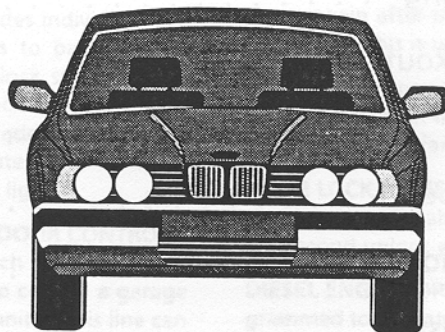# AUTOSTART 1200

REMOTE CONTROL CAR STARTER

INSTALLATION MANUAL

WARNING

Install on vehicles equipped with **automatic transmissions only.**
Recommended for gasoline powered, fuel injected engines only.
This unit must be installed with **all safety devices supplied.**

TABLE OF CONTENTS

IMPORTANT : The remote starter is programmed using default settings and **does not contain** any transmitter codes. Transmitters **must be learned** by the starter unit before it can be used.

AUTOSTART
FCC ID: NAHRTR433
EXHIBIT #: 5B

MAJOR FEATURES

- Instant remote detection
- Brake and hood monitoring
- Ignition disables remote start
- Starter kill option
- Engine sensor monitoring
- Tach/Vacuum Watch Lockout
- Negative and positive door locks triggering
- Diesel engine option
- Idle mode option
- Child Proof option
- Factory alarm control
- V.A.T.S. bypass
- Customized operations
- Programmable cold weather operation

HARDWARE FEATURES

TACH/VACUUM SENSING – The remote starter can be used in either Tach or Vacuum Sensing Mode depending on the installer or customer's preference. Also, the **Tach Watch Lockout Feature** will cause the remote starter to be locked out if the engine cranks the entire crank time and no tach pulses were ever detected.

DUAL +12 VOLT POWER LINES – Due to a heavy draw by the vehicle's accessories, many vehicles have more than one wire supplying power to the key switch. As such, the remote starter has a second power wire to supply the accessories line.

REMOTE DOOR LOCKS – The unit provides individual lock and unlock signals, allowing the doors to be locked or unlocked by remote control. Negative lock signals (most common types of locks) or positive lock signals can be provided by the unit without the need of adding an external device (no extra relay required). The remote starter confirms these operations by flashing the parking lights.

REMOTE TRUNK RELEASE OR GARAGE DOOR CONTROL – The unit provides an individual line which can be used to release the trunk by remote control or to control a garage door opener even while the engine is running. This line can be used to control other devices if desired.

STARTER KILL – The starter kill feature prevents the vehicle from being started manually using the key unless disarmed (by unlocking the doors by remote). This provides additional theft-prevention for the vehicle and also prevents unauthorized use of the vehicle. This is a separate and individual line output.

GROUNDOUT UNDER REMOTE START – This separate line can be used to disable V.A.T.S. systems (on some GM cars), bypass ignition sensing wires on factory alarm systems and completely disarm alarm systems, etc.

REARM OUTPUT – This separate line can be used to rearm a factory alarm system once the doors are locked by remote or whenever the remote starter shuts off.

AUX LINE: DISARM SIGNAL – This line can be programmed to provide a disarm pulse to a factory alarm system before starting the vehicle by remote control.

AUX LINE: DEFROST SIGNAL – The line will send a ground pulse 4 seconds after the engine starts successfully during remote starts.

EXTERNAL TRIGGER – This line is enabled when Normal Operation and External Trigger Option is used (Mode 1, Function 5, Option 2). This line is enabled when Safety Lock Option is used (Mode 1 programming). This allows the module to be triggered by an external ground signal (e.g. separate receiver).

PROGRAMMABLE FEATURES

CODE LEARNING – The remote starter can learn up to 4 remote transmitters. Resetting the unit causes all codes to be erased.

TACH LEARNING – The remote starter can learn its correct tach setting by reading the engine's tach pulses when running using the key. You can also fine tune the setting using the remote by increasing or decreasing the learned setting.

IGNITION LOCK – The ignition lock feature allows the remote starter to automatically lock the doors when the driver turns the ignition to the ON position and presses on the brakes. The unit will automatically **unlock** the doors when the ignition key is turned to the OFF position. Door lock/Unlock Toggled can also be enabled with ignition lock (Mode 1, Function 1, Option 3). This option prevents unlocking the doors again after the doors were unlocked and the starter kill rearms. This is used when the starter kill is not installed.

NOTE: This option is not needed if the vehicle already has this feature built-in. This option is ON by default. (See Customized Programming Mode 1 for details.)

DOOR LOCK PULSE TIME – Door lock/unlock pulse duration is programmable for a 1 or 4 second pulse or for two 1/4 second unlock pulses.

DIESEL ENGINE OPTION – The remote starter can be programmed to operate diesel engines by monitoring the glow plug light (Mode 2, Function 4, Option 3).

