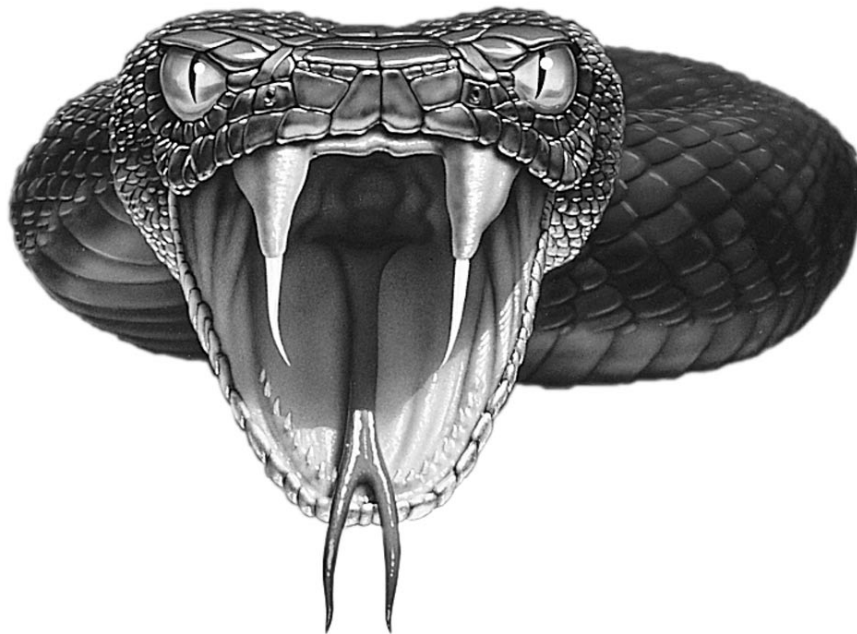


VIPER®



150 ESP 9J-0H

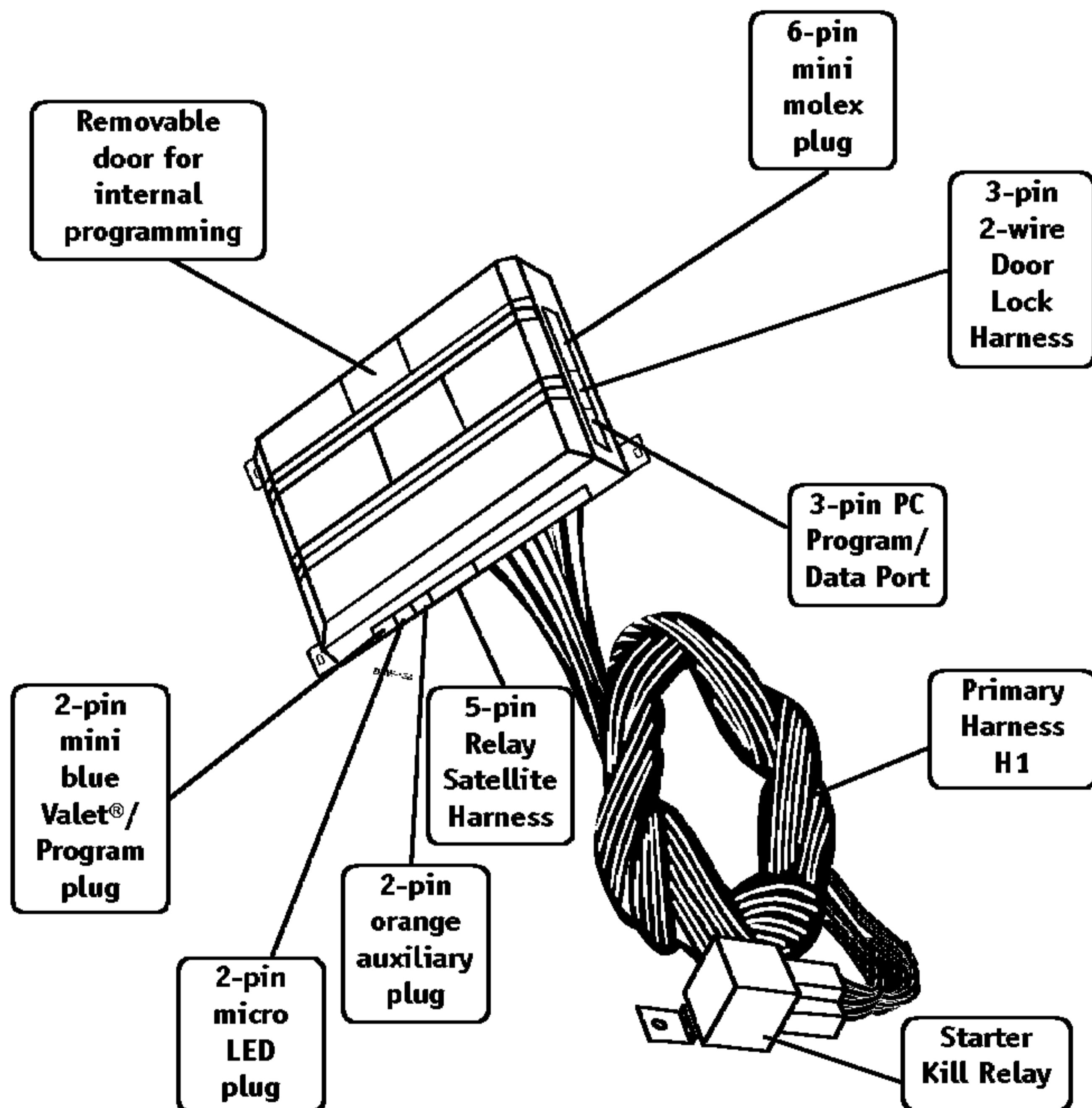
Installation Guide

Bitwriter™, Code Hopping™, DEI®, Doubleguard®, ESP™, FailSafe®, Ghost Switch™, Learn Routine™, Nite-Lite®, Nuisance Prevention Circuitry®, NPC®, Revenger®, Silent Mode™, Soft Chirp®, Stinger®, Valet®, Vehicle Recovery System®, VRS®, and Warn Away® are all Trademarks or Registered Trademarks of Directed Electronics, Inc.

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what is included

- The control module (see diagram)
- Two 471T remote transmitters
- The plug-in status LED
- The Plug-in Valet®/Program switch
- A hood pinswitch
- A relay satellite
- A toggle override switch



wiring the control unit

The wiring harness supplied with this unit is the standard 12-pin harness used by DEI® security systems. Three wires in the plug are not used. The upgrade from this unit to a security system would simply require unplugging and exchanging control units and connecting the necessary wires to the vehicle. The functions of all the wires that are used in the primary harness are displayed in the following wiring diagram and their connections are described in the wire connection guides.

primary harness (H1) wiring diagram

H1/1	ORANGE	(-) 500 mA ARMED OUTPUT
H1/2	WHITE	(+)/(-) SELECTABLE LIGHT FLASH OUTPUT
H1/3	WHITE/BLUE	(-) ACTIVATION INPUT
H1/4	BLACK/WHITE	(-) 200 mA DOMELIGHT SUPERVISION OUTPUT
H1/5	GREEN	NO FUNCTION
H1/6	BLUE	NO FUNCTION
H1/7	VIOLET	NO FUNCTION
H1/8	BLACK	(-) CHASSIS GROUND INPUT
H1/9	NO WIRE	
H1/10	BROWN	(-) HORN HONK OUTPUT
H1/11	RED	(+) CONSTANT POWER INPUT
H1/12	RED/WHITE	(-) 200 mA CHANNEL 2 PROGRAMMABLE OUTPUT

remote start ribbon harness wiring diagram

1	RED	(+) CONSTANT POWER
2	YELLOW	(+) IGNITION INPUT TO REMOTE START
3	PINK	(-) 200 mA IGNITION RELAY TURN-ON
4	ORANGE	(-) 200 mA ACCESSORY RELAY TURN-ON
5	PURPLE	(-) 200 mA STARTER RELAY TURN-ON

heavy gauge relay satellite wiring diagram

1	RED	(+) HIGH CURRENT 12V INPUT
2	RED	(+) HIGH CURRENT 12V INPUT
3	PINK	(+) OUTPUT TO IGNITION CIRCUIT
4	ORANGE	(+) OUTPUT TO ACCESSORY CIRCUIT
5	PURPLE	(+) OUTPUT TO STARTER CIRCUIT
6	PINK/WHITE	(+) OUTPUT TO SECOND IGNITION CIRCUIT

(H2) harness auxiliary connector wiring diagram

H2/1	GRAY/BLACK	(-) WAIT-TO-START INPUT
H2/2	LIGHT GREEN/BLACK	(-) FACTORY DISARM/SPECIAL ACCESSORY

remote start harness (H3) wiring diagram

H3/1	BLUE	(-) 200 mA STATUS/FACTORY SECURITY REARM OUTPUT
H3/2	BLUE/BLACK	(-) 200 mA OPTIONAL THIRD IGNITION OUTPUT
H3/3	GRAY	(-) HOOD PINSWITCH SHUTDOWN WIRE
H3/4	BROWN	(+) BRAKE SWITCH SHUTDOWN WIRE
H3/5	VIOLET/WHITE	TACHOMETER INPUT WIRE
H3/6	BLACK/WHITE	(-) NEUTRAL SAFETY SWITCH INPUT

