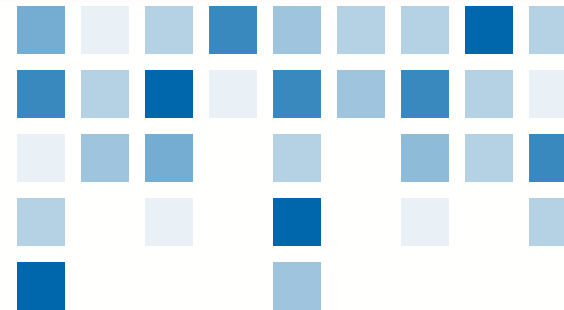
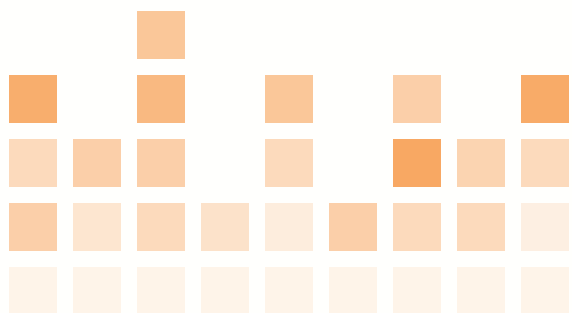




# SHACMAN 汽车电器知识培训

F2000-F3000

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## 第二十九课 德龙底盘部分电器线束尾部线束

### 1.驻车制动信号开关

底盘线束继续向后敷设至后桥前的横梁处与驻车制动信号开关（安装于后桥驻车制动继动阀上对接。（见图1）

其插接器编号B109。注意附近还有轮轴差线束的轮、轴差信号开关插接器与驻车制动型号相同，注意不要差错。

区别方法：

- 1.是看线束所在的主线束，驻车制动信号开关所在主线束为车架线束，轮、轴差信号开关所在主线束为轮、轴差线束。
- 2.是看插接器上的编号，驻车制动信号开关插接器编号为B109，轮、轴差信号开关插接器编号为S20、S21、S22。
- 3.是看接线的颜色（需打开插接器），驻车制动信号开关接线为黑绿/蓝红，轮差信号开关接线为棕蓝红/棕，轴差信号开关接线为棕蓝白/棕。

Parking Brake Signal Switch:

The chassis wiring harness continues rearward and is laid up to the crossbeam in front of the rear axle, where it interfaces with the parking brake signal switch (installed on the parking brake relay valve of the rear axle) (refer to Figure 1).

Its connector is labeled B109. Note that nearby there are also connectors for the wheel and axle differential signal switches with the same connector type as the parking brake, so be careful not to confuse them.

Differentiation method:

Look at the main harness where the wiring harness is located. The parking brake signal switch is in the main chassis harness, while the wheel and axle differential signal switches are in the wheel and axle differential harness.

Look at the connector label. The connector for the parking brake signal switch is labeled B109, while the connectors for the wheel and axle differential signal switches are labeled S20, S21, S22.

Look at the wire colors (you may need to open the connector). The wiring for the parking brake signal switch is black-green/blue-red, for the wheel differential signal switch is brown-blue/red-brown, and for the axle differential signal switch is brown-blue/white-brown.



