D-4 Series One Computerized 4-Wheel Alignment System
Operating and Maintenance Instructions

This unit serviced and repaired by Northwest Equipment Sales,
a division of Northwest Equipment Manufacturing, Inc.
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Kalispell, MT 59901
406-755-0805
support@nwEquipmentSales.com
www.nwEquipmentSales.com

'SAFETY'

POWER CORD CONNECTIONS

* The unit must be plugged in to a 115V, 60HZ, properly grounded outlet. **DO NOT** cut off the grounding prong on the AC power cord. If using a ground adapter, be sure the pigtail is grounded to the power receptacle. If an extension cord is needed, use a three-wire type with the grounding circuit in good condition.

WET FLOORS

* When plugging meter console in to electrical outlet, avoid wet floors to prevent electrical shock.

FUSES

* **DO NOT** install fuses of a higher ampere rating than specified on fuse holders.

VEHICLE

* Be sure that the vehicle cannot roll. Support vehicle as needed with car stands or equivalent secure blocking.

RAISING THE VEHICLE

* Use jacking system provided with rack.

EPARED AND PRODUCED BY:
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PHOTOMECHANICALS BY: Cindy Burg

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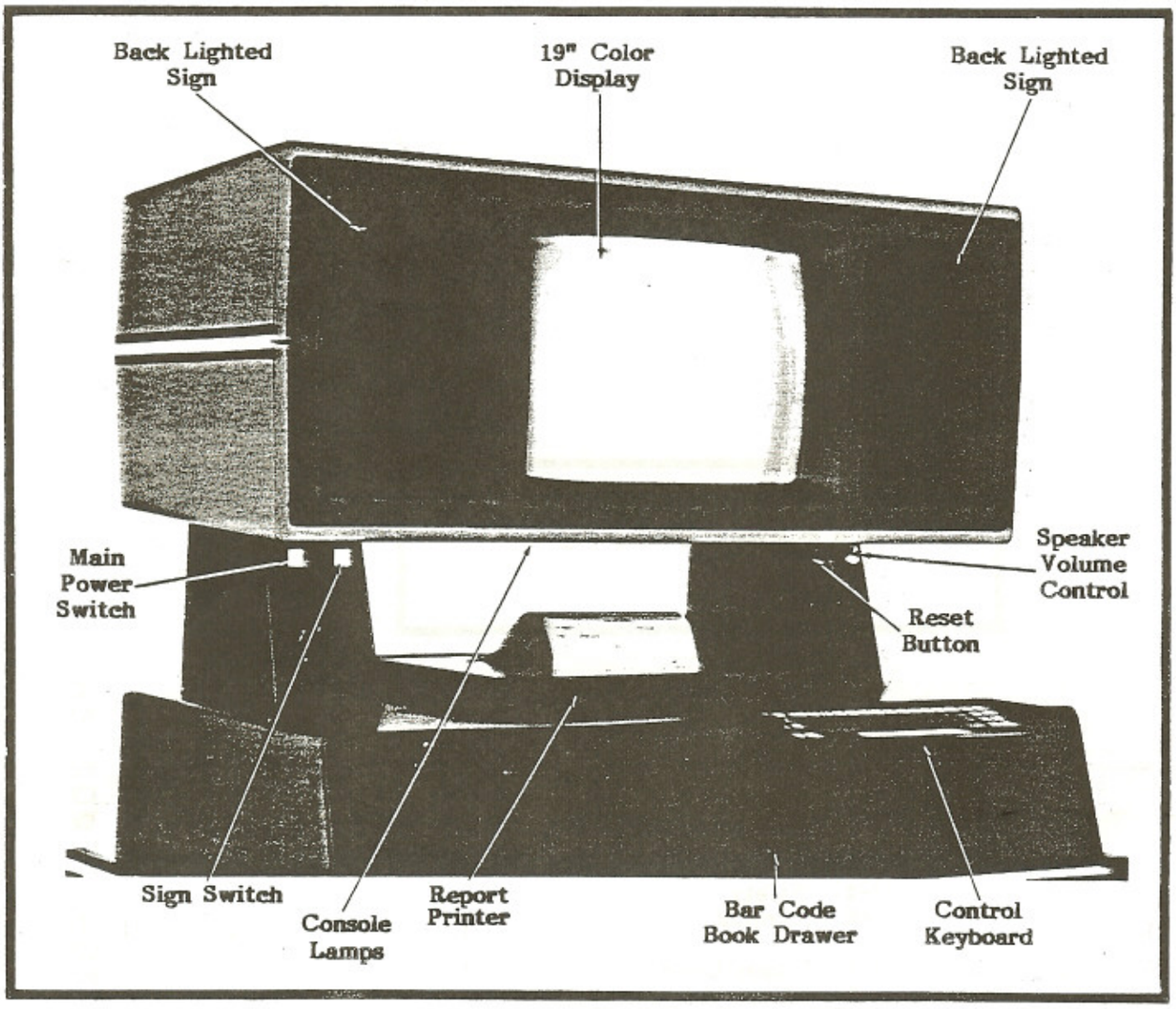


CONSOLE

This Wheel Alignment System and manual are to be used with the vehicle manufacturer's wheel alignment service manual. Together these manuals explain:

1. How to perform vehicle inspection before alignment.
2. The theory of wheel alignment.
3. How to obtain fast and accurate
   - four wheel alignment measurements
   - two wheel alignment measurements

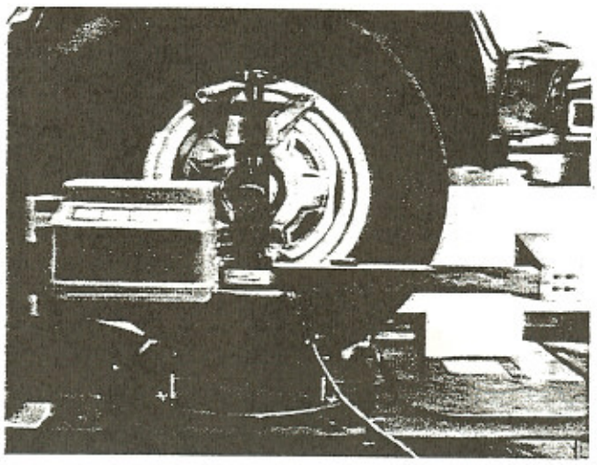
   or

   - two wheel alignment measurements with rear wheel reference.

WHEEL UNITS

The four wheel units are not interchangeable. Each is designed to occupy a sole position on the vehicle: right front, right rear, left front or left rear.

When mounting the wheel units to the wheel clamps, be aware of the position of each unit's light source. Make sure you have established a "line-of-sight" between units: front to front, and front to rear.

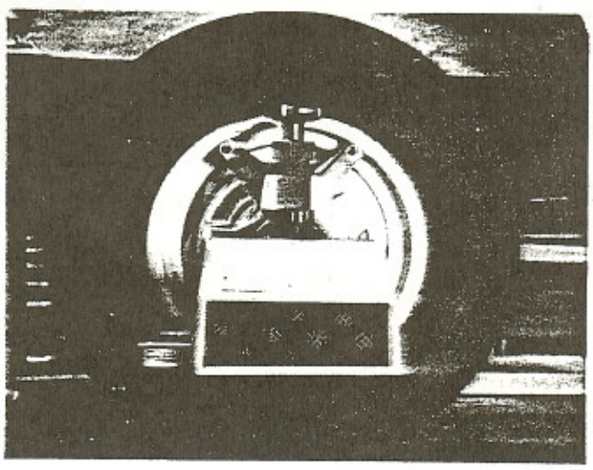


Right Front Wheel Unit

WHEEL UNIT CONNECTIONS

Any wheel unit can be connected to any socket on the console, using any of the supplied cables. Lay the wheel unit cables out so that the long cables go to the rear wheel units.

> **NOTE: It is good practice to connect the wheel unit cables before turning the console unit power on. This avoids the possibility of electrical damage to the console or units.**



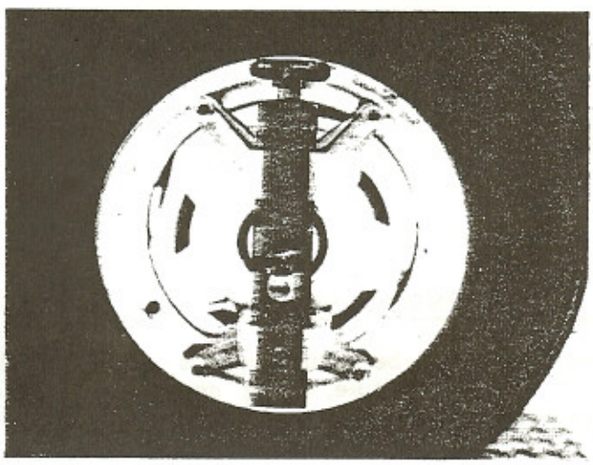
Right Rear Wheel Unit

WHEEL UNIT CLAMPS

By changing the position of the jaws on the clamp, you can adapt the wheel clamps to different style rims.

