



Operators Manual
Alignment Audit System with Pro42

SAFETY INFORMATION

For your safety, read this manual thoroughly before operating the equipment.

The Aligner is intended for use by properly trained skilled automotive technicians. The safety messages presented in this section and throughout the manual are reminders to the operator to exercise extreme care when performing wheel alignments with this product.

There are many variations in procedures, techniques, tools, and parts for servicing vehicles, as well as the skill of the individual doing the work. Because of the vast number of vehicle applications and potential uses of the product, the manufacturer cannot possibly anticipate or provide advice or safety messages to cover every situation. It is the automotive technician's responsibility to be knowledgeable of the vehicle to be aligned. It is essential to use proper service methods and perform wheel alignments in an appropriate and acceptable manner that does not endanger your safety, the safety of others in the work area or the equipment or vehicle being serviced.

It is assumed that, prior to using the Aligner, the operator has a thorough understanding of the vehicle systems being serviced. In addition, it is assumed he has a thorough knowledge of the operation and safety features of the alignment rack or lift, and has the proper hand and power tools necessary to perform wheel alignments.

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

1. Read all instructions.
2. Care must be taken as burns can occur from touching hot parts.
3. The socket-outlet (wall outlet) shall be located near the equipment and shall be easily accessible.
4. Do not operate power tools or equipment with a damaged power cord or if the equipment has been dropped or damaged until it has been examined by a qualified serviceman.
5. Do not let cord hang over edge of table, bench or counter or come in contact with hot manifolds or moving fan blades.
6. 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 than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
7. 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.
8. Let equipment cool completely before putting away. Loop cord loosely around equipment when storing.
9. To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids, such as gasoline.
10. Adequate ventilation should be provided when working on operating internal combustion engines.
11. Keep hair, loose clothing, fingers, and all parts of body away from moving parts.
12. To reduce the risk of electrical shock, do not use on wet surfaces or expose to rain.
13. Use only as described in this manual. Use only manufacturer's recommended attachments.
14. ALWAYS WEAR SAFETY GLASSES. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
15. Know and understand the proper operating procedures for all power tools used.
16. *Caution:* Risk of explosion if any battery is replaced by an incorrect type. Dispose of used batteries according to local and state government regulations.

**IMPORTANT!! SAVE THESE INSTRUCTIONS
DO NOT DISCARD!!**

Safety INSTRUCTIONS

IMPORTANT!! SAVE THESE INSTRUCTIONS



Risk of electrical shock.

- **Do not operate equipment with a damaged power cord or if the equipment has been dropped or damaged, until it has been examined by a qualified service person.**
- **If an extension cord is necessary, a cord with a current rating equal to or greater than that of the equipment should be used. Cords rated for less current than the equipment can overheat.**
- **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.**
- **Do not expose the equipment to rain. Do not use on wet surfaces.**
- **Plug unit into correct power supply.**
- **Do not remove or bypass grounding pin.**

Contact with high voltages can cause death or serious injury.



Risk of electrical shock. High voltages are present within the console unit.

- **There are no user serviceable items within the console other than the keyboard and printer.**
- **Service on the unit must be performed by qualified personnel.**
- **Do not open any part of the console other than noted areas.**
- **Turn power switch off and unplug the unit before servicing.**

Contact with high voltages can cause death or serious injury.



Risk of eye injury. Debris, dirt, and fluids may drop from vehicles.

- **Knock off any loose debris. Clean surfaces as needed to avoid any materials from falling.**
- **Wear approved safety glasses when servicing.**

Debris, dirt, and fluids can cause serious eye injury.



Risk of crushing. Vehicles may roll off alignment lift if not secured.

- **Leave automatic transmission in park or manual transmission in gear unless equipment operation steps require vehicle in neutral.**
- **Apply parking brake unless equipment operation steps require wheel movement.**
- **Use wheel chocks whenever vehicle is positioned on the lift.**
- **Follow rack or lift manufacturer's safety recommendations when lifting a vehicle.**

Vehicles rolling off lifts can cause death or serious injury.



