



东风乘用车

减速器及换挡操纵机构



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Reducer and Gearshift Mechanism



- 1、熟悉E70减速器及换档操纵机构的组成及各部件的功用
- 2、熟悉E70减速器及换档操纵机构的工作原理
- 3、能对E70减速器及换档操纵机构进行故障诊断与排除
- 4、掌握E70减速器及换档操纵机构相关部件的拆装更换方法及维修注意事项

Objectives



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1. Familiar with the composition of the E70 reducer and gearshift mechanism and functions of their components
2. Familiar with the working principle of the E70 reducer and gearshift mechanism
3. Troubleshoot the E70 reducer and gearshift mechanism
4. Master the removal and refitting and replacement methods and service precautions of the E70 reducer and gearshift mechanism



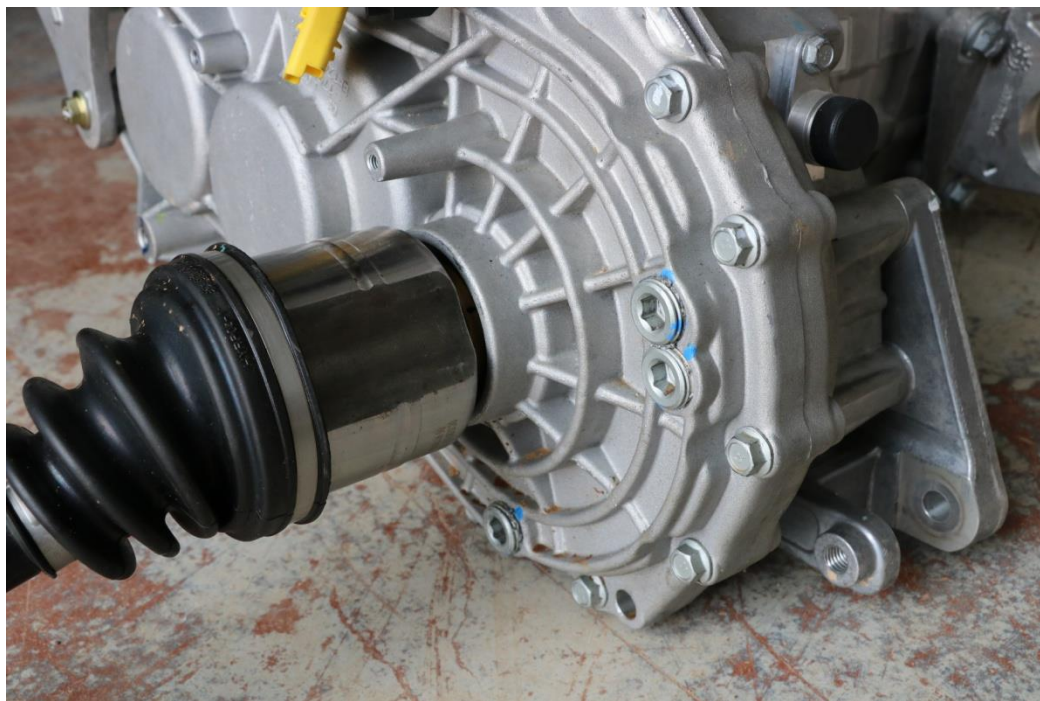
一、 E70减速器及换挡操纵机构概述



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减速器概述

E70电动车未配备变速器，只配备了**减速器（包含主减速器及差速器）**。



减速器

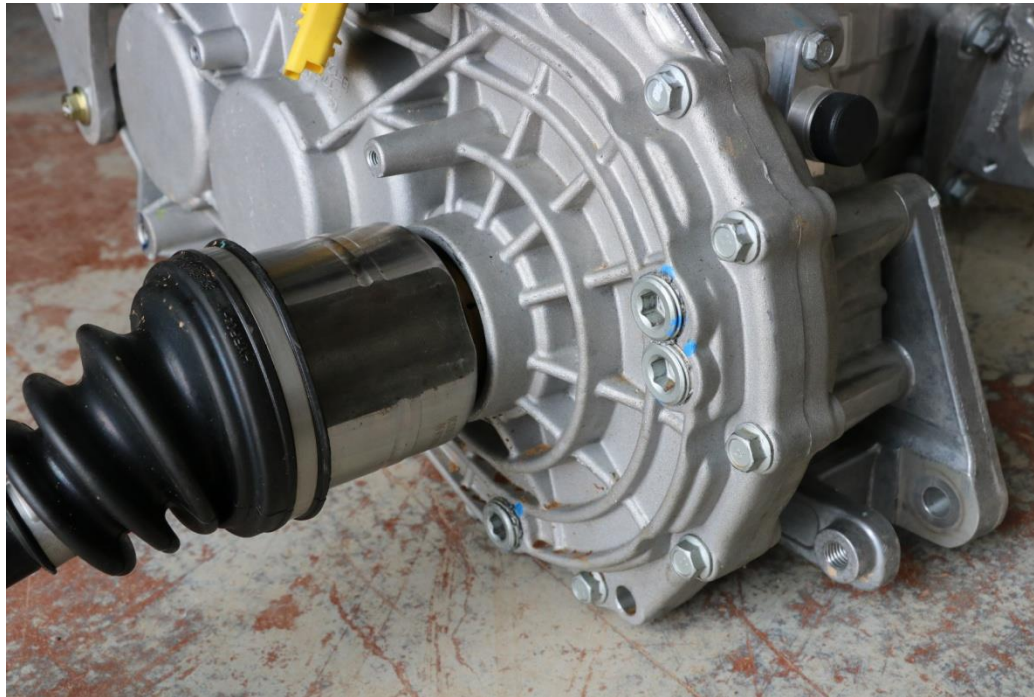
I. Overview of E70 reducer and gearshift mechanism



