SHACMAN 汽车电器知识培训

F2000-F3000

陕汽进出口公司服务部培训科

第三十课 德龙底盘部分电器线束尾部线束2

1.（单片式接头）轮差和轴差信号：

轮差和轴差线束主要负责向驾驶室线束提供轮/轴间差速锁止信号（搭铁信号）。用于点亮差速开关的信号灯。

轮/轴差锁止信号开关插接器有两种接线方式：一种是单接线片插接，信号开关靠外壳搭铁。其插接器位置如图1所示。线束连接如图2所示。

Combined Rear Tail Light Assembly:

The left and right combined rear tail light assemblies have similar structures (the left tail light has one additional license plate light compared to the right tail light). From inside to outside, they consist of the reverse light, rear fog light, rear position light, brake light, turn signal light, clearance light, and license plate light (only in the left tail light). Additionally, there are reflectors at the rear and outer sides of the tail light assembly. Each component is illustrated in Figure 8.

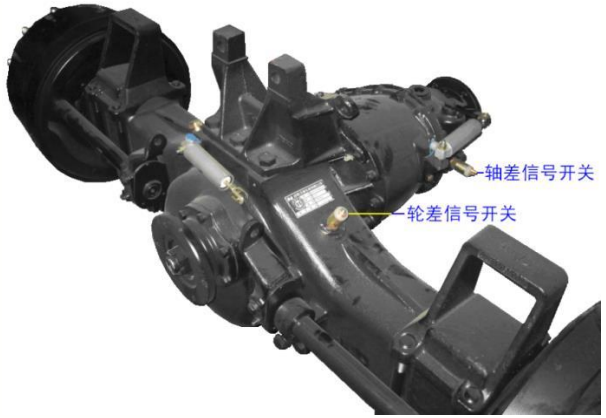
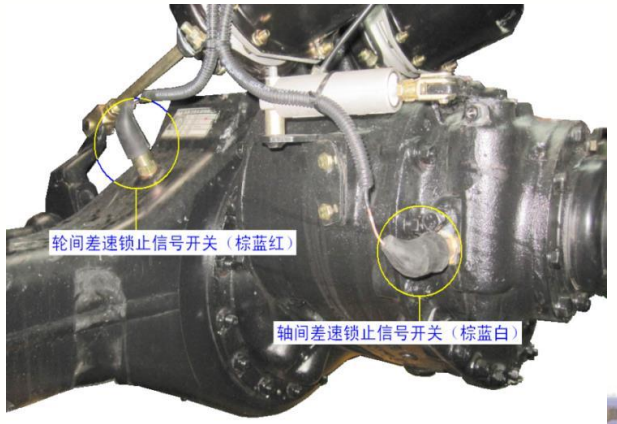


图1 单接线片式轮、轴差信号开关

图2 轮、轴差单接线片式信号开关与轮、轴差线束的连接



轮、轴差线束连接在后分线盒的2号插接器

2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）

图3 所示为单接头的轮、轴差线束接线图

Wheel and Axle Differential Wiring Harness is connected to Connector 2 of the Rear Distribution Box.

Connector 2:

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 wiring diagram for the single-head wheel and axle differential wiring harness is shown in Figure 3.

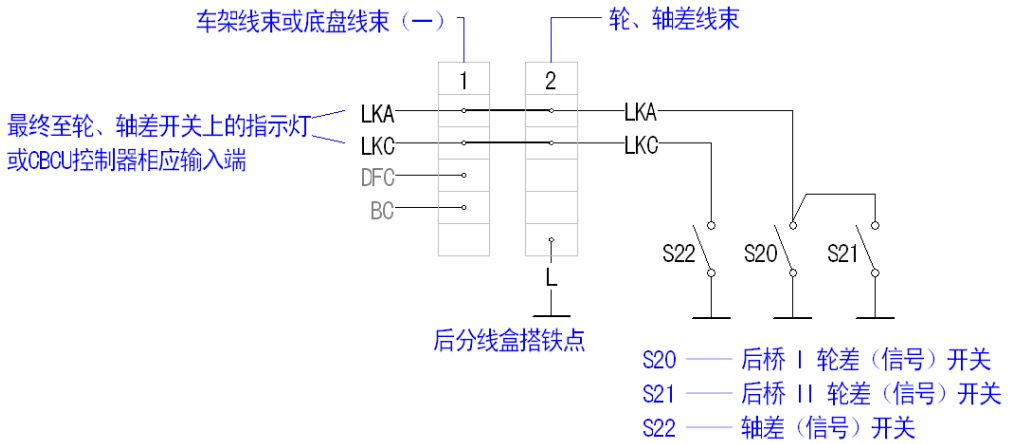


图3 单接头连接的轮、轴差线束电路图

2.锁紧螺帽式接头轮差和轴差信号：

另一种是带锁紧螺帽的插接器，开关两端均与线束连接，插接器位置如图4所示。线束连接如图5所示。

Locking Nut Type Connector for Wheel and Axle Differential Signals: Another type is the connector with locking nuts, where both ends are connected to the wiring harness. The position of the connector is illustrated in Figure 4. The wiring connection of the harness is shown in Figure 5.