IDLE MODE – The remote starter can be programmed so that the engine can be left running and the vehicle unattended for the engine run time if the Idle Mode Option is enabled and if the engine is already running (Mode 2, Function 4, Option 1 or 3). The engine will run as if it was started by remote while you make a short stop or delivery without having to stop the engine.

CHILD PROOF OPTION – The child proof option requires Button II to be pressed for 4 seconds in order to start the vehicle. If this option is enabled, cold weather operation will be controlled by pressing both Buttons I and II for 4 seconds instead of only pressing Button II for 4 seconds

ENGINE RUN TIME – The remote starter can be programmed to run for 5, 15 or 25 minutes when started by remote. Longer run times can be programmed when installed in colder climates or when the vehicle requires longer run times to heat or cool the car down. Shorter run times can be programmed for more temperate climates.

CRANK CYCLES – The remote starter can be programmed to crank the engine 2, 3 or 4 times when starting by remote. For engines that need more crank tries, the unit can be configured for more crank tries before giving up.

CRANK TIME – The remote starter can be programmed to crank the engine for 6, 8 or 12 seconds on each try. For colder climates or engines that have difficulty starting, a longer crank cycle can be programmed. For engines that start easily, a 6 second crank cycle may be sufficient.

GROUNDOUT LINE – The groundout line can be programmed for constant or pulsed operation.

ALARM DISARM – The defroster line can be programmed to double as a disarm pulse signal which is sent just prior to remote starting (Mode 1, Function 2, Option 3).

VACUUM MODE – Vacuum or tach mode can be programmed.

PROGRAM PLAYBACK – Playback option to view current settings

INSTALLATION

HOOD SWITCH – When installing the hood switch inside the engine compartment, the switch's contacts must be closed when the hood is opened and open when the hood is closed. The body of the hood switch must be properly grounded.

VALET SWITCH – The valet switch should be located in an area which allows easy access to the user but is difficult to find by a potential thief.

IMPORTANT: This switch must be installed in order to make programming accessible and easy to use. As well, it is the only way to disable the unit should any problems arise.

NOTE: To ensure proper operation, it is very important that all remote starter connections be well soldered.

Once the harness has been installed and soldered, the voltages and signals at the connector should be verified before plugging in the remote starter module.

With the power (valet) switch in the OFF position, plug the remote starter unit in the connector(s). Turn the power switch to the ON position. If the installation is correct, the parking lights should flash twice slowly.

Raise the hood and the parking lights should come on for about 4 seconds.

EXCEPTIONS:

- Some vehicles may have 2 ignition wires which must be powered up for the engine to start and/or run properly under remote start.
- Other vehicles may have 2 accessory wires which must be powered in order to turn on the blower fan.

PROGRAMMING TRANSMITTER(S)

To be able to use the remote transmitter, you must first have the system learn the transmitter's code. The system can learn a total of 4 transmitters. If more than 4 codes are programmed, the oldest codes will be replaced. (The same transmitter can be coded 4 times to lock out all other transmitters.)

NOTE: When adding a transmitter, make sure that no other transmitter is in use or the remote starter unit may learn it.

1. Turn the valet switch to OFF
2. Open the hood
3. Turn the ignition switch to ON
4. Turn the valet switch to ON
5. You have up to 5 seconds to press **Button I** on the transmitter to be added to the unit.

If the operation is successful, the remote starter unit will flash the parking lights 5 times quickly.

If the code could not be read by the unit, the lights will flash 2 times slowly. Repeat the operation from step 1. If you cannot program the unit after several tries, there may be a problem with the transmitter or remote starter unit.

RESET TO FACTORY DEFAULT

This option allows the remote starter unit to be reset to its factory default settings.

NOTE: Using this option erases all transmitter codes. You will have to reprogram the transmitters into the unit.

- **MODE 1 DEFAULTS**
  - Ignition lock enabled
  - Constant groundout, no disarm on AUX line
  - A single 3/4 second door lock/unlock pulse
  - Trunk release by pressing Buttons I and II
  - No external trigger, No child proof feature
- **MODE 2 DEFAULTS**
  - 15 minute run time
  - 3 crank cycles
  - 8 second crank time
  - Gasoline engines and no idle mode

The Tach mode is set to setting 4. The 2 hour Cold Weather Mode capability is enabled.

To reset the unit, follow the steps below:
1. Turn the valet switch to OFF
2. Raise the hood.
3. Turn the ignition switch to ON.
4. Hold the external trigger wire to ground.
5. Press and hold the brakes.
6. Turn the valet switch to ON.
7. Wait approximately 6 seconds until the parking lights flash 10 times.
8. Remove the ground from the external trigger line.

AUTOMATIC TACH SEARCH & SETTING

NOTE: Some vehicles automatically turn the parking lights ON whenever the ignition is turned ON. This will prevent you from getting light confirmation or diagnostics. To circumvent this problem, cut the lights wire and attach a test light to the end connected to the starter unit. Re-attach the lights wire when installation is complete.

