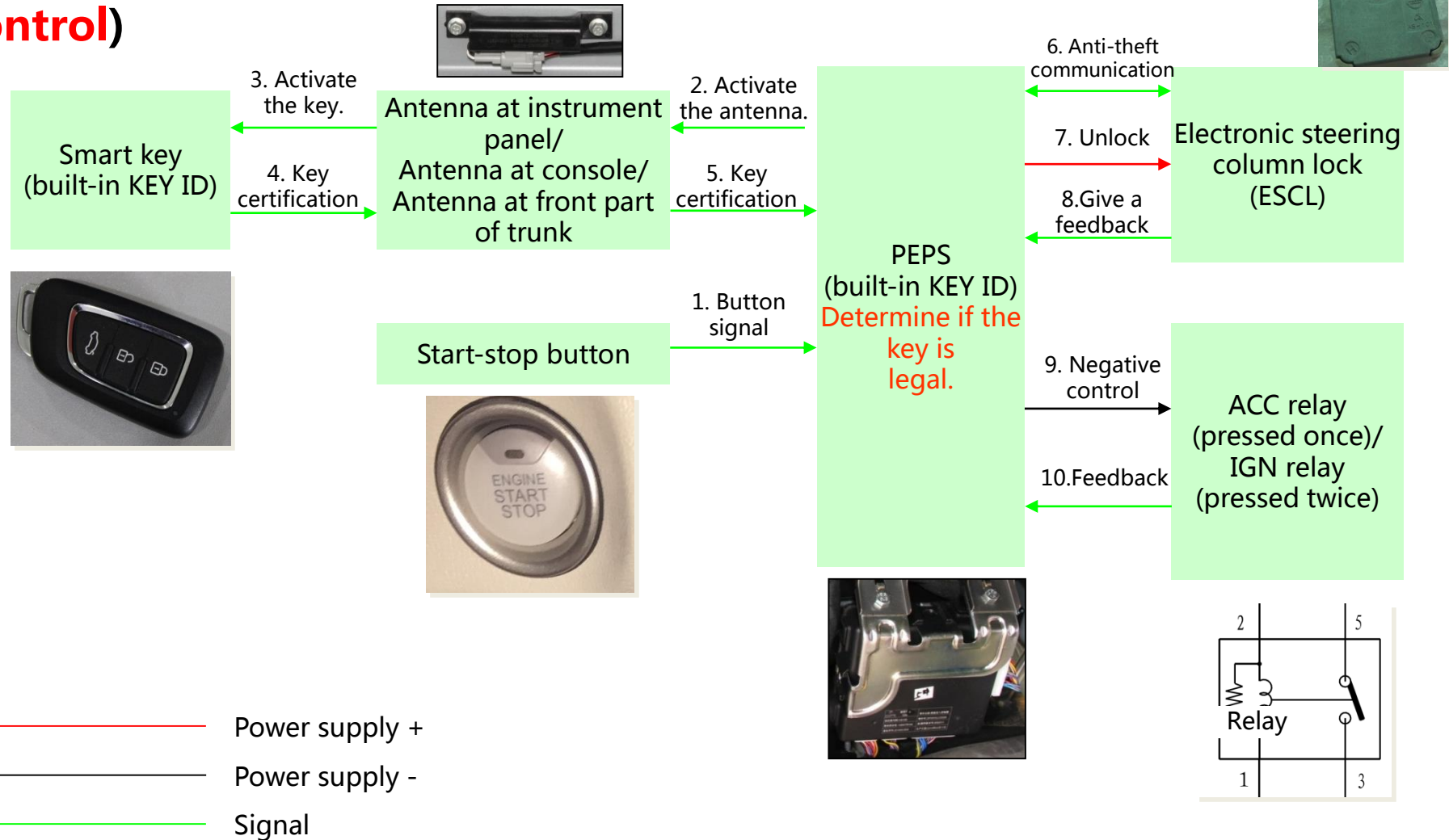


# V. Working principle and circuit diagram of E70 PEPS and anti-theft system



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## Analysis of basic principle and circuit diagram of PEPS and anti-theft system (**electronic steering lock and terminal control**)