Risk of entanglement or crushing. There are moving parts on vehicle lifts during operation.

- **Keep all persons clear of lifts.**
- **Read lift manufacturer's operation instructions carefully.**
- **Follow lift manufacturer's safety recommendations.**

Contact with moving parts could cause injury.



Risk of pinching or crushing body parts when jacking vehicles.

- **Keep hands and other body parts away from jacking surfaces.**
- **Do not use unapproved adapters (i.e. wooden blocks) when jacking a vehicle.**
- **Do not bypass any jack manufacturer's safety features.**
- **Read jack manufacturer's operation instructions carefully.**
- **Follow jack manufacturer's safety recommendations.**

Improperly used or maintained jacks can cause injury.



Risk of burns.

- **Do not touch hot exhaust systems, manifolds, engines, radiators, etc.**
- **Wear gloves whenever performing a service near hot components.**

Hot components can cause burns.



Risk Of Explosion.

- **This equipment has arcing or sparking parts which should not be exposed to flammable vapors.**
- **This equipment should be located at least 460mm/18inches above the floor, and not in a recessed area.**
- **Do not operate with the cover of the electrical box removed.**
- **Do not remove/alter grounding wires.**



Risk of pinching when camera beams and/or pods are in motion

- **Keep hands and other body parts away from camera beams and/or pods when they are in motion**



Risk of injury. Tools may break or slip if improperly used or maintained.

- **Use the correct tool for the task.**
- **Frequently inspect, clean, and lubricate (if recommended) all tools.**
- **Follow recommended procedures when performing vehicle services.**

Tools that break or slip can cause injury.

Table Of Contents

Safety Information	III
Alignment Audit System Verification Steps.....	7
Basic Procedures In More Detail	8
Position The Vehicle	8
Attaching Standard Targets	8
Begin Wizard Procedure.....	11
Beginning A New Measurement	12
Using The Vin Reader	12
Manually Selecting Specifications	12
Vehicle Manufacturer.....	12
Selecting A Default Make.....	12
Vehicle Year	13
Vehicle Model	13
Vehicle Positioning Sequence, Standard Clamps	14
Vehicle Positioning Sequence, Ac400 Clamps	15
Print Results	17
Audit Reports.....	17
Database Utilities.....	18

Performing an Alignment Quick Check on the Alignment Audit System

There are many reasons why a wheel alignment may be performed on a vehicle such as:

- Accelerated or uneven tire wear
- Pull, wandering, or other steering / handling problems
- After replacement of worn suspension or steering system components
- After-collision repairs
- Routine vehicle maintenance

The Alignment Audit System is designed to quickly determine a vehicles suspension alignment and the need for further service. The following instructions outline the procedures then in detail the short steps for qualifying a vehicles alignment.

Alignment Audit System verification steps

1. Bring the vehicle to the audit area
2. Position the vehicle in front of the Alignment Audit System
3. Place the vehicle transmission in neutral
4. Lower the drivers side window
5. Lower the rear passenger side window
6. Turn the engine "OFF"
7. Exit the vehicle
8. Mount the left rear target first
9. Mount the left front target second
10. Click "Run Wizard" or Enter to begin
11. If VIN scanner equipped, scan the VIN bar code using the bar code reader or manually enter the vehicle make and model (VIN scanner not available in Europe)
12. Mount the right front target third
13. Mount the right rear target last
14. Wait for target acquisition to complete
15. Roll the vehicle back then forward when prompted (If equipped with AC400 wheel clamps, backward when prompted.
16. Wait for the print box to appear
17. Remove and store the targets

18. Bring in the next vehicle

BASIC PROCEDURES IN MORE DETAIL

Position the Vehicle

Position the vehicle in the Vehicle Placement Pad area. The steering wheel should be level when the vehicle is at rest.



- Place the vehicle transmission in neutral
- Lower the drivers side window
- Lower the passenger side window
- Turn the engine “OFF”
- Exit the vehicle

ATTACHING STANDARD TARGETS

The targets are attached to the wheels using the self-centering wheel clamps. The large targets go on the rear wheels, the small targets on the front.

