FM SECURITY AND REMOTE START SYSTEM

INSTALLATION MANUAL

BEFORE INSTALLING THIS PRODUCT PLEASE READ THIS INSTALLATION MANUAL THOROUGHLY!!

This system is intended for installation on vehicles equipped with automatic transmissions and electronic fuel injection only!

DO NOT INSTALL THIS SYSTEM INTO A MANUAL TRANSMISSION VEHICLE AS IT COULD RESULT IN SERIOUS INJURY OR DEATH.

• This product must be installed by qualified personnel according to these instructions and and observing all safety features.

• The system should be placed into the valet mode when parked inside a garage or being left for service.

• Always notify service personnel that the vehicle is equipped with a Remote Starter.

• Only start the vehicle in a well ventilated area. Do not use in a closed garage or indoors.

ITEMS SUPPLIED WITH THE SYSTEM :

• Main unit
• One 3-button remote control w/ LCD text display and background illumination*
• Plug In LED
• Plug in program switch
• Harness kit with 2 heavy duty fuse holders
• Hood Pin switch
• Extended range transceiver module
• Dual Stage Electronic Shock sensor
• 120dB 6-tone siren
• Owner's manual

*One or two transmitters provided depending on system purchased.

OPTIONAL ACCESSORIES:

• VAC-10 Vacuum Switch Kit
• APP-1 Universal OEM transponder bypass kit
• APV-1 GM VATS, Passlock I&II bypass kit
• PDLM-3 Power door lock relay module

Before you begin the installation:

• Verify that the vehicle is equipped with electronic fuel injection.

• Verify that the vehicle is equipped with an automatic transmission.

• Check to see if the vehicle is equipped with any type of factory security system.

• Check to see if there is a pin switch for the hood, if not one must be installed.

• Verify that the vehicle starts and idles properly before you start the installation.

• Verify with the customer the desired location for the program switch and LED.

• Always use a multi-meter when verifying vehicle wiring.

Remote Start Installation Notes:

The system senses the vehicle's successful start using one of the following methods:

1. Current sense
2. Tachometer sense
3. Spark or Coil Wire sense
4. Using optional vacuum switch.

If the Current Sense feature of the system does not allow proper operation, the tachometer sense/spark sense wire may be used, or an optional vacuum switch can be installed.

To use the tach sense/spark sense wire, set dip switch #4 to the **off** position. Connect the gray wire directly to the vehicle's tach wire or extend it into the engine compartment and wrap it several times around a spark plug or coil wire.

In situations were a tach wire is unavailable or does not allow proper operation, an optional vacuum switch can be installed. The vacuum switch is designed to be placed in line with one of the vehicle's vacuum hoses and provide a ground output (N/C) until the engine is started. To use the vacuum switch, set dip switch #2 to the **off** position. Connect the yellow wire (3-pin red connector) to one terminal of the vacuum switch and connect the other terminal to ground.

High-Current Wire Connections:

• RED WIRE #1 -Main power input; using the supplied inline fuse holder, connect directly to the vehicle's battery or alternate power source with a minimum 30 Amp supply.

• RED WIRE #2 - Secondary power input; using the supplied inline fuse holder, connect directly to the vehicle's battery or alternate power source with a minimum 30 Amp supply.

Note: If not connecting directly to the vehicle's battery, it is recommended to use separate power sources (minimum 30 Amp each) for each red power wire.

• BROWN WIRE - Second ignition output; connect to the wire that switches +12V and does not drop out during cranking.

• YELLOW WIRE - Main ignition output; connect to the main ignition wire that switches +12V and does not drop out during cranking.

• ORANGE WIRE - Main accessory output; This provides +12V output to heater and/or air conditioning system. Some cars may have more than one accessory wire. In these vehicles add a relay(s) to power the extra accessory wire(s).

• PURPLE WIRE - Starter output; connect to the vehicle's starter wire.

Main Harness:

• WHITE WIRE - Parking light output (+). Connect to the wire that switches to +12V when the parking lights are turned on. If the vehicle's parking light circuit exceeds 10 amps a relay is required. For vehicle's with independent left and right parking light circuits, the parking light wires must be connected using diodes to keep the circuits separate.

