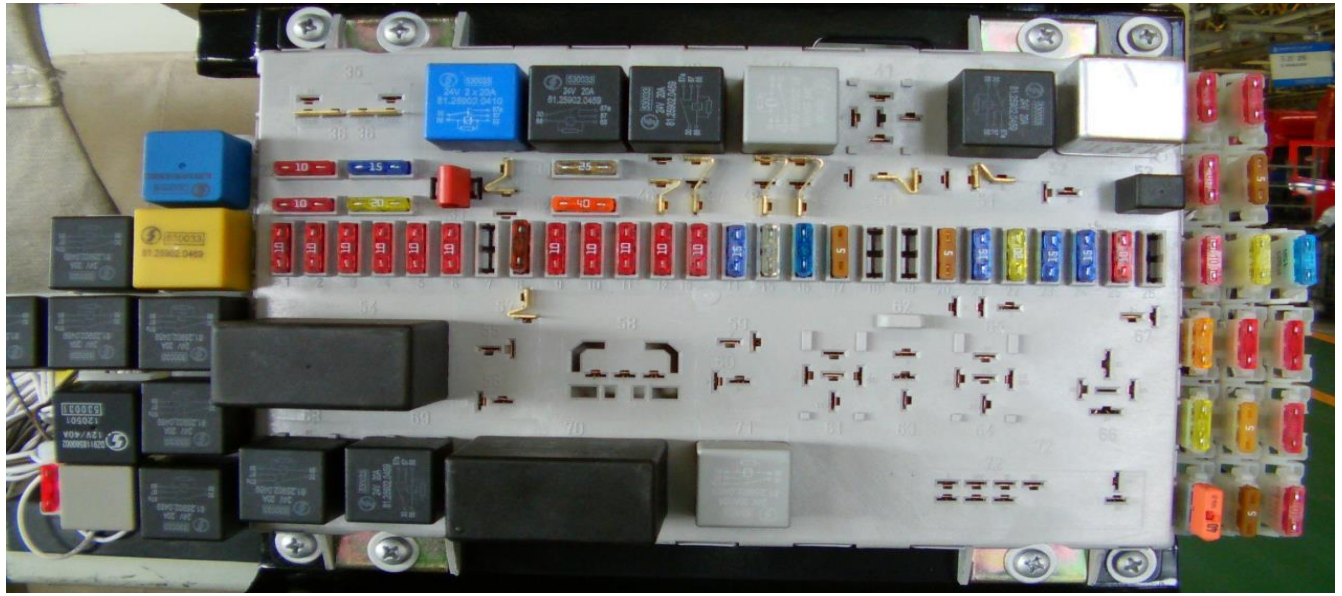
第六课 电器装置板的继电器
Lesson Six: Relays on the Electrical Control Unit

继电器：在各个继电器内部结构设计上，普遍采用了过压、过流自保护功能，将控制器的继电器采用外置方式，可以快速更换维修，提高了控制器的可靠性，延长了工作寿命。

Relays: In the design of the internal structure of relays, overvoltage and overcurrent self-protection functions are widely adopted. By using an external mounting method for the relays of the controller, they can be quickly replaced and repaired, improving the reliability of the controller and extending its service life.

