07/05 MA_MARS32/33

MARS
>>modular_advanced_remote_start<<

OPERATING & INSTALLATION INSTRUCTIONS

OMEGA
RESEARCH AND DEVELOPMENT, INC.

MARS-32 and MARS-33

1-way operation / **2-way operation & paging**

VEHICLE SECURITY SYSTEM

with KEYLESS ENTRY & REMOTE STARTER

FOR AUTOMATIC TRANSMISSION VEHICLES ONLY
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WIRING DIAGRAM OVERVIEW

Black/Yellow: (Tach Wire) **?** (Smart Start) To Coil To Battery +

Yellow/Green OEM Disarm

Yellow/Red: OEM Arm

Tach Wire Adjust

Smart Start Adjust

Adjustment LED

Re- ceiver Unit

Smart Start

Tach Wire

Red/Black: Brake (+)

Gray: Trunk Release (page 39)

10 Amp

Green: (-) Door

Violet: (+) Door

Black: (-) Ground

SMART START/ TACH WIRE   **SWITCH**

YELLOW/RED = OEM ARM - OUTPUT
  BLACK/YELLOW = ENGINE DETECT INPUT
RED/BLACK = BRAKE + INPUT
  YELLOW/GREEN = OEM DISARM - OUTPUT
GRAY = TRUNK RELEASE - OUTPUT
  BLUE = HOOD - INPUT
ORANGE = ANTI-GRIND - OUTPUT
  PINK/BLACK = START ACTIVATION - INPUT
BROWN = HORN - OUTPUT
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PARKING LIGHT PROGRAM JUMPER (page 37)
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DOORLOCK OUTPUT PORT (pages 40)
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RED = +12V INPUT
YELLOW/GREEN = PROGRAMMABLE + OUTPUT
YELLOW = IGNITION + OUTPUT
RED = +12V INPUT
WHITE = ACCESSORY + OUTPUT
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RECEIVER PORT

VALET SWITCH PORT

STATUS LIGHT PORT

SENSOR PORT

Starter

Yellow/ Green: Programmable Output (page 30)

Battery

30 Amp 30 Amp

Red & Red: (+) 12 Volts

OPTIONAL Relay For Starter Kill / Anti-Grind

Green: Starter (+)

Yellow: Ignition (+)

Orange: (-) Output When Activated

Ignition Switch

White: Accessory (+)

Hood Pin Switch

Blue: (-) Hood Switch

Light Switch

White: Parking Light Output

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Brown: Siren or Horn Output (page 39)

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Introduction

Congratulations for choosing the Modular Advanced Remote Starter and Security System. The MARS offers the security of an antitheft alarm, the convenience of keyless entry, and the luxury of starting your vehicle's engine from the comfort of your home or office.

The MARS-33 includes a 2-way controller to operate the system, and receive pages from it, and the MARS-32 includes 1-way transmitters, which can operate both models. The MARS-32 may be upgraded to 2-way operation by adding an optional kit, the MARS-03. Otherwise the two systems are identical, and instructions for operation are the same.

It is highly recommended that this system be professionally installed, as the sophistication of the modern automobile and the complexity of this type of product installation is often beyond the abilities of most do-it-yourselfers.

Safety Considerations

✓ This unit is for vehicles with an automatic transmission only. Installation in a vehicle equipped with a manual transmission can result in property damage or personal injury.

✓ This unit is for fuel injected gasoline or diesel engines.

✓ Children should not be left unattended in, or be allowed to play with the activating Transmitter or Controller of any remote starter equipped vehicle.

✓ Do not use the remote starter feature in an enclosed garage or other structure.

The MARS is a very flexible system. It has capabilities and features which may or may not be utilized in your installation. It also has many programmable features which can affect its operation. While these are explained as thoroughly as possible in this guide, your Omega dealer or installer is the best source for information about your system.
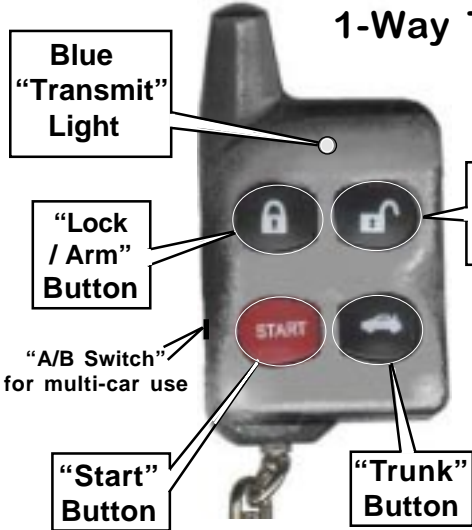
**The MARS can be operated by two types of devices-
the 1-Way Transmitter and the 2-Way Controller.**

The Transmitter operates the system only, whereas the Controller both operates the system, and also responds to signals from the system which alert the user to events which are occurring with the system. In this respect, the Controller serves as a "pager", from the system to the user.

1-Way Transmitter Functions

Blue "Transmit" Light

"Lock / Arm" Button

"A/B Switch" for multi-car use

"Start" Button

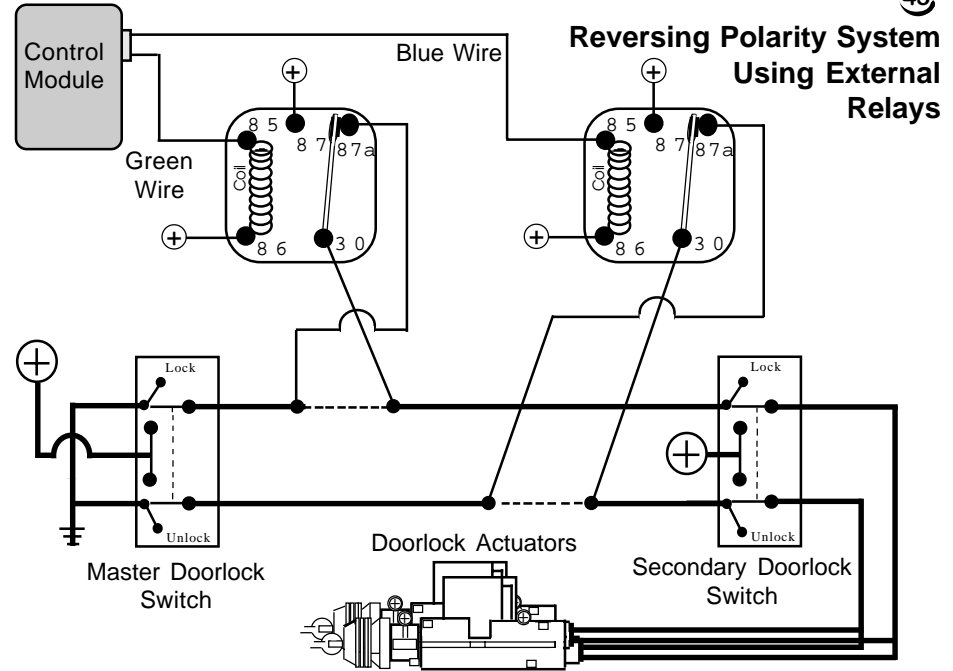**"Trunk" Button**

"Unlock / Disarm" Button

The 1-Way Transmitter has four push buttons. Pressing and releasing these buttons operate the system as shown.

Pressing and holding the Lock or Unlock buttons will activate the system's remote panic feature. Another press stops it.

The Blue indicator lights whenever one of the Transmitter buttons is pressed. When the light is dim, or range is reduced, replace the Transmitter's battery by removing the small phillips screw on back, and installing a fresh 12 volt "23A" battery.

The "A/B" slide switch on the side of the Transmitter may be used to independently operate a second MARS system.

Reversing Polarity System Using External Relays

Control Module

Blue Wire

Green Wire

Coil

8 5   8 7 8 7a

8 6   3 0

Coil

8 5   8 7 8 7a

8 6   3 0

Lock

Unlock

Master Doorlock Switch

Lock

Unlock

Secondary Doorlock Switch

Doorlock Actuators

the wires *show partial ground* through the relay's coils.

2) The doorlock switch in a Reversing system will have 5 wires, while a Positive pulse system the switch will have 3 wires.

