SHACMAN 汽车电器知识培训

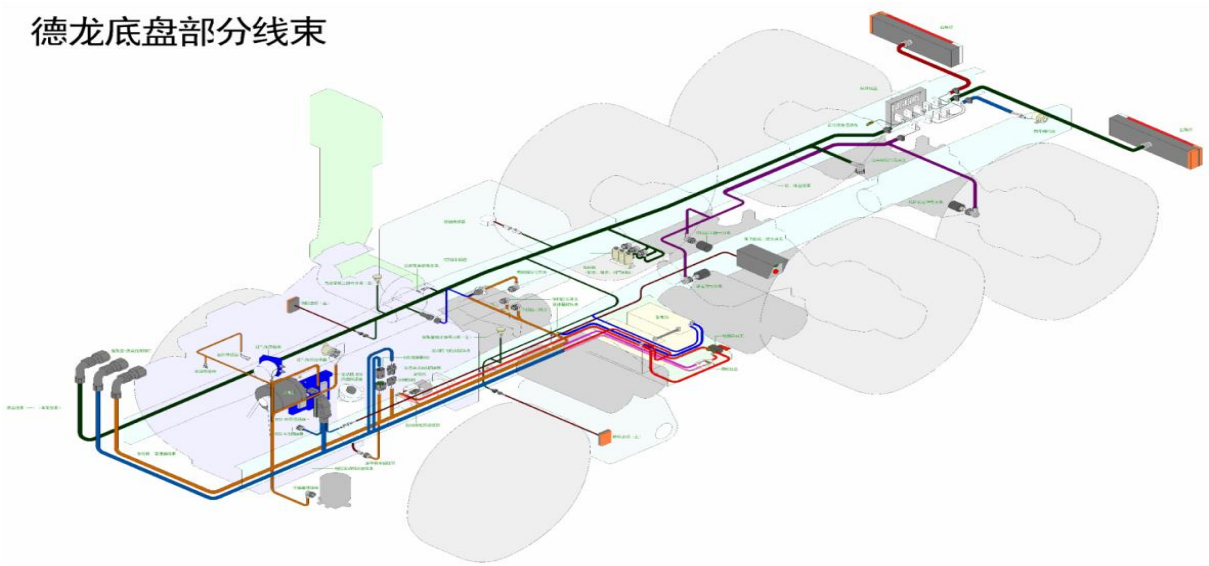
F2000-F3000

陕汽进出口公司服务部培训科

第二十八课 德龙底盘部分电器线束车架线束

德龙底盘线束主要包括**车架线束**（又称底盘线束一），**发动机、变速箱线束，电控发动机底盘线**（WP国三或康明斯发动机），**起动机线束，尾部线束，取力器线束**（自卸车等选用取力器的车型）等。

The Delong chassis wiring harness mainly includes the chassis harness (also known as chassis harness 1), engine and transmission harness, electronic control engine chassis harness (WP euro III or Cummins engine), starter harness, rear harness, power take-off harness (used for models such as dump trucks equipped with power take-off), etc.



1. 德龙车架线束：**车架线束**又称底盘线束（一），主要功能是向底盘输出尾灯信号，电磁阀控制信号，给驾驶室输入常火电源、驾驶室锁止信号，燃油油量信号，驻车制动信号，轮、轴差（锁止）信号，其线束结构如图1所示。

Delong Chassis Wiring Harness: The chassis wiring harness, also known as the primary chassis harness, primarily functions to transmit tail light signals and solenoid control signals to the chassis, and to input constant power supply, cab lock signals, fuel level signals, parking brake signals, and wheel and axle differential (lock) signals to the cab. The structure of the wiring harness is shown in Figure 1.