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Overview of reducer

The E70 electric vehicle is not equipped with a transmission and only equipped with a **reducer (including a final drive and a differential)**.



Reducer

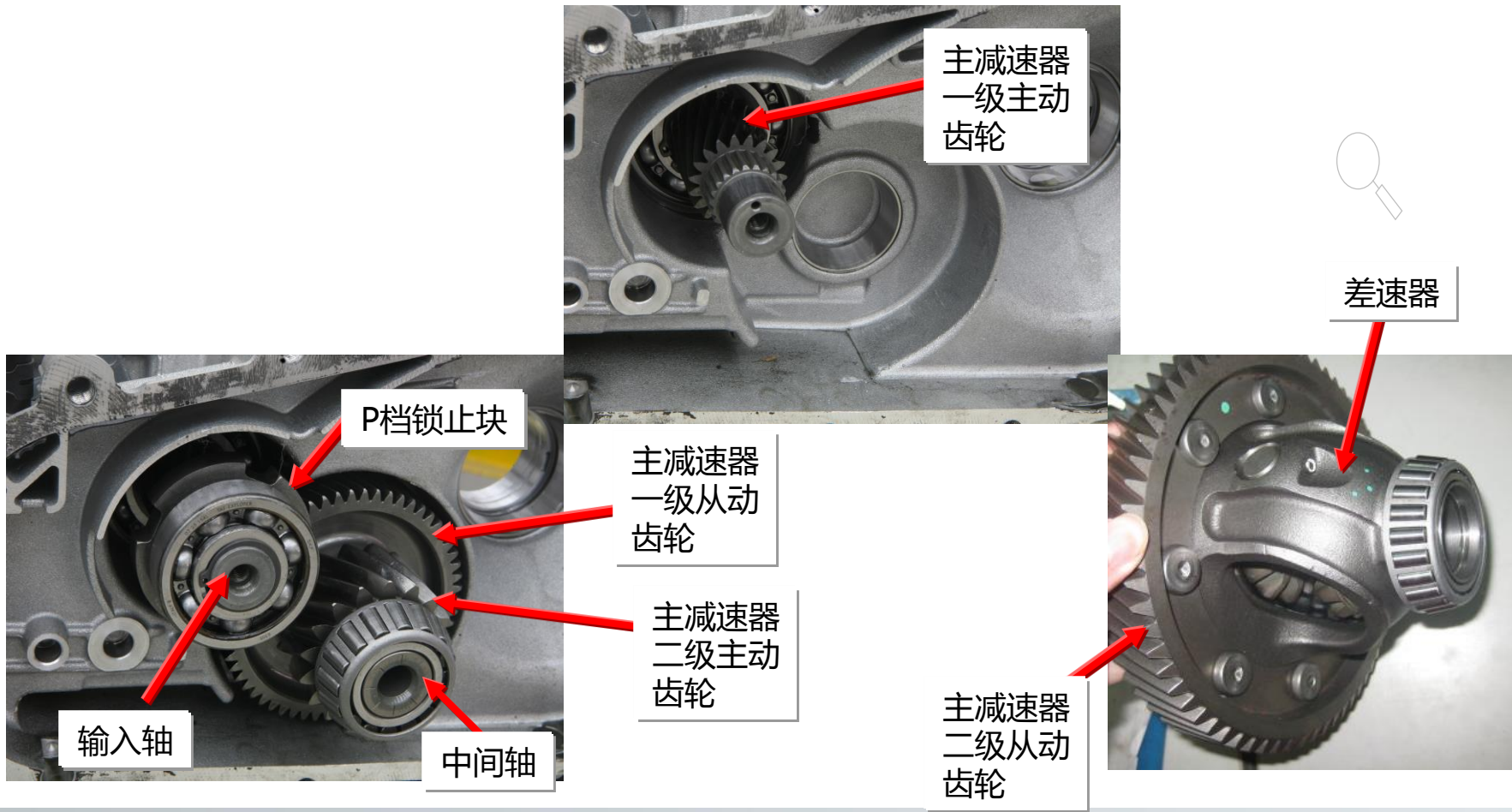
一、 E70减速器及换档操纵机构概述



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减速器内部齿轮结构

减速器的内部主要包含了主减速器及差速器两大部分。

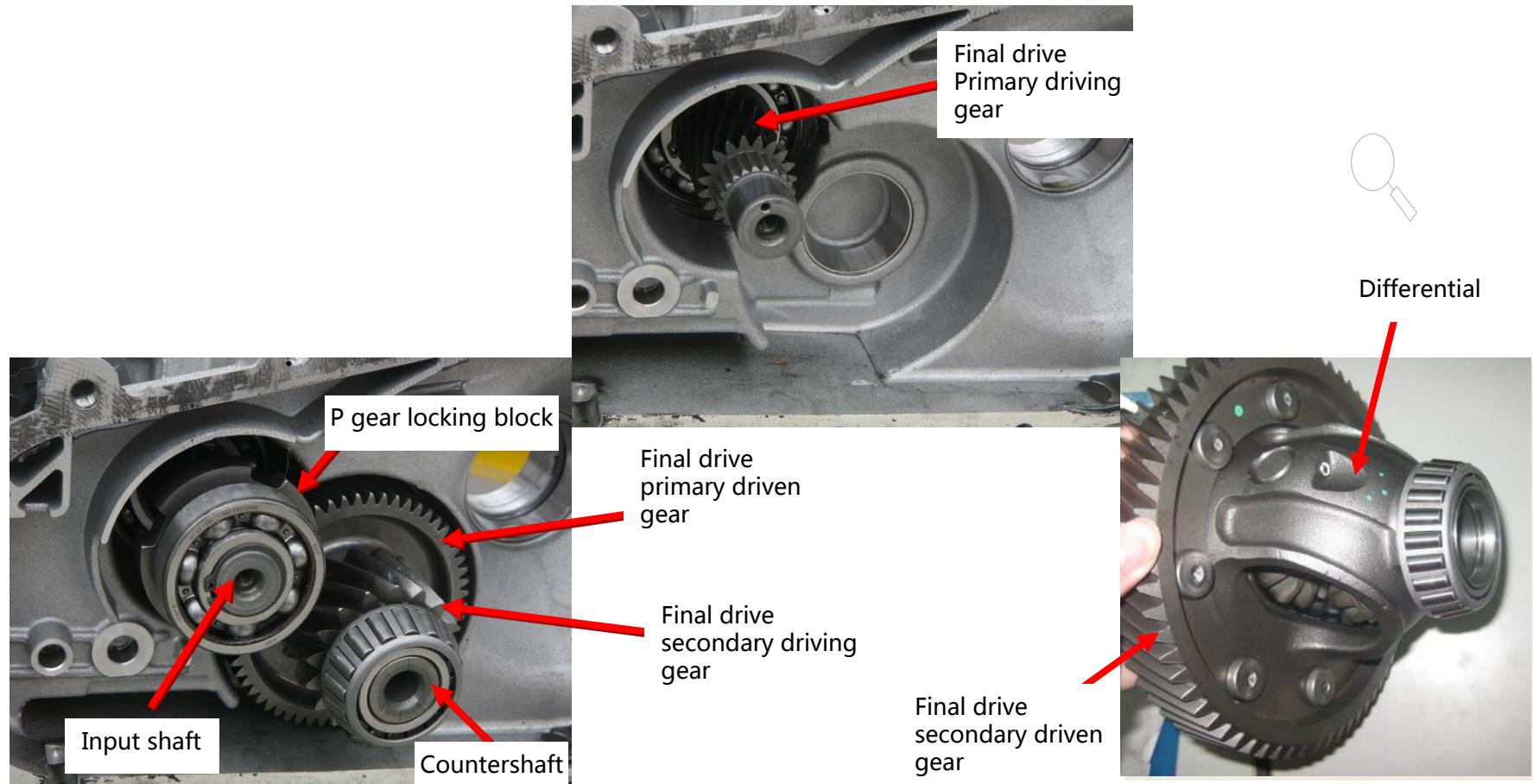


I. Overview of E70 reducer and gearshift mechanism



Internal gear structure of reducer

The reducer is mainly composed of two parts of the final drive and the differential.



一、 E70减速器及换档操纵机构概述



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换档操纵机构概述

E70车辆换档操纵机构采用电子档杆，与传统车一样，具有P（驻车档）/R（倒车档）/N（空档）/D（前进档）四个档位。



换档操纵机构

I. Overview of E70 reducer and gearshift mechanism



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Overview of gearshift mechanism

The E70 gearshift mechanism is designed with an electronic shift lever. Like the conventional vehicle, it has four gear positions: P (parking)/R (reverse)/N (neutral)/D (drive).



