

2004 Pontiac GTO

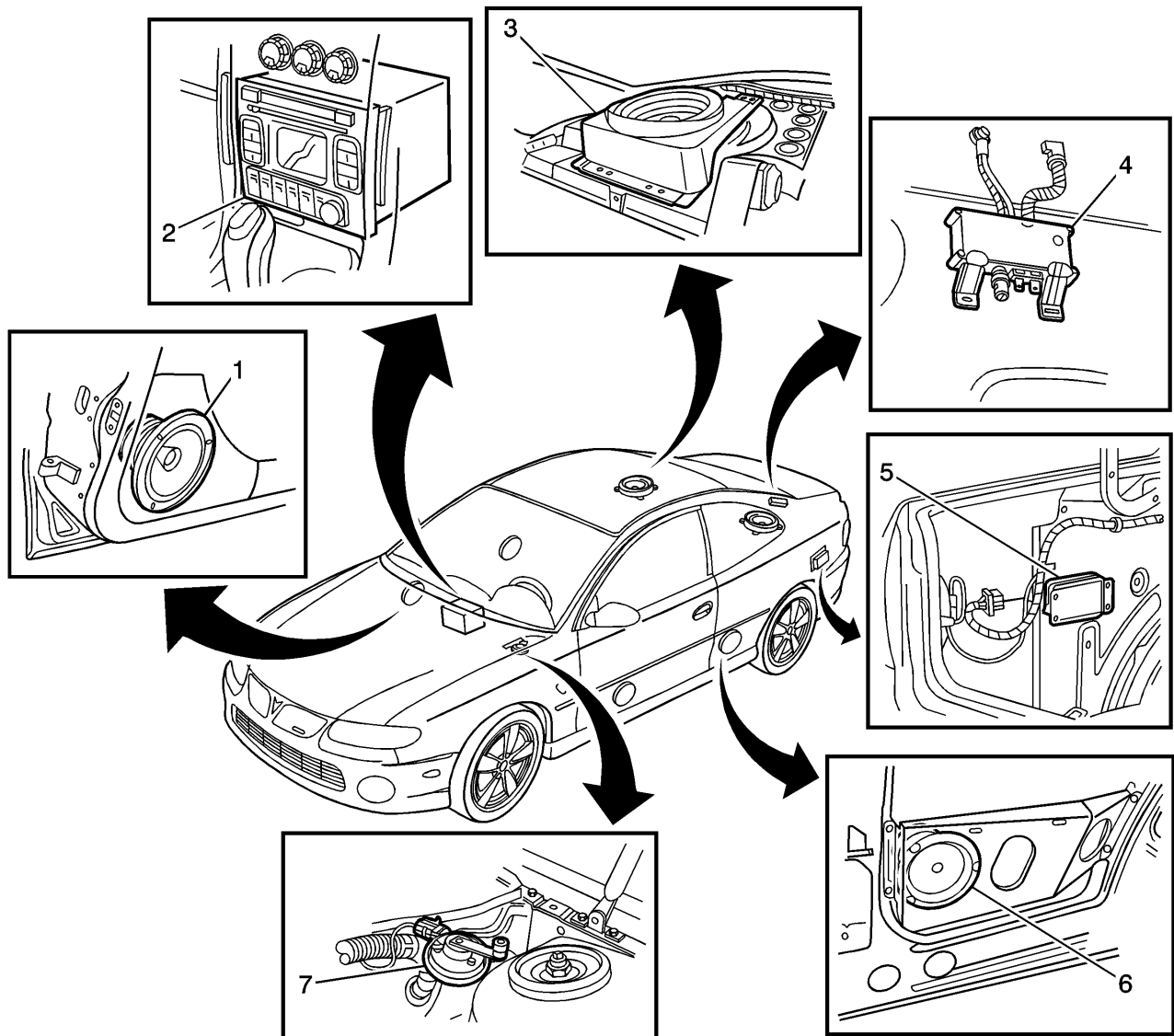


Audio System Information

Table of Contents

Componant Locations	1
Connector End Views	2
Audio Amplifier	2
Cellular Telephone Connector.....	3
Inflatable Restraint Steering Wheel Module Coil	4
Radio C1.....	5
Radio C2.....	6
Rear Window Defogger Radio Antenna Module C2.....	6
Speaker - LF.....	7
Speaker - LF Door.....	7
Speaker - LR	8
Speaker - LR Subwoofer	8
Speaker - RF	9
Speaker - RF Door	9
Speaker - RR.....	10
Speaker - RR Subwoofer	10
Steering Wheel Control Switch Assembly.....	11
Fastener Tightening Specifications	12
Radio/Audio System Description	13
Radio/Audio System Description	13
Radio Head Unit ^(c)	14
Serial Data Bus.....	15
Security System.....	15
Telephone Audio	15
Antenna Operation	15
Horn Bar Stereo Control Operation	16
Dynamic Distortion Limit Function	16
Radio Reception.....	16
FM Radio Reception.....	17
AM Radio Reception	17
Basic Checks.....	17
Common Radio Problems.....	18

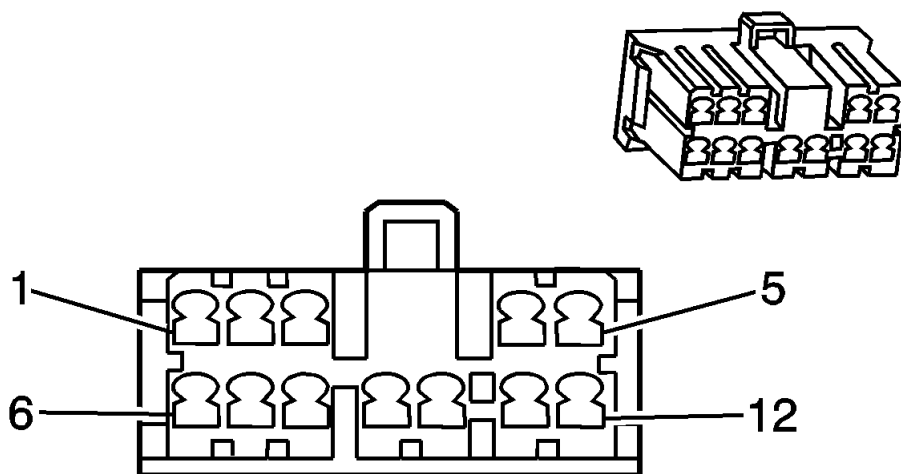
Component Locations



- (1) Front Speaker Assembly
- (2) Radio
- (3) Subwoofer
- (4) Antenna/Rear Defogger Module
- (5) Subwoofer Amplifier
- (6) Rear Speaker
- (7) Anti-Theft Horn

