

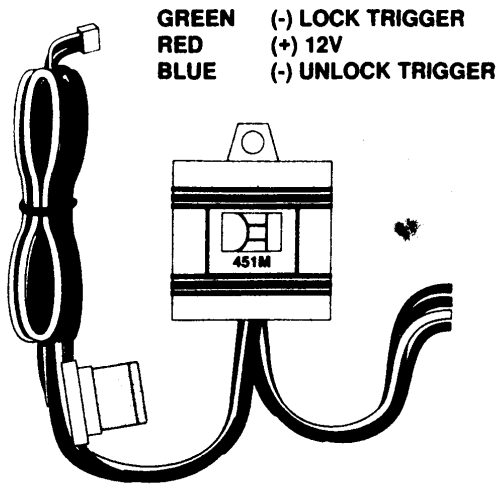


SECURITY & CONVENIENCE COMPONENTS

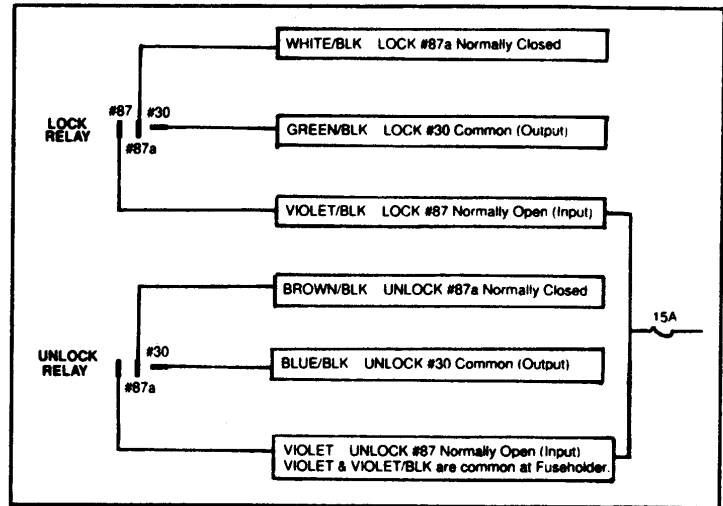
451M MICRO DOORLOCK RELAY MODULE

INTERFACES WITH ALL REMOTE CONTROL SYSTEMS WITH (-) PULSED DOOR LOCK OUTPUTS

3-PIN PLUG INTERFACE WITH DEI® SYSTEM



BUILT IN RELAY WIRING HARNESS



The door lock relay module will interface with most electric power door lock systems drawing 30 amps or less, both relay-controlled and direct-wired reversing-polarity types. It can also drive aftermarket door lock actuators, which must be added in the driver's door of Saabs, Volvos, most Mazdas and Subarus, and pre-1985 Mercedes-Benz and Audi vehicles, among others. It can also directly operate post-1985 Mercedes-Benz and Audi vacuum-driven systems if driven by a system with selectable-duration pulses. (Three-second minimum required.)

Identifying the door lock switch system:

The easiest way to determine what type of door lock system you are working with is to remove the master locking switch itself, which is usually on the driver's door or on the center console. Once you have determined which type of factory door lock circuit you are working with, and the color codes of the switch wires to be used, you can usually simplify the installation by locating the same wires in the vehicle's kickpanel.

NOTE: The wires should be re-tested at this point to be sure they work the same at the kickpanel. If no central locking switch is found, the installation may require a door lock actuator.

There are five different types of common door lock circuits (some vehicles use more unusual systems):

Type A Three-wire (+) 12V pulse controlling factory lock relays

Type B Three-wire (-) ground pulse controlling factory lock relays

Type C Directly-wired (no factory relays) reversing-polarity switches

Type D Aftermarket-actuator-driven systems. These include slave systems without an actuator in the driver's door, but with factory actuators in all the other doors, since these can be controlled with the installation of an aftermarket actuator.