The wheel clamp spindle centers itself as the clamp is tightened to the rim.

Wheel runout compensation is done as part of the operating procedure, not by adjusting the wheel clamps.



Wheel Clamp

THE KEYPAD AND AUDIO SIGNALS

A single click-like tone means that an active key has been pressed.

A short series of multiple tones alerts you that an unusable key has been pressed.

The message: **BLOCKED BEAM** and a repeating tone signals you that the "line of sight" between wheel units is blocked. The unit stops measuring until the obstruction is cleared. The following codes tell which unit is affected:

0 = Left front camber
1 = Right front camber
2 = Left front to rear tracking
3 = Right front to rear tracking
4 = Left SAI
5 = Right SAI
6 = Left front toe
7 = Right front toe
8 = Left rear camber
9 = Right rear camber
T = Left rear to front tracking
E = Right rear to front tracking

These codes may appear on the screen as consecutive numbers, but should be read individually. For example, a code of "67" should be read as "6" (left front toe) and "7" (right front toe).

A **BLOCKED BEAM** message will be reported only on the Alignment Angle Display screens, and meter screens.

REMOTE CONTROL UNIT

The remote control unit can be connected to any socket on the console using any of the supplied cables.

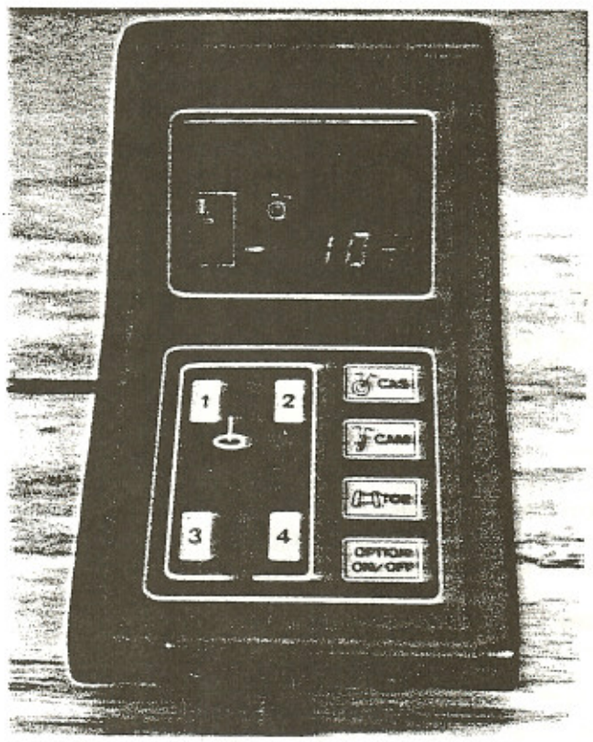
> **NOTE: It is good practice to connect the remote control unit before turning the console unit power ON.**

The four WHEEL picture keys on the remote control unit are numbered. They may be used to select wheel unit displays or, as numbers (1-4), to make menu selections.

CASTER, CAMBER and TOE picture keys are used to select an angle reading. The angle reading appears on the remote control unit in the form of a digital display. A symbol (caster, camber or toe) shows the angle being measured, and a wheel picture shows the wheel being measured.

If specifications have been entered, the remote control unit displays a bar graph. The red portion of the bar graph is the "out of spec" range; the green (center) portion is the "within spec" range. An arrow points to the actual measurement. By watching the bar graph arrow while making adjustments, you can correct misalignments without referring back to the console unit display.

The OPTIONS ON/OFF key displays (and exits) the Options Menu. This key is active only while Alignment Angle and Meter screens are being displayed. (See Page 6-1 for menu selections.)



Remote Control Unit

THE DISPLAY

The different menus and pictures which appear on the display are called "screens". Each screen is described in this book. The screens use "highlight boxes" for highlighting titles, prompts, and keypad selections.

RESET

Hold down the CONTROL (CTRL) button and press ESCAPE (ESC). This action returns you to the Master Menu from most screens.

You may also press the RESET button to return to the Master Menu, but it is recommended you use CTRL ESC.

PRINTING REPORTS

Printing procedures are discussed at the end of the Wheel Alignment and Typewriter sections.

INSTRUCTIONS

Pages in this manual which describe alignment steps contain the name of the step and a brief description at the top of the page. Then **Bold face** headings show:

ACTION:

This describes the action you must take to do the step shown on the page.

Displayed Keys

Displayed Keys are described when a selection appears on the display screen.

Active Keys

Active Keys are described when a key is active but does not appear in a selection on the display screen.

NOTE: Displayed Keys are always Active Keys.

Keys other than **Displayed, Active** and those described in **ACTION** instructions won't work; the unit sounds an error tone when they are pressed.

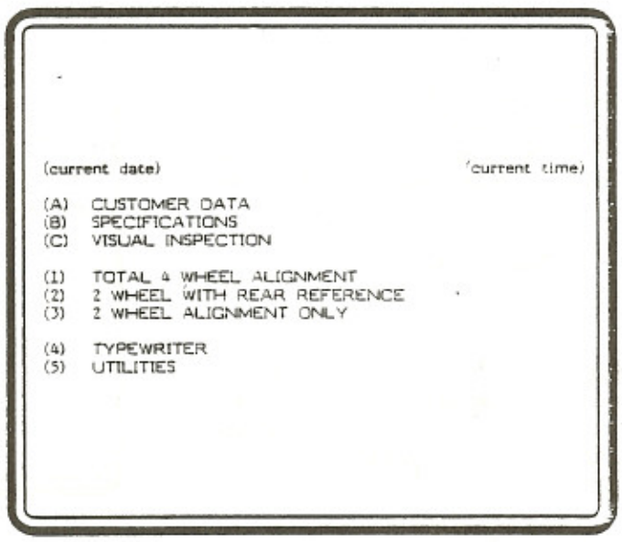
POWER ON

Turn the power switch ON. The system will respond with a series of tones which signal that the unit is ready to operate. The Title screen will appear as the unit warms up. Press any key to view the Master Menu.

MASTER MENU

The date and time are displayed only on this screen. (To change date or time see Utilities section of this manual.)

The Master Menu lists eight operations. Each operation has a section in this manual where specific instructions can be found.



Selections **A, B** and **C** allow the professional alignment person to identify the vehicle to the computer, and record the results of the vehicle inspection. You do not have to choose **A, B** or **C** to perform a wheel alignment; you may simply select a wheel alignment mode.

Wheel alignment modes **1, 2** and **3** are used to:

- measure alignment angles for the type of service: 4 wheel, 2 wheel with rear wheel reference, or 2 wheel only;
- correct the vehicle if needed, while the unit provides continuous readings for adjustment;
- **merchandise necessary services and parts to the customer.**

(See Page 4-1)

The Typewriter (choice 4) allows you to use the printer to provide single or multiple paper copies of letters, messages or notes.

(See Page 5-1)

The Utilities (choice 5) are features of the unit which are not part of an operating procedure. These programs are controlled from the Utilities menu screen.

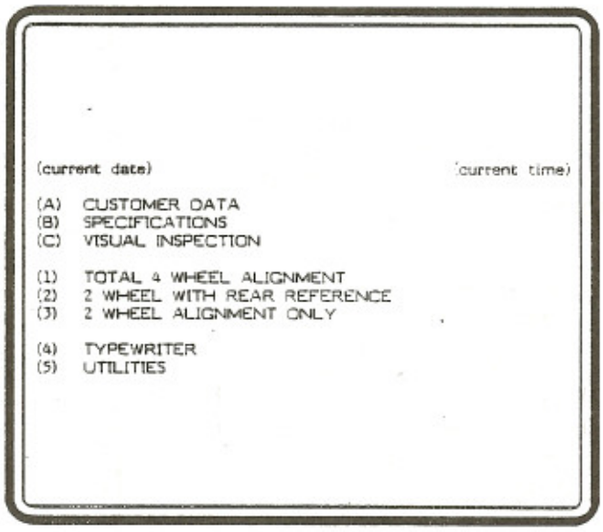
(See Page 7-1)

ACTION:

To choose an operation, press the corresponding alpha or number key. Refer to the section in this manual with the same name as your selection.

