WinAlign Quick Reference

Version 6.0

Contents

Getting Started

Introduction

This manual provides operation instructions and information required to operate the 611 Aligner with WinAlign software. WinAlign version 6.0 is a 32-bit program and is compatible only with Windows 98 or above.

The owner of the Series 611 Aligner is solely responsible for arranging technical training. Only a qualified trained technician should operate the Series 611 Aligner. Maintaining records of personnel trained on this equipment is solely the responsibility of the owner and management.

"References"

This manual assumes you are already familiar with the basics of wheel alignment. "Italics" are used to refer to specific parts of this manual that provide additional information or explanation. For example, *Refer to "Operating the Console," page 6.* These references should be read for additional information to the instructions being presented.

System Requirements

WinAlign version 6.0 is a 32-bit program and is compatible with Series 611 Aligners only.

Required Software that will be installed by the WinAlign 6.0 Installer:

Microsoft Internet Explorer 5.5 SP2

Windows Media Player 7.1

NOTE:	Systems which originally shipped with WinAlign 4.X or 5.0 will need to install TCP/IP Protocol, in addition to a CD-Video key, in order to access AlignGuide™ videos.

Help Tips

The "HELP" file is an integrated, context-sensitive copy of the complete WinAlign 6.0 Operation Manual, accessible through the aligner. The "HELP" softkey label is available on all screens, usually located in the K4 key of the lowest menu level. If the "HELP" softkey is not present, press ⬍ until it appears.

When K4 is pressed, a popup screen appears with the question "What kind of help would you like?" The choices are:

"Cancel" will close the popup and return the screen where "HELP" was pressed.

"Just-In-Time Training" will open a popup screen that can be useful to train technicians. "Just-In-Time Training" is optional multimedia video instructions.

"Table of Contents" will open a popup screen with the table of contents of the "Help Manual."

The softkey label for ⎡K4⎤ will be **"About nnnnnn,"** and will refer to the topic or procedure of the screen from where "HELP" was pressed. Pressing ⎡K4⎤ will open the Help Manual directly to the reference section for that topic.
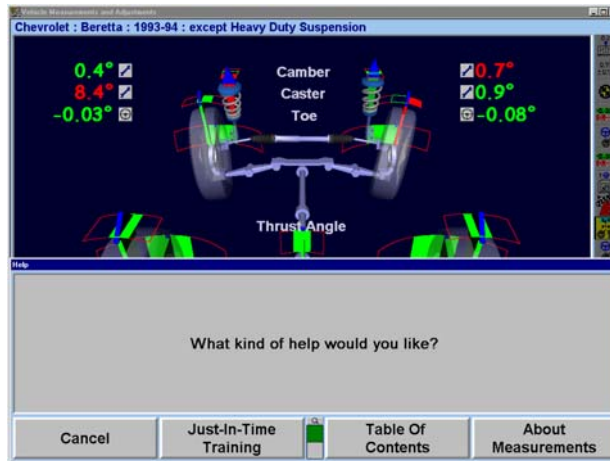
For additional information on the WinAlign 6.0 "Help" file, *refer to the "Help Tips" section of the help file.*

Just-In-Time Training

Optional multimedia video instructions provide a live audio-visual demonstration of procedures. To view video instructions:

Press "Help," then press "Just-In-Time Training" to view a list of available videos.
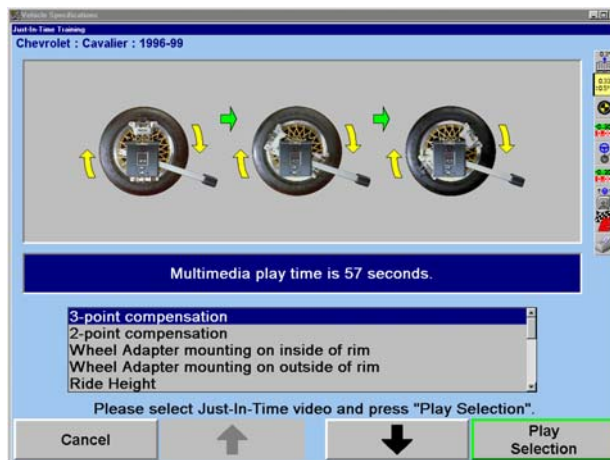
Press "↑" or "↓" to highlight the desired video, then press "Play Selection." The video will start.

Pressing ⏸ will pause the video, and ▶ will restart the video after it has been paused. Pressing ■ will return you to the Just-In-Time training screen.

After the video ends, you will be returned to the Just-In-Time training screen.

For Your Safety

Hazard Definitions

Watch for these symbols:

| ⚠ CAUTION: | Hazards or unsafe practices, which could result in minor personal injury or product or property damage. |

| ⚠ WARNING: | **Hazards or unsafe practices, which could result in severe personal injury or death.** |

| ⚠ DANGER: | **Immediate hazards, which will result in severe personal injury or death.** |

These symbols identify situations that could be detrimental to your safety and/or cause equipment damage.

IMPORTANT SAFETY INSTRUCTIONS

When using your garage equipment, basic safety precautions should always be followed, including the following:

Read and follow all caution and warning labels affixed to your equipment and tools. Misuse of this equipment can cause personal injury and shorten the life of the aligner.

Always use wheel chocks in front of and behind the left rear wheel after positioning a vehicle on the rack.

Use caution when jacking the vehicle.

ALWAYS WEAR OSHA APPROVED SAFETY GLASSES. Eyeglasses that have only impact resistant lenses are **NOT** safety glasses.

Wear non-slip safety footwear when performing an alignment.

Never stand on the aligner.

Do not wear jewelry or loose clothing when performing an alignment.

Wear proper back support when lifting or removing wheels.

Do not operate equipment with a damaged cord, or equipment that has been dropped or damaged, until it has been examined by a Hunter Service Representative.

Always unplug equipment from electrical outlet when not in use. Never use the cord to pull the plug from the outlet. Grasp plug and pull to disconnect.

If an extension cord is necessary, a cord with a current rating equal to or more than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.

Verify that the electrical supply circuit and the receptacle are properly grounded.

To reduce the risk of electrical shock, do not use on wet surfaces or expose to rain.

Verify the appropriate electrical supply circuit is the same voltage and amperage ratings as marked on the aligner before operating.

To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline).

Keep all instructions permanently with the unit.

Keep all decals, labels, and notices clean and visible.

To prevent accidents and/or damage to the aligner, use only Hunter recommended accessories.

Use equipment only as described in this manual.

SAVE THESE INSTRUCTIONS.

⚠ WARNING:	This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, it may cause interference with electronic devices. Operation of this equipment in a residential area may cause interference in which case the user, at their own expense, will be required to take whatever measures may be required to correct the interference.

⚠ CAUTION:	Do not turn the power off when the disk drive is operating. The disk can be damaged.

⚠ WARNING:	DO NOT ALTER THE ELECTRICAL PLUG. Plugging the electrical plug into an unsuitable supply circuit will damage the equipment and may result in personal injury.

Precautions for Systems Equipped with HFSS Cordless Sensors

The following precautions apply to the HFSS transceivers installed in the aligner console and the alignment sensors as part of the HFSS cordless sensor option.

⚠ WARNING:	This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

⚠ WARNING:	Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Specific Precautions/Power Source

NORTH AMERICA:

The PC aligner is intended to operate from a power source that will apply 120 VAC (nominal) 50/60 Hz between the supply conductors of the power cordset.

OTHER REGIONS:

The PC aligner is intended to operate from a power source that will apply 230 VAC (nominal) 50/60 Hz between the supply conductors of the power cordset. The power supply cordset, supplied with this equipment, may need modification to allow connection to the power supply mains. Your Hunter service representative will install the proper plug for your location.

> ⚠ **CAUTION:**   A protective ground connection, through the grounding conductor in the power cord, is essential for safe operation. Use only a power cord that is in good condition.

FUSING:
To avoid fire hazard, use only the fuse specified for your product.

EQUIPMENT SERVICE:
This equipment contains no user serviceable parts. All repairs must be referred to a qualified Hunter Service Representative.

PROVISIONS FOR LIFTING AND CARRYING:
No provision has been made for lifting or carrying this equipment. The unit must be moved by rolling it on its casters.

Equipment Specifications

Electrical
VOLTAGE:	120/230 volts (nominal)
AMPERAGE:	6/3 amps
WATTAGE:	720 watts

Atmospherics
TEMPERATURE:	+32°F to +122°F (0°C to +50°C)
RELATIVE HUMIDITY:	Up to 95% Non-condensing
ALTITUDE:	Up to 6000 ft. (1829 m)

Safety Summary

Explanation of Symbols

These symbols appear on the equipment.

⏦	Alternating current.
⏚	Earth ground terminal.
⏛	Protective conductor terminal.
∟	ON (supply) condition.
○	OFF (supply) condition.
⚡	RISK of electrical shock.
⏻	Stand-by switch.
⊠	Not intended for connection to public telecommunications network.

Operating the Console

Turning Power On

Turn the unit "ON" by pressing the power switch located on the left side panel, or on the back panel of the aligner cabinet.

The "Logo" screen will appear and indicate that the unit is ready for use. This will take approximately 1.5 minutes.

Using the "Softkeys"

The softkeys, located on the keyboard, provide operator control of the program. These keys are identified as:

K1	K1 key	**R**	Reset key
K2	K2 key	→	Forward key
K3	K3 key	←	Backward key
K4	K4 key	🔍	Zoom key (keyboard)
⬍	Menu shift key	Q	Zoom softkey (screen display)

The four labels that appear at the bottom of each screen are referred to as the softkey labels. These labels indicate the action that the program will take when the corresponding **K1**, **K2**, **K3**, or **K4** key is pressed.
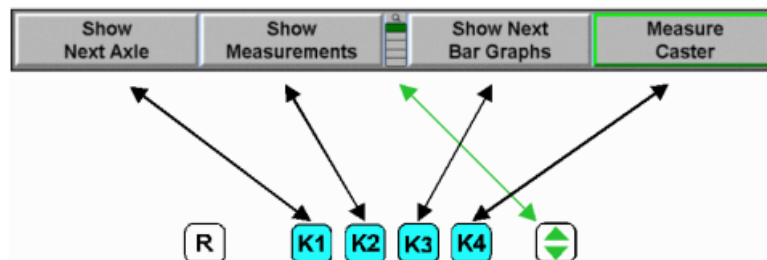
The vertically stacked squares between the "K2" and "K3" labels indicate how many levels of softkeys are available. The highlighted box indicates the menu level that is currently displayed.

The softkey level is changed by pressing the menu shift softkey, ⬍. When this key is pressed, the softkey labels will change to the next level "down." If the last menu level is currently displayed, the softkey level will be the first softkey level. To go to the next softkey level "up," press "Shift" and ⬍.

Pressing 🔍, selecting 🔍 above the softkey levels, or pressing and holding with a pointing device on the menu level indicator will cause all of the menus available to appear, as shown below. The green background indicates the active menu level. Pressing 🔍 again will cause the menu to return to the original perspective.
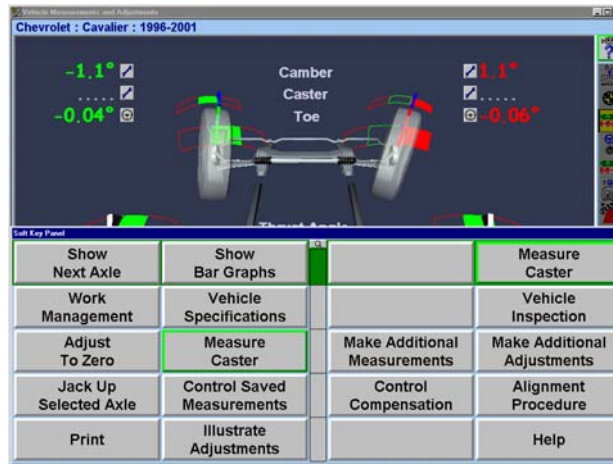
The number of softkeys displayed may be reduced to only the number of softkeys needed for a typical alignment by enabling "Reduce Number of Softkeys" in "Aligner Setup." *Refer to "Aligner Setup," page 63.*

Throughout this manual, the statement **Press "nnnnnnn"** indicates the label of the softkey to press. If the required label is not on the current menu, ⬍ must be pressed to change menu levels until the desired label is displayed.

Some softkey labels have a green border highlight around the softkey. Generally, the softkey with the green border (usually "K4") is the appropriate key to press to continue with the procedure being performed, as shown below.
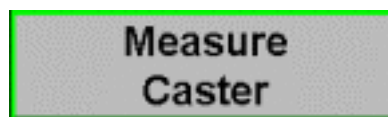
Alignment Procedure Bar

Whether ExpressAlign is enabled or disabled, a vertical procedure bar appears along the right side of the screen.

The "Alignment Procedure" bar is a toolbar that displays on the right side of the screen with an icon for each alignment or WinAlign procedure available or performed.

The icons are arranged in order from the first step that you must complete to the last step that you must complete. After each alignment procedure has been completed, a "✓" will appear in the upper right corner of the corresponding icon.

If there are more icons available than space on the screen, the toolbar can be scrolled up or down. The toolbar on the right shows the triangular area at the bottom indicating more choices.

When the cursor is placed over an icon, a message appears describing the icon's function, such as "ExpressAlign."

Selecting an icon from the "Alignment Procedure" bar will take you to the procedure that the icon represents.

Selecting ▶, Forward key, or ◀, Backward key, will move the screen forward or backward in the alignment procedure as outlined on the procedure bar.
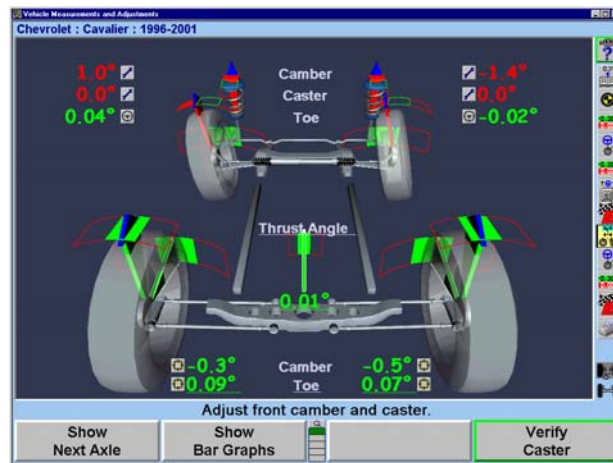
AlignGuide Training and Information

AlignGuide is an information center on WinAlign software. It contains training videos and information on using WinAlign, wheel sensor operations, vehicle operations, vehicle troubleshooting, and alignment adjustment methods.

AlignGuide is available only with the Digital Video option.

To access AlignGuide, select the [icon] icon above the Procedure Bar. A drop-down menu will list all the choices available including access to WinAlign Help, Tools and Kits, Illustrate Adjustments (these choices are context-sensitive based on the current WinAlign screen), and a selection for All Videos and Animations.
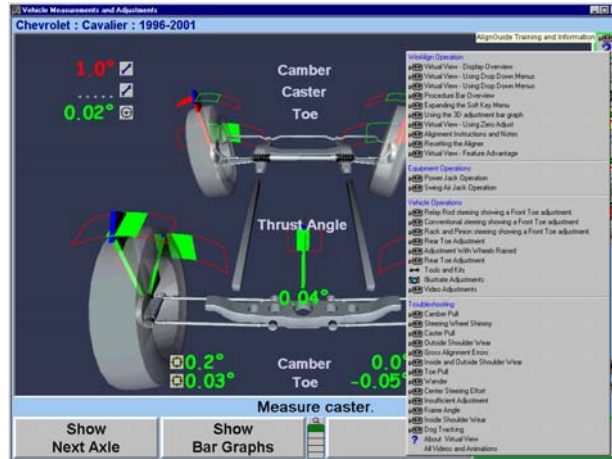
Select the appropriate choice and the video, animation, illustration, or Help item will display.

Resetting the Program

The alignment program may be reset at anytime during an alignment by pressing the ⌐R⌐ key, located at the upper left-hand corner of the keyboard. A confirmation screen will appear to verify that the "Reset" button was pressed intentionally.

When this screen appears, press "YES" to reset the program or "NO" if the program should not be reset.

When the aligner is reset, the information collected for the alignment in progress will be erased and the display will return to the "Logo" screen.

Turning Power Off

To turn off the aligner power, do the following:

Turn off cordless sensors. (Each sensor has a power switch.)

Reset the console.

Press "Exit Aligner." A "Confirmation" popup screen will ask if you are sure you want to exit the aligner. Press "Yes."

Wait for the aligner program to end. The aligner will shutdown automatically.

Turn off console power.

⚠ **CAUTION:**   Do not turn off the power while information is being written to the disk drive. This occurs during console setup and when specifications are being stored. This can result in corrupt disk drive files.

An Example Alignment Job with ExpressAlign and DSP400 Sensors

This example alignment job assumes that the system is configured as follows:

ENABLED
ExpressAlign Level III

Your system may be configured differently.

NOTE:	This section is an overview of an alignment job using ExpressAlign. For details about any procedure, *refer to the appropriate section of the manual or press "HELP" in the WinAlign program.*

From aligner setup, "DSP400 Sensors" must be selected as the default sensor. *Refer to "Aligner Setup," page 63.*

Prepare the vehicle for alignment as follows:

Drive the vehicle onto the alignment rack, centering the front wheels on the turnplates.

Apply the vehicle parking brake and place the transmission in park, if applicable. On standard transmission vehicles, the transmission should be placed in neutral.

Position chocks at the front and rear of the left rear tire to keep the vehicle from rolling.

Place the lift at alignment height.

Check and adjust tire pressure to vehicle manufacturer's specification. Inspect for unevenly worn or mismatched tires.

Start the alignment program by pressing "Begin Alignment" on the "Logo" screen. The "Recall Specifications" popup screen will appear.

Press "↑" or "↓" to highlight the manufacturer of the vehicle being aligned.

Press "OK" to select the highlighted manufacturer. The next screen will list the models available from the selected manufacturer.
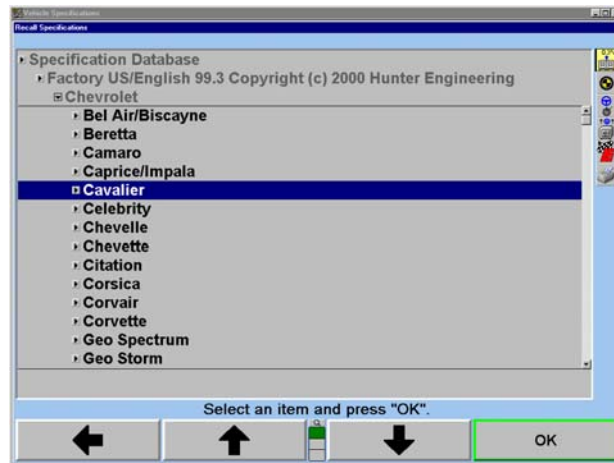
Press "↑" or "↓" to highlight the model of the vehicle being aligned.

Press "OK" to select that model.

Continue in this manner until the vehicle is identified to the program.

The screen will change to the "Compensation Control" popup screen.

There are two methods of compensation, rolling and jacking. The method chosen for this example procedure is rolling compensation. *Refer to "Compensating DSP400 Sensors," page 30.*

Verify that the pins are in the turnplates and slip plates.

Insert the bridges.
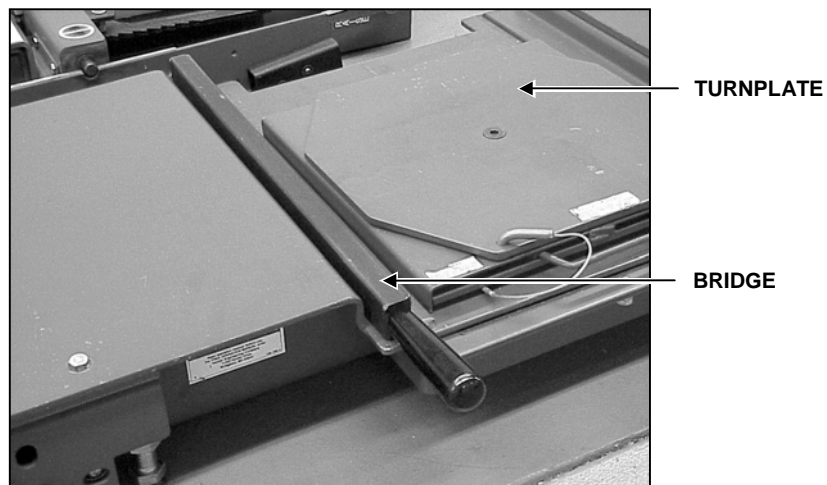
Place wheel chocks that limit rearward motion approximately 15 inches behind rear wheel(s).

Steer ahead.

Mount the targets and wheel adaptors on the wheels. *Refer to "Mounting Sensors or Targets onto Wheel Adaptors," page 27.*

Level and lock the targets.

NOTE:	The targets should not be re-leveled at any time during the alignment. The only exception being - If the target is removed from the wheel adaptor during the alignment, (shim replacement, steering component replacement, etc.) the affected target must be re-leveled and re-compensated, using jacking compensation.

NOTE:	Beginning the rolling compensation procedure removes any previous compensation from the targets.

The screen instructs you to roll the vehicle rearward. Release parking brake and put transmission in neutral. Roll the vehicle rearward until the bar graph turns green.

NOTE:	It is recommended to roll the vehicle by rotating the left rear tire. Do not push or pull the vehicle by the front (steering axle) tires or wheels during rolling compensation. Do not push or pull on spoilers, fascia moldings, or other "trim" accessories.
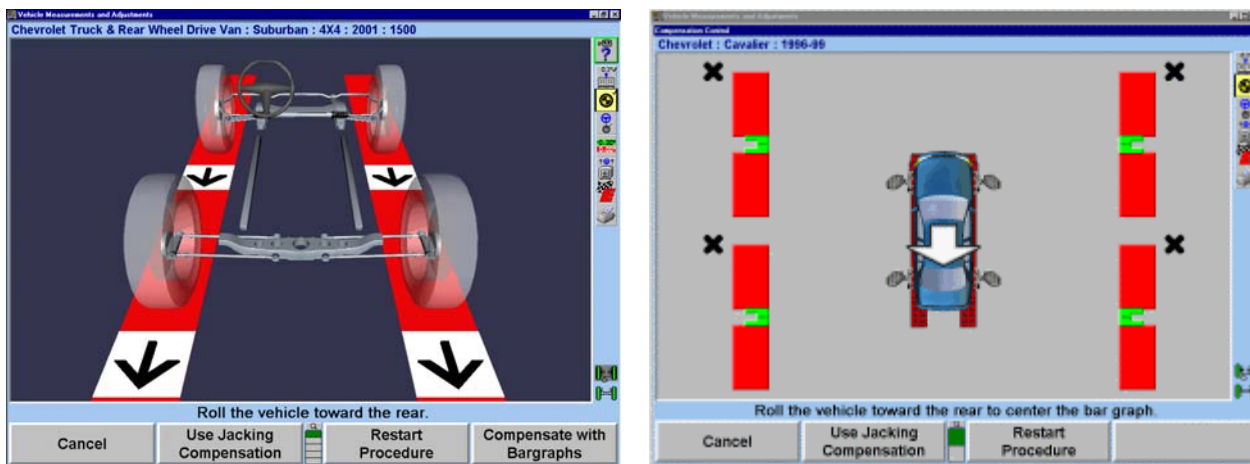
NOTE:	A vehicle with 28 inch diameter tires will require approximately 12 – 14 inches of movement. Smaller diameter tires will require less movement, while larger diameter tires will require more.