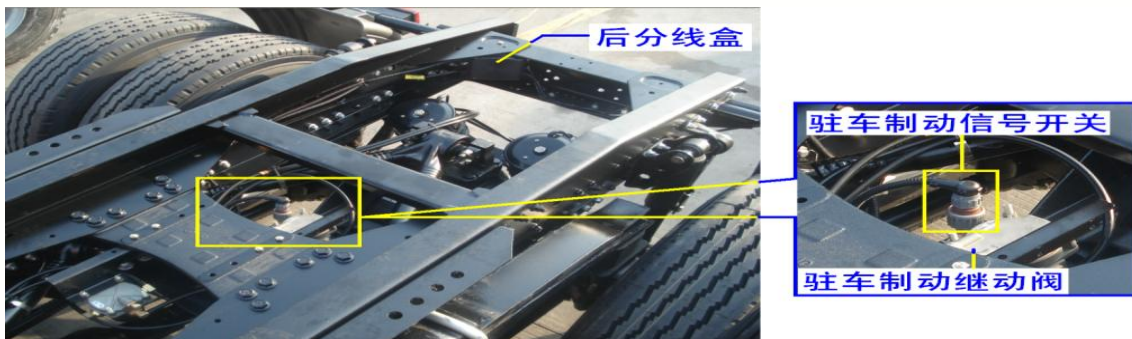


图1 驻车制动信号开关接线

**注意：**并非所有德龙车型的驻车制动信号开关都安装在车架后部，有部分车型的驻车制动信号开关安装与驾驶室左底板下方（见图2）或驾驶室左前端手刹阀接出管路处（见图3），安装在前面的驻车制动信号开关其接线方式也不同，为插接片接线方式，所属线束为驾驶室左前（大灯）线束。

Note: Not all Delong models have the parking brake signal switch installed at the rear of the chassis. Some models have the parking brake signal switch installed under the left bottom plate of the cabin (refer to Figure 2) or at the connection pipe of the handbrake valve at the front left end of the cabin (refer to Figure 3). The wiring method for the parking brake signal switch installed at the front is also different; it uses a connector plug wiring method, and its harness belongs to the front left (headlight) harness.





图2 驻车制动信号开关安装于驾驶室左底板下的情形S2000



图3 驻车制动信号开关安装于驾驶室前端的情形F2000





## 2. 尾部线束：

底盘线束的最末端接车架后部的后分线盒，分别接分线盒内配电箱的1、6、11号位置，主要向尾部线束输出后尾灯灯光信号，并向驾驶室返回轮差、轴差信号。

车架尾部线束结构主要以后分线盒为配电枢纽，通过车架线（德龙称为底盘线束）连接到驾驶室，向外辐射的有左、右尾灯线束，轮、轴差线束，挂车插座线束（奥龙），倒车蜂鸣器线束等。其电路拓扑结构如图4所示：

### Rear Wiring Harness:

At the end of the chassis wiring harness, it connects to the rear distribution box located at the rear of the chassis. It is connected to positions 1, 6, and 11 within the distribution box. Its main function is to output rear taillight signals to the rear wiring harness and transmit wheel differential and axle differential signals back to the cabin.

The structure of the chassis rear wiring harness mainly revolves around the rear distribution box as the distribution hub. It is connected to the cabin via the chassis wires (referred to as the chassis wiring harness by Delong). Radiating outward, it includes left and right taillight wiring harnesses, wheel and axle differential wiring harnesses, trailer socket wiring harnesses (for Olong), backup alarm wiring harnesses, etc. Its circuit topology is illustrated in Figure 4.