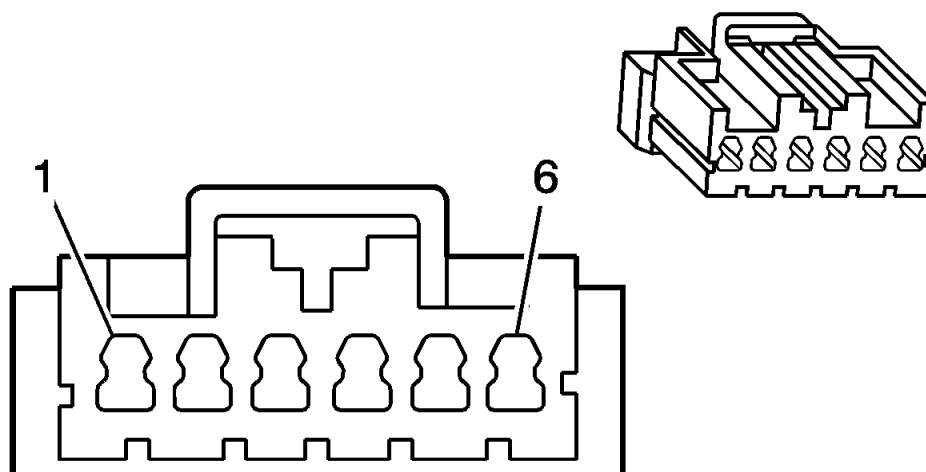
Connector End Views

Audio Amplifier



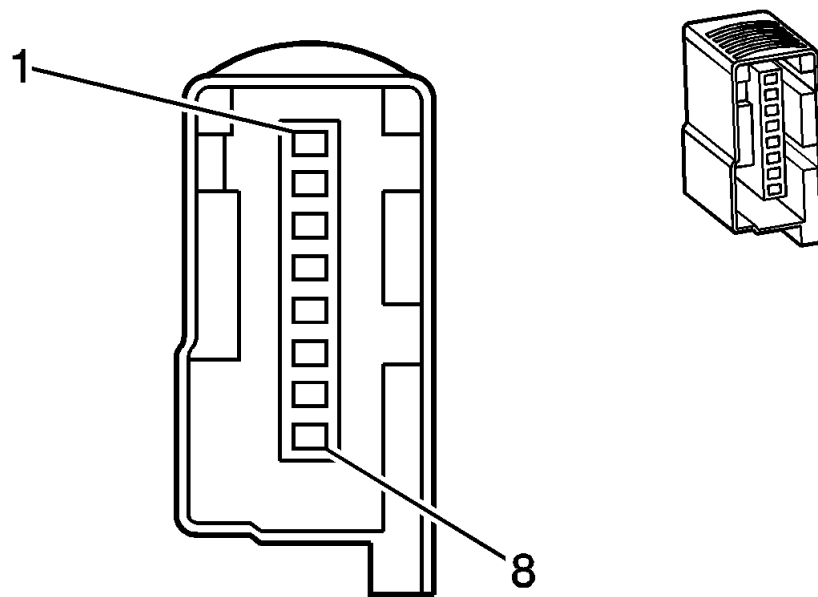
Connector Part Information		• 7123-1423 • 12-Way Female (WH)	
Pin	Wire Color	Circuit No.	Function
1	BN/BK	199	Left Rear Speaker Output (+)
2	BU/OG	46	Right Rear Speaker Output (+)
3	GN/WH	1795	Right Subwoofer Speaker Output (+)
4	OG/BU	1540	Battery Positive Voltage
5	BK/BU	650	Ground
6	YE/BU	116	Left Rear Speaker Output (-)
7	BU/BK	115	Right Rear Speaker Output (-)
8	GN/RD	315	Right Subwoofer Speaker Output (-)
9	YE/WH	346	Left Subwoofer Speaker Output (+)
10	YE/RD	1794	Left Subwoofer Speaker Output (-)
11	OG/BU	1540	Battery Positive Voltage
12	BK/BU	650	Ground

Cellular Telephone Connector

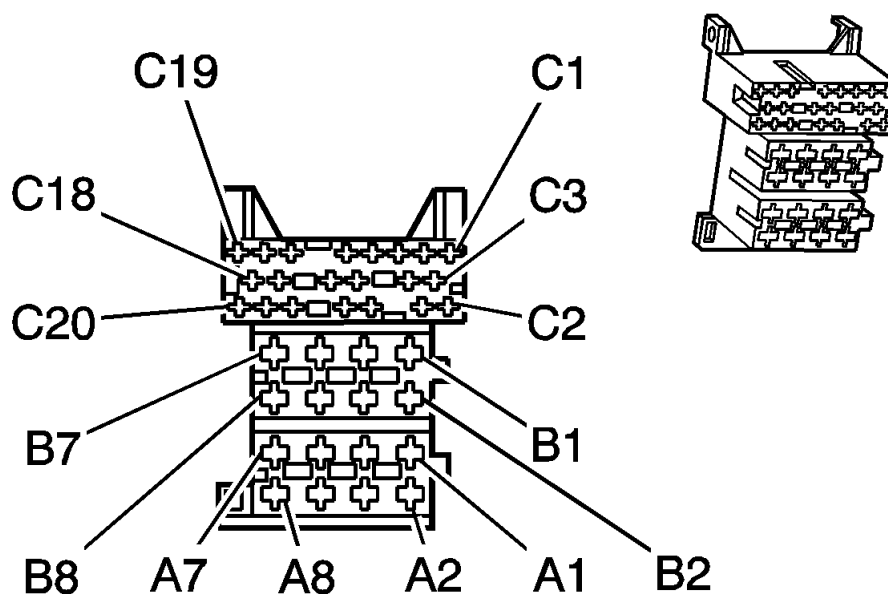


Connector Part Information		7123-7466 6-Way Female (WH)	
Pin	Wire Color	Circuit No.	Function
1	OG/BK	1040	Battery Positive Voltage
2	BK/GN	151	Ground
3	YE	43	Accessory Voltage
4	YE/BK	5211	Mute Signal
5	BU/BK	655	Cellular Microphone Signal
6	BU	2506	Audio Return Signal