Stop rearward movement of the vehicle. The bar graph will disappear for a moment.

If a new style remote indicator is used, indicators for all four wheels will be flashing, indicating to roll forward.

When the compensation bar graph reappears, roll the vehicle forward to the original position.

When all four targets have been compensated, apply the vehicle parking brake and place the transmission in park, if applicable. On standard transmission vehicles, the transmission should be placed in neutral.

Position chocks at the front and rear of the left rear tire to keep the vehicle from rolling.

NOTE:	The rolling compensation procedure MUST end with the vehicle in the proper position to check and adjust the alignment.

After the targets have been compensated, remove the pins from the turnplates and slip plates.

Remove the bridges.

The screen will change to the "Caster and S.A.I. Measurement" popup screen that will direct you to measure caster.
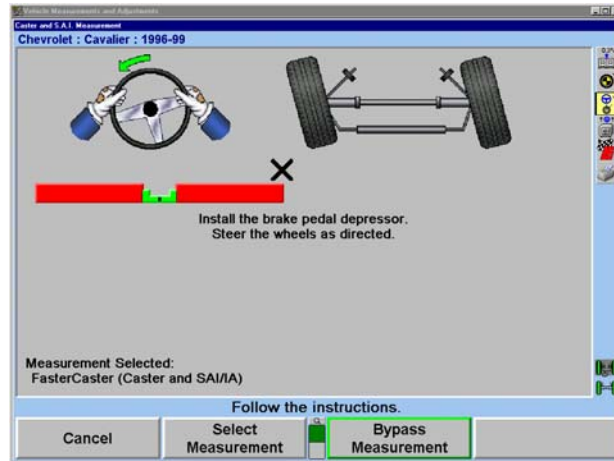
Install the brake pedal depressor. Steer the wheels as directed and follow the on-screen directions.

NOTE:	Do NOT block the front targets during the "Measure Caster" Procedure. One of the two rear targets may be blocked during the "Measure Caster" Procedure.

After caster has been measured, the screen prompts you to steer the wheels straight ahead.
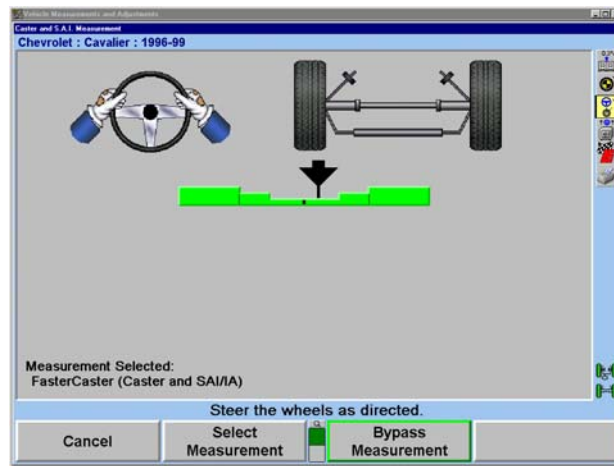
The measurements of the vehicle will be saved.

The screen will change to the "ExpressAlign" popup screen.
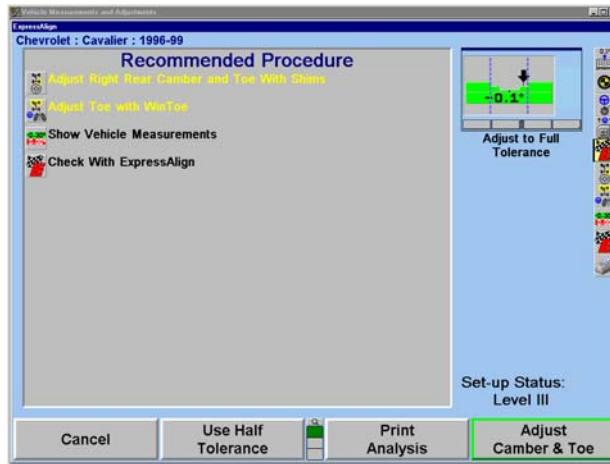
NOTE:	The actual procedures displayed will vary depending on the vehicle and alignment angles that need to be adjusted.

An icon will be displayed in the "ExpressAlign" popup screen for each suggested procedure. Selecting the corresponding icon in the procedure bar will start the procedure that the icon represents.

Procedures that have yellow text in the "ExpressAlign" popup screen refer to adjustments that must be made for the specified vehicle.

Selecting the ExpressAlign icon in the procedure bar will prompt you through the recommended sequence for the alignment. In this instance, rear camber and toe will be the first necessary adjustment.

This vehicle uses shims to adjust rear camber and toe. Selecting the "Rear Adjust Camber & Toe" icon in the procedure bar will automatically proceed to Shim Select II ® and display the correct shim for the necessary adjustment.

⚠ WARNING:	Consult vehicle manufacturer's service publications and the aftermarket part manufacturer's instructions before installing aftermarket rear shims on any vehicle. Vehicles equipped with rear disc brakes and/or ABS present additional considerations for rear shims.
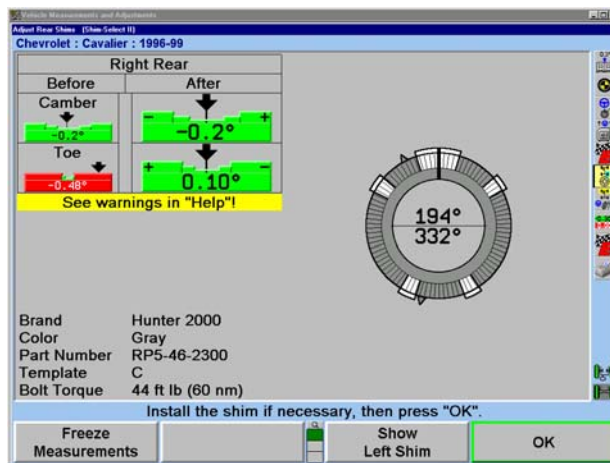
Remove the wheel to install shim. After installing shim and reinstalling wheel with target and wheel adaptor, the target must be re-compensated using jacking compensation.
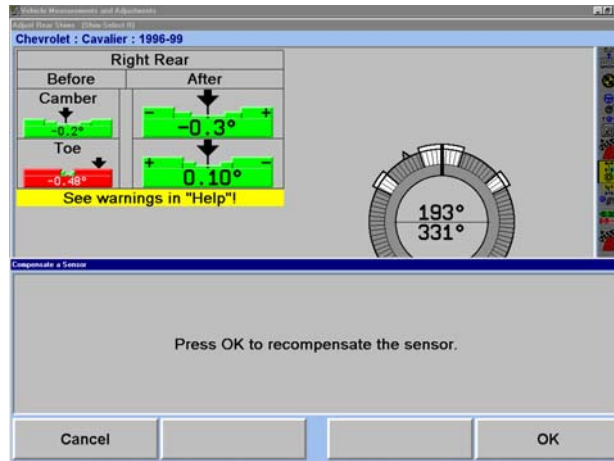
Press "Cancel" if no adjustments were made.
OR
Press "OK" to re-compensate the target.

Follow the on-screen directions to compensate the target. Press "Continue" when finished.
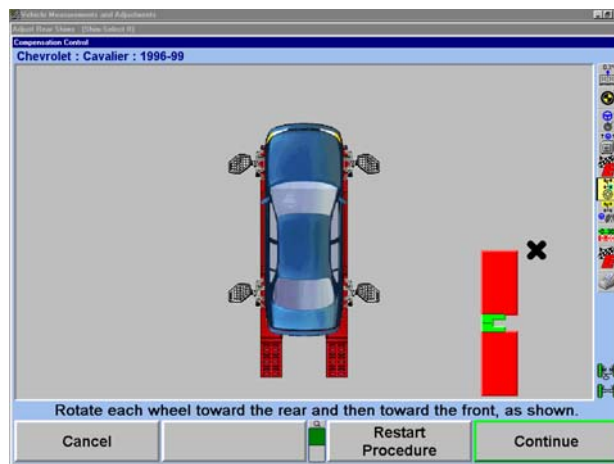
Follow the on-screen directions, then press "Ready."
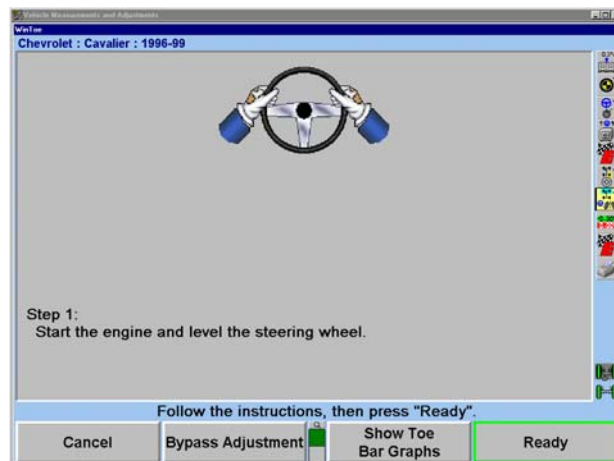
Adjust the right tie rod, follow the on-screen directions, then press "Ready."
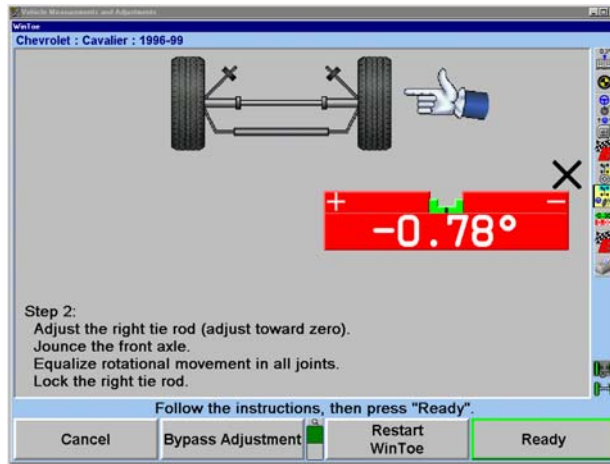
Adjust the left tie rod, follow the on-screen directions, then press "Ready."
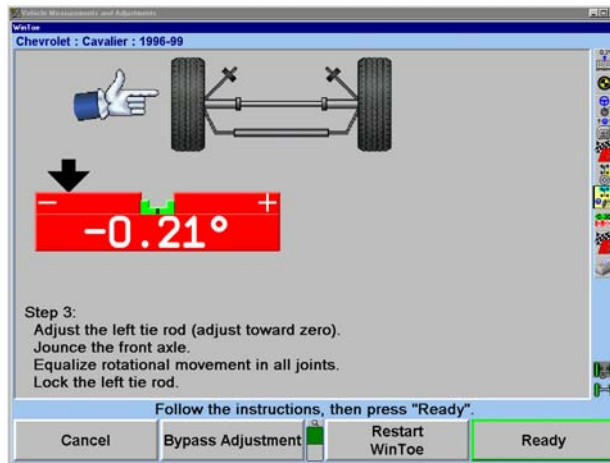
Steer ahead to center the bar graph. The steering wheel should be level. Press "Ready." If the steering wheel is not level, restart WinToe and correct as necessary.
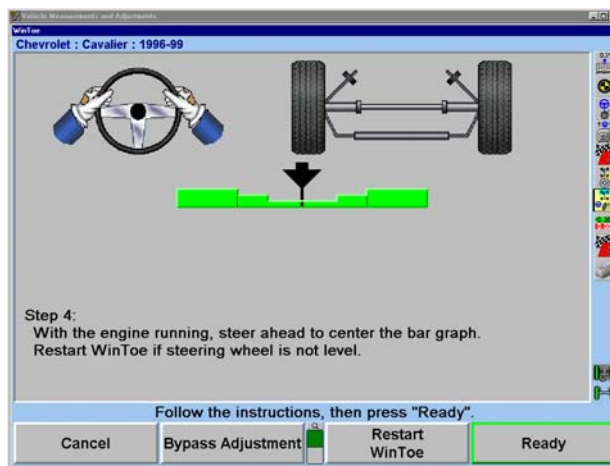
Press the "Check with ExpressAlign" icon in the procedure bar.
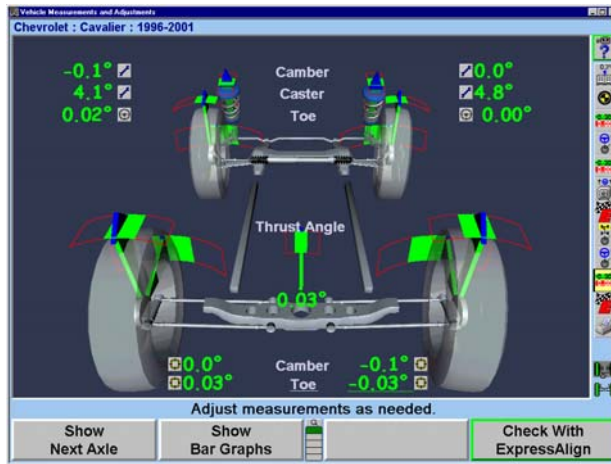
After all adjustments are completed, select the "Print" icon in the procedure bar to print the alignment results.
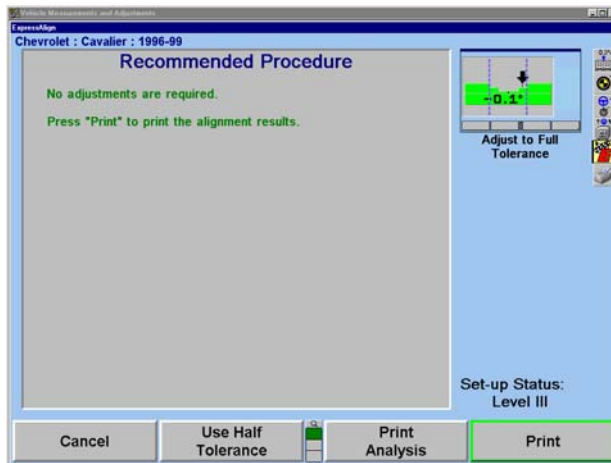
Press "Print Summary." Before printing, the "Print" popup screen will allow the technician to input the current steering wheel status and make additional notes as needed. After steering ahead, add the necessary comments for the printout and select "Print Summary."
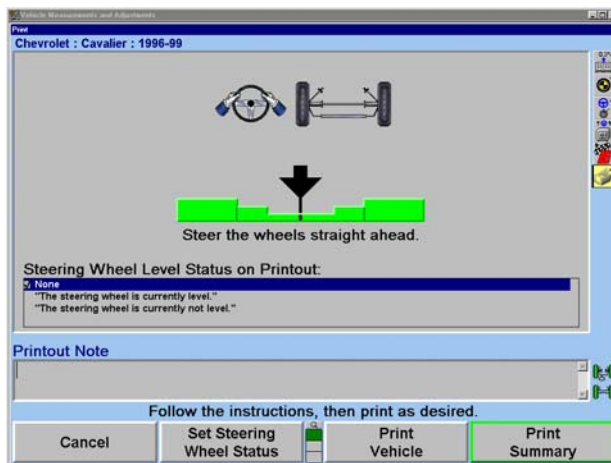
After printing the results, the "Vehicle Measurements and Adjustments" primary screen will appear with the current vehicle measurements showing. The alignment is complete.
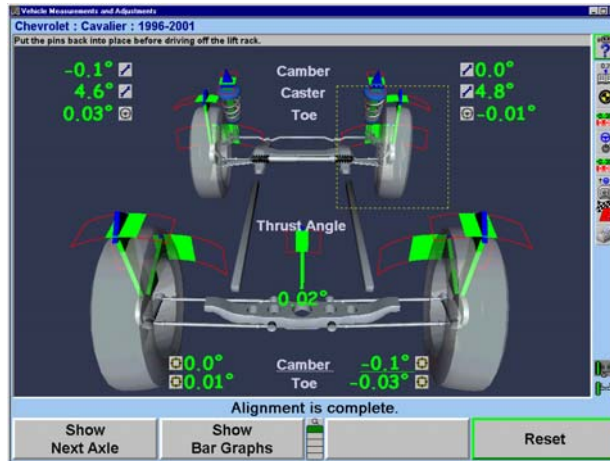
Verify that the pins are in place in the slip plates and turnplates before driving the vehicle off the rack.

An Example Alignment Job with ExpressAlign and without DSP400 Sensors

The "Total Four-Wheel" alignment procedure requires the use of all four sensors and is typically used when adjustments are available for rear camber and/or rear toe.

This example alignment job assumes that the system is configured as follows:

ENABLED
Display of Vehicle Specifications
Show Measurements Display After Compensation
Show Measurements Display After Caster
Verify Caster Adjustment
ExpressAlign Level III

Your system may be configured differently.

NOTE: This section is an overview of an alignment job using ExpressAlign. For details about any procedure, *refer to the appropriate section of the manual or press "HELP" in the WinAlign program.*

Prepare the vehicle for alignment as follows:

Drive the vehicle onto the alignment rack, centering the front wheels on the turnplates.

Apply the vehicle parking brake and place the transmission in park, if applicable. On standard transmission vehicles, the transmission should be placed in neutral.

Position chocks at the front and rear of the left rear tire to keep the vehicle from rolling.

Place the lift at alignment height.

Check and adjust tire pressure to vehicle manufacturer's specification. Inspect for unevenly worn or mismatched tires.

NOTE: The alignment rack must be level to properly perform an alignment.

Inspect the suspension and steering linkage components for wear, looseness, or damage.

Start the alignment program by pressing "Begin Alignment" on the "Logo" screen. The "Recall Specifications" popup screen will appear.

Press "↑" or "↓" to highlight the manufacturer of the vehicle being aligned.

Press "OK" to select the highlighted manufacturer. The next screen will list the models available from the selected manufacturer.
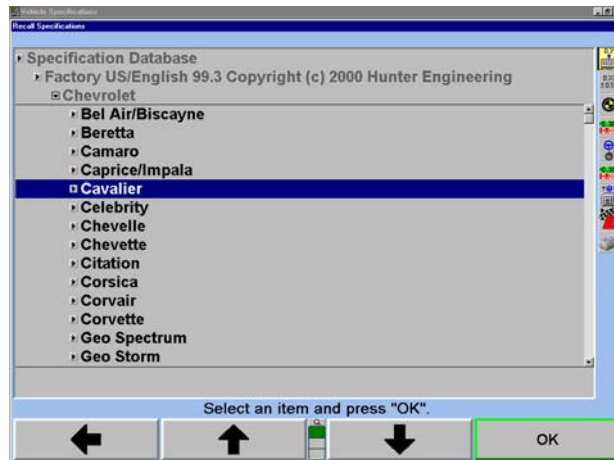
Press "↑" or "↓" to highlight the model of the vehicle being aligned.

Press "OK" to select that model.

Continue in this manner until the vehicle is identified to the program.

When the vehicle is identified to the program, the screen will change to the "Vehicle Specifications" primary screen.

The "Vehicle Specifications" primary screen displays the identification and alignment specifications for the vehicle chosen.

Confirm that the vehicle identified is the vehicle you have chosen, then press the "Mount Sensors and Compensate" icon in the procedure bar.
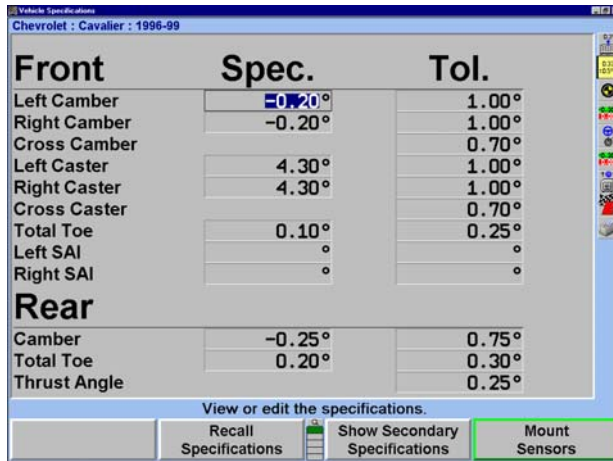
The screen will change to the "Compensation Control" popup screen.
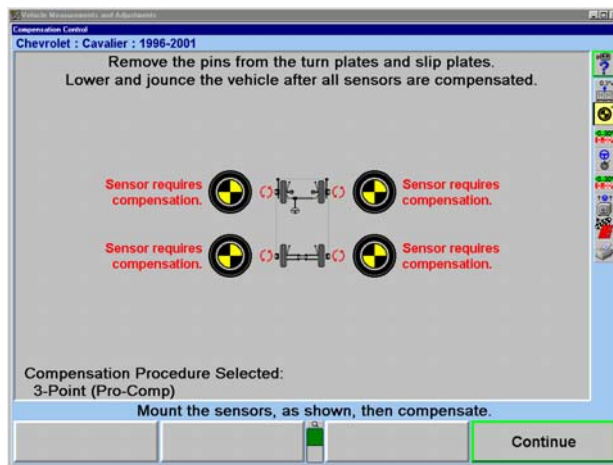
Mount sensors on wheels and compensate them for runout. *Refer to "Mounting Sensors or Targets Onto Wheel Adaptors," page 27.*

After the sensors have been compensated, remove the pins from the turnplates and slip plates, then lower and jounce the vehicle.
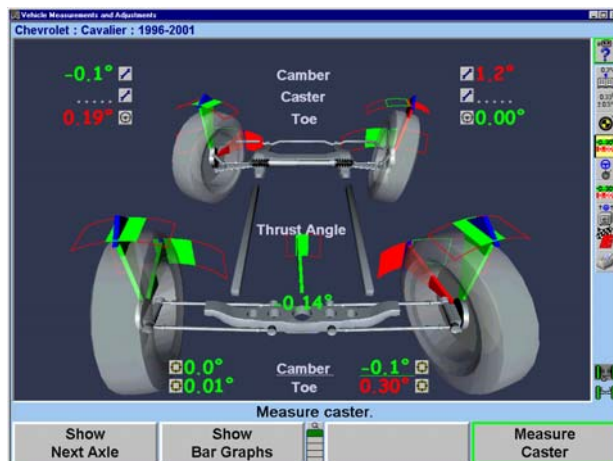
The screen will change to the "Vehicle Measurements and Adjustments" primary screen. The current vehicle alignment measurements are shown on this screen.

Press the "Measure Caster" icon in the procedure bar. The screen will change to the "Caster and S.A.I. Measurement" popup screen that will direct you to measure caster.

Install the brake pedal depressor, level and lock the sensors, and lower vehicle if raised.