• RED WIRE - +12V battery input.

• BROWN WIRE - Siren wire output (+). Connect to the siren's red wire. Connect the siren's black wire to ground.

• BLACK WIRE - Ground input (-). Connect to a solid chassis ground that is clean and free of paint or dirt.

• ORANGE WIRE - Armed Output and Ground When Running Output (-). Connect to a relay for starter defeat and starter anti-grind protection. (See installation diagrams). The ORANGE wire functions as a dual-purpose wire. It provides a ground when the unit is armed to activate a starter disable relay (using a starter disable relay also provides starter anti-grind protection). It also provides a ground when the remote start is engaged to activate an optional factory security bypass module. When the Stop-and-Go mode is engaged, the output will turn on and remain active even after pressing the brake pedal. Although the remote start shuts down when the brake pedal is pressed, the output will remain on until the ignition key is turned off.

• GRAY WIRE - Tach/Spark sense wire. If the current sensing feature does not allow desired operation, connect the GRAY wire directly to the vehicle's tach wire or negative fuel injector wire, and set dip switch #4 to OFF. If the tach wire is not accessible, wrap the GRAY wire around a spark plug wire or coil wire several times and secure with electrical tape.

• GREEN WIRE - Negative door trigger (-). Connect to the door switch circuit wire that shows ground when the door is open.

• BLUE WIRE - Hood switch input wire (-). Connect this wire to the hood pin switch, this will prevent the vehicle from remote starting if the hood is opened. This is a safety input and **must** be connected on all installations.

• VIOLET WIRE - Positive door trigger (+). Connect to the door switch circuit wire that shows +12V when the door is open. This type of door circuit is usually found on Ford vehicles.

• YELLOW WIRE - Brake switch input wire. Connect this wire to the brake switch wire that provides +12V when the brake pedal is pressed. This is a safety input and **must** be connected on all installations.

Plug in Connectors:

4-Pin White Connector: Plug-in connector port for dual stage shock sensor.

3-Pin White Door Lock Connector: Plug-in connector port for door lock harness or optional door lock relay module (PDLM-3).

• BLUE WIRE - negative unlock output (-).

• RED WIRE - constant +12V low current output (+) for relay modules, or inverters. 100mA relay trigger only. Do NOT use as a power source for door lock relays.

• GREEN WIRE - negative lock output (-).

3-Pin Red Connector: Plug-in connector port for optional features harness.

• GREEN/BLACK WIRE - 3rd channel output (-). Connect to a relay for optional trunk release etc.

• RED WIRE - Factory Disarm output (-). Connect to the wire that requires a ground pulse to disarm the factory alarm system. The RED wire provides a ground pulse when the remote transmitter is used to unlock the doors or start the vehicle.

• YELLOW WIRE - Vacuum Switch input. For diesel vehicles, or vehicles where a tach wire or spark plug wire is not available, the YELLOW wire may be connected to an optional vacuum switch. Connect the other side of the vacuum switch to ground.

2-Pin Red Connector: Plug-in connector port for LED. Mount LED in an area where it may be easily seen from either side of the vehicle.

2-Pin Blue Connector: Plug-in connector port for program/service switch. Mount program switch in an area that is easily accessible from the driver's position.

2-Pin White Connector: Plug-in connector port for horn honk/dome light harness.

• WHITE/YELLOW - horn output (-)
• RED/BLACK - Dome light output (-)

5-Pin Antenna Connector: Plug-in connector port for extended range receiver. Plug harness into 5-pin connector, route cable up pillar post, place double sided tape on flat side of receiver module and place in corner of windshield.

