Installation Instructions #20023

V 8.3

AutoCommand® Model 20023
Remote Control Car Starter Installation Manual

DesignTech Int'l, Inc. • 7955 Cameron Brown Court • Springfield, Virginia 22153 USA • 703-866-2000 or 800-337-4468

Congratulations on your purchase of the AutoCommand® Remote Car Starter. The AutoCommand® Remote Car Starter system allows you to start the car by remote control from the comfort of your home or office in order to cool it down in the summer or heat it up in the winter.

AutoCommand® is for automatic transmission cars only. It is an extremely sophisticated system with multiple built-in safety and security features.

The AutoCommand® Remote Car Starter:

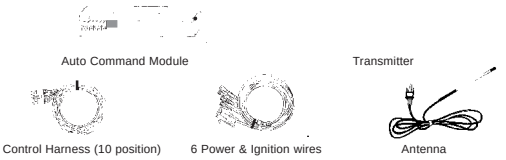
- Will start your car by remote control, and run the heater, defroster, or air conditioner to warm up or cool down the car.
- Is designed to start the car if it is in park, and only if the hood is closed.
- Can monitor the engine's speed using a special tachometer monitoring circuit, and will cut off the ignition if the car stalls.
- Will attempt to start the car for up to six seconds, but no longer (to avoid damage to the starter motor). Should the car not start, or if it stalls after starting, the AutoCommand® will make two further attempts to start it.
- Will not let the car be driven without the key in the ignition.
- Shuts itself off automatically after 10 or 15 minutes (user option) if you forget to come out to your car.
- Will shut off if the brake pedal is pushed, the hood is opened, or the transmission is shifted out of park - unless the key is in the ignition and in the "run" position.
- Allows you to remove the key while leaving the car running with the doors locked for up to 10 or 15 minutes utilizing the QUICK STOP™ option.
- Starts the car automatically whenever the temperature drops below 0ºF (-18ºC), rises above 140ºF (78ºC), or if the battery voltage drops below 11 volts with the Cold Start option activated.
- Is quality engineered, microprocessor controlled, and made in the USA to provide many years of reliable use.
- Comes with a 2 year warranty.

Tools required to install the AutoCommand® Unit:

Wire Cutters/Strippers | Soldering Iron | Pliers | Testmeter | Screwdrivers | Drill

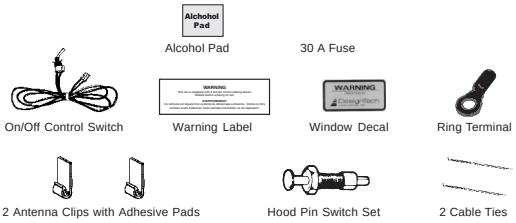
We highly recommend that all connections be soldered for reliability.

Parts List:



Auto Command Module | Transmitter | Control Harness (10 position) | 6 Power & Ignition wires | Antenna

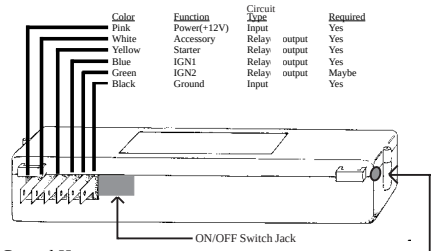
Parts Kit in plastic baggy:



Alcohol Pad | 30 A Fuse | On/Off Control Switch | Warning Label | Window Decal | Ring Terminal | 2 Antenna Clips with Adhesive Pads | Hood Pin Switch Set | 2 Cable Ties

Wiring Diagram

Power Harness

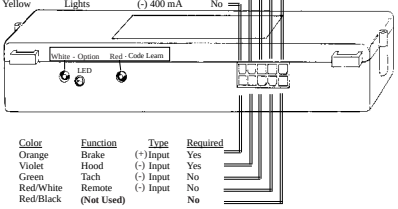


Color	Function	Circuit Type		Required
Pink	Power(+12V)	Input		Yes
White	Accessory	Relay	output	Yes
Yellow	Starter	Relay	output	Yes
Blue	IGN1	Relay	output	Yes
Green	IGN2	Relay	output	Maybe
Black	Ground	Input		Yes

ON/OFF Switch Jack

Control Harness

Coax Antenna Jack



Color	Function	Circuit Type	Required
White/Black	Ignition 3	(-) 400mA	No
Brown/White	Alarm Disable	(-) 400mA	No
Brown	Accessory Pulse	(-) 400 mA	No
Blue	Horn	(-) 400 mA	No
Yellow	Lights	(-) 400 mA	No

Color	Function	Type	Required
Orange	Brake	(+) Input	Yes
Violet	Hood	(-) Input	Yes
Green	Tach	(-) Input	No
Red/White	Remote	(-) Input	No
Red/Black	**(Not Used)**		**No**

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WARNING!