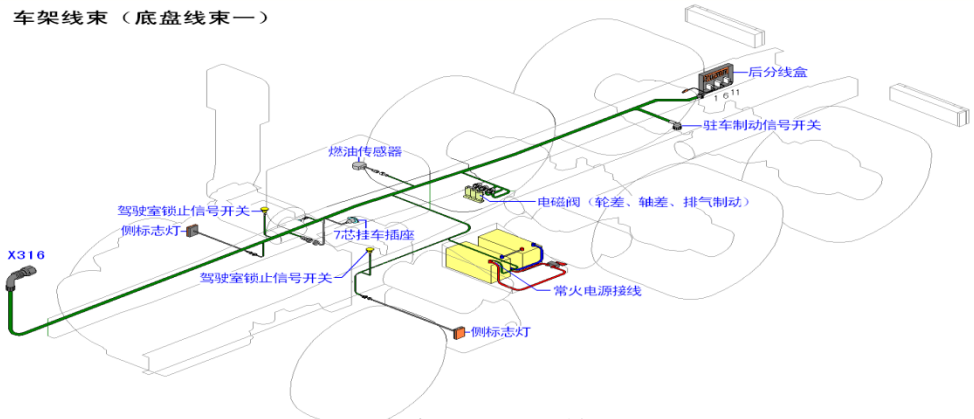


图1 车架线束结构

线束前端为44孔插接器X316，与驾驶室前端的驾驶室-底盘接口对接（见图2）。

The front end of the wiring harness is equipped with a 44-pin connector X316, which interfaces with the cab-chassis interface at the front end of the cabin (refer to Figure 2).

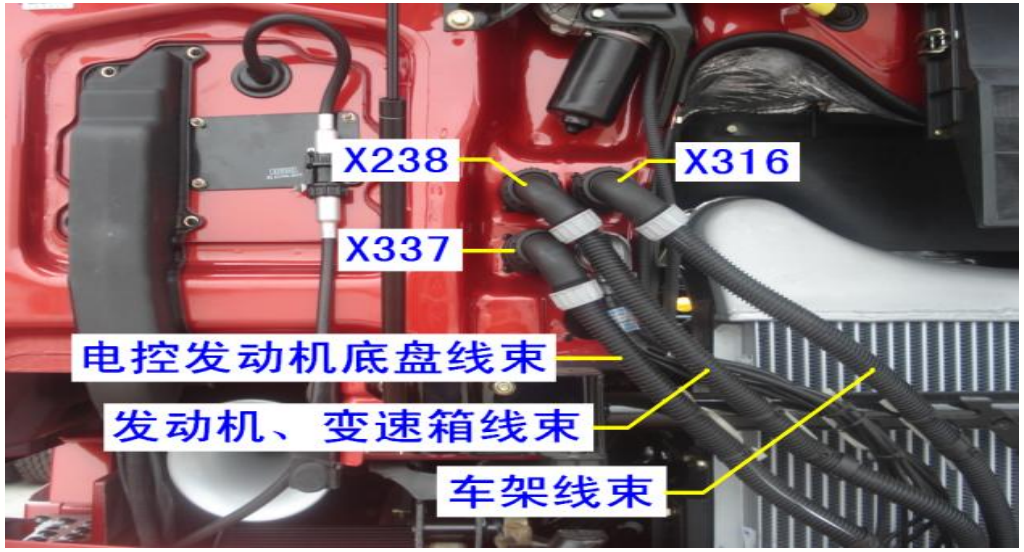


图2 驾驶室前端驾驶室-底盘接口的线束连接

插接时注意对准插头和插座的定位标记（见图3），将插接器上的锁紧螺帽锁紧后会感到锁紧螺帽轻跳一下并发出“嗒”的一声脆响，否则表明插接器还未插紧。插接器未插紧会导致在车辆行驶过程中插接器受振动脱落，从而导致电器设备无法正常工作。

When inserting, pay attention to align the positioning marks on the plug and socket (refer to Figure 3). After locking the locking nut on the connector, you should feel a slight jump of the locking nut and hear a crisp "click" sound, indicating that the connector is securely locked. If not, it means the connector is not fully inserted. Failure to fully insert the connector may cause it to come loose due to vehicle vibration during operation, leading to electrical equipment malfunction.