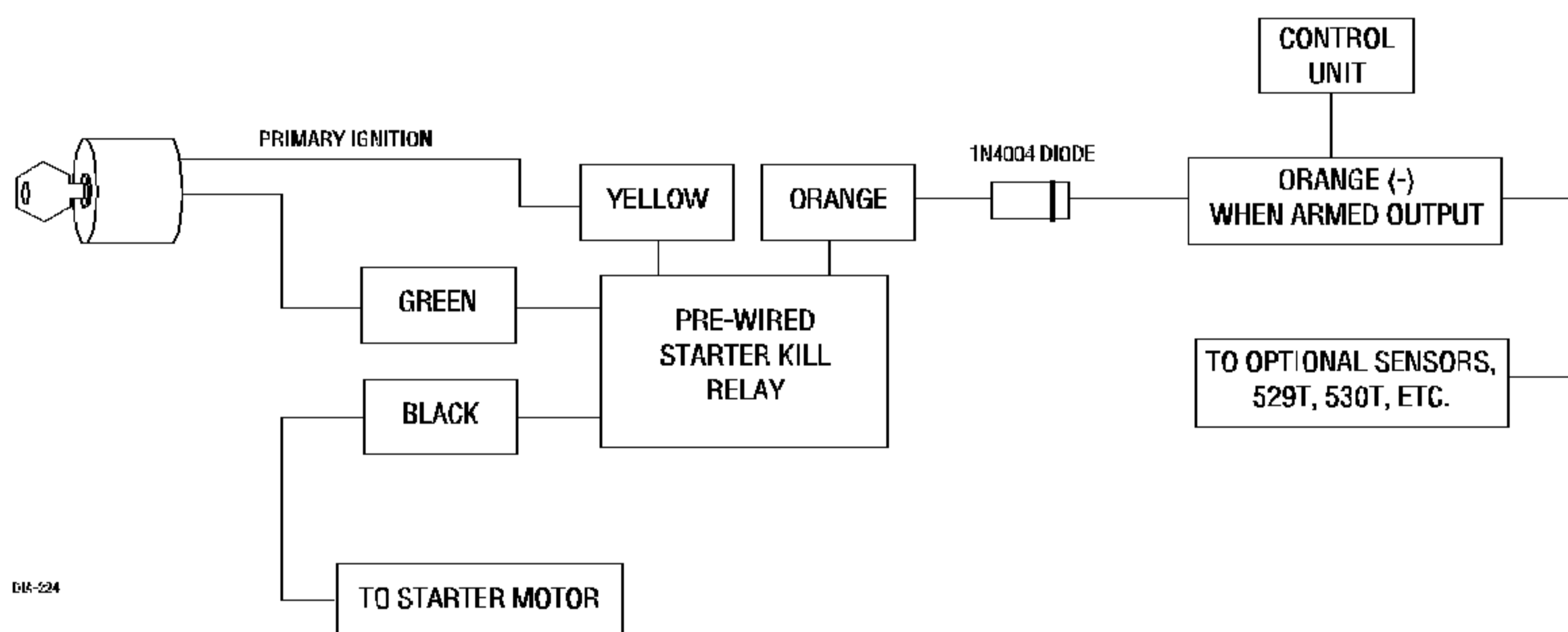
primary harness (H1), 8-pin connector

H1/1 ORANGE (-) ground-when-armed output

This wire supplies a (-) 500 mA ground as long as the system is armed. This output ceases as soon as the system is disarmed. The orange wire is pre-wired to control the 8618 starter kill relay.

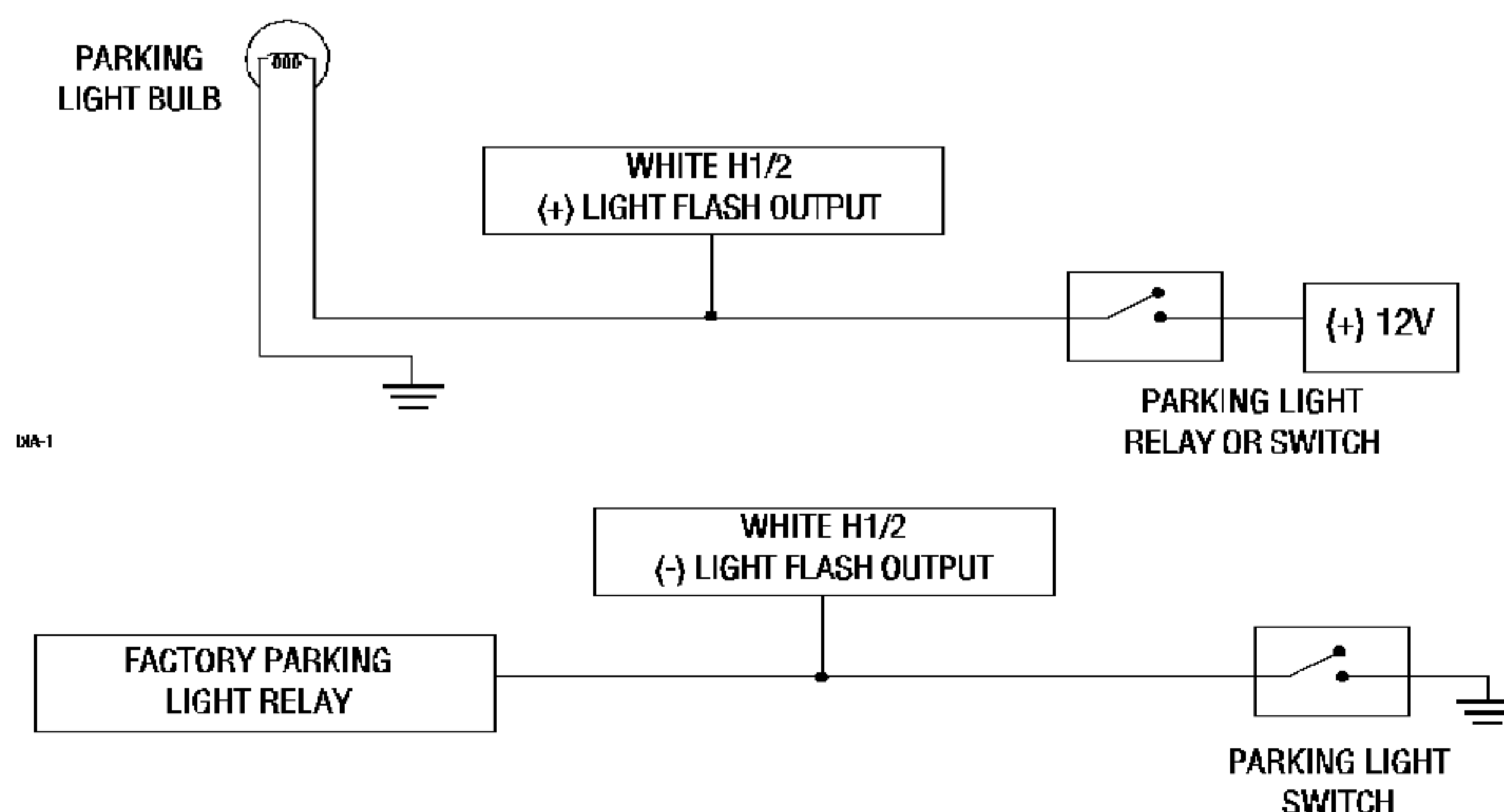
NOTE: If connecting the orange wire to control another module, such as a 529T or 530T window controller, a 1 amp diode (type 1N4004) will be required. Insert the diode as shown below.

IMPORTANT! Never interrupt any wire other than the starter wire.



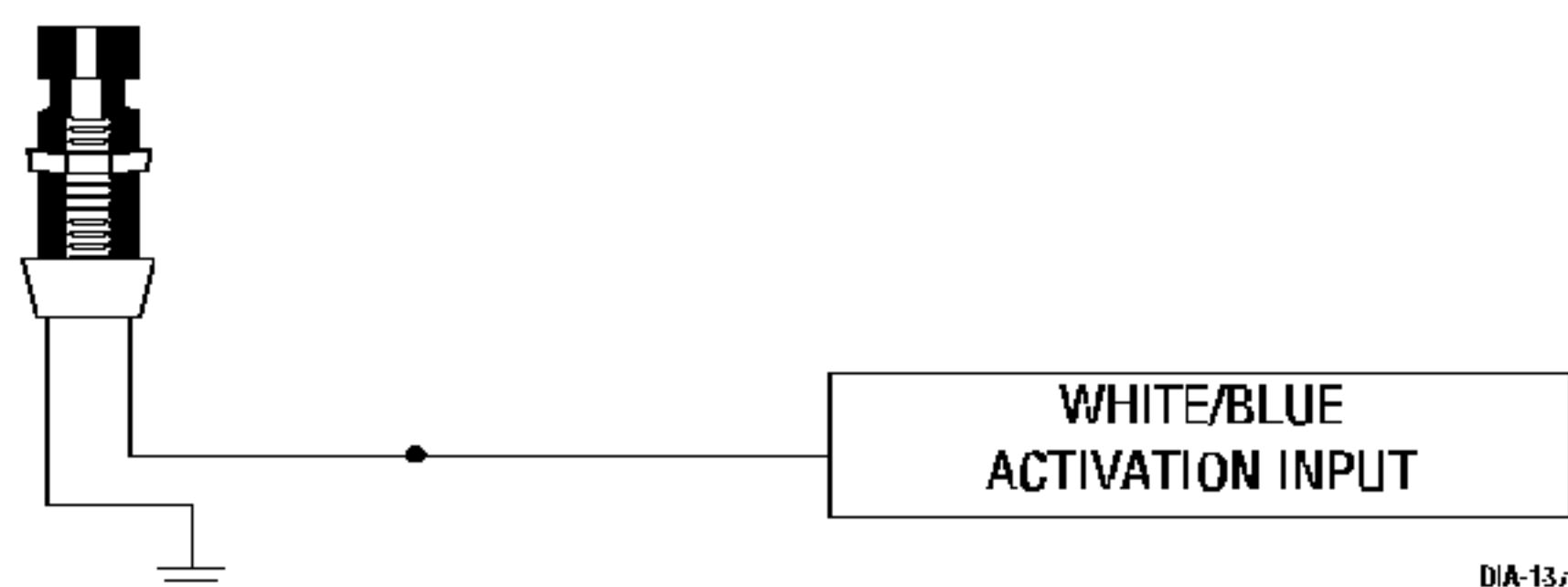
H1/2 WHITE light flash output

As shipped, this wire should be connected to the (+) parking light wire. If the light flash polarity jumper under the sliding door is moved to the opposite position (see *Internal Programming Jumpers* section), this wire supplies a (-)200 mA output. This is available for driving (-) light control wires in Toyota, Lexus, BMW, some Mitsubishi, some Mazda, and various other models.