On cars with airbags, you may notice bright yellow tubes or harnesses underneath the steering column area. DO NOT tamper with these wires in any way, to prevent personal injury and/or damage to the air bag system.

Battery gases are explosive. Do not smoke while working near the car's battery.

***Note*:** Some installers connect a battery charger to the vehicle's battery during installation. This is fine, but it must be removed before running the vehicle under AutoCommand® control.

WARNING!

When working the wires through the car's firewall, be sure to protect them from sharp metal edges and from hot surfaces on the engine.

INSTALLATION INSTRUCTIONS

1. Before You Start

Take the time to read through the whole installation manual.

Wire Harnesses: Before installation, always check that your wire harness matches the list/drawing on the cover of this manual.

IMPORTANT: After having read the entire manual, start the installation by putting the yellow **WARNING STICKER** in the engine compartment. Choose a surface that is clean and readily visible when the hood is open.

WARNING
This car is equipped with a remote control starting device.
Disable before working on car!

AVERTISSEMENT
Ce véhicule est équipé d'un système de démarrage a distance. Mettez-le hors fonction avant d'effectuer toute opération d'entretien ou de réparation!

POWER & IGNITION HARNESS

The AutoCommand® module will be installed under the dash once all wiring has been completed. **Do not mount the module at this time! You will need to check the diagnostic light (LED) as the installation progresses.** Locate (or drill) a hole in the firewall to run the VIOLET, GREEN, YELLOW, and BLUE wires of the **Control Harness** and the PINK wire of the **Power harness** through into the engine compartment. The remaining short wires stay in the passenger area. Leave about a foot of the wire harness under the dash for ease of working and visual access to the diagnostic light.

Note: Always connect the *Pink* and *Black* wires before connecting any of the other wires.)

2. Pink Wire (12 AWG) - Power (+12V)

Connect the ring terminal at the end of the short **PINK** wire to the +12 volt terminal of the battery. Insert the silver tab at the end of the long **PINK** wire into the black fuse holder. They go in only one way, and they will snap in permanently. Now insert the 30 amp green fuse into the holder.

***Note*: Failure to properly install the fuse holder and 30 amp fuse voids all product warranties.**

3. Black Wire (16 AWG) - Ground

Connect this **BLACK** wire to a very good, clean chassis ground in the driver's kick panel area. Use the small red ring terminal if needed. The metal bracing around or beneath the dash board is not adequate.

Ignition Key Diagram for Steps 4-7

The vehicle's wires are found coming off of the key switch.

Ignition Key Diagram for Steps 4-7

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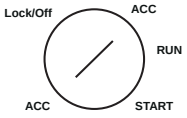


4. Blue Wire (14 AWG) - Ignition 1

Connect the **BLUE** wire to the ignition 1 wire of your vehicle. This wire will measure +12V on the test meter in the "run" **and** "start" position, and is off (ground) in the "lock/off" and "accessory" position.

5. Green (14 AWG) - Ignition 2

Connect the **GREEN** wire to the second IGN2 wire (if applicable) of your vehicle.

6. White Wire (14 AWG) - Accessory

Connect the **WHITE** wire to the accessory wire. This wire will power the heater/air conditioner (in most cars). This wire will measure +12V on the test meter in the "run" position only.

7. Yellow (14 AWG) - Starter

Connect the **YELLOW** wire to the starter wire. This wire will measure +12V on the test meter in the "start" position only.

***Note*:** Nissan vehicles have two starter wires. Connect both starter wires to the **YELLOW** wire.

8. On/Off Switch

Plug the ON/OFF control switch into the module just to the right of the power wires.

***Note*: Mount the control switch so that the "ON" position is facing upward. Connection of this switch is mandatory.**

Control Harness (All wires are the smaller 18 AWG size)

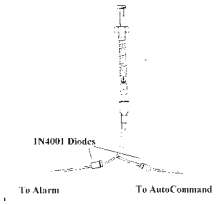
9. Red/Black - not used.

10. Violet Wire - Hood Pin Switch - Control Harness

The hood pin switch MUST be installed with the AutoCommand®. It prevents operation of the AutoCommand® when the hood is open. Connect the **VIOLET** wire to the hood pin switch using the red connector.

