AutoCommand® Model 20021/20721/20921 V 0.1

Remote Control Car Starter Installation Manual

DesignTech International, Inc. • 7955 Cameron Brown Court • Springfield, Virginia 22153 USA • 703-866-2000 or 800-337-4468 • www.designtech-intl.com

Please Read Completely Before Beginning

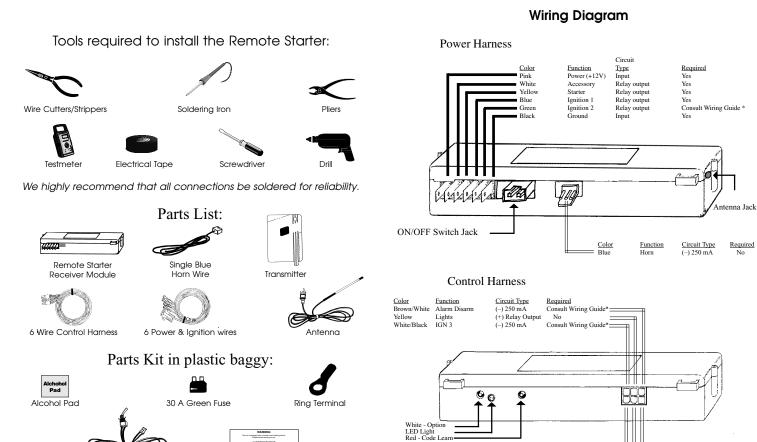
Congratulations on your purchase of the AutoCommand® Remote Car Starter. AutoCommand® Remote Car Starter system allows you to start the car by remote control from the comfort of your home or office in order to cool it down in the summer or heat it up in the winter.

AutoCommand® Remote Car Starter is for <u>automatic transmission</u> / <u>fuel injected gasoline vehicles only</u>. It is an extremely sophisticated system with multiple built-in safety and security features.

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.
- 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, 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 (programmable) 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.
- Is quality engineered, microprocessor controlled, and made in the USA to provide many years of reliable use.
- Comes with a 2 year warranty.

2 Antenna Clips with Adhesive Pads



2 Cable Ties

Warning Label

Hood Pin Switch Set

Color

Orange

Purple Green Function

Hood Switch Tach (+) Input

our website at www.designtech-intl.com for specific information.

* For vehicle specific wire information consult the Blue Sheet for general information and consult

Brake



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 the Remote Starter control.



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.

Always leave one window ope to avoid locking your keys in your car.

The <u>Installation Information</u> section of our web site <u>www.designtech-intl.com</u> is available 24 hours/day to provide you with up to date vehicle wiring information for your particular vehicle if needed.

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 systéme de démarrage a distance. Mettez-le hors fonction avant d'eflectuer toute opération d'entretien ou de réparation!

POWER & IGNITION HARNESS

The Remote Starter 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 PURPLE, GREEN, and YELLOW 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 \underline{Pink} and \underline{Black} wires before connecting any of the other wires.)

2. Black Wire (16 AWG) - Ground

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

3. 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. Run the long pink wire through the firewall of your vehicle. Join the remaining ends of the power wire together by soldering them. Tape with electrical tape to leave no exposed wire. Alternatively, you may wish to use a yellow butt terminal, but we recommend soldering.

Now insert the 30 amp fuse into the holder. As the power wire is connected the module's LED will blink once.

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

Ignition Key Diagram for Steps 4-7 The vehicle's wires are found coming off of the key switch. Pamove the

off of the key switch. Remove the panel under the steering column to access these wires.



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. 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.

6. White Wire (14 AWG) - Accessory

Connect the **WHITE** wire to the accessory wire which is +12V in the "run" and "accessory" position, but off (ground) in the "start" and "off" positions.

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.

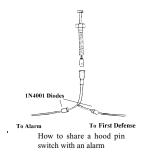
Note: Nissan vehicles have two starter wires. Connect both starter wires to the **YELLOW** wire.

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

8. Purple Wire - Hood Pin Switch - Control Harness

The hood pin switch <u>MUST</u> be installed with the Remote Starter. It prevents operation of the Remote Starter when the hood is open and is used to initialize the unit. Connect the **PURPLE** wire to the hood pin switch using the red spade connector.

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 at right.

9. 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 Remote Starter 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, the hood is open and the control switch of Step 14 is On, this just means you need to initialize the unit in Step 15.

Connect the **YELLOW** wire which is optional, if you want to activate the <u>low beam headlights or parking lights</u>. After the Remote Starter has started the car, the lights will remain on until the brake pedal is pressed, ignition switch is turned on, vehicle is put into gear or 10 minutes has passed. **This is a relay +12V output**. Connect the **YELLOW** wire to the wire that powers the Headlights or Parking Lights for this feature.