H1/3 WHITE/BLUE (-) activation input

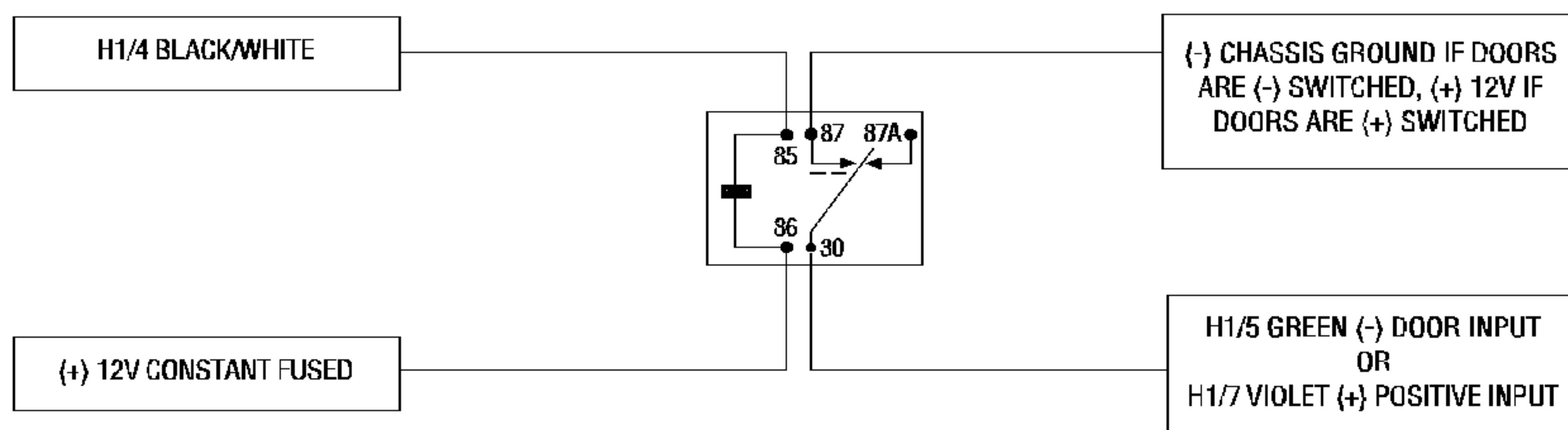
Sending a negative pulse to this wire will initiate the remote start sequence. This wire can be wired to an optional momentary switch to activate the remote start system.



H1/4 BLACK /WHITE (-) 200 mA domelight supervision output

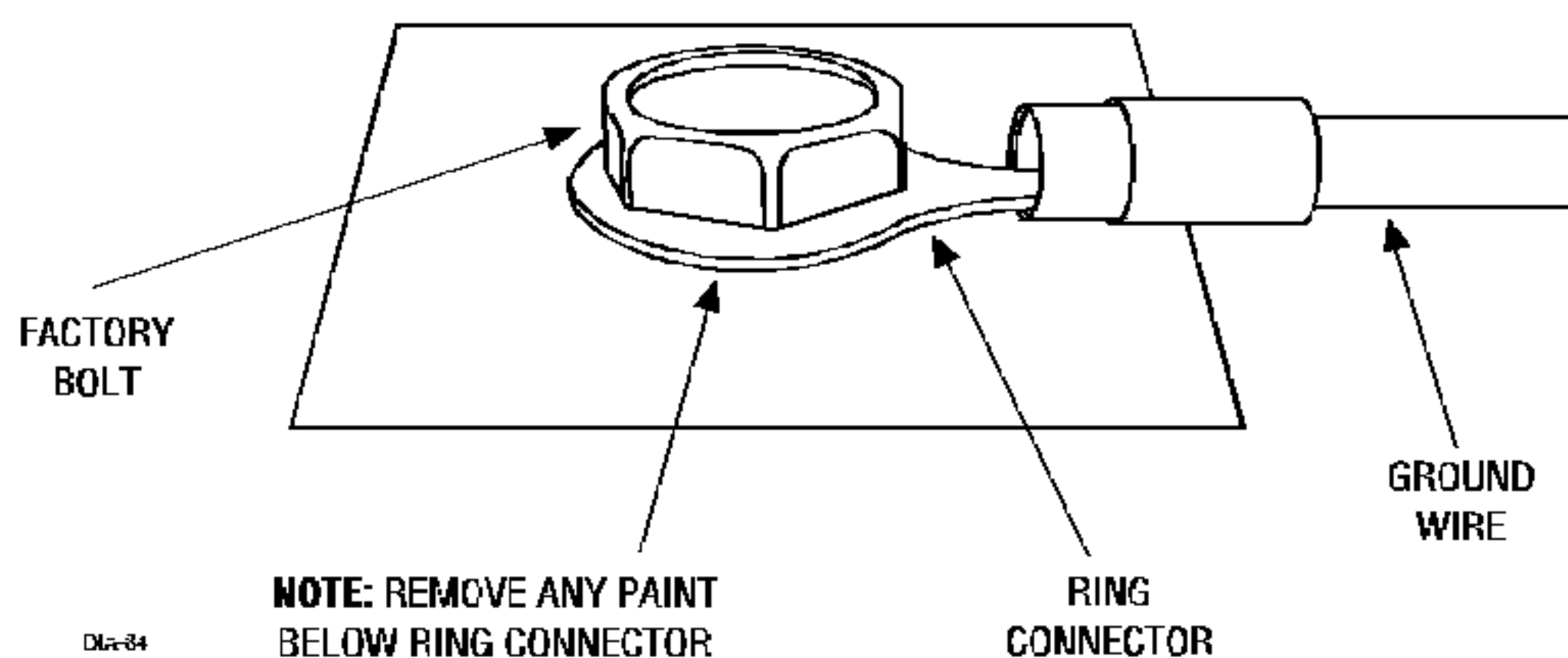
Connect this wire to the optional domelight supervision relay as shown below:

IMPORTANT! This output is only intended to drive a relay. It cannot be connected directly to the domelight circuit because the output cannot support the current draw of one or more light bulbs.



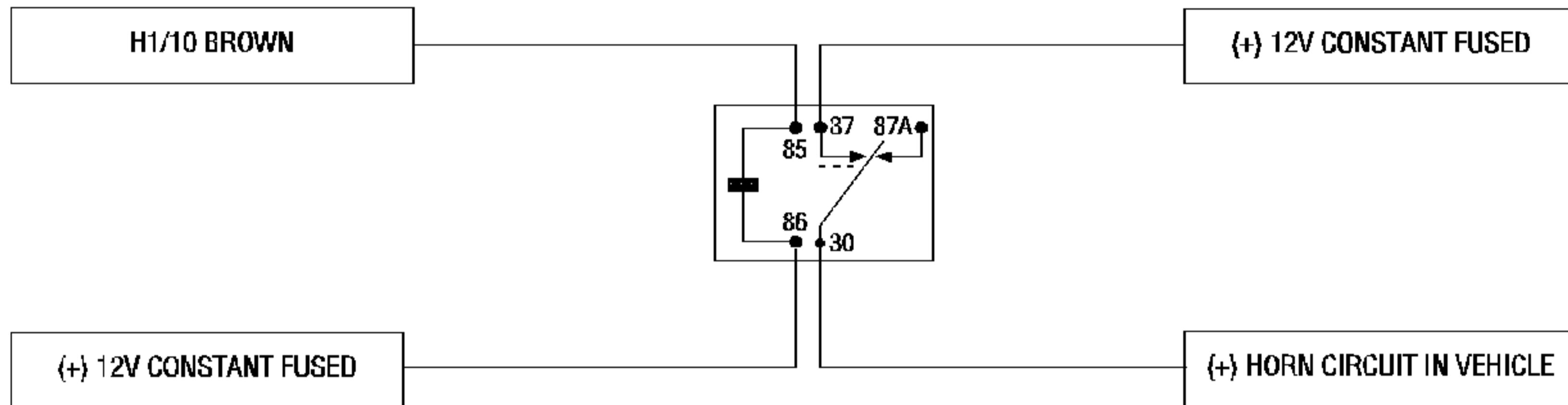
H1/8 BLACK (-) chassis ground connection

Connect this wire to bare metal, preferably with a factory bolt rather than your own screw. (Screws tend to either strip or loosen with time.) We recommend grounding all your components to the same point in the vehicle.



H1/10 BROWN (-) horn honk output

This wire supplies a (-)200 mA output that can be used to honk the vehicle horn. It outputs a single pulse when locking the doors with the remote, and two pulses when unlocking with the remote. This wire will also output pulses for 30 seconds when the Panic Mode is activated. If the vehicle has a (+) horn circuit, an optional relay can be used to interface with the system, as shown below.



H1/11 RED (+)12V constant power input

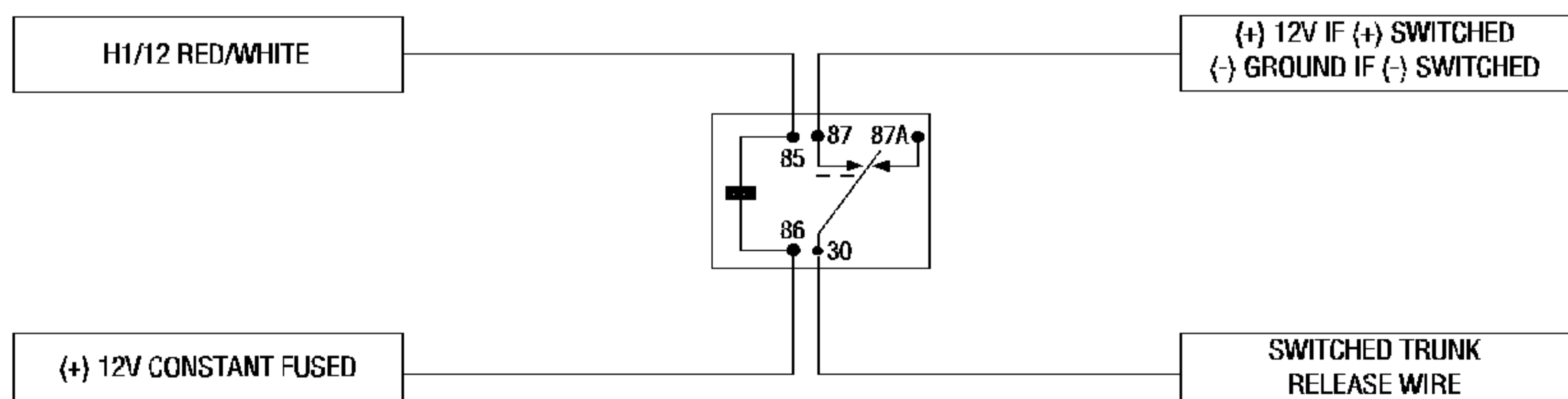
Before connecting this wire, remove the supplied fuse. Connect to the battery positive terminal or the constant 12V supply to the ignition switch as described in the *Finding the Wires You Need* section of this guide.

NOTE: Always use a fuse within 12 inches of the point you obtain (+)12V. Do not use the 10A fuse in the harness for this purpose. This fuse is intended to protect the module.