Displayed Keys:

None



VEHICLE INFORMATION

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VEHICLE INFORMATION

CUSTOMER DATA

Select this screen from the Master Menu by pressing "A" along with the desired wheel alignment mode (choice **1, 2** or **3**). The Customer Data screens allow you to enter information about the customer and vehicle; such information will appear on the printout when you request the report.

To enter new customer and vehicle information, press a number key (**1, 2,** or **3**) then press CONTINUE to display the Enter New Customer screen. (See Page 3-4) If previous customer information appeared next to the number you selected, it will be erased.

> **NOTE: Information entered on the Enter New Customer screen is kept in the system indefinitely, unless new information is entered in its place.**

If you are performing a retest, the customer name, vehicle description, and license plate number entered earlier appear for your reference. To retest a vehicle already entered, press the number key (**4, 5,** or **6**) which describes the vehicle you want, then press CONTINUE. The specifications you entered earlier will be used, and the Runout Measurement screen will be displayed.

(See Page 4-4)

ACTION:

Press a number key, **1** through **6**. (To change your selection, press a different key.) Press CONTINUE.

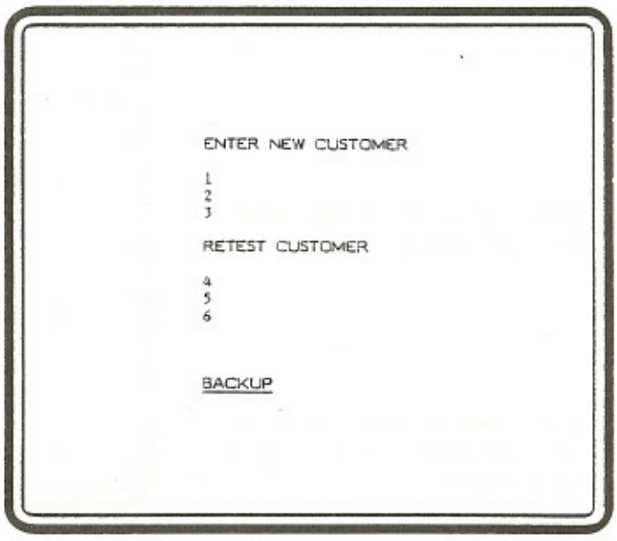
Displayed Keys:

BACKUP returns to the Master Menu screen.

CONTINUE appears after a number is selected; when pressed it advances to the Enter New Customer or (if it's a retest) the Runout Measurement screen.

Active Keys:

ENTER acts the same as CONTINUE.



SPECIFICATIONS

Select this screen from the Master Menu by pressing "8" along with the desired wheel alignment mode (choice **1, 2** or **3**). Customer information appears for reference. The following choices are available:

ENTER SPECS WITH LIGHT WAND

Press **1** to view the Enter Specs With Light Wand screen. (See Page 3-6)

EDIT SPECS

Press **2** to view the first of four Specification screens. (See Page 3-8)

NOTE: You can review or edit specifications anytime by returning to the Edit Specs screen. For information on editing specifications using other units of measurement, refer to the Utilities section of this manual.

PRINT SPECS

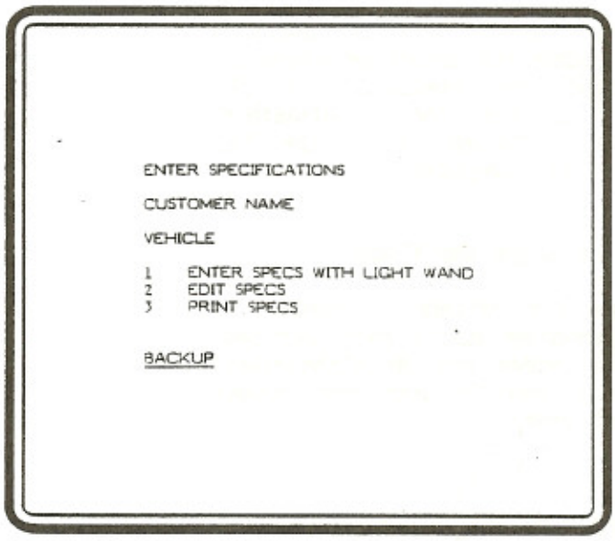
Press **3** to receive a paper printout of the specifications entered.

ACTION:

Press a key, **1** through **3.**

Displayed Keys:

BACKUP returns to the previous screen.



Enter Specs with Light Wand Screen

The specifications contained in the bar codes have been prepared from sources believed to be the most accurate and reliable available at the time of preparation, and are intended for vehicles in common use at the time of preparation.

The manufacturer of the bar codes is not responsible for errors or omissions in specifications contained in the source data, nor for specifications which were changed after the bar codes had been prepared.

Finding The Right Bar Code:

Compare the vehicle description to the description above each bar set. The bar codes are in alphabetical order by manufacturer and model for each year.

NOTE: Reading the bars does not depend on downward pressure on the wand. Use just enough pressure to maintain light positive contact with the paper. Heavy pressure will result in rapid wear of the bars and of the wand tip.

How To Read The Bar Codes:

1. Hold the wand in a nearly vertical position. Place the tip lightly on the white margin at the left side of the page. The audio signal will sound, telling you that the wand has detected the page.

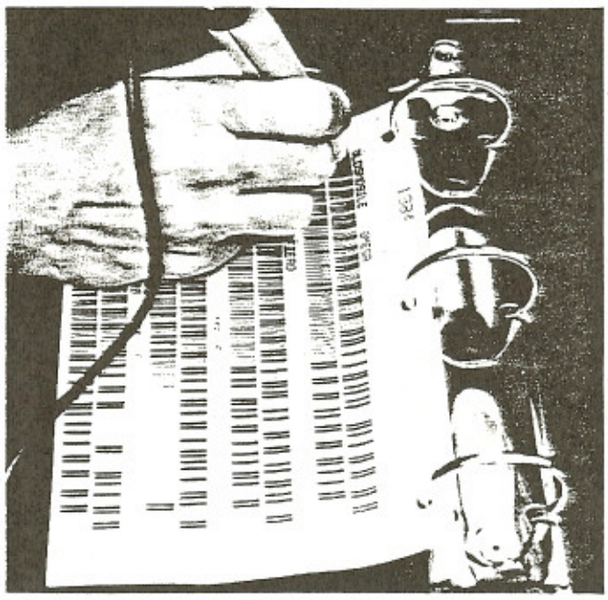
2. Draw the wand with very LIGHT pressure and slight tilt (up to thirty degrees) across the top bars of the set. The computer will check for a good read. If an error message shows, repeat steps 1 and 2.

NOTE: This procedure is tolerant of a wide range of speeds. You can go fairly fast, but try to maintain a steady rate across the page. Don't be afraid of making a mistake, the unit will not accept a faulty specifications read.

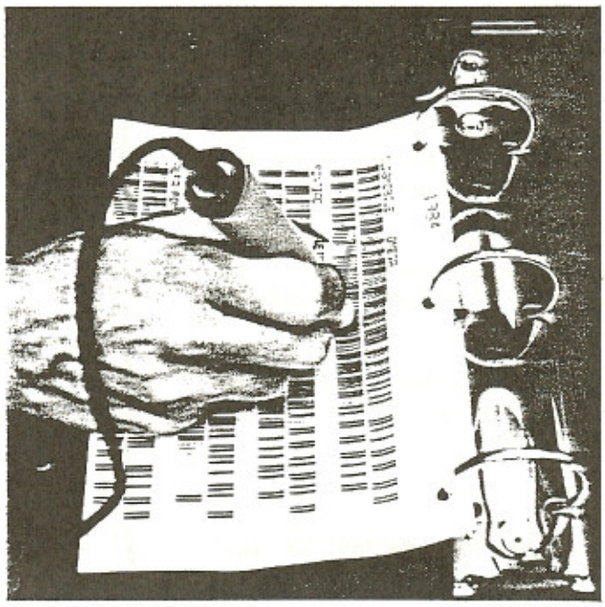
3. Repeat steps 1 and 2 for the bottom bars. When the read is good, the display will advance to either the Suspension/Steering Inspection screen or the Runout Measurement screen.

NOTE: To review or edit the specifications at any time, press the BACKUP key until the Edit Specifications screen appears; then select #2, Edit Specs. (See Page 3-8)

If you decide not to enter specs using the light wand, press CONTROL ESCAPE to return to the Enter Specifications Screen.



Using the Light Wand



Edit Specs Screen

There are four screens of specifications, all of which may be edited. The cursor shows where the next entry from the keypad will appear on the display.

