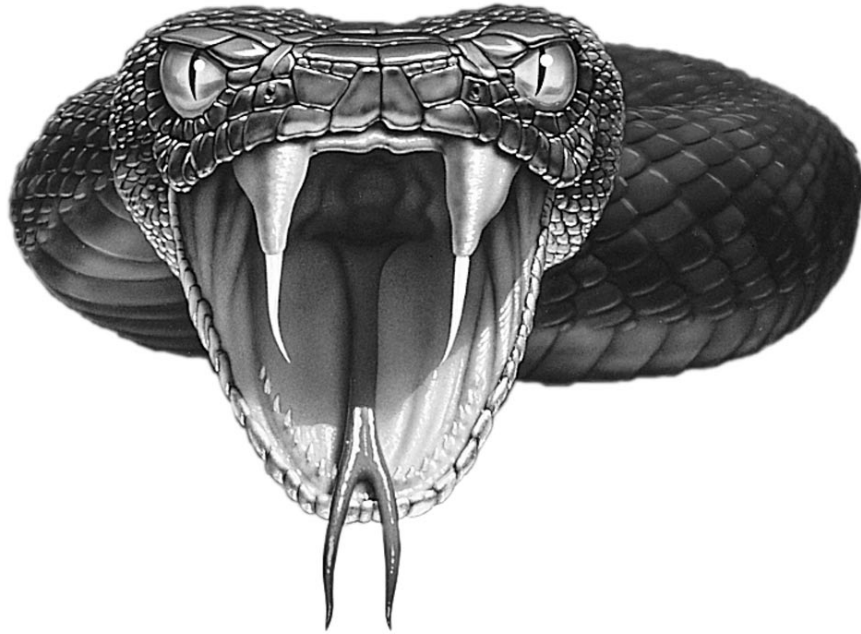


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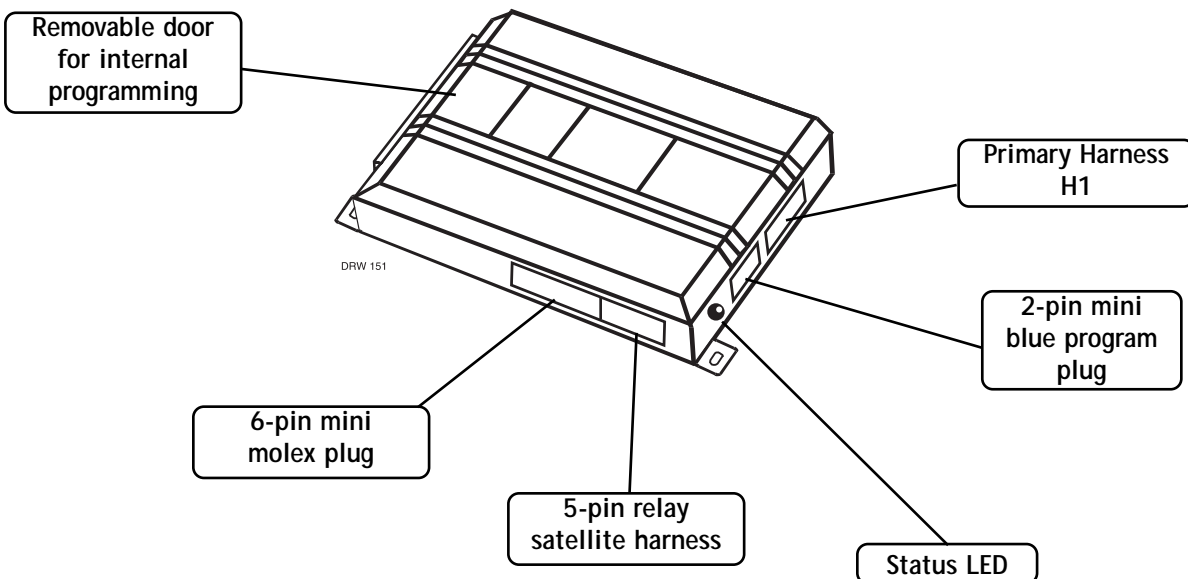


125 HF 991-up Installation Guide

Directed
ELECTRONICS, INC.