- Mount the left rear target first
- Mount the left front target second
- Mount the right front target third
- Mount the right rear target last

There are several methods of attachment depending on the wheel lip configuration. The integrated claws provide the versatility needed to grab virtually any wheel. The claws can be rotated to adjust for different wheel configurations.

Claws may have sharp edges. To avoid personal injury, use caution when working with wheel clamps.

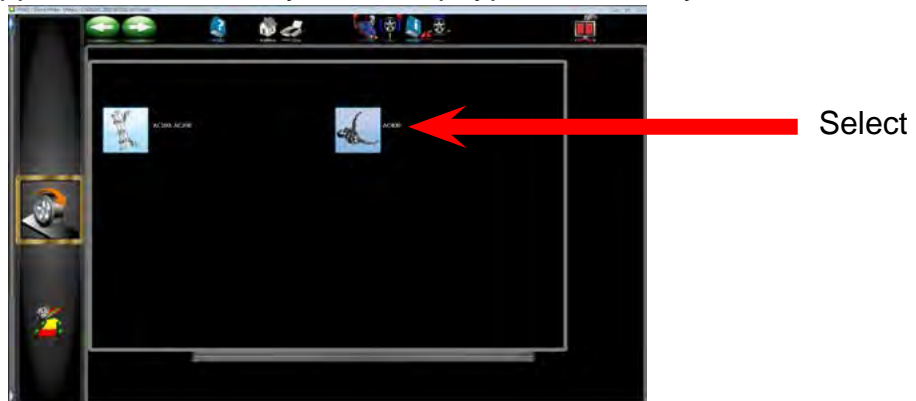
1. Extend the clamp to a size larger/smaller than the rim by turning the knob.
2. Place the lower claws on the outside of the bottom of the rim. Push the claws in between the tire bead and the rim.
3. Tighten the clamp by turning the knob clockwise until the upper claws engage the rim.

Note that it is not necessary for the clamp to be mounted perfectly vertical on the wheel although its desired to be close.

4. Push the claws into place. It may be necessary to pop them in gently for a secure fit. Continue tightening the knob until the clamp is secure.

ATTACHING THE AC400 WHEEL CLAMP AND TARGETS

The aligner program can be setup by the user to utilize several different wheel clamp types. When you begin a new alignment a screen will prompt you to select the type of clamp desired. If your aligner was shipped from the factory, the clamp type has already been selected.



Begin use by determining the tire diameter and selecting the correct pin position for the clamping arms. Refer to the first page and select the proper pin location for the tire diameter.



Arms are adjusted by depressing the spring loaded locator pins then sliding the arms in or out to the desired hole. Make sure all three arms are set to the same position.

Note: *Observe the clamp orientation label affixed to each clamp for proper location on the vehicle.*

Hold the Clamp assembly with the built-in carrying handle. Turn the clamping knob to approximate the tire diameter.