11. White/Black Wire - IGN 3 - Control Harness

The WHITE/BLACK wire which is optional, is a 250 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).

12. Brown/White - Alarm Disable - Control Harness

The Brown/White wire is used as a factory alarm disable wire. The Brown/White wire provides a ground pulse when the vehicle is remotely started. On most vehicles, you can connect up the Brown/White wire directly to the alarm/disarm wire, which is usually located in the drivers kick panel. (This is a 250 mA Transister Output).

13. Blue - Horn - Single Small Blue Wire

This **Blue** wire can also signal the horn to honk (or siren to chirp) once each time the AutoCommand® starts the vehicle. **This is a 250 mA transistor ground output which MUST drive a relay**. This relay diagram can be found in the How to Use a Relay section.

14. Plug-In On/Off Switch

Plug the ON/OFF control switch into the module just to the right of the power wires. Use a 1/4" drill-bit for the mounting hole.

Note: Mount the control switch in the dash so that it is easily accessible and so that the "ON" position is facing upward. Make sure there is enough clearance behind the mounted switch for the wire connections. Connection of this switch is mandatory.

15. Initializing the Remote Starter

Before the car will start for the first time, you must initialize Remote Starter.

If the dash lights will come on (the Remote Starter powers up the ignition wires) when the brake is depressed and the hood is open with the control switch on, the unit is not initialized. FOLLOW STEPS A THROUGH F.

- A. Turn the Control Switch on.
- B. Open the hood. Press and hold the brake pedal. Note: The dash lights will come on if the unit is not initialized.
- C. While depressing the brake (with the engine off and the hood open) turn the ignition key to the "RUN" (not "start") position. (The engine is not started)
- D. Put the car in drive from the "PARK" position.
- E. Put the car back in "PARK" and release the brake.
- F. Turn the key off and remove key.

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

See the purple colored Trouble Shooting Sheet if the vehicle does not initialize.

16. Trying the Unit Out

WARNING: Be prepared to apply the brake during this testing.

- A. Close the hood, fully apply the emergeny brake.
- B. Place the vehicle in Park
- C. Make sure the toggle switch is On-- if you turn it on, the red LED will flash once.
- D. Press the button on the transmitter.
- E. 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. If the car does not start see Special Cases section.

17. Green Wire - Tach Input - Control Harness

The Remote Starter has <u>two ways</u> 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 <u>does not</u> 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 looks 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 run. The "No-Tach™ starting is preset at the factory and you can skip step 17A if you would like to use it. Note that if the vehicle is hard to start, set option #3 (step 20) 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 Remote Starter the vehicle's tach rate at idle. Proceed to step 17A.

Note: You must have first completed Step 15.

17A. Tach Rate Learning

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

- 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 middle button on the transmitter for a second 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 on the module for a second.
- H. Watch the red LED. It will turn on (solidly) after 3 or 4 seconds, indicating that the idle rate has been learned.
- Watch the LED stay on steady as the vehicle is running and goes off as you rev the rpms above twice the idle rate. The

LED must go out when you rev it above twice the idle rate to confirm correct tach learning.

J. Turn the key to the "Lock/Off" position.

18. The Antenna

Feed the antenna around 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 two inches below the metal of the car on the windshield. 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 Remote Starter module. In some vehicles you will get better range performance if the antenna is pointing vertically 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 the wires, be sure to avoid any moving parts (steering column, pedals) and sharp edges.

19. Trouble Shooting with the Self Diagnostics

The Remote Starter 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 for why it turned off, 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 12 times to identify the problem. See the chart below for an explanation of the flashes:

1 flash	Microprocessor has reset and the unit is now ready to try again. This could also mean that one of the transistor outputs is shorting and will require a relay.
2 flashes	Unit turned off because Brake or Hood was activated. Check that you have correct Brake Wire and/or that the hood pin switch is depressed when hood is closed.
3 flashes	No Tach or Stalled. Review Step 17.
4 flashes	Received another remote input from the transmitter
5 flashes	Transmission was shifted into gear. See the Purple Troubleshooting Sheet
6 flashes	Low battery voltage, or may be missing an ignition wire which powers up the alternator
12 flashes	The Control Switch was turned off. Check control switch wire connections.

20. Setting Program Features:

The Remote Starter unit has special features available. You will not need to use these special features 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 18. Wait a few seconds for it to finish before programming your new Options.

<u>Feature #</u>	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	N/A	N/A		
7	"Enable" feature	No "Enable"		
8	Normal	Daytime Running Lights		

Option 1 No-Tach Tach Mode

Sets the starting method. The factory setting uses "No-Tach" starting. If you wish to use the tach to start, follow the instructions in 17A.