Remote Programmable Features:

Step	Function	Button 1 (On)	Button 2 (Off)
1.	Arming Mode	Passive	Active
2.	Passive Lock	On	Off
3.	Auto Re-arm	On	Off
4.	Normal/Silent Arming	Normal	Silent
5.	Door Unlock Pulse	Single	Double
6.	Door Lock Pulse Length	.75 Seconds	3 Seconds
7.	Ignition Lock	On	Off
8.	Auto Cold Start Defeat	Disable Cold Start	Enable Cold Start
9.	Cold Start Timing	Every 2 Hours	Every 1 Hour
10.	Trunk Disarm Feature	Disable	Enable
11.	Passive Arm Warning Chirps Delete	On	Off
12.	Open Zone Chirp Timing	10 Seconds	60 Seconds
13.	Remote Start Run Time	15 Minutes	25 Minutes
14.	Lock Before & After Engine Crank	On	Off
15.	Lock After Engine Shutdown	On	Off
16.	Parking Light Operation	Normal	Car Locator Feature

Remote Programmable Features

To enter program mode:

1. Turn ignition to the on position.
2. Wait 2 seconds.
3. Within 10 seconds press program switch 5 times.
4. The siren will give one long chirp indicating the system is now in program mode.

To change programmable features:

Press program switch the number of times that equal to the feature you wish to change. The siren will chirp each time the switch is pushed. (Example: to turn feature #3 off press the program switch 3 times).

- Press button 1 on the remote to turn the feature on, the siren will chirp once.
- Press button 2 on the remote to turn feature off. Siren will chirp twice.

System will automatically exit program mode.

NOTE: You must re-enter program mode for each feature you wish to change.

Programmable Features

Program #1: Arming Mode

On = Passive
Off = Active

Program #2: Passive Lock

On = Passive w/lock
Off = Passive no lock

Program #3: Auto Re-arm

On = Auto Re-arm enabled
Off = Auto Re-arm disabled

Program #4: Normal/Silent Arming

On = Normal operation
Off = Silent operation

Program #5: Door Unlock Pulse

On = Single
Off = Double

Program #6: Door Lock Pulse Length

On = 0.7 second door lock/unlock pulse
Off = 3 second door lock/unlock pulse

Program #7: Ignition Lock

On = Ignition auto lock
Off = No ignition auto lock

Program #8: Auto Cold Start Defeat

On = Disable Auto Cold Capability
Off = Enable Auto Cold Capability

Program #9: Cold Start Timing

On = Cold start every 2 hours
Off = Cold start every 1 hour

Program #10: Trunk Disarm Feature

On = Disabled
Off = Enabled

Program #11: Passive Arm Warning Chirps Delete

On = Passive arming without warning chirps
Off = Passive arming with warning chirps

Program #12: Open Zone Chirp Timing

On = Standard - 10 seconds
Off = Delayed - 60 seconds

Program #13: Remote Start Run Time

On = 15 minutes
Off = 25 minutes

Program #14: Lock Before & After Engine Crank

On = Lock when remote start activates
Off = Disabled

Program #15: Door Lock After Shut Down

On = Lock when remote start shuts down
Off = Disabled

Program #16: Parking Light Operation

On = Normal
Off = Car finder feature

Default Reset

To reset all programmable features to their factory default settings:

1. Turn ignition to the on position.
2. Wait 2 seconds.
3. Within 10 seconds press program switch 5 times. The siren will give one long chirp indicating the system is now in program mode.
4. Press transmitter button 3. The siren will chirp 3 times and all programmable features will be reset to the **On** position.

Dip Switch Settings

Make sure to set all dip switches in proper position prior to mounting the module.

Dip Switch #1: Diesel Mode
   On = Standard mode
   Off = Diesel mode - Ignition turns on for 12-13 seconds prior to cranking the starter (to allow glow plugs to warm up).
Dip Switch #2: Vacuum switch
   On = Current sense or tach/spark sense
   Off = Vacuum switch sense
Dip Switch #3: Starter cranking time
   On = Standard crank time
   Off = Extended crank time (auto adjusts)
Dip Switch #4: Tach/Spark sense
   On = Current sense
   Off = Tach/Spark sense

Valet Mode

When the Valet mode is activated, the vehicle will not start using the remote, but keyless entry functions will still operate.