Steer the wheels as directed and follow the on-screen directions.
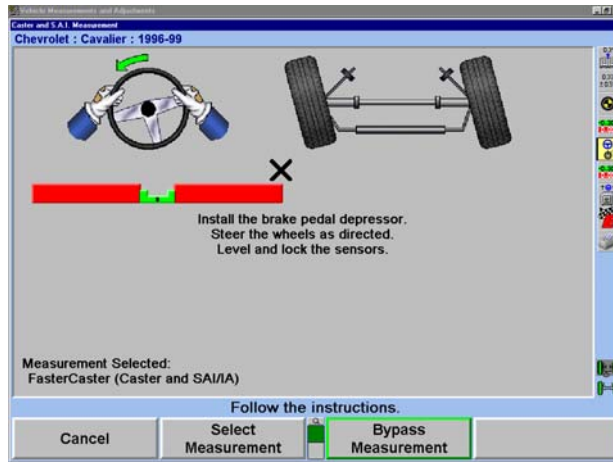
These are the initial measurements of the vehicle.
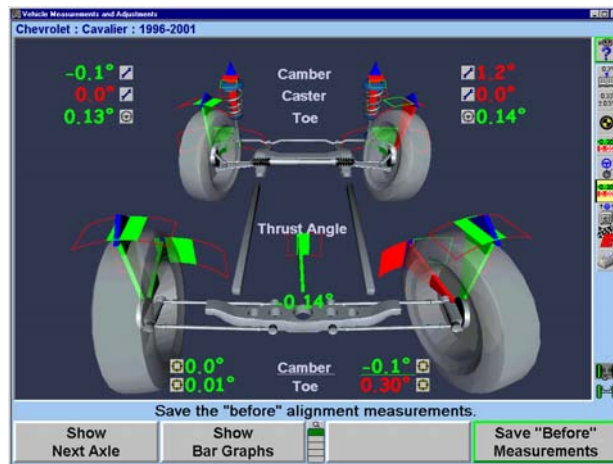
Press the "Save 'Before' Measurements" icon in the procedure bar to save them for the printout. The screen will change to the "Save 'Before' Alignment Measurements" popup screen.

The screen will change to the "ExpressAlign" popup screen.
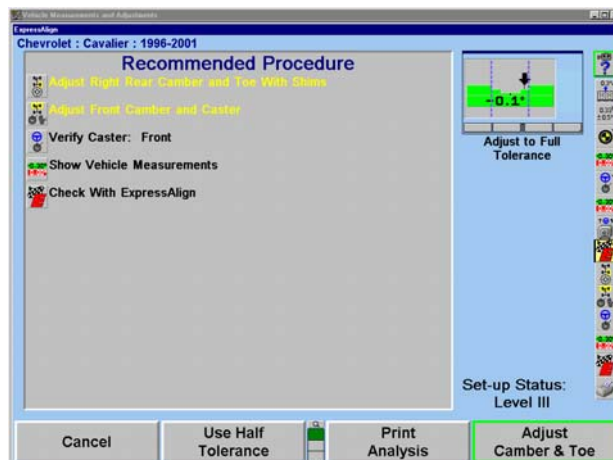
NOTE:	The actual procedures displayed will vary depending on the vehicle and alignment angles that need to be adjusted.

An icon will be displayed in the "ExpressAlign" popup screen for each suggested procedure. Selecting the corresponding icon in the procedure bar will start the procedure that the icon represents.

Procedures that have yellow text in the "ExpressAlign" popup screen refer to adjustments that must be made for the specified vehicle.

This vehicle uses shims to adjust rear camber and toe. Selecting the "Rear Adjust Camber & Toe" icon in the procedure bar will automatically proceed to Shim Select II ® and display the correct shim for the necessary adjustment.

⚠ WARNING:	Consult vehicle manufacturer's service publications and the aftermarket part manufacturer's instructions before installing aftermarket rear shims on any vehicle. Vehicles equipped with rear disc brakes and/or ABS present additional considerations for rear shims.
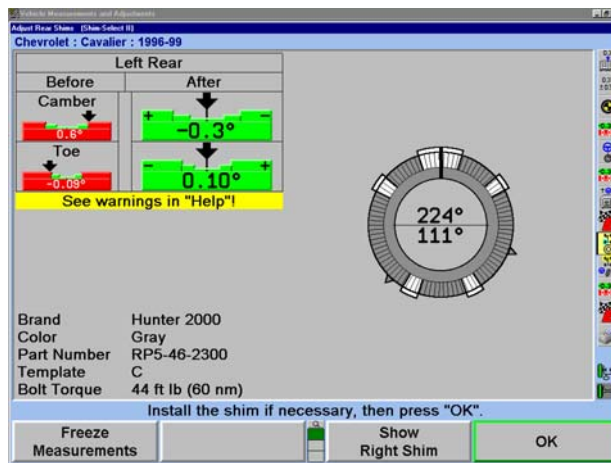
If the vehicle you are aligning does not use shims, ExpressAlign will select and display the appropriate adjustment screen. Press "OK" after making adjustments and re-compensating the sensor.
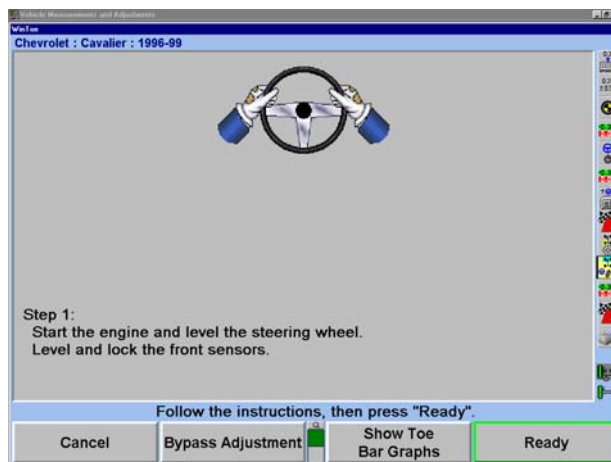
Make the adjustments indicated on the screen. Then press "Ready."
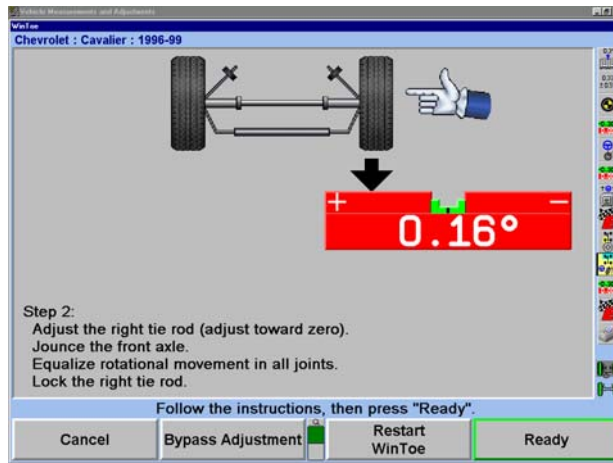
Make the adjustments indicated on the screen. Then press "Ready."
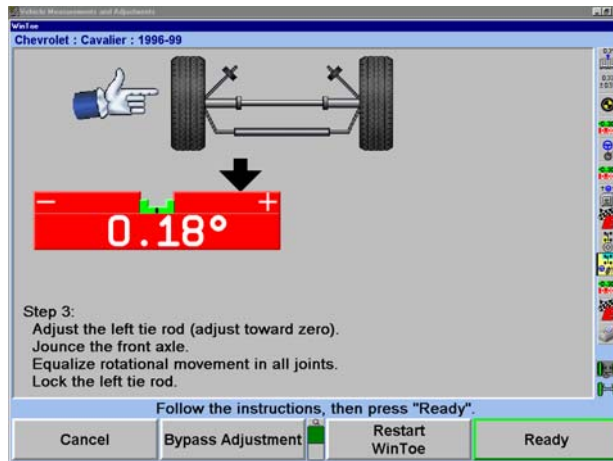
Steer ahead to center the bar graph. The steering wheel should be level. If the steering wheel is not level, restart WinToe and correct as necessary.
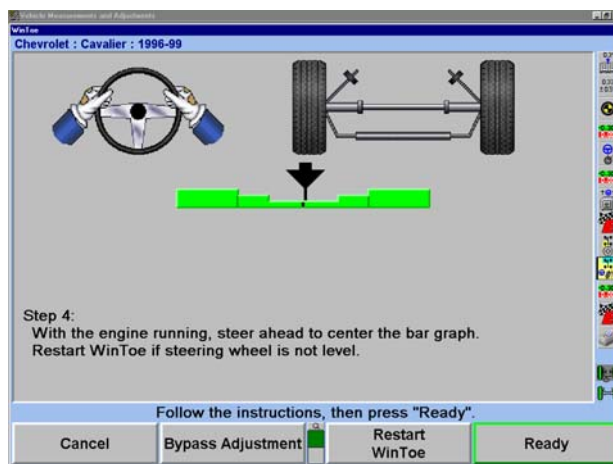
Press the "Vehicle Measurements and Adjustments" icon in the procedure bar and the "Vehicle Measurements and Adjustments" primary screen will appear.
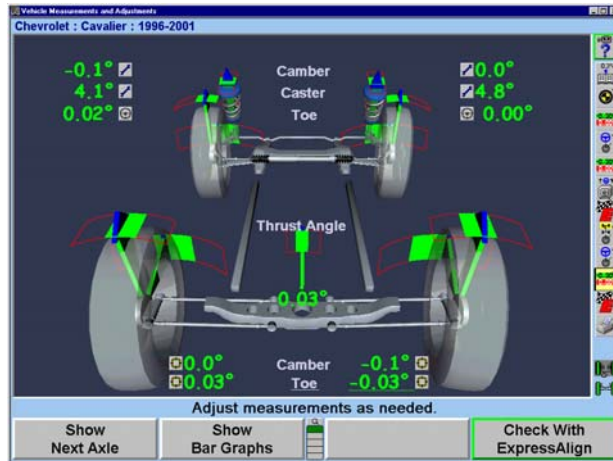
Select the "Check With ExpressAlign" icon in the procedure bar.
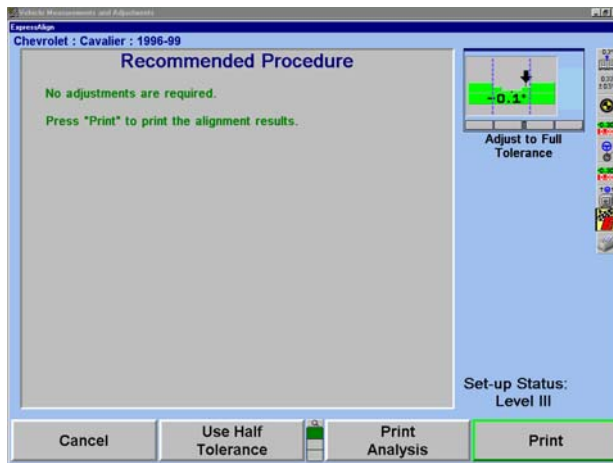
After all adjustments are completed, select the "Print" icon in the procedure bar to print the alignment results.

Before printing, the "Print" popup screen will allow the technician to input the current steering wheel status and make additional notes as needed. After steering ahead, add the necessary comments for the printout and select "Print Summary."
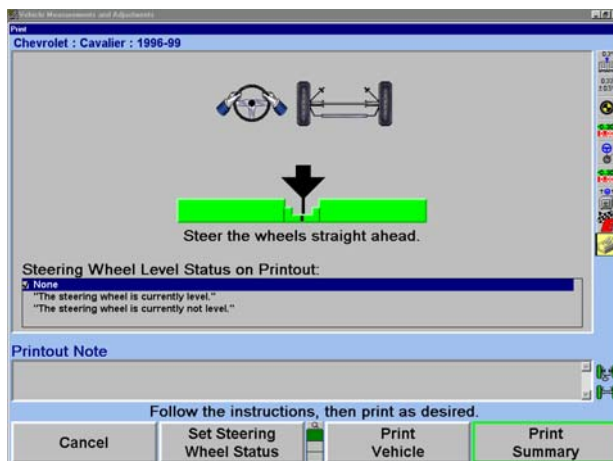
After printing the results, the "Vehicle Measurements and Adjustments" primary screen will appear with the current vehicle measurements showing. The alignment is complete.
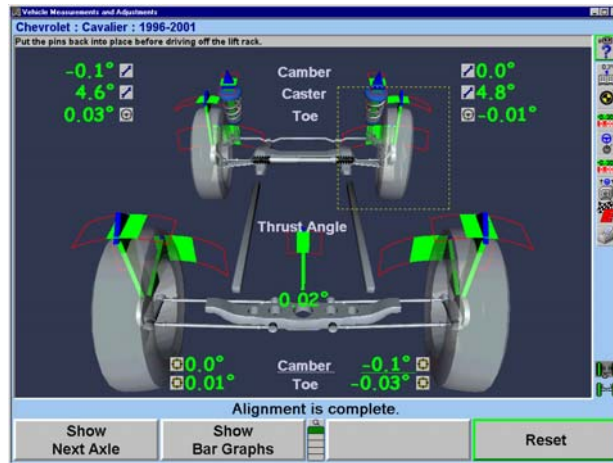
Basic Operation Information

Sensors and Targets

Mounting Sensors or Targets onto Wheel Adaptors

Sensors or targets may be mounted on the wheel adaptors before mounting the wheel adaptors on the vehicle. In some cases, it may be easier to mount the wheel adaptor first and then mount the sensor or target onto the adaptor (Either method may be used).

Center the wheel adaptor center casting between the upper and lower castings.

Tighten both center casting lock knobs very firmly. This will prevent the center casting from slipping down when the sensor is attached.

> ⚠ **CAUTION:**   Hand tighten center casting lock knobs as tight as possible (DO NOT USE TOOLS TO TIGHTEN).

Attach sensor to wheel adaptor by inserting the sensor mounting shaft (at the rear of the sensor) into the sensor mounting hole in the middle of the center casting.

Swing the sensor locking lever clockwise to the locked position.

> ⚠ **CAUTION:**   When mounting sensors or targets to the wheel adaptors, the sensor or target shaft must be fully seated. Make certain that there is no play or looseness between the sensor or target shaft and the wheel adaptor. Rotate the wheel while holding the target. Listen and feel for movement between the sensor or target and wheel adaptor. Runout compensation and alignment accuracy could be adversely affected if there is any movement between the sensor or target and wheel adaptor. Sensors or targets must fit tightly against the surface of the wheel adaptor or the lock may not hold. This could allow the sensor to fall and be damaged.

When the sensor or target is mounted, the locking lever should be rotated until firm hand pressure is applied. Tools should not be used to force the locking lever.

Mounting Wheel Adaptors onto Wheels

Wheels with Rim Lip

Position the wheel adaptor with the two lower rim studs engaging the lower wheel rim lip.
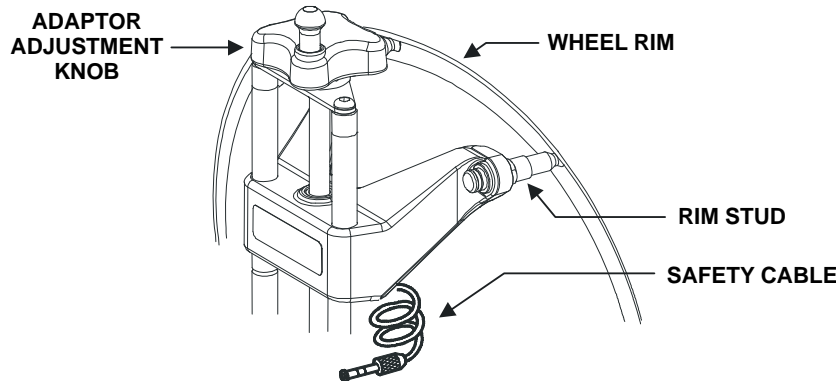
Align the two upper rim studs with the upper wheel rim lip and check that all four studs will engage the rim lip.

Turn the adaptor adjustment knob to firmly grip the adaptor onto the wheel.

Connect the sensor safety cable to the air valve stem.

Test the security of the installation by lightly tugging on the wheel adaptor.

> ⚠ **CAUTION:**   Do not use rim studs on alloy or clear coat wheels.

Wheels with No Rim Lip

Position the wheel adaptor with the two upper external rim studs on the outside of the wheel rim lip.
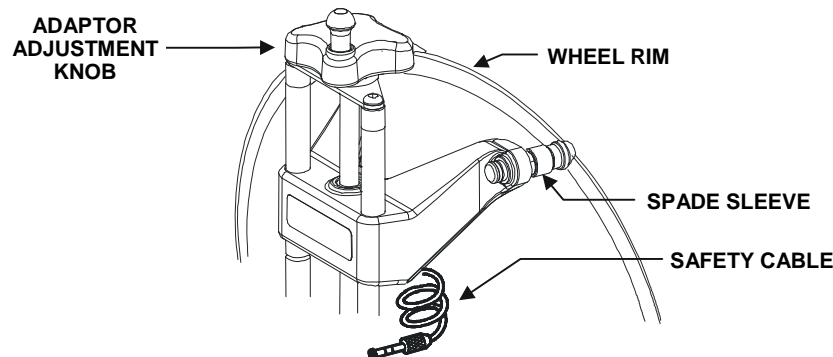
Align the two lower external rim studs on the outside of the upper wheel rim lip and check that all four rim studs will engage the outside of the wheel rim lip.

> NOTE: If the rim/tire profile does not accept the adaptor rim studs, install spade sleeves over the rim studs. If spade sleeves are needed on one front wheel, they must be used on both front wheels. If spade sleeves are needed on one rear wheel, they must be used on both rear wheels.

Turn the adaptor adjustment knob to firmly grip the adaptor onto the wheel.

Connect the sensor safety cable to the air valve stem.

Test the security of the installation by lightly tugging on the wheel adaptor.

Connecting Conventional Sensor Cables

Connecting Sensor Cables with Optional Rack Wiring Kit

Connect each sensor to a rack wiring box with short sensor cables.

Connect a front rack wiring box to the console with a long sensor cable.

Connecting Sensor Cables without Optional Rack Wiring Kit

Connect the two rear sensors to the front sensors using sensor cables.

Connect the two front sensors to the console using sensor cables.

Compensating Conventional Sensors

General Compensation

The sensors must be compensated to eliminate error in angle measurements caused by runout of the wheel and wheel adaptor.

The default setting for the alignment console is set for 3-point compensation. The default setting can be changed in Aligner Setup for either 2-point compensation or 3-point compensation (Pro-Comp).

The operator still has the option to override the default setting by adding 2-point compensation and rolling compensation in Aligner Setup under the Sensors heading / Compensation Options.

When these compensation options are added, softkeys will be available during the compensation procedure.

If a sensor that has been compensated should require re-compensation, pressing the compensate button twice within four seconds will begin the new procedure.

When pressing the sensor compensate button, momentarily depress (do not hold the compensate button). Also, do not disturb the sensor until the red LED responds.

Sensors may be compensated in any order; however, these precautions must be followed:

If a sensor is removed from a wheel, that sensor must be re-compensated when reinstalled. The other sensors do not need re-compensation.

During 2-point compensation and normal operation of conventional sensors, be certain no obstructions are blocking the infrared beams between sensors. Should a blockage occur, the affected sensor(s) shown on the illustration on the CRT will flash on and off and the displayed toe measurement of the sensor(s) will go blank until the obstruction is cleared.

When compensating sensors mounted to the vehicle drive wheels, place the transmission in NEUTRAL.

The lift rack should be level on leveling legs.

Compensating DSP400 Sensors

General Compensation

The targets must be compensated to eliminate errors in angle measurements caused by runout of the wheel, wheel adaptor, and target shaft.

The default setting for the alignment console can be set for either rolling or jacking compensation.

When using Jacking Compensation, targets may be compensated in any order; however, these precautions must be followed:

> If a target is removed from a wheel, that target must be re-compensated when reinstalled. The other targets do not need re-compensation.

> When compensating targets that are mounted to the vehicle drive wheels, place the transmission in NEUTRAL.

> The lift rack should be level on the leveling legs when the legs are present on the lift.

> The lock pins must be in place on the turnplates and rear slip plates during all rolling target compensation.

Vehicle Specifications

The "Vehicle Specifications" primary screen shows the vehicle identification and its alignment specifications.

This primary screen is displayed by pressing "Vehicle Specifications" on any other primary screen. To change to one of the other primary screens, change to the second row of softkey labels, and press the appropriate softkey.

The "Vehicle Specifications" primary screen is used primarily for the following purposes:

> Viewing the identification of the vehicle.

> Viewing the specifications of the vehicle.

> Manually entering the specifications of the vehicle.

The "Vehicle Specifications" primary screen is also used for:

> Recalling vehicle specifications from the specification memory.

> Storing vehicle specifications into the specification memory.

> Reading and writing notes which are attached to the specifications of a vehicle.

> Setting the display units and formats for specifications and measurements.

Primary and Secondary Specification Groups

The specifications and tolerances are shown in two different groups:

"Primary Specifications" are the usual camber, caster, total toe, and thrust angle specifications and tolerances.

"Secondary Specifications" are S.A.I., toe-out-on-turns, and maximum steering angle specifications and tolerances.
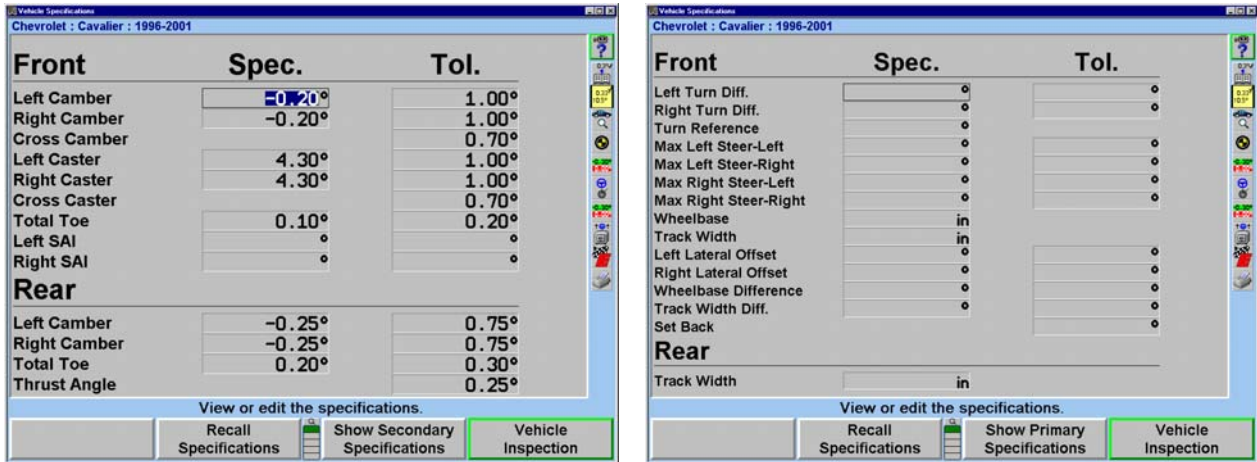
You may select "Show Primary Specifications" or "Show Secondary Specifications" from the "Vehicle Specifications" primary screen. "Secondary Specifications" displays both the front and rear axle. Secondary Specifications can be accessed from any primary screen where the "Show Vehicle Specifications" softkey is available.