IMPORTANT: This unit relies on relative tach pulses instead of absolute cylinder settings. For this reason, we strongly urge you to use the tach learning steps outlined below and to use the adjustments when necessary.

This remote starter system will help you locate the correct tach wire and learn its optimum setting.

1. Open the hood and hold the hood switch down for about 4 seconds. Release the hood switch, then once the lights come on, press and release the switch once more. The lights should stay on for up to 20 seconds.
2. Press and hold the transmitter Buttons I and II together for about a second. The parking lights should flash from 1 to 7 times. (Eight flashes indicate vacuum mode.)
3. Start the vehicle manually using the key, then let the engine idle to a normal speed.
4. If you have the correct tach wire, the lights will go out once the engine starts. If the lights stay on or flicker on and off, you may need to find a better tach wire.

5. Press and hold the brakes until the lights go on. Once the lights go on, release the brakes and count the number of flashes from the parking lights. If it gives a flash count of 8, you may have the wrong tach wire.

6. To **save the tach setting**, press and hold Buttons I and II on the remote until you get a single long flash from the lights.

7. To **cancel the setting**, press on the hood switch instead.

8. Turn the engine off, close the hood and try to start the vehicle by remote control. If the engine seems to over-crank or undercrank, follow the **tach adjustment** steps which follow.

TACH ADJUSTMENT

If engine overcranks or undercranks, follow the steps out-lined below:

1. Open the hood and hold the hood switch down for about 4 seconds. Release the hood switch and once the lights come on, **press and release the switch once more.** The lights should stay on for up to 20 seconds.

2. Press and hold transmitter Buttons I and II together for about a second. The parking lights should flash from 1 to 7 times. (Eight flashes indicates Vacuum Mode.)

3. If the engine **overcranks**, press Button I. The setting will **decrease** by 1 and the lights will flash the new setting.

4. If the engine **undercranks**, press Button II. The setting will **increase** by 1 and the lights will flash the new setting.

NOTE: In Tach Mode, the lights should only flash from one to seven times. (Eight flashes indicate Vacuum Mode.)

5. To **save the new setting**, press and hold Buttons I and II on the remote until the parking lights flash once slowly.

6. To **cancel the new setting**, press on the hood switch instead.

TACH WATCH LOCKOUT

The Tach Watch Lockout feature will cause the remote starter to be locked out if the engine cranks the entire crank time and NO tach pulses were ever detected during the first crank cycle. The diagnostic for this condition is 3 quick flashes when remote start is initiated.

If the unit goes in Tach Watch Lockout verify the tach wire connection. Once you know that the tach wire is properly connected, you need to re-enable the remote starter unit. In order to do this, follow the steps outlined below:

1. Disable the starter kill (if installed).

2. Start the engine using the key, let it run a few seconds and then turn the engine off.

3. Start the engine by remote.

If the parking lights still flash 3 times and the car starter refuses to crank, it means that the unit is still in Tach Watch Lockout and that the tach connection is improper. Redo the steps in the Automatic Tach Search and Setting section.

USER PROGRAMMING OF COLD WEATHER MODE

The user can enable or disable the cold weather mode capability which makes the engine start and run automat-ically for 5 minutes during cold weather for a maximum of 24 hours. The user can also program the cold weather timer so that the engine starts every one or two hours. In order to program cold weather mode, the user should complete the following steps:

1. Hold the brakes

2. Turn ignition to ON then immediately to the OFF position

3. Release the brakes immediately

4. Select the following choices with the transmitter:
   • Button I: No Cold Weather Capability (1 light flash)
   • Button II: Cold Weather Capability with a 2 hour time interval (2 light flashes)
   • Button I+II: Cold Weather Capability with a 1 hour time interval (3 light flashes)

USER IDLE MODE ACTIVATION

If enabled by the installer, the user can activate idle mode by completing the following steps:

1. Ensure that engine is running

2. Hold Button II (or Button I to also unlock doors if Ignition Lock is disabled) at least 2 seconds to activate Idle Mode. If the parking lights were OFF before activating Idle Mode, they will flash then remain ON to indicate the Idle Mode active state.

3. Remove the key. The engine will run for the run time programmed in Mode 2.

4. Exit the vehicle and lock the doors.

VACUUM MODE SETTING

If you plan on using a **vacuum detect switch** instead of the tach wire, follow the steps outlined in the Tach Adjust-ment section (above) and use setting 8 (8 flashes).

Note that one side of the vacuum switch has to be con-nected to the AUTOSTART tach wire and the other side to the switched +12 volts from the valet switch.

VACUUM WATCH LOCKOUT

If vacuum mode was selected, the Vacuum Watch Lockout feature is similar to the Tach Watch Lockout in that it locks out the remote starter if no vacuum is detected, but in this case after all the crank cycles. The diagnostic for this condi-tion is 3 quick flashes when remote start is initiated.