Option 2 10 min. Run Time 15 Min Run Time Is for the choice of run times.

Option 3 Normal Crank Extended Crank Will add 50% more crank time to starting.

Option 4 Normal Crank Super Crank

Adds 100% more crank time. This is necessary on many diesel and hard to start vehicles. Options #3 and #4 can be added together for even more cranking time.

Option 5 Normal Voltage Metering Ignore Voltage Metering

Is used in the "No-Tach" starting method for hard to start vehicles or vehicles with weak batteries and poor charging systems

Option 6 N/A

control.

Option 7 "Enable" Feature No "Enable"
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 the Remote Starter. This feature guards against undesired starting of the vehicle by remote

Option 8 Normal Daytime Running Lights
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. You must hook up the Light Wire of Step 10.

If you want the factory setting, DO NOTHING and skip this section. If you want to change one of the features, 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 option button to the left of the red LED. Each time you push the button the red LED will flash 1 to 8 times signifying at which feature 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 feature you are at).
- B. When you are at the feature level you desire, push the transmitter button for a second and the red LED will flash once to signify you are at the Option setting. You can push the transmitter button again and it will flash Twice to signify you are at the Factory setting. Push the transmitter button again and you will go back to the Option setting.
- C. You can choose to change another feature by starting over again at Step A. or, in six seconds, the Remote Starter automatically exits the programming mode (Three LED flashes).
- D. When finished -- switch the Control Switch back ON. The LED will flash once.

SPECIAL CASES

21. Will Not Start - Car Displays Fault Code

Many newer vehicles turn off the Ignition 2 wire while the starter is cranking. In these vehicles it is very important to have the remote starter copy the starting sequence of the key exactly; otherwise the vehicles computer may show a fault code or not allow the vehicle to start at all.

To turn the thick Green ignition 2 wire off during crank:

- Unplug all wires and connections from the remote start module.
- 2. Open the case of the remote start module.
- Look for a small two-pin jack just next to the Red programming push button.
- Δ Move the small black jumper to fit over BOTH pins on the jack.
- 5. Close the case and plug in all of the wire connectors.

The remote start module will now turn off ignition 2 while the starter is cranking. Removing the jumper will return the unit to factory settings.

22. Code Learning

Your transmitter is factory coded to one of over 16,000,000 different codes. The Remote Starter module can learn the codes of up to 4 different transmitters. If you want to add additional transmitters to the receiver or if it does not respond to your transmitter - follow the steps below to teach the receiver the transmitter code(s):

- Turn the Control Switch on. Α.
- Push the red button to the right of the red LED. The red LED and the dash lights come on for a second. (The Remote Starter powers the ignition and accessory wires).
- Hold down the Start button on the transmitter until the red LED and the dash lights come on again for a second. The module has now learned the transmitter code. Release hold on the transmitter button.
- To learn additional transmitters (up to 3 more), immediately (within 5 seconds) push the Start button on another transmitter for a few seconds until the red LED and the dash lights come on for a second again.
- Wait 10 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: Teaching the module a new transmitter code will erase all previous codes - so all transmitters must be taught. You have only 5 seconds between transmitters to begin teaching a new transmitter.

23. Factory Anti-Theft Systems

Many vehicles come with an anti-theft system that must be temporally bypassed for the vehicle to be remotely started. Some systems use a resistor in the key. Others use a transponder- a small device in the key that communicates a high security code to the vehicle before the vehicle will successfully start.

Check the following list of vehicles below. If your vehicle is listed, your vehicle has an Anti-Theft System that the remote starter MUST temporally bypass in order to start the vehicle. More information about the factory anti-theft systems and vehicle wire colors can be found at DesignTech web page www.designtechintl.com.

DesignTech has developed a Universal Alarm Bypass Module, model #20401, that will temporally bypass the factory anti-theft systems when using the remote starter. Check with your local retailer/installer to purchase this Universal Alarm Bypass Module, model #20401 or contact DesignTech directly.

