

Installation Instructions

Note: Do not install this system on a vehicle that is not equipped with the following:

- Automatic Transmission
- Fuel Injection
- Ignition / Shift Interlock

**PROFESSIONAL INSTALLATION
STRONGLY RECOMMENDED**

Installation Precautions:



Roll down window to avoid locking keys in vehicle during installation



Avoid mounting components or routing wires near hot surfaces



Avoid mounting components or routing wires near moving parts



Tape or loom wires under hood for protection and appearance



Use grommets when routing wires through metal surfaces



Use a voltmeter for testing and verifying circuits



Technical Support
24 Hours/ 7 Days per Week
For Authorized Dealers - (800) 421-3209

FCC COMPLIANCE

This device complies with Part 15 of the FCC rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including any interference that may cause undesired operation.

Warning!

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

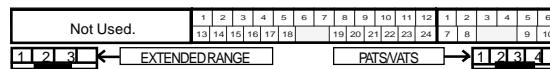
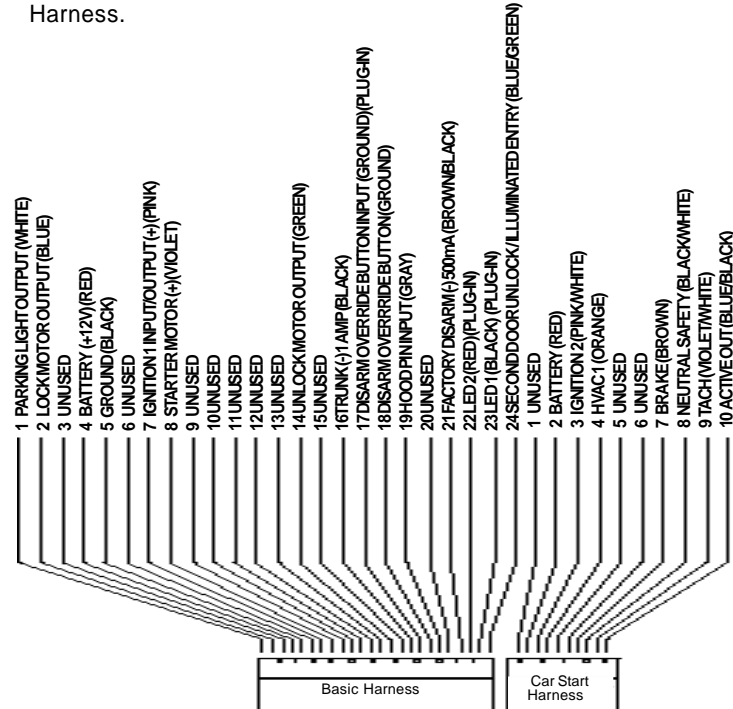
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System Layout F50/F55

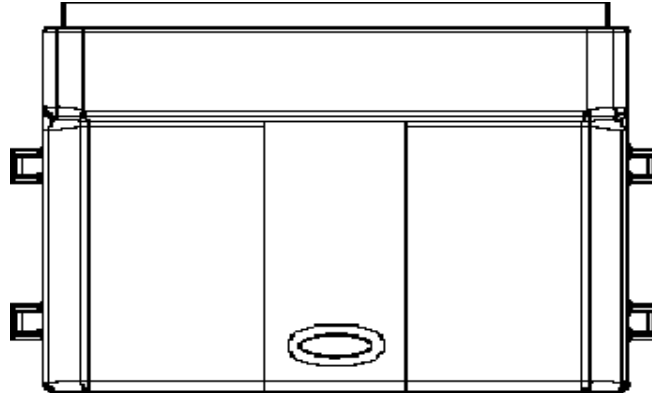
IMPORTANT!!!

**The module *MUST* be programmed before it will operate.
Refer to the programming instructions on pages 13-16**

Note: The wire connection sections will identify each wire with a number (pin cavity) and a letter (harness), i.e.: 20/B = Wire 20, B (Basic) Harness.



Wire End View



1. Basic Harness (B)

IMPORTANT!!!

- Remove fuses from Module before installation.
- Solder and tape all connections.

1/B Parking Light Output (20 AWG) (WHITE)

Locate the vehicle parking light wire.

Verification: This wire will register either positive voltage or ground when the parking lights are turned on. Voltage does not vary when dimmer switch is adjusted. Refer to the **Vehicle Wire Color and Location Chart** for the wire color, polarity, and location.

- ▶ Connect the 1/B wire to the parking light wire.

IMPORTANT!

After installation, set the polarity of this circuit by moving the fuse inside of the control module to positive (+) or negative (-).