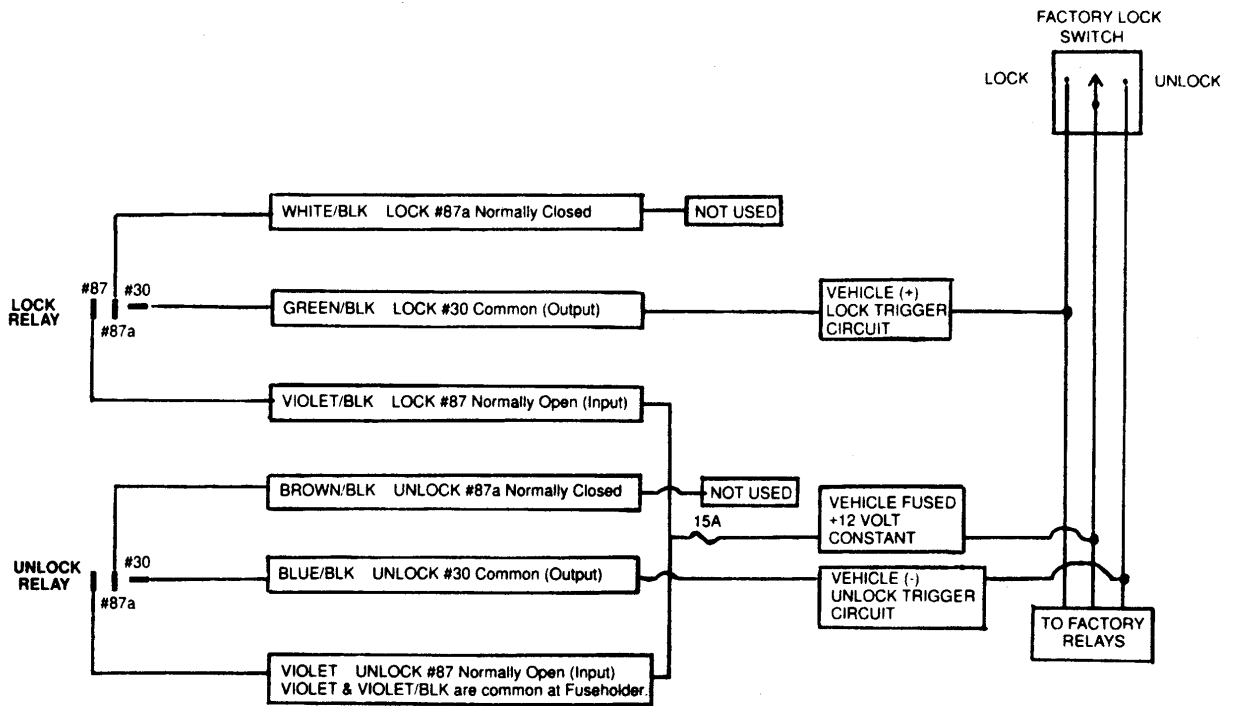
Type E Electrically-activated vacuum systems (Mercedes-Benz and Audi 1985 and newer). This requires special programming of the system.

NOTE: This is only possible with systems with selectable duration lock pulses. (Three-second minimum required).