H1/12 RED/WHITE Channel 2, 200 mA (-) output

When the system receives the code controlling Channel 2, for longer than 1.5 seconds, the RED/WHITE wire will supply an output as long as the transmission continues. This is often used to operate a trunk/hatch release or other relay-driven function. This output can also be programmed to provide the following types of output: Instant validity, latched, latched-reset with ignition, 30-second timed, or second unlock output. (See *Features Description* section of this guide for details.)

IMPORTANT! Never use this wire to drive anything except a relay or low-current input! The transistorized output can only supply 200 mA of current. Connecting directly to a solenoid, motor, or other high-current device will cause it to fail.

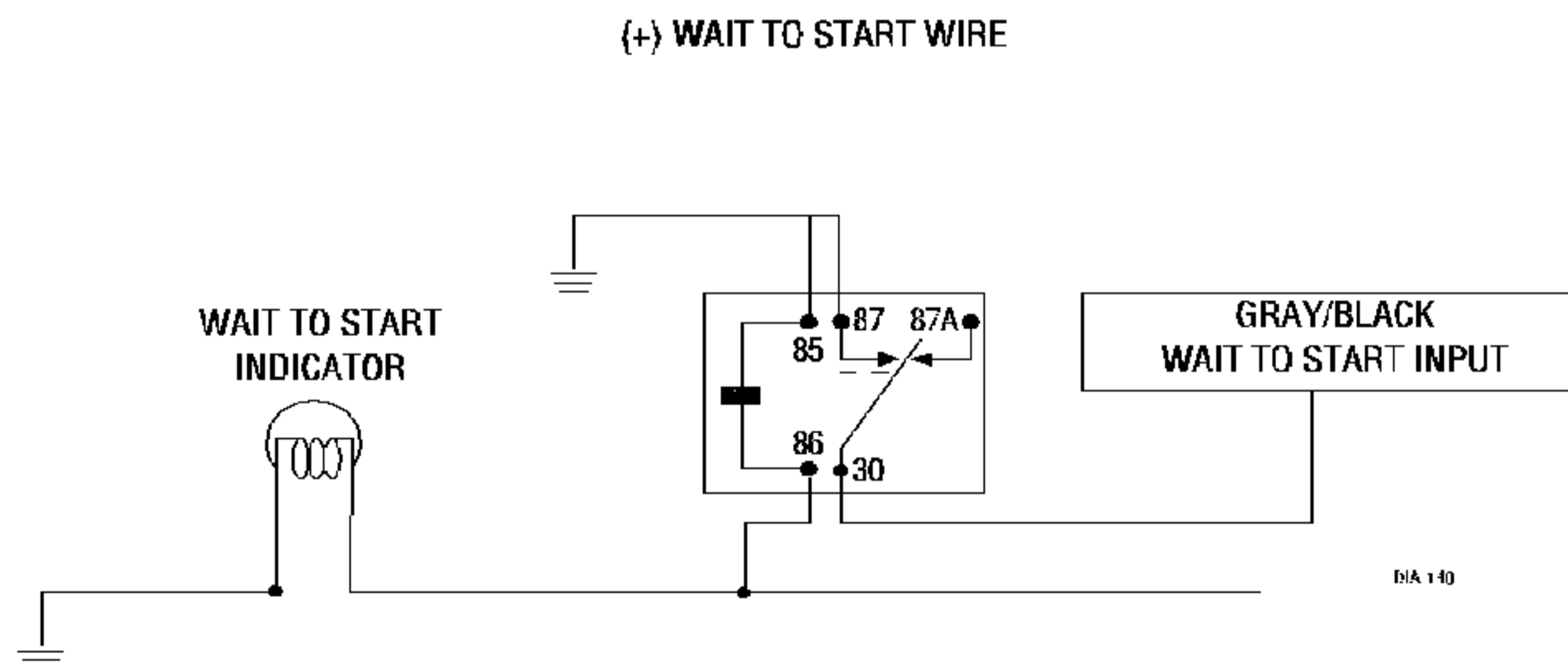
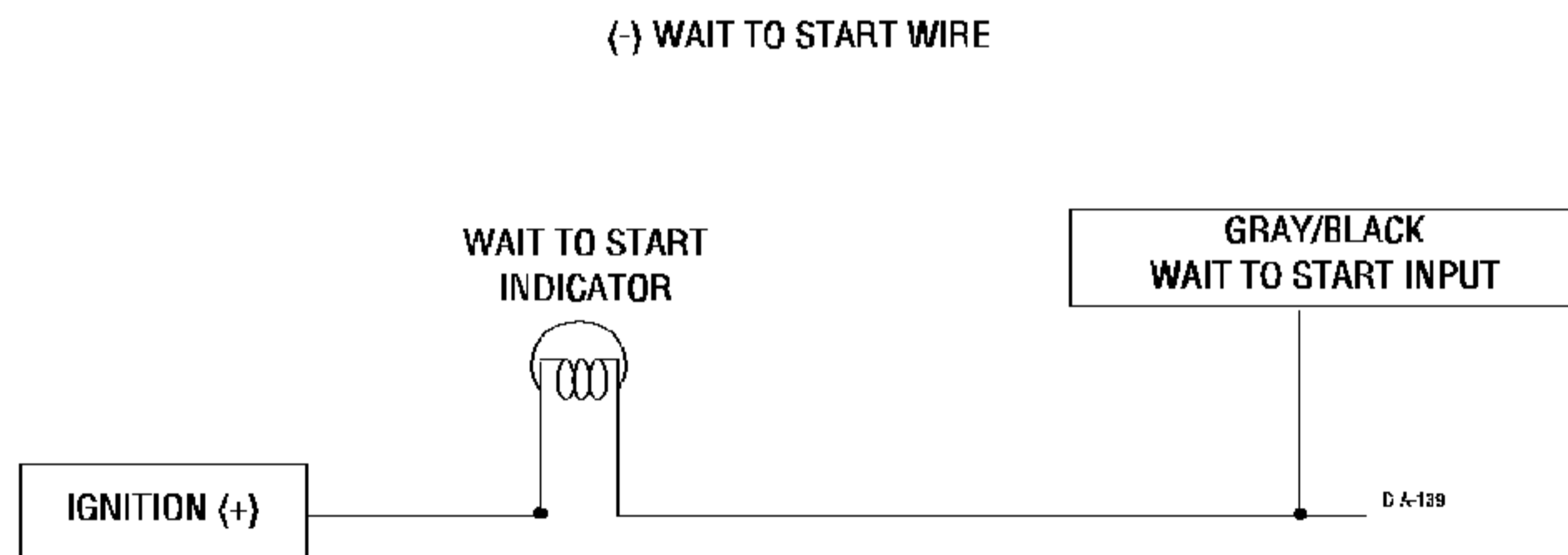


harness 2 (H2), 2-pin auxiliary plug

H2/1 GRAY/BLACK (-) diesel wait-to-start bulb input

Connect this wire to the wire in the vehicle that sends the signal to turn on the WAIT-TO-START bulb in the dashboard. In most diesels the wire is negative (ground turns on the bulb) and the GRAY/BLACK can be directly connected to the wire in the vehicle. If the vehicle uses a positive wire (12V to turn on the bulb) a relay must be used to change the polarity. (See *Finding the Wires You Need* section of this guide.) Here are some common colors of this wire:

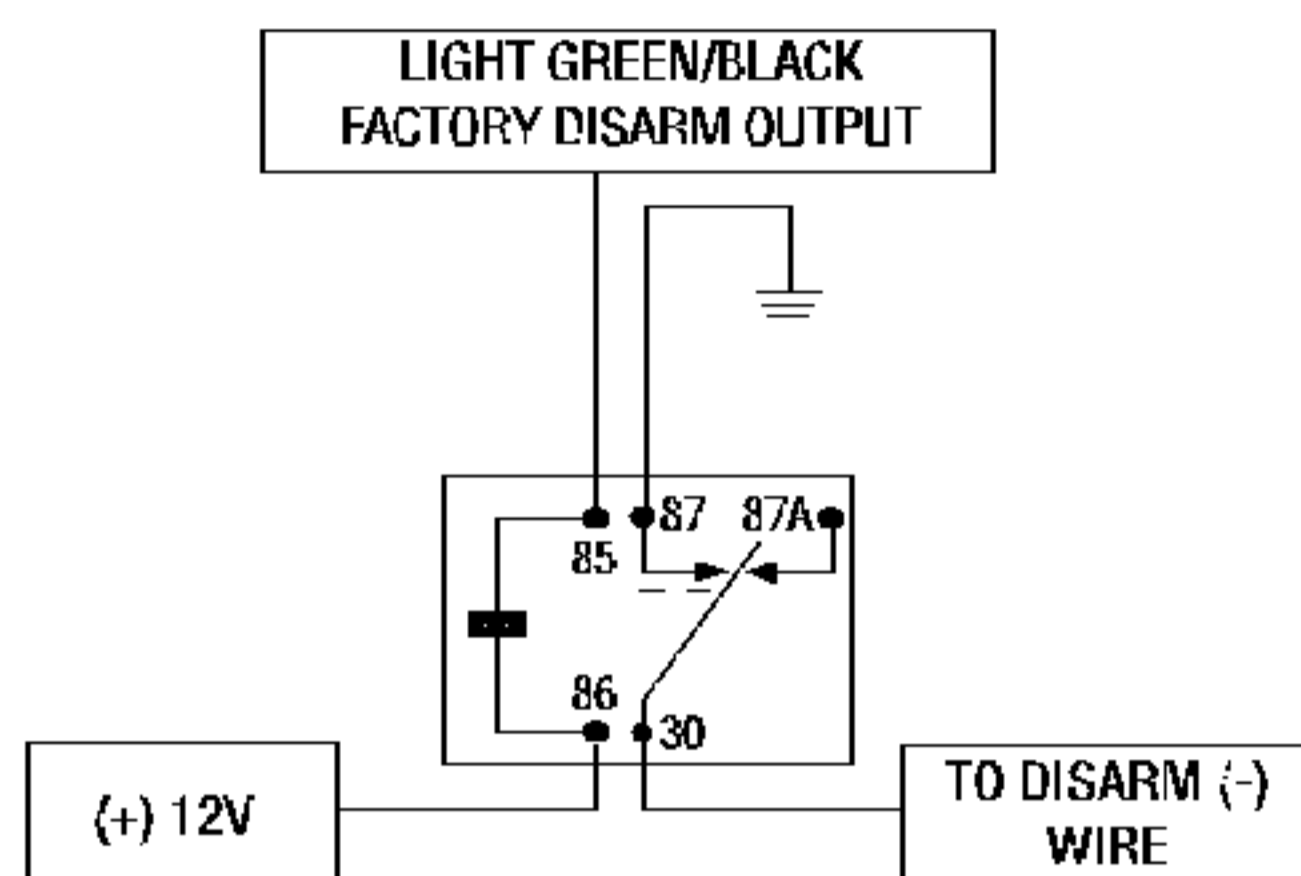
- Chevrolet and GMC trucks: Light Blue or Dark Blue
- Ford Trucks: Black/Pink
- Dodge Ram Trucks: Orange/Black or Black/Orange