3) A *Positive pulse system* uses *factory relays or a control unit, a* Reversing system *does not.*

5 Wire Reversing Polarity Systems

This power doorlock system differs from the negative and positive pulse systems in that there is no doorlock control unit or relays. In this type of system, the switches themselves supply the positive voltage directly to the doorlock actuators, and, more importantly, provide the return ground path. It is important to note that the lock and unlock wires in this system *actually rest at chassis ground.* This means that both the lock and unlock wires must be "opened", or cut, to make the proper connections.

Examine the wires on the back of the switch. (Normally 5 wires will be found

1) One wire will show +12 Volts, regardless of the switch's position.
2) Two wires will be grounded regardless of the switch's position.
3) One wire will show +12 Volts <u>only</u> when the switch is pushed to "Lock".
4) One wire will show +12 Volts <u>only</u> when the switch is pushed to "Unlock".

- When the lock /unlock wires are found, they must be cut one at a time. If the correct wires are cut the door locking system should not operate from the primary switch.

- Notice that in the diagram the driver's switch is the primary or "Master" switch (in some vehicles, the primary switch is on the passenger's side). The half of the cut wires which come from this primary switch are referred to as the "Switch" side. The half of the cut wires which go to the secondary switch are referred to as the "Motor" side even though the cut is made between the switches.

2-Way Controller Functions

The 2-Way Controller has the same four system-operating push buttons as the Transmitter. Their use is also identical, as shown. While the Controller's Blue "transmit" light is the same as the Transmitter's, the Controller adds more indicator lights, and a beeper. These items inform the user, by sight and sound, of operation confirmations and notifications of events from the system.

The Controller also has the A/B switch, for operating a second MARS system. Its battery is a "AAA" penlight battery, and is accessed by sliding the lock tab, then battery door, from the rear of the Controller. When the

Red "Unlock" Light

Blue "Transmit" Light

Green "Unlock" Light

Orange & Green "Starting" & "Trunk" Light

"Unlock / Disarm" Button

"Lock / Arm" Button

"Trunk" Button
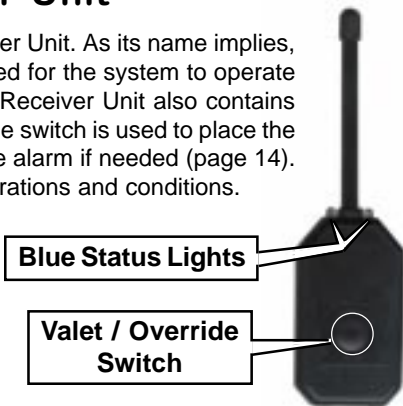
"A/B Switch" for multi-car use

"Start" Button

The 2-Way Controller uses lights and audible chirps to indicate system events. If desired the chirps may turned off, so that the Controller operates silently.   Press the Lock and Trunk buttons together to toggle the chirps on and off. When the Lock and Trunk buttons are pressed, the blue light will light followed immediately by either the red light or the green light. If the red light flashes the chirps are off; if the green light flashes the chirps are on.

Even if the MARS system confirmation chirps are turned off, the controller still has its chirps, unless they, too, are turned off as described here.

The Receiver Unit

An important part of the MARS system is its Receiver Unit. As its name implies, the Receiver Unit contains the radio receiver needed for the system to operate from the hand-held Transmitter or Controller. The Receiver Unit also contains the Valet / Override Switch and the Status Light. The switch is used to place the system into Valet Mode (page 12) or to override the alarm if needed (page 14). The Status Light (actually two) reflects system operations and conditions.

The Receiver Unit is designed for mounting directly on the vehicles' window glass, which also gives the system its best operating range. Should this not be possible or desired, the Receiver Unit may be mounted in a hidden location, and provisions are made for optional separately-mountable Valet / Override Switch and Status Light.

Blue Status Lights

Valet / Override Switch

3) One wire will show +12 Volts <u>only</u> when the switch is pushed to "unlock".
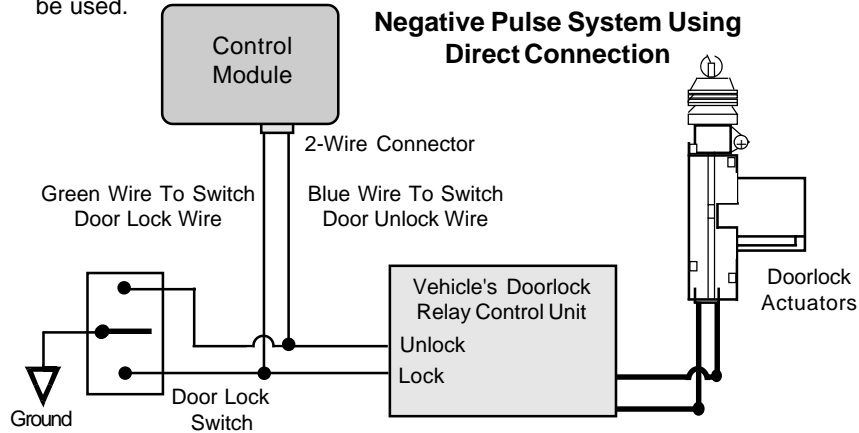

Positive Pulse System Using External Relays
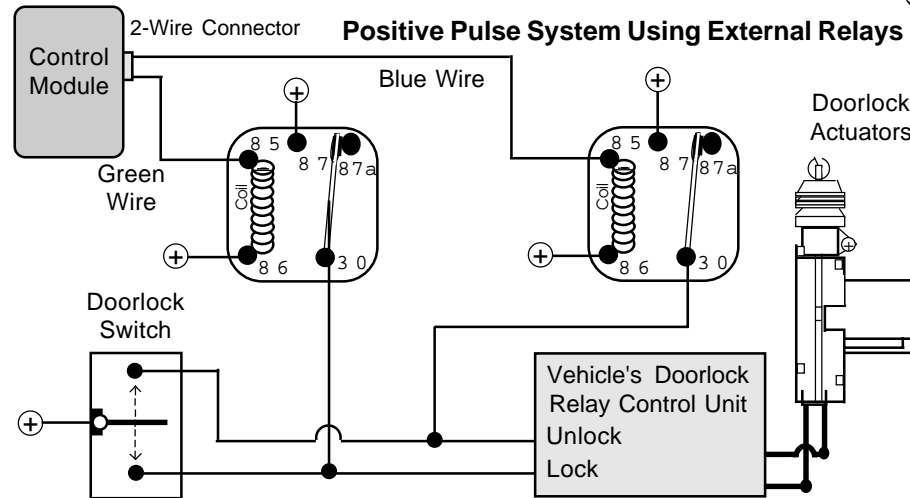
Warning: The Positive pulse system can be confused with the 5-wire Reversing Polarity system. This is because both systems show +12 Volt pulses on the "Lock" and "Unlock" wires when the vehicle's switch is pressed respectively. It is critical to identify which system is present, since if +12 Volts is pulsed into a Reversing Polarity system, which rests at ground, a direct short circuit will occur.

3 main differences between a Positive pulse and a Reversing Polarity system:
1) In a Reversing system the Lock/Unlock wires *rest at ground,* while in a Positive system

operate the vehicle's on-board doorlocking relays. If the vehicle's Negative pulse doorlocking system requires more than 500mA Negative output, optional relays must be used.

Negative Pulse System Using Direct Connection

Control Module

2-Wire Connector

Green Wire To Switch Door Lock Wire

Blue Wire To Switch Door Unlock Wire

Doorlock Actuators

Vehicle's Doorlock Relay Control Unit

Unlock

Lock

Ground

Door Lock Switch

3 Wire Positive Pulse Systems

This doorlock system is similar to the 3 wire negative pulse system except the doorlock switches send +12 Volt pulses to operate the doorlock relays/control unit.

Examine the wires on the back of the doorlock switch:
1) One wire will show +12 Volts, regardless of the switch's position.
2) One wire will show +12 Volts underline only when the switch is pushed to "lock".

Using the MARS

Operating the MARS system is easy, and basically the same processes when using the 1-way transmitter or the 2-Way Controller. When the Controller is used, the system will respond back to the user confirming the operation. The Transmitter and Controller both light their blue indicator light when transmitting a signal.