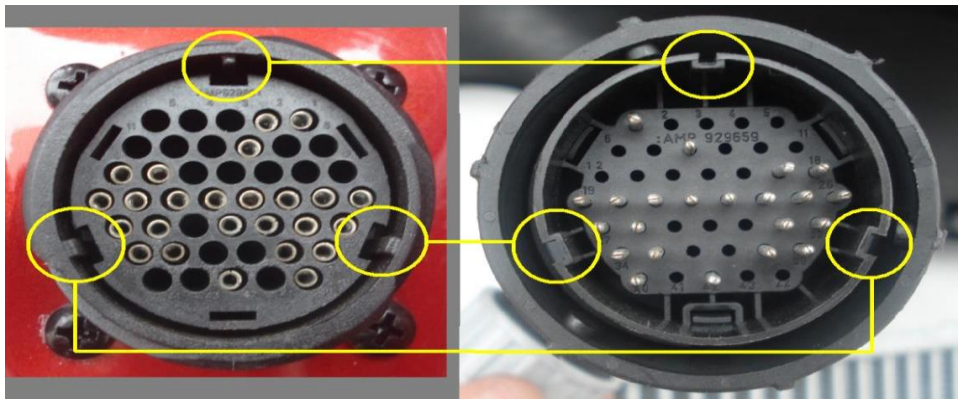


图3 X316插接器上的定位标记

2.驾驶室锁止信号开关和侧标志灯

线束的主干沿车架右纵梁敷设，向后依次接有侧标志灯（右），驾驶室锁止信号开关（右）。侧标志灯自带线束沿后翼子板支架敷设，到车架位置与车架线束上的插接器对接（接线颜色为灰绿/棕——左，灰红/棕——右）。驾驶室锁止信号开关安装在驾驶室后悬置上（如图4所示），其线束在驾驶室后悬置支架的钢管内部敷设，并在车架处与车架线束的对应插接器对接（接线颜色为蓝黄/棕）。驾驶室锁止信号开关和侧标志灯为左右对称布局。

Cab Lock Signal Switch and Side Marker Lights: The main harness is routed along the right longitudinal beam of the chassis. Successively connected to it are the side marker light (right) and the cab lock signal switch (right). The side marker light comes with its own harness routed along the rear fender bracket and connects to the connector on the chassis harness at the chassis position (wire colors are gray-green/brown for the left side and gray-red/brown for the right side). The cab lock signal switch is mounted on the rear suspension of the cab (as shown in Figure 4), with its harness routed inside the steel pipe of the cab rear suspension bracket and connected to the corresponding connector on the chassis harness at the chassis position (wire colors are blue-yellow/brown). Both the cab lock signal switch and side marker lights are symmetrically laid out for left and right sides.

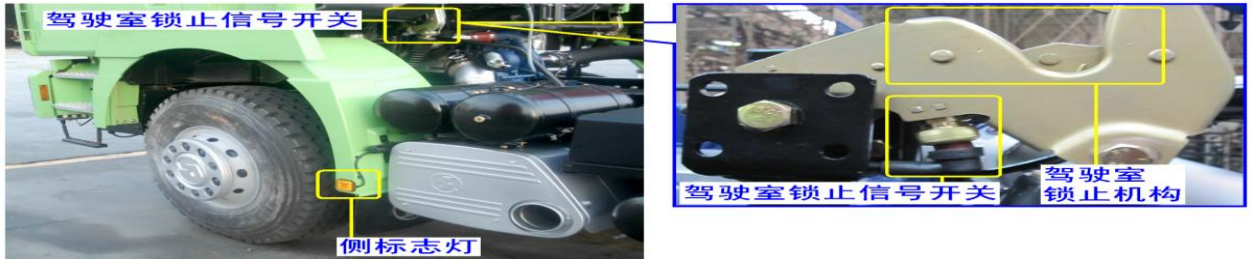


图4 侧标志灯及驾驶室锁止信号开关位置

3.7孔挂车插座：

车架线束继续向后是7孔挂车插座插接器（见图6），牵引车需安装7孔挂车插座。

7孔挂车插座的接线方法（见图5）。注意其7号位置，当牵引车时连接的是黑白线，是倒车灯功能。当非牵引车时连接的是黑黄线，是第三套制动灯功能。

7-pin trailer socket:

Continuing rearward along the chassis harness is the 7-pin trailer socket connector (refer to Figure 6). Towing vehicles need to install a 7-pin trailer socket.