If the unit goes in Tach Watch Lockout, verify the operation of the vacuum switch and the wire connection. Once you know that the vacuum wire is properly connected, you need to re-enable the remote starter unit. In order to do this, follow the steps outlined below:

1. Disable the starter kill (if installed).

2. Start the engine using the key, let it run a few seconds and then turn the engine off.

3. Start the engine by remote to verify that the starter is re-enabled.

You may have to repeat this operation a second time.

DIESEL ENGINES

AUTOSTART units have an option to operate diesel engines. This diesel option requires that an extra connection be made at the glow plug light as shown on the drawing.

Connect a wire to the glow plug light on the dashboard. Be sure to connect the wire to the side of the light that receives 12 volts when the glow plugs are ON, the starter output is in standby and will not start until the glow plugs go OFF or after a 30 second delay.

NOTE: If the glow plug light is energized by a negative signal, use a relay to reverse polarity to yield a positive 12 volt signal.

IMPORTANT: Diesel engines can either operate with a tach sensor or a vacuum sensor. This note applies if using the vacuum mode. Some diesel engines take a long time for the vacuum to drop below 8 inches of mercury. In cold weather, it may take as long as 5 to 10 minutes. AUTOSTART will not function until the vacuum level drops below 8 inches of mercury.

CUSTOM OPTIONS MODE 1

This mode allows you to program the ignition lock, door lock/unlock toggle, groundout mode, AUX line, door lock pulses, trunk release, garage transmitter control, cold weather mode, external trigger and child proof options.

1. Open the hood and hold the hood switch down for about 4 seconds. Release the hood switch and once the lights come on, press and release the switch once more. The lights should stay on up to 20 seconds.

2. Press and hold the brakes.

3. Press Button I on the remote transmitter. The parking lights will flash once to confirm that you're in Mode 1. Release the brakes and program the next three options.

NOTE: You can program the first, first two or all five functions but they must be in the following sequence. After programming the desired option, press the hood switch to end programming.

MODE 1 PROGRAMMING

Function 1: Ignition Lock, Door Lock/unlock Toggled
- Button I*   Ignition Lock Enabled
- Button II   Ignition Lock Disabled
- Buttons I+II   Ignition Lock Enabled
                  (Door lock/unlock toggled)

Function 2: Groundout, AUX Lines
- Button I*   Constant Groundout
- Button II   Pulsed Groundout
- Buttons I+II   Constant Groundout, Disarm pulse

Function 3: Door Lock Pulse Time
- Button I*   3/4 second Lock/Unlock pulse
- Button II   Three 3/4 second Lock/Unlock pulses
- Buttons I+II   3/4 second Lock pulse,
                  Two 1/4 second Unlock pulses

Function 4: Use Of Buttons I+II Pressed Simultaneously
- Button I*   Trunk release (will not activate while ignition ON)
- Button II   Garage door transmitter control
                  (will activate while ignition ON)
- Buttons I+II   Cold weather Mode Activation/Deactivation

Function 5: External Trigger, Child Proof
- Button I*   Normal Operation
- Button II   Normal Operation & Enable External Trigger
- Buttons I+II   Child Proof Operation

* = Factory Default

This concludes Mode 1 programming. To get a playback of these options, press and release the hood switch. These 5 functions (and those from Mode 2) will play back via the parking lights.

CUSTOM ENGINE OPTIONS MODE 2

This mode allows you to customize the remote starter's control of crank cycles, engine run time, idle mode and diesel engines options.

1. Open the hood and hold the hood switch down for about 4 seconds. Release the hood switch and once the lights come on, press and release the switch once more. The lights should stay on up to 20 seconds.

2. Press and hold the brakes.

3. Press Button II on the remote. The parking lights will flash twice to confirm that you're in Mode 2.

At this point, you can release the brakes and program the first, first two or all four functions.

MODE 2 PROGRAMMING

Function 1: Engine Run Time
- Button I   5 minutes
- Button II*   15 minutes
- Buttons I+II   25 minutes

Function 2: Crank Cycles
- Button I   2 max.
- Button II*   3 max.
- Button I+II   4 max.

Function 3: Crank Time
- Button I   6 seconds max.
- Button II*   8 seconds max.
- Button I+II   12 seconds max.

Function 4: Diesel Engines, Idle Mode
- Button I   Gasoline Engine & Idle Mode Enabled
- Button II*   Gasoline Engine
- Button I+II   Diesel Engine & Idle Mode Enabled

* = Factory Default

This concludes Mode 2 programming. See Mode 1 for playback of options.