Inflatable Restraint Steering Wheel Module Coil

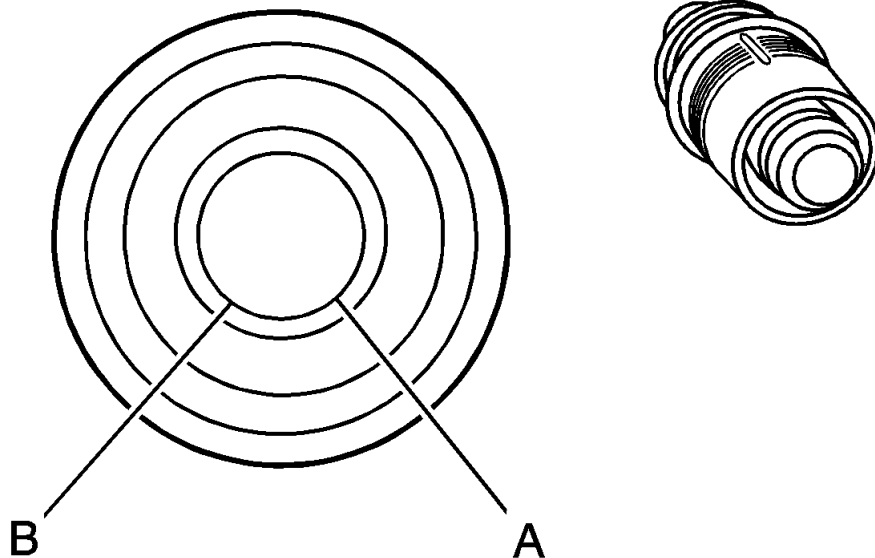


Connector Part Information		• 9123-5561-30 • 8-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
1-2	--	--	Not Used
3	BN	1796	Steering Wheel Controls Signal
4	BK/YE	1750	Ground
5	BK/GN	151	Ground
6	BK/YE	28	Horn Relay Control
7	GN	3020	Steering Wheel Module - Stage 1 - Low Control
8	WH	3021	Steering Wheel Module - Stage 1 - High Control

Radio C1

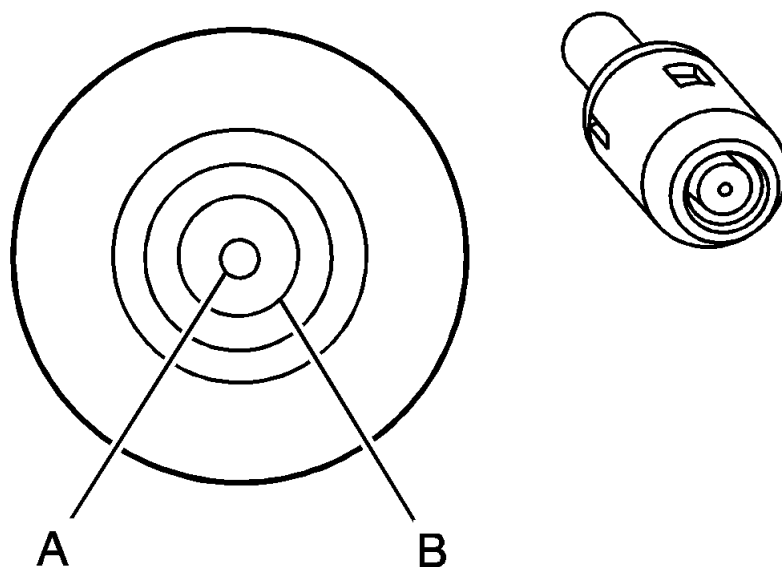
Connector Part Information		• 7183-5715-40 • 28-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
A1	GN/WH	1061	UART Serial Data - Secondary
A2	OG/BK	1040	Battery Positive Voltage
A3	YE/BK	5211	Cellular Telephone Connector Mute Signal
A4	YE	43	Accessory Voltage
A5	YE/RD	314	Radio On Signal
A6	BN/WH	32	Instrument Panel Lamp Fuse Supply Voltage
A7	OG/BK	1040	Battery Positive Voltage
A8	BK/WH	851	Ground
B1	BU/OG	46	Right Rear Speaker Output (+)
B2	BU/BK	115	Right Rear Speaker Output (-)
B3	L-GN	200	Right Front Speaker Output (+)
B4	GN	117	Right Front Speaker Output (-)
B5	TN	201	Left Front Speaker Output (+)
B6	GY	118	Left Front Speaker Output (-)
B7	BN/BK	199	Left Rear Speaker Output (+)
B8	YE/BU	116	Left Rear Speaker Output (-)
C1-C6	--	--	Not Used
C7	BU/BK	655	Cellular Microphone Signal
C8	BU	2506	Audio Return Signal
C9-C10	--	--	Not Used
C11	BN	1796	Steering Wheel Controls Signal
C12	BK/YE	1750	Ground
C13-C20	--	--	Not Used

Radio C2



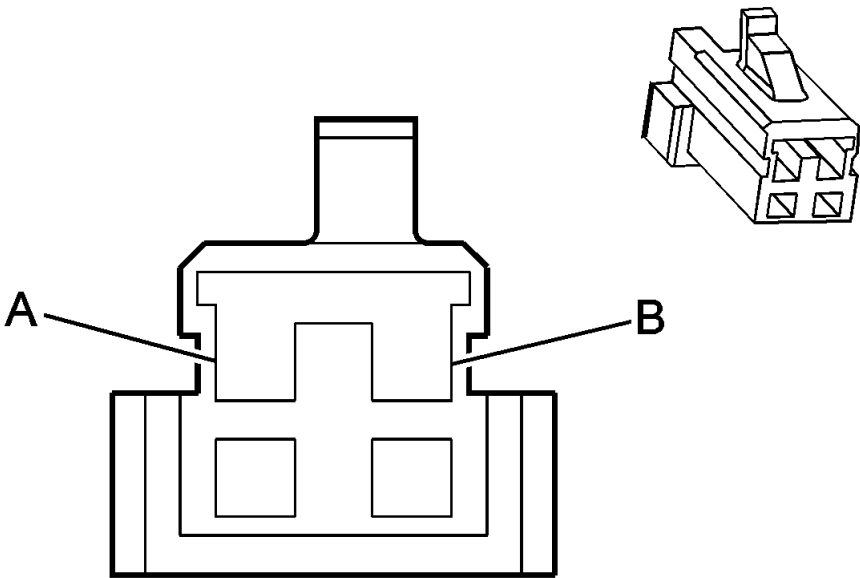
Connector Part Information		- A133-X2 2-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
A	BK	5172	Antenna Signal
B	BARE	--	Drain Wire