Locking the Doors & Arming the Alarm		
User's action or event	MARS system in vehicle	MARS Controller (if used)
Press LOCK button. (Blue LED lights)	Alarm arms, doors lock, 1 parking light flash, siren chirps once. The Receiver Unit Status Light flashes fast, then slow indicating "Armed".	1 chirp; 1 red LED flash.

Locking the doors with either Transmitter and Controller secures the vehicle, AND arms the MARS alarm unless the system is in Valet Mode (page 12). Whenever the alarm is armed, the Status Light in the Receiver Unit will flash, as an indicator and a deterrent. Should the system detect any violation of a protected zone it will trigger an alarm condition, which sounds the siren and flashes the parking lights. If the Controller was used to arm the MARS, the system will also send a signal to the Controller to notify the user.

Should the Armed Alarm Trigger		
User's action or event	MARS system in vehicle	MARS Controller (if used)
- - NONE - -	Parking lights flash, siren sounds. Receiver Unit Status Light changes from slow to fast flash.	3 long chirps; fast red LED flashes, followed by periodic fast red flash.

Whenever the alarm is armed, and including while it is triggered, an optional starter interrupt can prevent the vehicle's engine from being started. If the alarm is triggered, and the user does not disarm it, it will stay triggered for 60 seconds and then automatically reset back to the armed state, provided that none of the protected zones are violated at that time. Should there still be a violated zone, the MARS will re-trigger an alarm, and resend the notification to the pager. This can occur for up to 5 alarm cycles.

Alarm Prewarning		
User's action or event	MARS system in vehicle	MARS Controller $\left(\substack{if \\ used}\right)$
- - NONE - -	Siren briefly sounds and parking lights flash twice. (Alarm remains armed)	3 fast chirps; red LED flashes once.

The alarm also has a "Prewarning" feature. While it is armed, if the shock sensor part of the system detects a light impact, the alarm will respond to make its presence known. More aspects of the alarm operation follow, such as using the Valet / Override Switch.

Unlocking the Doors & Disarming the Alarm		
User's action or event	MARS system in vehicle	MARS Controller $\left(\substack{if \\ used}\right)$
Press UNLOCK button (Blue LED lights)	Alarm disarms, doors unlock, 2 park light flashes then on 30 sec., siren chirps twice.	2 chirps; 2 green LED flashes.

Also, when disarming and unlocking, if the alarm was triggered, and reset, including while it is triggered, the system response and the Controller confirmation is different:

Press UNLOCK button (Blue LED lights)	Alarm disarms, doors unlock, 2 park light flashes, then 4 flashes, then on 30 sec., siren chirps twice, then 4 chirps.	3 long chirps, with flashing red LED.

22 Gauge <u>Blue Wire</u>:   *500mA (-) Unlock Output*

Connection If Desired.   The Blue wire supplies a negative pulse for locking the vehicle's doors. Programmable feature #12 changes the single unlock pulse to be a double unlock pulse.

This harness, which plugs into the White 3-pin port on the control module, is the power doorlock outputs by which the MARS operates the vehicle's power doorlock system (the vehicle must have existing power doorlocks). The doorlock interface needed to allow the system to operate the doorlocks will depend upon the type of power doorlocking system the vehicle is equipped with. The following sections describe typical power doorlocking systems, which are categorized as "3 Wire Negative Pulse"; "3 Wire Positive Pulse", and "5 Wire Reversing Polarity" systems.

3 Wire Negative Pulse Systems

This power doorlock system is simplest of all doorlocking systems. A Negative pulse system will have only three wires at the doorlock switch.

<u>Examine the wires on the back of the doorlock switch</u>:
1) One wire will show Ground, regardless of the switch's position.
2) One wire will show Ground <u>only</u> when the switch is pushed to "Lock".
3) One wire will show Ground <u>only</u> when the switch is pushed to "Unlock".

The lock & unlock wires coming out of the switch operate the vehicle's doorlock relays or a control unit with on-board relays, therefore the lock & unlock wires will read Positive voltage, up to +12 Volts, when the switch is at rest. The correct connection point is between the switches and the relays. The Red connector's Green and Blue wires can be connected directly to the vehicle's Negative pulse system since only a Negative pulse is required to

illuminates the interior light when any of the vehicle's doors is opened. As a general rule, "Negative" dome lights (Green wire) will have no voltage present and will also show chassis ground when the doors are opened, and up to 12 volts when the doors are closed. "Positive" dome lights (Violet wire) have 12 volts present when the doors are opened, and chassis ground when the doors are closed.

Regardless of type, the correct target wire will show this polarity change when any door is are opened. If the vehicle has delay dome lights, remember to take this into account when testing the wire. If the pin switch is mounted in the metal structure of the vehicle, and the dome light goes out when the switch is removed, suspect a grounding-type dome light system. While the traditional pin switch is mounted in the front door jamb area, also be aware that many vehicles utilize other types of switch devices to operate the interior lights. Some have a sliding type of switch and many have the pin or sliding switches in the rear door jamb area. In addition, some vehicles utilize switches in the doors, either connected to the exterior door handles or to the latching mechanism. A vehicle which has the dome lights illuminating when the exterior door handle is lifted is an example of this type of switching system. Also be aware of vehicles which diode-isolate each door. Typically, this is usually encountered with dash displays that indicate individual doors being ajar. The proper wire to connect to in this type of system is the common wire which is routed to the dome light itself.

Wiring - 2 Wire (3 Cavity) Connector / Doorlock Port

22 Gauge Green Wire: ***500mA (-) Lock Output***
Connection If Desired.   The Green wire supplies a negative pulse for locking the vehicle's doors.

Unlocking the doors with either Transmitter and Controller disarms the MARS alarm, in addition to allowing access to the vehicle. If the alarm is disarmed while it is triggered, the alarm will have the extra 4 chirps and parking light flashes, but the Controller will not change to having the 3 chirp and red flashing LED confirmation until after the alarm resets itself.

Should the Transmitter or Controller not be available (dead batteries or lost), an armed or triggered MARS system may be disarmed by the user via the Valet Switch, but the vehicle's ignition key is needed .

User's action, then vehicle event	Remote Starting	
	MARS system in vehicle	MARS Controller (if used)
Press START button (Blue LED lights)	Parking lights turn on & siren chirps 3 times (if connected)	Makes a long chirp & 2-color LED flashes rapidly green and orange
The MARS unit turns on the ignition and engages the starter. The parking lights turn off.		
If the engine starts and runs	Parking lights turn back on	Chirps twice & the 2-color LED slowly flashes green and orange
If the engine won't run	Parking lights turn back on, then on & off as the system re-attempts to start the engine	2-color LED continues to flashes rapidly green and orange
When the engine turns off, if it is stopped, or if it does not start and run after several tries.		
	Parking lights turn off and stay off	Makes 4 chirps & 2-color LED flashes orange 4 times

Upon entering the vehicle place the ignition key in the switch and turn it to the "On" posi-

tion, and then deactivate the MARS. **Do not turn the key to the "Start" position!**

Deactivation

• Stepping on the brake pedal will turn the engine off.

• To stop the engine by remote control, simply press the "Start" button again.

• After the preset programmable time the MARS will automatically turn the engine off.

• Opening the hood will turn the engine off. If the hood is open when an activation attempt is made, the MARS will not start the engine (see "Safety Circuits" below).

• Pressing the Valet Switch will also stop the engine.

When you leave your vehicle, simply set the climate controls for what you would like to have operating upon remote starting - the heater, defroster or air conditioning.

Violated Safety Circuit Prevents Remote Starting (if used)		
User's action or event	**MARS system in vehicle**	**MARS Controller (if used)**
Press START button (Blue LED lights)	Park lights flash 4 times, horn chirps 4 times (if connected); NO START-ING ATTEMPT WILL BE MADE	2-color LED flashes orange 4 times & has 4 chirps

Remote starting can be used in conjunction with the alarm operation, but remote start will not operate when the system is in Valet Mode (page 12).

20-Gauge Gray Wire: ***(-) Trunk Release Output***
Connection If Desired.   The Gray wire has a 500mA Negative output which is operated by the transmitter button with the "open trunk" icon, and this output is designed for trunk release. In most cases, an optional external relay will be needed.