what is included

- The control module (see diagram)
- One 471T remote transmitter
- The plug-in program switch
- A hood pinswitch
- A relay satellite
- A toggle override switch
- A 542G range-extender antenna*



***NOTE:** When installing this system, be sure to plug the 542G range-extender antenna into the white 2-pin plug of the control module.

primary harness (H1) wiring diagram

H1/1	BLACK	(-) CHASSIS GROUND INPUT
H1/2	WHITE/BLUE	(-) ACTIVATION INPUT
H1/3	LIGHT GREEN/BLACK	(-) FACTORY DISARM/SPECIAL ACCESSORY
H1/4	YELLOW	(+) IGNITION (OUTPUT TO SECURITY SYSTEM)
H1/5	WHITE	(-) 200 mA LIGHT FLASH OUTPUT
H1/6	GRAY/BLACK	(-) WAIT-TO-START INPUT
H1/7	LIGHT GREEN	(-) 200 mA DOOR LOCK OUTPUT
H1/8	LIGHT BLUE	(-) 200 mA DOOR UNLOCK 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

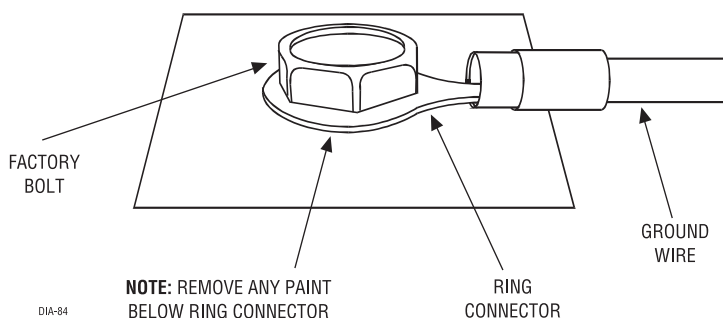
remote start harness (H2) wiring diagram

H2/1	BLUE	(-) 200 mA STATUS/FACTORY SECURITY-ARM OUTPUT
H2/2	BLUE/BLACK	(-) 200 mA OPTIONAL THIRD IGNITION OUTPUT
H2/3	GRAY	(-) HOOD PINSWITCH SHUTDOWN WIRE
H2/4	BROWN	(+) BRAKE SWITCH SHUTDOWN WIRE
H2/5	VIOLET/WHITE	TACHOMETER INPUT WIRE
H2/6	BLACK/WHITE	(-) NEUTRAL SAFETY SWITCH INPUT

primary harness (H1), 8-pin connector

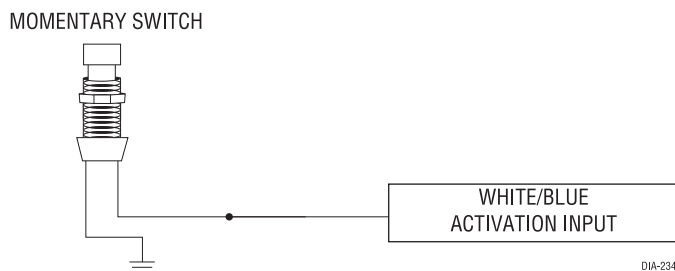
H1/1 BLACK (-) chassis ground connection

Remove any paint and 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.



H1/2 WHITE/BLUE (-) activation input

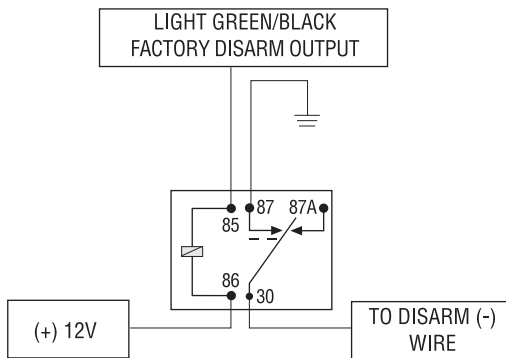
Sending a negative pulse to this wire will initiate the remote start sequence. This wire can be connected to an auxiliary channel output of a security or keyless entry system or to an optional momentary switch to activate the remote start system.