The wiring method for the 7-pin trailer socket is shown in Figure 5. Pay attention to position 7: when connected to a towing vehicle, the black-white wire is for the reverse light function. When connected to a non-towing vehicle, the black-yellow wire is for the third set of brake light function.

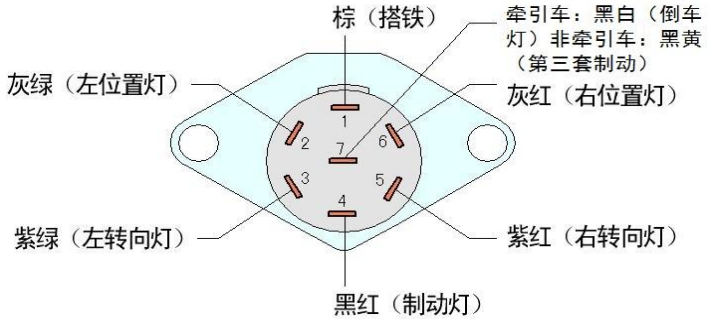


图5　7孔挂车插座的接线方法

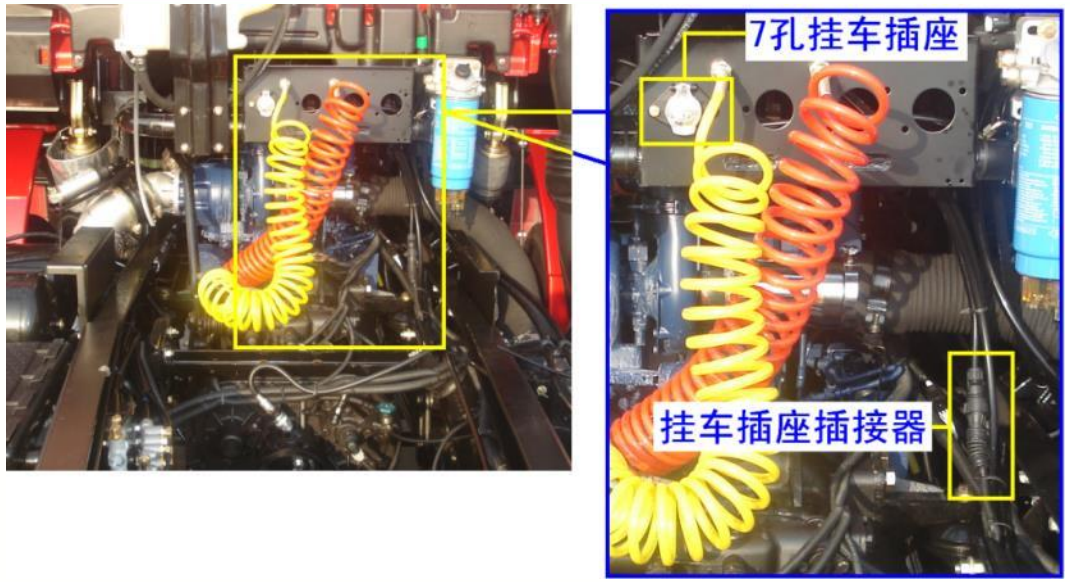
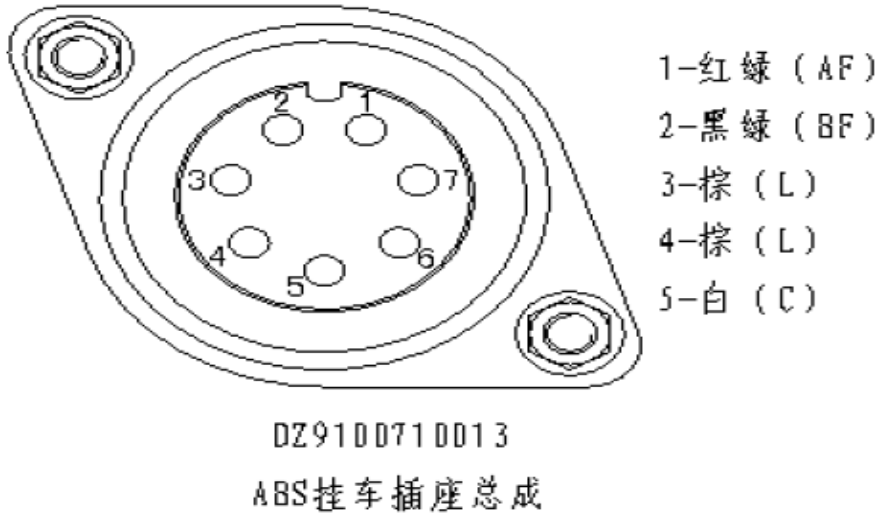