20-Gauge Brown Wire: ***(-) Siren or Horn Output***
Connection Recommended.   The Brown wire is a Negative output designed to sound the electronic siren or the vehicle's horn for the alarm and remote "panic" features, and for audible operation confirmations. Connect the Brown wire directly to the siren's black wire, and connect the siren's Red wire directly to constant (+) 12 volts power.

If using the existing vehicle horn is preferred over the siren, the Brown wire may be connected directly to the vehicle's horn switch wire, provided that the circuit operates with (-) Negative 1/2 Amp of current or less. The horn wire is typically found around the steering column; the correct wire will show Positive 12 Volts normally, and no voltage when the horn is being sounded.

20-Gauge Green Wire: ***(-) Door Trigger Input***
20-Gauge Violet Wire: ***(+) Door Trigger Input***
Connection of One Recommended.   One of these must be used so that the MARS can detect an opening door, and trigger an alarm when it is armed. The Green wire is an "open door" input for vehicles having *Negative switching* door pin switches, and the Violet wire is an open door input to the control module for vehicles having *Positive 12 volt* door pin switches.

Determine which of these two wires is appropriate and connect it to the vehicle wire which

**Caution:** When such a wire is located, be sure to also test that it is non-rheostated: While metering the wire, operate the dash light dimmer control. The correct wire will show <u>no</u> change in voltage when the dimmer is operated. Some vehicles have a parking-light relay which is triggered by a Negative signal from the headlight switch. In these vehicles, the White wire must be connected <u>after the relay</u>, usually at the Fuse/Junction Block. Do NOT connect the White wire directly to the vehicle's headlights. An external relay is required. Vehicles having a split parking light system must be diode-isolated, with two IN4006 diodes as shown:
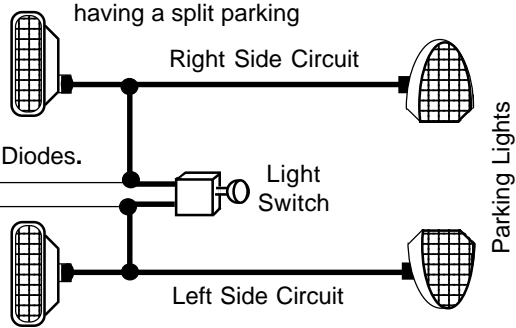
Diode Isolation Of Split Parking Light Systems

20-Gauge <u>Orange Wire</u>:   *(-) Anti-Grind Output*

Connection If Desired. The function of the Orange wire is to provide a 500mA Negative auxiliary output which may be used to operate a starter motor "Anti-Grind" relay, which prevents accidental starter grind should the key be turned while the remote starter is in operation. Additionally, the Orange wire also provides the vehicle immobilizing feature for the Anti-Carjacking operation. Connection instructions are included with optional starter interrupt socket and relay.

Activating Remote Panic

User's action or event	MARS system in vehicle	MARS Controller $\left(\substack{if \\ used}\right)$
Press LOCK button for 3 sec. (Blue LED lights) **OR**	Doors **lock**, parking lights flash & siren sounds (if connected)	1 chirp & 1 red LED flash; then 2-color LED flashes green once then orange for 3 seconds, three times
Press UNLOCK button for 3 sec. (Blue LED lights)	Doors **unlock**, parking light flash & siren sounds (if connected)	2 chirps & 2 green LED flashes; then 2-color LED flashes green once then orange for 3 seconds, three times

Turning Off Remote Panic

Press LOCK button (Blue LED lights) **OR**	Doors **lock**, parking lights stop flashing & siren stops sounding (if connected)	1 chirp & 1 red LED flash
Press UNLOCK button (Blue LED lights)	Doors **unlock**, parking lights stop flashing & siren stops sounding (if connected)	2 chirps & 2 green LED flashes

Remote Panic may be activated in threatening situations, and it is enhanced by allowing user choice of locking OR unlocking the doors, upon activation and deactivation. Remote Panic will automatically stop after 60 seconds.

If Remote Panic is activated while the MARS system is in Valet Mode, the controller's door lock or unlock LED changes to 4 flashes, and it has 4 chirps. Remote Panic's horn operation is also removed when the system is in Valet Mode.

Remote Trunk Release		
User's action or event	MARS system in vehicle	MARS Controller (if used)
Press TRUNK button for 2 sec. (Blue LED lights)	Trunk releases, doors unlock, 2 park light flashes then on 30 sec., siren chirps twice	2-color LED lights green for 3 seconds, then 2 chirps & 2 green LED flashes

The above is with the "out-of-box" operation of the MARS system. Trunk release confirmation chirps cannot be turned off in the MARS system (only the doorlocking functions chirps). If the MARS system is programmed to NOT unlock the doors when Trunk Release is used, then the operation is:

Press TRUNK button for 2 sec. (Blue LED lights)	Trunk release only occurs	2-color LED lights green for 3 seconds

The MARS has a trunk release output. For Remote Trunk Release to operate, it must be connected in the vehicle to operate, and optional parts may be required.

The Valet Switch: Valet Mode and Alarm Override

The MARS system has a "Valet Switch", built into the window-mounted receiver unit, which serves two important functions:

• To place the system into a "Valet Mode" whereby the alarm cannot be armed, nor can the remote start function operate. Door lock, unlock and trunk release will still operate.

• To "Override" the alarm function, in conjunction with the ignition key, should the Transmitter or Controller be lost or have a low battery.

the engine.

The Pink/Black wire can be connected to an available auxiliary output of an existing Remote Security System, and the unit's remote control may also be used to activate the remote start operation.

18-Gauge White Wire: *(+/-) Parking Light Output*

Connection Recommended. The White wire is a programmable output to the vehicle's exterior parking lights to visually confirm system operations; +12 Volt or - Negative output may be selected by the Black jumper next to the doorlock port. Connect the White wire to the vehicle's 12 Volt parking light circuit as shown in the accompanying diagrams. The correct wire will show 12 Volts only when the headlight switch is in the "Parking Light" and "Head Light" positions. This wire can usually be found at the headlight switch, and various other locations within the vehicle, such as the rear body harness or firewall connector.

Typical Parking Lights Connection
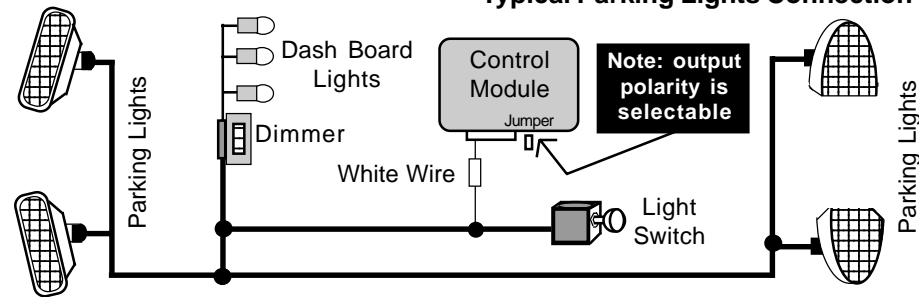
wire can usually be located in the vehicle in either kick panel area, in the wiring harness which is routed into the cab from the door. The Yellow/Green wire has a -Ground pulse whenever the MARS has an unlock output or its remote start operation is activated.

20-Gauge Yellow/Red Wire: (-) OEM Arm Output

Connection If Needed. This output may be used to arm a factory-installed alarm, or, if the vehicle is equipped with a Retained Accessory Power circuit, this output can be used to "spike" the door pin switch wire, which will turn off the Retained Accessory Power circuit.

To arm a factory alarm after remote start engine run stops, connect the Yellow/Red wire to the vehicle's factory arm wire. This wire will show Negative polarity when a key is held in the "lock" position in the door key cylinder. This wire can usually be located in either kick panel, in the wiring harness from the door, as it is routed between the door key cylinder and the factory alarm.

To use this wire to turn off Retained Accessory Power, locate a vehicle wire within the door or doorjamb which shows Negative when the door is open. Should such a wire be found which is positive, a relay is needed to reverse the Yellow/Red wire's Negative output to Positive. The Yellow/Red wire produces a Negative pulse output whenever the system turns off the engine after it has been remotely started.