APPENDIX A
DIAGNOSTICS

LIGHT FLASH RATE

FLASHES	RATE	DESCRIPTION
2	Slow	System has reset. Should occur when valet switch is turned on.
		No tach pulse detected during crank. Should not occur. If no pulse is detected within 2 seconds of cranking, the unit will force a reset.
4	Slow	Power-up with brakes pressed. This indicates the 95/96 model versions.
1	Quick	Doors locked or end of run time or run time cancelled or trunk open or cancelled cold weather or cannot start after maximum attempts of crank tries
2	Quick	Doors unlocked.
3	Quick	Entering cold weather mode or tach watch lockout.
4	Quick	The brake line went high and canceled cranking or run cycle
5	Quick	New transmitter learned.
B	Quick	Unit reset: Occurs whenever the unit is forced into Reset Mode during power-up.
10	Quick	Hood line went to ground during crank or run time.
ON	4 sec.	If the parking lights go ON for 4 seconds, the hood opened and the hood switch line went to ground. This is step one of programming modes.
ON	5 seconds	If the lights go on for 5 seconds when valet switch is turned on, the system detected that the ignition line is on and the hood switch line is grounded. Start of transmitter learning cycle.
ON	14 sec.	A remote start attempt was made with a tach or a vacuum signal detected.
ON	20 seconds	If the hood switch is flashed (ground, open, ground), the unit went into step 1 of the programming cycle and no transmitter activity was detected for 20 seconds.
ERRATIC		If the unit flashes erratically (1 to 3 flashes, followed by a pause, then more flashes), it might be in playback mode. This occurs when the hood switch line is flashed twice (ground, open, ground, open, ground).

AUTOSTART
FCC ID: NAHRTR433
EXHIBIT #: ___5H___

SYMPTOMS

■ **Pin Switch Problems**
  • Pin switch problems are the most common problem with remote starters. If the pin switch is grounded, the system will not respond. A simple check for this condition is the following. With the hood closed and ignition OFF, turn the valet switch OFF and then ON. If the parking lights flash and they stay on for 4 seconds, the pin switch is grounded.

■ **Nothing happens when pressing button I or II.**
  • If parking lights go on when hood is raised, there may be a problem with the transmitter.
  • Transmitter may not be learned
  • Transmitter battery may be dead or weak

■ **Engine stops then lights flash 10 times.**
  • Ground signal seen on hood switch or line.
  • Check for hood switch alignment.
  • Make sure hood switch line doesn't pass near spark plugs or wires or coil and distributor.

■ **Low range**
  • Check battery level on transmitter
  • Antenna should be in plain sight, not too close to roof
  • Check connector wire at module.

TACH MODE PROBLEMS

IMPORTANT: Ensure that tach setting is correct

■ **Engine won't crank and lights flash 3 times.**
  • The unit is in tach watch lockout. Check the tach wire connection, start the car manually and let it run a few seconds to exit the lockout state.

■ **Engine cranks and doesn't release.**
  • Make sure pins 86 and 30 on starter kill relay are not tied together.
  • Check to make sure you have the correct tach wire. (You may need to locate a different tach wire)
  • Check to ensure that you use the tach learning feature.

■ **Starter over or under cranks during starts.**
  • Manually adjust tach setting (down if over-cranking, up if under-cranking)
  • Try using a different tach wire.

■ **Starter cranks for about 2 seconds then stops. Lights flash 2 times slowly.**
  • Double check the tach wire. The system will stop cranking if it doesn't detect a tach pulse in 2 seconds.

■ **Engine starts but stops after a few seconds, then tries to start again.**
  • Try using another tach wire.

VACUUM MODE PROBLEMS

IMPORTANT: Ensure tach setting is set to 8

■ **Lights go on for 10 seconds when trying to start by remote**
  • No ground from vacuum switch.
  • Make sure vacuum switch is properly grounded.
  • Make sure vacuum line is properly connected to switch and module
  • Check for defective vacuum switch

■ **Crank doesn't shut off once engine starts.**
  • Check for defective vacuum switch
  • Check for short to ground on vacuum switch line to module.
  • Ensure that vacuum switch is connected to a strong vacuum source.

■ **Engine won't crank and lights flash 3 times.**
  • The unit is in vacuum watch lockout state after 3 unsuccessful crank tries without a vacuum signal being detected. Check the vacuum switch operation, start the car manually and let it run a few seconds to exit the lockout state.

■ **Doors don't unlock on 95 Nissans and possibly others.**
  • It seems that some newer model cars require 2 ground pulses on the unlock wire in order to unlock the vehicle. This starter module supports such systems.
  • Go into Custom Program Mode 1 and set the door lock/unlock pulse time (Option 3) to 3 second mode. This will provide a 3 second pulse, followed by a quarter second pulse which will unlock the doors.