How to share a hood pin switch with an alarm...

Note:
If you already have a hood pin switch which is being used by a car alarm system, you may share the wiring -- but be sure to diode isolate each wire going to the hood pin switch with the bands of diodes pointing towards the pin switch as shown here:



11. Orange Wire - Brake Shut-off - Control Harness

Connect the ORANGE wire to the brake wire which receives +12V when the brake pedal is depressed. **This wire must be connected**. It arms a critical safety feature which disables the AutoCommand® when the brake pedal is depressed.

***Note*:** In some cars, the ignition must be in the "on" position to test the power in the brake wire.

Note: If the IGN1 & IGN2 wires come on whenever the brake is depressed this means you need to initialize the unit in Step 12.

12. Initializing the AutoCommand®

BEFORE THE CAR WILL START FOR THE FIRST TIME, YOU MUST INITIALIZE THE AUTOCOMMAND®

A. The AutoCommand® requires the installer to press and hold the brake pedal. Note that if the unit is not initialized then the AutoCommand will power up the ignition wire when the brake is depressed. If the ignition does not come on when the brake is depressed -- the module is already initialized and you can skip this Step 12.
B. While depressing the brake (with the engine off) turn the ignition key to the "RUN" (not "start") position.
C. Put the car in gear from the "PARK" position.
D. Put the car back in "PARK" and release the brake.

***Note*:** Confirm initialization by turning the ON/OFF control switch "OFF" and then "ON". The red LED on the AutoCommand® module will flash once immediately as the switch is flipped from the "OFF" to the "ON" position.

IF THE UNIT DOES NOT INITIALIZE AT THIS TIME -- REPEAT STEPS A THROUGH D. See the Trouble Shooting Sheet if necessary.

13. Green Wire - Tach Input - Control Harness

The AutoCommand® has two ways of monitoring the car during the starting process. Both ways will ensure a clean, accurate start. Read about both methods before deciding which one to use. Normally you should try the **"No Tach™"** method first.

"No Tach™" Starting

This starting method does not require the connection of the **GREEN** tach wire. This method will start the car by reading the car's voltage before attempting to start, and then looking for a voltage increase when the alternator kicks in. This feature automatically takes into account voltage, temperature, and the time since the vehicle was last

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run. The "No-Tach™" starting is preset at the factory and you can skip step 13A if you would like to use it. Note that if the vehicle is hard to start, set option #3 (step 23) for "extended crank."

Tachometer sensing

If the vehicle is generally hard starting (requiring a cranking time of more than 1 second) you will get more accurate starting with the tachometer sensing starting method. This method starts the car by reading the engine speed (tach) information from a wire under the hood. If you choose tachometer sensing, connect the **GREEN** (18 awg) wire to the car's tach wire under the hood (normally the negative side of the coil or tach output of coil pack.) After you have connected the **GREEN** wire, you need to teach the AutoCommand® the vehicle's tach rate at idle. Proceed to step 13A.

***Note*:** You must have already initialized the module from Step 12.

13A. Tach Rate Learning

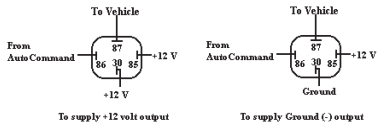
***Note*:** Only use if the tachometer sensing method is chosen.

A. Connect the GREEN wire to the car's tach wire under the hood.
B. Turn the On/Off control switch to the "OFF" position. Wait 5 seconds for the flashing of the red LED to stop.
C. Push the white "option" button once and you will see the red LED flash. Now push the button on the transmitter for a few seconds until you see the red LED flash again. You are now in TACH mode. (If the LED flashed twice -- simply push the transmitter button again until you get only one flash).
D. Wait 5 seconds for the red LED to flash 3 times.
E. Turn the On/Off control switch back to the "ON" position
F. Start the car and let it get to a *normal* idle. Do not press on the gas pedal.
G. Push the red "code" button to the right of the red LED.
H. Watch the red LED. It will turn on (solidly) after 3 or 4 seconds, indicating that the idle rate has been learned.
I. Turn the key to the "Lock/Off" position.

***Note*:** Once this step is complete, the red LED should remain lit even when the engine is running (at up to twice the learned idle rate--above this rate the LED light should shut off). THIS IS CRITICAL. Confirm this by running the engine (with the key in the ignition) and pressing the gas pedal to raise the idle rate to twice the normal rate. The red LED should turn off. If it does not turn off, repeat the tach rate learning step and check the **GREEN** wire connection and location.