20-Gauge Pink/Black Wire: (-) Start Activation Input

Connection If Needed. The Pink/Black wire allows for alternative devices such as an existing keyless entry or alarm system to activate the remote start operation. If the Pink/Black wire receives a Negative pulse, the MARS unit will start the vehicle's engine, provided that all safety circuits are in the proper status. After the engine has been started by remote control, another Negative pulse on the Pink wire will turn the unit off, stopping

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To place the system into Valet Mode: At any time that the system is not armed or triggered, simply press the Valet Switch for 5 seconds; the Status Light within the Receiver Unit will light steady, to indicate Valet Mode, and stay illuminated continuously while the system is in Valet Mode. The Status Light will continue to remain on solid, indicating Valet Mode, until it is removed from Valet Mode (see next page).

Valet Mode changes the system and Controller operations as follows:

User's action or event	MARS system in vehicle	MARS Controller ($_{used}^{if}$)

Locking & Unlocking the Doors, System in Valet Mode

Press LOCK button (Blue LED lights)	Doors lock, 1 parking light flash, siren chirps once. The alarm will NOT arm.	4 chirps; 4 red LED flashes
Press UNLOCK button (Blue LED lights)	Doors unlock, 2 park light flashes then on 30 sec., siren chirps twice.	4 chirps; 4 green LED flashes

Trunk Release in Valet Mode

Press TRUNK button for 2 sec. (Blue LED lights)	Trunk release, doors unlock, 2 park light flashes then on 30 sec., horn chirps twice (if connected)	2-color LED flashes green 4 times & has 4 chirps; then 2 green LED flashes & 2 chirps (unlock indicator)

If the MARS system is programmed to NOT unlock the doors with Trunk Release, the 2 green LED (unlock light) and final 2 chirps will not occur.

Remote Starting in Valet Mode

Press START button (Blue LED lights)	Park lights flash 4 times, horn chirps 4 times (if connected); NO STARTING ATTEMPT WILL BE MADE	2-color LED flashes orange 4 times & has 4 chirps

To turn off Valet Mode, simply press the Valet Switch until the Status Light turns off.

To Override the armed alarm: Use the key to turn the vehicle ignition switch "on", and within 5 seconds press the Valet Switch 1 time (the default setting), or press it the number of time that the Coded Override has been programmed for.

Be prepared, as upon entering the vehicle, or upon turning on the ignition, the armed alarm will trigger, sounding the siren and flashing the parking lights.

After pressing the Valet Switch, the alarm will disarm several seconds later if the entry was correct. It will not disarm if the Valet Switch was pressed an incorrect number of times. The factory-set default setting is 1 press to obtain the alarm override, but this is a programmable feature in which can the user can customize a number of 1 to 9 presses of Valet Switch to achieve the override.

The Override procedure is also with the two forms of Anti-Carjacking protection. How to custom-program the Coded Override is on page 18, and see page 20 for the description of the Anti-Carjacking features.

Programming Features

The MARS has a total of 14 "programmable features"; most of these are "operational" features, some are "installation"-related, and one returns all features to the factory setting. These features can be changed by very easily by placing the MARS into a "Features Programming Mode" and selecting features with the Valet Switch, and then using the Transmitter/Controller buttons to set the feature as desired. The following chart shows the Programmable Features, after which are detailed step-by-step programming instructions.

read 1 to 6 volts AC with the engine idling, and will increase with engine speed.

2) **Switch** the selector slide switch on the MARS control module to the right toward the 12-pin secondary harness (see pages 46-47 & the markings on the control module).
3) **Adjust** the tach signal by starting the engine and turning the right adjustment screw on the control module slowly clockwise until the indicator LED lights solid.
4) **Test** the operation by remote starting and checking that the indicator LED slights solid. The starter engagement is long enough for the engine to start, but without grinding. If needed adjust the crank time by turning the adjustment screw clockwise for more signal sensitivity and counterclockwise for less.

20-Gauge <u>Green/Red Wire</u>: *(+/-) Glow Plug Input*
Connection If Needed. The Green/Red wire allows the MARS to be used with diesel engines, operates only if programmed (feature #13) and is also polarity-programmable. Connect the Green/Red wire to the wire in the vehicle which powers the glow plugs, or the wire which illuminates the "Wait To Start" light on the instrument panel. When connected, the unit will not engage the starter if the Green/Red wire has +12 Volts; in other words, using this wire simply delays the unit's engagement of the starter. If the "Wait To Start" light in the vehicle has a Negative switching circuit, change the position of the White "Glow Plug +/- Select" Jumper on the module to reverse the Green/Red wire's polarity input.

20-Gauge <u>Yellow/Green Wire</u>: *(-) OEM Disarm Output*
Connection If Needed. If needed, the Yellow/Green wire allows the MARS to disarm a factory alarm system. Connect the Yellow/Green wire to the wire in the vehicle which is connected to one of the doorlock key cylinders. The typical OEM alarm has an electrical switch in the key cylinders which switches -Ground when the key unlocks the door. This

cess. Consider both methods before selecting one to use, and then connect the Black/Yellow wire accordingly. Either connection method must be performed at the completion of the installation, after all other wiring connections are made.

Smart Start sensing is more commonly used, for its ease of installation. The unit as received has Smart Start selected. Smart Start "reads" the vehicle's battery voltage level via the Black/Yellow wire to determine engine running status. To use Smart Start:

1) Connect the Black/Yellow wire to constant "Battery" 12 volts. This may done at the ignition switch harness, or at the battery itself for better sensitivity.

2) Switch the selector slide switch on the MARS control module to the left toward the module corner (see pages 46-47 and the markings on the control module).

3) Adjust Smart Start by starting the engine and turning the left adjustment screw on the control module slowly clockwise until the indicator LED starts flashing. Turn the adjustment until the LED is flashing in a consistent and regular manner.

4) Test the operation by remote starting and checking that the indicator LED shows the same consistent flashing (good voltage signal learned), and that the starter engagement is long enough for the engine to start, but without grinding. Turn clockwise for more crank time and counterclockwise for less crank time.

Tach Wire sensing is generally more reliable, and preferable in cases were the engine normally starts inconsistently, or is hard to start . With this method the Black/Yellow wire reads the engine speed (tach) information directly from a wire in the vehicle.   To use the Tach Wire method:

1) Connect the Black/Yellow wire to the vehicle's tach wire, which is found in the engine compartment, although in many cases it may also be located inside the vehicle. To use a multimeter to verify the correct tach wire, set it for AC Volts scale. The correct wire will

#	FEATURE	DEFAULT	OPTION
#1 Coded Override		1 Press	1 to 9 Presses
#2 Engine Running Time		10 Minutes	20, 30, 40 Min.
#3 Doors Lock/Unlock Upon Ignition On/Off		ON	OFF
#4 Chirp Confirmation With Doorlocking		Med	On Demand, OFF, Soft
#5 Chirp Confirmation With Engine Start		Med	OFF, Loud, Soft
#6 Last Door Arming		OFF	ON
#7 Ignition Activated Anti-Carjacking		OFF	ON
#8 Door Activated Anti-Carjacking		OFF	ON
#9 Unlock Doors With Trunk Release		ON	OFF
#10 Pulsed or Steady Horn / Siren Output		Steady Siren	Fast, Med, Slow Horn
#11 Starter Cranking Time (in seconds)		.5 Second	.75, 1.25, 1.5 Sec.
#12 Single or Double Unlock Pulse		Single	Double
#13 Gasoline or Diesel Engine		Gasoline	Diesel Monitor, 10, 20
#14 Reset All Features To Default		Press "LOCK" button to reset all features to the default setting	

Each of these Programmable Features is explained in the following pages

How to program the features:

1) Turn the ignition key "On", then "Off".

2) Within 7 seconds press the Valet Switch 5 times.
   The Status Lights will flash twice, and if the siren chirps twice.
   The parking lights turn on, and stay on while in programming mode.