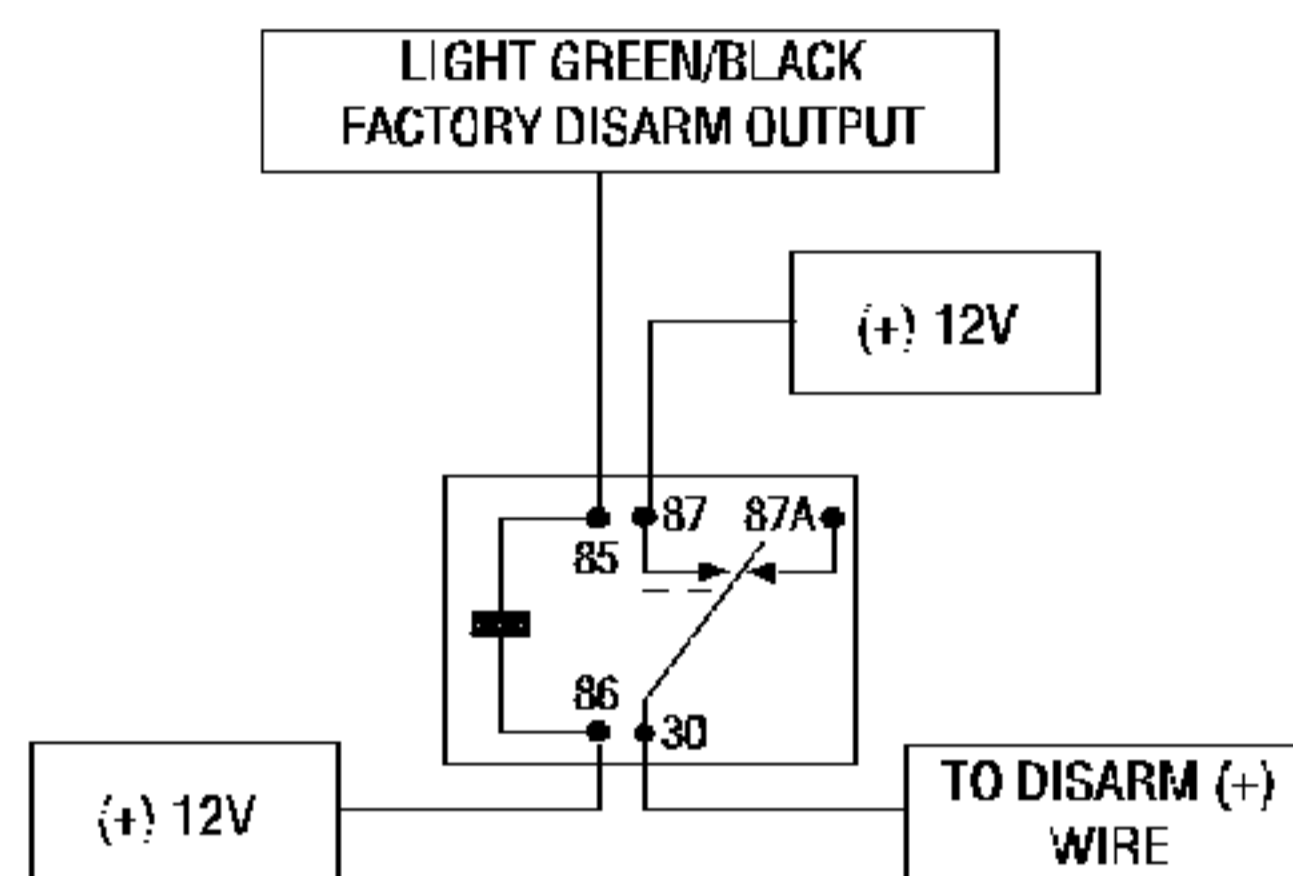
H2/2 LIGHT GREEN/BLACK (-) auxiliary output

This wire sends a negative pulse every time the remote start is activated. This can be used to pulse the disarm wire of the vehicle's factory anti-theft device. Use a relay to send a (-) or (+) pulse to the disarm wire as shown in the diagrams below. This wire can also be used as a special accessory output. (See *Feature Descriptions* section of this guide.)

Relay for Negative (-) Disarm Wire



Relay for Positive (+) Disarm Wire



316 128

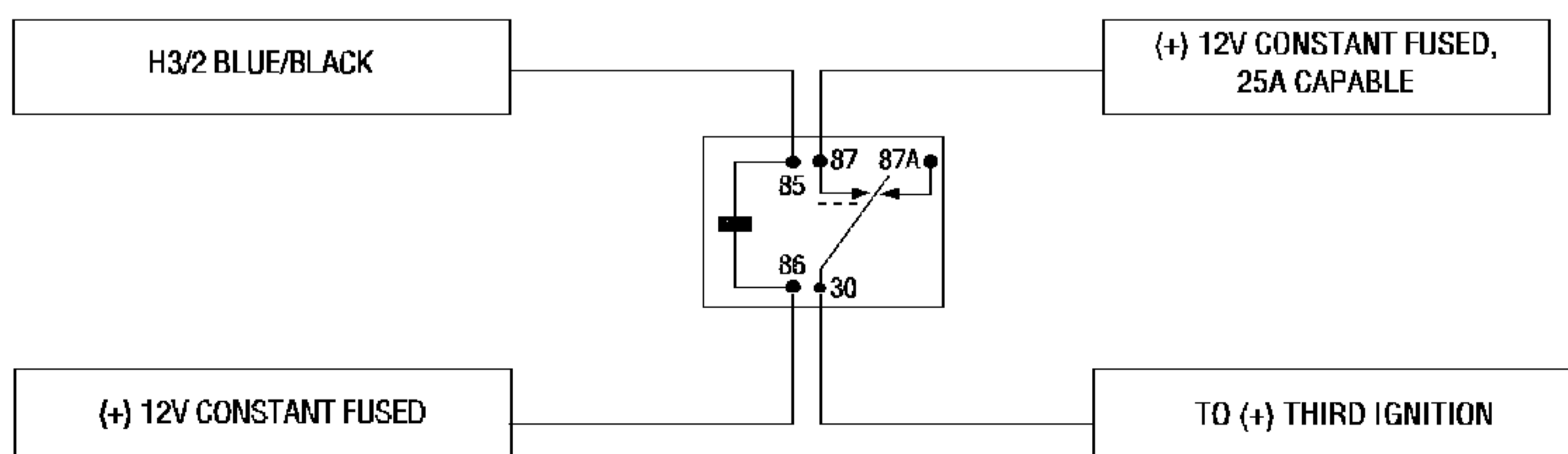
remote start harness (H3)

H3/1 BLUE status/factory security rearm output

This output is programmable. If programmed for status output, the wire will supply an output at all times the remote start is operating. If programmed for factory security rearm, the wire will supply a pulse whenever the remote start times out or is shut down using the transmitter.

H3/2 BLUE/BLACK (-) optional third ignition output

This output provides 200mA as soon as the remote starter is activated. It can be used to power a relay to energize a positive (+) third ignition as shown below. This output is capable of driving two relays if necessary.



H3/3 GRAY (-) hood pinswitch input

This wire **MUST** be connected to hood pinswitch. This input will disable or shut down the remote start when the hood is opened.

H3/4 BROWN (+) brake switch input

This wire **MUST** be connected to the vehicle's brake light wire. This is the wire that shows (+) 12V when the brake pedal is depressed. The remote start will be disabled or shut down any time the brake pedal is depressed.

H3/5 VIOLET/WHITE tachometer input

This input provides the module with information about the engine's revolutions per minute (RPMs). It can be connected to the negative side of the coil in vehicles with conventional coils. In multi-coil and high energy ignition systems locating a proper signal may be more difficult. (See *Finding the Wires You Need* section of this guide for finding the tachometer wire.) Once connected, you must teach the system the tach signal. (See *Tach Learning* section of this guide.)

H3/6 BLACK/WHITE neutral safety switch input

Connect this wire to the toggle (override) switch as shown in Figure A. Connect the other wire from the toggle switch to the PARK/NEUTRAL switch in the vehicle. This wire will test with ground with the gear selector either in PARK or NEUTRAL. This will prevent the vehicle from accidentally being started while in a drive gear. This input **MUST** rest at ground in order for the remote start system to operate. Connected properly the vehicle will only start while in PARK or NEUTRAL.

In some vehicles, the PARK/NEUTRAL position switch activates a factory starter lock out that will not allow the starter to operate in a drive gear. In these vehicles, connect this wire to the toggle switch as shown in Figure B. Connect the other wire from the toggle switch to chassis ground.