Gearshift mechanism

一、 E70减速器及换档操纵机构概述

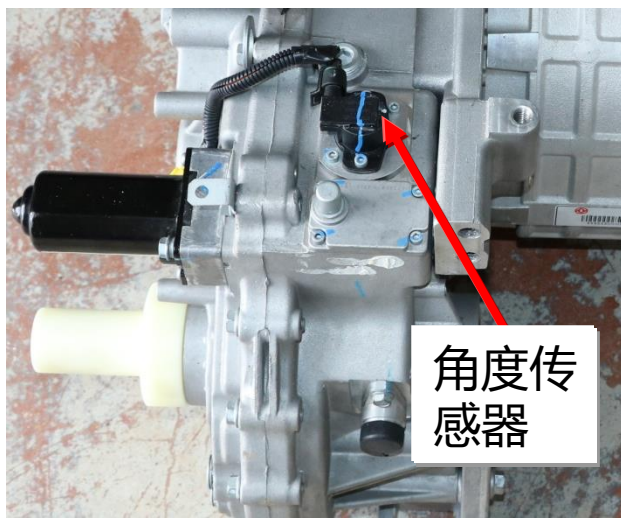


换档操纵机构组成

换挡操纵机构主要包含换挡手柄，P档控制器，P档锁止电机，角度（位置）传感器等组成。



换挡手柄



角度传感器



P档控制器

P档锁止电机

I. Overview of E70 reducer and gearshift mechanism



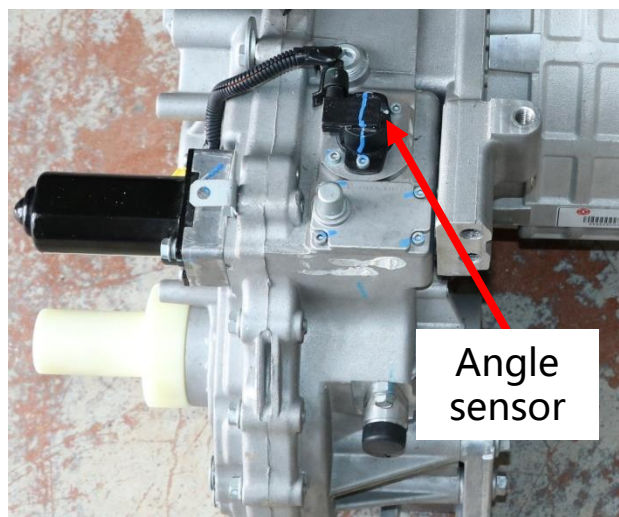
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Composition of gearshift mechanism

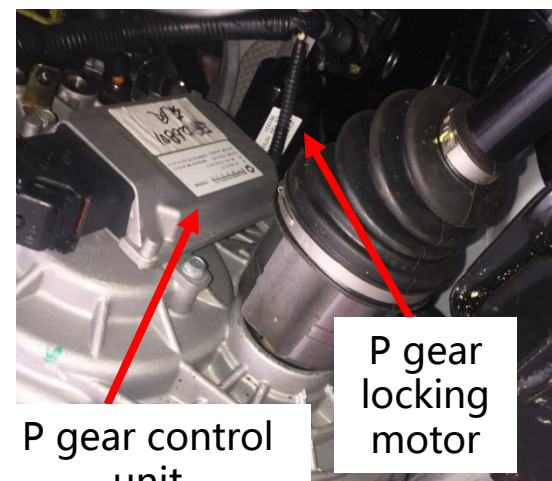
The gearshift mechanism mainly comprises a shift lever, a P gear control unit, a P gear locking motor, and an angle (position) sensor.



Shift lever



Angle sensor



P gear control unit

P gear locking motor

二、 E70减速器及换档操纵机构工作原理及电路图



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E70各档位工作情况

换档杆位置	P档	R档	N档	D档
减速器状态	常接合			
电机运转情况	不转	反转	不转	正转
P档锁块是否锁止	是	否	否	否

减速器常接合提供固定的唯一档位，空档依靠电机停转实现，倒档依靠电机反转实现,P档与N档的区别在于P档锁止了电机输出轴，无法推动车辆。

II. Working principle and circuit diagram of E70 reducer and gearshift mechanism



Working in each gear of E70

Positions of shift lever	P	R	N	D
Reducer status	Always engaged			
Motor operation	Inoperation	Reverse	Inoperation	Forward
P gear locking block Locked or not	Yes	No	No	No

The reducer is often engaged in a fixed unique gear, the neutral gear is realized by the motor stopping, the reverse gear is realized by the motor reversal, and the P gear is different from the N gear in that the motor output shaft is locked in the P gear and cannot drive the vehicle.