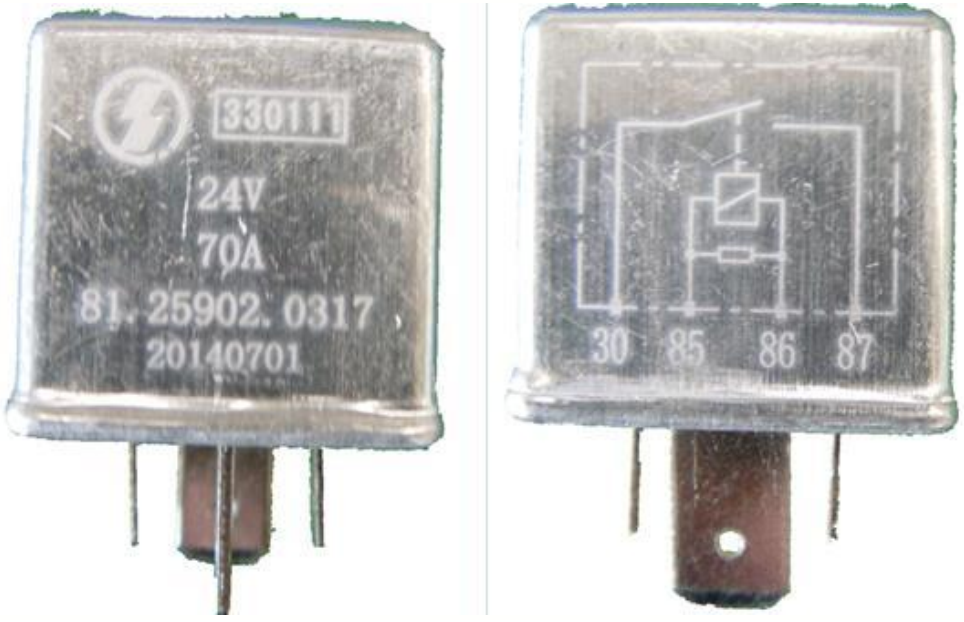


43#负载继电器：81.25902.0317，负载继电器用于T15-钥匙电源输出，当此继电器缺装或故障时会表现出整车没电（没有钥匙电源）故障。此处负载继电器的30端电源是通过电器装置板后面的91位置常电提供的。负载继电器是否吸合，是由线圈控制端，即85端和86端之间的电压控制的，这里的85端已经连接到31000即搭铁端，86端的控制端输入是由钥匙开关的6号端子通过15002线从电器装置板后面的89-7位置传递的。只要钥匙开关打开，15002线立即把24V控制信号输入到负载继电器86端，负载继电器就吸合。

43# Load Relay, 81.25902.0317, used for T15 - key power supply output. When this relay is missing or faulty, the entire vehicle will exhibit a power failure (no key power supply) fault. The power supply for the 30 terminal of this load relay is provided through the constant power at position 91 on the electrical device board. Whether the load relay is energized depends on the voltage between its coil control terminals, namely the 85 terminal and the 86 terminal. Here, the 85 terminal is already connected to 31000, that is, the auxiliary iron terminal, while the control terminal input of the 86 terminal is transmitted from the 6th terminal of the key switch through the 15002 wire from the 89-7 position at the back of the electrical device board. As long as the key switch is turned on, the 15002 wire immediately inputs a 24V control signal to the 86 terminal of the load relay, and the load relay will be energized.

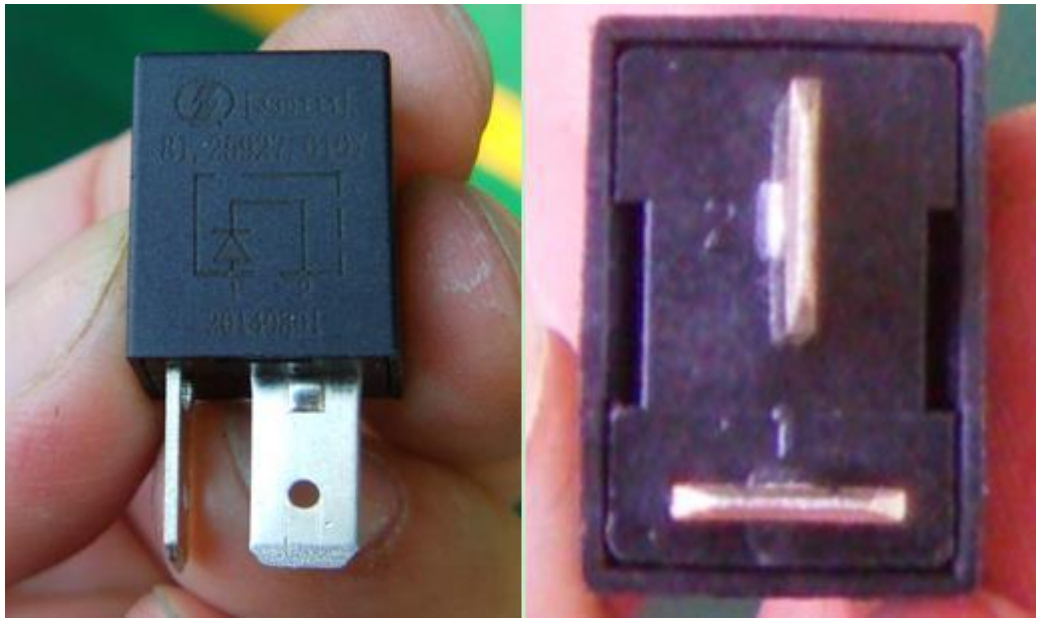
43#负载继电器的**电流输出**有很多，（就是T15电-钥匙电）是由负载继电器87端通过电器装置板内部传递到各个保险丝和继电器，还有通过电器装置板后面的**94号接线柱**，可以连接钥匙电源输出。但是此处94接线柱的钥匙电没有经过如何保险丝，在此处取电一定要加装一定容量规格的保险丝。

The current output of the 43# load relay is distributed to various fuses and relays through the 87 terminal of the load relay via internal connections on the electrical device board, as well as through terminal 94 at the back of the board, which can be connected to the key power output. However, the key power at this terminal 94 is not protected by any fuse. Therefore, when drawing power from this terminal, it is essential to install a fuse of a certain capacity and specification.