Do not change the specifications line which reads: **"RIM DIAMETER U.S.? YES, 15"**. All vehicles, foreign and domestic, have been correlated to the U.S. standard for toe, so **"YES"** is always correct. The number **15** will always appear, regardless of the rim size of the subject vehicle, because the toe standard is calculated from a 15-inch rim.

NOTE: To edit or convert specs using other units of measurement, refer to the Utilities section of this manual.

ACTION:

Use the keypad numbers and the **Active Keys** to enter and change the things you type.

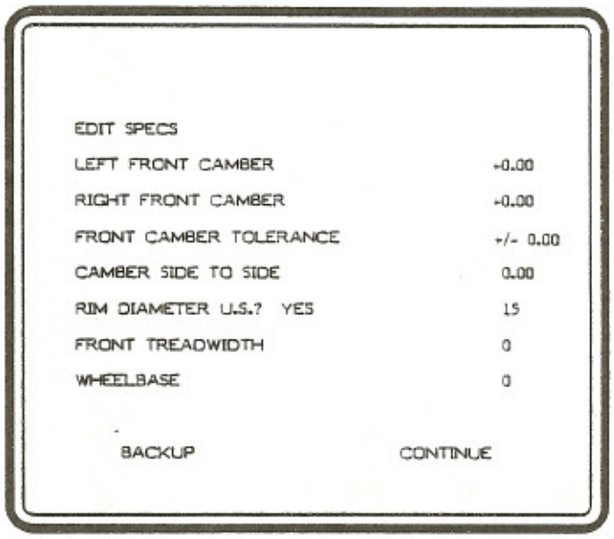
Displayed Keys:

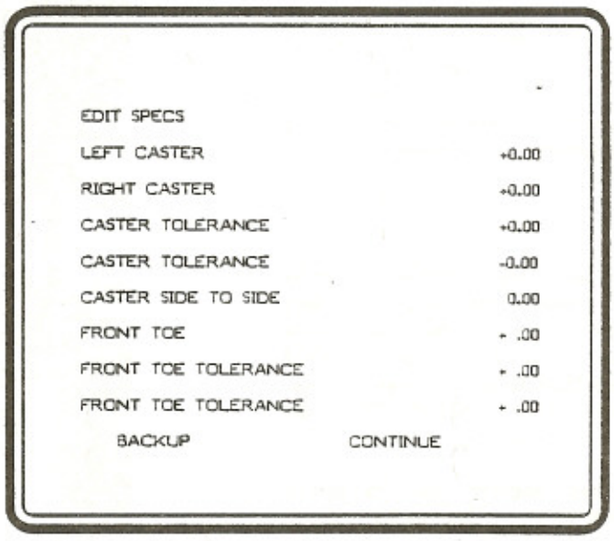
BACKUP -

- returns the display to the Enter Specs screen from the first specifications page,
- returns to the previous specifications page from the top line of another specifications page,
- moves the cursor to the next higher line of any specifications page.

CONTINUE -

- advances the display to the next specs screen,
- advances the display to either the Suspension/Steering Inspection screen or the Runout Measurement screen from the last specs screen.





Edit Specs Screen (Continued)

Active Keys:

ARROWS -

- move cursor left or right on the same line
- move cursor up or down from line to line
- return the display to Enter Specs screen from the top line of the first specifications screen
- advance to the next edit specs page from the bottom line of first three edit specs pages
- returns to the Title Screen from the bottom line of the last edit specs page.

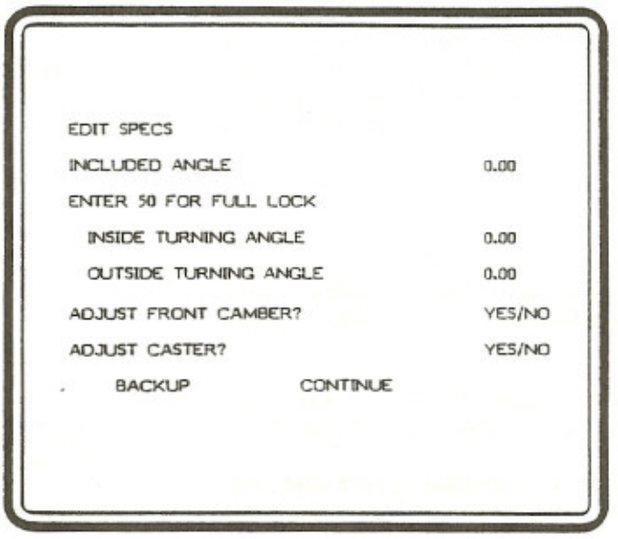
ENTER -

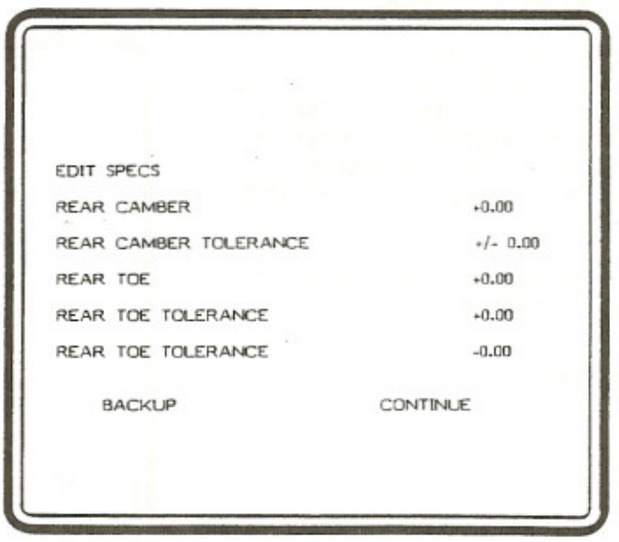
- moves cursor downward on page
- advances to next page from bottom line
- advances to either the Suspension/Steering Inspection screen or the Runout Measurement screen from bottom line of last edit specs page.

BACKSPACE key moves the cursor to the left, on the same line.

PLUS (+) and MINUS (-) sign keys are active when the cursor points to a + or - sign on the screen.

YES and NO keys are active when cursor points to a Yes or No word on the screen.





VISUAL INSPECTION

Steering/Suspension Inspection

Selections made from the Steering/ Suspension screen will record the result of your visual and mechanical inspection. Your selections will appear on the paper printout when you request the report.

ACTION:

If no faults are found through visual and mechanical inspection, press CONTINUE.

For each fault found, press the matching letter key, **A** through **R.**

- To add a selection, press another letter key.
- To erase a selection, press the same letter key again.
- If you find a fault which is not listed, press **R.** The cursor will appear under "Other". Use the typewriter keypad to enter the fault (up to 30 characters). To erase you entry, press ENTER, then **R.**
- When selections are complete, press CONTINUE.

Displayed Keys:

None

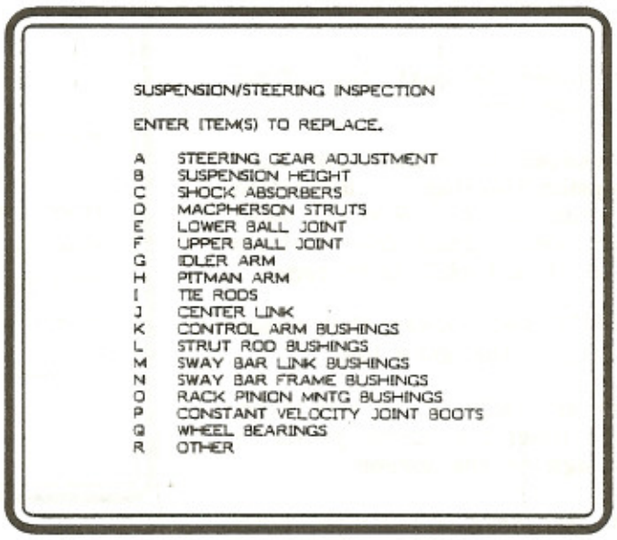
Active Keys:

CONTINUE -

- allows you to proceed without recording any faults
- allows you to proceed after selecting any number of faults resulting from your visual and mechanical inspection
- advances the display to the Tire Condition screen.

ENTER acts the same as CONTINUE.

BACKUP returns you to the Enter Specifications screen or the Master Menu.