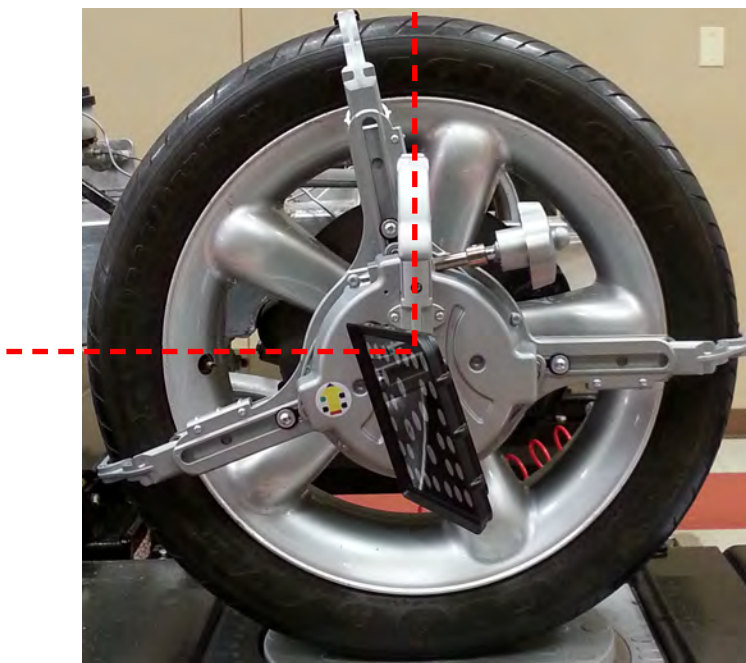


Operation

Place the clamp against the tire making sure the “heel” of each arm makes firm contact with the tire the handle is centered at 12 o'clock and the rear arm is horizontal.



Turn the Clamping knob until the clutch clicks at least once, preferable two or three times. To tighten the clamp, rotate the top of the tightening knob toward the tire. The clutch will not allow excessive pressure on the tire and ensure equal and consistent results.





Begin Wizard Procedure

The *Wizard* procedure sets the aligner to follow a predetermined process path resulting in a completed alignment check. The pre-programmed procedure, called a *Wizard*, sets the aligner up to perform certain functions in a predetermined order.

The Aligner uses a Wizard that is selected at the factory, no setup is required.

NOTE: WHILE THE ALIGNER PERFORMS A QUICK CHECK-OUT OF THE VEHICLE BEING TESTED THE ALIGNER HAS FULL FUNCTIONALITY AND CAN BE SETUP FOR MORE INVOLVED MEASUREMENTS IF DESIRED. HOWEVER THIS IS NOT THE INTENT OF THE QUICK CHECK DESIGN.

The following procedures detail the Alignment Audit System Wizard from start to finish.

Run Wizard

Click on the *Run Wizard* icon on the Home Screen Carousel Bar.

Selecting "Run Wizard" automatically erases the previous vehicles data and begins a new measurement process.

Selecting the "NEXT"  icon from the Home screen will also launch the Wizard.



Beginning a New Measurement

The computer memory of the previous alignment is erased and ready for a new vehicle to be selected.

The next screen to appear is the "Select Vehicle" screen.

Using the VIN Reader (if equipped)

Use the supplied VIN code reader to scan the VIN of the vehicle in test. The code is generally located on the door post.

If the vehicles VIN is properly entered the screen will automatically proceed to the Vehicle Positioning Screen for Rollback compensation.



Manually Selecting Specifications

In the event that the vehicle specs are not recognized by the VIN reader specifications can be entered manually.

Vehicle Manufacturer

This screen shows the vehicle manufacturers in specification database. The vertical scroll bar on the right indicates there are additional choices further down the page. Click on the down arrow on the scroll bar move down. Using the down arrow key on the keyboard also moves down the screen. Once the desired manufacturer is in view, double-click on the name to expand out the model selections. Double-click again to contract. Also, the keyboard's right arrow key expands and the left arrow key contracts the list.



Selecting a Default Make

To select a desired Make of Vehicle as "Default so it comes up first every time, highlight the Make then click on "F10" select default make icon. This will anchor the selection. This is useful for dealership or shops that work on same makes the majority of the time.

.....
TIP: To move to the manufacturer selection quicker, using the keyboard, press the first letter of the manufacturer name. This causes the selection bar to move directly to the first name starting with that letter (i.e. press "H" - moves to Honda).
.....





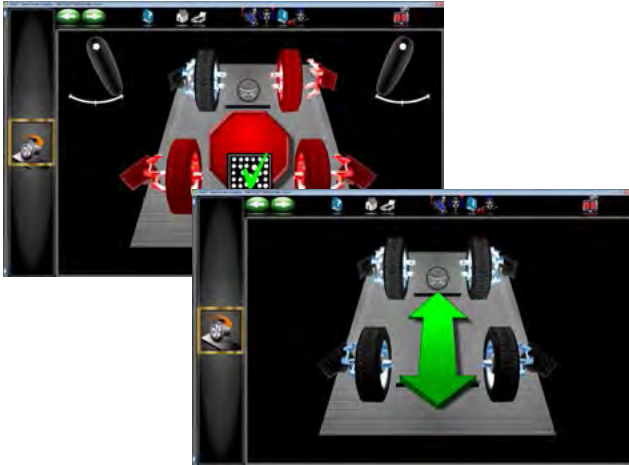
Vehicle Year

Select the year of manufacture using the up/down keys or pointing device on the scroll bar to move up or down to the desired year, then double-click or press the right arrow key to expand out the years this model was made.