53#V100，二极管，针对整车电气线路，增加了此处二级管，用于对T15钥匙电的输出线路抗干扰和对负载进行保护。否则某些线圈的电感性负载在工作断开的一瞬间会产生较高的感生电动势（200伏）对电器系统产生破坏。

53# V100, diode, is added to the entire vehicle electrical circuit to protect the T15 key power output line from interference and to protect the load. Otherwise, certain coil inductive loads will generate high induced electromotive force (200 volts) at the moment of disconnection, causing damage to the electrical system.

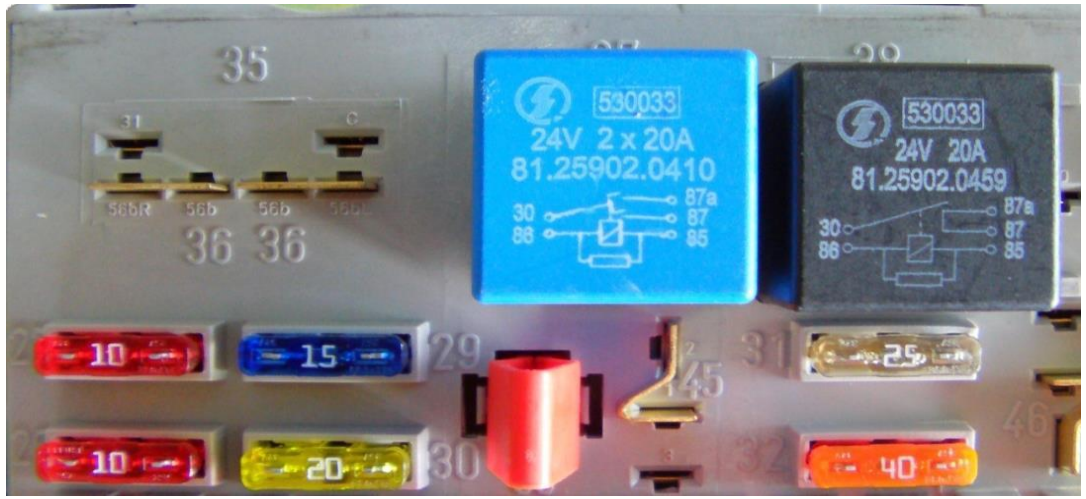


37#位置灯继电器：81.25902.0410，控制示高灯、示宽灯、侧标志灯、尾灯内的位置灯等的电源，即驾驶室外部的小灯。此处位置灯继电器缺装会导致上述位置灯无法点亮。此处位置灯继电器的30端电源是通过电器装置板后面的90位置常电提供的。位置灯继电器是否吸合，是由线圈控制端，即85端和86端之间的电压控制的，这里的86端已经连接到31000即搭铁端，85端的控制端输入是由灯光总开关S111的3号端子通过58001线从电器装置板后面的86-3位置传递的。只要灯光总开关打开到小灯1档，58001线立即把24V控制信号输入到位置灯继电器85端，位置灯继电器就吸合。

37# Position Lamp Relay, 81.25902.0410, controls the power supply to position lamps such as high-mount lamps, width indicator lamps, side marker lamps, and tail lamps, which are the small lamps on the exterior of the cab. The absence of this position lamp relay will result in the aforementioned position lamps failing to illuminate. The 30 terminal power supply of this position lamp relay is provided through constant power at position 90 on the electrical equipment board. Whether the position lamp relay is energized is controlled by the voltage between the coil control terminals, namely terminals 85 and 86, where terminal 86 is already connected to ground terminal 31000. The control terminal input of terminal 85 is provided by terminal 3 of the light switch S111 via wire 58001 from position 86-3 on the electrical equipment board. As long as the light switch is turned on to the position lamp 1 position, wire 58001 immediately inputs a 24V control signal to terminal 85 of the position lamp relay, causing it to energize.