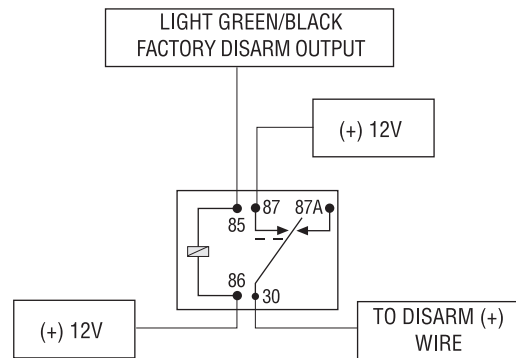
H1/3 LIGHT GREEN/BLACK (-) factory security disarm/special accessory output

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 following diagrams. 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



DIA-138

H1/4 YELLOW (+) ignition output to RF system

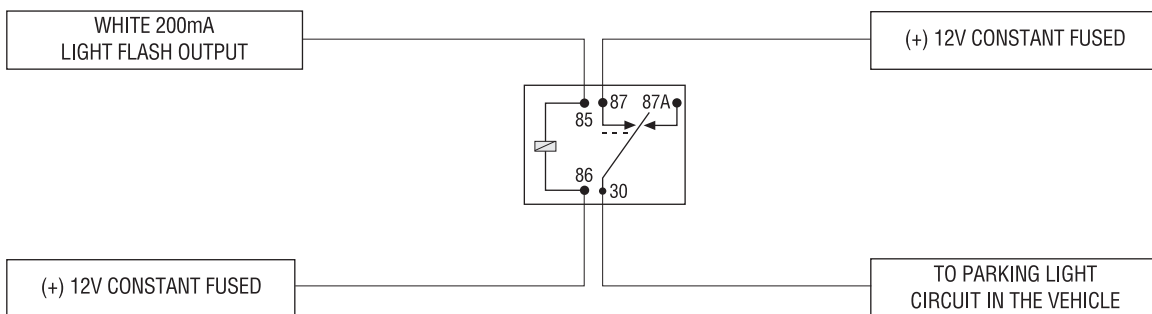
As a stand-alone system: The H1/4 YELLOW wire should not be connected to anything.

As an add-on car starter: If connected, disconnect the ignition/accessory input of the remote controlled security or keyless entry system. Connect the H1/4 YELLOW ignition output to the ignition/accessory input of the remote controlled security or keyless entry system. The 551R will prevent the host system from sensing that the ignition is on during remote start operation.

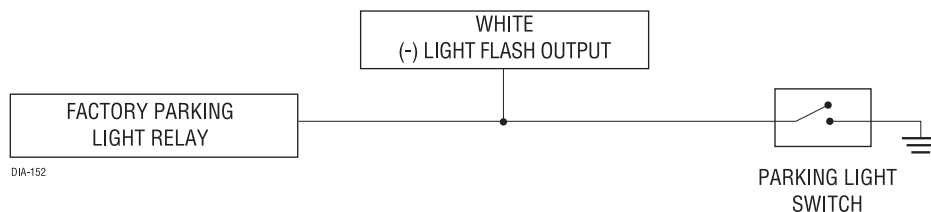
H1/5 WHITE (-) light flash output

This wire provides a (-) 200mA output to flash the parking lights during remote start operation. This is suitable for driving (-) light control wires in Toyota, Lexus, BMW, some Mitsubishi, some Mazda models, etc. If the vehicle has a positive parking light circuit a relay must be used to flash the parking lights.

(+) Positive Light Flash Output



(-) Light Flash Output



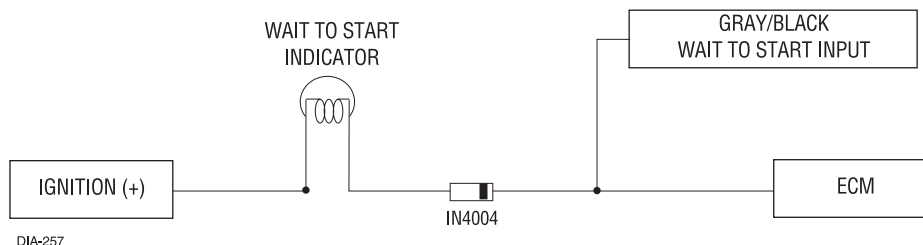
H1/6 GRAY/BLACK (-) diesel wait-to-start bulb input

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 for testing procedures.) Here are some common colors of this wire:

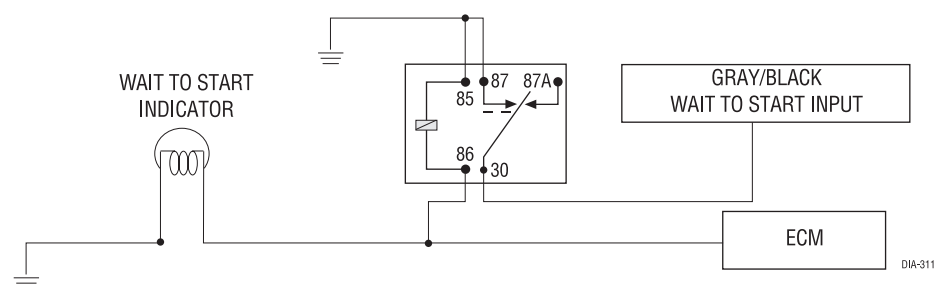
- Chevrolet and GMC trucks: Light Blue or Dark Blue
- Ford Trucks: Black/Pink
- Dodge Ram Trucks: Orange/Black or Black/Orange

NOTE! A 1-amp diode must be installed in line on the factory wire between the wait-to-start indicator and the ECM. (See the following diagram for details.)

(-) WAIT TO START WIRE



(+) WAIT TO START WIRE



H1/7 LIGHT GREEN (-) door lock output

This wire provides a negative output to lock the vehicle's doors. To interface this output with the vehicle's power door lock system, see the *Door Lock Wiring Guide* section of this guide.

H1/8 LIGHT BLUE (-) door unlock output

This wire provides a negative output to unlock the vehicle's doors. To interface this output with the vehicle's power door lock system, see the *Door Lock Wiring Guide* section of this guide.

relay satellite key switch interface

The heavy gauge wires leading from the relay satellite are used to energize high current circuits in the vehicle. It is crucial that these connections are made correctly so that they are capable of handling the current demands. For this reason, scotch locks, T-taps and other such connectors should not be used.

RED (2) (+) 12V input for relays

Remove the two 30 amp fuses prior to connecting these wires and do not replace them until the satellite has been plugged into the control module. These wires are the source of current for all the circuits the relay satellite will energize. They must be connected to a high current source. Since the factory supplies (+) 12V to the key switch that is used to operate the motor, it is recommended that these wires be connected there.

NOTE: *If the factory supplies two separate (+) 12V feeds to the ignition switch, connect one RED wire of the satellite to each feed at the switch.*

PINK (+) ignition output

Connect this wire to the ignition wire in the vehicle. (See *Finding the Wires You Need* section of this guide.)

ORANGE (+) accessory output

Connect this wire to the accessory wire in the vehicle that powers the climate control system. (See *Finding the Wires You Need* section of this guide.)

PURPLE (+) starter output

Connect this wire to the starter wire in the vehicle. (See *Finding the Wires You Need* section of this guide.)

PINK/WHITE (+) output to second ignition circuit

Connect this wire to the second ignition wire in the vehicle. (See *Finding the Wires You Need* section of this guide.)

NOTE: *For vehicles that do not have a second ignition wire, this connection is not required.*

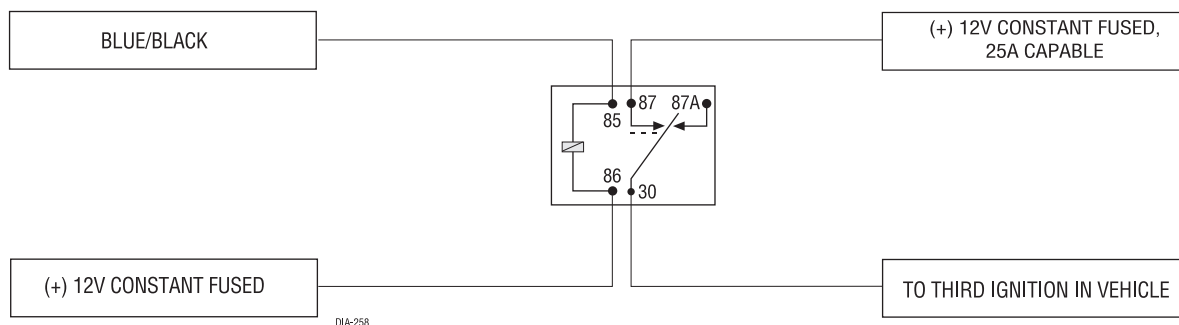
remote start harness (H2), 6-pin connector

H2/1 BLUE status/factory security rearm output

This output is programmable. If programmed for status output, the wire will supply a 200 mA ground output at all times the remote start is operating. If programmed for factory security rearm, the wire will supply a 200 mA ground pulse whenever the remote start times out or is shut down using the transmitter.