OPTIONAL STEPS

Many of the optional steps require a relay to be hooked up. The most common relay used for this type application is the Bosch type relay. Use the diagram below for a typical hookup. If you have another relay then you need to know that pins 85 and 86 in this diagram relate to the coils of the relay. Pin 30 is the 'common', and pin 87 is the 'normally open' contact. If your relay has a pin 87A it is not used. (The diagram below is typical for headlamp or parking light applications).



14. Yellow Wire - Headlights - Control Harness

Connect the **YELLOW** wire which is optional, if your want to activate the low beam headlights or parking lights. After the AutoCommand® has started the car, the lights will remain on until the system shuts off after 10 minutes, or when the brake pedal is pressed, or when the key is inserted into the ignition and the car is put into gear. **This is a 400 mA transistor ground output which MUST drive a relay** (not included). Connect the **YELLOW** wire to a relay that powers the lights for this feature. If you are going to choose the Day Time Running Light option (See Step 23) then hook this wire up to the low beam wire.

15. Blue - Horn / Siren - Control Harness

This wire which is optional, signals the horn to honk once each time the AutoCommand® starts the car. **This is a 400 mA transistor ground output which MUST drive a relay** (not included).

16. Brown Wire - Accessory Pulse - Control Harness

The **BROWN** wire which is optional, is the Accessory Pulse output which gives out a transistor ground output just as the Accessory wire comes on. This is important in unusual vehicles to control the defroster or to control the GM R.A.P. system. **Again, this is a 400 mA transistor ground output which MUST drive a relay** (not included).

17. Brown/White - Alarm Disable - Control Harness

The **BROWN/WHITE** wire which is optional, will put out a quick negative pulse just before starting the vehicle. This wire can be used to turn off the factory alarm system in vehicles that have them.

***Note*:** On most vehicles, this wire can be connected directly to the factory alarm/disarm wire which is usually located in the driver's kick panel.

18. White/Black Wire - IGN 3 / VATS - Control Harness

The **WHITE/BLACK** wire which is optional, is a 400 mA transistor ground output that acts just like the IGN1 or IGN2 relay outputs (active in the "run" and "crank" positions). **This wire is a negative transistor output and MUST be set up to power a relay** (not included). It can be used to power the third ignition wire at the ignition key (necessary for vehicles such as: Lincoln Continental, Town Car, and Grand Marquis).

19. Red/White Wire - Remote Input - Control Harness

The **RED/WHITE** wire which is optional, can be used to trigger the AutoCommand® to start from a source other than DesignTech's remote control transmitter. Giving this wire a negative pulse will cause the AutoCommand® to start. Giving it another negative pulse will cause it to stop.

REQUIRED FINAL STEPS

You must have hooked up all required wires and completed Initialization (Step 12) to proceed forward.

20. Trying the Unit Out

WARNING: Be prepared to apply the brake during this testing. Close the hood, fully apply the emergency brake, and place the vehicle in Park. Turn the On/Off switch on -- the red LED will flash once.

A. Once all the wiring is checked and is correct, put the car in park, then press the button on the transmitter.

B. The car should start and continue to run for ten minutes. Please make sure that the engine shuts down if the car is taken out of park, the hood is opened, the brake is pressed or the transmitter button is pushed again.

21. The Antenna

Snake the coax antenna around under the dash and up the inside of the right or left windshield post and over the top of the windshield. Use the 2 enclosed antenna clips to mount the last clear eight inches behind the rear view mirror and two inches below the metal of the car. Clean the windshield with the alcohol pad provided for maximum adhesion. Use the 2 double stick foam tape pieces to mount the antenna clips. The better exposed the clear tube section of the antenna is the better the range performance. Now Plug the end of the antenna into the AutoCommand® Module. In many vehicles, you can get better range performance by mounting the antenna vertically hanging downward from the top of the windshield.

***Note*:** The wiring section of the installation is now complete. Be sure to cap all unused wires so as to prevent short circuits, and mount the module securely under the dash. When tying up and mounting, be sure to avoid any moving parts (steering column, pedals) and sharp edges.