To enter valet mode:

1. Turn ignition to the on position.

2. Within 5 seconds, press and hold program switch for approximately 2 seconds.
   • The LED will light solid.
   • Parking lights will flash once.
   • The siren will chirp once.

To exit valet mode:

1. Turn ignition to the on position.
2. Within 5 seconds press and hold program switch for approximately 2 seconds.
   • The LED will turn off.

Adding or Deleting Remote Controls

When you enter the code learning mode, the system will learn new remotes and automatically delete all other remotes that were previously operating the system.

NOTE: You must code all desired remotes at this time. The unit can learn a maximum of two transmitters.

To enter Code Learning Mode:
1. Turn ignition key on, off, on, off, and leave on within 5 seconds.
   • The parking lights will flash once.
2. Press and hold program switch for 2 seconds.
   • The LED and parking lights will flash once. The siren will give a series of chirps (as long as arming chirps are on).
3. Release the program switch.
4. Program all desired remotes by pressing button #1 on each of the transmitters.
   • The siren will chirp after the system has learned each remote control.
5. Turn ignition key off.
   • The remotes are now programmed to the system.

Bypassing Factory Theft Deterrent Systems

Many newer vehicles are now factory-equipped with anti-theft systems that use either a resistor coded key or a passive transponder that disables the fuel system unless a properly coded key is inserted into the ignition cylinder. To integrate a remote starter into these vehicles, you must determine which type of factory anti-theft system is equipped, then use the proper bypass module for that system.

General Motors Anti-theft Systems:

Many late-model GM vehicles are equipped with one of three basic anti-theft systems; Passkey, Passlock, and Passkey 3. Standard Passkey systems are easily identified by the resistor chip visible on the shaft of the key. Passlock systems do not rely on a resistor equipped key. Instead they use a resistance code generated when the key is turned in the ignition cylinder. Both of these systems have an anti-theft indicator in the instrument cluster. To properly interface into these systems and retain full functionality of the factory anti-theft system, use the APV-1 module.

The Passkey 3 system, which is found on GM vehicles 1999 and newer, is a transponder based system (described below). Use the APP-1 module to integrate into Passkey 3 equipped vehicles. This module allows full functionality of the factory anti-theft system and requires the use of a spare key.

Passive Transponder Systems:

Passive transponder systems have become the most popular anti-theft system among vehicle manufacturers (Ford, Honda, BMW, Toyota, Nissan and others). This system requires use of a tiny passive transmitter housed in the base of the key. This device activates when placed close to the vehicle's ignition switch. The starter will usually crank but the fuel system will be disabled, mot allowing the vehicle to run, if the transponder is not detected. To properly interface into transponder systems, use the APP-1 module. This module allows full functionality of the factory anti-theft system and requires the use of a spare key.
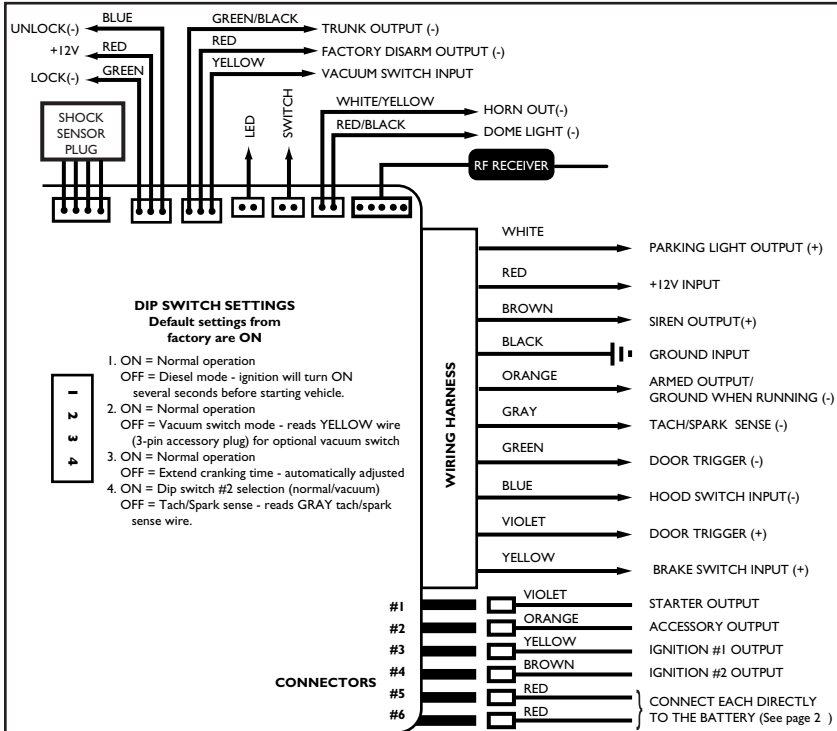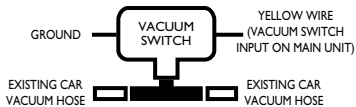
SECURITY/REMOTE START WIRING DIAGRAM