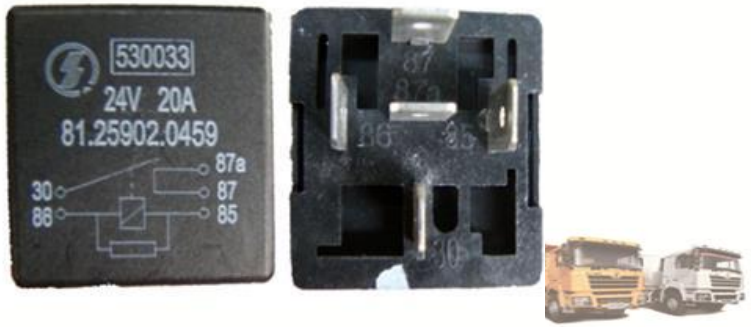
37#位置灯继电器的电流输出有两路，第一路是由位置灯继电器87b端子通过5号保险丝（右位置灯、驻车灯保险丝）传递到各个示高灯、示宽灯、侧标志灯、尾灯内的位置灯等。第二路是由位置灯继电器87端子通过6号保险丝（左位置灯、驻车灯保险丝）传递到各个示高灯、示宽灯、侧标志灯、尾灯内的位置灯等。

The current output of the 37# position lamp relay has two paths. The first path is from terminal 87b of the position lamp relay, passing through fuse 5th (right position lamp, parking lamp fuse), and then supplying power to various position lamps including high-mount lamps, width indicator lamps, side marker lamps, and tail lamps. The second path is from terminal 87 of the position lamp relay, passing through fuse No. 6 (left position lamp, parking lamp fuse), and then supplying power to various position lamps including high-mount lamps, width indicator lamps, side marker lamps, and tail lamps.



38#内部照明/雾灯电源继电器：81.25902.0459，控制驾驶室内仪表夜显照明电源及雾灯电源输出58000仪表照明电，缺装会导致没有仪表夜显照明，雾灯无法点亮故障。此处仪表照明继电器的30端电源是通过电器装置板后面的90位置常电提供的。仪表照明继电器是否吸合，是由线圈控制端，即85端和86端之间的电压控制的，这里的85端通过45号位置的黄铜连接片与31000搭铁端连通，86端的控制端输入是由灯光总开关S111的3号端子通过58001线从电器装置板后面的86-3位置传递的。只要灯光总开关打开到小灯1档，58001线立即把24V控制信号输入到仪表照明继电器86端，仪表照明继电器就吸合。

The 38# interior lighting/fog lamp power relay, with part number 81.25902.0459, controls the dashboard night illumination power and fog lamp power output of 58000. The absence of this relay will result in no dashboard night illumination and failure to light the fog lamp. The 30-terminal power supply of the dashboard illumination relay is provided through fuse No. 90 at the rear of the electrical device board. The engagement of the dashboard illumination relay is controlled by the voltage between coil control terminals, namely 85 and 86. Terminal 85 is connected to the common terminal 31000 via a brass connecting piece at position 45. The control terminal input of terminal 86 is provided by terminal 3 of the light switch S111 through wire 58001, transmitted from position 86-3 at the rear of the electrical device board. As long as the light switch is set to the first position for small lamps, wire 58001 immediately inputs a 24V control signal to terminal 86 of the dashboard illumination relay, causing the relay to engage.



38#内部照明/雾灯电源继电器的**电流输出**有三路，第一路是由仪表照明继电器87端子经过**9号保险丝**（仪表板照明和开关照明保险丝）从电器装置板后面的86-2位置经过58000线传递到分电器X644和X364等，作为各仪表、开关的夜光照明。第二路是由仪表照明继电器87端子经过**10号保险丝**（前雾灯和后雾灯保险丝）从电器装置板后面的87-8位置经过56005线传递到雾灯开关S555的7号端子，作为前、后雾灯的控制电源。第三路是由仪表照明继电器87端子经过10号保险丝（前雾灯和后雾灯保险丝）从电器装置板内部的传递到39号位置前雾灯继电器和40号位置雾灯控制继电器，作为前雾灯继电器的30电源使用。

The 38# interior lighting/fog lamp power relay has three current output paths. The first path is from terminal 87 of the dashboard illumination relay, passing through fuse No. 9 (instrument panel illumination and switch illumination fuse), then through wire 58000 from position 86-2 at the rear of the electrical device board, and finally transmitted to distribution units X644 and X364, providing night illumination for various instruments and switches. The second path is from terminal 87 of the dashboard illumination relay, passing through fuse No. 10 (front fog lamp and rear fog lamp fuse), then through wire 56005 from position 87-8 at the rear of the electrical device board, and finally transmitted to terminal 7 of fog lamp switch S555, serving as the control power supply for the front and rear fog lamps. The third path is from terminal 87 of the dashboard illumination relay, passing through fuse No. 10 (front fog lamp and rear fog lamp fuse), then internally within the electrical device board, and finally transmitted to position 39 for the front fog lamp relay and position 40 for the fog lamp control relay, providing power for the front fog lamp relay.

继电器电路图　　继电器底部的接线端子

常开式继电器