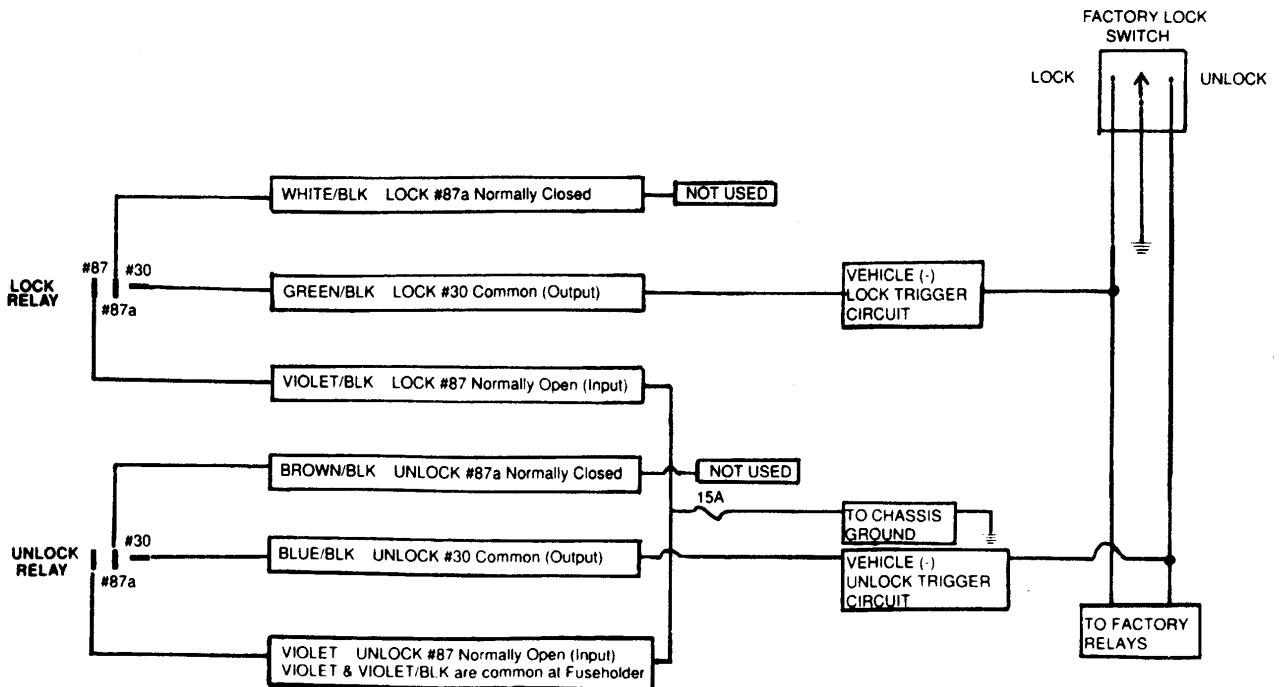
At the switch:

- Three-wire switches will have either a constant ground input or a constant (+)12V input, along with the pulsed lock and unlock outputs to the factory relays.
- Direct-wired switches will have a (+) 12V constant input and one or two (-) ground inputs, along with two output leads going directly to the motor.

WIRING DIAGRAM A: (+)12V pulses driving factory relays.

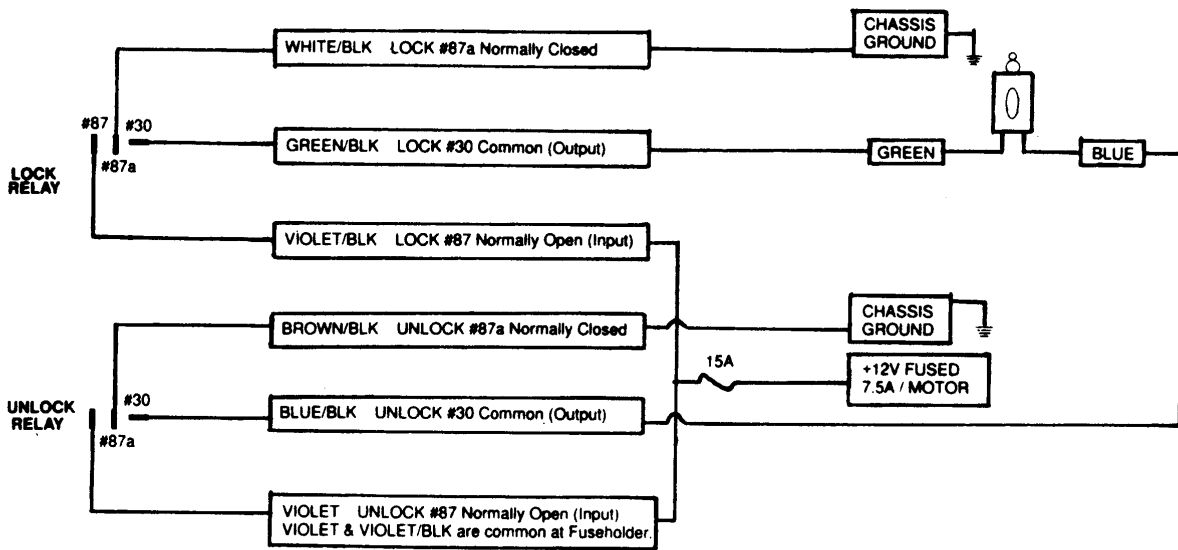


WIRING DIAGRAM B: (-) negative ground pulses driving factory relays.