BLUE — UNLOCK(-)
RED — +12V
GREEN — LOCK(-)

SHOCK SENSOR PLUG

GREEN/BLACK — TRUNK OUTPUT (-)
RED — FACTORY DISARM OUTPUT (-)
YELLOW — VACUUM SWITCH INPUT

LED
SWITCH

WHITE/YELLOW — HORN OUT(-)
RED/BLACK — DOME LIGHT (-)

RF RECEIVER

WHITE — PARKING LIGHT OUTPUT (+)
RED — +12V INPUT
BROWN — SIREN OUTPUT(+)
BLACK — GROUND INPUT
ORANGE — ARMED OUTPUT/ GROUND WHEN RUNNING (-)
GRAY — TACH/SPARK SENSE (-)
GREEN — DOOR TRIGGER (-)
BLUE — HOOD SWITCH INPUT(-)
VIOLET — DOOR TRIGGER (+)
YELLOW — BRAKE SWITCH INPUT (+)

WIRING HARNESS

DIP SWITCH SETTINGS
Default settings from factory are ON

1. ON = Normal operation
   OFF = Diesel mode - ignition will turn ON several seconds before starting vehicle.
2. ON = Normal operation
   OFF = Vacuum switch mode - reads YELLOW wire (3-pin accessory plug) for optional vacuum switch
3. ON = Normal operation
   OFF = Extend cranking time - automatically adjusted
4. ON = Dip switch #2 selection (normal/vacuum)
   OFF = Tach/Spark sense - reads GRAY tach/spark sense wire.

CONNECTORS

#1 VIOLET — STARTER OUTPUT
#2 ORANGE — ACCESSORY OUTPUT
#3 YELLOW — IGNITION #1 OUTPUT
#4 BROWN — IGNITION #2 OUTPUT
#5 RED — } CONNECT EACH DIRECTLY
#6 RED — } TO THE BATTERY (See page 2)

FIGURE 1. OPTIONAL VACUUM SWITCH INSTALLATION

GROUND

VACUUM SWITCH

YELLOW WIRE (VACUUM SWITCH INPUT ON MAIN UNIT)

EXISTING CAR VACUUM HOSE

EXISTING CAR VACUUM HOSE

For optional vacuum switch hook-up: dip switch #2=OFF

COLD START ACTIVATION

Automatically starts engine every 1 or 2 hrs. for 24 hrs. max.

While pressing brake pedal, push program switch then press transmitter button 2. The parking lights will flash 5 times and remain on. Engine will start and run for 30 seconds to confirm activation, then shut down. Once activated the engine will start automatically and run for the preset run time.

COLD START DEACTIVATION

The Cold Start feature can be deactivated by stepping on the brake pedal, turning on the ignition, or remote starting the vehicle using the transmitter.