Vehicle Specification Memory

The "Recall Specifications" popup screen allows vehicle specifications to be recalled and stored in the specification memory.

The "Recall Specifications" popup screen is displayed by pressing "Recall Specifications" on the "Vehicle Specifications" primary screen.

Specifications may be recalled from "Factory Specifications," based on original equipment manufacturer specifications, "Factory Amendments," or "User Specifications," "Factory Amendments," and "User Specifications" are created and stored into the computer's memory by the equipment operator.

Although the specification database is extensive, some vehicle manufacturers and/or specific models may not be included in the factory specifications memory. Locate the alignment data in the alignment specification book or vehicle manufacturer's service manual and manually enter the specifications on the "Vehicle Specifications" display.

The manually entered specifications may be stored in computer memory to be recalled later. *Refer to "Selecting User Specifications," page 34.*

Pressing "List Abbreviations" identifies a list of abbreviations used in "Factory Specifications."
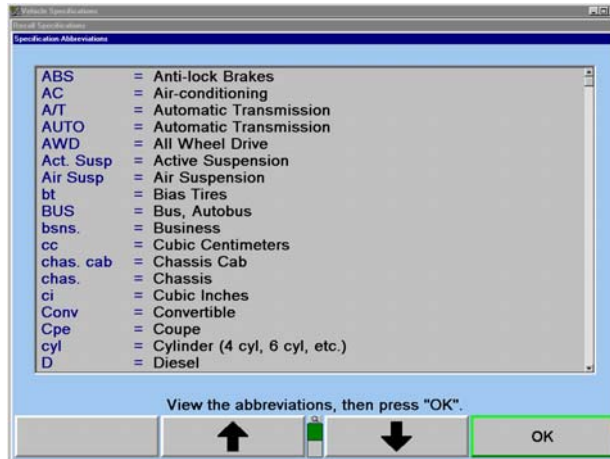
Also displayed in Recall Specifications is the "Quick List." The "Quick List" displays all the vehicles most recently worked on, as shown below.
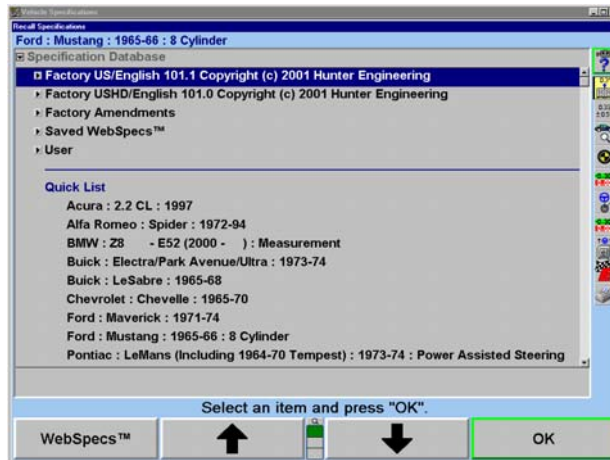
The Quick List is not erased, but each new vehicle entry overwrites an older entry.

Vehicle Recall Specifications Selection

To recall the specifications from the specification database, begin by pressing "↑" or "↓" to highlight the manufacturer of the vehicle being aligned. Press "OK" to select the highlighted manufacturer. The screen will change to show the models available for the selected manufacturer.
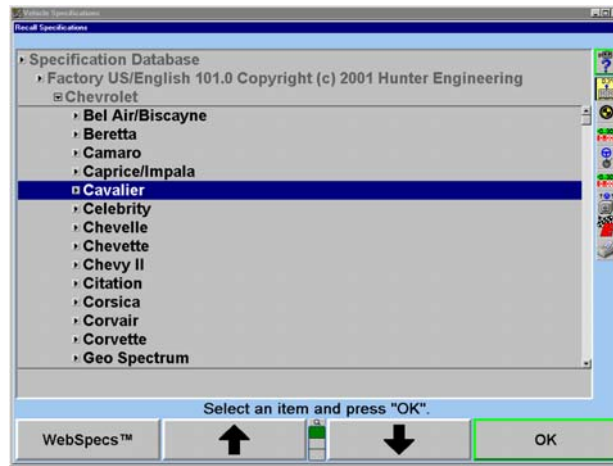
Press "↑" or "↓" to highlight the vehicle model. Press "OK." Continue in this manner until the vehicle is completely identified. When the vehicle is identified, the specifications will be recalled and the screen will change to the "Vehicle Specifications" primary screen.

At any point in the selection sequence, you can type in the desired selection using the keyboard. For example, when selecting the vehicle manufacturer, you can select "Chrysler" as follows:

> Type "C"; the selection changes to "Cadillac."
>
> Type "H"; the selection changes to "Chevrolet."
>
> Type "R"; the selection changes to "Chrysler."

The more letters typed, the more accurate the selection. This is also valid within the vehicle make selection.

In Set-up, you may select one of four sequences by which the vehicle is identified.

The four choices are:

> Optimal
>
> Year, Manufacturer, Model
>
> Manufacturer, Year, Model
>
> Manufacturer, Year and Model

Selecting from the Vehicle Lists

The factory specifications stored in the system are based on industry data available at the time of entry. Because specifications are subject to change, refer to vehicle manufacturer's service manual and service bulletins if a question arises.

Selecting by Vehicle Identification Number (VIN)

The seventeen digit Vehicle Identification Number (VIN) contains coded information that the aligner software can use to recall the vehicle specifications.

NOTE:	Recalling vehicle specifications using VIN can be used for 1981 or newer passenger cars. This method will not work for trucks, pick-ups, vans, mini-vans, or utility vehicles.

To recall vehicle specifications using the VIN, press "Recall by VIN…" on the first "Vehicle Specifications" popup screen. The "Recall Specifications by VIN" popup will appear.
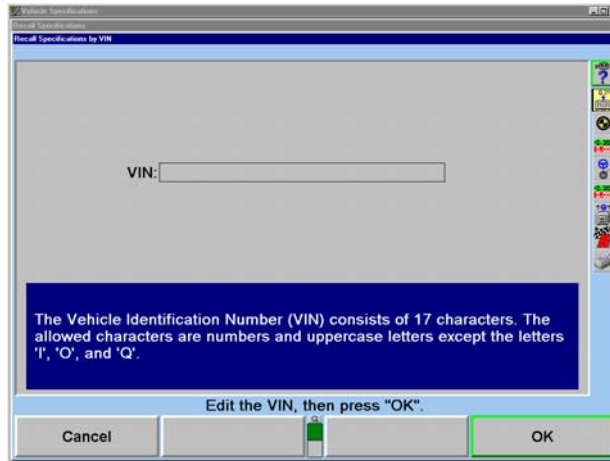
Enter the 17 digit VIN using the keyboard, and then press "Enter" or "OK."

Some VIN (numbers) may not contain enough information to completely describe a vehicle. If more than one vehicle is found, a list of vehicles will be displayed. The correct vehicle must be selected by highlighting the correct item and pressing "OK."

If the aligner software finds the VIN to be invalid, a screen with an error message will appear. Press "Enter" or "OK" and edit the VIN.

The VIN entered may have been misread when recorded from the vehicle or improperly entered. Verify the VIN and type again if an error was found.

If the message "Vehicle Not Found" appears on the screen, the program is unable to identify the required specifications according to the VIN that has been entered. If this occurs, the aligner will return to the "Recall Specification" display and the user will need to manually select the vehicle identification.

Once a vehicle has been identified, the program will retrieve the selected vehicle's specification from the specification memory, as if the vehicle had been identified by the normal selection sequence.

Selecting "User Specifications"

The system can store "user entered" specifications in addition to those contained in the factory specification memory. These specifications may be for older vehicles no longer in the factory specification memory, or a user may modify factory specifications for a specific vehicle. These specifications may be recalled and used during an alignment.

To recall specifications from the "User" specification memory, the "Recall Specifications" popup screen must be currently displayed:

Press "↑" or "↓" to highlight "Specification Database."

Press "OK." The screen will change to a list of possible database selections.

Press "↑" or "↓" to select "User" and press "OK." The screen will change to list user entered specifications.

Press "↑" or "↓" to highlight the desired item and press "OK." The vehicle specifications will be retrieved from the "User" specification memory. When the specifications have been retrieved, the screen will change to display those specifications.

Editing Specifications

Entering and Editing Specifications

If specifications for a vehicle are not included in the factory specifications memory, the alignment information must be found in the alignment specification book and entered manually. It may be necessary to change the specification or tolerance of an existing specification.

To change or enter a value on the "Vehicle Specifications" display, press "Select Next Value" or "Enter" to advance to the desired field. Enter the new specification and press "Select Next Value" or "Enter" to replace the existing specification.
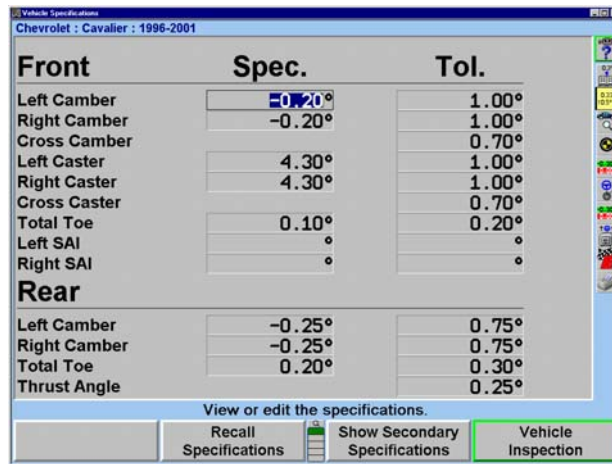
Tolerances must not be "0."

Specifications may be entered as whole numbers (1), whole numbers and fractions (1 1/2), fractions (1/2), decimals (0.5), degrees (1.01°), or degrees and minutes (1° 30'). Use the following methods to enter alignment specifications using the current display units.

NOTE:	Display units (i.e. degrees to inches, degrees to degrees and minutes, etc.) can be changed from the "Vehicle Specifications" primary screen. *Refer to "Selecting Display Units," page 40.*

Use the "Space" key to separate whole numbers and fractions.

For example, 2 1/2° would be entered as,

Press $\boxed{2}$ $\boxed{\textbf{Spacebar}}$ $\boxed{1}$ $\boxed{/}$ $\boxed{2}$ and "Select Next Value."

Use the "Space" key to separate degrees and minutes.

For example, 2° 15' would be entered as,

Press $\boxed{2}$ $\boxed{\textbf{Spacebar}}$ $\boxed{1}$ $\boxed{5}$ and "Select Next Value."

If the degrees and minutes specification is less than 1°, enter a "0" for degrees.

For example, 6' would be entered as,

Press $\boxed{0}$ $\boxed{\textbf{Spacebar}}$ $\boxed{6}$ and "Select Next Value."

NOTE:	Specifications are assumed to be positive unless the negative (-) sign is positioned before the specification value.

When "Select Next Value" or "Enter" is pressed, the value is entered and the cursor advances to the next entry field.

> ⚠ **CAUTION:** Values are not entered until "Select Next Value" or "Enter" is pressed.

Specifications and tolerances may be changed at any time during the alignment by pressing "Vehicle Specifications" and advancing the cursor to the position for the new value to be entered.

Selecting Specification Formats

Specifications may be displayed in a symmetrical or non-symmetrical manner. Specifications that use an equal tolerance range for an angle such as:

	specification	tolerance
Left camber	0.50°	± 0.25°

are called symmetrical specifications because the tolerance range extremes are equal distance from the preferred specification. This permits a ± value to be used as a tolerance and does not require two placeholders for tolerances. Symmetrical specifications are most common.

Non-symmetrical specifications use an unequal ± tolerance such as:

	specification	+ tolerance	- tolerance
Left camber	0.50°	0.50°	0.30°

The tolerance values require two placeholders on the specification screen because the tolerance extremes are unequal distances from the preferred specification.

Press "Set Spec Format," if individual + and - tolerance values are to be entered. The screen will change to display a positive and negative tolerance position for each specified angle.

If the format is asymmetric and the "+ tolerance" is not equal to the "- tolerance" for at least one tolerance pair, then the screen cannot be changed to symmetric format. Attempting to do so will generate an error message.
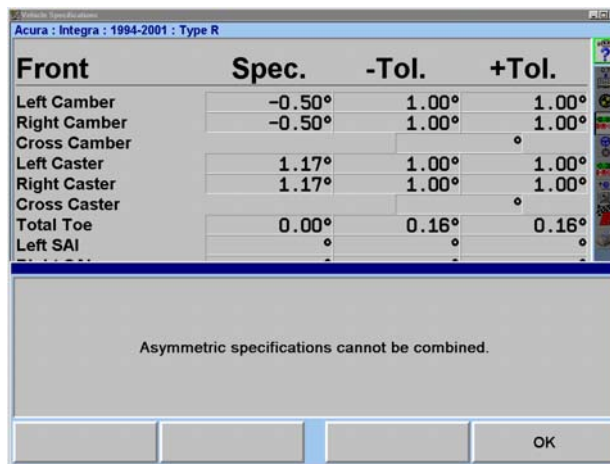
Press "Enter" or "OK" to clear this error message.

Reducing Tolerances

Tolerances that are too large may allow a less than desirable alignment while tolerances that are too small may make adjustments difficult.

Pressing "Reduce Tolerances" will reduce the specification tolerances to the following:

> front and rear camber tolerance to $\pm$ 0.25° (1/4°),
>
> front caster tolerance to $\pm$ 0.50° (1/2°),
>
> front and rear total toe tolerance to $\pm$ 0.06" (1/16", 0.13° or 1.5 mm depending upon toe units selected).

The actual angle specification will not be altered and only tolerances greater than these will be reduced.

Storing Specifications

Specification Notes

A "specification note" is a block of text that may be attached to a vehicle specification and stored with the specifications in the specification memory. The note may be stored with factory specifications, factory amended specifications, or with user specifications.

> NOTE: Some factory specifications may already have a note attached. This might be a technical service bulletin, or some tip that may aid you in selecting the vehicle or adjusting its alignment.

To enter and store a specification note, do either of the following:

> Recall the specifications in the usual manner. On the "Vehicle Measurements and Adjustments" primary screen, press "Show Spec Note."
>
> OR
>
> Open the "Recall Specifications" popup screen. Select the vehicle, press "OK" for the final selection. The "Show Spec Note" softkey will be available on the screen at this point. Press "Show Spec Note." This allows you to view the note without recalling the specifications.

The "Specification Note" popup screen will appear.
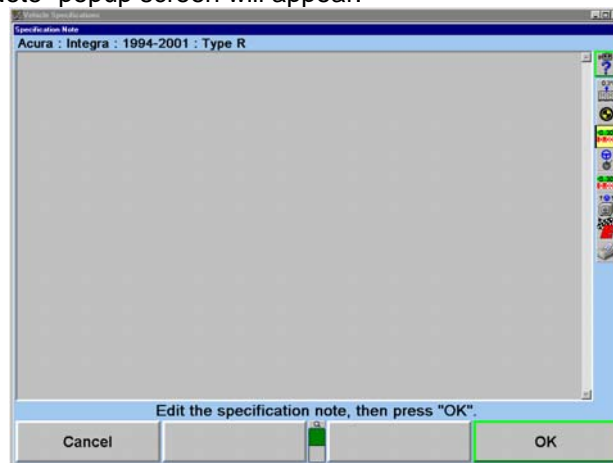
Use the keyboard to read and/or edit the note as desired. Pressing "Cancel" will close the popup screen without altering the note. Pressing "OK" will store the note in the specification memory with the vehicle.

If a vehicle in the specification memory has a note attached, it will have a small image of a "note with a paper clip" next to it (as shown by the arrow) in the "Recall Specifications" popup screen.

Storing "User Specifications"

The program can store vehicle specifications that you enter and identify directly.

These specifications can take two forms:

> They can be manually entered onto a blank specification screen.
>
> They can be derived from a factory specification by recalling and then editing the specifications for a vehicle.

The specifications can then be stored in two locations:

> If they were manually entered onto a blank specifications screen, they can be stored in "User" specification memory.
>
> If they were derived from a factory specification, they can be stored in "User" specification memory or they can be stored in the "Factory" specification memory as an "Attachment" to the factory specification.

To store a specification:

> On the "Vehicle Specifications" primary screen, press "Clear All Specifications." Then manually enter the specifications in the usual manner.
>
> OR
>
> Recall the vehicle specifications from the specification memory. Then manually edit the specifications as needed. This derives the specifications from the factory specifications.

When the specifications are ready to store, press "Store Specifications." The "Store Specification" popup screen will appear.

Type in the identification of the vehicle. This is the name of the vehicle that will appear on the "Specification Recall" popup screen, and at the top of the "Vehicle Specifications" primary screen.

Press "Next Field" or "Tab," and the cursor will move to the "Spec Note" field. Type in any desired notes concerning the vehicle, such as Technical Service Bulletin information.

Press "OK." If the specifications were not derived from a factory specification, they will be immediately stored in the user specification memory. If they were derived from a factory specification, the "Specification Location" popup screen will appear. Now you must decide where to store the specification.
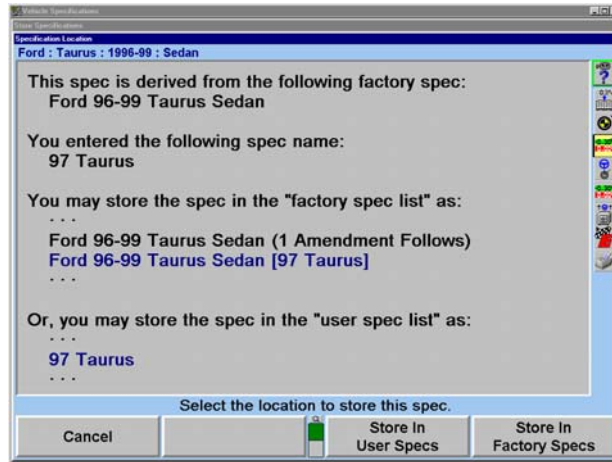
Press "Store In User Specs" or "Store In Factory Specs" to specify the memory where the new specification will be stored.

When saving to "User" specifications, if the specification ID is already used in the memory, a screen will appear stating "A specification with this ID is already in the database. Do you want to replace it?" Pressing "OK" or "Enter" will replace the specification.

When saving to "Factory" specifications, if the specification ID is already used in the database, the specification will be saved as an AMENDMENT to the factory specification already in memory.

For recalling User Specifications, *refer to "Selecting User Specifications," page 34.*

Factory Amended Specifications

"Factory Amended Specifications" are specifications that are derived from and stored with a factory specification. The procedure for doing this is discussed in "Storing Specifications."

Select "Show Spec Databases." Then select "Factory Amendments." This displays all vehicles that have a "Factory Amended Specification."
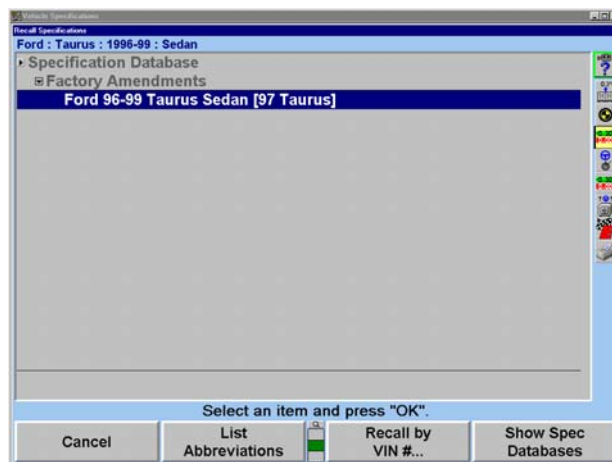
The most likely use of a factory-amended specification is that the manufacturer has issued a Technical Service Bulletin that does one or more of the following:

It alters the factory specification.

It details a special service procedure.

It warns of alignment problems.

It warns of warranty procedures.

By having a "Factory Amended Specification" in the specification memory, these items are brought to your attention, as you recall the specifications. This way, you do not have to remember the Technical Service Bulletins.

On the "Recall Specification" popup screen, when you see an amended specification that is derived from the factory specification of the vehicle you are interested in, highlight that specification and view its "Specification Note." This note is intended to tell you why you would use this specification instead of the factory specification.

If you receive a Technical Service Bulletin, store a "Factory Amended Specification" as detailed in "Storing Specifications." The "Specification Note" should contain the contents of the Technical Service Bulletin.

Selecting Display Units

Do not underestimate the importance of selecting the display units. Although the ability to change display units can be beneficial, the factory specifications are displayed in the format designated by the manufacturer.

Press "Set Display Units" in the "Vehicle Specifications" primary screen. The "Alignment Measurement Units and Formats Setup" popup screen will appear listing "Current" and "New" settings.

<table>
<tr>
<td>NOTE:</td>
<td>The "Alignment Measurement Units and Formats Setup" popup screen may also be accessed by selecting "Alignment Measurement Units and Formats" from "Aligner Setup." Refer to "Aligner Set Up," page 63.</td>
</tr>
</table>

This popup screen allows the units and formats for the various alignment displays to be changed. Both the "Current" and "New" settings are shown as example measurements.
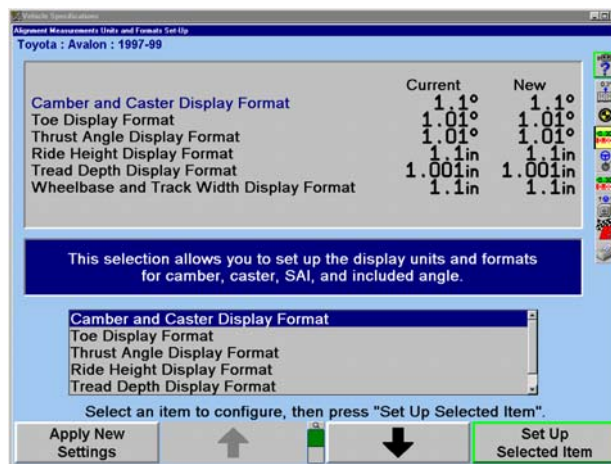
Press "↑" or "↓" to highlight a display format type. When a parameter type is highlighted, a brief explanation of the measurement type appears.

Press "Set Up Selected Item." The "Units and Format Selection" popup screen appears to allow the units and formats to be selected. This popup screen continues to show the current and new settings for all the display formats.
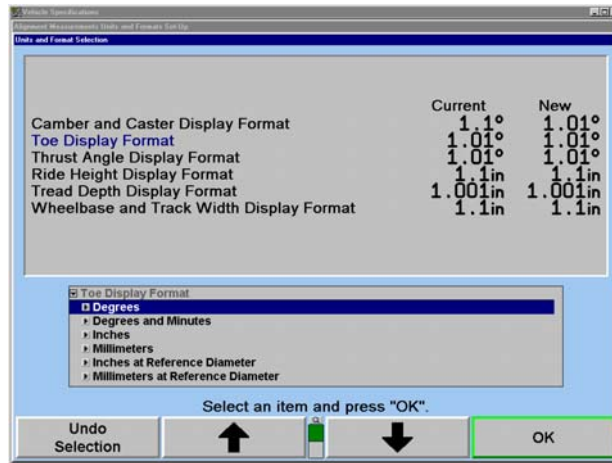
Press "↑" or "↓" to highlight the desired units, then press "OK." The screen changes to show the formats available for the selected units for the display format.