Rear Window Defogger Radio Antenna Module C2



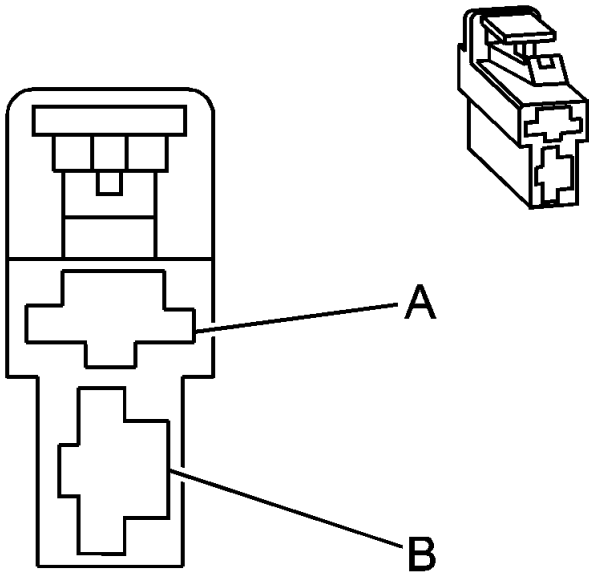
Connector Part Information		- A93-X2 2-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
A	BK	5172	Antenna Signal
B	BARE	--	Drain Wire

Speaker - LF



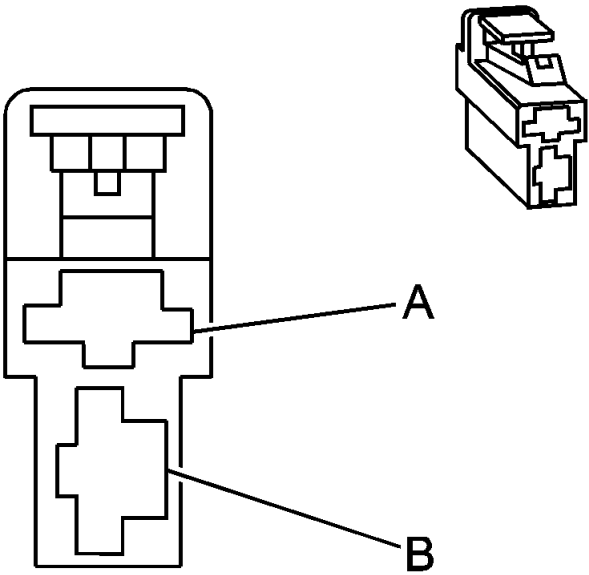
Connector Part Information		7123-1625-30 2-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
A	TN	201	Left Front Speaker Output (+)
B	GY	118	Left Front Speaker Output (-)

Speaker - LF Door



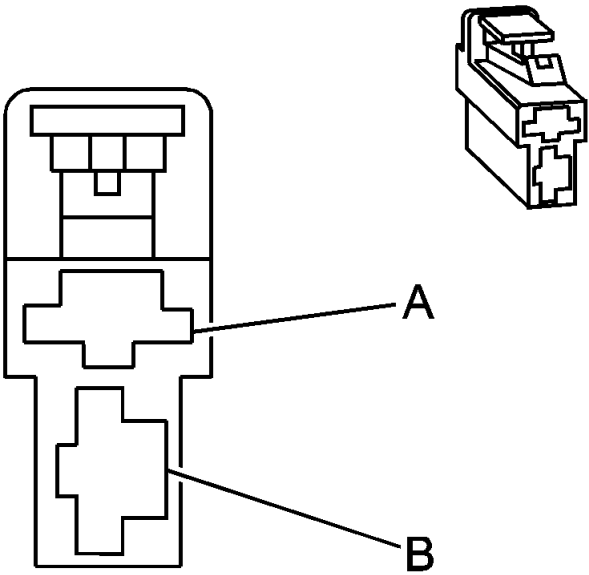
Connector Part Information		7123-2825 2-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
A	GY	118	Left Front Door Speaker Output (-)
B	TN	201	Left Front Door Speaker Output (+)

Speaker - LR



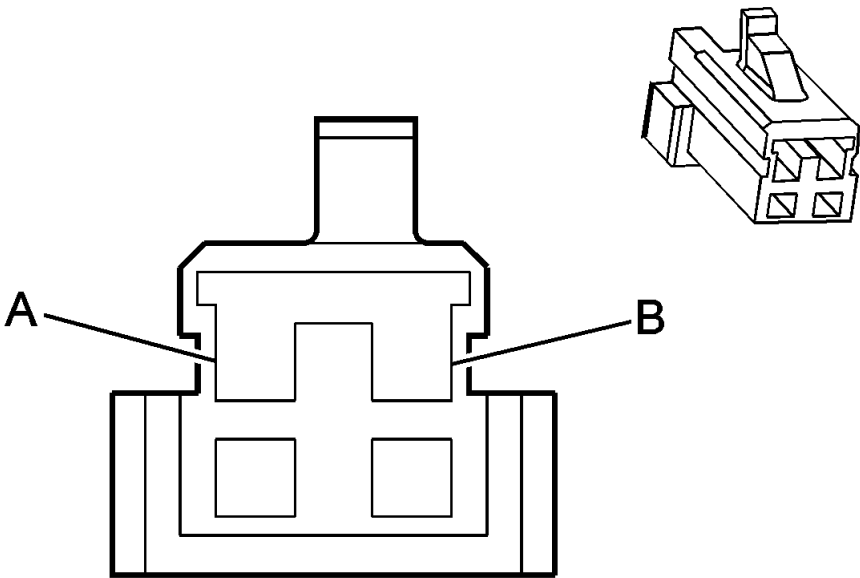
Connector Part Information		7123-2825 2-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
A	YE/BU	116	Left Rear Speaker Output (-)
B	BN/BK	199	Left Rear Speaker Output (+)

Speaker - LR Subwoofer



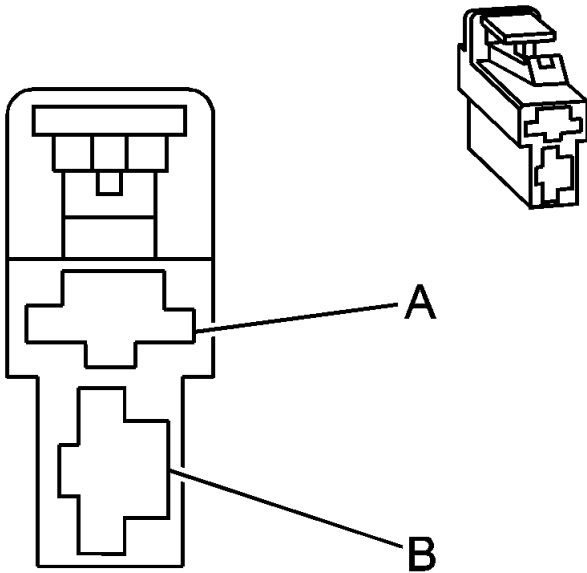
Connector Part Information		7123-2825 2-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
A	YE/RD	1794	Left Subwoofer Speaker Output (-)
B	YE/WH	346	Left Subwoofer Speaker Output (+)