3) Select the feature to be changed by pressing the Valet Switch the same number of times
   as the feature number (example: feature #3 = 3 presses).
   The Status Lights will flash the same number as the Valet Switch presses just
   entered. The siren also chirps the same number.
   Count the number of flashes or chirps to confirm that the desired feature has been
   chosen (if needed, reenter the Valet Switch presses).

4) Once the feature number has been confirmed, press the Transmitter/Controller buttons
   as follows:
   "LOCK" = Feature's Default 1st setting (*1 Status Light flash & 1 siren chirp*)
   "UNLOCK" = Feature's optional 2nd setting (*2 Status Light flashes & 2 siren chirps*)
 • Most of the programmable features offer more than one optional choice:
   "START" = Feature's 3rd setting (*3 Status Light flashes & 3 siren chirps*)
   "TRUNK" = Feature's 4th setting (*4 Status Light flashes & 4 siren chirps*)
   Once the Status Lights flash a response, and the siren chirps the response
   (if connected), the feature is set.
 • More features to program? Go to step 5.

20-Gauge Red/Black Wire: *(+) Brake Input*
Connection Required- The Red/Black wire must be connected. It is part a critical
safety feature which disables the unit whenever the brake pedal is pressed. Connect the
Red/Black wire to the brake switch wire which shows +12 Volts when the brake pedal is
pressed. The brake switch is typically located above the brake pedal, and usually mounted
to the brake pedal support bracket. Make this connection securely for long-term reliability,
and thoroughly test the operation of this circuit.

20-Gauge Blue Wire: *(-) Hood Input*
Connection Required- The Hood Safety Switch must be installed and the Blue wire
must be connected. This prevents operation of the unit if the hood is open. The Blue
wire's second function is being a sensing wire to trigger the alarm, if the MARS is armed.
Carefully install the included pin switch so that it is open (pin down) when the hood is shut
and closed (pin up) when the hood is open. Connect the Blue wire to the pin switch and
carefully route this wire through the firewall, using an added or existing grommet, avoiding
any hot or moving parts.   Instead of using a pin switch to monitor the hood's open or shut
status, an Omega AU-46 Mercury Tilt Switch may used. Connect one of the AU-46's wires
to Negative Chassis Ground and connect the remaining wire to the Blue wire.

20-Gauge Black/Yellow Wire: *Engine Detect Input*
Connection Required.   The Black/Yellow wire is the engine detect wire. The MARS
unit utilizes two different methods of monitoring the vehicle during the remote starting pro-
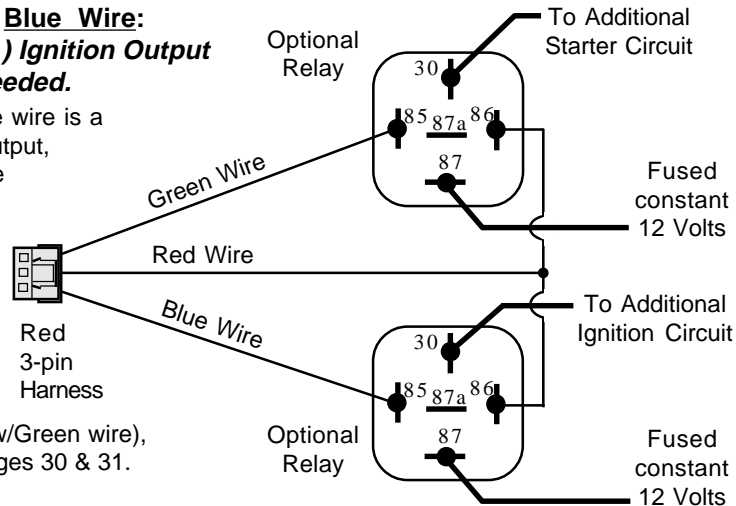
22 Gauge <u>Blue Wire</u>:
500mA (-) Ignition Output
Connection If Needed.

This 22 gauge Blue wire is a
500mA Negative output,
which has the same
operation as the
12 gauge Blue
Ignition output.
NOTE: If an
additional Acc-
essory output is
needed, use the
programmable
built-in relay (Yellow/Green wire),
as described on pages 30 & 31.

Optional
Relay

To Additional
Starter Circuit

30

85 87a 86

87

Green Wire

Red Wire

Red
3-pin
Harness

Blue Wire

Fused
constant
12 Volts

To Additional
Ignition Circuit

30

85 87a 86

87

Optional
Relay

Fused
constant
12 Volts

Wiring Connections - 14 Wire Harness

18-Gauge <u>Black Wire</u>:   *System Ground*

Connection Required.   Connect the Black wire to a very good, clean chassis ground.
A recommended connection is to an <u>existing</u> machine-thread bolt, either in the driver's kick
panel, steering column area or a <u>major</u> structural member behind the dash. Small dash

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• Only needed to program the one feature? Allow MARS to exit Programming Mode.

5) Select another feature by again making a new entry of Valet Switch presses
(repeating step 3) and again setting the newly chosen feature with the transmitter (as in
step 4).

Exiting Programming Mode:

Simply allow the MARS to time out of Features Programming Mode by not performing
any programming actions for 15 seconds; or, turn the ignition "On" to exit immediately.
The MARS indicates its exit from Features Programming Mode with 2 short and 1
long Status Lights flashes and the parking lights turning off. If the horn is con-
nected it will have 2 short and 1 long chirps.

About the Programmable Features

The MARS Programmable Features are arranged so that the "operational" features, which
are of user interest, come before the "installation"-related features. The purpose of instal-
lation-related features is to adapt the MARS to certain vehicle situations; these are to uti-
lized at the time of the installation only.

• Features #1 through #10 have "daily use" benefits, and may be programmed by the user,
if so desired, to suite their preference or needs.

• **Features #11 through #13 should be programmed by the installer, not the user!**

• Feature #14, "Reset All Features To Default", quickly and conveniently returns all fea-
tures to their factory settings. This is extremely helpful if there has been a mistake in
programming, or if there is any doubt or confusion of settings, to return them to default.

**Explanations of the User's "daily use" Programmable Features:**

• Feature **#1**, "**Coded Override**", is used to override a triggered alarm without a Transmitter or Controller, and it also may be used another pair of programmable feature, "Ignition Activated Anti-Carjacking" and "Door Activated Anti-Carjacking".

How to program Coded Override:

Place the MARS into Features Programming Mode (page 16) and access Feature #1. After the Status Light flashes once and the horn chirps once to confirm that Feature #1 is ready for programming, press the Controller "LOCK" button for each digit of the desired customized Coded Override, but wait after each single "LOCK" button press for a single Status Light flash and horn chirp before pressing the button again for the next digit. When all of the digits have been entered in this fashion, wait for the Status Light and horn to flash and chirp the complete total number.

Example: for a Coded Override of "3 presses", programming would be: enter Features Programming Mode, select "feature 1" (*response is 1 flash / 1 chirp*). Press "LOCK", wait for *1 flash / 1 chirp*; press "LOCK" again, wait for *1 flash / 1 chirp*; press "LOCK" again, wait for *1 flash / 1 chirp*. Now <u>continue to wait</u>, until the MARS has *3 flashes / 3 chirps*. Exit programming mode, and the Coded Override is now 3 presses of the Valet switch.

• Feature **#2** is "**Engine Running Time**". When MARS remotely starts the engine, the run time before automatic shut-off is adjustable. A 10 minute run time is the factory setting, with options of 20, 30 or 40 minutes. When programming (see page 16) press "UNLOCK" for 20 minutes; press "START" for 30 minutes; press "TRUNK" for 40 minutes; or press "LOCK" for 10 minute setting.
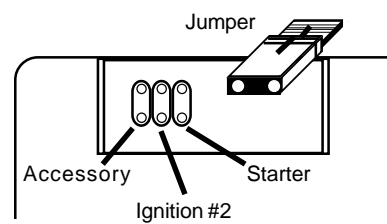
Programming the Yellow/Green Wire operation: Locate and open the small access panel on the top of the control module case. Place the Jumper as shown on the pins below the removable panel on the control module. The factory setting is the center "Ignition #2" position.

Wiring - 3 Wire Connector / Satellite Relay Port

The Red satellite relay port can be used, if needed, to configure optional relays to energize additional Ignition or Starter circuits, and Omega OEM security bypass interfaces also plug into this port. Prewired dual relay sockets are available, and a plain 3-wire harness is provided to use this port.