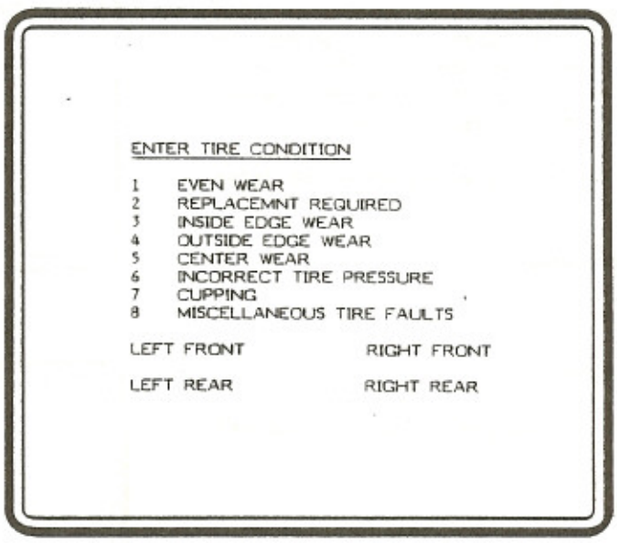
Enter Tire Condition Screen

The Enter Tire Condition screen allows you to note the condition of each tire and record this information on the printout when you request the report.

An arrow, called the cursor, appears under each line to be filled. The cursor shows where the next entry from the keypad will appear on the display.

ACTION:

Use the keypad numbers, **1** through **8**, to enter up to four defects per tire found as the result of the physical tire inspection.



Displayed Keys:

None

Active Keys:

BACKUP -

- returns to the Suspension/ Steering Inspection screen from the first tire position
- moves the cursor back to a previous tire position except from the first tire position.

CONTINUE advances to the Runout screen from any tire position.

ENTER -

- advances to the next tire position except from the last tire position
- advances to the Runout screen from the last tire position.

Turning Angles Screen

If you chose "C" (Visual Inspection) from the Master Menu, the Turning Angles Screen will appear after the Runout (Page 4-4) screen.

To measure turning angles, remove the lock pins from the turning radius plates. Swing each front wheel as prompted on the screen, then enter the reading from the opposite wheel turning plate. Press ENTER.

The turning angles are stored for later use.

Displayed Keys:

None

Active Keys:

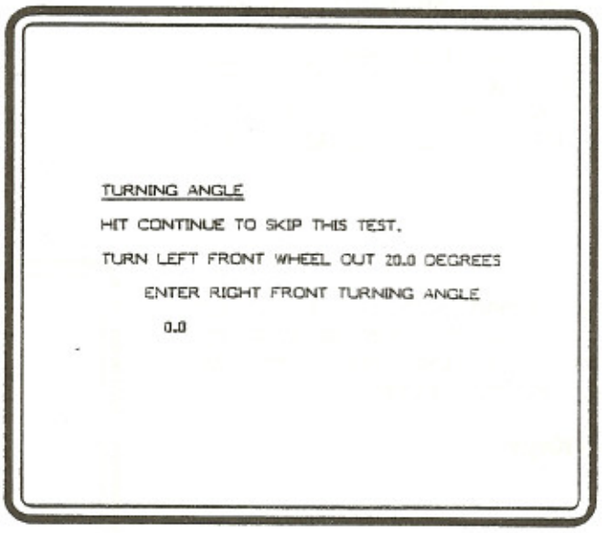
CLEAR changes an incorrect number.

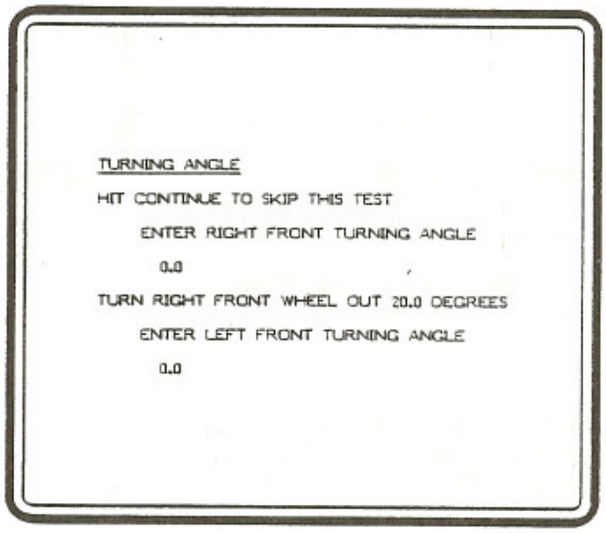
ENTER -

- saves the number for later use
- advances to the next screen.

BACKUP returns to the Runout screen.

CONTINUE skips Turning Angle procedure, and advances the display to the Caster/SAI Measurement screen.



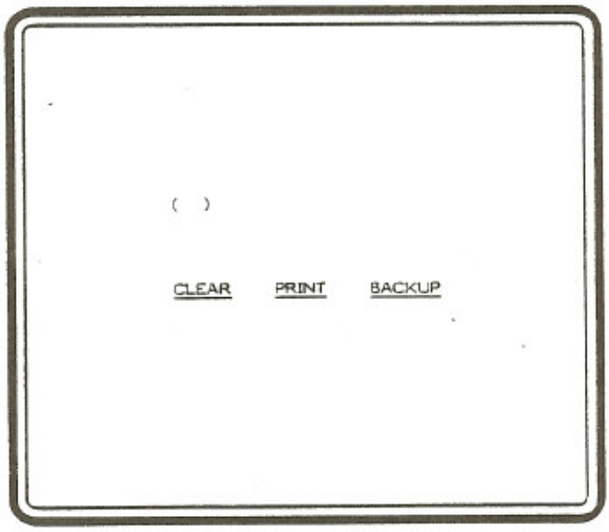


TYPEWRITER

TYPEWRITER

TYPEWRITER

A pair of brackets, called the cursor, appear in the upper left corner of the screen. The cursor shows where letters, numbers, or symbols will appear on the display. The typewriter feature accepts twenty-one lines, each of thirty-two letters, numbers, spaces, or symbols from the keypad.



Displayed Keys:

CLEAR erases the entire screen.

PRINT sends the entire screen to the printer for a paper printout.

BACKUP returns the display to the Master Menu screen.

Active Keys:

Use number and alphabet keys to enter letters, numbers and symbols.

ENTER moves the cursor to start a new line.

The four ARROWS move the cursor to any location on the display.

BACKSPACE erases while moving the cursor to the left on the display.

The SPACE BAR erases while moving the cursor to the right on the display.

TYPEWRITER

UTILITIES

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DEALER ID

An arrow, called the cursor, appears under each line to be filled in or changed. The cursor shows where the next entry from the keypad will appear on the display.

After the phone number line, the cursor advances to the start of a merchandising message area. You may enter up to three lines, each of thirty-two letters, numbers, spaces, or symbols.

Displayed Keys:

None

Active Keys:

Use number and alphabet keys to enter letters, numbers and symbols.

BACKSPACE moves the cursor to the left on the display.

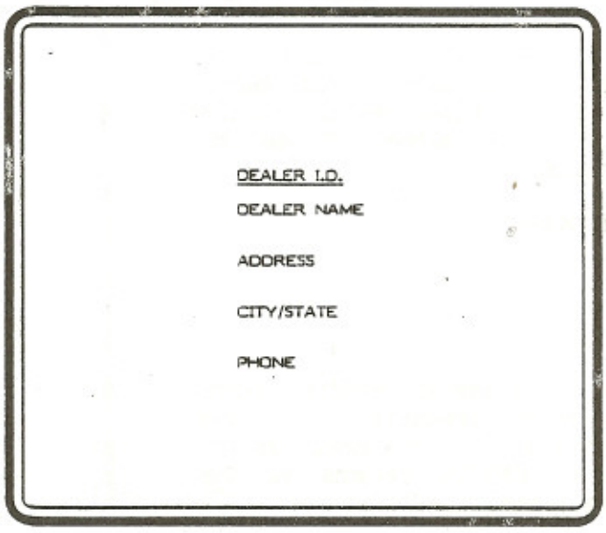
CONTINUE returns to the Utilities Menu screen.

ENTER moves the cursor to the next line, until the last merchandising line, then ENTER returns to the Utilities Menu screen.

BACKUP moves the cursor to the previous line, until under the Dealer Name, then BACKUP returns to the Utilities Menu screen.

The left and right ARROWS move the cursor to any location on the line.

CLEAR erases everything on the line pointed to by the cursor.



SET CLOCK

Calender and clock operation continues even when unit power is OFF. The clock will require resetting only if the batteries in the unit need replacement.

ACTION:

Press number keys to enter or change the numbers in the cursor brackets. A 24 hour clock is available when you select "2" on the fourth line.