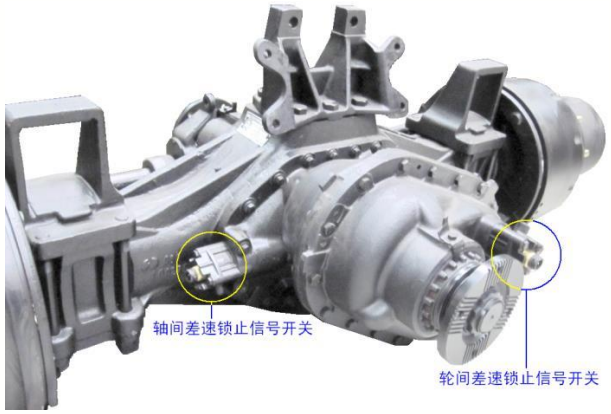


图4插接器连接方式

图5 插接器式信号开关与轮、轴差线束的连接

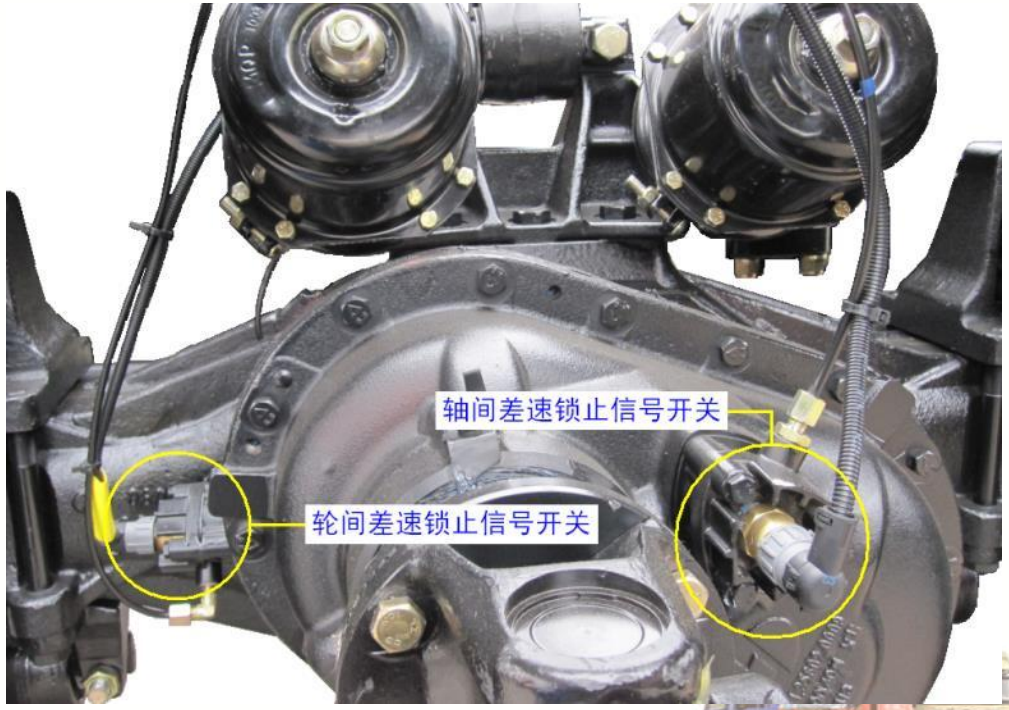


图6所示为插接器式轮、轴差线束接线图，后分线盒搭铁线取消，改为通过底盘线束1号插接器至蓄电池“-”极。

2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个接线是棕L（搭铁线）。

Figure 6 shows the wiring diagram for the connector-type wheel and axle differential wiring harness. The grounding wire connection through the rear distribution box is removed, and it is now routed through chassis wiring harness connector 1 to the negative terminal of the battery.

Connector 2:

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 brown (L - Grounding wire).

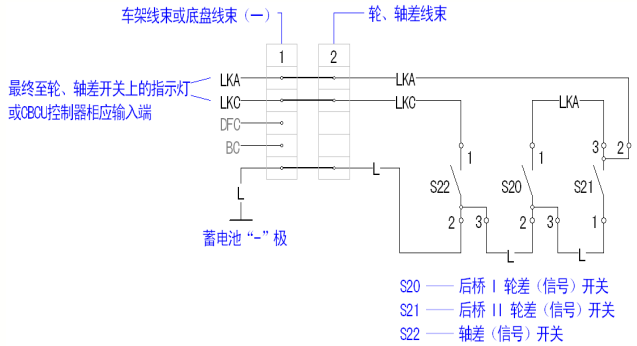
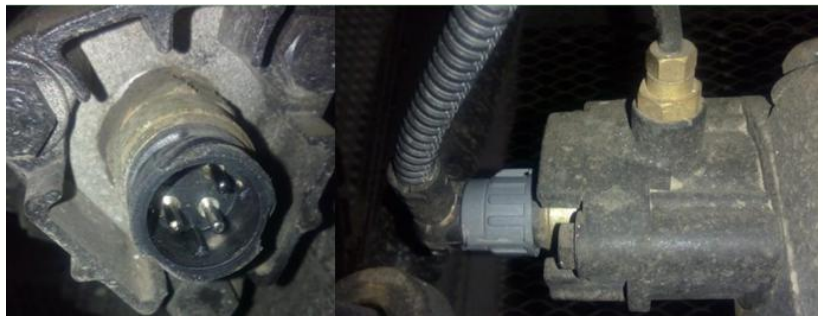