H2/2 BLUE/BLACK (-) optional third ignition output

This output provides 200mA as soon as the remote starter is activated. It is used to power a relay to energize a third ignition or accessory wire as shown below. This output is capable of driving two relays if necessary.



H2/3 GRAY (-) hood pinswitch input

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

H2/4 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.

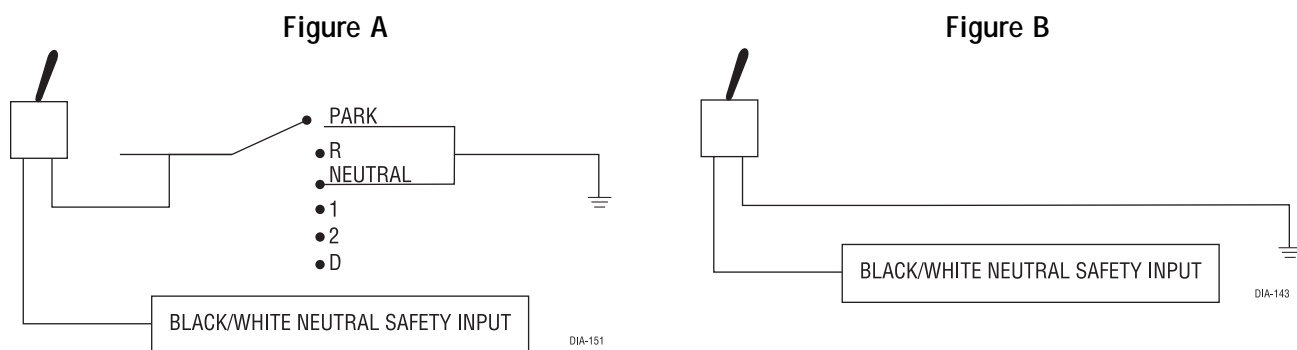
H2/5 VIOLET/WHITE tachometer input

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.)

H2/6 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.

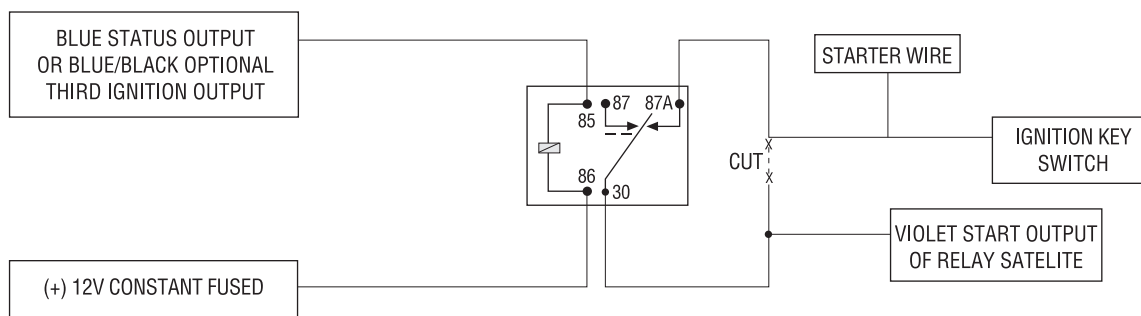
In some vehicles, the PARK/NEUTRAL position switch activates a factory starter lock-out that will not allow the starter to operate in a drive gear. In these vehicles, connect this wire to the toggle switch as shown in Figure B. Connect the other wire from the toggle switch to chassis ground.