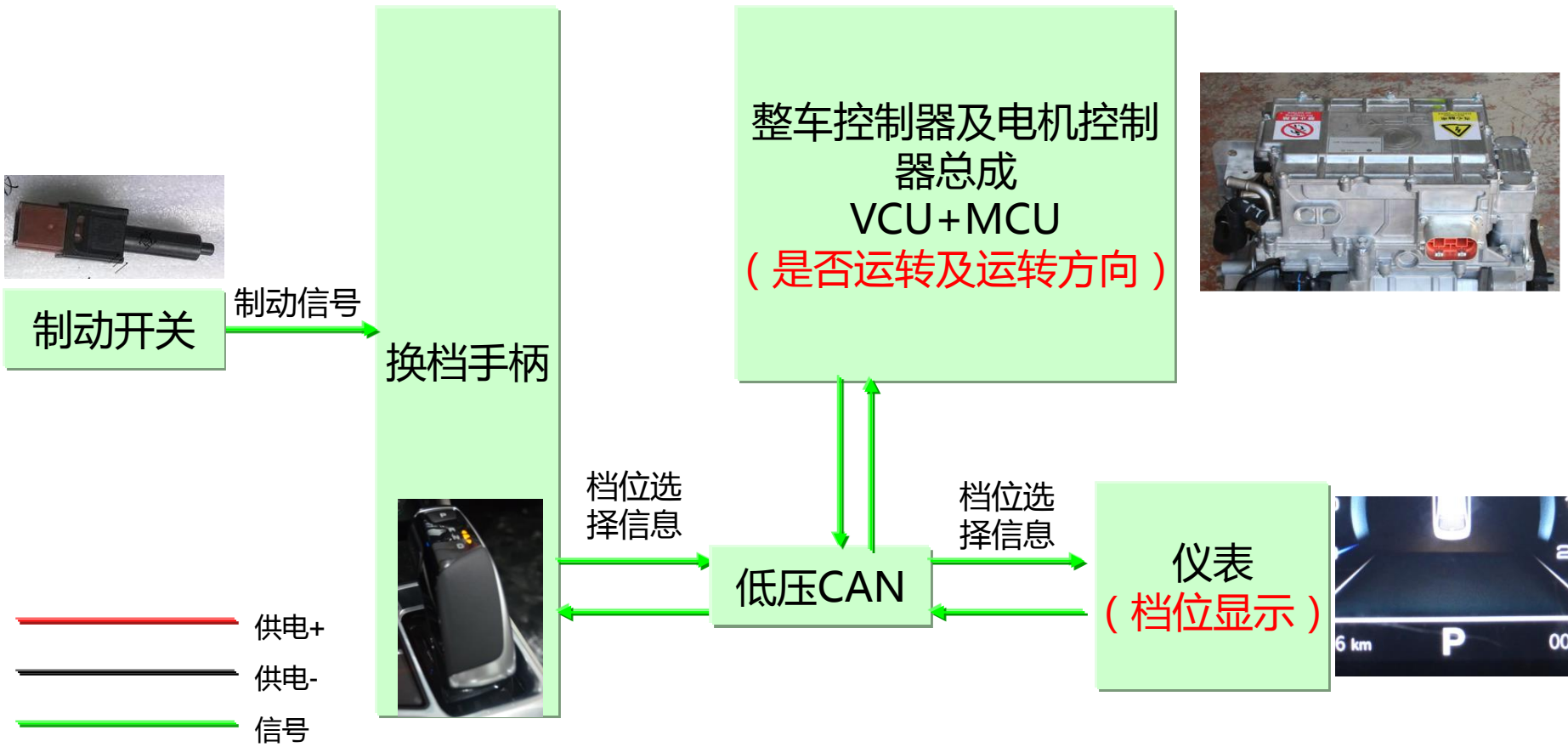
二、 E70减速器及换档操纵机构工作原理及电路图



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减速器及操纵结构基本原理及电路分析

(1)换档杆换档

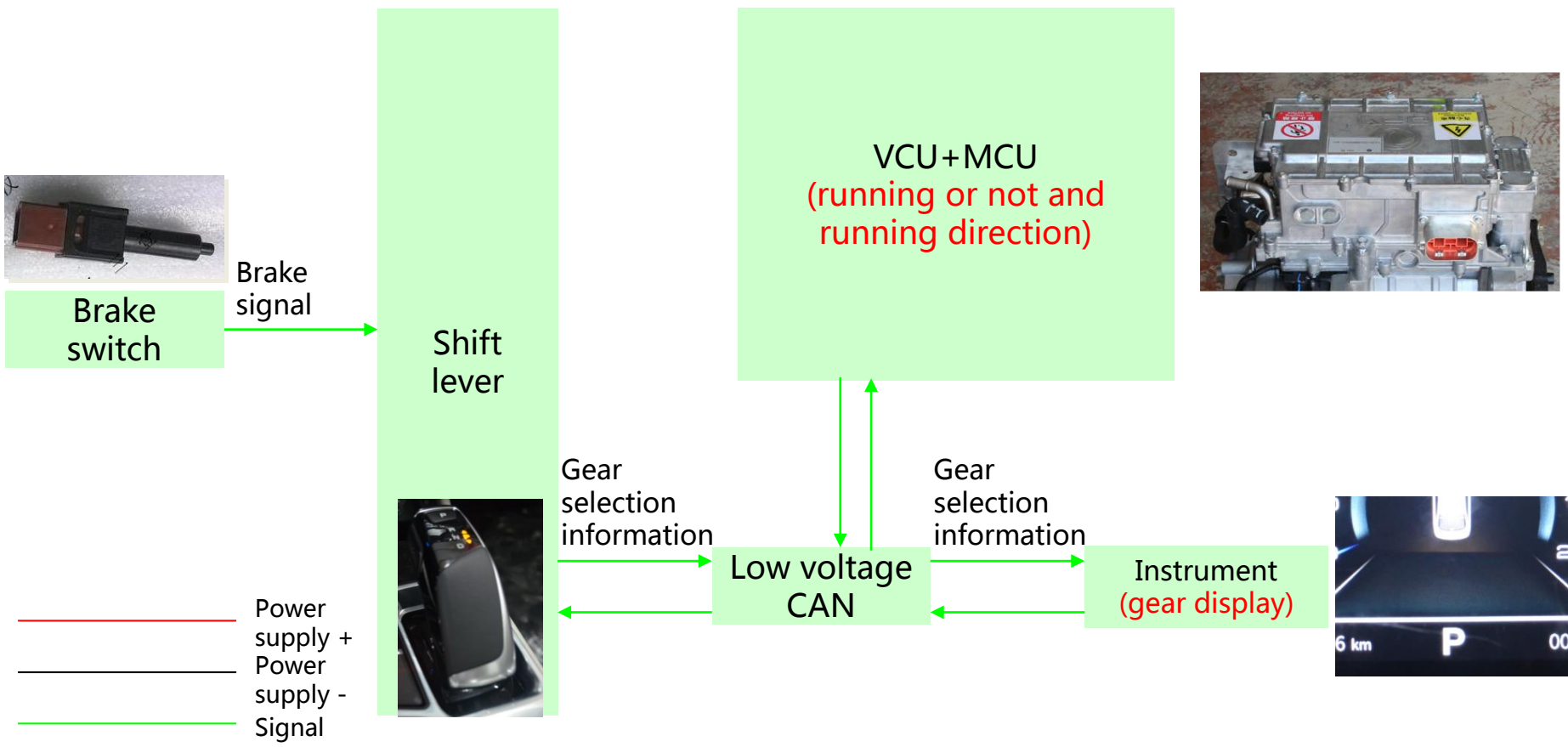


II. Working principle and circuit diagram of E70 reducer and gearshift mechanism



Analysis of working principle and circuit diagram of E70 reducer and gearshift mechanism