图6 插接器连接的轮、轴差线束电路图

注意：插接器式轮、轴差的信号开关，其接线方式为通过4孔圆插接器插接（实际使用了其中3个接线端子），其中图6中1号端子为信号开关的一端， 2号和3号端子共同连接信号开关另一端。即在轮、轴差的信号开关的内部，2号和3号端子是互相连接导通的。

Note: The wiring method for the signal switch of the plug-in type wheel and axle differential involves connecting through a 4-pin round plug connector (with only 3 of the terminals actually used). In Figure 6, terminal 1 is connected to one end of the signal switch, while terminals 2 and 3 are connected together to the other end of the signal switch. This means that inside the signal switch of the wheel and axle differential, terminals 2 and 3 are electrically connected to each other.



根据图6中轴差、轮差信号开关的电路特点，可以看到，它们的**每一个差速信号开关的2号和3号针脚都承担了传递信号通路的作用。**

S20轮差信号开关的2号和3号针脚，连接了整个差速电路的L搭铁线。

S21轮差信号开关的2号和3号针脚，连接了差速电路的LKA轮差开关信号线。

S22轴差信号开关的2号和3号针脚，连接了整个差速电路的L搭铁线。

所以，当某一个差速信号开关开路故障时，或者某一个差速信号开关没有连接，就会影响其他两个轴差、轮差信号开关的信号传递，造成三个差速信号开关都不亮的假象。

这里容易给我们带来误判断的困扰，提醒大家注意。

According to the circuit characteristics of the axle differential and wheel differential signal switches shown in Figure 6, it can be observed that the 2nd and 3rd pins of each differential signal switch serve the function of transmitting the signal path.

The 2nd and 3rd pins of the S20 wheel differential signal switch are connected to the ground line (L) of the entire differential circuit.

The 2nd and 3rd pins of the S21 wheel differential signal switch are connected to the LKA wheel differential switch signal line of the differential circuit.

The 2nd and 3rd pins of the S22 axle differential signal switch are connected to the ground line (L) of the entire differential circuit.

Therefore, when there is an open circuit fault in any one of the differential signal switches, or if any one of the differential signal switches is not connected, it will affect the signal transmission of the other two axle differential and wheel differential signal switches, creating the false impression that none of the three differential signal switches are lit.

This can easily cause confusion and lead to misjudgment, so please pay attention to this detail.

3.倒车蜂鸣器线束：

倒车蜂鸣器主要用于牵引车、自卸车在倒车行驶时的声音报警，便于提醒车辆后面的人员注意。

倒车蜂鸣器电路结构如图10所示。

3. Reversing Buzzer Wiring Harness:

The reversing buzzer is primarily used for sound alarms in tractors and dump trucks when reversing, to alert people behind the vehicle.

The circuit structure of the reversing buzzer is shown in Figure 10.

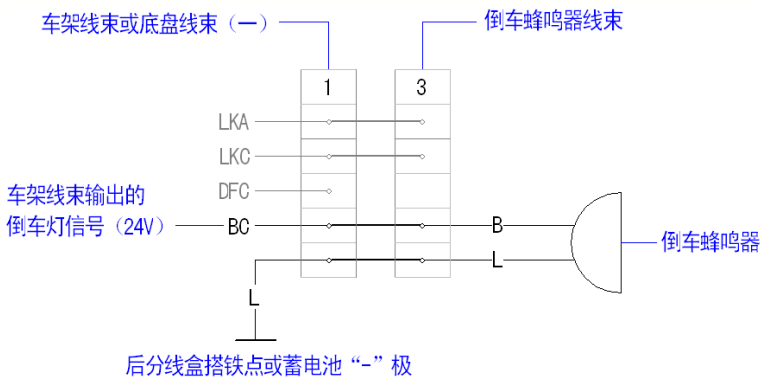


图10 倒车蜂鸣器线束电路图

倒车蜂鸣器线束：连接后分线盒的3号插接器。

3号插接器：

第4个接线是黑B（倒车灯信号）

第5个接线是棕L（搭铁线）。

Reversing Buzzer Wiring Harness:
The reversing buzzer wiring harness connects to the 3rd connector of the rear junction box.
3rd Connector:
The 4th terminal is black (B) for the reversing light signal.
The 5th terminal is brown (L) for the ground line.