Vehicle Model

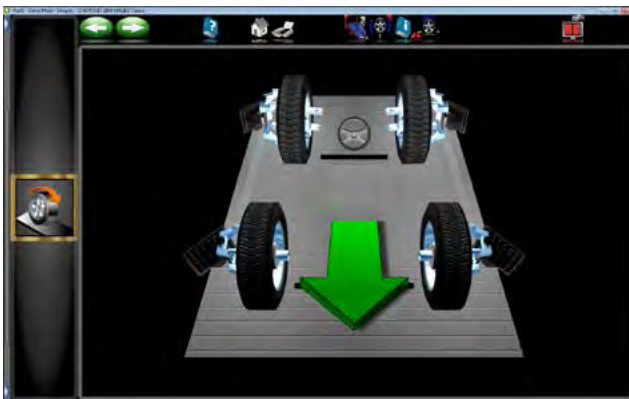
Use the direction keys or pointing device to select the model of the vehicle, then select "OK", press Enter, or double click the selection.



Vehicle Positioning Sequence, Standard Clamps

The next screen displayed is the *Target Acquisition* screen. This screen shows the status of each target and prompts the operator to proceed to the next step when all four targets have been acquired.

When the *Target Acquisition* screen is first displayed the cameras search for the wheel targets. The graphic images of each wheel target are shown away from the wheel and are displayed in red. As the cameras locate each of the wheel targets, the target graphics change from red to black and appear installed on the wheel. This means the target has been “acquired”. When all four wheel targets are located, the first *Vehicle Positioning* screen is displayed.

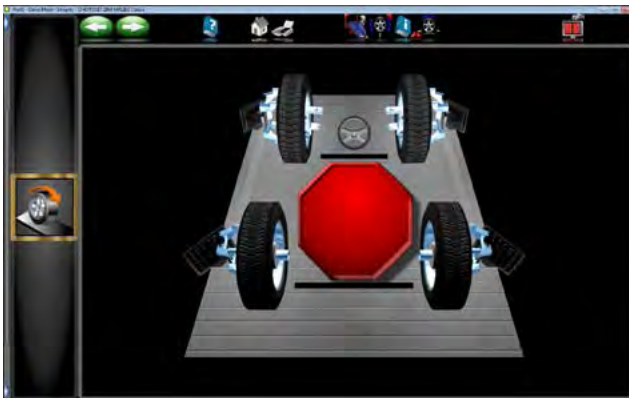


Wait for target acquisition to complete by observing that none of the wheels are “Red”.

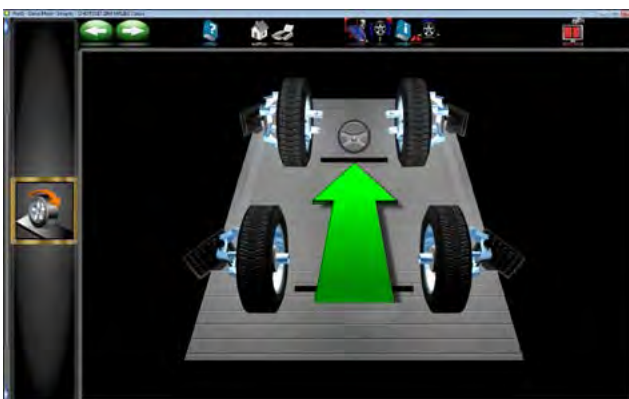
Move the vehicle rearward approximately 8” (20 cm).

The computer compares the initial target positions with the final target positions to calculate the axis of rotation for each wheel.