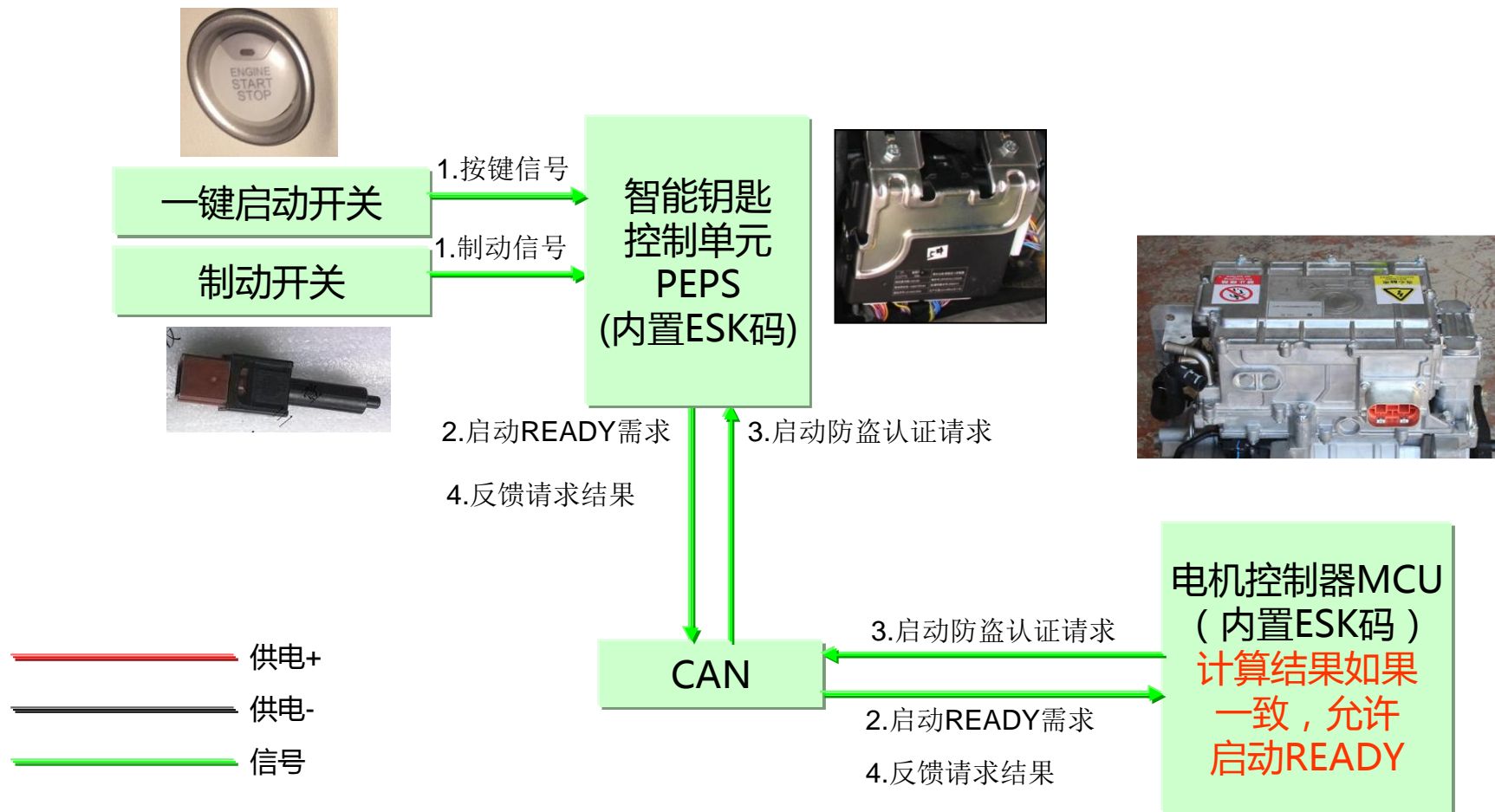


# 五、E70智能钥匙及防盗系统工作原理及电路图



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## 智能钥匙及防盗系统基本原理及电路图分析(无钥匙启动)