2/B Lock Motor Wire (20 AWG) (BLUE)

14/B Unlock Motor Wire (20 AWG) (GREEN)

24/B Second Door Unlock (20 AWG -) (BLUE/GREEN)

IMPORTANT!

After installation, set the polarity of this circuit by moving the fuse inside of the control module to positive (+) or negative (-).

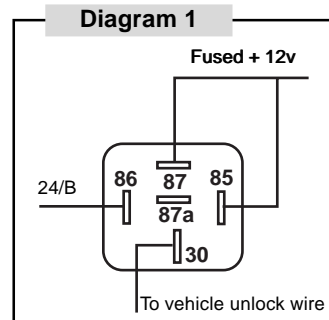
**Type 1: Positive 3-wire door lock system -
Polarity Fuse = Positive (+)**

Single-stage unlock

- ▶ Connect the 2/B wire to the vehicle lock wire.
- ▶ Connect the 14/B wire to the vehicle unlock wire.

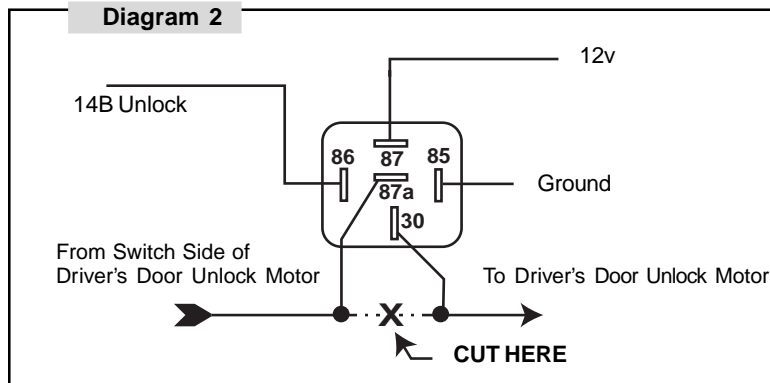
Two-stage unlock

- ▶ Connect the 2/B wire to the vehicle lock wire.
- ▶ Use a SPDT relay (not supplied) and connect the 24/B wire to the vehicle unlock wire as shown in Diagram 1.



1. Basic Harness (B), cont'd.

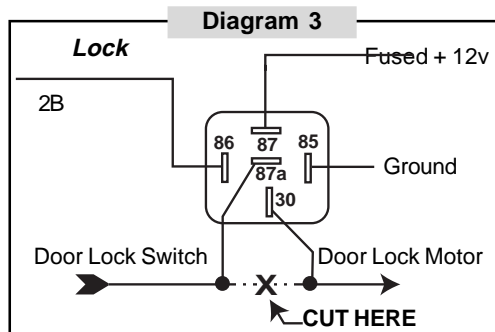
- ▶ Connect the 14/B wire as shown in Diagram 2.



Type 2: Positive 5-Wire Door Lock System Polarity fuse = Positive (+)

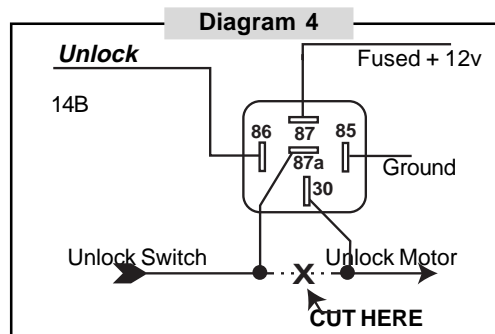
Single-Stage Unlock

- ▶ Connect wire 2/B as shown in Diagram 3.
- ▶ Connect wire 14/B as shown in Diagram 4.

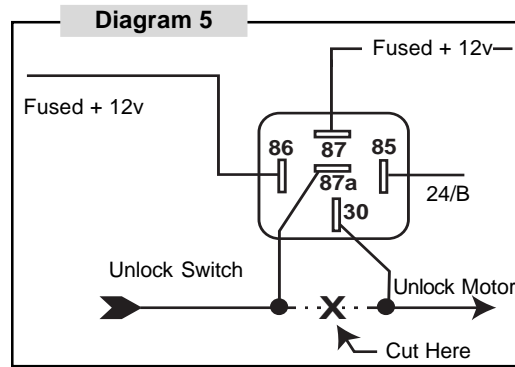


Two-Stage Unlock

- ▶ Connect wire 2/B as shown in Diagram 3.
- ▶ Use a SPDT relay (not supplied) and connect the 24/B wire to the vehicle's unlock wire as shown in Diagram 5 (page 5).
- ▶ Connect wire 14/B as shown in Diagram 2 (above).