Press "↑" or "↓" to highlight the desired units, then press "OK." If the selected format is fractional, a third selection must be made, in the same manner, to select whether the fractions should be reduced.

When the final choice is made, the popup screen closes and the display returns to the "Alignment Measurement Units and Formats Setup" popup screen. The new example for the display format shows the selection just made.

Press "↑" or "↓" to highlight another display format and continue to set up the units and formats.

If the change(s) should be applied only to the current vehicle, press "Apply New Settings."

If the change(s) should be applied to the entire factory database each time the system is powered up, press "Set As Default."

Press "Exit" to return to the "Vehicle Specifications" screen.

Vehicle Measurements and Adjustments

Vehicle Plan View Status Indicator

The "Vehicle Measurements and Adjustments" screen shows a graphic illustration of a vehicle and the measured alignment angles.
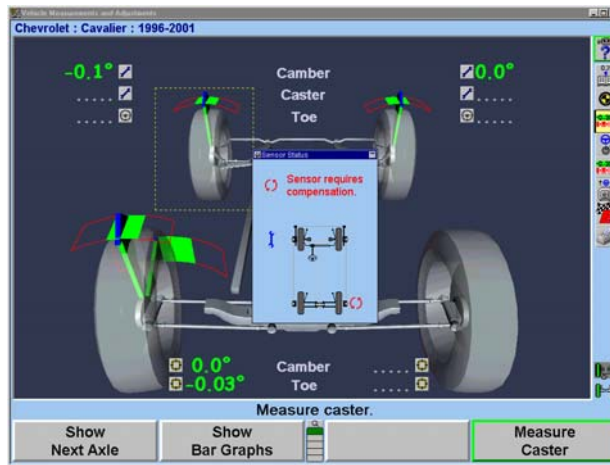
The purpose of the vehicle plan view status indicator is to illustrate:

The geometry of the vehicle under alignment.

> NOTE: This feature is more useful for truck applications because automobiles all show similar alignment geometry.

Where and how the sensors should be mounted.

Which axle of the vehicle is currently displayed.

The current status of the sensors, transducers, and sensor communications.

The indicator appears on the display when:

The primary or popup screen actively uses the sensors to measure or adjust the alignment.

An alignment procedure is being selected, where one or more instances of the plan view are used to illustrate the steps of the procedure.

During Virtual View and ExpressAlign screens.

The indicator shows:

The vehicle geometry.

The currently required sensor mounting locations and orientations.

Which axle the measurements and adjustments currently apply.

Which axle is currently selected (which applies to jacking up the axle, etc.).

The individual wheels turn red when a sensor problem is present.

To change the displayed axle measurements, click on a wheel of the indicator with a pointing device, or press the softkey for "Show Next Axle."

Bar Graph Adjustments

Bar graphs are used to show alignment angle information for each wheel. These bar graphs indicate the difference between the actual measurements of the vehicle and the recalled specifications. The adjustment tolerances determine the size of the center areas of the bar graph.

Softkeys labeled "Show Next Axle," "Show Bar Graphs," and "Show Next Bar Graphs" are available to access adjustment displays. The system utilizes both bar graph and digital adjustment displays.

The numerical values below the bar graphs represent the actual measurement. The "ideal" or "preferred" adjustment would find the wheel position indicator arrow centered over the white line of the center bar and the numeric value reading the preferred specification for the vehicle.

A red bar graph indicates the measurement is out of tolerance. On standard bar graphs, an "X" indicates the measurement direction on the bar graph is beyond the range of the bar graph. The "X" will change to an arrow when the measurement is adjusted into range of the bar graph.

As the vehicle is adjusted, the wheel position indicator moves in the direction of the adjustment. As the adjustment approaches the acceptable tolerance range, the center area of the bar graph grows. When the adjustment is within tolerance, the bar graph changes to green.

Range	Virtual View 3-D Bar Graphs	Standard Bar Graphs
Out Of Tolerance - beyond range of the graph		8.4°
Out Of Tolerance		1.2°
Acceptable Adjustment (within tolerance)		0.8°
Preferred Adjustment		0.4°
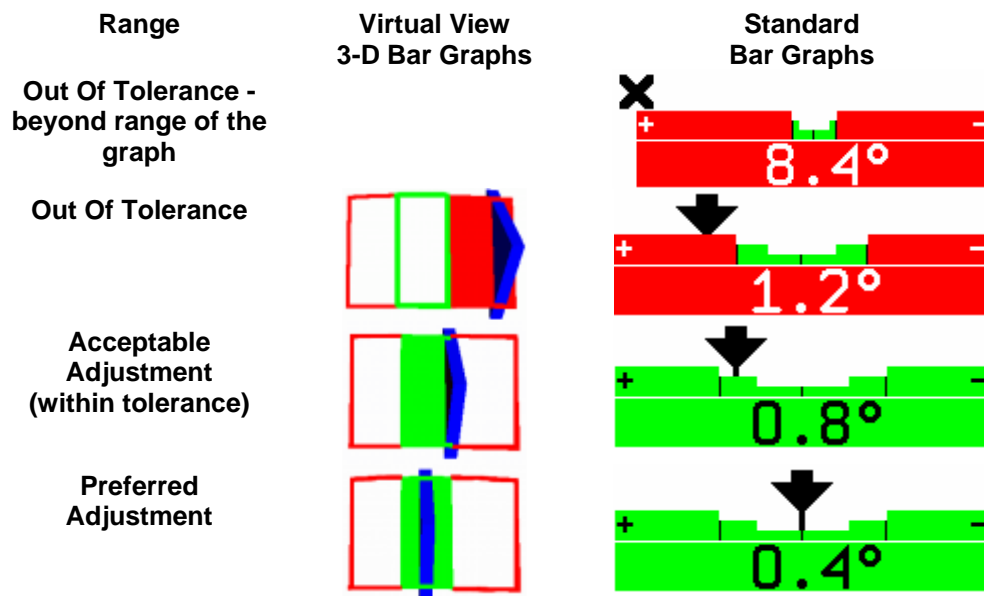
If no 3-D bar graph is shown in Virtual View or the standard bar graph color is gray:

Either no specification, a "zero tolerance," or no tolerance is entered for that angle.

OR

The sensors are experiencing some problem that prevents measurements, such as: the sensor is unplugged, uncompensated, or the toe beam is blocked.

Bar Graph Groups

The bar graphs can be viewed in various groups. Three examples are shown below.
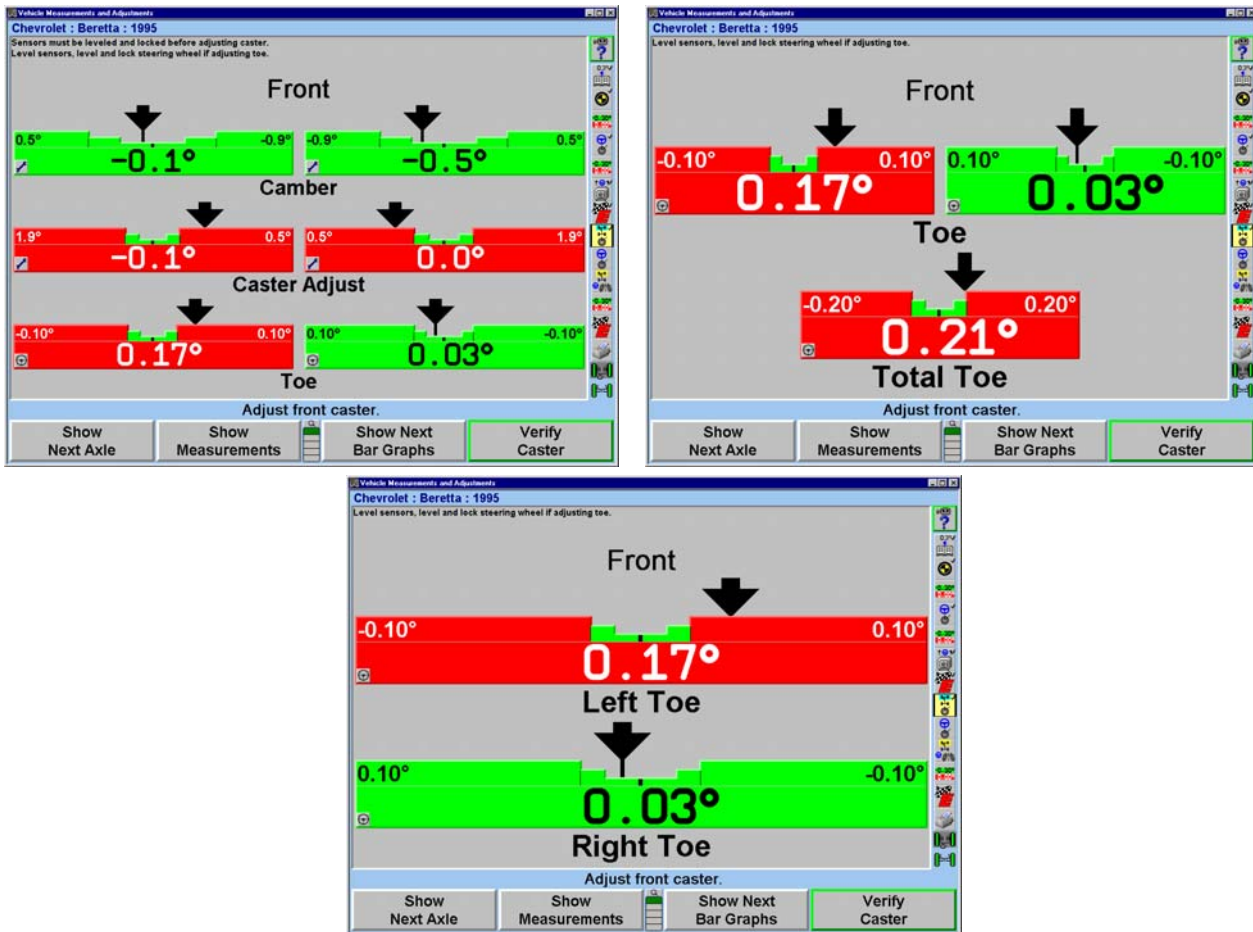
To view an alternative group or single bar graph, press "Show Next Bar Graphs." Repeat to view the next bar graph group. When all enabled bar graphs have been viewed, the first enabled bar group will appear when "Show Next Bar Graphs" is pressed.

To view a single bar graph:

Select the desired bar graph with a light pen or mouse. The system will "zoom in" on the selected bar graph and all other bar graphs will be removed from the screen.
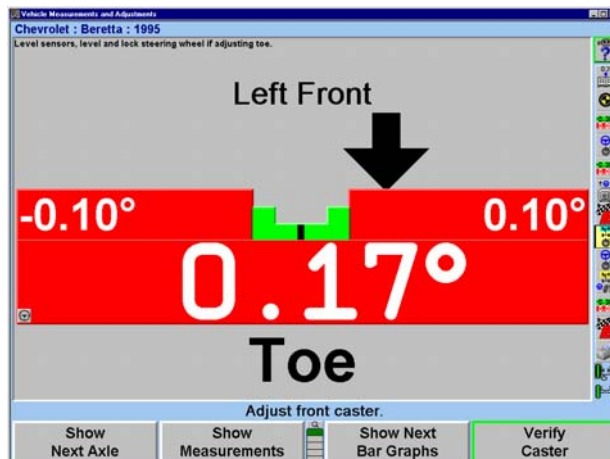
To return to the previous bar graph display, select the desired bar graph with a light pen or mouse.

Like the "Vehicle Measurements and Adjustments" screen, cross camber and caster can now be displayed on the adjustment bar graph screen using the context sensitive menu.
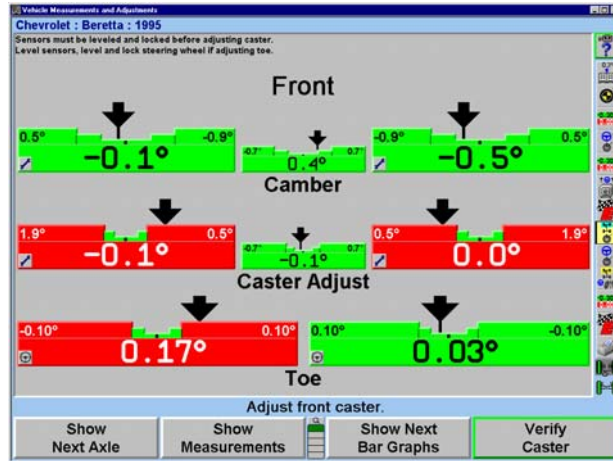
Front Axle Bar Graphs Groups, Rear Axle Bar Graphs Groups, and Cross Bar Graph/Additional Cross Angles may be setup in aligner setup.

Context Sensitive Menu

A context sensitive menu is available on the bar graph adjustment screen.

To view the menu, move the arrow cursor to the desired bar graph with a light pen or mouse, then press and hold. Pressing the "Tab" key will also cycle through each context sensitive menu.

The items listed in the menu will depend upon which bar graph is selected. The menu may contain some of the following items:

Zoom In	Zoom Out
Illustrate Adjustments	Video Adjustments
Animation Adjustments	Adjust with Eccentric Cams
Adjust with Shims	Adjust Toe with WinToe
Measure Caster	Measure SAI/IA
Set Units and Formats	Select Bar Graph Groups
Show Specs	Hide Specs
Show Cross Bar Graphs and Additional Cross Angles	Adjust With Automatic Bushing Calculator
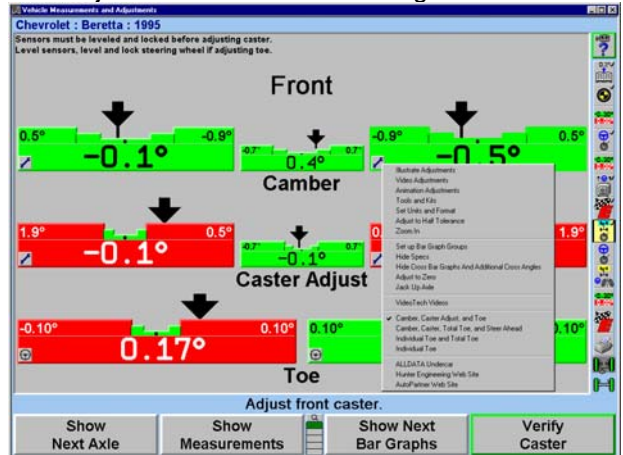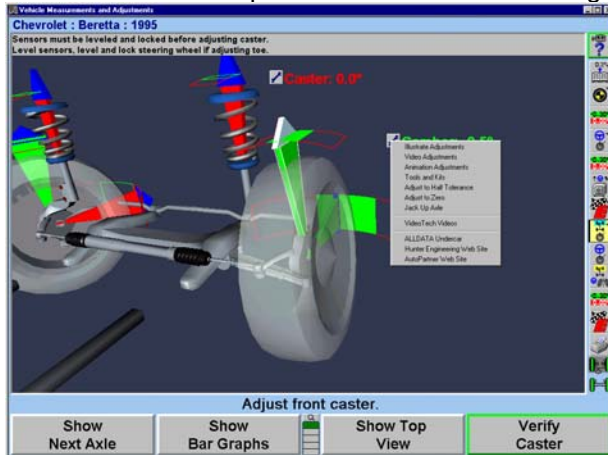
To select the desired item, continue moving the light pen or mouse until the desired item is highlighted.

Release the light pen or mouse button. The selected popup screen will appear.

Measuring Caster, S.A.I., and Included Angle

The "Measure Caster" display provides guidance through the procedure to measure Caster or Steering Axis Inclination (S.A.I.) and Included Angle (I.A.). At times, measuring S.A.I., I.A. or turning angle may be useful "tools" to help determine front suspension or steering system problems with a vehicle.
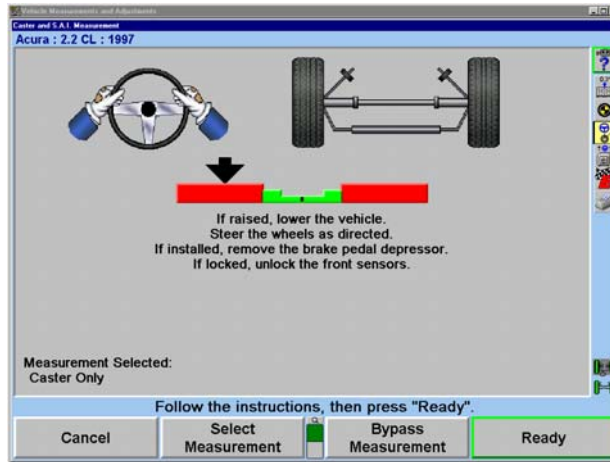
Horizontal bar graphs are used to indicate wheel position or angle position in relation to the preferred position or specification. The center of each bar graph represents the preferred position of the wheel(s) or angle.

The Caster measurement display uses graphics and horizontal bar graphs to guide the steering of the wheels through the caster turn.

A wheel position indicator (either an "X" or an arrow) is positioned within the bar graph and shows the position of the wheel(s). The wheel position indicator will be left of center if the front wheels are steered too far to the left, right of center if the front wheels are too far to the right, or in the center valley of the bar graph if the front wheels are steered correctly (null position).

An "X" on a red bar graph indicates the wheels are steered beyond the range of measurement. Steer the wheels in the direction necessary to move the "X" toward the center of the bar graph. The "X" will change to an arrow when the wheel comes into range of the bar graph.

| NOTE:	Total toe conditions greater than 2 inches or 4 degrees should be corrected prior to steering caster.

As the wheels are steered in the proper direction, the arrow will move toward the center. As the wheel approaches the acceptable tolerance, the center area will get larger. When the wheel is within tolerance, the bar graph will change to green.

Steered out of range (right)

Steered too far (right)

Steered correctly (null position)

When the wheel is in the proper position, the arrow will be over the thinnest section of the bar graph. The aligner will save the measurements and the bar graph will disappear.

NOTE:	It is not necessary to perfectly center the arrow in the bar graph when steering to measure caster, caster and S.A.I./I.A., or S.A.I./I.A. The wheel position is acceptable when the arrow is positioned within the center valley of the bar graph.

NOTE:	If WinAlign thinks that the brakes or sensors are unlocked while measuring S.A.I., a prompt will appear asking you to check the sensors and/or brakes.

NOTE:	DSP400 Sensor Only: Unlike conventional sensors, DSP400 Sensors should not be unlocked and re-leveled if the target (sensor) has rotated so that it is not level after measuring caster. If the DSP400 Sensor targets have rotated so that they are not level after measuring caster but before adjusting caster, "Match Caster Adjust to Measured Caster" may be selected from the caster pull-down bar graph. This will allow WinAlign to electronically compensate for rotation.

Measuring Caster

Press "Measure Caster" on the "Vehicle Measurements and Adjustments" primary screen. The "Caster and S.A.I. Measurement" popup screen will appear.

If "Caster Only" is not the default:

Press "Select Measurement," the "Caster Measurement Selection" popup screen will appear.
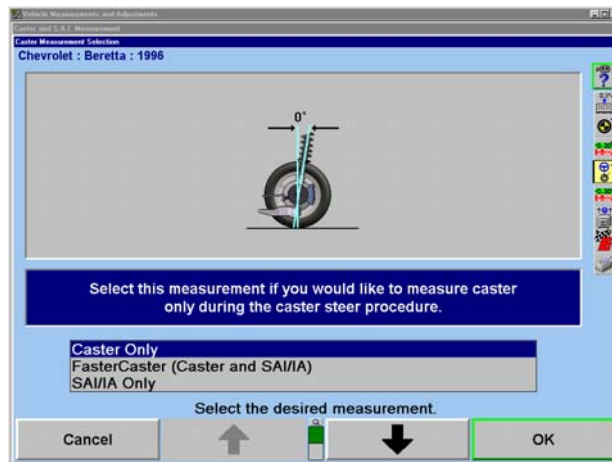
Press "↑" or "↓" until "Caster Only" is highlighted.

Press "OK" to select the measurement. The "Caster and S.A.I. Measurement" popup screen will appear.

NOTE:	This selection will not change the aligner default setting. When the aligner is reset, the default settings will be applied.

Lower vehicle if raised and remove brake pedal depressor if installed.

Loosen the front sensor lock knobs.

A single bar graph is displayed along with a prompt to steer the wheels to the straight-ahead position.

Steer the wheels until the wheel position indicator is within the center valley of the bar graph and hold steady. The aligner will save the measurements and the display will change to show two bar graphs and prompt to steer left. Depending on conditions, you may be required to press "Ready" to continue.
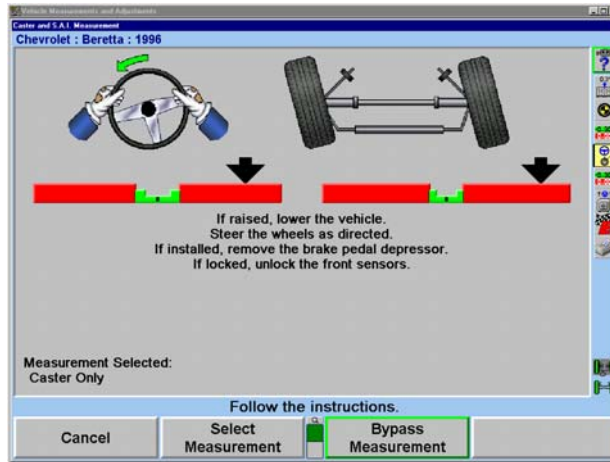
The left bar graph indicator is controlled by the left wheel, the right bar graph indicator by the right wheel.

Observing the bar graph display, steer the wheels to the left until either wheel position indicator is within the center valley of its bar graph. Hold the steering wheel steady.

The measurements will be saved and the bar graph will disappear.

Continue to steer the wheels until the remaining wheel position indicator is within the center valley of its bar graph. Hold the steering wheel steady until that bar graph disappears.

Two new bar graphs will appear and the steering wheel display will indicate to steer to the right.
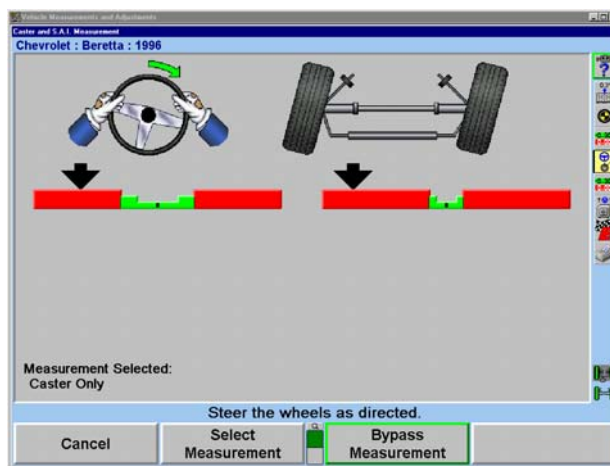
Observing the bar graph display, steer the wheels to the right until either wheel position indicator is within the center valley of its bar graph. Hold the steering wheel steady.