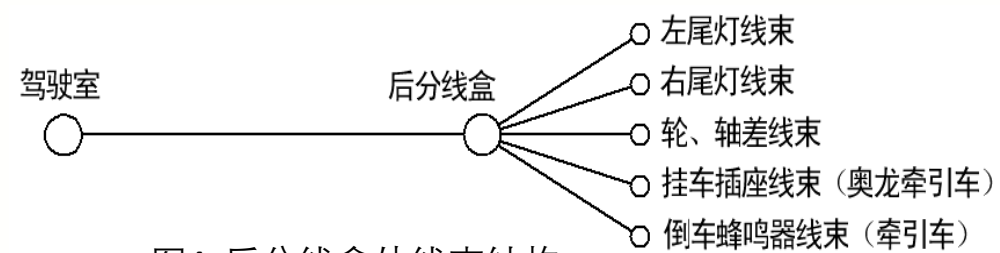
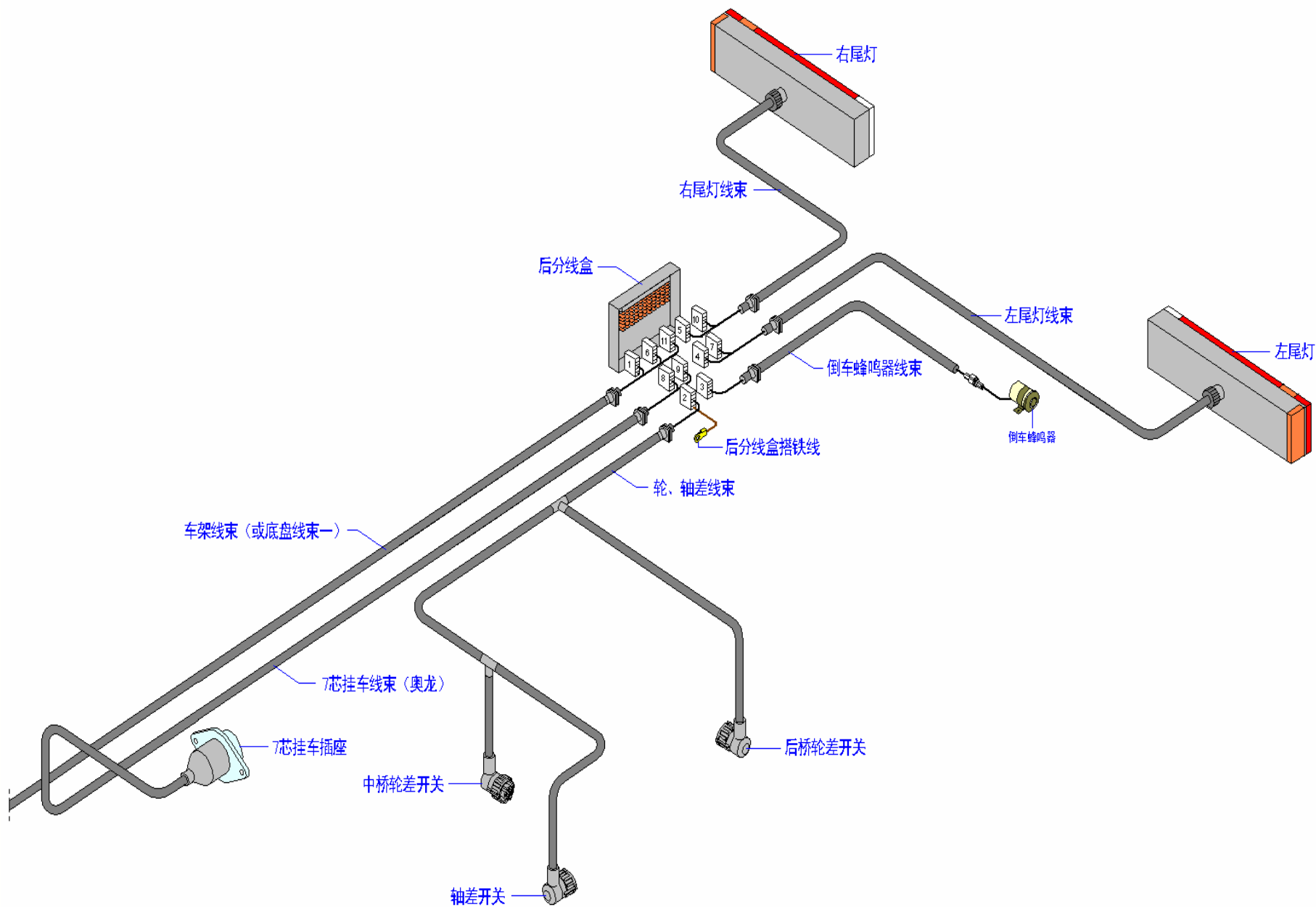


图4 后分线盒处线束结构





后分线盒内配电箱结构：

打开后分线盒盖，可以看见里面的配电箱，配电箱在原理图中编号是X12，配置有11个电器插接器插座，在其上方有数字标识，指的插接器的编号，如图中2号位置对应的插接器原理图编号为X12/2（实际插接器上只有对应的数字标识，如“2”）。

每个插接器插座有5个孔位，自上而下为1~5号孔位，在原理图中孔位对应的标记表示为X12/插接器编号/孔位编号，例如X12/1/1、X12/1/5、X12/3/5。配电箱内各端子的连接如图5所示，其中所有插接器纵向数最下面的一横行，即5号孔位都是连在一起的，这是搭铁端。