HARNESS DESCRIPTION (15-PIN)

PIN #	COLOR	SIZE	CONNECT TO
1	Black (Ground)	18 AWG	Good solid ground, usually on the metal frame of the vehicle.
2	Violet (Tach)	18 AWG	Negative (-) side of coil or tach wire of electronic distributor. If the vacuum mode is used instead, connect one side of a normally closed vacuum switch to this wire and the other side to +12V from the valet switch.
3	Grey (Hood)	18 AWG	Hood switch connector. The body of the hood switch should be grounded to the vehicle via the mounting bracket.
4	Pin 4 is not used.		
5	Orange (Brake)	18 AWG	The side of brake switch that has +12V when brake pedal is pressed. (Ignition may have to be ON, depending on the vehicle.) If the Diesel engine option is used, the glow plug light shall be also connected to the brake line switch by using 2 diodes. Refer to the Diesel Connection Schematic.
6	Red (Valet)	18 AWG	One side of VALET switch. Connect the other side of the switch to +12V (Battery.) **Must be connected for some programming options.**
7 (+12v)	Yellow (Parking lights)	18 AWG	Parking light or switch wire that has +12V when parking lights are ON
8 GROUND	Brown (Lock)	18 AWG	On cars with Negative Trigger door lock systems, this wire can be attached directly to the wire that LOCKS the doors when a ground is applied. For positive triggered door locks or reverse polarity systems, this wire can be attached directly to the wire that UNLOCKS the doors when a positive signal is applied.
9 GROUND	Green (Unlock)	18 AWG	On cars with Negative Trigger door lock systems, this wire can be attached directly to the wire that UNLOCKS the doors when a ground is applied. For positive triggered door locks or reverse polarity systems, this wire can be attached directly to the wire that LOCKS the doors when a positive signal is applied.
10 GROUND	Blue (Trunk)	18 AWG	Pin# 85 of a relay added for this feature (see diagram). Sends a GROUND signal.
11 GROUND	White/Yellow (Starter Kill)	18 AWG	Pin# 85 of Starter Kill Relay (see diagram). Sends a GROUND signal.
12	(External trigger)	18 AWG	Can be used to connect to an external receiver to activate the starter remotely, which sends a ground signal when activated. Used also in the steps to reset the unit. (Must program Mode 1, Function 5, Option 2 to allow this signal to operate.)
13 GROUND	(Ground-out)	18 AWG	Can be used for V.A.T.S., ignition sense disable. Sends a GROUND signal.
14 GROUND	(Re-Arm signal)	18 AWG	Rearm wire. Sends a GROUND signal. NOTE: Connection is dependant on type of vehicle involved.
15 GROUND	(AUX line)	18 AWG	Gives a one second pulse, four seconds after the vehicle starts under remote. Can be used to hook up to a horn (using a relay) and/or rear-window defroster signal wire (requiring a ground signal). This signal gives a GROUND output. NOTE: If the AUX line is programmed for DISARM PULSE, this line will also generate a one second ground level pulse just before the ignition is turned on during remote starts.

5-PIN MOLEX CONNECTOR

A	Red (Battery)	14 AWG	Constant +12v source (usually the largest wire) at key switch. **(30 AMP in-line fuse must be added.)**
B (+12v)	Yellow (ignition line)	14 AWG	Wire at key switch that has +12V when key is in the ON and CRANK (START) position.
C (+12v)	Violet (Crank)	14 AWG	Wire that has +12V ONLY when key switch is in CRANK position. (Attach a wire comming from pin #87A of Starter Kill relay if this feature is used.)
D (+12v)	Orange (Accessories)	14 AWG	Wire at Key switch that has +12V when the ignition key is in Ignition and/or Accessories position only (not crank position).
E	Red (Battery)	14 AWG	Accessories Power line. (See PIN #A above)

ANTENNA

AUTOSTART 1200

N/A
STARTER WIRE (TO SOLENOID)
IGNITION
STARTER WIRE (FROM KEY)

87
88
87A
30
85

DIODE (FOR OPTIONAL LED OUTPUT)
This diode is absolutely necessary when installing an LED with a Starter Kill

200 OHM RESISTOR FOR LED

+ 12V (BATTERY)

VALET SWITCH

VAC SWITCH

30 AMP FUSE
30 AMP FUSE

15	DEFROST	
14	RE-ARM	
13	(-) OUT WHEN RUNNING	
12	EXTERNAL TRIGGER	18 AWG
11	WHITE/YELLOW	STARTER KILL-OUT
10	BLUE	TRUNK
9	GREEN	UNLOCK
8	BROWN	LOCK (-) · 18 AWG
7	YELLOW	PARKING LIGHTS (+)
6	RED	+12V VALET
5	ORANGE	BRAKE SWITCH (+) (DIESEL GLOW PLUG LIGHT)
4	NOT USED	
3	GREY	HOOD SWITCH (-)
2	VIOLET	COIL (-) (OR N.C. VACUUM SWITCH)
1	BLACK	GROUND · 18 AWG

E	RED	+12V (BATTERY)
D	ORANGE	ACCESSORIES
C	VIOLET	STARTER
B	YELLOW	IGNITION
A	RED	+12V (BATTERY)

14 AWG

AUTOSTART
FCC ID: NAHRTR433
EXHIBIT #: 5K

DIESEL ENGINE - MOTEUR DIESEL
[MODE 2, FUNCTION/FONCTION 4, OPTION 3]

AUTOSTART units have an option to operate diesel engines. This diesel option requires that an extra connection be made at the glow plug light as shown on the *Diesel schematic*.