<u>List of vehicles and the types of security systems:</u>

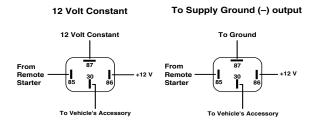
Acura 3.2TL 98+ Buick Riviera 93 -96 VATS Transponder Buick Roadmaster 93 - 96 VATS Acura RL 98+ Transponder Audi A4 A6 A8 98+ Passlock I Transponder Buick Skylark 96 - 98 BMW (all 97 +) Transponder Cadillac Allante VATS Buick LeSabre 90 - 96 VATS Cadillac Brougham VATS Buick Park Ave 91 - 96 VATS Cadillac Catera Transponder Cadillac Deville 92 - 96 Buick Park Ave 97+ Transponder VATS Buick Regal 93 -96 VATS Cadillac DeVille 99 Transponder Cadillac Eldorado 89 - 98 VATS Cadillac Fleetwood 90 - 96 VATS Cadillac Seville 90 - 98 VATS Cadillac Seville 99 Transponder Chevrolet Venture 99 Transponder Chevy Astro Van 98+ Passlock II Chevy Blazer 98+ Passlock II Chevy Camaro 86 - 99 VATS Chevy Cavalier 96+ Passlock Chevy Corvette 88 - 99 VATS Chevy Lumina 96 -99 VATS Chevy Malibu 97 -99 Passlock II Chevy Monte Carlo 96 - 99 VATS Chevy Pickup Full-size 98+ Passlock II Chevy S-10 98+ Passlock II Chevy Suburban 98+ Passlock II Chevy Tahoe 98+ Passlock II Chrysler Concorde 98+ Transponder Chrysler Sebring Conv 98+ Transponder Chrysler LHS 99 Transponder Dodge 300 M 99 Transponder Dodge Intrepid 98+ Transponder Ford Contour 97 + Transponder Ford Expedition 97+ Transponder Ford Explorer 98+ Transponder Ford Mustang 98+ Transponder Ford Taurus 96 + Transponder GMC Jimmy 98+ Passlock II GMC Safari 98+ Passlock II GMC Suburban 98+ Passlock II GMC Yukon 98+ Passlock II Honda Accord 98+ Transponder Honda Prelude 98+ Transponder Jeep Grand Cherokee 99 Transponder Jeep TJ (Wrangler) 99 Transponder Lexus (all 97+) Transponder

Lincoln Continental 97+ Lincoln Mark VIII 97+ Lincoln Navigator 97+ Lincoln Towncar 97+ Mercedes (all 97+) Mercury Cougar 99 Mercury Mystique 97+ Mercury Sable 96+ Nissan Maxima 98+ Oldsmobile Intrigue 98+ Olds. Cutlass 97+ Oldsmobile Achieva 95-98 Oldsmobile Alero 99 Oldsmobile Aurora Oldsmobile Bravada 98 Oldsmobile Eightv-Eight Oldsmobile Ninety-Eight Oldsmobile Silhouette 99 Pontiac Ronneville 89+ Pontiac Firebird 88+ Pontiac Grand Am 96 - 98 Pontiac Grand Am 99 Pontiac Grand Prix 92 - 96 VATS Pontiac Montana 99 Pontiac Sunfire 96+ Porsche (all 97+) Saab (all 97+) Saturn 97+ Toyota Avalon 98+ Toyota Camry 98+ Toyota Land Cruiser 98+ Toyota Solara 99 Toyota Supra 98+ Volkswagen Passat 98+ Volvo (all 98+)

Transponder Transponder Transponder Transponder Transponder Transponder Transponder Transponder Transponder Passlock II Passlock II Passlock I Passlock II VATS Passlock II VATS VATS Transponder VATS VATS Passlock Passlock II Transponder Passlock Transponder Transponder Factory Transponder Transponder Transponder Transponder Transponder Transponder Transponder

HOW TO USE A RELAY

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 (Radio Shack Cat.# 275-226). 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 in the middle it is the normally closed contact and is not used. (The diagram below is typical for the horn or trunk application).



USER TIPS

The transmitter functions as follows if all features are hooked up:

> Push Once - Start the car with all accessories left on. Push again to stop the car.

the Remote Starter® receiver module are

The unit is powered by a long life lithium battery (type CR2025). The transmitter and

FCC and DOC approved.

Important Note:

Make sure that all drivers who will be operating the Remote Starter 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 (unless Option 7 has been programmed). If the user forgets to enable the Remote Starter when they leave the vehicle they can enable it by pushing and holding the middle 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 warranty and 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 the Remote Starter transmitter to operate an electric garage unit.

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

#20051 #20059 #20401 #20043 #30021	Extra 1 Button Transmitter Transmitter Long Life Lithium Battery Universal Alarm Bypass Module Bosch 30 Amp Relay and Harness Garage Door Receiver Unit	\$44.95 \$7.95 \$39.95 \$9.95 \$49.95
#20314	Range doubling Glass Mount Antenn	a\$59.95
#20519	Digital Multimeter	\$29.95



7955 Cameron Brown Court; Springfield, Virginia 22153 USA Tel: (703)866-2000 or (800)337-4468 www.designtech-intl.com

PLEASE HAVE MODEL NUMBER (20021/20721) AN/20921D DIAGNOSTIC CODES OF (STEP 19) READY BEFORE CALLING TECH SUPPORT