其搭铁端的连接方式有两种，一种是通过轮、轴差线束2号插接器的棕线接到后分线盒的安装螺栓上搭铁，另一种方式是通过车架线束（或底盘线束）1号插接器的棕线连接到蓄电池“-”极上（德龙F3000）。

Structure of the Distribution Box inside the Rear Distribution Box:

When you open the cover of the rear distribution box, you can see the distribution box inside. The distribution box is labeled as X12 in the schematic diagram and is equipped with 11 electrical connector sockets. Above each socket, there is a numerical identifier indicating the socket's number. For example, the socket at position 2 corresponds to the schematic diagram label X12/2 (on the actual connector, only the corresponding number label, such as "2," is present).

Each electrical connector socket has 5 holes, numbered from top to bottom as 1 to 5. In the schematic diagram, the markings corresponding to each hole are represented as X12/connector number/hole number, such as X12/1/1, X12/1/5, X12/3/5.

The connections of each terminal inside the distribution box are shown in Figure 5. All the terminals in the bottom row of each connector socket, i.e., the 5th hole, are connected together. This is the grounding terminal.

There are two methods for connecting the grounding terminal. One method is to connect the brown wire of the wheel and axle differential wiring harness's 2nd connector to the grounding bolt of the rear distribution box. The other method is to connect the brown wire of the chassis wiring harness (or chassis wiring harness) 1st connector to the negative terminal of the battery (for Delong F3000).