22. Trouble Shooting with the Self Diagnostics

The AutoCommand® contains a built in diagnostic routine that will indicate why the unit turned off the car the last time that the unit was used. To activate the diagnostic mode, simply turn the On/Off control switch to the "OFF" position. In a few seconds, the red LED on the module will flash 1 to 8 times to identify the problem. See the chart below for an explanation of the flashes:

1 flash	10/15 minute time out
2 flashes	Brake or Hood activated
3 flashes	No Tach or Stalled.
4 flashes	Received another remote input from the transmitter
5 flashes	Transmission was shifted into gear
6 flashes	Low battery voltage, or may be missing an ignition wire which powers up the alternator
7 flashes	Not Used
8 flashes	Over current - One of the transistor ouputs is driving too much current. Make sure to use a relay where necessary.
12 flashes	The Control Switch was turned off.

23. Setting Program Options:

The AutoCommand® unit has 8 special options and features. You will not need to use these special options in most situations. The factory settings will operate most vehicles. **You must turn the On/Off control switch to the "OFF" position to program any features.** Note that when turning off this control switch, the red LED will flash a few times, giving the diagnostic code described in Section 22. Wait a few seconds for it to finish before programming your new Options.

Feature #	Factory Setting (2 flashes)	Option (1 flash)
1	"No-Tach"	Tach Mode
2	10 min. run time	15 min. run time
3	Normal Crank	Extended Crank
4	Normal Crank	Super Crank
5	Normal Voltage Metering	Ignore Voltage Metering
6	Gasoline vehicles	Diesel vehicles
7	"Enable" feature	No "Enable"
8	Normal	Daytime Running Lights

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#1 sets the starting method. The factory setting uses "No-Tach" starting. If you wish to use the tach to start, follow the instructions in 13A.

#2 is for the choice of run times.
#3 will add 50% more crank time to starting.
#4 adds 100% more crank time. This is necessary on many deisel and hard to start vehicles. Options #3 and #4 can be added together for even more cranking time.
#5 is used in the "No-Tach" starting method for some diesel vehicles.
#6 option must be activated when installing on a diesel vehicle.
#7 cancels the Enable mode safety feature. The Enable mode requires that the driver toggle the ON/OFF control switch "OFF" then "ON" each time the driver removes the key from the ignition in order to "enable" the vehicle for AutoCommand® control. This feature guards against undesired starting of the vehicle by remote control.
#8 This option will turn the headlights on about 10 seconds after it sees the key in the ignition position -- and turn if off when the key is removed from the ignition.

If you want the factory settings, DO NOTHING and skip this section. If you want to change to one of the options, TURN THE ON/OFF CONTROL SWITCH TO THE "OFF" POSITION. Wait for the red LED to stop flashing, then continue with the following procedures:

A. Push the white button to the left of the red LED. Each time you push the button the red LED will flash 1 to 9 times signifying at which option you are (press it once, the LED flashes once. Press it again and it will flash two times. Press it again and it will flash three times, etc., to show what option you are at).

B. When you are at the option level you desire, push the transmitter button for 1 second and the red LED will flash once for Option setting and Twice for returning to the Factory setting.

C. In six seconds, the AutoCommand® automatically exits the programming mode (Three LED flashes). You can choose the next option by starting over again with Step A.

D. When finished -- switch the Control Switch back ON. The LED will flash once.

SPECIAL CASES

1 Code Learning

The transmitter is uniquely coded to one of over 16,000,000 different codes. The AutoCommand® module can learn the codes of up to 4 different transmitters. It should have been taught the code at the factory - but if not - follow the steps below to teach the receiver the transmitter code(s):

A. Turn the Control Switch on.
B. Push and release the red button to the right of the red LED. The red LED, ignition and accessories come on for a second.
C. Hold down the button on the transmitter until the red LED, ignition and accessories come on. The module has now learned the transmitter code. Release hold on the transmitter button.
D. To learn additional transmitters (up to 3 more), immediately (within 5 seconds) push the button on another transmitter for a few seconds until the red LED, ignition and accessories come on.
E. Wait 5 seconds after the last time the transmitter was pushed to exit the code-learning stage. (The LED, ignition and accessories flash on 4 times).

***Note*:** You have only 5 seconds between transmitters to begin teaching a new transmitter.

2 VATS system (for GM cars with special PASS key).

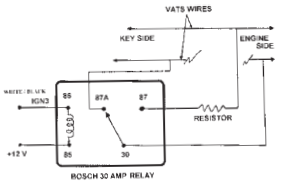
DesignTech makes a special module called the Universal Alarm Bypass Module (model #20401). This module will allow one to bypass any of the new alarm systems on the market -- VATS, PASSLOCK, PASSLOCK 2, SATURN, and the TRANSPONDER types. You can order this module from your dealer or directly from DesignTech. If you do not have this module, you can still bypass these systems as described here:

If you have a GM vehicle with a factory anti-theft system (a resistor in the key), you need to follow these directions below. However for a few 1995+ GM vehicles (Buick Skylark, Chevrolet Cavalier, Oldsmobile Achiva and the Pontiac Sunfire) you must get Tech Tip #8113 from DesignTech.