NOTE: *If one or more targets are never acquired, choose the Camera View button (F12) on the toolbar to help determine the cause, such as blocked vision.*



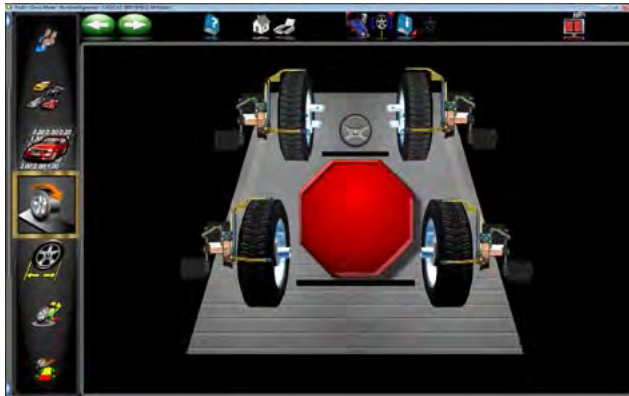
A small red STOP sign will prompt you when the necessary backward wheel rotation has been reached. Hold the vehicle steady until the stop sign disappears.



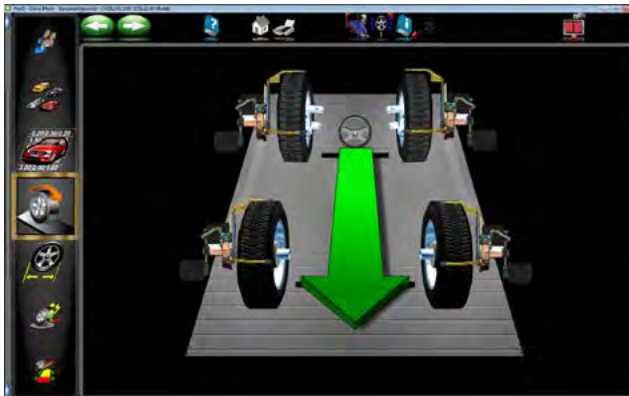
When the aligner is ready, the screen displays a green arrow to prompt you to move the vehicle forward and return it to its starting position roll the vehicle forward where it began.

Vehicle Positioning Sequence, AC400 Clamps

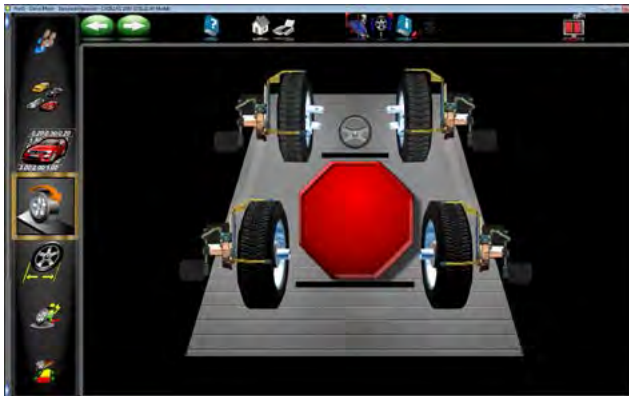
When AC400 clamps have been installed and the cameras “See” the targets you will be prompted to perform the compensation procedure.



First appears a Stop Sign indicating the unit has identified the targets and is beginning the compensation procedure.



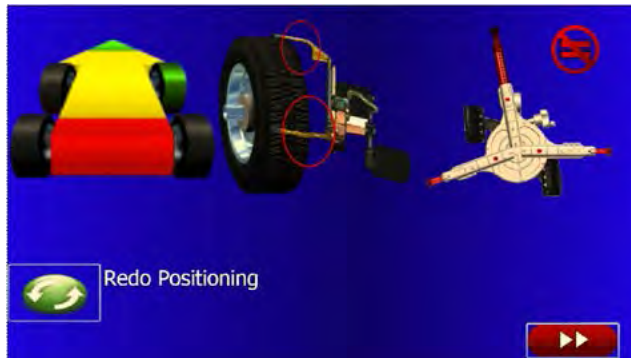
When prompted with the green arrow, move the vehicle rearward until the stop sign again appears.