WIRING DIAGRAM D: AFTERMARKET ACTUATORS

Vehicles without factory power door locks require the installation of one actuator per door. This requires mounting the door lock actuator inside the door. Other vehicles may only require one actuator installed in the driver's door if all door locks are operated when the driver's lock is used.



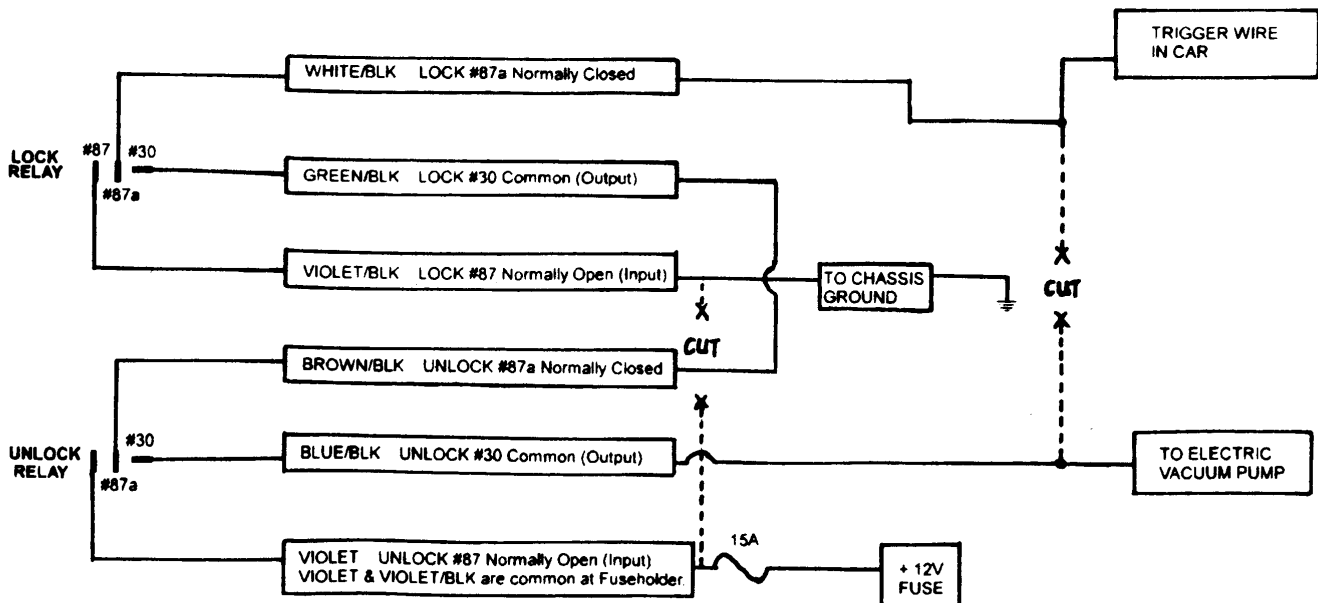
WIRING DIAGRAM E: MERCEDES-BENZ AND AUDI

In Mercedes-Benz and Audi vehicles manufactured in 1985 and later, the door locks are controlled by an electrically activated vacuum pump. This can be controlled by certain security systems if the following wiring scheme is followed and the system is programmed for Mercedes/Audi lock pulse lengths.

IMPORTANT! Remember that the violet jumper between the #87 lock terminal and the #87 unlock terminal must be cut.