1. Basic Harness (B), cont'd



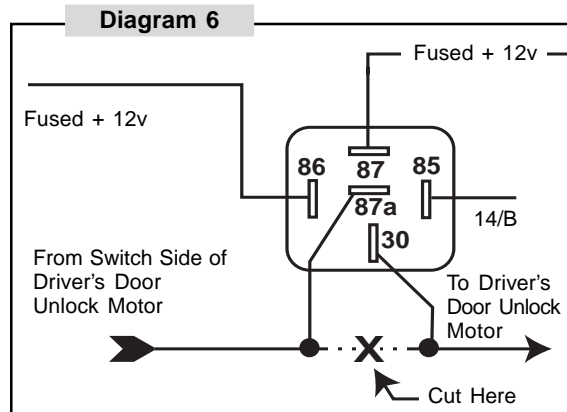
Type 3: Negative 3-Wire Door Locking System
Polarity Fuse = Negative

Single-stage unlock

- ▶ Connect the 2/B wire to the vehicle lock wire.
- ▶ Connect the 14/B wire to the vehicle unlock wire.

Two-stage unlock

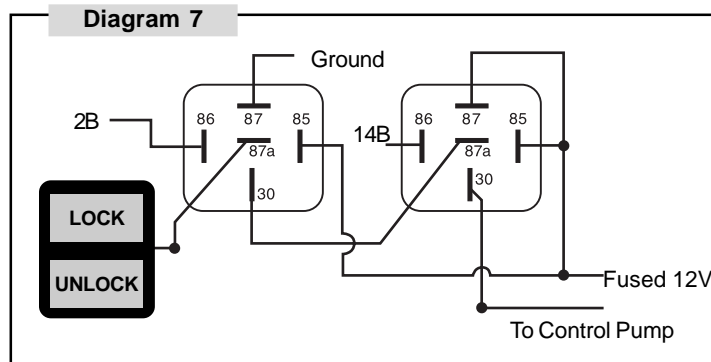
- ▶ Connect the 2/B wire to the vehicle lock wire.
- ▶ Connect the 24/B wire to the vehicle unlock wire.
- ▶ Use a SPDT relay (not supplied) and refer to Diagram 6 to connect to the vehicle's driver's unlock wire.



1. Basic Harness (B), cont'd

Type 4: Vacuum Door Lock System Polarity Fuse = Negative

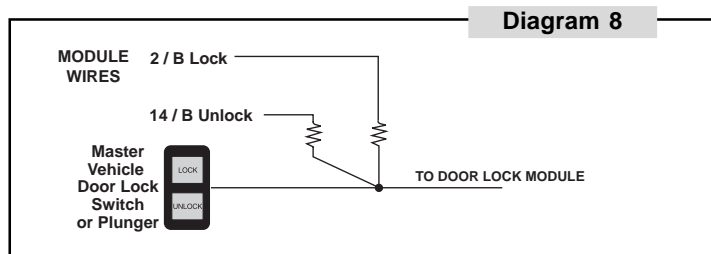
Note: Two-stage unlock will not work with this type of system.



Type 5: Resistor Door Lock system Polarity Fuse = Positive/Negative

Note: Refer to **Vehicle Wire Color and Location Chart** for correct polarity. Move the fuse inside of the control module to positive or negative polarity.