Figure A

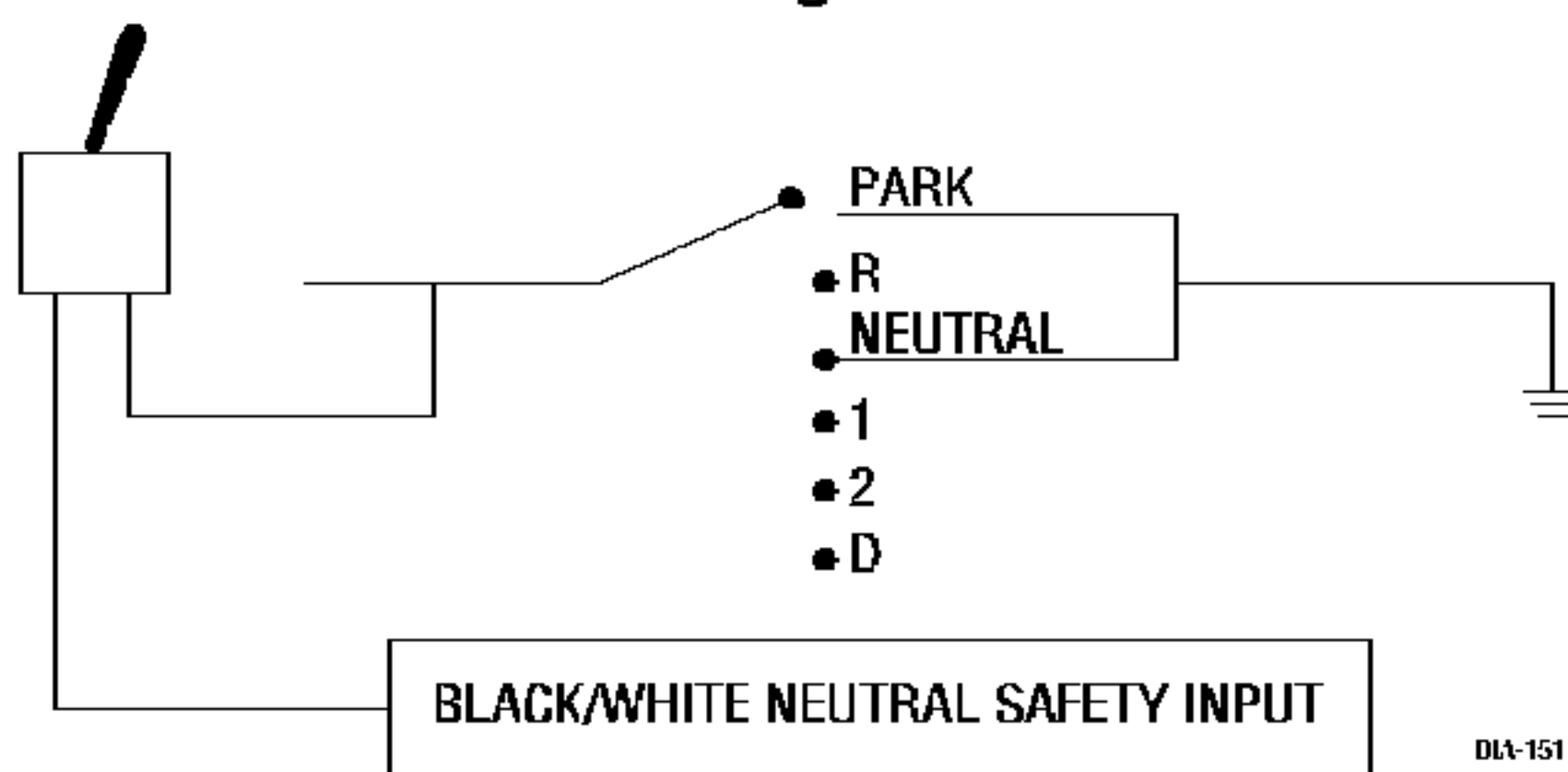
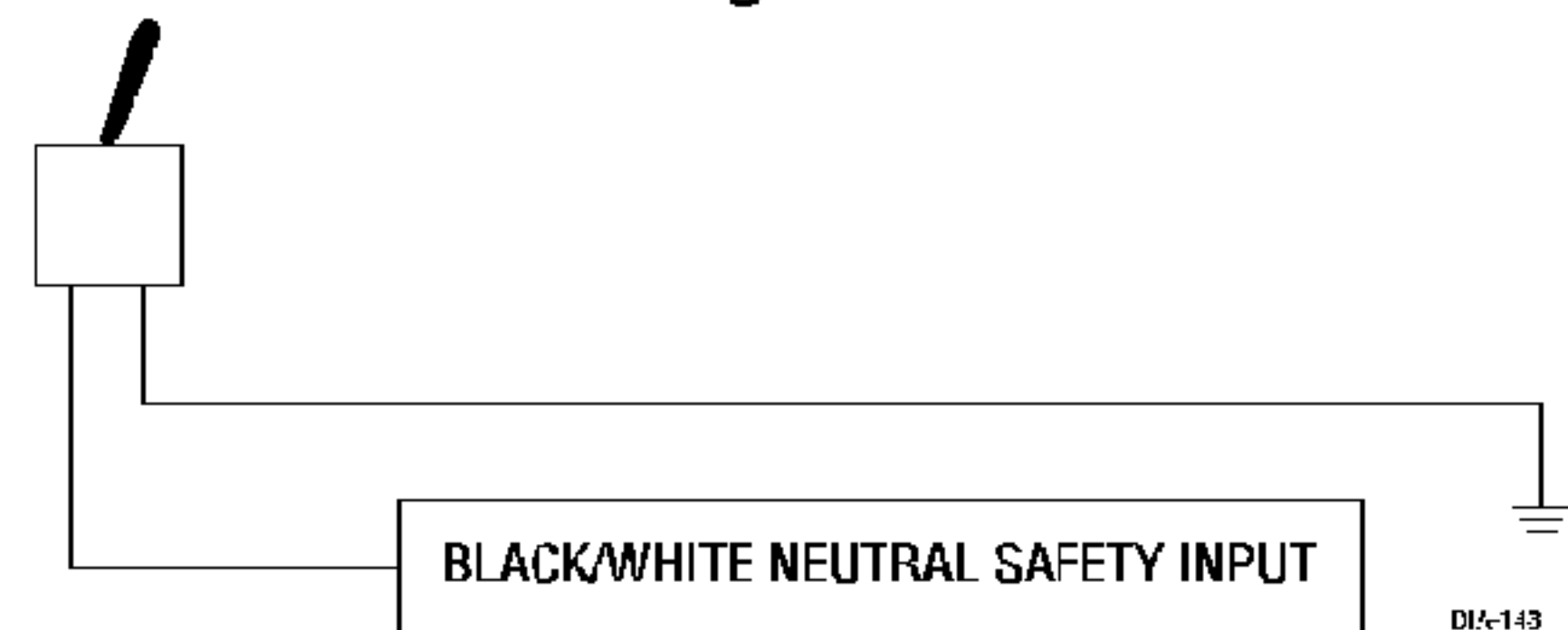


Figure B



IMPORTANT! Always perform the *Vehicle Safety Check* section of this guide to verify that the vehicle cannot be started in ANY drive gear and that the override switch is functioning properly.

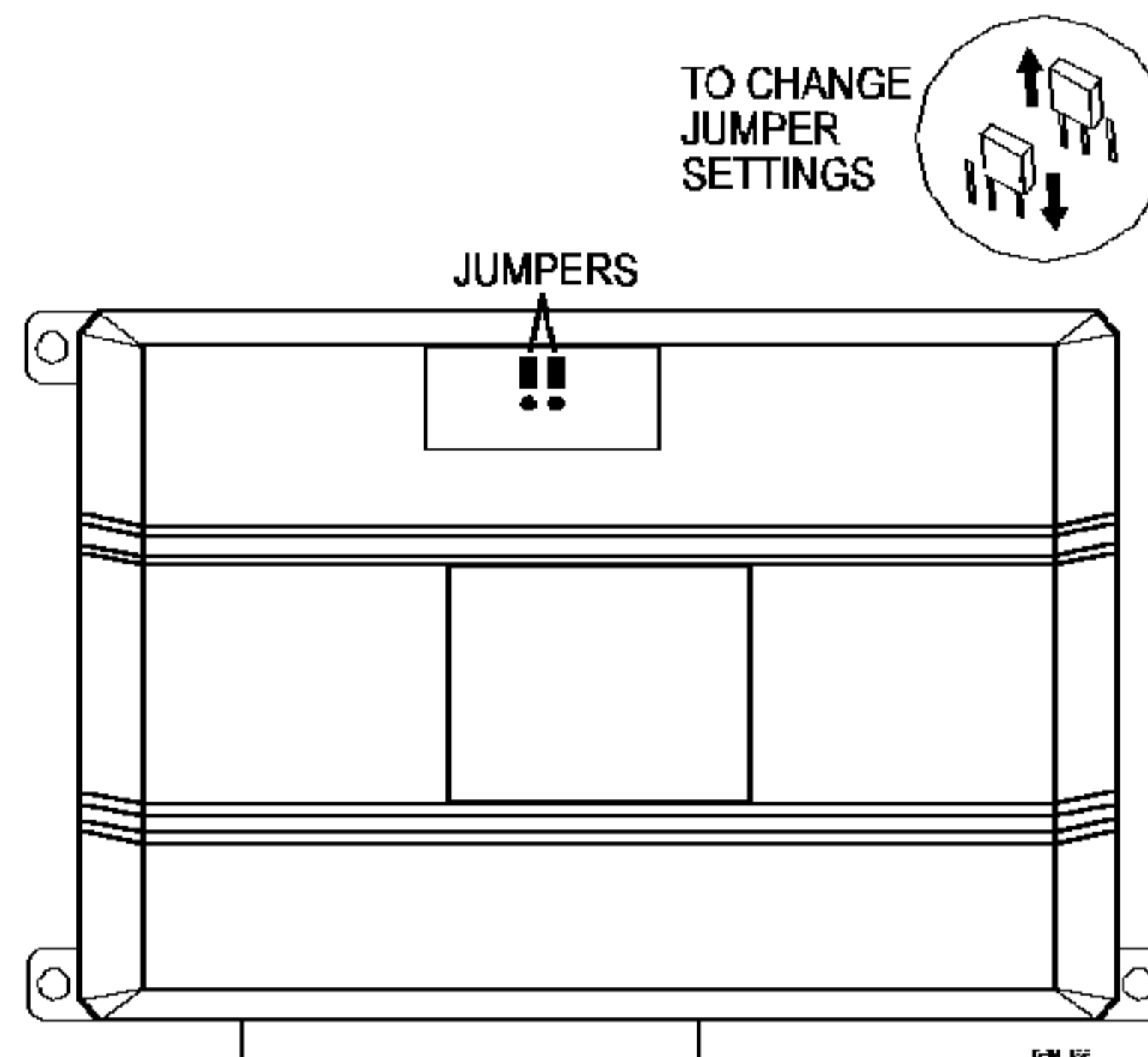
harness 4, (+/-) door lock outputs





H4/A	GREEN	(-) LOCK, (+) UNLOCK OUTPUT
H4/B	EMPTY	UNLESS USING 451M
H4/C	BLUE	(-) UNLOCK, (+) LOCK OUTPUT

This system can control two common power door lock types without any additional parts! With certain vehicles, or if an actuator is to be installed, either a 451M Door Lock Relay Satellite or two relays will be required.