图6 挂车插座对接

图7 ABS挂车插座接线图



注意；此处有的牵引车还连接的有ABS挂车插座，连接的是挂车的ABS功能线束。ABS挂车插座是7孔插座，它的的接线方法见图7。

Note: Some towing vehicles also have connections to an ABS trailer socket, which is connected to the trailer's ABS function harness. The ABS trailer socket is a 7-pin socket, and its wiring method can be found in Figure

4.空滤堵塞信号开关

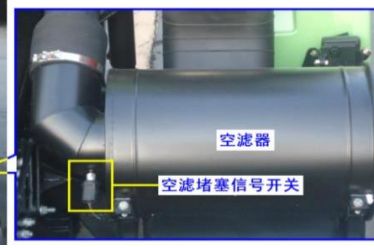
车架线束继续向后是空滤堵塞信号开关（见图8）接线和燃油传感器接线，空滤堵塞信号开关安装在空滤器上，接线有正负极性，“+”极接深蓝蓝线，“-”极接棕线。接错会导致空滤堵塞报警信号灯 常亮。

Air Filter Blockage Signal Switch:

Continuing rearward along the chassis harness are the connections for the air filter blockage signal switch (refer to Figure 8) and the fuel sensor. The air filter blockage signal switch is installed on the air filter, and the wiring has positive and negative polarity. The positive terminal is connected to the deep blue wire, while the negative terminal is connected to the brown wire. Incorrect connections can result in the air filter blockage warning light staying illuminated.

底盘线束敷设至变速箱位置，接左侧标志灯及左驾驶室锁止信号开关的线束从变速箱附近的横梁或过梁钢管敷设至左纵梁，并与左边的侧标志灯和驾驶室锁止信号开关对接。

The chassis wiring harness is laid to the transmission position, and the harnesses for the left side marker light and left cab lock signal switch are routed from the vicinity of the transmission's crossbeam or overbeam steel pipe to the left longitudinal beam. They are then connected to the left side marker light and the cab lock signal switch on the left side.



5.常火电源;（不受电源总开关控制的电源）接常火电源的红线，接蓄电池负极的搭铁线也和侧标志灯线一同敷设至左纵梁并穿入蓄电池箱，直接接在蓄电池“+”极接线柱上（如图9所示）。

Constant Power Supply:

The red wire for the constant power supply (not controlled by the main power switch) is connected. The grounding wire, which is connected to the negative terminal of the battery, is routed along with the side marker light wire to the left longitudinal beam and then enters the battery box. It is directly connected to the positive terminal of the battery on the terminal post (as shown in Figure 9).