22 Gauge <u>Green Wire</u>:   ***500mA (-) Starter Output***
Connection If Needed. This 22 gauge Green wire is a 500mA Negative output having basically the same operation as the 12 gauge Green Starter output wire. If two or more Starter wires are present in the vehicle an optional relay is needed, connected to satellite port Green wire as shown in the diagram.

22 Gauge <u>Red Wire</u>:   ***(+) Output For Optional Relay Coil***
Connection If Needed. The Red wire supplies constant 12 Volts that can be used to power the relay's coil only- DO NOT use this Red wire for the optional relay(s) power input (pin 87).

Note: If a security system is present which utilizes a starter interrupt circuit, the Green wire must be connected to the underlined Starter Motor side of the interrupt.

12-Gauge Yellow Wire: *Ignition Output Con-*

nection Required.   Connect the Yellow wire to the vehicle's Ignition wire (also known as "Primary Ignition"). This wire will show +12 Volts when the ignition key is in the "Run" and "Start" positions and no voltage in the "Off" and "Accessory" positions. This wire is found in the ignition switch wiring harness.

Note: If two Primary Ignition wires are present, use the Yellow/Green wire for the second, or configure an optional relay to the 3-pin Red port (see next page).

12-Gauge White Wire: *Accessory Output*

Connection Required. Connect the White wire to the vehicle's Accessory wire. This circuit supplies power to the Heat, Ventilation and Air Conditioning (HVAC) system. This wire will show 12 Volts when the ignition key is in the "Run" and "Accessory" positions and No voltage in the "Start" and "Off" positions. The connection point for this wire is also found in the ignition switch wiring harness.

12-Gauge Yellow/Green Wire: *Programmable Output*

Connection If Needed.   The Yellow/Green wire is an additional output which can be programmed to operate as an Ignition output, Accessory output or Starter output. As received, it is programmed as an Ignition #2 output. This wire may be used in cases where the vehicle has more than one of any of these three circuits.

- Feature **#3**, "**Doors Lock/Unlock Upon Ignition On/Off**", has the MARS automatically lock the doors when the ignition key is turned on, and unlock them when it is turned off.

- Feature **#4**, "**Chirp Confirmation With Arming/Disarming**", offers several forms of audible confirmation when the MARS is armed or disarming, which also locks and unlocks the doors. Audible confirmations are made by the electronic siren, or the MARS may be connected to the vehicle's horn.
  Confirmation with remote doorlocking has the siren chirp once after locking, and twice after unlocking. Two volume levels are selectable and an "On Demand" operation whereby the first press of the "LOCK" or "UNLOCK" button is silent, and a second press will produce the confirmation chirp or chirps.
  When programming (see page 16) press "UNLOCK" for the On Demand operation; press "START" to turn off the confirmation chirps; press "TRUNK" for the Quiet chirp; or press "LOCK" for louder chirp (the factory "Medium" setting).

- Feature **#5**, "**Chirp Confirmation With Starting**", is similar to the previous feature-when the MARS remote starts the engine it will chirp the siren 3 times; this feature allows the choice of 3 chirp volume levels (instead of two- "On Demand" chirps can't be used as the "START" button operation toggles between "start" and "stop"), or completely turning off the starting chirps.
  The factory chirp setting is "Medium"; when programming (see page 16) press "UN-LOCK" to turn the starting chirps off; press "START" for the loud chirps; or press "TRUNK" for the quiet starting chirps. Press "LOCK" for the factory setting "Medium" starting chirps.

• Feature **#6**, "**Last Door Arming**" has the system automatically arm itself every time the ignition is turned off, a door opened, and then closed. With this feature turned on, upon exiting the vehicle the MARS system will chirp the siren and flash the parking lights when the door is closed. The Status Lights will start flashing fast, and 390 seconds later the system will arm the alarm and lock the doors, which is indicated by another chirp, another parking light flash, and the Status Lights slowing to a steady "armed" flash state. If the 2-way controller was last used to operate the system, it will also chirp once and flash the red LED when the MARS system does become fully armed.

Anti-Carjacking Features

• Feature **#7**, "**Ignition Activated Anti-Carjacking**" is one of two programmable features which can assist recovering the vehicle should this type of attack occur. In this form, the Anti-Carjacking operation automatically starts every time the ignition key is turned on.

• Feature **#8**, "**Door Activated Anti-Carjacking**" is the second Anti-Carjacking programmable feature. In this form, Anti-Carjacking automatically starts operating if a door is opened while the ignition key is turned on.

How Anti-Carjacking works: In both forms, Anti-Carjacking is silent for 53 seconds, and then has a pre-warning stage, randomly sounding the siren, for another 7 seconds. During this 60 second period the driver must press the Valet Switch once to cancel Anti-Carjacking.

If not cancelled, at 60 seconds after Anti-Carjacking is activated the siren changes to a steady output and the parking lights start flashing, and from this point pressing the Valet Switch will not turn it off. Instead, the ignition must be turned off, turned back on and

and affix the Receiver Module. Carefully route the module's 5-wire ribbon cable to the control module; plug the cable into the Black 3-pin port on the rear of the module, and plug the remaining two connectors into their respective 2-pin ports.

Optional: Should it be desired, an optional separately-mountable Valet Switch and Status Light are available. The Receiver Module must still be used for its receiver section, but the Valet Switch and/or Status Light may be placed as desired.

Wiring Connections - 6 Wire Main Harness

(Two 12-Gauge) Red Wires: *Constant +12 Volts Input*

Connection Required. Connect both Red wires to constant 12 Volts. The source used must supply adequate amperage. The most common sources are the battery (+) terminal or the ignition switch wiring harness. Good reliable connections and use of the included fuses are a must. Note that some ignition switches have the electrical switch as part of the mechanical switch; others have the electrical switch lower on the steering column and connected to the mechanical switch by a linkage. The ignition switch wiring harness is the best source for these wires, and the Starter, Ignition #1 and Accessory wiring connections.

12-Gauge Green Wire: *Starter*

Output Connection Required. Connect the Green wire to the vehicle's Starter wire. This wire will show +12 Volts only when the ignition key is in the "Start" position. This wire is also found in the ignition switch wiring harness (see diagram on previous page). Some vehicles have a second Starter wire known as a "Cold Start" wire. When this is encountered, two options are available: program the Yellow/Green wire as a second starter output, or use an optional relay configured to the 3-pin Red port to energize the second Starter wire (see

mined which control module wires will be used. Most installers will list these wires, then "map out" the installation by locating and noting the target wires in the vehicle. This will also determine the best location for the MARS control module, which is mounted <u>upon completion of the installation.</u>

The MARS remote starting unit duplicates the actions that occur within the ignition switch when you use your key to start the engine. Because of this, most of the main wiring harness connections will be made at the ignition switch harness. The ignition switch wires usually are high amperage circuits, which means that high reliability connections must be made- soldering of all connections is recommended.

Caution! *Avoid the Airbag circuit!* Especially avoid any harness or wires encased in Yellow or Red tubing or sleeves. Do not use a standard test light, as it can deploy an airbag or damage on-board computers and sensors.

Main Module:

The MARS **Main Module** should be mounted in a location close to the ignition switch (where many of the wiring connections are made); typically, hidden behind the driver's side dash.

Receiver Module:

An essential part of the MARS is the plug-in window mount **Receiver Module**, which also contains the **Valet Switch** and **Status Lights**. The unit will not operate unless this Receiver Module is plugged-in. Select a desired mounting location for the Receiver Module; optimum performance is obtained by mounting this module high and unobstructed on the vehicle's glass, such as the windshield behind the rearview mirror. Make sure the glass surface is clean and free of dust, grease, or debris. Peel the backing off of the adhesive tape

within 5 seconds the Valet Switch may be pressed to in order to stop the Anti-Carjacking operation (it will stop a few seconds after the Valet Switch press). If the ignition key is turned off, the siren will stop sounding as long as the ignition is off, although the parking lights continue to flash. Turning the ignition key back on, which will be necessary to stop the Anti-Carjacking by pressing the Valet Switch, will cause the siren to resume sounding.