(1) Gearshifting through shift lever



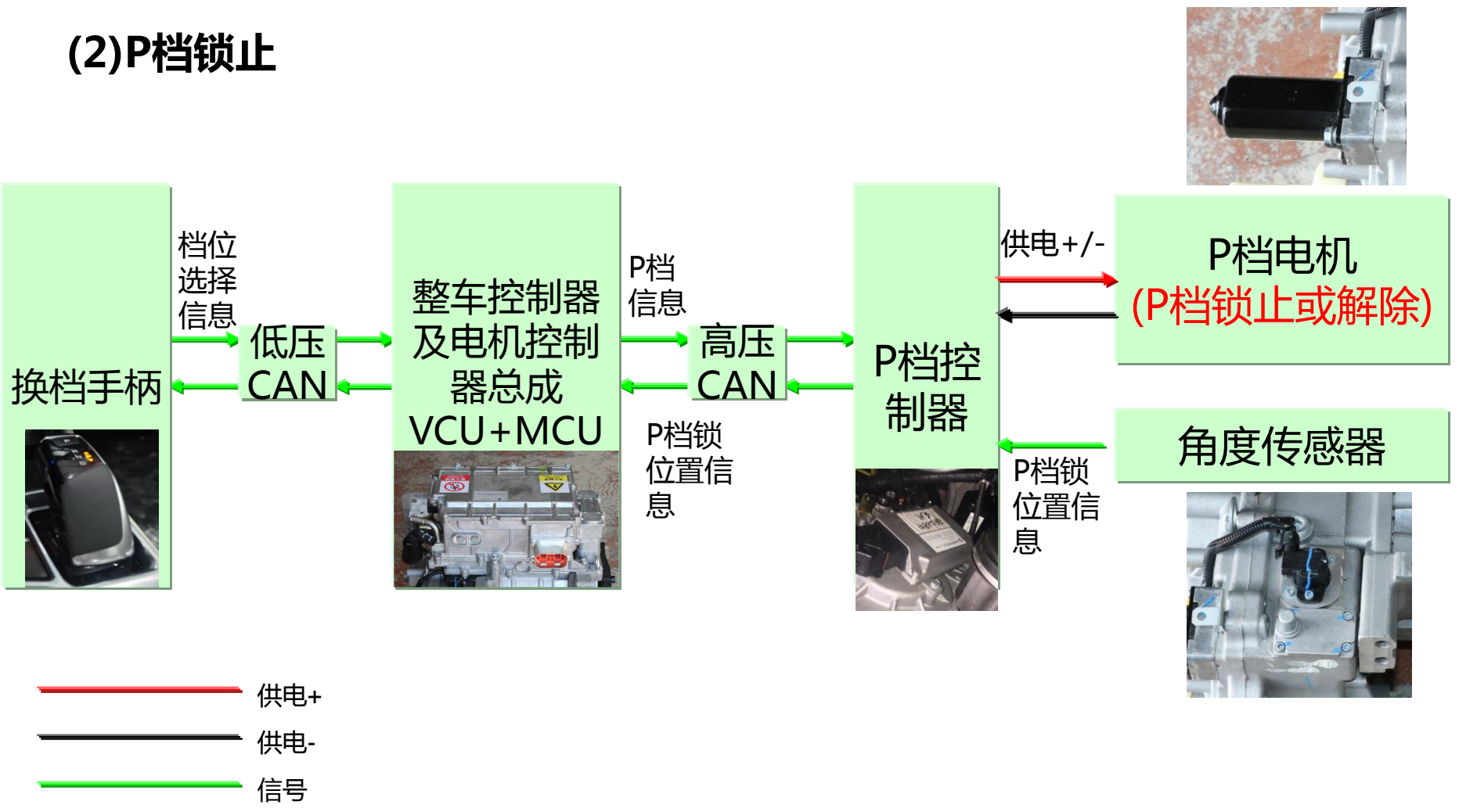
二、 E70减速器及换档操纵机构工作原理及电路图



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减速器及操纵结构基本原理及电路分析

(2)P档锁止



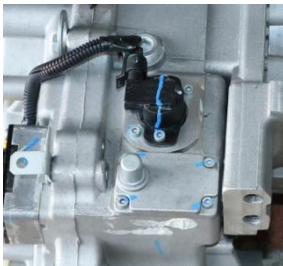