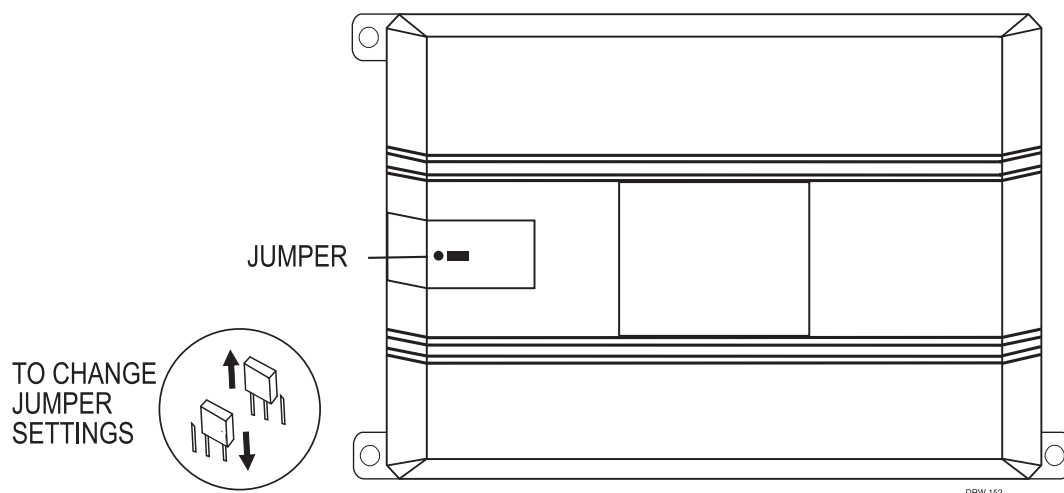
IMPORTANT! Always use the Vehicle Safety Check section of this guide to verify that the vehicle cannot be started in ANY drive gear and that the override switch is functioning properly.

optional anti-grind relay

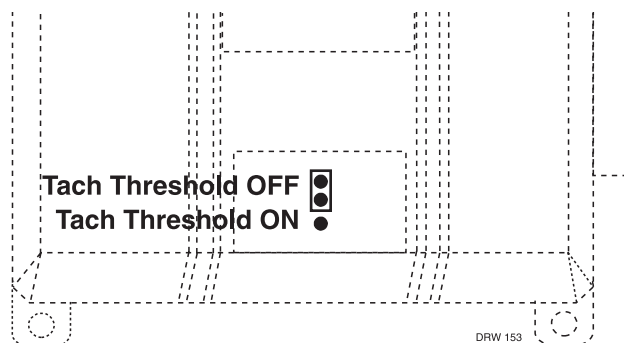
This unit has anti-grind relay that will prevent the starter from engaging if the ignition key is accidentally turned to the start position during remote start operation. If the BLUE status output has been programmed for factory security re-arm, use the BLUE/BLACK optional third ignition output to control the relay.



internal programming jumper



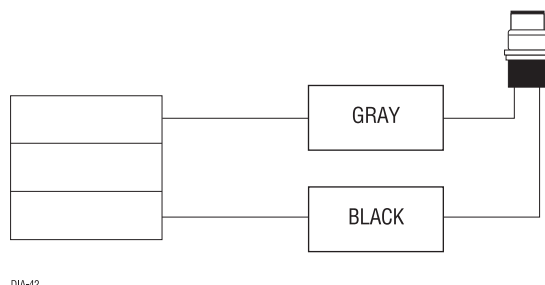
digital tach threshold on/off



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.

plug-in program switch

The Program switch plugs into the blue two-pin connector.



transmitter/receiver learn routine

The system comes with one transmitter that has 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.

The 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 to confirm the selected channel. Do not release the Program switch.

CHANNEL NUMBER	FUNCTION
1	Lock/Unlock
2	Timer Mode
3	Remote Start



3. **Transmit.** While **HOLDING** the Program switch, press the button on the transmitter that you would like to control the selected receiver channel.



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

You can advance from programming one channel to another by releasing the Program switch and tapping it to advance steps and then holding it. For instance: You have programmed Channel One and you want to program Channel Two. Release the Program switch. Press it one time and release it to advance from Channel One to Channel Two. Now, press and **HOLD** the Program switch. The LED will flash two times. As before, do not release it.