Measure the resistance of the key. It should be between 392 ohms and 11,800 ohms. To do this, put the ohm meter probes on each side of the key pellet. This value should be close to one of the following (all values in ohms): 392, 523, 681, 887, 1.13K, 1.47K, 1.87K, 3.01K, 3.74K, 4.75K, 6.04K, 7.5K, 9.53K, 11.8K. Purchase a resistor with a value within 5% of this measured value and a 30 amp BOSCH type relay. (or purchase DesignTech VATS kit part number 20041)

Locate the pair of VATS wires (sometimes **White/Black** striped and **Purple/Black** striped) running behind the dash from the passenger side to the driver's side behind the key switch. Connect our Ignition 3 (IGN3 - **WHITE/BLACK**) wire to pin 86 and +12 volts to pin 85 on the relay. Cut ONE of the VATS wires and connect the key-switch side to NC pin 87A, and the other side (Engine Side) to common pin 30. Connect the other VATS wire to NO pin 87 with the selected resistor soldered in line as shown here:

Some of the newer GM vehicles have a slight variation on the wiring for the VATS system. On these cars, there is an **ORANGE** wire (actually a vinyl sleeve) that contains smaller wires. This is located underneath the steering column next to the **YELLOW** sleeve that is labeled "Air bag wiring". Slit the **ORANG**E sleeve open to expose two pairs of wires which are either both white, OR both yellow, OR both black.



***Note*:** When installing a VATS bypass system, the **WHITE/BLACK** IGN3 wire must only go to the VATS relay. If you need IGN3 in the car, simply supply power to the IGN3 wire of the vehicle by jumping power from the **GREEN** IGN2 wire. (Thus **GREEN** will be powering up 2 wires behind the key).

For GM Vehicles with the Pass Lock System: 1995+ Chevrolet Cavailer Z24, Pontiac Sunfire GT and 1996+ Pontiac Sunfires and Grand Am, Olds Achieva, Buick Skylark and Chevrolet Cavalier; order Fax on Demand document #8113 to work around this system.

3 Diesel Vehicles

The following chart outlines the options that need to be set for diesel vehicles. (Use the Chrysler settings for all other diesel vehicles.)

Option	6 Diesel	3 Ext. Crank	4 Super Crank	5 IgnoreMeter
Chrysler	X	X		
Ford	X	X		X
Chevrolet	X	X	X	X

USER TIPS

The transmitter button functions as follows:

Push Button: Once - Start the car
Again - Stop the car

Important Note:
Make sure that all drivers who will be operating the AutoCommand® are fully aware of the safety precautions installed and their limitations. Stress the importance of switching the On/Off control switch to the "OFF" position (down) every time the car is serviced. Show the user how the control switch must be turned off and on again after pulling out the key before leaving the car. If the user forgets to enable the AutoCommand® when they leave the vehicle they can enable it by pushing and holding the transmitter button for 6 seconds. Give the user a copy of the tan page - USER TIPS AND NOTES so that they can familiarize themselves with the product.

USER INFORMATION: The tan USER TIPS AND NOTES sheet gives you further detail regarding daily use of this product. Any modifications not expressly approved by DesignTech will void the user's authority to operate the equipment.

OTHER ACCESSORIES

A. Extra transmitters for more than one user in the family. Up to four transmitters can be used with each receiver in the vehicle.
B. Garage Door Receiver Unit will allow the same AutoCommand® transmitter to operate an electric garage unit.
C. A timer module to automatically start your car at a preset time.

The following installation accessories are available through your dealer or DesignTech. All prices are in U.S. dollars. Shipping and handling costs are included.

#20051	Extra 1 button transmitter	$44.95
#20059	Extra transmitter lithium battery	$7.95
#20041	VATS kit (to work with the GM PASS key system)	$14.95
#20043	Bosch 30 amp relays	$9.95
#30021	Garage Door Receiver Unit	$49.95
#20314	Range Doubling Glass Mount Antenna	$59.95
#20401	Universal Alarm Bypass Module	$39.95

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www.designtech-intl.com

PLEASE HAVE MODEL NUMBERS (20023) AND DIAGNOSTIC CODE (SEE STEP 22) READY BEFORE CALLING TECH SUPPORT

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