Speaker - RF



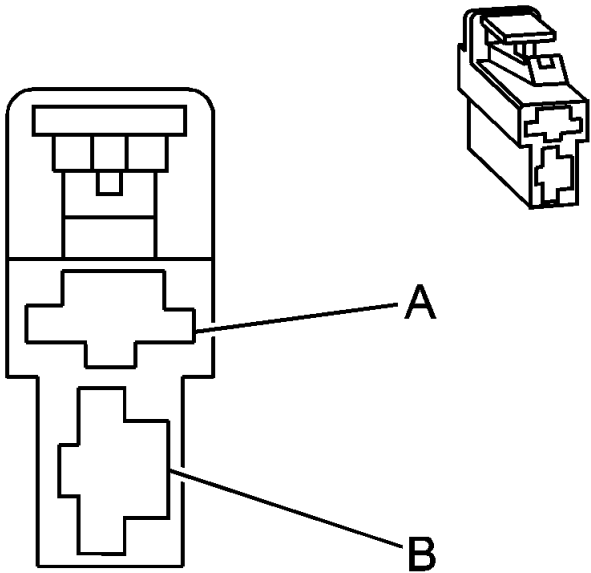
Connector Part Information		7123-1625-30 2-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
A	L-GN	200	Right Front Speaker Output (+)
B	GN	117	Right Front Speaker Output (-)

Speaker - RF Door



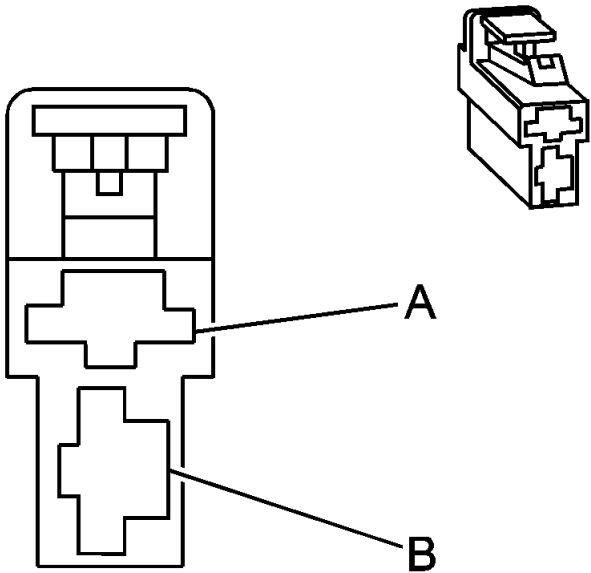
Connector Part Information		7123-2825 2-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
A	GN	117	Right Front Door Speaker Output (-)
B	L-GN	200	Right Front Door Speaker Output (+)

Speaker - RR



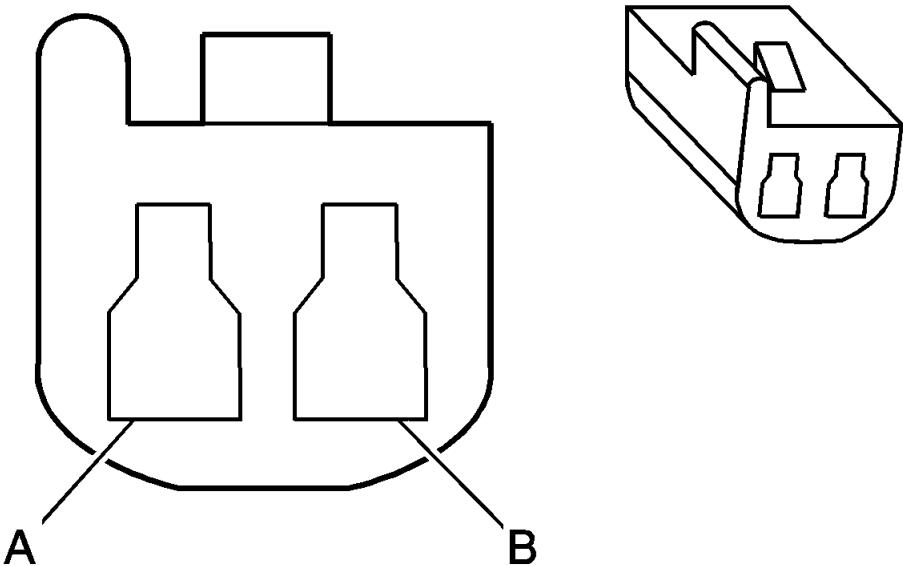
Connector Part Information		7123-2825 2-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
A	BU/BK	115	Right Rear Speaker Output (-)
B	BU/OG	46	Right Rear Speaker Output (+)

Speaker - RR Subwoofer



Connector Part Information		7123-2825 2-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
A	GN/RD	315	Right Subwoofer Output (-)
B	GN/WH	1795	Right Subwoofer Output (+)

Steering Wheel Control Switch Assembly



Connector Part Information		• S208 • 2-Way Female (BK)	
Pin	Wire Color	Circuit No.	Function
A	--	1750	Ground
B	--	1796	Steering Wheel Controls Signal

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Amplifier Retaining Screws	7 N·m	62 lb in
Door Speaker-To-Box Retaining Screws	2 N·m	18 lb in
Front Speaker Retaining Screw	2 N·m	18 lb in
HVAC Unit-To-Lower Radio Bracket Bolt	9 N·m	80 lb in
Rear Quarter Speaker Retaining Screw	2 N·m	18 lb in
Rear Speaker Box-To-Rear Shelf Retaining Screw	2 N·m	18 lb in
Rear Speaker-To-Speaker Box Retaining Screw	2 N·m	18 lb in

Radio/Audio System Description and Operation

Radio/Audio System Description

The Pontiac GTO is fitted with a high performance Blaupunkt Entertainment System that features an AM/FM stereo radio with a built-in 6 CD Changer. The entertainment system audio head unit (AHU) is equipped with a unique 4-digit security code to protect against theft. A red LED incorporated in the fascia of the AHU flashes when the security system is armed.

Remote switches are fitted on the horn bar for the operation of the entertainment system. Control of the audio system functions can be accomplished without the need for the driver's hands being removed from the steering wheel. The instrument cluster multifunction display (MFD) can provide an eye level screen that indicates the function selected at the horn bar switches.