IMPORTANT! If you mistake a Type C direct-wired system for a Type A positive-pulse system, the module will be damaged!

internal programming jumpers



Tach Threshold OFF   (+) Light Flash Output
Tach Threshold ON   (-) Light Flash Output

light flash jumper

This jumper is used to determine the light flash output polarity. In the (+) position, the on-board relay is enabled and the unit will output (+)12V on the WHITE wire, H1/2. In the (-) position, the on-board relay is disabled. The WHITE wire, H1/2, will supply a 200mA (-) output suitable for driving factory parking light relays.

digital tach threshold on/off

In most cases, this jumper can be left in the OFF position. Some new vehicles use less than 12 volts in their ignition systems. The unit may have trouble learning the tach signal in these vehicles. Changing the jumper to the ON setting changes the trigger threshold of the digital tach circuit so it will work properly with these vehicles. The vehicles affected include many newer Dodge/Chrysler/Plymouth vehicles, such as the Neon, Cirrus, Stratus, Breeze and LH-based vehicles.

transmitter/receiver learn routine

The system comes with two transmitters that have been taught to the receiver. The receiver can store up to 4 different transmitter codes in memory. Use the following learn routine to add transmitters to the system or to change button assignments if desired.

Using the optional DEI® Bitwriter™ or PC Interface, the learn routine may be locked. Make sure the learn routine is unlocked before programming features. If the horn generates one long honk when attempting to program the unit, the learn routine is locked and must be unlocked using the DEI® Bitwriter™ or PC before proceeding.

The Valet®/Program switch, plugged into the blue port, is used for programming. There is a basic sequence of steps to remember whenever programming this unit: Key, Choose, Transmit and Release.



1. **Key.** Turn the ignition to the ON position.



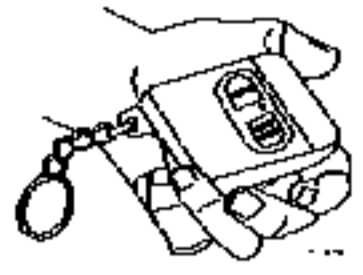
2. **Choose.** Within 10 seconds, press and release the Program switch the number of times corresponding to the desired channel listed below. Once you have selected the channel, press the switch once more and hold it. The LED will flash and the horn will honk (if connected) to confirm the selected channel. Do not release the Program switch.

CHANNEL NUMBER	FUNCTION	WIRE COLOR
1	Arm/Disarm/Panic	
2	Silent Mode/Remote Valet/Trunk Release	RED/WHITE
3	Remote Start	
4	Arm only	
5	Disarm only	
6	Panic only	
7	Delete all transmitters	

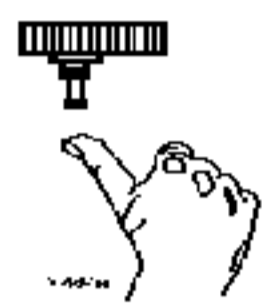
Channel 4-6: To configure the system's remote transmitters for OEM mode, channels four through six are used to assign the arm, disarm, and panic functions to separate buttons on the remote control when using an optional four-button transmitter. If the remote transmitter being used has already been programmed to the system it will be necessary to delete all transmitters (see Channel 7 below) before that transmitter can be programmed to Channels 4-6.

Channel 7: If any transmitter button from a known transmitter is programmed to Channel 7, all transmitters will be erased from memory, and system features will return to factory default settings. This is useful in cases where

one of the customer's transmitters is lost or stolen. This will erase any lost or stolen transmitters from the system's memory. It can also be used to start from scratch if the transmitter buttons were programmed incorrectly.



3. **Transmit.** While holding the Valet®/Program switch, press the button on the transmitter that you would like to control the selected receiver channel. The unit will chirp to confirm that the code has been successfully programmed. It is not possible to teach a transmitter button to the system more than once.



4. **Release.** Once the code is learned, the Valet®/Program switch can be released.

You can advance from programming one channel to another by releasing the Valet®/Program switch and tapping it to advance channels and then holding it. For instance: You have programmed Channel 1 and you want to program Channel 2. Release the Valet®/Program switch. Press it one time and release it to advance from Channel 1 to Channel 2. Now, press and hold the Valet®/Program switch. The LED will flash two times and the horn will honk twice (if connected). As before, do not release it.

If you want to program Channel 3 after programming Channel 1, release the Valet®/Program switch, press it twice and release it to advance to Channel 3. Then press it once more and hold it. The horn will honk three times (if connected) and the LED will flash three times to confirm it is ready to receive the code from the transmitter.

Learn Routine will be exited if:

- Ignition is turned off.
- Program switch is pressed too many times.
- More than 15 seconds elapses between programming steps.

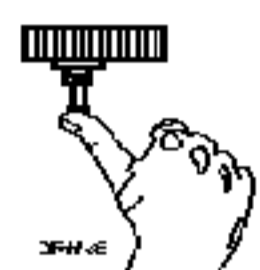
One long horn honk indicates that Learn Routine has been exited.

tach learning

to learn the tach signal



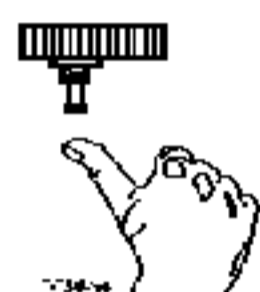
1. Start the vehicle with the key.



2. Within 5 seconds, press and hold the Valet/Program switch.



3. The LED will light constant when the tach signal is learned.



4. Release the Program switch.

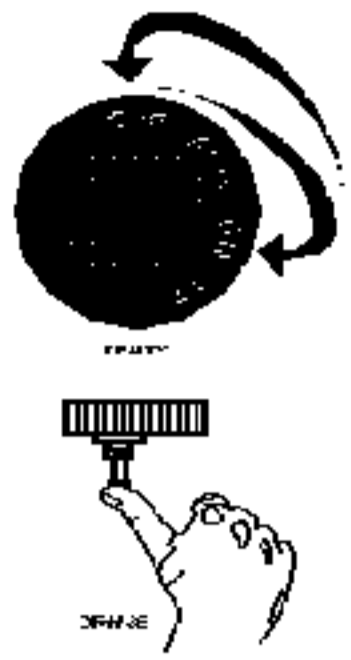
operating settings learn routine

The System Features Learn Routine™ dictates how the unit operates. Due to the number of features, the features have been divided into two menus. It is possible to access and change any of the feature settings using the Valet®/Program switch. However, this process can be greatly simplified by using the optional DEI® Bitwriter™ or 996T Personal Computer Interface. Any of the settings can be changed and then assigned to one of up to four transmitters, a feature called Owner Recognition. Each time that particular transmitter is used to disarm the system, the assigned feature settings will be recalled. Owner Recognition is only possible when programming the unit via the 996T or the 998T DEI® Bitwriter™.

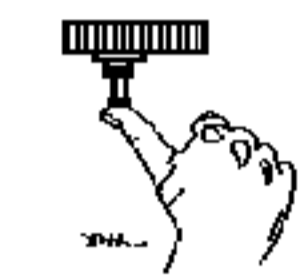
Using the optional DEI® Bitwriter™ or PC Interface, the learn routine may be locked. Make sure the learn routine is unlocked before programming features. If the horn generates one long honk when attempting to program the unit, the learn routine is locked and must be unlocked using the DEI® Bitwriter™ or PC before proceeding.

The programmable operating settings of this unit can be changed whenever necessary through the computer-based Learn Routine. The Valet®/Program push-button switch, plugged into the blue port, is used together with a programmed transmitter to change the settings. To program settings, remember: Key, Select Menu, Choose, Transmit and Release.

to program the learn routine

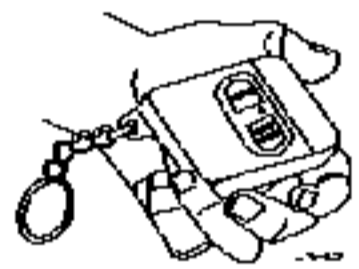


1. **Key.** Turn the ignition on and then back off.

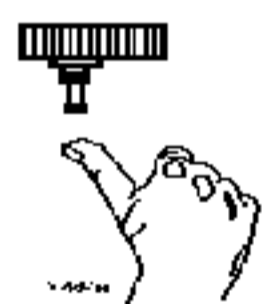


2. **Select Menu.** Press and hold the Valet®/Program switch until either the LED flashes once and the horn honks once to select Menu One, or the LED flashes twice and the horn honks twice to select Menu Two.
3. **Choose.** Within 10 seconds, press and release the Valet®/Program switch the number of times corresponding to the feature number you want to program. (See *Feature Menus*.)

Once the Valet®/Program switch has been pressed and released the desired number of times, press it once more and hold it. After a second, the LED will flash to indicate which feature you have accessed. For example, in Menu Two, groups of eight flashes would indicate access to the status output feature (Feature 2-8). The horn will also honk eight times (if connected).



4. **Transmit.** The transmitter is used to select the desired setting. As shipped, the unit is configured to the LED ON settings. These are the default settings. Pressing Channel 1 (usually Button I) will set it to the LED ON setting. The LED will light solid (stop flashing) to indicate the setting. The horn will honk once (if connected). Pressing Channel 2 (usually Button II) will change the setting to the LED OFF setting. The LED will go out indicating the change and the horn will honk twice (if connected).



5. **Release.** The Valet®/Program switch can now be released.

For example, to program the arming mode from active to passive, within 10 seconds of turning the ignition off, select Menu One and press and release the Valet®/Program switch once. Then press it again and hold it. The LED will flash in groups of one and the horn will honk once (if connected). While holding the Valet®/Program switch, press the Channel 2 transmitter button. The LED will stop flashing and go out. The horn will honk twice if connected. Passive arming is now programmed. If that was not the desired setting, without releasing the Valet®/Program switch, press the Channel 1 transmitter button. The LED will light solid and the horn will honk once if connected. Active arming is now programmed. Release the Valet®/Program switch after the selection has been made.

You can advance from feature to feature by pressing and releasing the Valet®/Program switch the number of times necessary to get from the feature you just programmed to the feature you wish to access. For example, in Menu One, if you just programmed the arm/disarm chirps (Feature 1-2) and you next want to program ignition controlled door locks (Feature 1-3) to off, release the Valet®/Program switch. Press and release it once to advance from Feature 1-2 to Feature 1-3. Then press it once more and hold it. The LED will flash in groups of 3 and the horn will honk 3 times (if connected) to confirm that you have accessed Feature 1-3.

to exit the learn routine

The learn routine will be exited if:

- The ignition is turned on.
- The Valet/Program switch is pressed too many times.
- More than 15 seconds elapses between programming steps.