The Stop sign appears briefly until the suspension settles. At that point the alignment data information is taken and calculations are performed. The vehicle does not need to be rolled back to the starting position. This provides some time savings when using the AC400 clamps.

NOTE: When using an X-CEL/Gen 4 two camera audit aligner, it may be necessary to tilt the camera beam for optimum camera view. Use the “Camera View” icon to view the actual position of the targets and adjust the beam to ensure all four targets are in view.

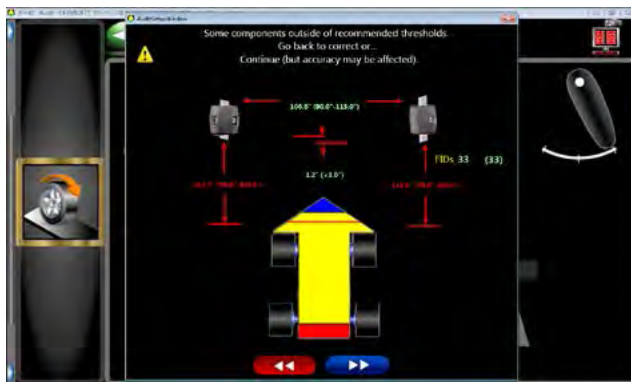




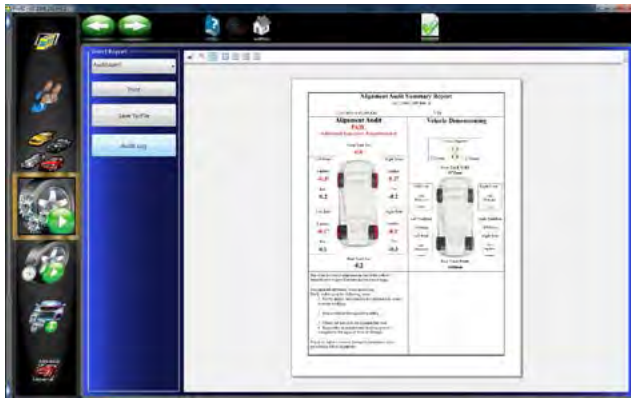
If the aligner senses a mounting error an Alert is posted informing the user that the clamp has a Mis-mount. The VODI indicates which tire or tires have been determined to have an issue. Two scenarios may be displayed, one shows the clamp is not mounted against the tire properly, the other shows the arm length has been determined to be unequal. The alert can be one or the other or both.

If a mounting error occurs, roll back forward and you will get a mounting error message that explains the nature of the error.

If a mounting error is detected, remount the clamp and then select “Redo Positioning”.



Failure to place the camera pods within the suggested installation specification, will result in the user receiving a “Flag” indicating the unit has been set-up outside it’s limitations.

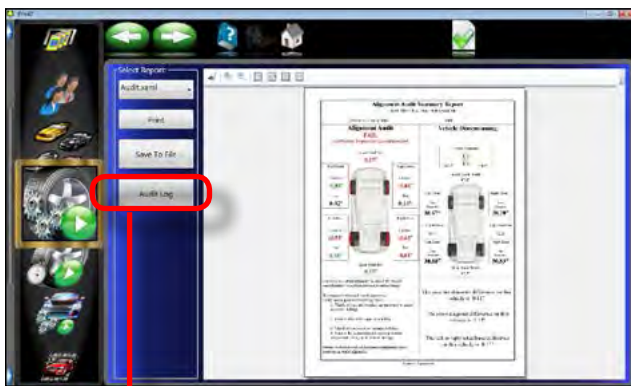


Print Results

Wait for the print box to appear, the results will be printed to the local printer.

Audit Aligner reports include two areas of importance; "Alignment Audit" which indicates camber and toe, the other is "Vehicle Dimensioning" which indicates if all four tires are of the same diameter and their position symmetrical to each other. If either is outside of specifications then a message will be shown to that regard at the bottom of the report.