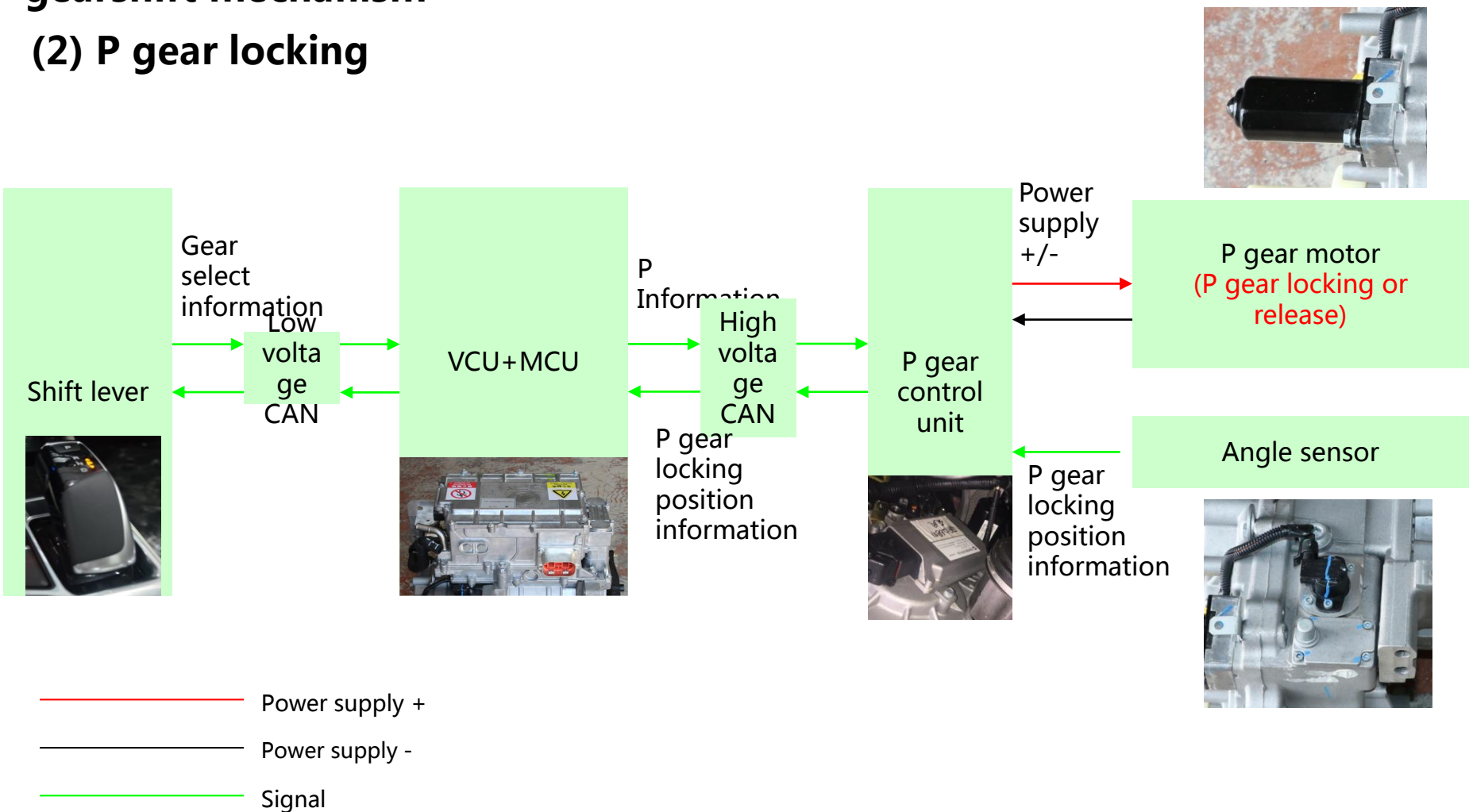
II. Working principle and circuit diagram of E70 reducer and gearshift mechanism



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Analysis of working principle and circuit diagram of E70 reducer and gearshift mechanism