The radio allows 6 AM and 12 FM stations to be preset and is prepared to enable the connection of a hands-free mobile telephone kit. A real-time clock, incorporated in the radio, remains on display even when the ignition is turned OFF.

The priority key feature utilizes 2 personal identity memories, which individually memorizes the following settings for different ignition keys:

- Last used volume level
- Last used mode
- FM1--Radio memory presets
- FM2--Radio memory presets
- AM--Radio memory presets
- Bass control settings
- Treble control settings
- Speaker balance setting
- Speaker fader setting
- Time/Frequency priority settings
- Local ON/OFF setting

The radio priority settings will follow the priority key number broadcast by the body control module (BCM) on the vehicle serial communication data bus.

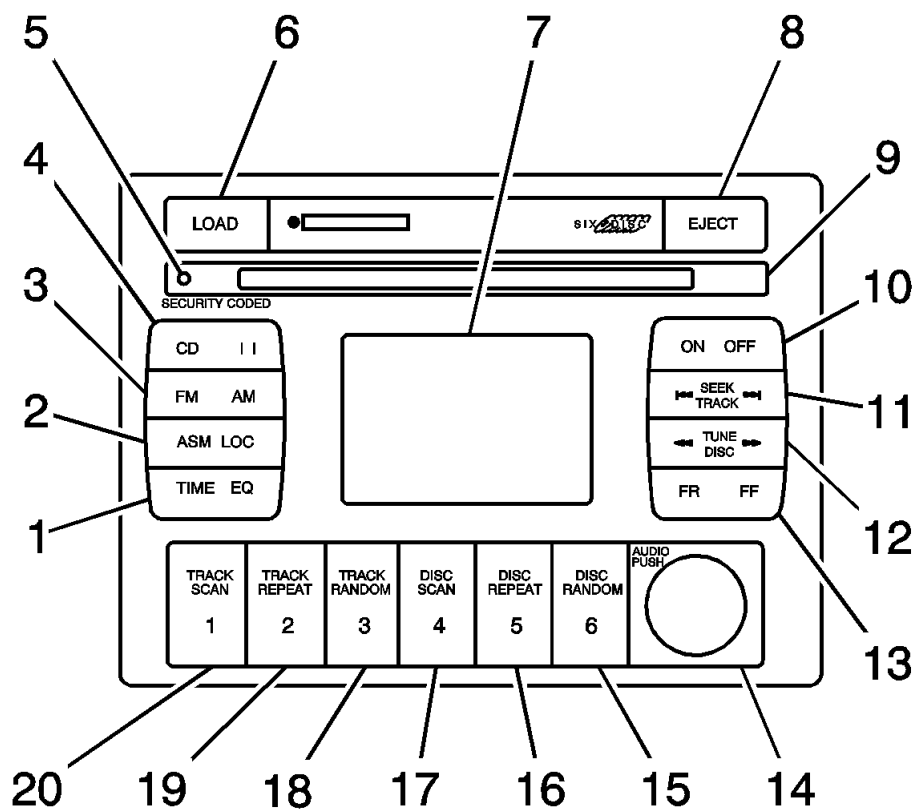
The antenna system consists of the antenna, which is an integral part of the rear window glass, and an antenna amplifier module mounted in the C-pillar.

Operating instructions for the audio system accompany the Owner's Handbook in the vehicle instrument panel compartment.

The audio entertainment system includes the following features:

- AM/FM 200 watt tuner
- Six disc CD changer in head unit
- Two tweeters mounted in the instrument panel
- Two door mounted speakers
- Two rear side panel mounted speakers
- LCD display
- Speed sensitive radio volume control
- Preset equalizer

Radio Head Unit^(c)



- (1) Clock Adjustment/Time Display On/Off Equalizer On/Off Setting
- (2) Automatic Station Memory Storage Local/Distance Search Sensitivity
- (3) FM1/FM2/AM Source Button
- (4) CD Source Button CD Pause Button
- (5) Security Indicator Light/CD Mode: Load, Remove, Wait Indicator
- (6) CD Load Button
- (7) Information Display
- (8) CD Eject Button
- (9) Disc Load/Remove Slot
- (10) Radio On/Off
- (11) Radio Mode: Station Seek/CD Mode: Track Up/Down
- (12) Radio Mode: Manual Frequency Select/CD Mode: Disc Select
- (13) CD Mode: Track Cue/Review
- (14) Volume Control/Push: Bass/Treble/Fader/Balance
- (15) CD Mode: CD Random/CD Mode: Disc 6 Select/Radio Mode: Memory Preset Station 6
- (16) CD Mode: CD Repeat/CD Mode: Disc 5 Select/Radio Mode: Memory Preset Station 5
- (17) CD Mode: CD Scan/CD Mode: Disc 4 Select/Radio Mode: Memory Preset Station 4
- (18) CD Mode: Track Random/CD Mode: Disc 3 Select/Radio Mode: Memory Preset Station 3
- (19) CD Mode: Track Repeat/CD Mode: Disc 2 Select/Radio Mode: Memory Preset Station 2
- (20) CD Mode: Track Scan/CD Mode: Disc 1 Select/Radio Mode: Memory Preset Station 1

Serial Data Bus

The audio system is connected to the main vehicle serial data bus and communicates with other modules on the bus. Some audio system settings can be displayed on the multifunction display (MFD) located in the instrument cluster, and this information is transmitted via the serial data bus. Additionally, the instrument cluster customization mode allows the adjustment of some audio system settings from the instrument cluster. When the audio system is switched OFF at the front panel switch, power is still applied to the unit to maintain serial data bus communications.

Security System

The audio system is protected by a security system, which flashes a red LED on the front fascia when activated. In addition, the audio system is protected against theft by a 4-digit security code that is unique to each unit.

The audio system communicates with other modules such as the body control module (BCM) and the instrument cluster on the serial data bus. If the audio system head unit is installed after being removed for any reason, the audio system interrogates the other modules to determine if the same modules are fitted and therefore the system or vehicle is the same. If the audio system recognizes the other modules the audio system will operate. However, if the audio system detects a mismatch in the serial numbers of some of the other modules, the audio system will remain in secure mode indefinitely. Entry of the correct security code via the head unit preset keys will enable operation and authorize a new link up of the modules on the serial data bus. The instrument cluster monitors communication over the serial data bus. If a different audio system is fitted to the vehicle, and this audio system is not connected to the bus, the data trouble code associated with the audio system may be permanently set.