NOTE: Camber and toe readings check against manufacturing specifications. Vehicle dimensioning readings check against the tolerances set in preferences screen.

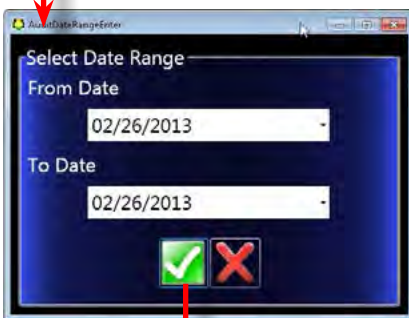


An "Audit Log Report" is available on the Print Reports screen which allows the user to print all Audit results for a specified date range. To view a "Audit Log Report" select "Print" from the Main Menu or Home screen. Then select "Audit Log".

The report will open in an Excel worksheet.

If a history of alignment audits is desired, select the "Audit Log" button to create a spreadsheet. This will create the audits that are done for the date or date range that entered.

Audit Log



Daily Reports

Daily Reports are saved as a Microsoft® Office Excel worksheet. If it is desired to view reports from previous days you can open Windows Explorer and navigate to the location of the files.

The location by default is: c:\AuditReports*.*

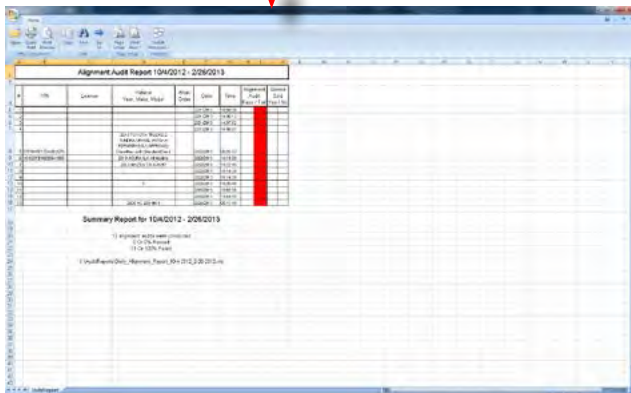
The report name shows if range is selected: Daily_Alignment_Report_11-30-11-11-30-12.xls. Otherwise name is with today's date. The PC's system time determines the report name and when it will be reset.

Double click on the desired report to open in the Excel viewer.

When reports have been satisfied, return to the home screen for the next vehicle to audit.

Remove and store the targets.

Bring in the next vehicle for test.



DATABASE UTILITIES

Pro42 backup and restore functions should be periodically performed in case a malfunction should occur with the Alignment System. These periodic backups allow the customer/technician to restore all data from that backup date when the Alignment System is once again functional. When a backup on a Pro42 aligner is performed using the “database utility” function, this information should only be restored on the aligner that the backup came from.

NOTE: THE BACKUP DATA CONTAINS CALIBRATION DATA AND CUSTOMER DATA. RESTORING DATA TO A DIFFERENT ALIGNMENT SYSTEM WILL OVER WRITE ALL OF IT'S CALIBRATION DATA AND CAUSE INCORRECT ALIGNMENT ANGLES ON THE ALIGNER THE DATA WAS RESTORED TOO.



From the main menu select the “Database Utilities” button from the Main Menu Carousel bar.

Select whether to backup to a thumb drive or to restore data from that drive.

Also available is the ability to delete the customer database. Do not select this unless it is desired to permanently lose all the customer data. This feature might be used when an aligner is transferred to a new owner or location.





USA
Equipment Services
309 Exchange Avenue
Conway, Arkansas 72032
Tel.: (800) 362-8326 o (501) 450-1500
Fax: (501) 450-1585

Notice: The information contained in this document is subject to change without notice. **Snap-on Equipment** makes no warranty with regard to this material, shall not be liable for errors contained herein or for incidental consequential damages in connection with furnishings, performance, or use of this material.

This document contains proprietary information which is protected by copyright and patents. All rights are reserved. No part of this document may be photocopied, reproduced, or translated without prior written consent of **Snap-on Equipment**.