Connect a wire to the glow plug light on the dashboard. Be sure to connect the wire to the side of the light that receives 12 volts when the glow plugs are ON. When the glow plugs are ON, the starter output is in standby and will not start until the glow plugs go OFF.

If the glow plug light is energized by a negative signal, use a relay to reverse polarity to yield a positive 12 volts signal.

In some cars, the glow plug light can come ON while the engine is running. On AUTOSTART modules shipped *from November 2, 1995, version 2.28*, the **Circuit 2** can be used to prevent a premature engine shut OFF.
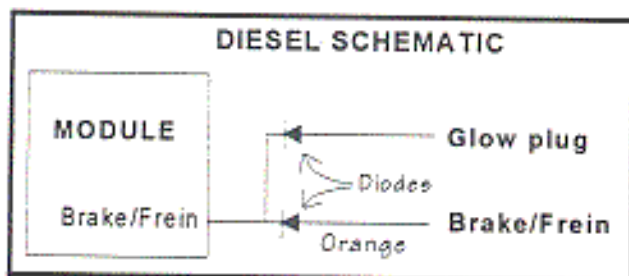
IMPORTANT NOTE: Diesel engines can either operate with a **sensor or a vacuum sensor.** This note applies if using the vacuum mode. Some diesel engines take a long time for the vacuum to drop below 8 inches of mercury. In cold weather it may take as long as 5 to 10 minutes. AUTOSTART will not function until the vacuum level drops below 8 inches of mercury.

Les unités AUTOSTART ont une option qui permet d'utiliser les véhicules à moteur diesel. L'option diesel nécessite une connection supplémentaire à l'indicateur de la bougie de réchauffement (glow plug light) comme l'indique le *Circuit 1*.
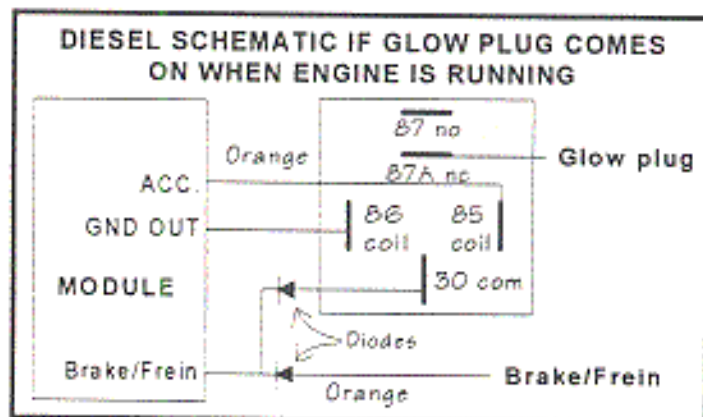
Connecter un fil à l'indicateur de la bougie de réchauffement du tableau de bord. Assurez-vous que ce fil soit connecté à celui de la lumière qui reçoit 12 volts lorsque la bougie de réchauffement est allumée. Lorsque la bougie de réchauffement est active, le démarreur est en attente jusqu'à ce qu'elle se désactive. Si la bougie de réchauffement est activée par un signal négatif, utiliser un relai pour renverser la polarité à 12 volts.

Pour certains véhicules, la bougie de réchauffement peut s'activer après le démarrage. Sur les modules AUTOSTART datés à partir du 2 novembre 1995, version 2.28, le **Circuit 2** peut être utilisé pour prévenir un arrêt prématuré du moteur.