If you want to program Channel Three after programming Channel One, release the Program switch, press it twice and release it to advance to Channel Three. Then press it once more and **HOLD** it. 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 25 seconds elapses between programming steps.

tach learning

to learn the tach signal



1. Start the vehicle with the key.



2. Within 5 seconds, press and **HOLD** the 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. The programmable operating settings of this unit can be changed whenever necessary through the computer-based Learn Routine. The Program push-button switch, plugged into the blue port, is used together with a programmed transmitter to change the settings. It is possible to access and change any of the feature settings using the Program switch. To program settings, remember: Key, Choose, Transmit and Release.

To program the learn routine:



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



2. **Choose.** Within 10 seconds, press and release the Program switch the number of times corresponding to the feature number you want to program. (See *Features Menu* section.)

Once the 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, groups of eight flashes would indicate access to the status output feature (Feature 8).



3. **Transmit.** The transmitter is used to select the desired setting. As shipped, the unit is configured to the LED ON settings. These are called the default settings. Pressing Channel One (usually Button I) will set it to the LED ON setting. The LED will light solid (stop flashing) to indicate the setting. Pressing Channel 2 (usually Button II) will change the setting to the LED OFF setting. The LED will go out indicating the change.



4. **Release.** The Program switch can now be released.

You can advance from feature to feature by pressing and releasing the Program switch the number of times necessary to get from the feature you just programmed to the feature you wish to access. For example, if you just programmed the run time (Feature 3) and you next want to program parking lights (Feature 4) to constant, release the Program switch. Press and release it once to advance from Feature 3 to Feature 4. Then press it once more and **HOLD** it. The LED will flash in groups of 4 to confirm that you have accessed Feature 4.

The learn routine will be exited if any of the following occurs:

- The ignition is turned on.
- The Program switch is pressed too many times.
- More than 25 seconds elapses between programming steps.

features menu

The factory default settings are indicated in **bold** text in the table below.

FEATURE NUMBER	DEFAULT - LED ON SETTING (PRESS CHANNEL 1)	LED OFF SETTING (PRESS CHANNEL 2)
1	Engine checking on	Engine checking off
2	Tachometer checking type	Voltage checking type
3	12 minutes run time (1)*	24 minutes (2)*, 60 minutes (3) run time
4	Flashing parking light output	Constant parking light output
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.
6	High voltage check level	Low voltage check level
7	Auxiliary output: factory alarm disarm	Auxiliary output: special accessory
8	Normal status output	Factory re-arm output
9	Activation pulses: 1 (1)	Activation pulses: 2 (2), 3 (3)
10	Ignition-controlled locking on	Ignition-controlled locking off
11	Ignition-controlled unlocking on	Ignition-controlled unlocking off

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

feature descriptions

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. If programmed off, the vehicle will crank for the programmed crank time (Feature 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 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 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 6. When using voltage sense mode, connection of the H2/5 VIOLET/ WHITE tachometer input is not necessary.

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 or 60 minute run time is desired, change this feature to the two or three flash setting.

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.

5 CRANK TIME 0.6/0.8/1.0/1.2/1.4/1.6/1.8/2.0/4.0: If Feature 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 5 and (while pressing the Program switch) press the Channel Two button to advance through the LED Off settings. The unit will flash the LED to indicate which time is selected. Once the 4.0 second setting is reached the next press of the Channel Two button will reset the system to the shortest setting.

6 VOLTAGE CHECK LEVEL HIGH/LOW: This feature only functions when Feature 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.

7 AUXILIARY OUTPUT: Factory alarm disarm/special accessory 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 a special accessory output, the wire can be used to energize a relay to power up extra accessory wires in the vehicle. The special accessory output acts like many extra accessory wires. This output will energize when the remote start is activated, stop while the starter is cranking, and then come back on when the vehicle has started successfully. This allows more current to be available to the starter when needed.

8 BLUE WIRE STATUS OUTPUT/FACTORY RE-ARM OUTPUT: The blue (H2/1) 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.

9 ACTIVATION PULSES 1,2, OR 3: Determines how many pulses are needed on the WHITE/BLUE activation input before the unit will activate or deactivate. This will not affect activation with the remote transmitter.

10 IGNITION-CONTROLLED LOCKING ON/OFF: When turned on, the doors will lock 3 seconds after ignition is turned on.

11 IGNITION-CONTROLLED UNLOCKING ON/OFF: When turned on, the doors will unlock when ignition is turned 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 Program switch.