FM 2-WAY SYSTEM w/ TEXT DISPLAY
Transmitter Operation

Button	Operation
I	**ARM/DISARM/PANIC Button -** To **arm** or **disarm** the system, press button 1. To activate the **panic** feature, press button 1 and hold for three seconds.
II	**START Button -** To **start** the vehicle, press and hold button 2 for two seconds. To **shut down** the vehicle, press and hold button 2 for two seconds.
III	**CONFIRMATION Button -** To check current **status** of the system, press button 3. The current status of the system will be displayed on the transmitter.
III + Hold	**TRUNK Button -** To activate the **trunk** output, press and hold button 3 for two seconds.
II + III	**PROGRAMMING Mode -** To activate the **trunk** output, press and hold button 3 for two seconds.

Start
Arm   Confirm

Transmitter Indications (See Owner's Manual for more details)

Arm -
The display will show ARM and the animated 🗑 icon to confirm arming.

Shock/Page -
The display will show Shock and flash the animated ⚡ icon to indicate shock sensor triggering.

Disarm -
The display will show DISARM and the animated 🔓 to confirm disarming.

Door -
If a door is opened while the system is armed, the display will show DOOR, and the door frame will animate.

Trunk -
The display will show TRUNK and flash the 🔑 icon opening to confirm

Hood -
If the hood or trunk is opened while the system is armed, the display will show HOOD and the 🔊 icon will be displayed.

Warn Away -
The display will show WARN if the warning stage is triggered, the ▬ icon will flash.

Panic -
The display will show PANIC when the Arm/Disarm button is held to enter the Panic mode.

REMOTE START TROUBLESHOOTING

Problem	Probable Cause	Suggested Correction
Unit will not operate.	All power inputs are not connected to +12V.	Main Inputs (heavy gauge red wires) and small red wire on main harness must be connected to +12V.
Keyless Entry features operate but vehicle will not start.	System in Service Mode LED is on solid.	Turn ignition key to on position, press and hold service switch for 5 seconds. The LED will turn off.
Vehicle will not remote start.	Safety inputs are triggered.	Check Brake Switch Input (+) (Yellow Wire) or Hood Input (-) (Blue Wire).
Engine cranks but not long enough to allow vehicle to start.	Crank time must be increased.	Place dip switch #3 to the ON position.
System will not go into Code Learning or Programming Mode.	Ignition #1 (Yellow Wire) is on wrong connector - Ignition #2	Connect the main ignition output to the Ignition #1 connector on the main unit.
Car horn honks and vehicle will not start.	Vehicle has a factory alarm system.	Connect red wire on accessory plug (red plug) to Factory Alarm Disarm wire.
Vehicle starts without pressing Remote Transmitter.	System in Automatic Cold Start Activation Mode.	To exit press brake pedal or turn Ignition key on, or activate remote start using the remote transmitter.
Vehicle cranks and begins to run, then shuts off.	Voltage sense is not working. Use either the spark sense or tach sense.	Wrap the gray wire around a spark plug wire or connect to either the tach wire or a negative fuel injector wire. Set dip switch #4 in the OFF position.
Vehicle cranks and begins to run, then shuts off.	Vehicle has a factory theft deterrent system that prevents starting w/o key in ignition.	See Bypassing Factory Theft Deterrent Systems.

SECURITY SYSTEM TROUBLESHOOTING

Problem	Probable Cause	Suggested Correction
Alarm will not go into Code Learning Mode.	RED or YELLOW wire not connected to the correct power source. Code Learning sequence performed too slowly.	RED wire should connect directly to the battery. Connect YELLOW wire to true ignition wire (NOT AT FUSE BLOCK). Perform Code Learning sequence faster.
Alarm will not rearm or will not passively arm.	Door is open, VIOLET wire is connected to positive voltage, GREEN wire is connected to ground, main YELLOW wire (ignition wire) is connected to +12V, or door pin switch is bad.	Check VIOLET and GREEN wires with doors closed and open, and YELLOW wire with ignition switch off and on for voltage changes. Repair and/or rewire as needed.
Flashing light output does not work.	Bad connection on WHITE wire or the output polarity is wrong for the circuit being driven.	Check WHITE wire. Connect a SPDT relay to this wire and apply the opposite polarity to the circuit being driven.
Door locks do not lock/unlock correctly, or action is reversed	Defective GREEN or BLUE wire from door lock connector plug, GREEN and BLUE wires reversed, or wrong door lock wiring diagram used.	Check GREEN and BLUE wires on door lock connector plug, Check vehicle's door lock system for method of operation. Reverse wiring to door relays.