Telephone Audio

The audio system head unit provides 2 inputs for telephone audio, which allows the telephone audio to use the audio system speakers. A mute signal from the telephone mutes the normal audio or pauses the CD when required. The audio system display shows VOICE IN when the telephone is in use. When the call ends, the audio system returns to the previous playing mode and audio settings.

Antenna Operation

The antenna system consists of an antenna coil assembly an antenna amplifier module and connecting leads. The antenna cable between the radio head unit and the antenna amplifier module is a 2-piece coaxial cable with an in-line connector located behind a panel in the driver footwell.

The antenna coil assembly comprises 2 antennas, one for AM signals and another for FM signals, and these form an integral part of the rear window glass. The FM antenna coil is also used as the rear window defogger element. The thin conductors that form each antenna are laid on the inside of the glass, and 2 connectors are located on the side of the rear window allowing connection of the antenna coils to the antenna amplifier module. The FM antenna coil/defogger is connected to body ground which also includes an RF isolation coil within the connector.

The antenna amplifier module amplifies the small signals from the antenna coil assembly then transmits the amplified signal to the audio system head unit antenna input via a coaxial cable. A single wire lead, from the audio system head unit provides the +12 volt supply to the antenna amplifier module for its operation.

The module is grounded through its case to the vehicle body. To prevent interference, it is very important that the module and coaxial cable are grounded securely.

Window tinting is not recommended on any glass that has printed antenna coils attached. Metallic-based tint material significantly reduces radio reception in both the AM and FM bands, and dye-based tint material reduces reception in the FM band.

Horn Bar Stereo Control Operation

There are 2 major components of the horn bar stereo control system. These components are as follows:

- Left-hand switch assembly--Located to the left-hand side of the horn bar, the left-hand switch assembly has 3 momentary contact switches that are used to control the mode of operation and switching between preset stations.
 - The MODE button allows selection between the Radio Mode of operation and the CD Mode.
 - If Radio Mode is selected, the NEXT up button selects the next preset station in the frequency band, while the NEXT down button selects the previous preset radio station.
 - If CD Mode is selected, the NEXT up button selects the next track on the CD, while the NEXT down button selects the previous track. Pushing and holding the NEXT buttons changes the disc.
- Right-hand switch assembly--Located to the right-hand side of the horn bar, the right-hand switch assembly has 3 momentary contact switches that are used to control the MUTE function as well as the VOLUME up and VOLUME down.

Each control switch has a unique resistance value. When a button is pressed on the horn bar control, the radio decides the function required by measuring the resistance of the contact pressed.

Wiring from the right-hand switch is connected to the left-hand switch. The left-hand switch is connected to the audio system head unit by a wiring loom.

A multifunction display (MFD) in the instrument panel can provide the driver with an almost line-of-sight view of the MFD for ease of operation of the audio system from the horn bar buttons.

Normal display on the MFD during vehicle operation displays the normal trip computer functions, for example the odometer, in the centre of the MFD screen, and the gear selector position, displayed at the bottom of the MFD screen at all times.

When the radio or a CD source is selected, the radio band and frequency or the CD symbol replaces the trip computer display for 2 seconds. The display then reverts to the trip computer display with the radio band and frequency or CD and track indicator changing to a secondary small icon located in the warning icon location on the left-hand side of the MFD.

If a warning is activated, the warning will override the CD and track indicators. The display of audio system information on the MFD can be turned on or off from the MFD. The default setting is On.

Dynamic Distortion Limit Function

Some customers may comment that the radio audio or speakers may turn off intermittently resulting in no sound. This concern may occur when the radio is played at very high or full volume for an extended period. The radio is designed to shut itself off to protect the amplifier from overheating under such severe usage. When the amplifier cools down, the radio will reset and function normally. This characteristic is NOT a failure of any component.

The radio has a built in function that limits distortion. This is a user selectable function that is accessible in the Personalization Programming Menu available through the instrument panel (I/P) display. The Dynamic Distortion selection must be turned ON to activate this function. The Dynamic Distortion circuit will automatically limit the radio volume and dynamic range to control distortion at high sound levels. Refer to the Owner's Manual for specific instructions to enable this feature.

Radio Reception

High quality radio reception is obviously more difficult to achieve in a moving vehicle than from a stationary location. Radio systems fitted to vehicles incorporate sophisticated electronics to enhance radio reception by extending the usable listening range while eliminating extraneous noise, such as static.

Many owners complain of reception problems, which are normal radio operating characteristics, particularly with FM. Such complaints arise as a result of owner misconception as to what constitutes normal radio reception. Naturally, radio replacement under these circumstances will not affect the radio operating characteristics and has the potential to create additional owner dissatisfaction. Thus a careful, well informed explanation of radio reception expectations is more likely to enhance the owner's understanding and satisfaction, as well as avoiding unnecessary repair costs and inconvenience to the owner of the vehicle.

FM Radio Reception

FM stereo maximum range is normally limited to 40-50 km (25-31 miles). The strength of the FM signal is related to the distance between the receiver and the transmitter. FM signals follow the line of sight, exhibiting many similar characteristics to those of light. That is, similarly to sunlight, FM radio waves are cut off by the horizon. Since most FM transmitter towers are nominally 100 meters from the ground, usable reception cannot extend much beyond the horizon. FM signals will not bend around corners, but as with light, may be reflected (or blocked) by large objects.

Although FM signals will not bend around corners, they can be reflected by large objects, for example hills or buildings. Because of these characteristics, a reflected signal and a direct signal can reach the radio's antenna at the same time, resulting in the signals interfering with each other or cancelling each other out. This obviously leads to a distortion of the received signal or a loss of sound, and is known as multi-path interference.

Multi-path interference occurs only with FM reception and can be characterized by changes in distortion (static) levels occurring as the vehicle is moving. This is due to the vehicle antenna entering and leaving FM signal interference areas. FM signal waves have short wavelength, which also means that the interference area is small, in the region of several centimeters across. Because of the small size of interference areas, a vehicle may pass through many in a short time. When the vehicle is stationary in an interference area, moving it half a metre can place the antenna in a region of clear signal. Flutter or fading is caused when a vehicle passes into an area where the direct signal can be overshadowed by a building, large structure or hill.

Atmospheric conditions can also affect FM reception. Unexplained loss of sensitivity can be caused by high humidity. Cloudy days are also better for reception than clear days. With electronic tuning radios, users can sometimes be confused by abbreviated radio station call signs. People who tune their radios to abbreviated call signal frequencies may be slightly off the correct frequency.