Displayed Keys:

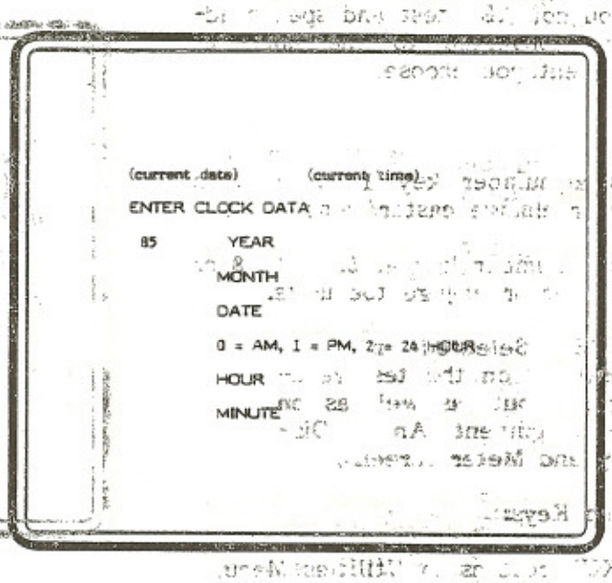
None

Active Keys:

ENTER saves the information shown in the cursor brackets, and moves the cursor to the next line. On the last line, ENTER returns to the Utilities Menu.

BACKUP moves the cursor to the line above the present position.

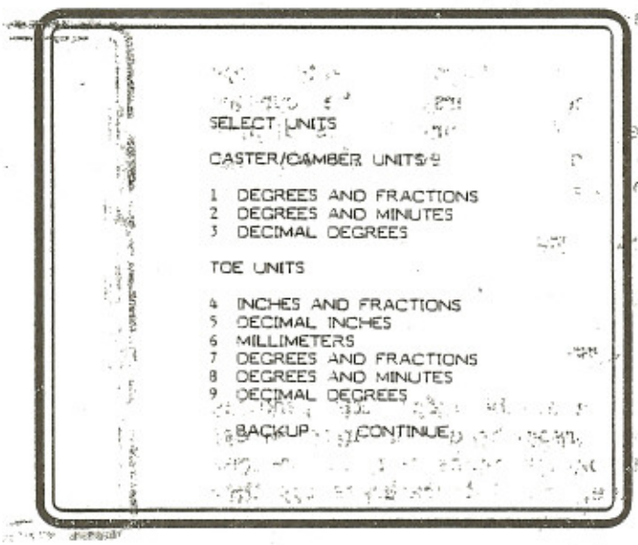
Use number keys for entering or changing numbers bracketed by the cursor.



UTILITIES

SELECT UNITS

Specifications and test readings are reported in units of measurement which you select. You may change units of measurement at any time; when you do, ALL test and spec readings are converted to the units of measurement you choose.



ACTION:

Press a number key **1**, **2** or **3** to enter or change caster/camber units.

Press a number key **4**, **5**, **6**, **7**, **8** or **9** to enter or change toe units.

NOTE: Selected units are identified on the test reading printout, as well as on the Alignment Angle Display and Meter screens.

Displayed Keys:

BACKUP returns to Utilities Menu.

CONTINUE returns to Utilities Menu.

Active Keys:

NUMBER KEYS 1 through 9.

VEHICLE PREPARATION

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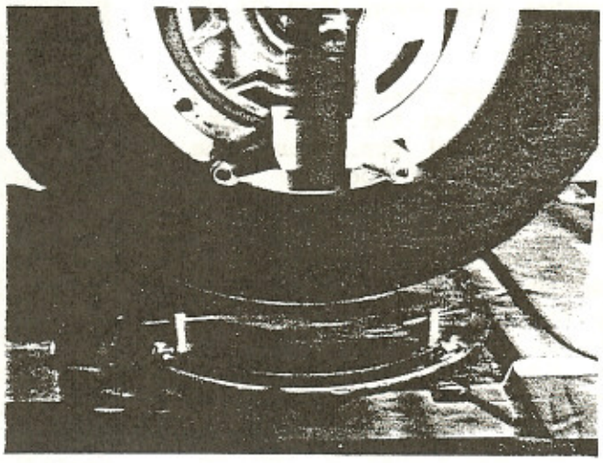
BEFORE ALIGNMENT

Discuss any customer complaint about road behavior, and confirm the complaint whenever possible with a road test.

PUTTING VEHICLE ON RACK

Make sure turning plates are locked in position with the pointers at the zero degree mark. Drive vehicle onto alignment rack. Position front wheel axles so that they are in line with the zero mark of turning plates. Rear wheels must be on slip plates if rear wheel toe/camber are to be adjusted. **Be sure that the vehicle cannot roll.**



Wheel on Turning Plate

INITIAL INSPECTION

1. Rotate tires if needed.
2. Inspect vehicle for:
   - Correct tire pressure
   - Bent wheel rims
   - Wheel balance problems
   - Brake condition
   - Wheel bearing adjustment

INSTALL WHEEL CLAMPS

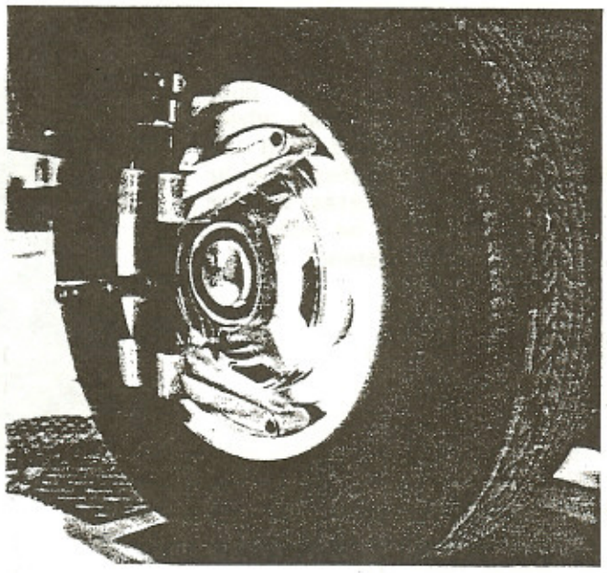
1. Remove wheel covers if they interfere with clamp jaws fit on the rim.

2. Hold the large black knob toward the top, and set the lower clamp jaws on wheel rim. Turn the black knob anti-clockwise until the top jaws seat against the rim.

3. Examine the jaws for even seating on the rim, avoiding wheel weights. Secure the clamp to the rim using moderate hand pressure to turn the black knob.

4. Pull on the clamps to test for tightness on rim.

5. Mount wheel units on wheel clamp spindles.



Wheel Clamp Installation

WHEEL ALIGNMENT

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SELECT MODE

The wheel alignment mode you select from the Master Menu determines the method the system uses to refer to the wheels and chassis of the vehicle. Choices are described below.

Total 4 Wheel

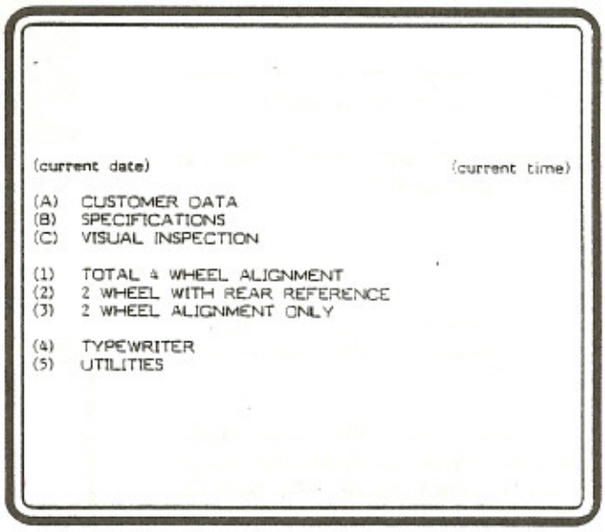
Measures alignment angles of all four wheels.

2 Wheel With Rear Reference

Measures alignment angles of front wheels using reference to the rear wheels for individual front wheel toe angles.

2 Wheel Only

Measures alignment angles of front wheels.



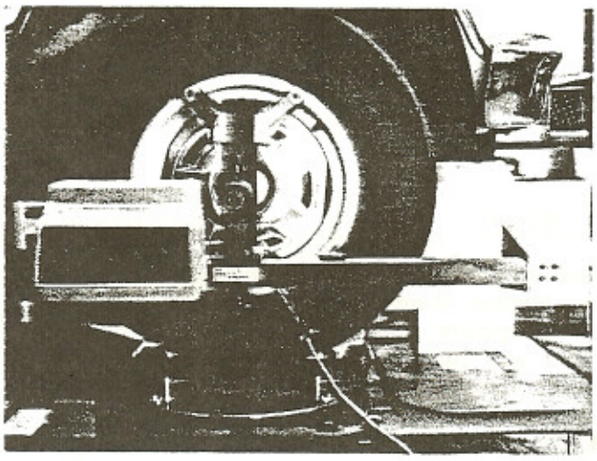
RUNOUT MEASUREMENT

The large black knob used to tighten the clamp jaws to the wheels is used as the reference point during runout compensation.