The measurements will be saved and that bar graph will disappear.

Continue to steer the wheels as indicated until the remaining wheel position indicator is within the center valley of its bar graph. Hold the steering wheel steady until that bar graph disappears.

A single bar graph will appear.

Steer the wheels straight ahead until wheel position indicator is within the center valley of the bar graph.

Install the brake pedal depressor and level and lock the sensors.
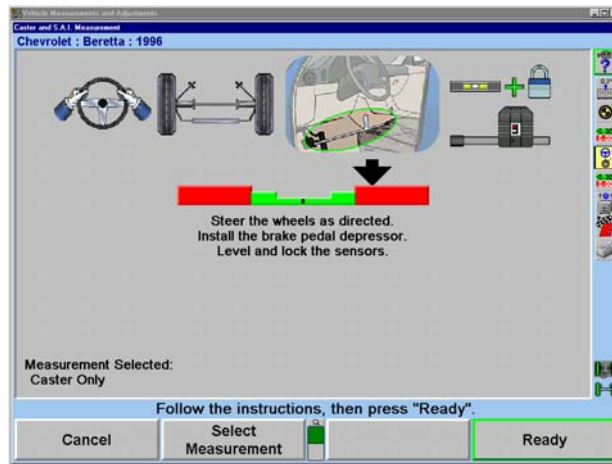
Press "Ready" and the "Vehicle Measurements and Adjustments" primary screen will reappear.

These are the initial measurements of the vehicle. Press "Save 'Before' Measurements" to save them for the printout. If "Set steering wheel status when measurements are saved" is enabled from "Aligner Setup," the screen will change to the "Save 'Before' Alignment Measurements" popup screen. *Refer to "Aligner Set Up," page 63.*
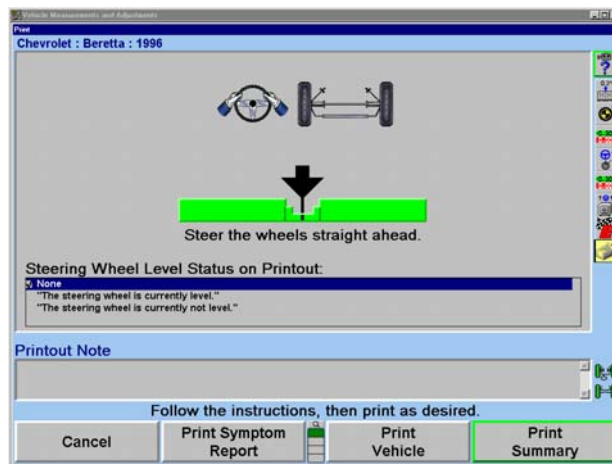
If "Set steering wheel status when measurements are saved" is disabled from "Aligner Setup," and all measurements are stable, and the vehicle is steered straight ahead, then the "Save 'Before' Alignment Measurements" popup screen will be continued through. The screen will briefly appear and the settings will be automatically saved if everything is stable.

Make sure the vehicle is in the correct condition to save the "Before" measurements. Jounce the vehicle, then steer the wheels straight ahead until the bar graph indicates a null position.

For printouts, highlight the steering wheel level status. This message will be displayed on printouts. In ExpressAlign it is necessary to steer ahead prior to saving the current status.

Press "Ready." When the measurements are stable, the program will save them for ExpressAlign, Work Management printout.

The system will save the measurements and the screen will return to the "Vehicle Measurements and Adjustments" primary screen if ExpressAlign is not enabled.

Measuring S.A.I. and Included Angle

Press "Measure Caster" on the "Vehicle Measurements and Adjustments" primary screen. The "Caster and S.A.I. Measurement" popup screen will appear.

If measuring "S.A.I./I.A. Only" is not the default:

> Press "Select Measurement," the "Caster Measurement Selection" popup screen will appear.
>
> Press "↑" or "↓" until "S.A.I./I.A. Only" is highlighted.
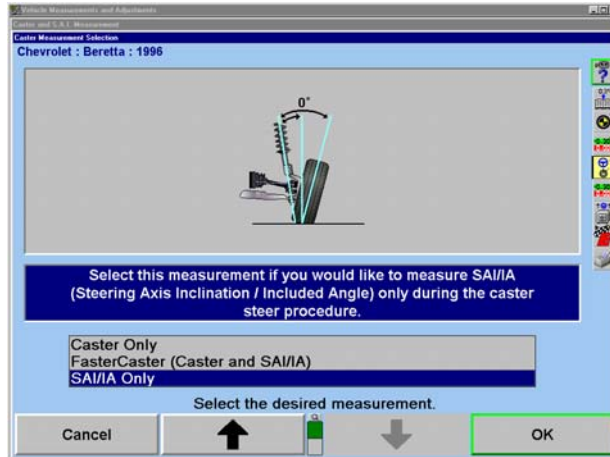
> Press "OK" to select the measurement. The "Caster and S.A.I. Measurement" popup screen will appear.

NOTE:	This selection will not change the aligner default setting. When the aligner is reset, the default settings will be applied.

Lock the front brakes using a brake pedal depressor.

Steer the wheels straight ahead.

Jack up the front axle until the front wheels clear the turning angle gauges or rack and securely support the vehicle.

Level and lock the sensors.
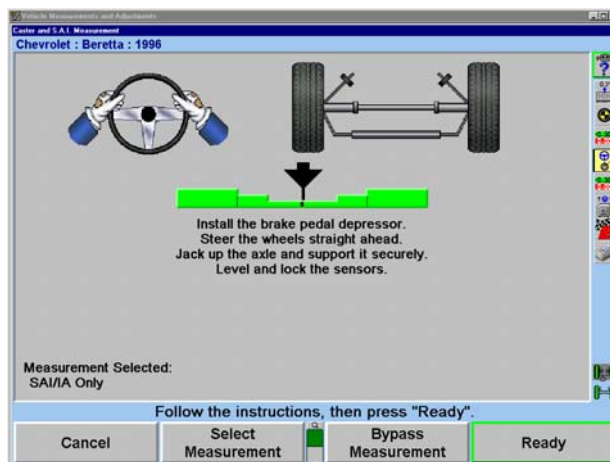
Press "Ready."

Perform the S.A.I. turn while observing the bar graphs in the same manner as the caster turn. *Refer to "Measuring Caster," page 47.* When S.A.I. measurements are completed, the screen will change to the "Vehicle Measurements and Adjustments" primary screen with the S.A.I. and I.A. measurements shown.

Lower the vehicle.

> NOTE: While lowering the vehicle, camber and S.A.I. measurements will change. However, included angle measurements will remain constant.

Measuring Caster and S.A.I./I.A. Simultaneously (FasterCaster)

FasterCaster uses a single bar graph indicator instead of using both a left and right bar graph indicator.

Press "Measure Caster" on the "Vehicle Measurements and Adjustments" primary screen. The "Caster and S.A.I. Measurement" popup screen will appear.

If measuring "FasterCaster (Caster and S.A.I./I.A.)" is not the default:

> Press "Select Measurement," the "Caster Measurement Selection" popup screen will appear.
>
> Press "↑" or "↓" until "FasterCaster (Caster and S.A.I./I.A.)" is highlighted.
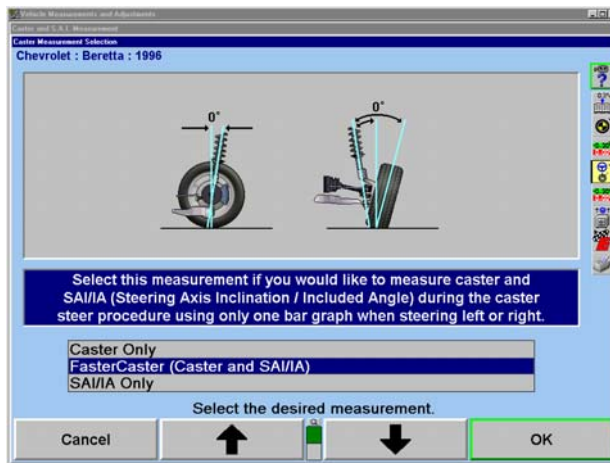
> Press "OK" to select the measurement. The "Caster and S.A.I. Measurement" popup screen will appear.

> NOTE: This selection will not change the aligner default setting. When the aligner is reset, the default settings will be applied.

Lock the front brakes using a brake pedal depressor.

Steer wheels straight ahead.

Level and lock the sensors.

Press "Ready."

The aligner will save the measurements and the display will change to show a bar graph and prompt to steer left.
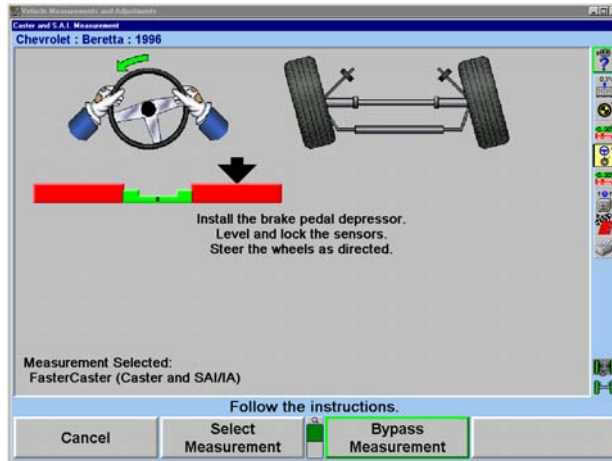
The single left bar graph indicator is controlled by the left wheel.

Observing the bar graph display, steer the wheels to the left until the wheel position indicator is within the center valley of its bar graph. Hold the steering wheel steady until the bar graph disappears.

A single right bar graph will appear and the steering wheel display will indicate to steer to the right.
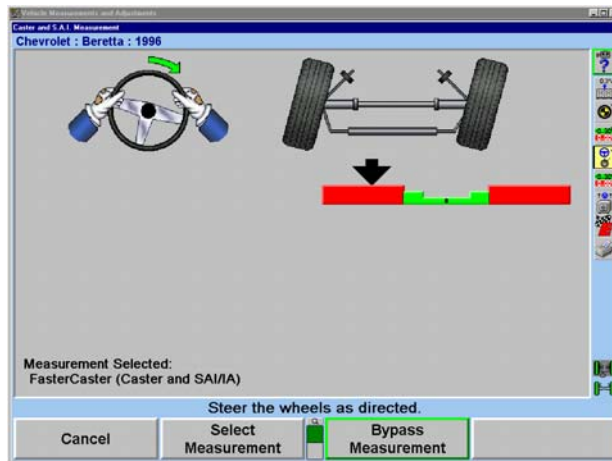
Observing the bar graph display, steer the wheels to the right until the wheel position indicator is within the center valley of its bar graph. Hold the steering wheel steady until the bar graph disappears.

A single bar graph will appear.

Steer the wheels straight ahead until wheel position indicator is within the center valley of the bar graph.

When the caster and S.A.I. measurements are completed, the screen will change to the "Vehicle Measurements and Adjustments" primary screen with the caster, S.A.I., and included angle measurements shown.

Ride Height

> ⚠ **WARNING:** **Ride Height specifications should be used only as an initial screening test. Measure Ride Height using the OEM procedure to verify that components meet the OEM requirements.**

The DSP200/DSP250 and DSP306/308 sensors will take accurate ride height measurements using the Ride Height (RH) tool.

> NOTE: Ride Height can be entered manually or electronically. The "electronic" Ride Height is an optional kit that is installed on both the DSP200/250 and DSP306/308 sensors for measuring the vehicles ride height electronically.

Vertical bar graphs and an illustration of a tire are used to indicate vehicle height in relation to the specification. The center of the bar graph represents the specification.

The large numerical values on the outside of the bar graphs represent the **actual measurement**. The "ideal" or "preferred" adjustment would find the indicator arrow next to the white line of the center bar and the numeric value reading the preferred specification for the vehicle.

A bar graph with a red base and red tire indicates the measurement is below specification. A completely green bar graph and green tire indicates the measurement is within specification. Most vehicles have no upper limit in their specification. A gray bar graph and blue tire indicate specifications are not available.

Below Specification   **Within Specification**   **Specification Not Available**
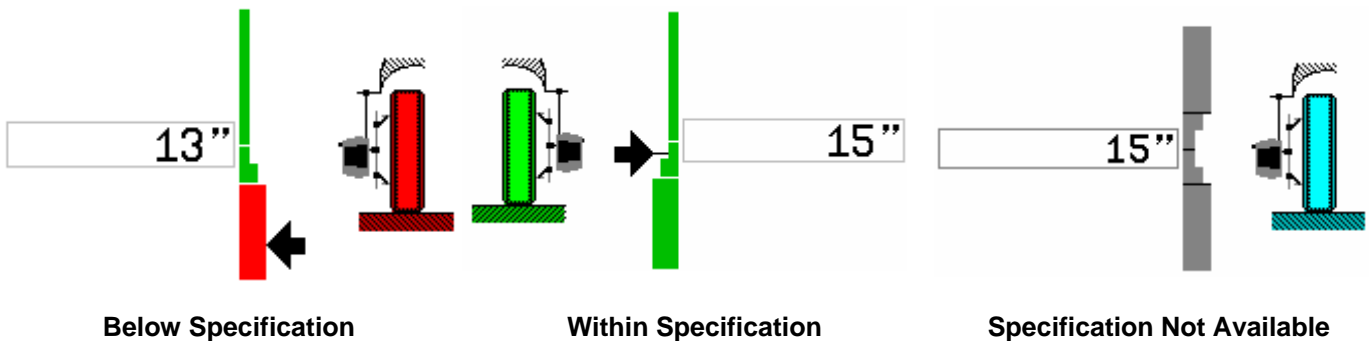
> NOTE: Ride Height can be measured in inches or millimeters.

Ride Height also displays user-defined cross ride height bar graphs for each axle. There is a "Default Cross Height Spec" softkey that allows entry or deletion of the user-defined specification. The user may define a default cross ride height specification to be applied to all cars for which the manufacturer's ride height specification is unavailable.
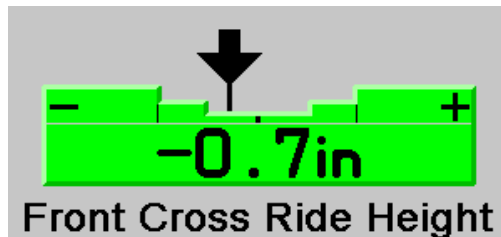
To display the recommended specifications on the screen, press "Show Specs." If the specifications are displayed, press "Hide Specs" to remove them from the screen.

To access Ride Height, select "Make Additional Measurements" from the "Vehicle Measurements and Adjustments" primary screen and select Ride Height.
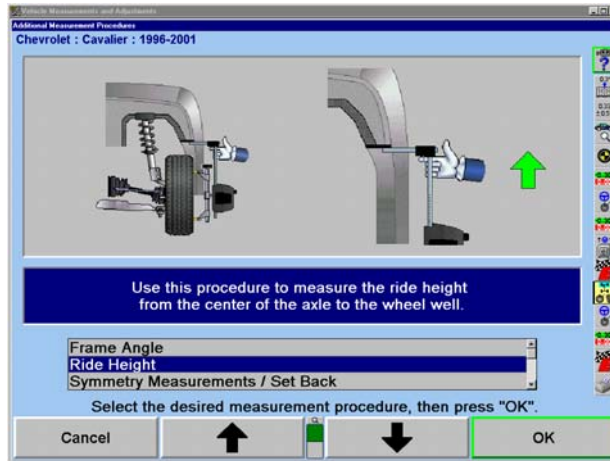
The manufacturer may vary ride height specifications based on suspension and tire options. Those vehicles will have an additional identification screen listing the suspensions or tire options.
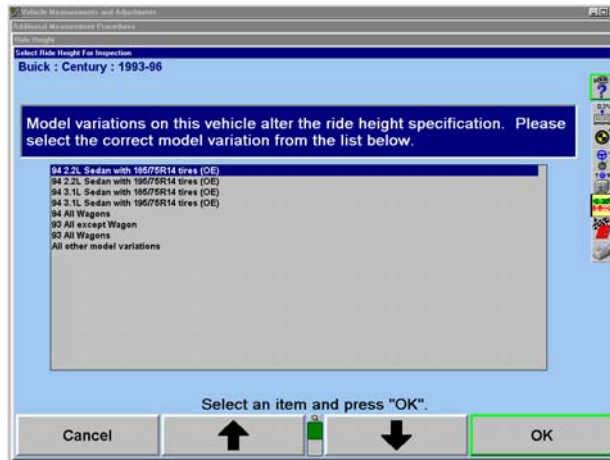
Press "↑" or "↓" to highlight the model variation that applies to the vehicle being measured. The "Ride Height" popup screen will appear with the specification. If the model variation is tire size, then select the tire size that is the original equipment of the vehicle.

NOTE:	Lower and jounce the vehicle before measuring Ride Height.

Two methods of entering the measurements are available:

> Electronic measurement using the Ride Height Tool.

> Manual measurement using keyboard entry.

For electronic measurement using RH tool:

> Level and lock the sensor on the wheel to be measured.

> Insert the grooved rod of the RH tool into the opening in the top of the sensor until the shoulder contacts the sensor.

NOTE:	Failure to fully seat the shoulder on the sensor will cause inaccurate RH measurements.

Raise the RH tool until the horizontal arm touches the underside of the wheel arch above the center of the wheel.
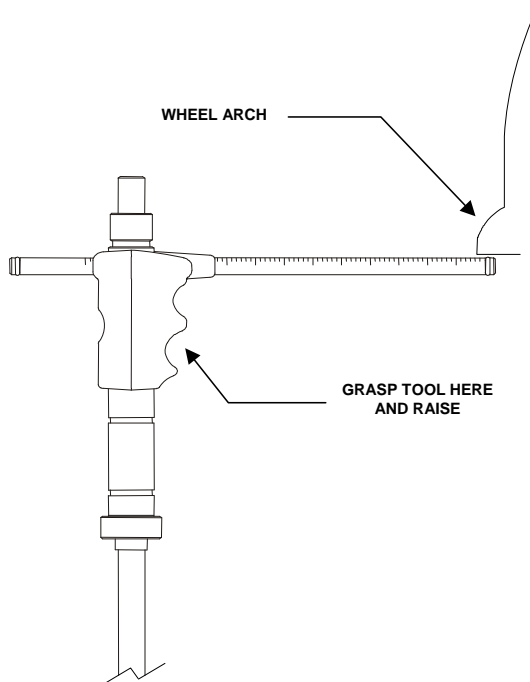
Hold the RH tool in position until the console beeps.

The program will display the measurement next to the wheel. The center of the corresponding tire on the screen will turn green if the measurement is within specifications or red if out of specifications. It will turn blue if the specification is not available.
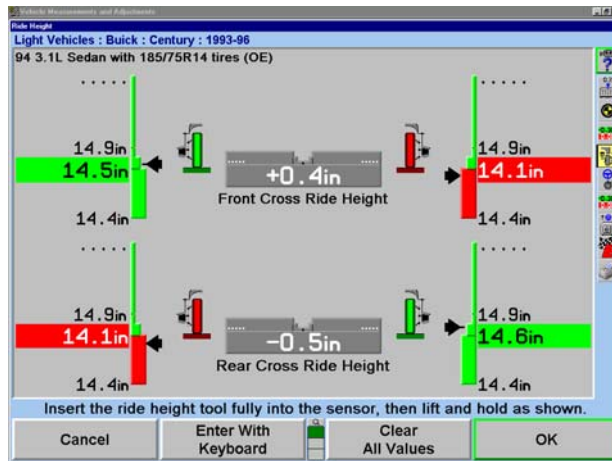
Remove the RH tool and repeat this procedure with the other sensors.

NOTE: Do not yank the RH tool out of the sensor. This will cause the internal gear to spin resulting in an inaccurate reading.

When the ride height of all the wheels has been measured, press "OK" to save the measurements for printout on the alignment summary.

Ride Height can be re-measured at any time while on the ride height screen. Simply re-insert the ride height tool in the desired sensor until the shoulder contacts the sensor, and then raise the RH tool until the horizontal arm touches the underside of the wheel arch.

> NOTE: Failure to fully seat the shoulder on the sensor will cause inaccurate RH measurements.

In cases where the RH tool is too long or too short, manually enter the measurements from the keyboard.

For manual measurement and keyboard entry:

Press "Enter With Keyboard" to enter measurements using the keyboard.

Measure the distance from the mark on the center casting of the wheel adapter to the wheel well.

> NOTE: Make sure that the wheel adaptor is vertical.

Enter the measurement from the keyboard.
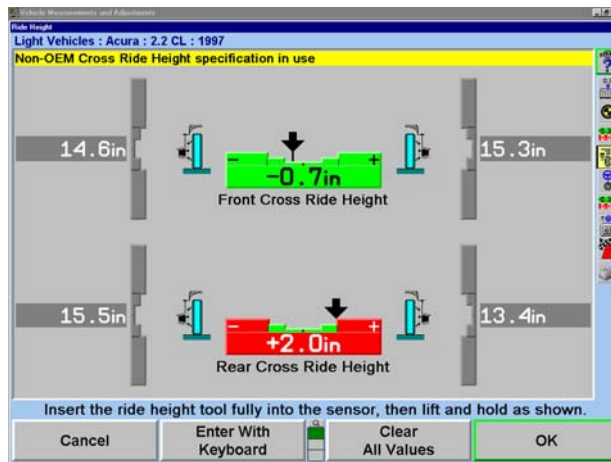
Press "Select Next Wheel," "Enter" or "Tab" to highlight the next wheel or "Shift" and "Tab" to highlight the previous field. The program will display the measurement next to the wheel. The center of the corresponding tire on the screen will turn green if the measurement is within specifications or red if out of specifications. It will turn blue if the specifications are not available.

Repeat this procedure with the other wheels.

When the ride height of all the wheels has been measured, press "OK" to save the measurements for printout on the alignment summary.

Ride Height can be re-entered at any time while on the ride height screen. Simply press "Select Next Wheel," "Enter," or "Tab" to highlight the next wheel or "Shift" and "Tab" to highlight the previous field. Re-measure the distance from the mark on the center casting of the wheel adaptor to the wheel well, and then enter the measurement using the keyboard.

> NOTE: Make sure that the wheel adaptor is vertical.