One long horn honk (if connected) indicates that the Learn Routine has been exited.

feature menus

menu #1

FEATURE NUMBER	DEFAULT - LED ON SETTING (PRESS CHANNEL 1)	LED OFF SETTING (PRESS CHANNEL 2)
1-1	Active arming	Passive arming
1-2	Chirps on	Chirps off
1-3	Ignition controlled door locks on	Ignition controlled door locks off
1-4	Active locking	Passive locking
1-5	0.8 second door lock pulses	3.5 second door lock pulses
1-6	Double pulse unlock off	Double pulse unlock on
1-7	Channel 2 output - Delayed (1)*	Channel 2 output - Instant validity (2)/ latched (3)/latched reset with ignition (4)/30-second timed (5)/second unlock (6)*
1-8	Factory alarm disarm with Channel 2 on	Factory alarm disarm with Channel 2 off
1-9	Code Hopping™ on	Code Hopping™ off

***NOTE:** The numbers in parentheses indicate the number of times the LED will flash.

menu #2

FEATURE NUMBER	DEFAULT - LED ON SETTING (PRESS CHANNEL 1)	LED OFF SETTING (PRESS CHANNEL 2)
2-1	Engine checking on	Engine checking off
2-2	Tachometer checking type	Voltage checking type
2-3	12 minutes run time	24 minutes, 60 minutes run time
2-4	Flashing parking light output	Constant parking light output
2-5	Cranking time 0.6 sec. (1)*	Cranking time 0.8 (2), 1.0 (3), 1.2 (4), 1.4 (5), 1.6 (6), 1.8 (7), 2.0 (8), 4.0 (9) sec.*
2-6	High voltage check level	Low voltage check level
2-7	Auxiliary output - factory alarm disarm	Auxiliary output - special accessory
2-8	Normal status output	Factory re-arm output
2-9	Anti-Grind on	Anti-Grind off

***NOTE:** The numbers in parentheses indicate the number of times the LED will flash.

feature descriptions

The features of the system are described below. If the system is being programmed with a DEI® Bitwriter™ or 996T and a personal computer the options available may change. PC programmable options are indicated by the following icon:



menu #1

1-1 ACTIVE/PASSIVE ARMING: When active arming is selected, the system will only arm when the transmitter is used. When set to passive arming, the system will arm automatically 30 seconds after the ignition is turned off.

1-2 CHIRPS ON/OFF: This feature controls the chirps that confirm arming and disarming of the system.

1-3 IGNITION CONTROLLED DOOR LOCKS ON/OFF: When turned on, the doors will lock three seconds after the ignition is turned on and unlock when the ignition is turned off.

1-4 ACTIVE/PASSIVE LOCKING: If passive arming is selected in Menu One, Feature 1-1, then the system can be programmed to either lock the doors when passive arming occurs, or only lock the doors when the system is armed with a transmitter. Active locking means the doors will not lock when the system passively arms. Passive locking means that the doors will lock when the system passively arms.

1-5 DOOR LOCK PULSE DURATION: Some European vehicles, such as Mercedes-Benz and Audi, require longer lock and unlock pulses to operate the vacuum pump. Programming the system to provide 3.5 second pulses will accommodate the door lock interface in these vehicles. The default setting is 0.8 second door lock pulses.

1-6 DOUBLE PULSE UNLOCK OFF/ON: Some vehicles require two pulses on a single wire to unlock the doors. When the double pulse unlock feature is turned on, the BLUE H2/C wire will supply two negative pulses instead of a single pulse. At the same time, the GREEN H2/A wire will supply two positive pulses instead of a single pulse. This makes it possible to directly interface with double pulse vehicles without any extra parts.

1-7 CHANNEL TWO OUTPUT:

- In the **delayed** default setting the Channel 2 output will output a negative (-) signal after the Channel 2 button is pressed for more than 1.5 seconds and will continue until the button is released.
- Selecting **instant validity** will output a negative signal from the Channel 2 output immediately when the Channel 2 button is pressed and will continue until the button is released.
- The **latched** output selection will output a negative signal as soon as the Channel 2 button is pressed and will continue until the button is pressed again.
- The **latched/reset with ignition** output selection operates just like the latched output but will reset or stop when the ignition is turned on.
- The **30-second timed** output selection will latch the Channel 2 output on for 30 seconds when the remote button is pressed or until the button is pressed again within the 30 seconds.*

**NOTE: Programming Channel 2 for second unlock will link the RED/WHITE wire to the unlock button. Pressing the unlock button once will send the output to the H4/A or H4/C unlock output. Pressing the unlock button a second time within 15 seconds will send a negative (-) unlock pulse to the RED/WHITE wire. This negative (-) output can be used to unlock the passenger doors.*

1-8 FACTORY ALARM DISARM WITH CHANNEL TWO: Any time Channel 2 is activated from the remote transmitter the factory disarm output will pulse to disarm the vehicle's factory anti-theft device. This option can be programmed off if desired.

1-9 CODE-HOPPING ON/OFF: The system features Code-Hopping as an option. To use Code-Hopping technology, this feature must be programmed on.

menu #2

2-1 ENGINE CHECK ON/OFF: In the default setting the remote start will monitor either the vehicle's tach wire or voltage depending on the programming of Feature 2-2. If programmed off, the vehicle will crank for the programmed crank time (Feature 2-5) and will not verify with tach or voltage that the vehicle is running. In the off setting, if the vehicle fails to start, the ignition can stay on for the entire run duration. Using tach or voltage check is always recommended if possible.

2-2 TACH WIRE SENSE/VOLTAGE SENSE: If the tachometer signal wire is used, this feature must be left in the default (tach wire connected) setting. If programmed to the voltage sense setting, the unit will crank the starter for a preset time that can be programmed in Feature 2-5. Once the starter has been engaged, the system will check the voltage level to verify the engine is running. The threshold for the voltage level test can be programmed in Feature 2-6. When using voltage sense mode, connection of the H3/5 WHITE tachometer input is not necessary.



2-3 RUN TIME 12/24/60 MINUTES: This feature controls how long the engine will run before it “times out” and shuts down. Programmed to the default setting the engine will run for 12 minutes. If the 24-minute run time is desired, change this feature to the on-board LED off setting.

2-4 PARKING LIGHTS FLASHING/CONSTANT: In the default setting, the unit will flash the vehicle’s parking lights while remote started. The constant setting will turn the parking lights on solidly for the entire run duration.

2-5 CRANK TIME 0.6/0.8/1.0/1.2/1.4/1.6/1.8/2.0/4.0: If Feature 2-2 is programmed to the voltage sense setting, the crank time must be set to the appropriate duration. The default setting is 0.6 second. If a different crank time is desired, select Feature 2-5 and (while pressing the Valet®/Program switch) advance to the next time by pressing the Channel 2 button. The unit will flash the LED to indicate which time is selected. Once the 4.0 second setting is reached the next press of Channel 2 will reset the system to the shortest setting.

2-6 VOLTAGE CHECK LEVEL HIGH/LOW: This feature only functions when Feature 2-2 is programmed to voltage sense. Some vehicles have many accessories, which are turned on when remote started. In these vehicles, the variation of voltage between the engine off and the vehicle running is very slight and the remote start unit may “think” the vehicle has not started. This can cause the remote start to shut down after the vehicle has been started. If this is the case, program this feature to the LOW position.

2-7 AUXILIARY OUTPUT: Factory alarm disarm/ignition three output: In the default setting this wire sends a negative pulse that may be used to disarm the vehicle’s factory security system. If programmed for an ignition three output, the wire can be used to energize a relay to power up extra ignition wires in the vehicle.

2-8 BLUE WIRE STATUS OUTPUT/FACTORY RE-ARM OUTPUT: The blue (H3/1) wire will supply a (-)200mA output for the entire remote start run time. If programmed for factory re-arm output, this wire will supply a momentary (-)200mA pulse whenever the remote start times out or is shut down with the transmitter. This can be used to re-arm many factory security systems.

2-9 AUTOMATIC ANTI-GRIND ON/OFF: With the anti-grind on (default) the ground-when-armed output will be active during remote start operation. If accessories such as a voice module or window module are added to the unit, it may be necessary to program this feature off.

shutdown diagnostics

The unit has the ability to report the cause of the last shutdown of the remote start system.

to enter diagnostic mode



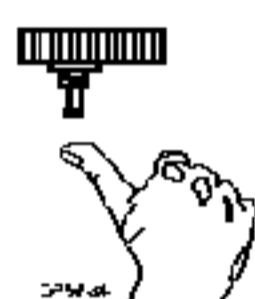
1. Turn the ignition off.



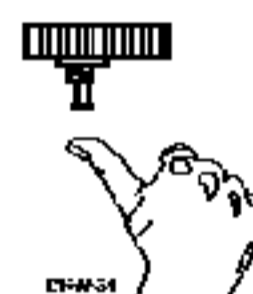
2. Press and hold the Valet/Program switch.



3. Turn the ignition on and then off.



4. Release the Valet/Program switch.



5. Press and release the Valet/Program switch.

The LED will now report the last system shutdown by flashing for one minute in the following grouped patterns:

LED FLASHES	SHUTDOWN MODE
One	System timed out
Two	Over-rev shutdown
Three	Low or no RPM
Four	Transmitter Shutdown (or optional push-button)
Five	(-) Shutdown
Six	(+) Shutdown
Seven	(-) Neutral safety shutdown (H3/6 BLACK/WHITE)
Eight	Wait-to-start timed out

The LED will stop flashing when the ignition is turned on.

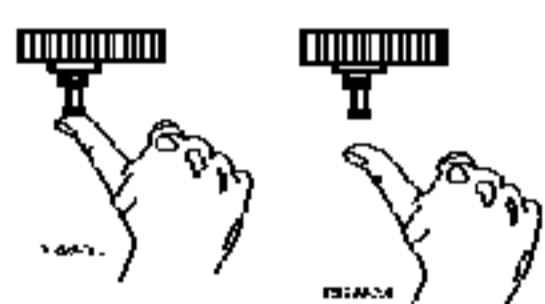
valet mode

to enter or exit valet mode

To enter or exit Valet® Mode with the Valet®/Program switch:



1. Turn the ignition on and then off.



2. Within 10 seconds, press and release the Valet®/Program switch.

The status LED will light solid if you have entered Valet® Mode, and will go out if you have exited Valet® Mode.