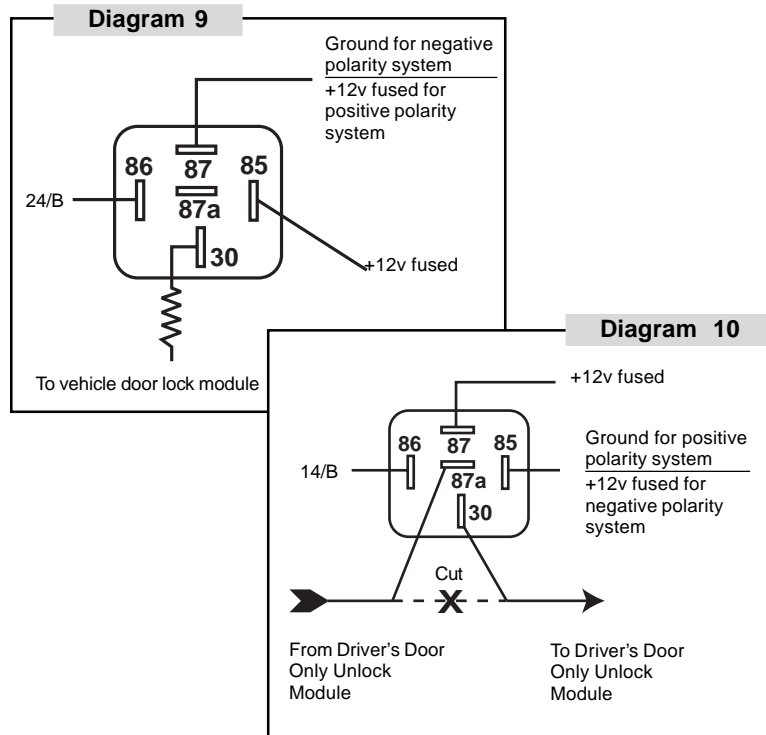
Single Stage Unlock



1. Basic Harness (B), cont'd

Two-Stage Unlock

- ▶ Connect the 2/B wire as shown in Diagram 8 (Previous Page).
- ▶ Connect the 24/B wire as shown in Diagram 9 (below).
- ▶ Connect the 14/B wire as shown in Diagram 10 (below).



4/B Main Power (14 AWG) (RED)

- ▶ Connect the 4/B wire to the vehicle main power wire at the ignition switch.
Verification: This wire registers voltage through every position of the ignition switch.

5/B Chassis Ground (14 AWG) (BLACK)

- ▶ Connect the 5/B wire to a **solid chassis ground point**. Scrape away paint from the grounding point to ensure a good connection.
Note: Do not ground the 5B wire with any other vehicle components.

8/B Starter Output Motor Side (14AWG) (VIOLET)

NOTE: If the vehicle is equipped with a VATS or similar start prevention system, please see **Interfacing with OEM Starter Prevention Systems** on page 21 of this manual.

1. Basic Harness (B), cont'd

Locate the vehicle starter wire.

Verification: This wire registers voltage *only* when the key is turned to the START position.

- ▶ Connect the 8/B wire to the vehicle starter wire.

7/B Ignition 1 Input/Output (14 AWG+) (PINK)

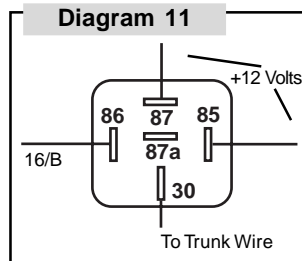
- ▶ Connect 7/B wire to the vehicle ignition wire at the ignition switch.
Verification: This wire registers voltage when the key is turned to the ON (or RUN) position. The voltage does not drop out when the key is turned to the START (or CRANK) position.

16/B Trunk Release Output (TAN)

Locate the vehicle trunk release wire.

Verification: Refer to the **Vehicle Wire Color and Location Chart** for the wire color, polarity, and location.

- ▶ For negative systems, connect the 16/B wire to the trunk release wire.
- ▶ If the system is positive, use a SPDT Relay (not supplied) and connect the 16/B wire to the trunk release as shown in Diagram 11.



17/B, 18/B Emergency Override Button (20 AWG-)

Find a mounting location for the override button that is not easily seen or openly accessible. There must be at least 1" clearance behind the location.

Drill a $\frac{9}{32}$ " hole and mount the button.

- ▶ Connect one of the override button BROWN wires to the 17/B wire.
- ▶ Connect the other override button BROWN wire to the 18/B wire.

19/B Hood Safety Input (20 AWG -) (GRAY)

- ▶ Install the supplied pin switch and attach the 19/B wire.
Verification: When connected, the 19/B wire will register ground when the vehicle hood is opened.

1. Basic Harness (B), cont'd.

IMPORTANT!

This connection is necessary for programming of the tach wire, and to prevent accidental starting of the vehicle when the hood is open, which may cause injury. If this wire is not connected, open hood shut-off is disabled.

21/B Factory Alarm Disarm (20 AWG-) (BROWN/BLACK)

- ▶ Connect the 21/B wire to the vehicle anti-theft disarm wire (if equipped).
Verification: This wire will register ground when the driver's door is unlocked with the key. Refer to **Vehicle Wire Color and Location Chart** for specific wire color and polarity information.

22/B LED2 (20 AWG+)

23/B LED1 (20 AWG-)

Locate a visible section of the dash with 1" clearance behind the location.

Drill a $\frac{9}{32}$ " hole and snap the Status Indicator into place.

- ▶ Connect the Status Indicator Red Wire to the 22/B LED2 wire.
- ▶ Connect the Status Indicator Black Wire to the 23/B LED1 wire.

Tip: To change the Red LED to a Green LED:

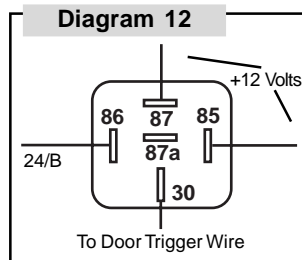
- ▶ Connect the status indicator Black wire to the 22/B LED2 wire.
- ▶ Connect the status indicator Red wire to the 23/B LED1 wire.