(2) P gear locking



二、 E70减速器及换档操纵机构工作原理及电路图

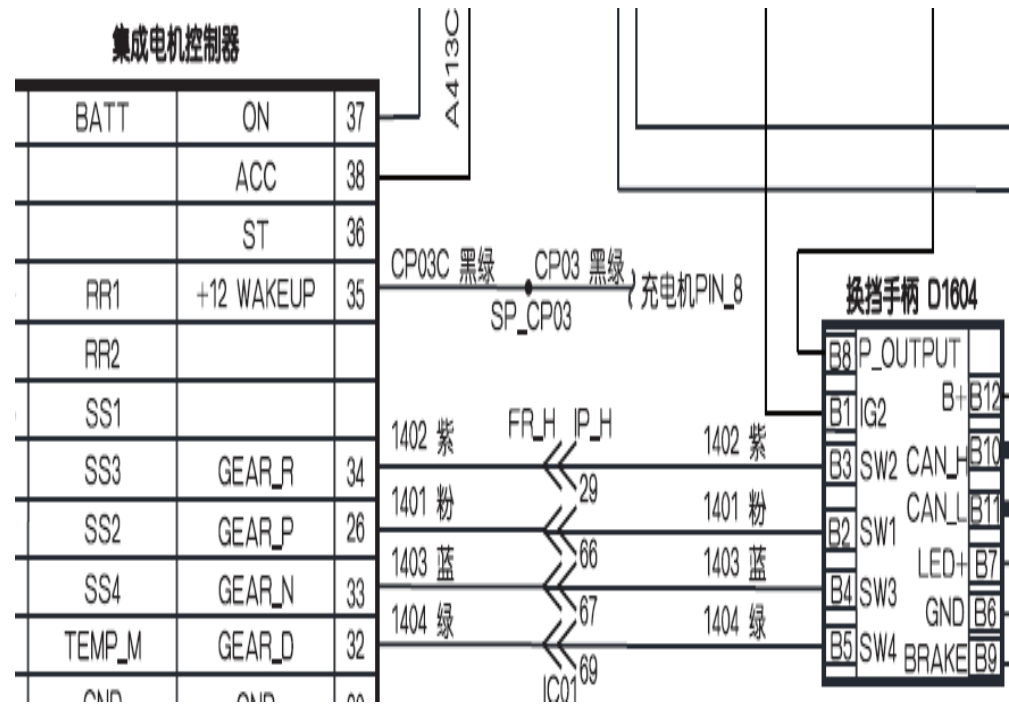


减速器及操纵结构基本原理及电路分析

换档手柄的工作原理及检测方法：

原理：内部集成控制单元，不同的档位传输对应的信号。

检测：工作时使用诊断仪读取数据流



II. Working principle and circuit diagram of E70 reducer and gearshift mechanism

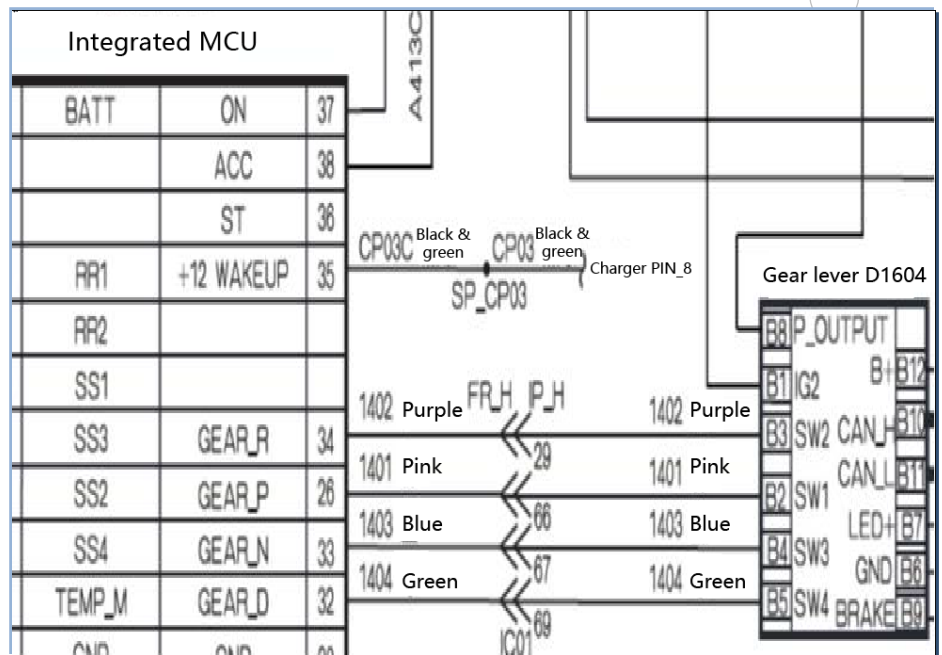


Analysis of working principle and circuit diagram of E70 reducer and gearshift mechanism

Working principle and detection method of shift lever:

Principle: Internal integrated control unit, corresponding signals are transmitted in different gears.

Detection: use the scan tool to read the data stream during operation.





- 1.对E70的减速器及换档机构构进行认知，必要时进行拆装
- 2.完成E70电子档杆操作实践任务单





1. Cognize the E70 reducer and gearshift mechanism, and remove and refit them if necessary.
2. Complete the tasks list of the E70 electronic shift lever operation.