STATUS INDICATOR (LED) FUNCTIONS

On Solid = Valet Mode

Slow Flash = System Armed

Rapid Flash = Passive Arming

Flash 2x = Remote Start
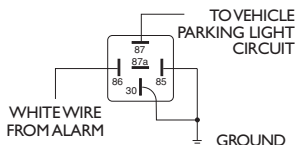
Flash 3x = Stop and Go Mode

Flash 4x = Cold Start Mode

PARKING LIGHTS FUNCTIONS

On Solid = Vehicle Remote Starting

Flash 1x = Doors Locked

Flash 2x = Doors Unlocked

Flash 3x = Open Zone Indication (after arming)

Flash 4x = Remote Starting Failed

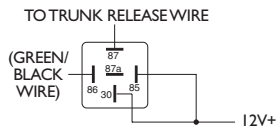Flash 5x = Auto Cold Start Engaged

POWER DOOR LOCK RELAY DIAGRAMS:

The system provides negative door lock outputs. Positive trigger or reverse polarity installations require two SPDT relays or the PDLM-3 Power Door Lock Relay Module (not included). Connect relays as shown in the illustrations provided.
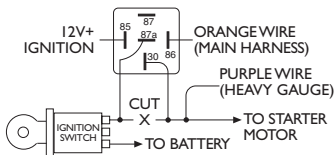
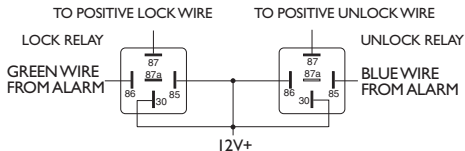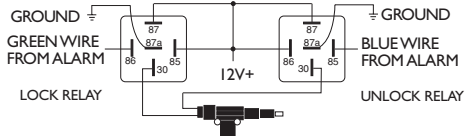### FOR NEGATIVE PARKING LIGHTS (MOST JAPANESE VEHICLES)

TO VEHICLE PARKING LIGHT CIRCUIT

WHITE WIRE FROM ALARM

GROUND

TRUNK RELEASE CIRCUIT DIAGRAM:

TO TRUNK RELEASE WIRE

(GREEN/ BLACK WIRE)

12V+

ADDED RELAY TO PREVENT GRINDING STARTER AFTER REMOTE AUTO START

12V+ IGNITION

ORANGE WIRE (MAIN HARNESS)

PURPLE WIRE (HEAVY GAUGE)

CUT X

TO STARTER MOTOR

IGNITION SWITCH

TO BATTERY

POSITIVE TRIGGER DOOR LOCK CIRCUIT:

TO POSITIVE LOCK WIRE

TO POSITIVE UNLOCK WIRE

LOCK RELAY

UNLOCK RELAY

GREEN WIRE FROM ALARM

BLUE WIRE FROM ALARM

12V+

REVERSE POLARITY (ADDING ACTUATORS):

GROUND

GROUND

GREEN WIRE FROM ALARM

BLUE WIRE FROM ALARM

12V+

LOCK RELAY

UNLOCK RELAY

REVERSE POLARITY USING FACTORY SYSTEMS:

LOCK RELAY

UNLOCK RELAY

GREEN WIRE FROM ALARM

BLUE WIRE FROM ALARM

12V+

SWITCH

LOCK

UNLOCK

ACTUATOR

X CUT X

X CUT X

HORN HONK DIAGRAM:

TO NEGATIVE HORN HONK WIRE

TO POSITIVE HORN HONK WIRE

WHITE/ YELLOW

12V+

GROUND

WHITE/ YELLOW

12V+

DOME LIGHT DIAGRAM:

TO NEGATIVE DOME LIGHT WIRE

TO POSITIVE DOME LIGHT WIRE

RED/ BLACK

12V+

GROUND

RED/ BLACK

12V+