24/B Illuminated Entry (-) (BLUE/GREEN)

Locate the door trigger wire.

Verification: This wire will register either positive or ground when the door is opened.

- ▶ For negative systems, connect the 24/B wire to the vehicle door trigger wire.
- ▶ If the system is positive, use a SPDT Relay (not supplied) and connect the 24/B wire to the door trigger wire as shown in Diagram 12.



3. Car Start Harness

4/C HVAC1 Output (14 AWG +)(ORANGE)

2/C Battery (#14 AWG) (RED)

- ▶ Connect the 4/C wire to the vehicle heater / accessory wire at the ignition switch.
Verification: This wire registers voltage when the key is turned to the ON (or RUN) position, but not the ACC (Accessory) position. The voltage drops when the key is turned to the START (or CRANK) position.
- ▶ Connect 2/C to a main power wire at the ignition switch, preferably to a wire other than the 4/B main power connection.

3/C Ignition 2 Output (14 AWG+) (PINK/WHITE)

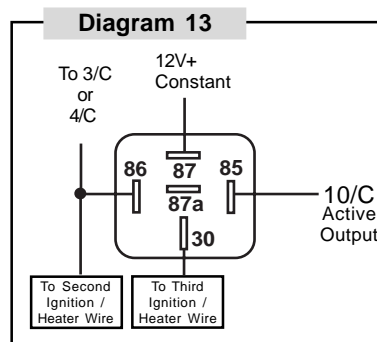
Note: Use the 3/C wire if the vehicle requires connection to a second ignition circuit for the vehicle to operate properly during remote start.

- ▶ Connect this wire to the vehicle second ignition wire at the ignition switch.

Connecting To a Third Ignition/ Second Heater Wire

Some vehicles may require connection to more than two ignition or heater wires. If so, use a 30- amp SPDT or SPDT relay (not supplied), and connect as shown in the diagram (Diagram 13).

Note: Never "jump" vehicle ignition or heater wires together!



3. Car Start Harness (C), cont'd

7/C Brake Input (20 AWG+) (BROWN)

- ▶ Connect the 7/C wire to the vehicle brake light wire.
Verification: This wire registers positive voltage when the brake pedal is pressed.

8/C Neutral Safety Switch (20 AWG) (BLACK/WHITE)

NOTE: The following connections are required to ensure proper operation of the system.

Negative systems:

- ▶ Connect the 8/C wire to the vehicle wire at the shifter that will show ground when in park or neutral, and voltage in all other positions.

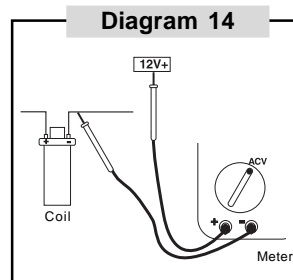
Positive systems:

- ▶ Connect the 8/C wire to the vehicle wire at the shifter that will show 12 volts when in park or neutral, and no voltage in all other positions.

Note: Refer to Programming Option 3/ Feature 2 to select polarity. For vehicles with a shift interlock, this wire must connect to ground/power for the Car Start feature to work properly (page 16).

9/C Tach Input (-) (VIOLET/WHITE)

- ▶ Connect the 9/C wire to wire at negative side of the vehicle ignition coil or fuel injector.
Verification: Refer to **Vehicle Wire Color and Location Chart** for the wire color and location, or test using the following procedure:
 1. Set voltmeter to AC VOLTS.
 2. Attach positive lead of meter to a constant 12-volt source.
 3. Attach negative lead of meter to the wire to be tested.
 4. Start the engine.
 5. Have someone press on the gas pedal slightly as you monitor the meter. If connected to the correct wire, the voltage reading will increase as the engine's RPM increases.



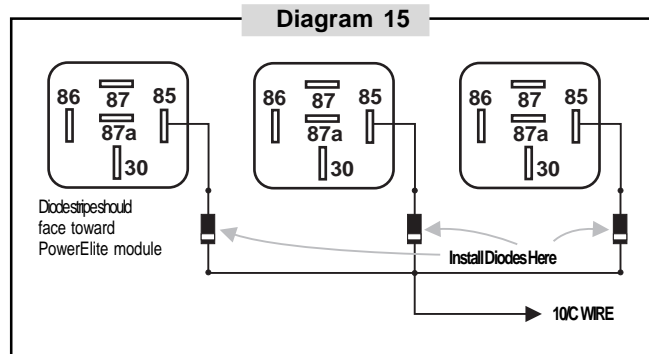
IMPORTANT!