Runout compensation must be done:

- on all four wheel units when performing four wheel alignment.
- on front wheel units only for 2 wheel with rear reference alignment.
- on front wheel units only when performing 2 wheel alignment.

You can begin at any wheel and do the wheels in any order.

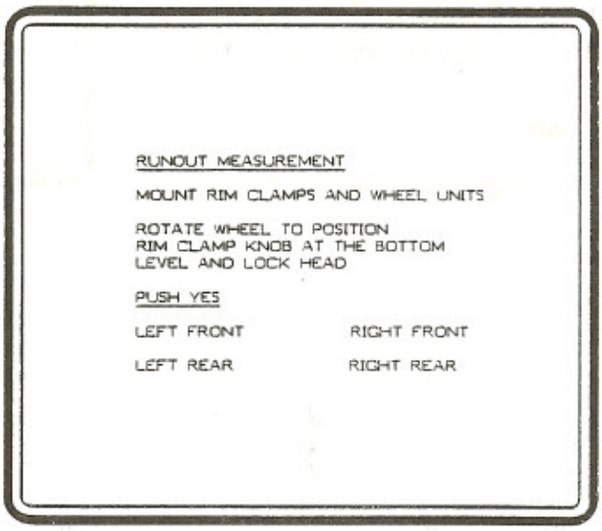


Runout - Wheel Clamp Knob Turned Down

ACTION:

1. Lift the wheel using the lifting device supplied with the alignment rack.
2. Loosen the wheel unit lock knob. Turn the wheel so that the large rim clamp knob is at the bottom of the wheel.
3. Level the wheel unit. Steady the unit by tightening the lock knob, using moderate hand pressure.
4. Press the YES key on the wheel unit. The WAIT prompt will appear on the screen.

NOTE: Do not move wheel or wheel unit while the WAIT prompt is displayed.



RUNOUT MEASUREMENT (Continued)

5. Loosen the lock knob. Move the wheel one-half turn so that the large rim clamp knob is at the top of the wheel.

6. Level the wheel unit. Tighten the lock knob, using moderate hand pressure.

7. Press the YES key on the wheel unit. The WAIT prompt will appear on the screen.

NOTE: Do not move wheel or wheel unit while the WAIT prompt is displayed.

8. Lower wheel to turning plate, making sure wheel unit remains level.

9. Proceed to the next wheel unit and repeat steps 1 through 9.

NOTE: To redo runout on a wheel for any reason, start the first step over when both arrows for that wheel are present on the display.

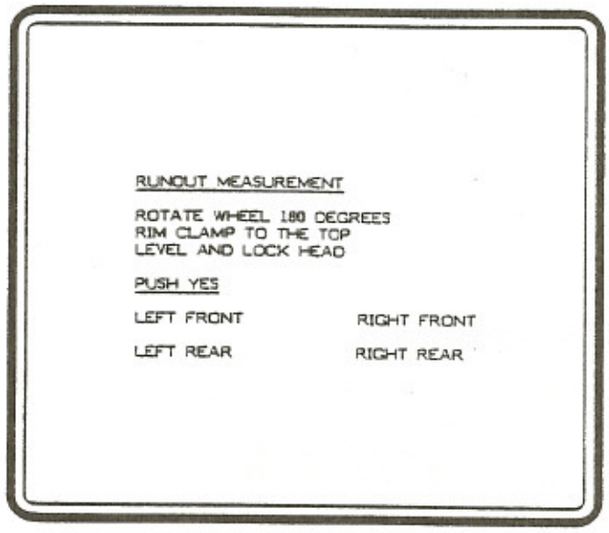
Displayed Keys:

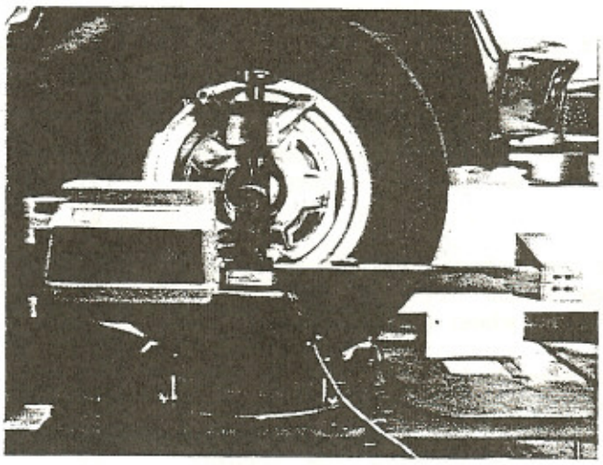
YES key on the active wheel unit, prompted at the appropriate time.

Active Keys:

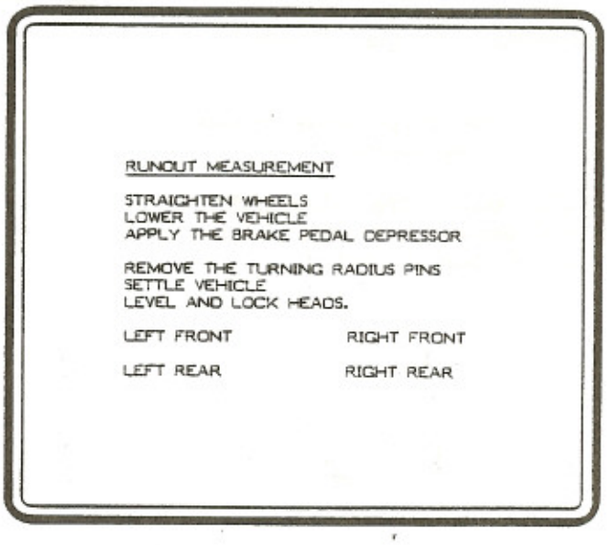
ENTER key when runout is complete.

NOTE: If you chose "C" (Visual Inspection) from the Master Menu, the Turning Angle Screen (Page 3-12) will appear next.





Runout - Wheel Clamp Knob Turned Up



CASTER/SAI MEASUREMENT

The front wheels of the vehicle should be in straight ahead position. Follow the instructions on the display. DO NOT JACK THE CAR UP OFF THE WHEELS FOR THIS PROCEDURE.

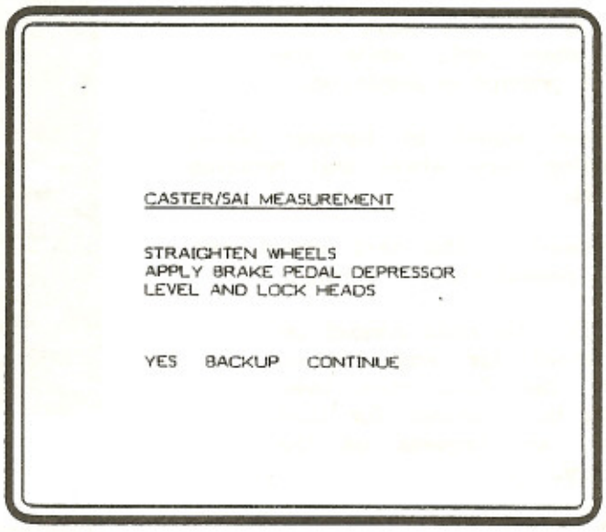
ACTION:

1. Install brake pedal depressor. If vehicle is equipped with power brakes, set pedal depressor while engine is running. Turn engine off.

2. Be sure wheel units are level and lock knobs are snug enough to prevent wheel unit movement.

3. Remove lock pins from turning radius plates.

4. Press YES to view the Caster/SAI Meters.



Displayed Keys:

YES advances to the Caster/SAI Meters.

BACKUP returns to previous screen (Runout or Turning Angle).

CONTINUE skips the Caster/SAI Meters and advances to the Alignment Angle Display screen.

Caster/SAI Meters

These six meter screens prompt the operator to turn the vehicle wheels. Following this action the computer calculates and stores caster/SAI measurements.

Each meter contains an arrow which represents the position of the vehicle wheels. The prompts tell the operator to "zero the meter." This means placing the RED arrow in the Zero Range Bar until the arrow turns GREEN. A **W A I T** signal will appear. DO NOT MOVE THE WHEEL WHILE THE **W A I T** SIGNAL IS DISPLAYED.

To provide accurate measurements, the meter arrow operates on two scales. When the arrow is WHITE it is measuring in 1/2 degree increments. When you bring the WHITE arrow over the Zero Range Bar, the arrow turns RED. The RED arrow measures in 1/32 degree increments.