AM Radio Reception

In contrast to FM signals, AM signals will bend around corners and skip along the ground. This is due to AM signals having longer wavelength and lower frequency. The layer of atmosphere known as the ionosphere can reflect the signal. This phenomenon gives AM a longer reception range than FM, especially at night. AM reception is affected by static induced by electrical power lines, traffic lights, electronic signs and thunderstorms. Fade of AM signals can also be expected when driving through tunnels, underpasses, and in city centres.

As shown, signals from radio stations are picked up by the antenna and fed to the radio while being shielded from interference sources by the braid. This is a complete electrical circuit, any breaks in the circuit, such as poor connections, will result in poor reception.

Interference is due to the antenna system picking up signals other than those from the desired station. These undesirable signals may be produced by electrical equipment in the vehicle itself, such as ignition, which is termed internal interference. Conversely, interference from sources outside the vehicle, such as from power lines, is known as external interference. Internal interference is minimized by the shielding around the antenna wire, which prevents internal noise being picked up and fed to the radio. The shielding around the core takes the form of a braid, which completes the electrical circuit along which signals travel to the radio. Faults in this shielding system allow interference to reach the radio and hence be reproduced at the speakers as noise. It is therefore important that the shield of the antenna cable is effectively grounded at both the radio, to the radio case, and at the antenna end, to the vehicle body, to ensure that minimal interference is received by the radio, and that the optimum radio sensitivity is achieved.

Basic Checks

Proper performance of the radio system depends greatly on grounding of the antenna and radio case to the vehicle body, as it eliminates stray currents in the antenna circuit. Stray currents may be induced by wires running parallel to the path of the radio or antenna wiring, or may be due to noisy in-vehicle electrical items.

Resistances or connection quality of the major parts of the radio can be checked with an ohmmeter. When using an ohmmeter to measure very low resistances, the lead resistance becomes considerable, and must be subtracted from all subsequent readings. That is, touch the leads together, note the reading, and subtract this from all subsequent readings.

A very good contact point is required to measure ground resistance. This point must not have current flowing through it during measurement, therefore ensure that the ignition is turned OFF. Avoid measuring using the screw on the door jamb switch. The best place to measure ground resistance is to use one of the self-tapping screws

2004 Pontiac GTO Audio System Information

retaining the A-pillar drip rail. Since these screws are sometimes not properly grounded, one of the screws may be removed to take measurements directly to the body sheet metal.

Common Radio Problems

Static is a buzzing or crackling noise caused by the radio picking up unwanted radio waves and converting them to noise output by the speakers.

The unwanted radio waves (interference) come from several sources, which can be put into 2 groups; internal and external. As the names suggest, external interference comes from outside the vehicle, and is difficult to control, while the vehicle generates internal interference.

It must be emphasized that a radio system in good condition will protect itself from much static. Before trying to locate and remove a source of interference it must first be determined that the shielding and grounding of the radio is in good working order.

It should be noted that static may occur on weak stations, or when driving under bridges because signals from ignition and the like become relatively stronger than the radio station signal, causing the ignition interference to become quite strong. This could be due to stronger than normal ignition interference or a poorly functioning antenna.

If the cause cannot be isolated after performing the tests and trying to isolate a source of interference, using the following procedures, it may be that the radio has an internal fault and requires repair.

Static that occurs only while travelling in certain localities, such as near electrical transformers, is undoubtedly external interference.

If there is any doubt whether the suspected source is causing interference, a simple check is to stop the vehicle and turn off everything but the radio. If the source is external, the interference will continue and little can be done to eliminate it.

The perceived interference level can be significantly reduced, in noisy environments, by slightly reducing the treble on the radio tone controls.

Internal interference is that caused by some component of the vehicle's electrical system, and may take many forms.

Many of the electrical items fitted to motor vehicles produce some sort of radio waves, but these radio waves only become a problem if they are in the range of frequencies at which the radio receiver picks up and reproduces signals as sound. For the radio, the vehicle's electrical system must be designed not to emit radio signals at the frequencies of the AM and FM bands.

Components are sometimes fitted with suppressing devices as part of their design, and failure of these suppressors may allow the item to start interfering with radio operation.

Interference will be worse on weak stations, since a strong signal normally overpowers the interfering signal. Interference can occur when the signal strength drops below a certain threshold, such as driving under a bridge, inside a workshop, or in the shadow of a building. This situation is shown in the following figure.

Static may be caused by many internal sources. If static is at ignition frequency, varying with engine speed, the ignition is the culprit. However, many electrical faults will cause static which otherwise would not be heard.

Examples of ignition interference sources are:

- Plug leads breaking down
- Carbon tracking (arcing) to ground
- Faulty spark plugs
- Inoperative interference shields

The actual cause of the interference can be isolated through carefully noting the circumstances under which the problem occurs. For example, if it occurs only at speeds above approximately 80 km/h (50 mph) in an automatic transmission equipped vehicle quite possibly it is the electrical signal being sent to the torque converter clutch.

Other sources of static can be:

- Electric cooling fan
- Electric fuel pump
- Normal computer noise at certain frequencies
- Windshield wipers or washers

2004 Pontiac GTO Audio System Information

If a vehicle has an interference problem that only occurs when the engine is turned on, or some other repeatable circumstance, carry out the following procedure:

- Park the vehicle in an open area, as far away from buildings as possible. Turn the radio onto the band (AM/FM) and frequency where the complaint occurs, with the ignition in the Accessories position.
- Reproduce the interference, eg. turn the ignition ON.
- If interference is due to a fan blower motor, etc. and is judged to be objectionable, try a similar specification vehicle in the same location. If this is not possible, the component should be substituted to determine whether it is faulty. Internal interference is often a symptom of a defective radio system, such as poor antenna grounding, etc. If substituting a new component does not fix the condition, the problem is very likely to be in the radio system, and the resistance checks in this section should be performed.
- Whistles/squeals that occur only when the ignition is ON, are probably due to electronic modules in the vehicle creating interference when active (power applied). These modules may be isolated as a cause of interference by removing power to them and checking. This is best done by turning the ignition OFF, removing the fuse that supplies that particular item with power, turning the ignition back ON and checking. By process of elimination, the noisy module should be able to be found. Once found substitute the module to find out whether the interference is normal.

Before removing speakers suspected of being noisy or faulty, ensure that any distortion that may be present is not due to any of the following:

- Foreign matter such as sand lying on the speaker cone, especially horizontally mounted speakers such as the subwoofers.
- Cable ties or other such material resting on the back of the speaker cone.
- Incorrectly fitted speaker mesh or loose trim around speaker assembly.
- Distortion of the speaker assembly caused by the angled insertion of the speaker retaining screws. Loosening and tightening the screws while being careful not to distort the speaker cone may rectify the speaker problem.