If this wire is not connected, over-rev shut-off is disabled.

3. Car Start Harness (C), cont'd

10/C Active Output (20 AWG -) (BLUE/BLACK)

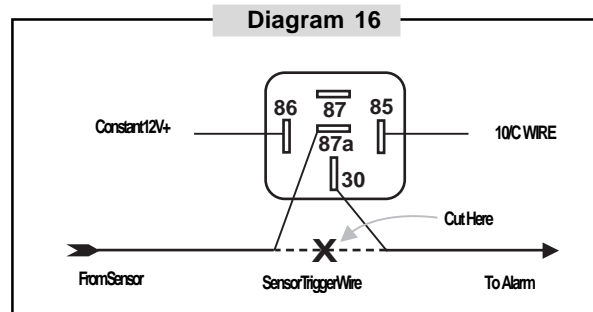
- Connect the 10/C wire to add-on relays as described in Diagram 15, or to an optional component requiring a ground signal when the vehicle is running via remote start.



Note: If you are connecting the 10/C wire to more than one relay, install 1-amp blocking diodes (1N4001 or equivalent) as shown in the Diagram 15.

Interrupting a Sensor or Component while the Vehicle is running via Remote Start

- Use an SPDT relay (not supplied) and connect as shown in Diagram 16.



4. System Power-Up and Programming

A. System Power-Up

1. All connections must be secure and well insulated.
2. Insert fuses inside of the control module in their respective slots.
3. Plug in DNA/fuse cover on top of the control module.
4. Turn vehicle ignition on.
5. Plug in the 24-pin Basic Harness followed by the 10-pin Car Start Harness.
6. Turn vehicle ignition off.

B. Remote Transmitter Programming

Note: Each system module has four “slots”, or memory locations, to store transmitter codes, giving it the ability to operate from up to four transmitters. For proper operation, a transmitter code must be stored into each memory slot. When using less than four transmitters, follow the suggested programming parameters:

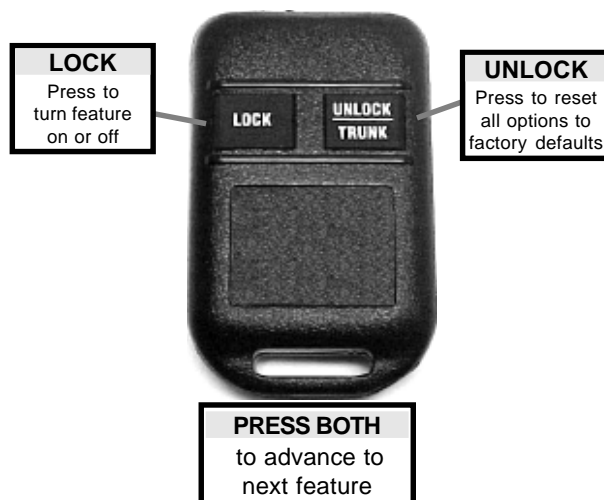
- **One Remote Transmitter** - Program four (4) times
- **Two Remote Transmitters** - Program each transmitter two (2) times
- **Three Remote Transmitters** - Program two transmitters one (1) time, and the remaining transmitter twice.

1. Press the Brake pedal
2. Turn vehicle ignition on.
3. Press and hold emergency override button.
After 10 seconds, the siren or horn will sound three (3) times. This indicates that the unit has entered the transmitter programming mode.
4. Release the button.
5. Press the LOCK button on the remote transmitter to be programmed.
The siren or horn will sound once, indicating that the system has “learned” that remote transmitter.
6. Repeat step 5 for any additional transmitters or transmitter codes.
7. **To continue to the Options Programming mode**, go to step 2 of **Programming Selectable Options** (next page). Otherwise, turn the vehicle ignition off to exit the programming mode. Test all remote transmitters to ensure that they work properly by toggling the LOCK and UNLOCK/TRUNK buttons.

4. System Power-Up and Programming, cont'd

C. Programming Selectable Options

Note: Transmitters must be programmed prior to these steps.



1. Repeat steps 1-4 of **Remote Transmitter Programming** (previous page).
2. Press and release the emergency override button.
*The horn or siren will sound four (4) times. This indicates that the unit has entered the **Keyless Options Programming** mode.*
3. Press both the LOCK and UNLOCK buttons to advance to the next feature.
The parking lights will flash a number of times to indicate the number of the option.
4. Press the LOCK button to turn the option on or off. The vehicle status indicator on the dashboard indicates whether an option is on or off.
 - If the selected option is ON, the indicator will light.
 - If the selected option is OFF, the indicator will turn off.
 - The status indicator will turn on or off when an option is changed.
5. When changes are complete, press and release the emergency override button to continue to the next option bank. (The parking lights will flash five (5) times).
6. To reset all options back to factory defaults, press the Disarm/Trunk button.