3. Turn the ignition on and then off.



4. Release the Program switch.



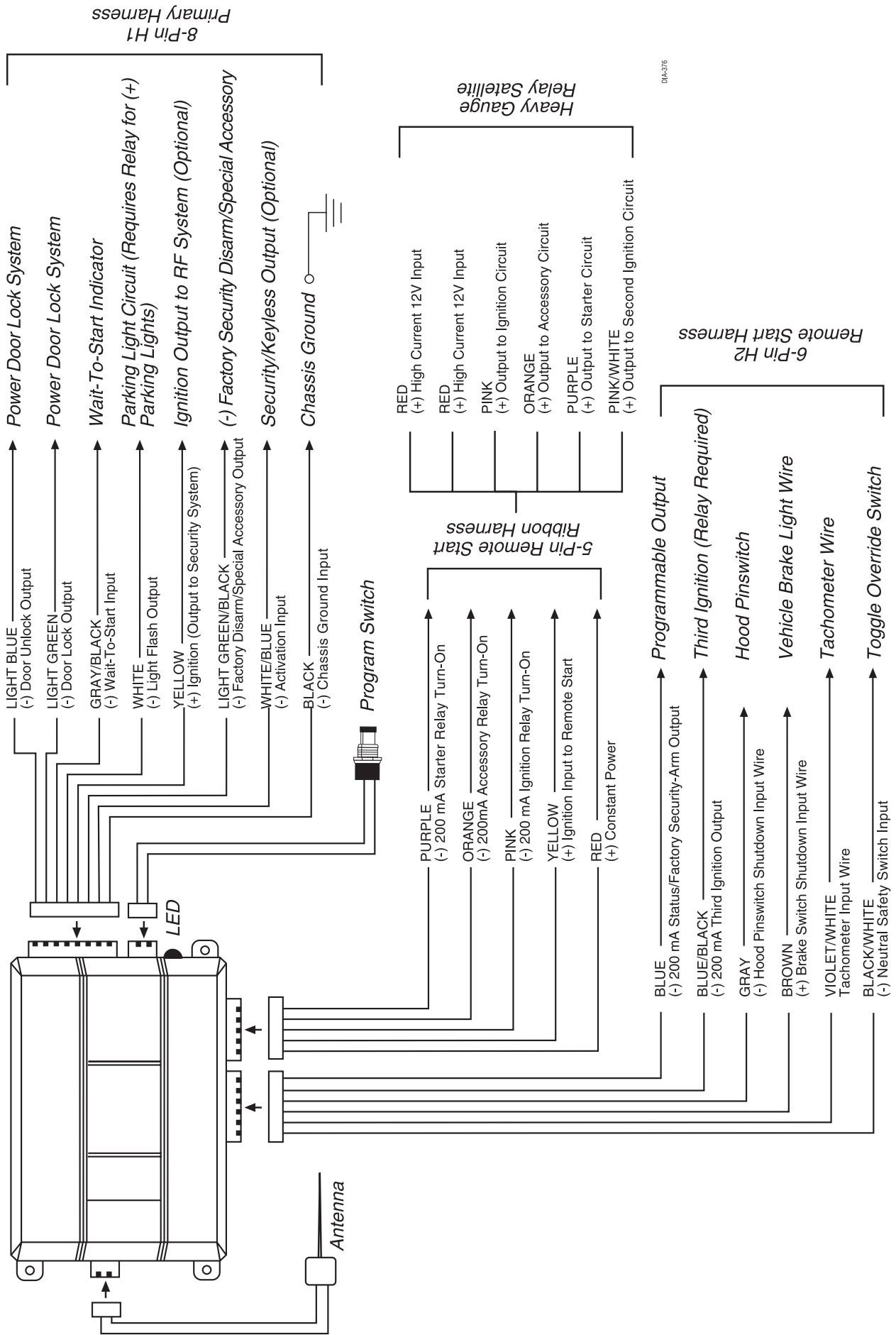
5. Press and release the Program switch.

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 (H2/6 BLACK/WHITE)
Eight	Wait-to-start timed out

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

Wiring Quick Reference Guide



DLA-376