NOTE IMPORTANTE: Les moteurs diesels peuvent fonctionner avec **un senseur de tachomètre ou un senseur de vacuum.** Cette note s'applique si un senseur de vacuum est utilisé. La ligne de vacuum de certains moteurs diesels prend du temps à descendre sous 8 pouces de mercure. Par temps froid, cela peut prendre de 5 à 10 minutes. L'unité AUTOSTART ne fonctionnera pas tant que le niveau de vacuum ne sera pas sous 8 pouces de mercure.
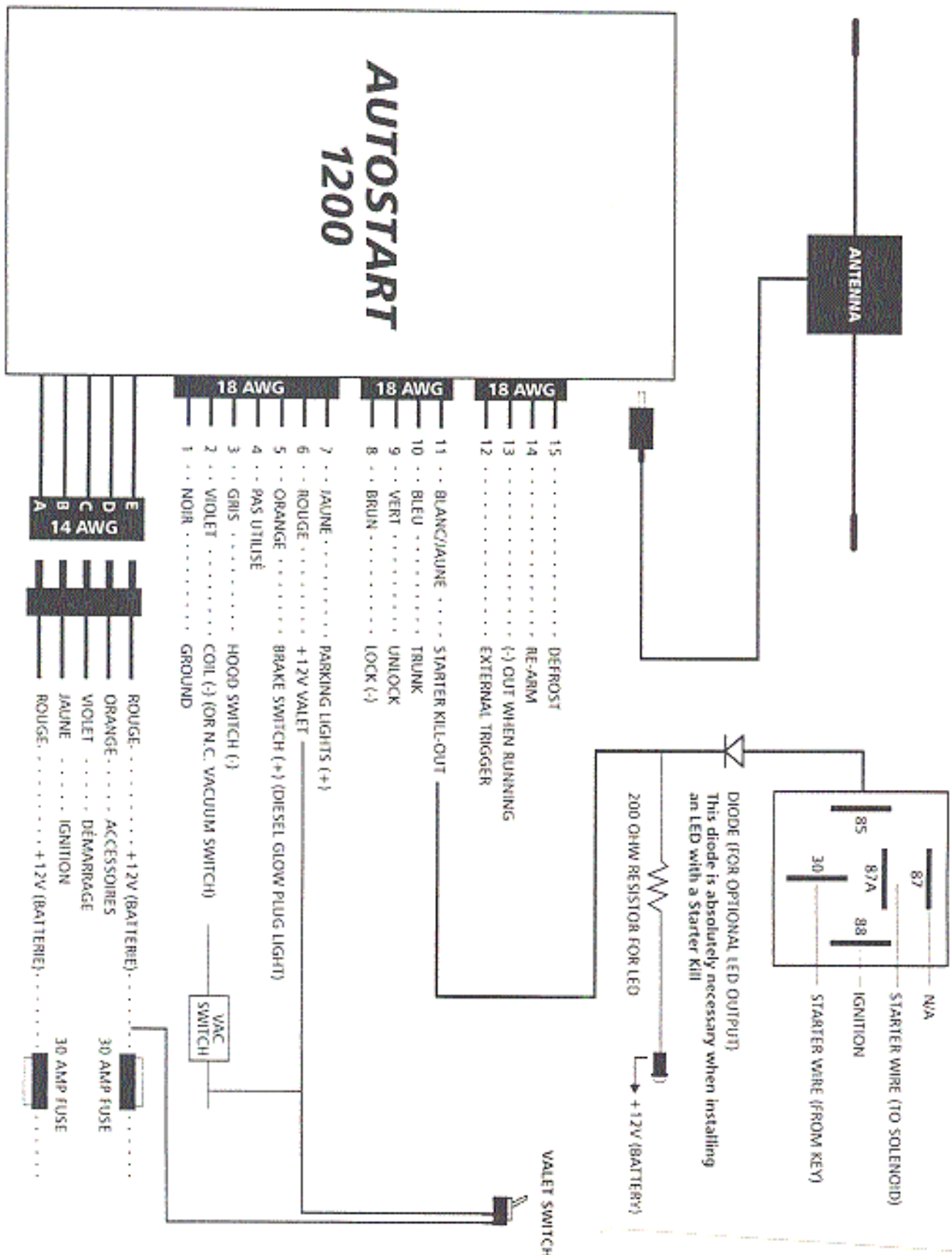

Circuit 1

Circuit 2

AUTOSTART 1200

18 AWG | **18 AWG** | **18 AWG**

15 ········· DEFROST
14 ········· RE-ARM
13 ········· (-) OUT WHEN RUNNING
12 ········· EXTERNAL TRIGGER

11 · · · BLANC/JAUNE · · · · · STARTER KILL-OUT
10 · · · BLEU · · · · · · · · · · · TRUNK
9 · · · VERT · · · · · · · · · · · · UNLOCK
8 · · · BRUN · · · · · · · · · · · · LOCK (-)
7 · · · JAUNE · · · · · · · · · · PARKING LIGHTS (+)
6 · · · ROUGE · · · · · · · · · · +12V VALET
5 · · · ORANGE · · · · · · · · · BRAKE SWITCH (+) (DIESEL GLOW PLUG LIGHT)
4 · · · PAS UTILISÉ
3 · · · GRIS · · · · · · · · · · · · HOOD SWITCH (-)
2 · · · VIOLET · · · · · · · · · · COIL (-) (OR N.C. VACUUM SWITCH)
1 · · · NOIR · · · · · · · · · · · · GROUND

14 AWG

A ····· ROUGE · · · · · · · · · · +12V (BATTERIE)
B ····· ORANGE · · · · · · · · · ACCESSOIRES
C ····· VIOLET · · · · · · · · · · DÉMARRAGE
D ····· JAUNE · · · · · · · · · · · IGNITION
E ····· ROUGE · · · · · · · · · · +12V (BATTERIE)

ANTENNA

VAC SWITCH

VALET SWITCH

30 AMP FUSE
30 AMP FUSE

DIODE (FOR OPTIONAL LED OUTPUT)
This diode is absolutely necessary when installing
an LED with a Starter Kill

200 OHM RESISTOR FOR LED

+12V (BATTERY)

85
87A
30
87
88

N/A
STARTER WIRE (TO SOLENOID)
IGNITION
STARTER WIRE (FROM KEY)

AUTOSTART
FCC ID: NAHRTR433
EXHIBIT #: SM