Note: Option Bank 3 Installer Options will never reset.

7. Turn ignition off to exit programming.

See Options Chart on page 16.

4. System Power-Up and Programming, cont'd

E. Programming the Tach Signal

Note: Skip this step if the vehicle does not have a tach wire or if this unit will be programmed to operate without connection to the tach wire.

1. Open the vehicle hood (hood pin switch must be installed to program tach).
2. Following the steps in Section C (Programming Selectable Options), access Option Bank 3 / Feature 3.
3. Start the vehicle with the key, and allow the engine to come to a normal idle (5-10 seconds).

The unit will chirp the Siren/Horn and flash the parking lights every three (3) seconds to indicate that it has learned the current idle speed.

Fuse Size & Location

Trunk Output	Dome Light	Parking Lights	Door Locks
+	+	+	+
15A	15A	15A	25A
-	-	-	-
 25A 	 25A 	 25A 	 5A
Heater 1	Heater 2	Ignition 1/2	Main Power

4. System Power-Up and Programming, cont'd

E. Programming Options

Default settings in **BOLD**

OPTION	DESCRIPTION		
Option Bank 0 - 3 Chirps (Learn Transmitters)			
Option Bank One - 4 Chirps (Keyless Options)		STATUS INDICATOR	
1. Lock with Ignition	Doors lock when all doors are closed and ignition is turned on	ON	OFF
2. Delayed Door Lock	3 sec. delay locking for theater dimming	ON	OFF
3. Extended Locks	Lock duration is (1) 5 sec. or (2) 0.6 sec.	ON(1)	OFF(2)
4. Unlock with Ignition	Doors unlock when ignition is turned off	ON	OFF
5. Double Unlock Pulse	Unit provides two pulses on each unlock	ON	OFF
6. Illuminated Exit	Courtesy light on for 60 sec. after ignition is turned off	ON	OFF
7. Illuminated Entry	(1) Second Door Unlock (2) Ill. Entry	ON(1)	OFF(2)
8. Unused			
Option Bank Two - 5 Chirps (Car Start Options)			
1. Tach Mode	(1) Use blind crank timing (2) Use tach input	ON(1)	OFF(2)
2. Blind Crank Time	(1) Avg of last manual starts (2) 1. sec.	ON(1)	OFF(2)
3. Run Time	(1) 25 minutes (2) 12 minutes	ON	OFF
4. Diesel Mode	Start crank begins (1) 15 sec. or (2) 2 sec. after ignition turns on	ON(1)	OFF(2)
5. Doors Lock After Start	Doors lock after start command	ON	OFF
Option Bank Three - 6 Chirps (Car Start Options)			
1. External Start Trigger	(1) Positive (2) Negative	ON(1)	OFF(2)
2. Neutral Safety Input	(1) Positive (2) Negative	ON(1)	OFF(2)
3. Tach Programming*	Hood open, start learn	ON(1)	OFF(2)

5. System Testing

1. Follow each instruction below.
2. Verify that the F50/F55 operates as indicated under each instruction.
3. Check the appropriate wire connections and/or fuses if the unit fails to perform a specific function. Also check that any options pertaining to the function are programmed properly.

Remote Start Operation

Press and Hold BOTH BUTTONS

1. Unit will chirp 4 times if tach is not yet learned or vehicle has not been manually started if in Blind Crank Timing Mode.
2. Unit will chirp two (2) times if the neutral safety input does not see ground.
3. Unit checks to see if hood is open. If so, parking lights flash two (2) times and vehicle will not start.
4. Unit checks to see if brake is pressed. If so, parking lights flash two (2) times and vehicle will not start.



If the above conditions are not present:

1. Parking lights flash once.
2. Factory alarm (if equipped) is turned off.
3. Factory VATS or PATS systems (if equipped) are interfaced (active output is activated).
4. Interior Sensor is disabled.
5. Vehicle ignition turns on.
6. Heater/AC are powered.
7. Vehicle starter begins to crank (heater/AC power shuts off while vehicle starter is cranking).
8. Vehicle successfully starts.
9. Doors lock.
10. Vehicle will shut off if hood is opened, brake is pressed, or if engine reaches 3 times its idle speed (Tach Sense Mode only). Vehicle will also shut off if alarm is triggered.
11. Parking lights stay on for duration of run time.
12. Heater/AC is powered for duration of run time.
13. Vehicle runs for up to 12 or up to 25 minutes depending on setting of Option Bank 2, Option Setting 3.