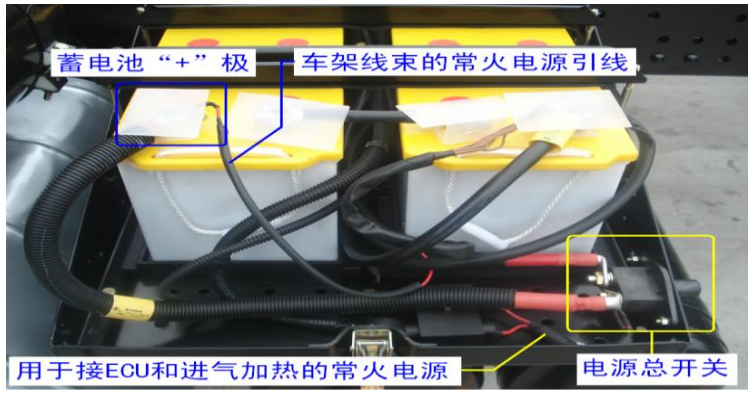


图9 德龙常火电源在蓄电池箱内的接线

注意：如果蓄电池接线柱上带有专门用于外接电线的耳朵的话，应把电线接到耳朵上（见图10左图），如果接线柱没有耳朵，则应把电线接到接线柱拧紧螺栓上（见图10右图）。

Note: If there are special ears on the terminal post of the battery specifically designed for external wiring, the wire should be connected to these ears (refer to the left image in Figure 10). If there are no ears on the terminal post, then the wire should be connected to the tightening bolt on the terminal post (refer to the right image in Figure 10).

图10 电线在蓄电池接线柱连接

6.电磁阀

底盘线束继续向后敷设，在变速箱后的横梁处与电磁阀对接（见图11），线束上有色标，与对应电磁阀接的气管色标一致。其对应关系为：

黄红色标——轮差电磁阀（Y145）——黑绿红/棕线
黄白色标——轴差电磁阀（Y150）——黑绿白/棕线
绿色标——排气制动电磁阀（Y102）——黑绿黄/棕蓝紫线（WP国三）或黑绿黄/棕线
白橙色标——取力器空档电磁阀（Y1）——黑绿/棕（取力器线束）
黄橙色标——取力器电磁阀（Y2）——黑绿紫/棕线（取力器线束）

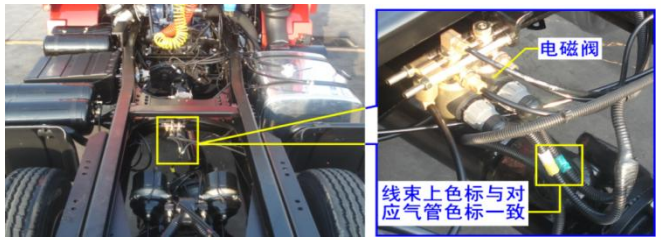


图11 电磁阀接线

注意：国三车型和其他车型排气制动电磁阀接线不同，如果国三车型错装了其他车型的车架线束，则会导致排气制动常工作。

Solenoid Valves: The chassis wiring harness continues rearward and interfaces with the solenoid valves at the crossbeam behind the transmission (refer to Figure 11). The harness is color-coded to match the corresponding air hose color-coding connected to the respective solenoid valve. The corresponding relationships are as follows:

Yellow-red color code — Differential lock solenoid valve (Y145) — Black-green-red/brown wire

Yellow-white color code — Axle lock solenoid valve (Y150) — Black-green-white/brown wire

Green color code — Exhaust brake solenoid valve (Y102) — Black-green-yellow/brown-blue-purple wire (for WP Euro III) or black-green-yellow/brown wire

White-orange color code — Power take-off neutral solenoid valve (Y1) — Black-green/brown (for power take-off harness)

Yellow-orange color code — Power take-off solenoid valve (Y2) — Black-green-purple/brown wire (for power take-off harness)

Note: There is a difference in the wiring for the exhaust brake solenoid valve between Euro III models and other models. If a Euro III model is mistakenly fitted with the chassis wiring harness of another model, it may cause the exhaust brake to operate continuously.