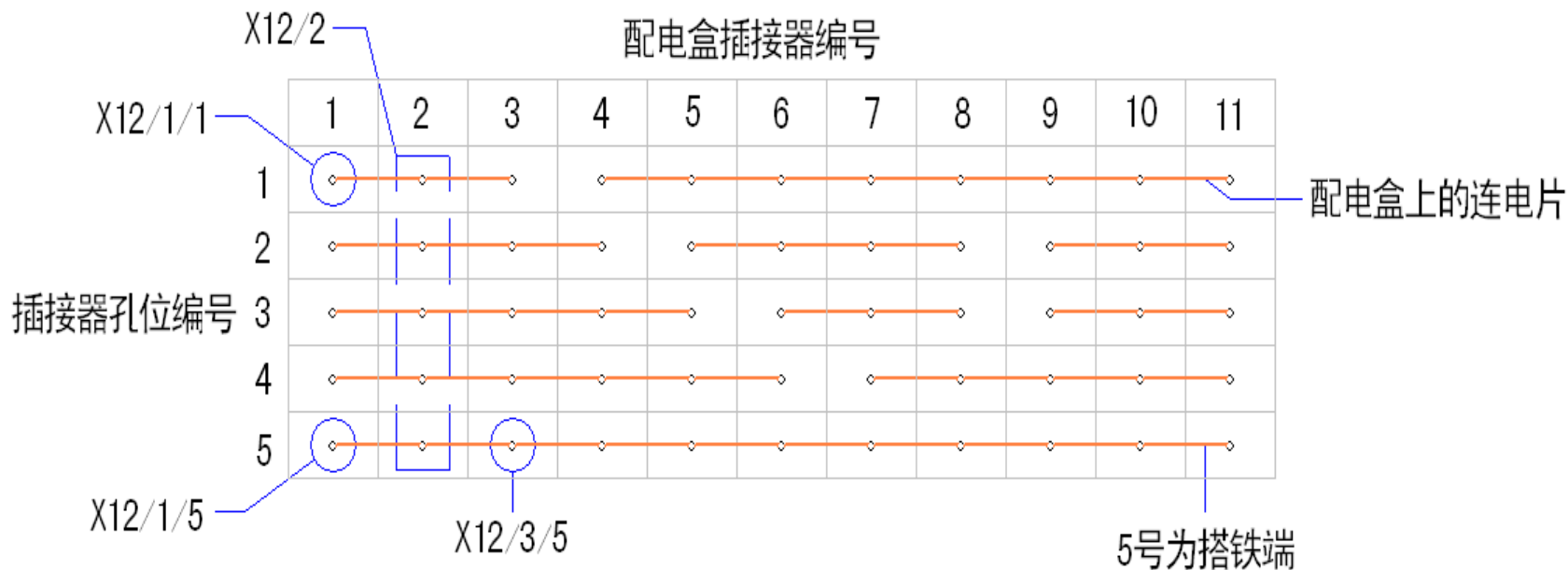


图5 后分线盒内配电箱

### 3.后分线盒的接线:

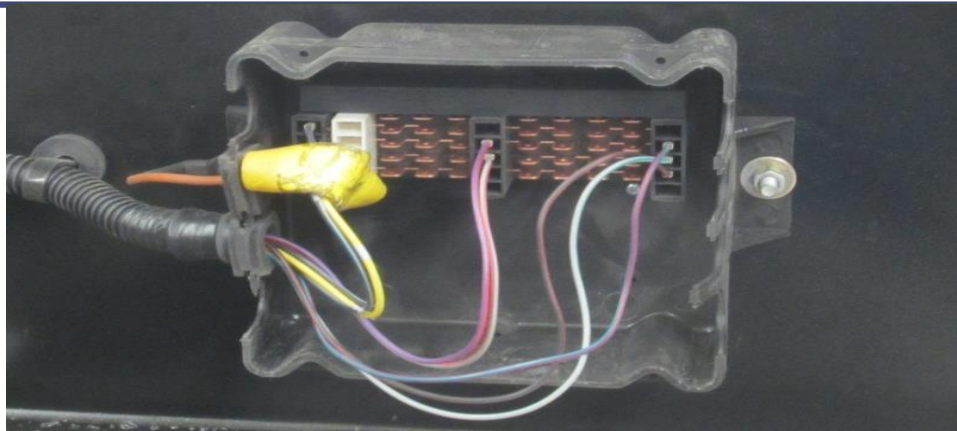
车架线束（或底盘线束）是分线盒的电源输入端，接后分线盒的1、6、11号孔位，各插接器功能如下：

#### Wiring of the Rear Distribution Box:

The chassis wiring harness (or chassis wiring harness) serves as the power input terminal of the distribution box, connecting to positions 1, 6, and 11 of the rear distribution box. The functions of each connector are as follows:







### 1号插接器:

第1个接线是棕蓝红LKA（轮差锁止信号）

第2个接线是棕蓝白LKC（轴差锁止信号）

第3个接线是黄绿白DFC（后雾灯输出）

第4个接线是黑白BC（倒车灯输出）

第5个接线是棕L（搭铁，仅德龙F3000连接）

### Connector 1:

- The first wire is brown-blue-red (LKA - Wheel Differential Lock Signal).
- The second wire is brown-blue-white (LKC - Axle Differential Lock Signal).
- The third wire is yellow-green-white (DFC - Rear Fog Light Output).
- The fourth wire is black-white (BC - Reverse Light Output).
- The fifth wire is brown (L - Grounding, connected only for Delong F3000).



### 6号插接器:

第2个接线是接线为紫红GA (右转向灯输出)

第3个接线是灰红EA (右位置灯输出)

### 11号插接器:

第2个接线是接线为紫绿GF (左转向灯输出)

第3个接线是灰绿EF (左位置灯输出)

第4个接线是黑红BA (制动灯输出)

### Connector 6:

The second wire is purple-red (GA - Right Turn Signal Output).

The third wire is gray-red (EA - Right Position Light Output).

### Connector 11:

The second wire is purple-green (GF - Left Turn Signal Output).

The third wire is gray-green (EF - Left Position Light Output).

The fourth wire is black-red (BA - Brake Light Output).



#### 4.左尾灯线束:

左尾灯线束是后尾灯分线盒的输出端，连接后分线盒的5、10孔位，其电路结构如图6所示。

5号插接器：第3个接线是黑黄BD（左后雾灯输出）、第4个接线是灰红EA（左倒车灯输出）。

10号插接器：第2个接线是紫绿GF（左转向灯输出）、第3个是接线灰绿EF（左位置灯输出）、第4个接线是黑红BA（左制动灯输出）。

#### Left Tail Light Wiring Harness:

The left tail light wiring harness is the output end of the rear tail light distribution box, connecting to positions 5 and 10 of the rear distribution box. Its circuit structure is illustrated in Figure 6.