5. System Testing, cont'd

Start Output Configuration:

Tach Sense Mode

If Tach input wire is connected and Tach Sense Mode is enabled, the starter will crank until the tach signal indicates that the vehicle has started, or 4 seconds have passed. After 4 seconds, starter, heater/AC, and ignition will shut off. The unit will pause 5 seconds, then attempt to start the vehicle again. The start sequence will be attempted 5 times before aborting.

Blind Crank Timing Mode

If Blind Crank Timing Mode is enabled, the module will average the last eight key starts to determine crank time. The vehicle must be started at least 4 times with the key to initialize timing for this option. The module will use this average as an assumed crank time.

No Tach Mode

If No Tach Mode is enabled, the starter will crank for 1 second. The unit will "assume" that the vehicle has started.

Note: In Blind Crank Timing or No Tach modes, over-rev protection is disabled.

Press and hold BOTH BUTTONS while vehicle is running via remote start

1. Vehicle shuts off.
2. Parking lights turn off.
3. Heater/AC and ignition shut off.
4. Defroster (or other device) turns off.

Press and hold BOTH BUTTONS while vehicle is running via key

1. Parking lights will turn on.
2. System will enter remote start mode. Vehicle will remain running for the selected run time after key is removed from ignition.

Keyless Operation

Press LOCK

1. Doors lock.
2. Courtesy lights (if on) shut off.
3. LED flashes slowly until pressing UNLOCK

Press UNLOCK

1. Doors unlock
2. Factory alarm (if equipped) is turned off.
3. Courtesy lights turn on for 60 seconds, or until LOCK is pressed or ignition is turned on.
- 4.. LED turns off (if alarm was triggered, LED will flash quickly).

5. System Testing, cont'd

Press and hold UNLOCK/TRUNK

Trunk or hatch opens, or other device activates AS LONG AS BUTTON IS HELD.

If Ignition Lock option is set to On:

Doors lock when all doors are closed and key is turned to ON position.

If Ignition Unlock option is set to On:

Doors unlock when ignition is turned off.

If Illuminated Exit option is set to On:

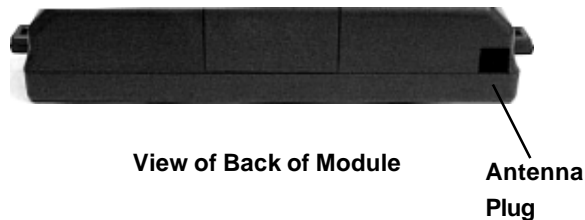
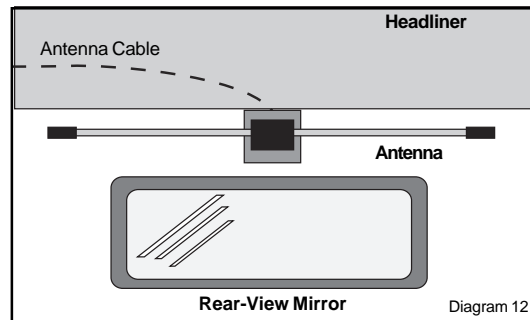
Courtesy lights turn on when vehicle ignition is turned off, and stay on for 60 seconds or until system is armed.

6. Mounting the Module / Finishing the Installation

IMPORTANT!

Perform System Test (page 17-19) before and after this section.

1. Use the supplied long tie wraps to mount the module to a brace or wire harness under the dash. The module and harnesses must be clear of moving parts.
2. Completely uncoil the antenna and route up the nearest front window pillar to the headliner. Be careful not to pinch the antenna under vehicle panels, or route near moving parts.
3. Route the antenna across the headliner to a position behind the rearview mirror.
4. Attach the antenna to the inside of the windshield behind the rearview mirror:
 - The glass surface must be clean before mounting antenna. Use rubbing alcohol to thoroughly clean the mounting location.
 - Remove protective backing and press firmly against windshield.
 - Antenna should be mounted as shown below (dia. 12).
5. Plug antenna into Antenna Plug on module as shown below.



6. Mounting the Module / Finishing the Installation, cont.

Interfacing with OEM Starter Prevention Systems

1. VIK-2: GM VATS PASSLOCK Interface Kit
2. PIK-1: Ford PATS Interface Kit
3. PIK-2: Universal Transponder Interface Kit

Please refer to **Vehicle Wire Color and Location Chart** to determine what type of OEM Starter Prevention System the vehicle has.