Anti-Carjacking <u>cannot</u> be turned by the Controller or Transmitter, and once fully activated, if the Anti-Carjacking is not properly turned off, it will continue to sound the siren and/or flash the parking lights until the vehicle's battery is exhausted.

At 90 seconds after activation, the MARS will engage it's starter interrupt output, so adding an optional starter interrupt relay to the system will greatly enhance the Anti-Carjacking feature, and the chances of recovering the vehicle should it be taken.

Anti-Carjacking can be made even more difficult to defeat with the use of "Coded Override" (Feature #1). Instead of 1 Valet Switch press to turn it off after fully engaging, multiple presses must be made. The number of presses, 1 through 9, are chosen and programmed by the user Even if a customized Coded Override is used, only one Valet Switch press is needed to cancel Anti-Carjacking before it fully engages at 60 seconds; after that point that the correct custom Coded Override must be entered to turn off Anti-Carjacking.

• Feature #**9**, "**Unlock Doors With Trunk Release**" has the doors unlock automatically whenever the remote trunk release is used. If this feature is turned off (press "UNLOCK" when programming, page 16), the trunk release will still operate when used, but the doors will not unlock. When this feature is on, the MARS flashes the parking lights twice, and the siren chirps twice when trunk release is used; if this feature is turned off, the trunk release operates with 2 Status Light flashes only.

• Feature **#10** is "**Pulsed or Steady Horn / Siren Output**". This feature's first function is to set the MARS' audible output for use with the electronic siren, or, the MARS can be used with the vehicle's existing horn. If MARS is connected to the vehicle's horn, Feature #10's secondary function is to provide three different horn pulse patterns when it sounds for the "alarm triggered" and "panic" conditions.   When programming (see page 16), the three horn pulse choices are: press "TRUNK" for the slow horn pulses; "START" for medium horn pulses; or "LOCK" for default medium horn pulse setting. For using the electronic siren, program steady output by pressing "UNLOCK" when program-ming. Do <u>not</u> use the steady output setting for the horn- continuous use will damage it.

The "installation-related" Programmable Features:

Programmable Features #11 through #13 should only be used by the installer. All of these features program certain aspects of the MARS to match the vehicle into which it is in-stalled. Do <u>not</u> change any of these features once the MARS is installed and properly configured. The exception would be, if the programmable features are reset by using feature #14, features #11, #12, and #13 will be returned to the default positions, and if a different setting than default is required they will have to be reprogrammed to be as the installer set them.

• Feature **#11** is "**Starter Cranking Time**", which sets the base starter cranking time for the Smart Start voltage sensing engine detection method (page 34). When using Smart Start, a longer starter cranking time may be used for engines which do not start on the first remote start attempt. Programming choices are: .5 second ("LOCK", the default setting); .75 second ("UNLOCK"); 1.25 second ("START"); and 1.5 second ("TRUNK").

Installation Instructions

After reading this manual, start the installation by affixing the   WARNING DECAL to a visible area in the engine compartment!

Do not attempt to install this Remote Car Starter into a manual transmission vehicle! Doing so could cause serious property damage, personal injury, and will void all warranties!

Be aware of, and avoid, any airbag circuitry! Due to the fact that an installer will not be in a normal, upright seated position, severe injury may occur in an accidental airbag deployment!

The use of a Digital Multimeter (DMM) or Volt-Ohm Meter (VOM) instead of a standard testlight is required. This can greatly reduce the risk of an acciden-tal airbag deployment or on-board computer damage.

Battery gases are explosive! Avoid sparks and do not smoke while working near the vehicle's battery!

Always protect wires routed through the firewall from sharp metal edges and hot parts of the engine! Always fuse positive wires at their source!

   Installation Considerations: This entire booklet should be read <u>before</u> starting the installation. An understanding of which control module wires are to be used and their functions is essential. Installations will vary from car to car, as some control module wires are <u>required</u>, while others are optional. Before starting the installation, it should be deter-

itself from "receive" to "standby" mode.

- A final point to remember is that neither the MARS-03 controller nor the MARS system in the vehicle can receive signals while they are transmitting- allow a couple of seconds for each controller or system operation to be completed before attempting or expecting another operation.

- Feature #**12** is "**Single or Double Unlock Pulse**". The double unlock pulse is only needed in certain vehicles. Programming settings are single unlock pulse ("LOCK") and double unlock pulse ("UNLOCK").

- Feature #**13** is "**Gasoline or Diesel Engine**". When programming, press "LOCK" for the "Gasoline" setting. Diesel engines have three options: pressing "UNLOCK" selects "Monitor Glow Plug Wire", by which the MARS delays engaging the starter until its glow plug input wire detects the glow plugs turning off; and two preset delay periods before starter engagement: 10 seconds ("START") and 20 seconds ("TRUNK").

Resetting all of the Programmable Features:

- Feature #**14** is "**Reset**", and returns all Programmable Features to their factory default settings. Enter programming mode (page 16), select Feature #14, and press the Controller or Transmitter "LOCK" button. The MARS will acknowledge the "LOCK" input with a single Status Light flash and siren chirp, and then immediately exit programming mode with the normal confirmation of 2 short and 1 long Status Light flashes and siren chirps.

Note: When a Programmable Features Reset is used, any feature which needs to be in a setting different from the default setting will have to be reprogrammed.

Programming Controllers and Transmitters

The MARS can be operated by up to four Controller and/or Transmitters. Replacement or additional Controllers and Transmitters must be programmed to operate the MARS. The MARS multi-car operation capability also requires that Controllers and Transmitters be programmed into the second vehicle's MARS system with the transmitter's multi-car switch

in "B" position. Coding Controllers and Transmitters is the same for both types, and is a very easy process.

Any time that Transmitters/Controllers are programmed to operate the MARS, for 48 hours afterward every time that the ignition key is turned "on" the siren will briefly chirp and the Status Light will flash the number of operating Transmitters/Controllers. This is the "Unauthorized Transmitter Alert" protection feature.

• Have present all of the which are to operate the MARS. When a Controller or Transmitter is programmed to the system, any existing ones are erased. Therefore all Controllers and Transmitters which are to operate the system must be programmed at the same time.

1) Turn the ignition key "On" (and leave it "on").

2) Within 7 seconds press the Valet Switch 5 times.
The receiver unit's Status Lights turn on, and the siren chirps once (if connected).

3) Within 15 seconds press the first Transmitter/Controller's "LOCK" and "UNLOCK" buttons together.
The MARS will acknowledge the transmission by momentarily turning off the Status Lights and chirping the siren 1 time.

4) Within 15 seconds press the next transmitter's "LOCK" and "UNLOCK" together.
The Status Lights turn off and the siren chirps once.
Repeat this action for each remaining transmitter.

Exiting Programming Mode: Simply allow the MARS to time out of the programming mode, by not transmitting for 15 seconds; or, turn the ignition "Off" to exit immediately.

The MARS indicates its exit from programming mode by turning off the Status Lights and sounding a series of siren chirps.

• When programming Controllers/Transmitters for two vehicles, program one system with the A/B switch set for "A", and program the second vehicle with the switch set to "B".

Other MARS Operational Notes

• The MARS system in the vehicle will not transmit a signal to operate the Controller unless a Controller was last used to operate the system. Example: if the 1-way Transmitter is used to arm and lock the doors, the system will not transmit a signal which will cause the controller to chirp and flash its indicator LED. Also, should multiple Controllers be programmed to operate the system, the system will send its confirmation signal to only one Controller- the last one used.

• When the MARS system does send a signal to the Controller, a few seconds is needed for this "handshake" to occur. If the system is operated in a rapid fashion, as in quickly repeating lock and unlock cycles, the Controller will not have time to receive the signal from the system, and therefore stop responding and reporting the system's status. Normally operating the system corrects this symptom.

• When the Controller receives a signal, it will stay in receive mode to keep "listening" for a signal for a few seconds, even while it is performing the confirmation action (i.e.- chirping and lighting its LEDs). If the user tries to immediately use the Controller, the first button press will only switch off the "receive" mode (the blue LED will not light). To send a transmission, the button must be released and then it can be pressed again. Or, wait a few seconds after the Controller starts the confirmation action to allow it to switch