Ride Height Dependent Specifications

Some manufacturers require that the ride height be measured to determine the appropriate alignment specifications. Enter the ride height measurement(s) into the left and/or right dialog box of "Manual Entry Ride Height" popup screen. WinAlign will use the ride height data to identify the recommended front and rear camber, caster, and toe specifications.
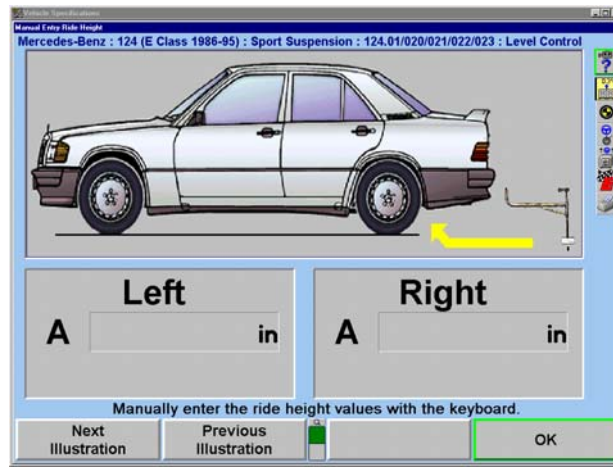
Zoom

When measuring Ride Height using the RH tool, the aligner will detect the wheel that is being measured and will zoom to the bar graph and image of that wheel. After the measurement has been taken, the fender will turn green if the measurement is within specifications, or red if it is out of specifications, as shown below.
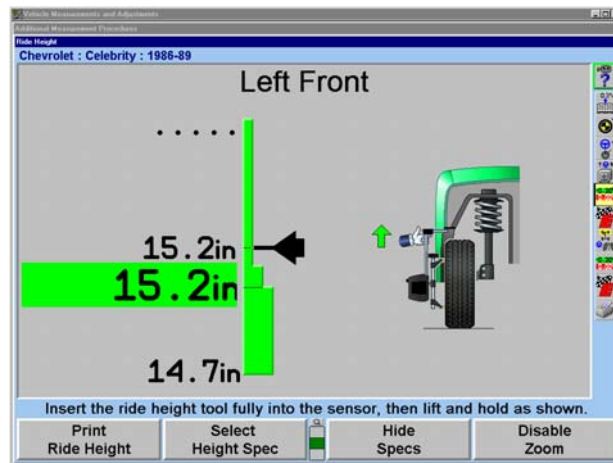
The screen will remain on the individual wheel for about ten seconds, and then it will display all four wheels.

To disable the zoom, press "Disable Zoom."

NOTE:	The screen will not zoom if the keyboard is being used to enter the measurements.

Printing Ride Height

When "Print Ride Height" is selected, all the bar graphs shown on the screen and any specifications used will be printed.

ExpressAlign™

ExpressAlign™ is a feature that analyzes an alignment job and directs the technician through the alignment and adjustment procedures needed for a specific vehicle. ExpressAlign reduces the alignment procedures to the minimum number of steps required to completely align the vehicle.

ExpressAlign considers the following for each specified vehicle aligned:

> The alignment adjustments that are necessary.

> The alignment sequence and specifications for the adjustment(s).

> The power tools that are applicable, (such as shims, WinToe, and CAMM).

> The applicable adjustment illustrations and videos.

Then ExpressAlign creates a custom alignment procedure that allows the technician to perform only the procedures needed for the selected vehicle.

NOTE:	ExpressAlign may display bar graphs and prompt to adjust an angle that is out of specification that is non-adjustable according to the vehicle manufacturer. ExpressAlign displays these bar graphs to indicate a possible problem within the suspension or steering components that needs to be diagnosed and repaired for proper alignment. This is why the manufacturer publishes a specification for that angle, even if it is not adjustable. There may also be an aftermarket kit available to make the necessary adjustment for this angle.

Three levels of ExpressAlign can be selected from the ExpressAlign Setup, or a custom setup can be chosen.

Level I is designed to provide the technician with the maximum amount of help and support to complete the alignment.
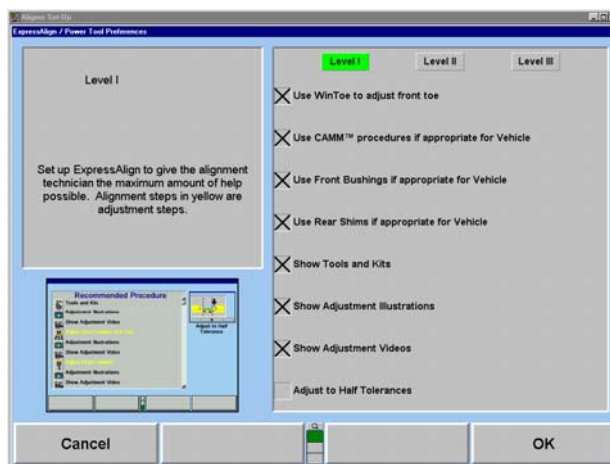
Level II is designed to present the optimal alignment procedure, while still showing the user what tools and kits are necessary to complete the job.
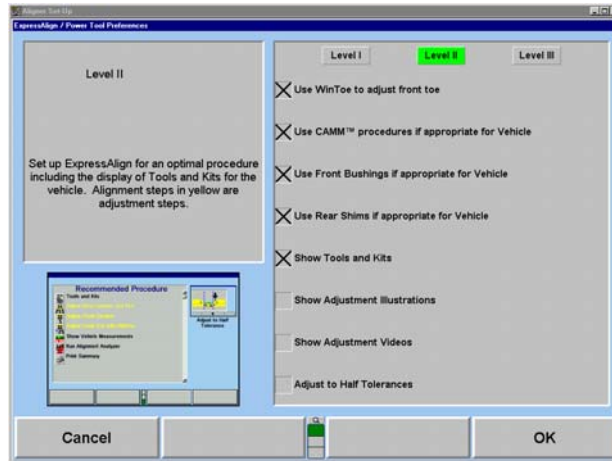
Level III provides the optimal alignment procedure for the experienced technician.
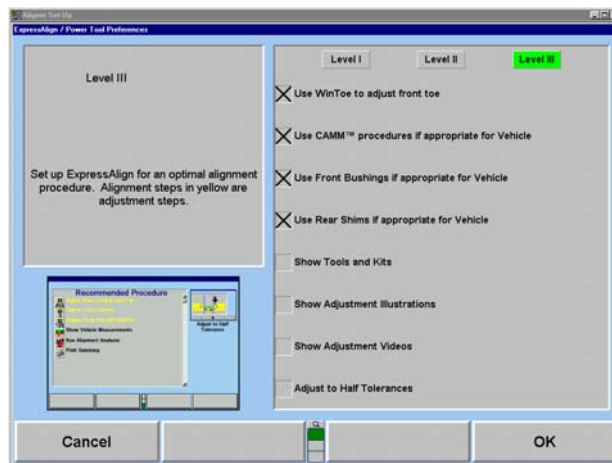
Items may be selected individually for a custom ExpressAlign setup.

The items available include:

> Use WinToe® if appropriate for Vehicle
>
> Use CAMM™ procedure if appropriate for Vehicle
>
> Use Front Bushings if appropriate for Vehicle
>
> Use Rear Shims if appropriate for Vehicle
>
> Show Tools and Kits
>
> Show Adjustment Illustrations
>
> Show Adjustment Videos
>
> Adjust to Half Tolerances

ExpressAlign can be setup from "Aligner Setup," or while ExpressAlign is running, it can be setup by selecting "Setup ExpressAlign" softkey.

ExpressAlign cannot be disabled while using "ExpressAlign" to perform an alignment job. ExpressAlign can only be disabled from "Aligner Setup."

After the vehicle is selected, inspected, sensors mounted and compensated, caster is measured, but before measurements are saved, the "ExpressAlign" popup screen will be displayed as shown below.
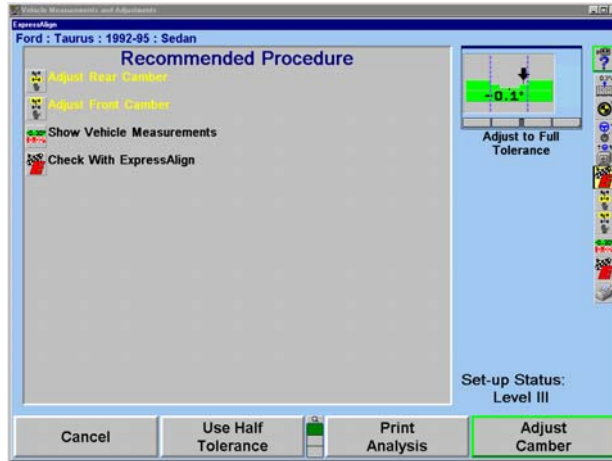
NOTE: The actual procedures displayed will vary depending on the vehicle and procedures that are enabled or disabled in "Setup ExpressAlign."

On the ExpressAlign screen, press the icon on the procedure bar that corresponds to the step to be completed. During the procedure, continue to press the next icon on the procedure bar in order to progress through the procedure. As you go through the procedure, the current step will be highlighted on the procedure bar.

An icon will be displayed in the "ExpressAlign" popup screen for each suggested procedure.

The procedure created by ExpressAlign will be displayed in the vertical procedure bar on the right side of the screen.

Procedures displayed with yellow text in the "ExpressAlign" popup screen refer to adjustments that **must** be made for the specified vehicle. Procedures displayed with black text are for measurement verification or to provide assistance during the alignment.

Selecting "Print Analysis" from the softkey panel of the "ExpressAlign" popup screen will print all measured angles with the recommended procedures required to adjust the angles.

Name   JOE CUSTOMER
Address   11 MAIN
                ST. LOUIS, MO   63011
Telephone   314-636-5555
Vehicle (VIN)
License   VBA111
Color   YELLO
Year: 99
Technician   JIM
Mileage   45189
Time Printed   10/8/01 2:50 PM

ExpressAlign
Chevrolet : Cavalier : 1996-2001

Current Measurements

Left Front

0.8°   Camber   -1.2°
−1.6°

5.3°   Caster   3.3°
4.3°

-0.05°   Toe   0.15°
−0.07°

Right Front

-1.2°   Camber   0.8°
1.1°

3.3°   Caster   5.3°
4.3°

0.15°   Toe   -0.05°
0.12°

Front

-0.10°   Total Toe   0.30°
0.06°

-0.05°   Steer Ahead   0.05°
−0.10°

Left Rear

0.5°   Camber   -1.0°
−1.2°

-0.05°   Toe   0.25°
0.37°

Right Rear

-1.0°   Camber   0.5°
−0.3°

0.25°   Toe   -0.05°
0.03°

Rear

-0.10°   Total Toe   0.50°
0.40°

-0.25°   Thrust Angle   0.25°
0.17°
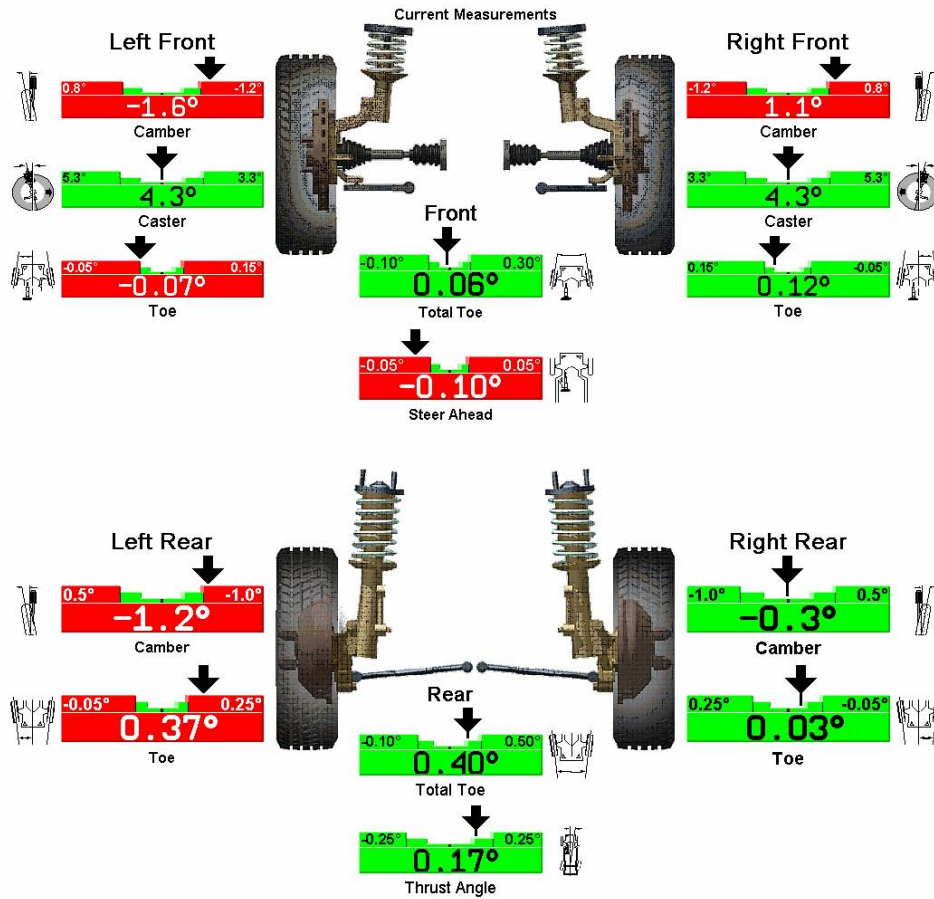
Recommended Procedure

1. Adjust Left Rear Camber and Toe With Shims
2. Adjust Front Camber and Caster
3. Adjust Toe with WinToe

• Steer ahead will be corrected by adjusting individual toe.

Selecting "Use Half Tolerance" from the softkey panel of the "ExpressAlign" popup screen will reduce the specification tolerance to half of the original equipment manufacturer's recommended tolerance.

If one side of the vehicle is within specification, ExpressAlign will allow the side that is out of specifications to be adjusted with the "One-Sided Adjustments" procedure. If you complete the alignment and an angle has not been adjusted to within specifications, ExpressAlign will allow you to select "Cancel," "Cannot Adjust to Specifications" or "Check With ExpressAlign."
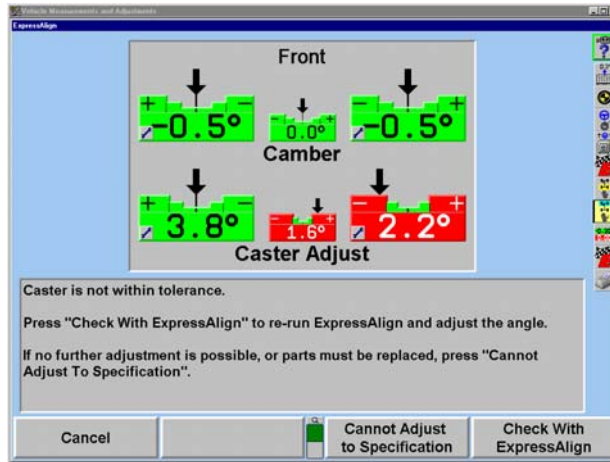
Selecting "Cancel" will return you to the "Vehicle Measurements and Adjustments" primary screen.

Selecting "Cannot Adjust to Specification" will allow you to proceed with the angle not adjusted in ExpressAlign.

Selecting "Check With ExpressAlign" will create a new "ExpressAlign" procedure and return you to the "ExpressAlign" popup screen.

Aligner Setup

Setup

The aligner can be configured to meet many different operating needs. For example, the "Customer Identification" screen can be removed from the prompt sequence so it does not automatically appear at the beginning of the alignment process, but is still accessible through the menu selection. Other selections such as the default alignment procedure can be set. The setup selections are stored on the hard drive and recalled each time the program needs them. To modify setup, press "Service Programs" on the logo screen. The menu labels will change.

Press "Set Up Aligner" and the "Aligner Setup" primary screen will appear.

The current settings can be saved to disk or printed. To access these settings along with WinAlign technical information press CNTRL+Shift+K1. The "Version" screen may take several seconds to appear. Select "Print" to print all the settings and WinAlign information, or select "Copy Log files to Floppy Disk."
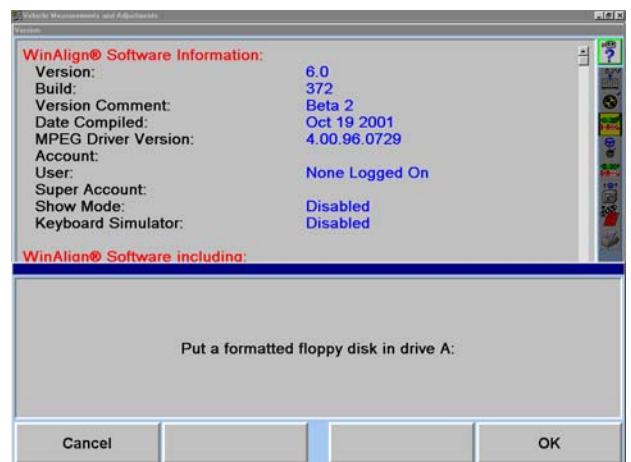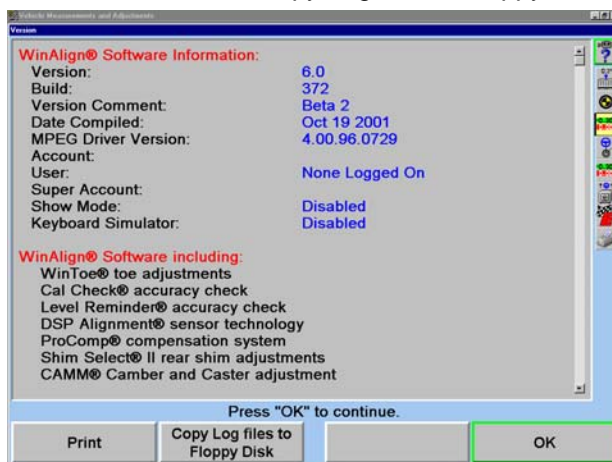
If "Copy Log files to Floppy Disk" is selected, the screen will request the user to insert a formatted floppy disk into the drive. Select "OK" and the information will be copied.

The information in Set up can only be restored manually.

Factory Settings for Aligner Setup

Account	Standard
Display	
Display Language	English
Logo Screen Advertising Message	Blank
Animated Logo or Still Logo	Animated
Dynamic window open effect	Disabled
AlignGuide Enable/Disable	Enabled
Virtual View Model Detail	Detailed
Alignment Procedures	
Common Alignment Preferences	Show Measurement Display after Compensation Show Measurement Display after CasterDisplay DSP400 compensation instructions, Verify Caster Adjustment
ExpressAlign Preferences/Power Tool Preferences	Level III
Alignment Procedure	ExpressAlign Total Alignment with Power Tools
Alignment Procedure Automatic Selection	Automatically switch to Recommended Procedure
Alignment Measurement Units and Formats	
Camber and Caster Display Format	Degrees
Toe Display Format	Degrees
Thrust Angle Display Format	Degrees
Ride Height Display Format	Inches
Tread Depth Display Format	Inches
Wheelbase and Track Width Display Format	Inches
Caster Measurement Selection	Caster Only
Reduce Number of Softkeys Enable/Disable	Disabled
Enable / Disable Manufacturer Specific Procedures	Disabled
Set Vehicle Selection Options	Selection Sequence Optimal
Default Vehicle Specification	None (Choose vehicle specification every time)
Bar Graphs	
Front Axle Bar Groups	Camber, Caster Adjust and Toe; Camber, Caster, Total Toe and Steer Ahead
Rear Axle Bar Groups	Camber, Toe, Total Toe and Thrust Angle
Cross Bar Graph/Additional Cross Angles: Enable/Disable	Disabled
Show Specs on Bar Graphs: Enable/Disable	Enabled
Printer	
Printer	Hunter Driver - IBM PPR
Print Language	English
Printout Advertising Message	Blank
Print Warning Message Enable/Disable	Enabled
Report Format	Standard Format
Sensors	
Sensor Type	DSP250
Toe-Out-On-Turns Device	None
Update Sensor Software	Sensor requires version "1.5"
DSP400 Alignment Reference	Runway Reference Plane
Conventional Sensors Compensation Options	Blank
DSP400 Compensation Procedure	Rolling Compensation using the Virtual View
HF Channel Selection	Console Channel: HFSS 1
Calibration Reminder	Never Remind
DSP400 Alignment Reference	Reference Runway Plane (DSP400 Sensors)
Power Tools	
Rear Shim Default Brand	Hunter 2000
Rear Shim Display Size	NA
Front Bushing Default Brand	Blank
Virtual View Enable/Disable	Enabled
Inspection	
Select Inspection Mode	Part List Inspection
Date and Time	
Date and Time	Current time and date
12 or 24 Hour Clock Display	12 Hour Clock Display
Date Format	MM/DD/YY
Aligner Equipment	
Calibrate Light Pen	NA
Remote Control Channel Identification	Remote Control channel setting: A, O
Select Logging Type	Statistical Logging
Transmit Measurements	
Transmit Measurements Destination	Transmit Measurements to a file.
Transmit Measurements Format	Partial Measurements C111 Audit Format A
Work Management	
Work Order Format	Custom Forms
Logon	
Logon Enable/Disable	Disabled
Logon Registry	NA
Logon Password	NA
AutoBackup	Keeps backups for two days. Overwrite oldest backup. Backup path C:\Backup.dat
Tread Depth	
Define Tread Depth Specification	Not defined

The "Aligner Setup" primary screen provides a list box of set up items. Press "↑" or "↓" to highlight the desired selection. When an item is highlighted, the current setting appears on the screen, along with an explanation of the item. Press "Set Up Selected Item" to open the popup screen to setup the highlighted item.

To move from a major heading to another major heading, press "↑↑" or "↓↓" from the second tier of softkeys. The following is a list containing all the Setup options including options using Digital Video.

Program / Account
    WinAlign / WinAlign HD
    Account
Display
    Display Language
    Logo Screen Advertising Message
    Animated Logo or Still Logo
    Dynamic window open effect
    AlignGuide Enable/Disable
    Virtual View Model Detail
Alignment Procedure
    Common Alignment Preferences
    ExpressAlign / Power Tool Preferences
    Alignment Procedure
    Alignment Procedure Automatic Selection
    Alignment Measurement Units and Formats
    Caster Measurement Selection
    Reduce Number of Softkeys: Enable/Disable
    Enable / Disable Manufacturer Specific Procedures
    Set Vehicle Selection Options
    Default Vehicle Specification
Bar Graphs
    Front Axle Bar Graph Groups
    Rear Axle Bar Graph Groups
    Cross Bar Graph/Additional Cross Angles: Enable/Disable
    Show Specs on Bar Graphs: Enable/Disable
Printer
    Printer
    Print Language
    Printout Advertising Message
    Printout Warning Message: Enable/Disable
    Report Format
Sensors
    Sensor Type
    Toe-Out-On-Turns Device
    Update Sensor Software
    Conventional Sensors Compensation Options
    HF Channel Selection
    Calibration Reminder
Power Tools
    Rear Shim Default Brand
    Rear Shim Display Size
    Front Bushing Default Brand
    Virtual View Enable/Disable
Inspection
    Select Inspection Mode
Date and Time
    Date and Time
    12 or 24 Hour Clock Display
    Date Format
Aligner Equipment
    Calibrate Lightpen
    Remote Control Channel Identification
    Select Logging Type
Transmit Measurements
    Transmit Measurements Destination
    Transmit Measurements Format
Work Management
    Work Order Format
Logon
    Logon: Enable/Disable
Tread Depth
    Define Tread Depth Specification

Inset box:

Sensors
    Sensor Type
    Toe-Out-On-Turns Device
    Update Sensor Software
    DSP400 Alignment Reference
    DSP400 Compensation Procedure
    DSP400 Compensation Options
    HF Channel Selection

Logon
    Logon: Enable/Disable
    Logon Registry
   Logon Password
    Automatic Backup Options

Press "End Setup" after all the desired changes have been made to exit setup and save changes.