The wire to be cut and interrupted in these cars will test to be resting at (-) ground when the doors are locked, and rest at (+)12V when the doors are unlocked.

This wire can be found in either kick panel in the Mercedes-Benz. It is blue in the driver's kick panel and green in the passenger kick panel. In Audis, the driver's side wire is often green/blue or green/red.



Directed Resistor Interface Pack

The Directed Resistor Interface Pack is an assortment of resistors used to interface with most of today's multiplexed circuits.

When using the Directed Resistor Interface Pack, some circuits may require a different resistance value than the resistors supplied. If necessary, different resistance values may be obtained by combining the resistors in a parallel or series connection, both of which will provide different values.

For example, if the 620 OHM resistor and the 660 OHM resistor are wired in parallel, the value is 320 OHMS. The same resistors wired in a series configuration will produce a value of 1280 OHMS. This allows greater flexibility with more values to use while interfacing with the multiplexed systems of today's vehicles.

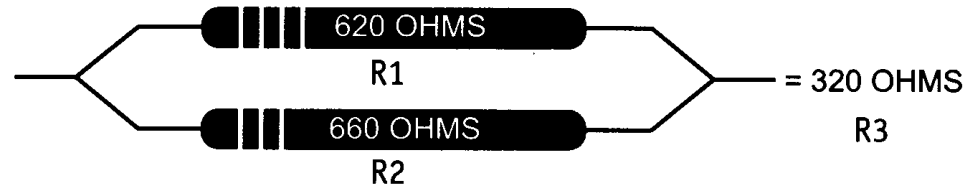
Series Connection

In a series connection, the end value is the sum of Resistor 1 (R1) and Resistor 2 (R2). I.e., $R1 + R2 = R3$.



Parallel Connection

In a parallel connection, the end value is determined by Resistor 1 (R1) multiplied by Resistor 2 (R2). That total is then divided by the sum of R1 and R2. I.e., $\frac{(R1 \times R2)}{(R1 + R2)} = R3$



Please refer to DirectFax Doc. 1041.

Resistor Values

Resistor Value (OHMS)	Colors
249	Red, Yellow, White, Black, Brown
330	Orange, Orange, Brown, Gold
365	Orange, Blue, Green, Black, Brown
390	Orange, White, Brown, Gold
430	Yellow, Orange, Brown, Gold
470	Yellow, Violet, Brown, Gold
487	Yellow, Gray, Violet, Black, Brown
560	Green, Blue, Brown, Gold
620	Blue, Red, Black, Black, Brown
665	Blue, Blue, Green, Black, Brown
750	Violet, Green, Brown, Gold
820	Gray, Red, Brown, Gold
867	Gray, Blue, Violet, Black, Brown
931	White, Orange, Brown, Black, Brown
1000	Brown, Black, Red, Gold
1200	Brown, Red, Red, Gold
1500	Brown, Green, Red, Gold
1870	Brown, Gray, Violet, Brown, Brown
2000	Red, Black, Red, Gold

2700	Red, Violet, Black, Brown, Brown
3000	Orange, Black, Red, Gold
4020	Yellow, Black, Red, Brown, Brown
4700	Yellow, Violet, Red, Gold
5360	Green, Orange, Blue, Brown, Brown
7150	Violet, Brown, Green, Brown, Brown
7500	Violet, Green, Red, Gold
9100	White, Brown, Red, Gold

Vehicle Applications

Vehicle	Polarity	Lock	Unlock	Arm	Disarm
'96 Caravan, Voyager, and Town & Country	(-)	1500 ohm	250 ohm	4,020 ohm	665 ohm
'95 and up Stratus, Cirrus, and Breeze	(+)		1,500 ohm		
'89 and up Probe	(+)		4,700 ohm		
'95 and up Millenia	(-)		1,000 ohm		
'99 Alero and Grand Am	(-)		1,500 ohm		
'98 and up LHS, 300M, Concorde, and Intrepid	(+)	2,700 ohm	620 ohm		