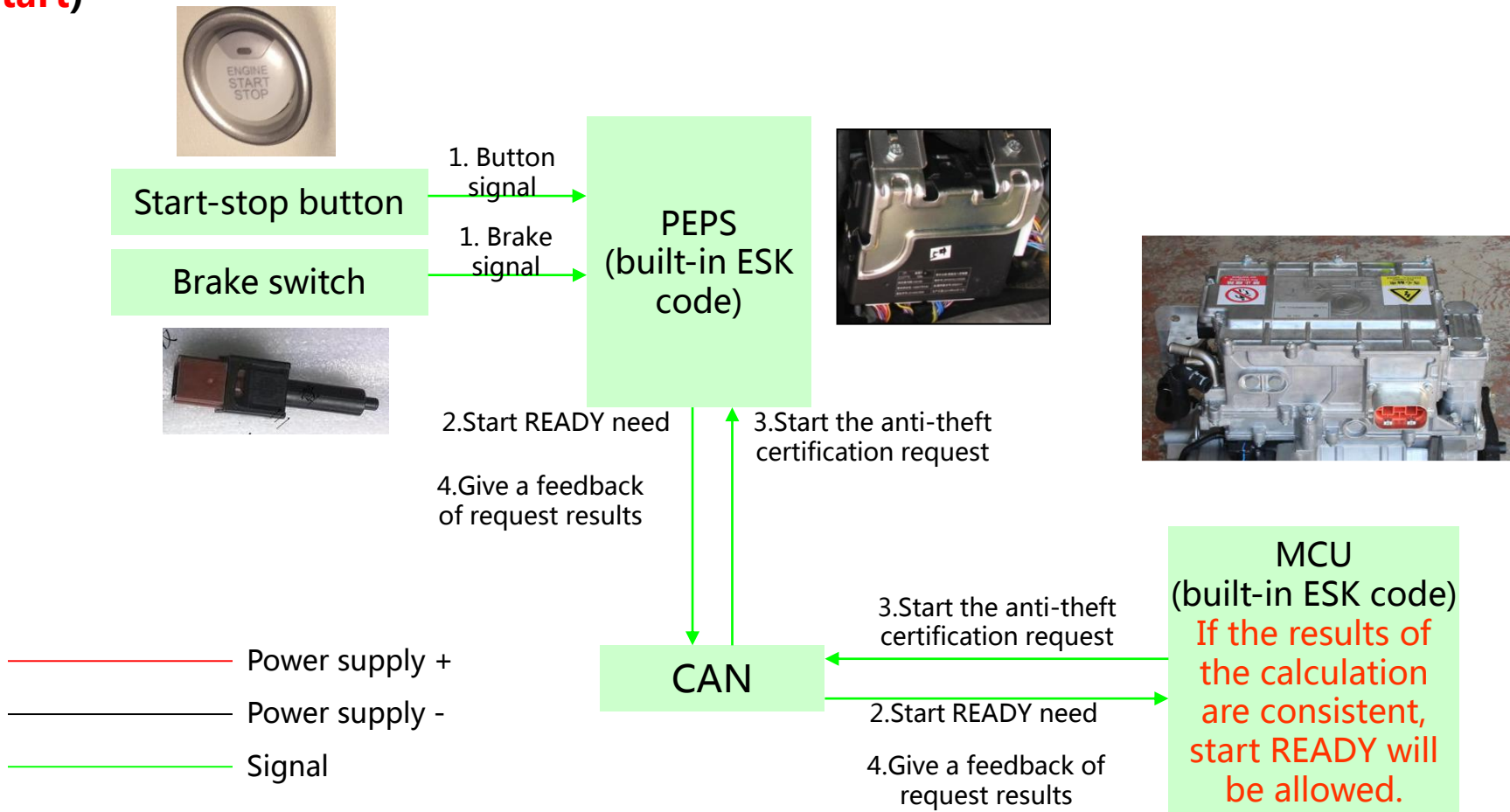
如果在点火OFF的情况下，直接踩下制动踏板，按一键启动开关，转向柱解锁、接线端控制、无钥匙启动按照顺序一次性完成。

# V. Working principle and circuit diagram of E70 PEPS and anti-theft system



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Analysis of basic principle and circuit diagram of PEPS and anti-theft system (**passive start**)



If the brake pedal is directly depressed and the start-stop button is pressed in the case of ignition OFF, the steering column unlocking, terminal control, and passive start will be completed in order.