Detailed Operation Information

Virtual View

3-D Bar Graphs

Virtual View is a WinAlign feature that allows the user to view alignment angles in a 3-D perspective. This feature provides the user with a detailed view of the angles and their status in respect to alignment angle specifications. If the measured angles are within tolerance, the arrows will be green. If the measured angles are marginal, the arrows will be shown in yellow (if half-tolerances are enabled). If the measured angles are out of specification, the arrows will be shown in red. The arrowhead of the alignment angle will protrude through a 3-D specification bar graph showing the current angle status.
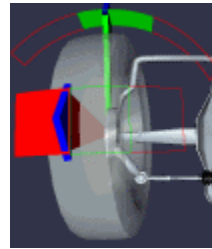
NOTE:	If measurements have not been taken or are not available, the 3-D bar graph will not be shown in Virtual View.

Virtual View is available only on 611 Aligners.

From the "Vehicle Measurements and Adjustments" screen, you may toggle between Virtual View, bar graphs, or measurements by pressing "Show Bar Graphs" from the softkeys. Virtual View is the default "Vehicle Measurements and Adjustments" screen, however, may be disabled in "Aligner Setup."

Virtual View displays all measured angles of the vehicle on one screen. It is no longer necessary to switch screens to view measurements on the front axle or the rear axle. Camber and toe for both axles, caster for the front axle, and thrust angle are all displayed adjacent to the appropriate wheel in Virtual View.
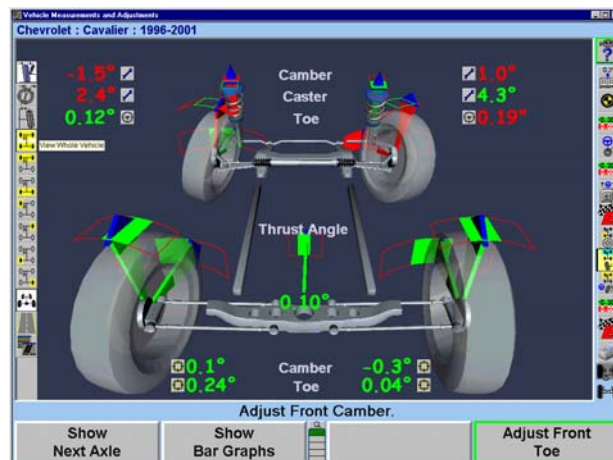

A Plan View Indicator, located along the right side of the screen, shows which axle is being adjusted. The axle with the gray background is the one that is being adjusted, and corresponds to the view on the screen.

The Procedure Bar is located along the right side of the screen, above the Plan View Indicator. As each step in the alignment is completed, a checkmark will appear next to each procedure icon.

Virtual View Angle Selector

When Virtual View appears, the Virtual View Angle Selector on the left side of the screen will appear when the cursor is moved over that portion of the screen, allowing you to select a variety of wheel and angle views. The selected views will be shown with a white background.

The vehicle frame icons, with specific wheels highlighted, will select the overall Virtual View. You may select to view the entire vehicle, front axle, rear axle, or any individual wheel. Toe, caster, and camber angles may be viewed specifically from any view by selecting the alignment angle icons.
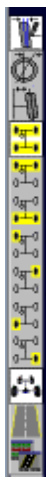
Selecting " ▨ " will view the camber of the selected wheel(s).

Selecting " ▨ " will view the caster of the selected wheel(s).

Selecting " ▨ " will view the toe angle of the selected wheel(s).

Selecting " ▨ " will turn the on-screen road graphic on and off.

Selecting " ▨ " will return the vehicle frame view to the "overall vehicle view."

Selecting " ▨ " will allow viewing of Virtual View and measurement screens simultaneously. Dual screen is recommended for systems with two monitors available.

The preferred method of selecting vehicle views and alignment angle views is by clicking the mouse inside of the yellow view box. As the mouse navigates across the screen, several view boxes will be available for selection.
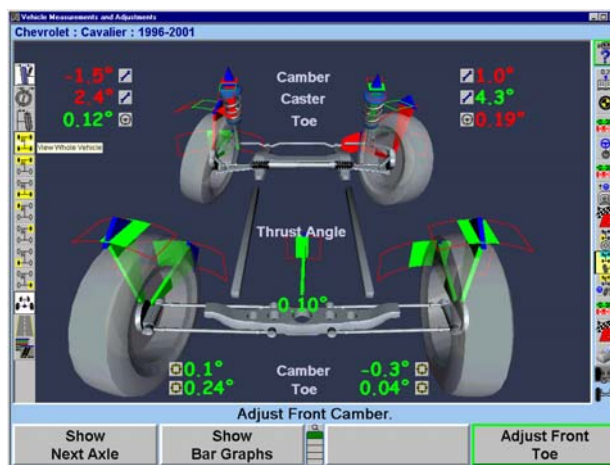

After selecting any view, clicking the right mouse button will return you to the previously selected view.

Highlighting any of the on-screen measurement values will highlight the corresponding arrow in white. The arrow protrudes through the 3-D specification bar graph for the selected measurement. When selecting an on-screen measurement, the selected measurement value will be underlined.
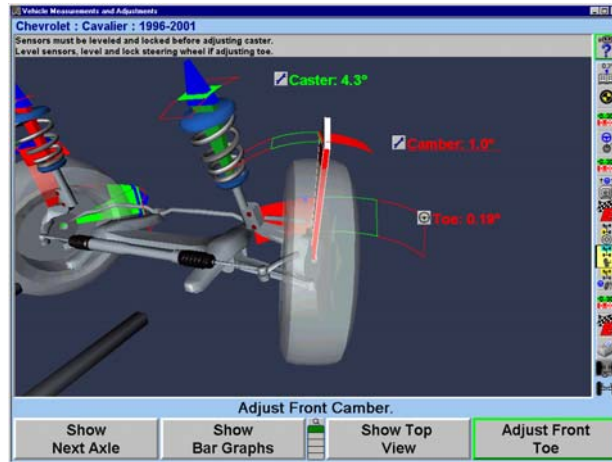
A pull down menu is available from the Virtual View screen by holding the mouse down on the desired 3-D graphic, on the measurement value, or by clicking on the button adjacent to the measurement.
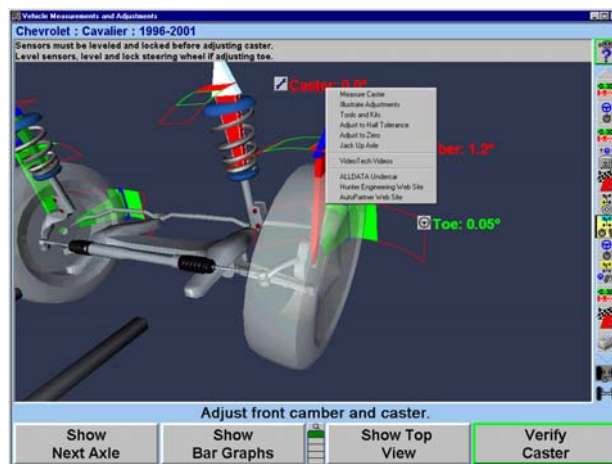
On-The-Job-Training

Requires DIGITAL-VIDEO Option.

OJT uses on-screen animations and video to convey simple, concise, instruction to the technician for three major alignment related categories.

- WinAlign Operation
- Alignment Concepts
- Vehicle Adjustments

OJT is designed to be used with the WinAlign Multimedia CD-ROM's when no alignments are being performed.

OJT is accessed from the softkeys on the logo screen.

The primary screen of *OJT* offers the following three choices. A detailed sub menu structure is attached:

To exit *OJT*, select the "Exit" icon at the bottom right side of the display. This will automatically return you to the WinAlign program at the "Logo" screen.

At anytime in the *OJT* program, you may return to the primary screen by selecting the "Main Menu" icon located at the bottom right hand side.

After passing the primary screen in *OJT* program, all secondary screens will be provided with a "Previous Screen" icon, located at the bottom of every icon selection. Selecting this icon will prompt the technician to the previous screen viewed.

VideoTech

VideoTech Overview

VideoTech requires the Digital Video option. VideoTech requires either the Multimedia CD set or the Multimedia DVD.

"VideoTech" is designed to help the technician diagnose specific vehicle problems in alignment, tires, and brakes. "VideoTech" uses video and animation segments that can be viewed prior to vehicle service, or during the alignment procedure.

VideoTech is divided into five categories:

Tire Wear

Vibration and Noise

Adjustment Concepts

Advanced Alignment Concepts

Handling Conditions

Accessing VideoTech

To access VideoTech, from the logo screen expand the softkeys to display the "VideoTech" softkey. The "VideoTech" softkey is also available under the "Service Programs" tier of softkeys.
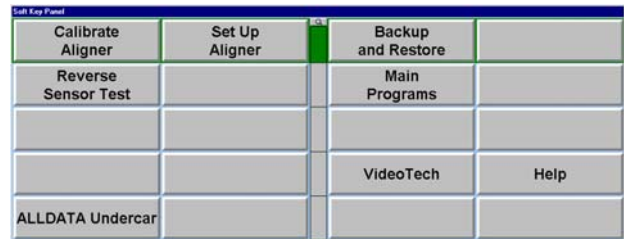
"VideoTech" is also accessed within the alignment procedure. Place the cursor over an alignment bar graph, click and hold, and a drop down menu will display with the "VideoTech" option available, as shown in the close-up below.
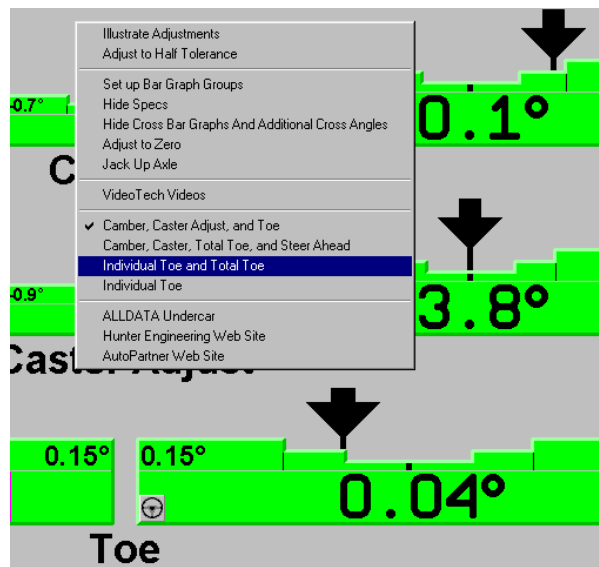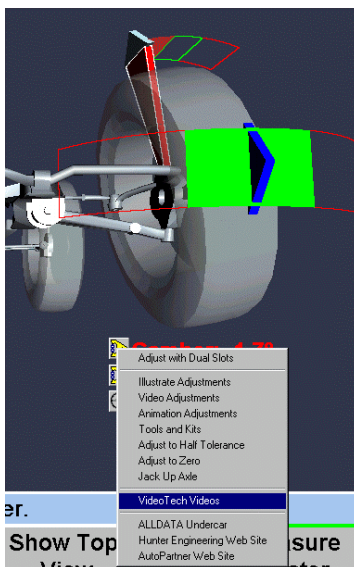
Playing a VideoTech Video

Install the "VideoTech" CD or the Multimedia DVD into the CD/DVD player on the aligner.

Select "VideoTech." This will bring up a menu list for all videos available, as shown below.

Scroll through the list and select the appropriate subject by highlighting it. When highlighted, a window will display at the top of the screen with a brief description and screen shots from the video chosen.

Press the "Play Selection" softkey when the appropriate selection is highlighted.

Equipment Information

WinAlign Multi-disk Backup/Restore

The WinAlign Multi-disk Backup/Restore procedure saves files modified by WinAlign to floppy disk(s). The saved files can be restored later by using the restore procedure.

> NOTE: The restore procedure does not install the WinAlign software.

WinAlign modifies files when any of the following occur: setup is changed, a vehicle specification is stored, a vehicle specification note is stored, the logon registry is changed, a work order is stored, a form letter is stored, or a filter is stored.

Backup should be performed on a regular basis. How often backup is performed depends on what features of WinAlign are used. The following backup schedules are suggested:

If you do not use Work Management, then back up weekly.

If you use Work Management, then back up daily.

Backup and Restore Procedures

To access the Backup/Restore utility, press "Service Programs" on the logo screen. The menu labels will change.

Press "Backup and Restore" from the "Service Programs" softkey menu.

The Backup and Restore screen presents initial information about WinAlign backup. It also displays the time of the last backup, the number of days since the previous backup, and the number of disk(s) in the most recent backup set.
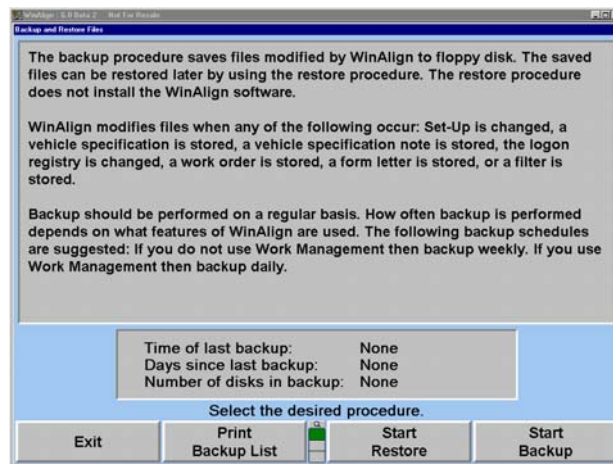
Backup Procedure

> ⚠ **CAUTION:** If the machine is reset, or the backup procedure is canceled at anytime during the back up procedure, WinAlign deletes the backup file from the floppy disk and the backup is invalid. It is strongly recommended that Cancel or Reset is not used during the procedure.

Select "Start Backup" or press K4. WinAlign will prompt to insert a formatted 1.44 High Density disk in Drive A.

Insert a formatted disk in Drive A.

WinAlign will check the inserted disk for formatting, write-protection, and the existence of previous back up data. If the disk contains an earlier backup, WinAlign will inform you that the disk contains data, and ask for confirmation to overwrite the disk. Select "OK" to proceed with the backup.

> ⚠ **CAUTION:** If the disk contains the latest backup prior to the one being performed, it is recommended that you do not **overwrite the disk**. Select "NO." WinAlign will prompt you to insert another disk. Insert a disk, either blank or from another set, and begin backup process again.
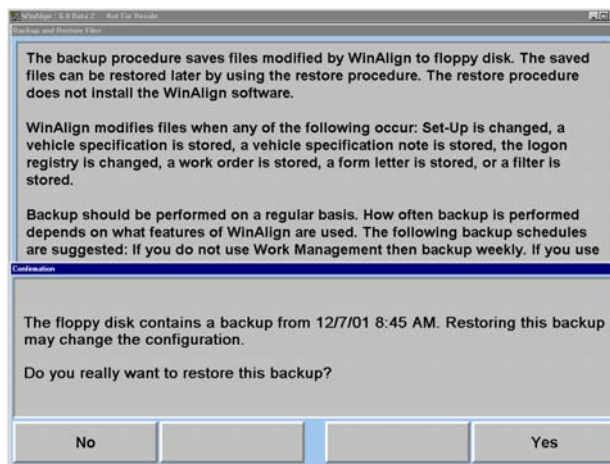
If the backup requires more than one disk, WinAlign will prompt you to remove, and label as "WinAlign Backup" followed by the disk number and the current date and time and to insert a new disk for each disk required to complete a successful backup.
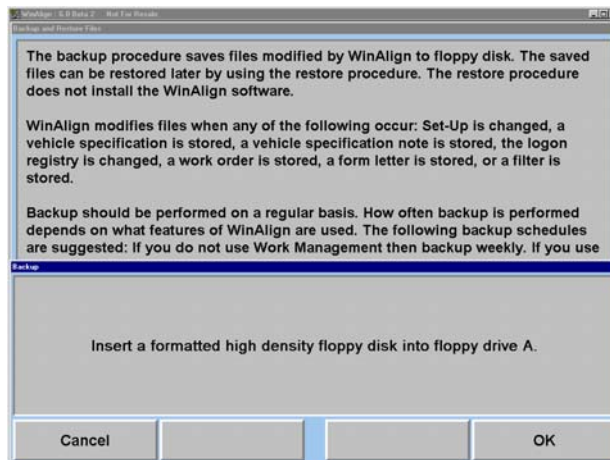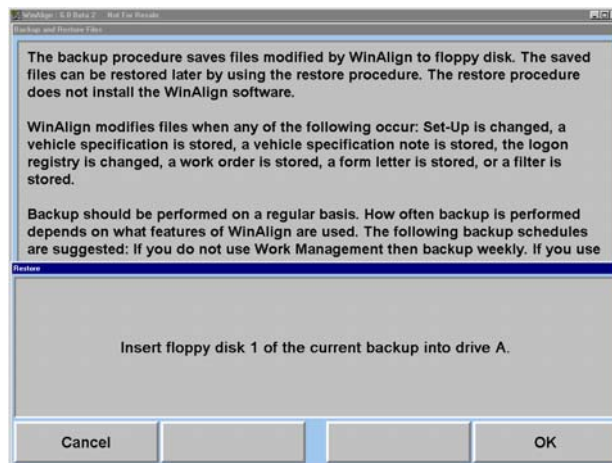
After WinAlign completes backup procedure, you will be prompted that the backup was successfully completed. Select "OK" and exit backup program.
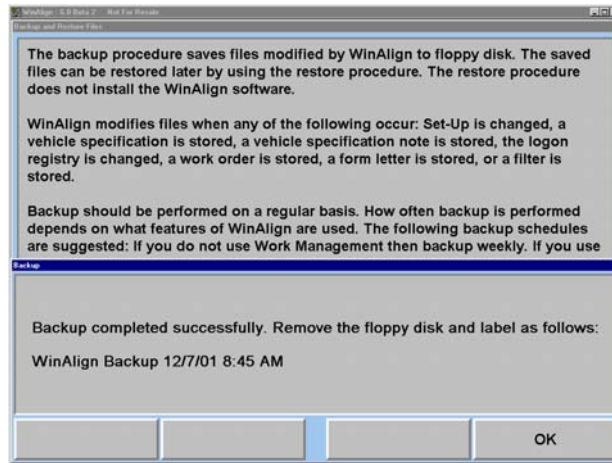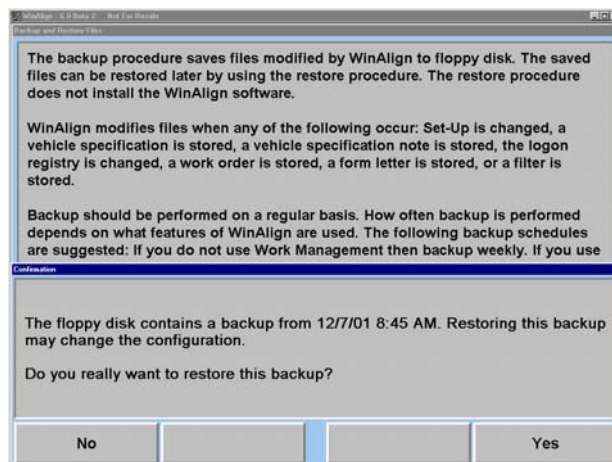

Label the floppy disk(s) as "WinAlign Backup" followed by the disk number and the current date and time.

Restore Procedure

Begin the restore procedure by selecting the "Start Restore" on the Backup and Restore Files screen.

Insert disk one of the current backup into drive A. WinAlign will verify that the disk can be read and that it contains a valid backup.

If the backup data being restored requires more than one disk, WinAlign will prompt the user to insert each disk in the set (one at a time) to verify each disk. Remove and insert the appropriate disk as requested.

| NOTE:	This step is a necessary step for the restore procedure. It insures that all of the disks in the backup set are accounted for so that the restore procedure may begin.
	If you do not have all of the disks for the restore procedure, you can cancel Restore at this time by selecting "Cancel."

⚠ CAUTION:	After WinAlign has verified all the disks in the backup set, it will prompt to insert disk one of the set again. It is at this point that the restore procedure begins. If the restore procedure is interrupted at any time during the process, one or more files in WinAlign may be corrupted. This would require a complete re-installation of WinAlign.

Select "OK" when the "Restore completed successfully" screen appears, and exit the restore program.
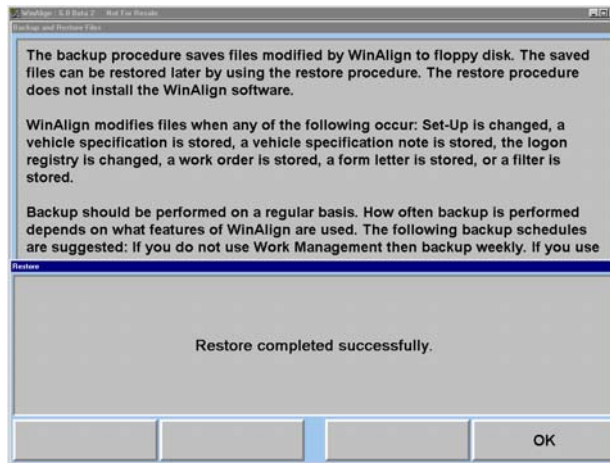
Electronic Keys

Included with a shipment of diskettes are one or more electronic keys that look similar to large watch batteries. These keys are needed to run the WinAlign program. If the program is loaded onto a 611 unit without the proper keys being inserted in the Hunter Interface Board or Hunter Interconnect Board, an error message will appear, similar to the one shown below.
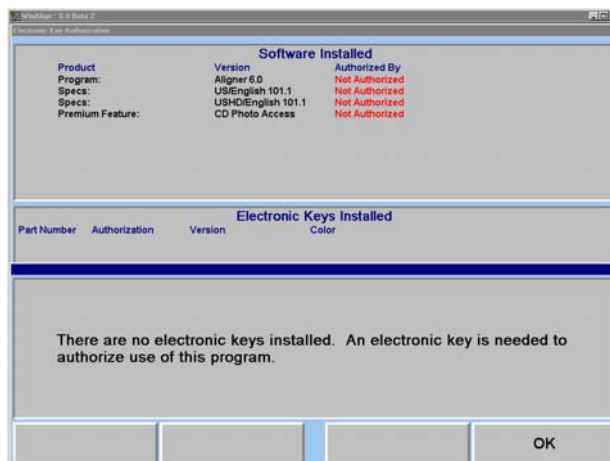
Electronic keys can be placed in any of the available sockets on the Hunter Interconnect Board and/or the electronic key holder. It does not matter which key is in which socket.

A red key is always required to run WinAlign. A green key is required to access the Factory Specification Database If the aligner has a CD-ROM, an orange key is required to use the WinAlign features, which access the CD-ROM, such as the digital photos (adjustment illustrations and inspection illustrations) or the MPEG video segments (Just-In-Time Training™ and adjustments videos).

WinAlign will **NOT** operate properly if the required electronic keys are not installed!

Additional keys can be used to allow access to other features within WinAlign. An additional orange key provides access to Digital Video and Digital Photo. A yellow key provides access to features that meet the needs of certain national accounts.