#### Connector 5:

The third wire is black-yellow (BD - Left Rear Fog Light Output).

The fourth wire is gray-red (EA - Left Reverse Light Output).

#### Connector 10:

The second wire is purple-green (GF - Left Turn Signal Output).

The third wire is gray-green (EF - Left Position Light Output).

The fourth wire is black-red (BA - Left Brake Light Output).

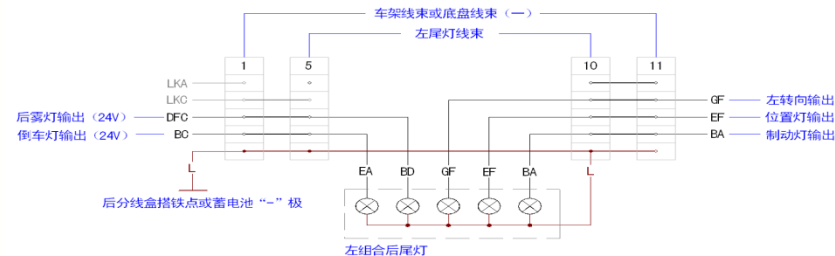


图 6 左尾灯线束电路图



5.右尾灯线束:

右尾灯线束是分线盒的输出端，连接后分线盒的4、7孔位，其电路结构如图7所示。

4号插接器：第3个接线是黑黄BD（右后雾灯输出）、第4个接线是灰绿EF（右倒车灯输出）。

7号插接器：第2个接线是紫绿GA（右转向灯输出）、第3个接线是灰红EA（右位置灯输出）第4个接线是黑红BA（右制动灯输出）。

Right Tail Light Wiring Harness:

The right tail light wiring harness serves as the output end of the distribution box, connecting to positions 4 and 7 of the rear distribution box. Its circuit structure is illustrated in Figure 7.

Connector 4:

The third wire is black-yellow (BD - Right Rear Fog Light Output).

The fourth wire is gray-green (EF - Right Reverse Light Output).

Connector 7:

The second wire is purple-green (GA - Right Turn Signal Output).

The third wire is gray-red (EA - Right Position Light Output).

The fourth wire is black-red (BA - Right Brake Light Output).

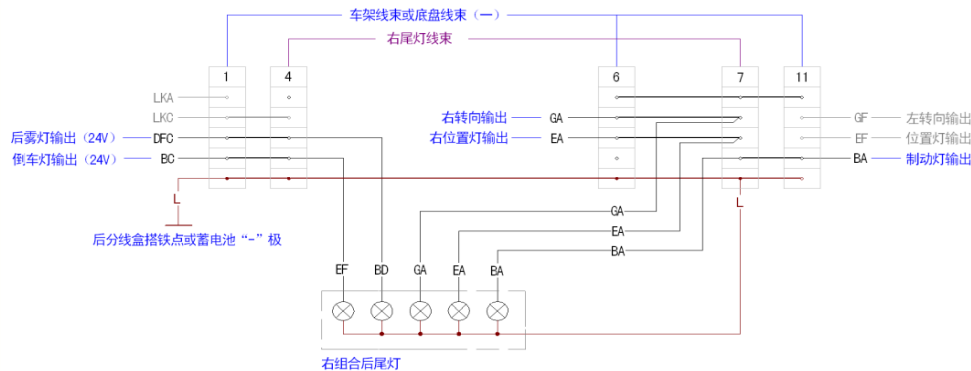


图 7右尾灯线束电路图





#### 4. 七组合后尾灯:

左、右组合后尾灯结构相似（左尾灯仅比右尾灯多了一个牌照灯），由内而外依次为倒车灯、后雾灯、后位置灯、制动灯、转向灯、示廓灯、牌照灯（左尾灯）。另外在尾灯后部和外侧还有反射器。各部分如图8所示。



图8 组合后尾灯（左）内各部分示意



图9 新式组合后尾灯