# 六、E70智能钥匙及防盗系统维修注意事项



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在更换智能钥匙及防盗系统相关部件时，需要使用诊断仪进行相关的防盗匹配，此时需要根据需要根据车辆的VIN号向厂家相关部门申请PIN码、ESK码(按需)，然后按照诊断仪的提示进行相关的匹配操作。具体如下：

		写入VIN码	写入PIN码	写入ESK码	转向柱学习	钥匙学习	备注
更换钥匙						√	需申请PIN码作为授权码
更换转向柱锁					√		需申请PIN码作为授权码
更换PEPS控制单元		√	√		√	√	需申请PIN码写入控制单元,ESK码从MCU中自动调取
更换电机控制器MCU		√	√				需申请PIN码写入控制单元,ESK码从PEPS中自动调取
同时更换PEPS+MCU	PEPS	√	√	√	√	√	需同时申请PIN码与ESK码
	MCU	√	√	√			

钥匙

KEY ID

电子转向锁

转向锁信息

防盗器（PEPS控制器）

PIN码

VIN码

KEY ID

转向锁信息

ESK码

电机控制器MCU

PIN码

VIN码

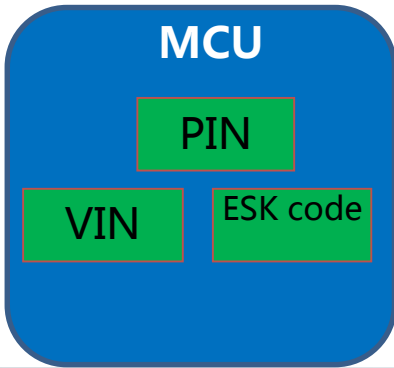
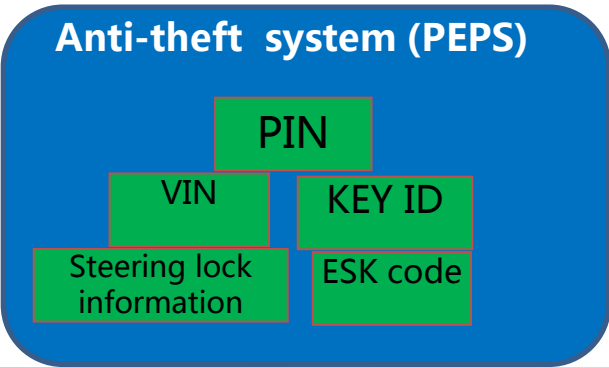
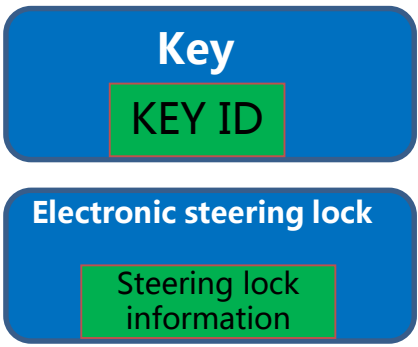
ESK码

# VI. Precautions for service of E70 PEPS and anti-theft system



When replacing the relevant parts of the PEPS and the anti-theft system, it is necessary to use the scan tool to perform related anti-theft matching. In this case, it is required to apply for the PIN and ESK code (on demand) according to the VIN, and then follow the prompts shown by the scan tool to perform the matching operation. The specific operations are as follows:

		Input VIN	Input PIN code	Write ESK.	Steering column learning	Key learning	Remark
Replace the key.						√	It is required to apply for PIN as the authorization number.
Replace the steering column lock.					√		It is required to apply for PIN as the authorization number.
Replace the PEPS.		√	√		√	√	It is required to apply for PIN to write it in the control unit, and the ESK code will be automatically retrieved from MCU.
Replace the MCU.		√	√				It is required to apply for PIN to write it in the control unit, and the ESK code will be automatically retrieved from PEPS.
Replace PEPS+MCU at the same time.	PEPS	√	√	√	√	√	It is required to apply for PIN and ESK code at the same time.
	MCU	√	√	√			





使用诊断仪进行防盗相关的匹配操作内容



Use the scan tool to perform anti-theft related matching operations.