When you bring the RED arrow over the Zero Range Bar it turns GREEN. STOP there and do not move the wheel until the **W A I T** signal disappears. The next meter screen will be displayed and you will repeat the process for all six meter screens.

NOTE: If you turn the wheel too fast, the message "WARNING - SIGNAL LOST" appears. SLOWLY return the wheel to its original position and, when the message disappears, begin again.

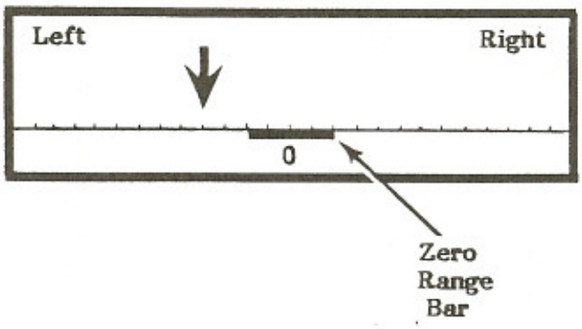
If "Beam Blocked" message appears, see Page 1-9.

Displayed Keys:

None

Active Keys:

NO returns to the first step of the Caster/SAI Measurement.



TURN LEFT FRONT WHEEL IN TO ZERO THE METER

ALIGNMENT ANGLE DISPLAY (First Screen)

The Alignment Angle Display shows the angles being measured by the wheel units.

If specifications were entered, out-of-spec readings will appear in highlight boxes.

NOTE: To select other units of measurement, see the Utilities section of this manual.

Displayed Keys:

CONTINUE switches between first and second Alignment Angle Display screens.

PRINT (See Page 4-12)

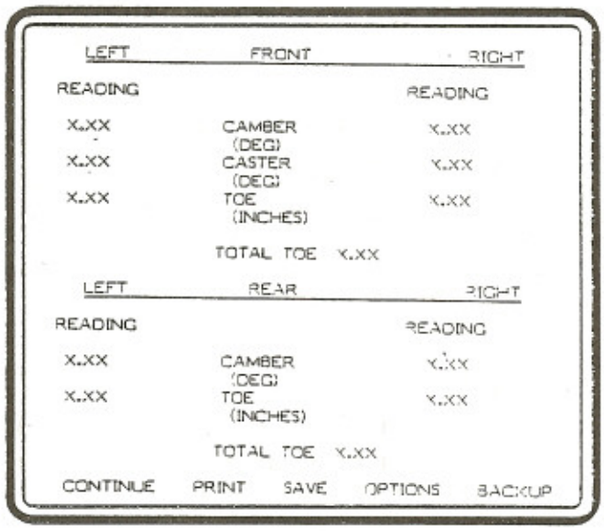
SAVE keeps the customer information, the specifications, and the angle measurements. This is for use in comparing before and after alignment readings when one of the Retest Customer choices is made from the Customer Selection screen.

OPTIONS - See Options Menu, Page 6-1.

BACKUP returns to the first step of Caster/SAI Measurement.

CTRL ESC returns to the Master Menu.

NOTE: If "Beam Blocked" message appears, see Page 1-9.



ALIGNMENT ANGLE DISPLAY
(Second Screen)

Displayed Keys:

CONTINUE switches between first and second Alignment Angle Display screens.

PRINT (See Page 4-12)

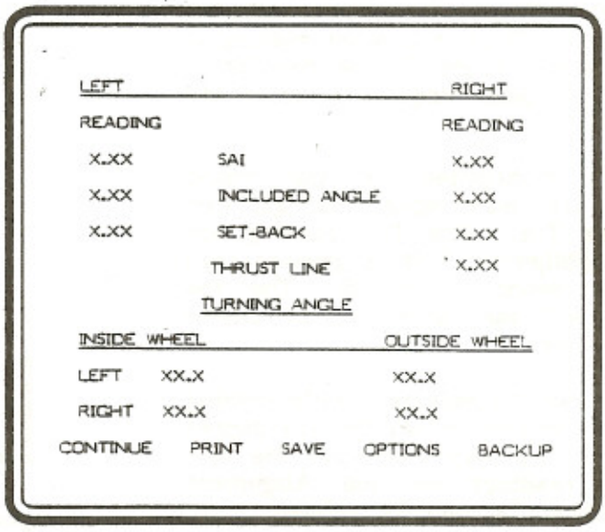
SAVE keeps the customer information, the specifications, and the angle measurements. This is for use in comparing before and after alignment readings when one of the Retest Customer choices is made from the Customer Selection screen.

OPTIONS - See Options Menu, Page 6-1.

BACKUP returns to the first step of Caster/SAI Measurement.

CTRL ESC returns to the Master Menu.

NOTE: If "Beam Blocked" message appears, see Page 1-9.



CASTER/CAMBER METERS

Caster/Camber meters appear when the CASTER/CAMBER picture key is pressed while the Alignment Angle Display or Toe Meter screens are being displayed.

If specifications have been entered for the vehicle, a pair of brackets appear on each meter. The brackets identify the range recommended by the vehicle specifications.

An arrow in each meter shows the actual angles being measured by the wheel units. Adjustments to the Caster/Camber angle cause the arrow to move. If specs have been entered, the arrow will be red when reading is within specs range; if the reading is not within specs range, the arrow will be white.

Numbers highlighted on the meter screens are out-of-spec readings; except for Toe. The Toe reading appears highlighted if it is greater than the toe window. (NOTE: The toe window will vary according to Caster specifications.)

Camber can be adjusted while making sure toe remains within the 1/8 degree window. You may then save the new camber readings on the Alignment Angle Display screen for reference.

ACTION:

Adjust caster/camber angles as needed to agree with specifications.

Displayed Keys:

None

Active Keys:

Press the WHEEL picture key for the wheel you want displayed.

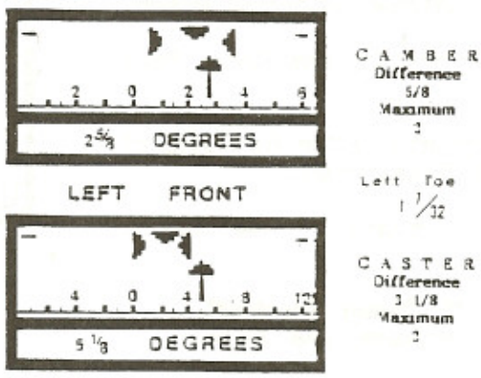
Press the CASTER/CAMBER picture key to display the Caster/Camber meters.

Press the TOE picture key to display the TOE meters.

BACKUP returns to the first step in Caster/SAI Measurement.

NO returns to the Alignment Angle Display screen and saves adjusted angle values.

NOTE: If "Beam Blocked" message appears, see Page 1-9.



TOE METERS

Toe meters appear when the TOE picture key is pressed while the Alignment Angle Display screens or Caster/Camber meters are being displayed.

If specifications have been entered for the vehicle, a pair of brackets appear on each meter. The brackets identify the range recommended by the vehicle specifications.

An arrow in each meter shows the actual angles being measured by the wheel units. Adjustments to the Toe angle cause the arrows to move. If specs have been entered, the arrow will be red when reading is within specs range; if the reading is not within specs range, the arrow will be white.

Numbers highlighted on the meter screens are out-of-spec readings.

ACTION:

Adjust toe angles as needed to agree with specifications.

Displayed Keys:

None

Active Keys:

Press the WHEEL picture key for the wheel you want displayed.

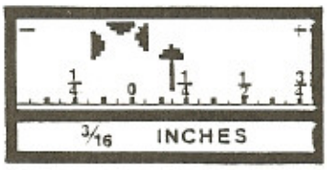
Press the CASTER/CAMBER picture key to display the Caster/Camber meters.

Press the TOE picture key to display the Toe Meters.

BACKUP returns to the first step of Caster/SAI Measurement.

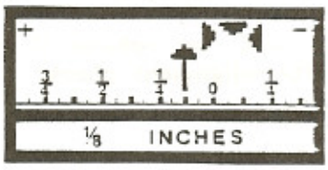
NO returns to the Alignment Angle Display screen.

NOTE: If "Beam Blocked" message appears, see Page 1-9.



TOE
Total Toe
5/16

FRONT



PRINTING REPORTS

ACTION:

Press the PRINT key, when prompted, to get the complete report of wheel alignment angles measured by the unit. A report of specifications and visual inspection will also appear if these were entered.

Messages entered on the Typewriter page concerning merchandising can be added to the report by returning to the Master Menu, selecting Typewriter, then printing any messages stored or entered there.

AFTER ALIGNMENT

Remove wheel units and wheel clamps. Drive the vehicle from the rack.

Road test the vehicle if possible, as an after-alignment check.

OPTIONS

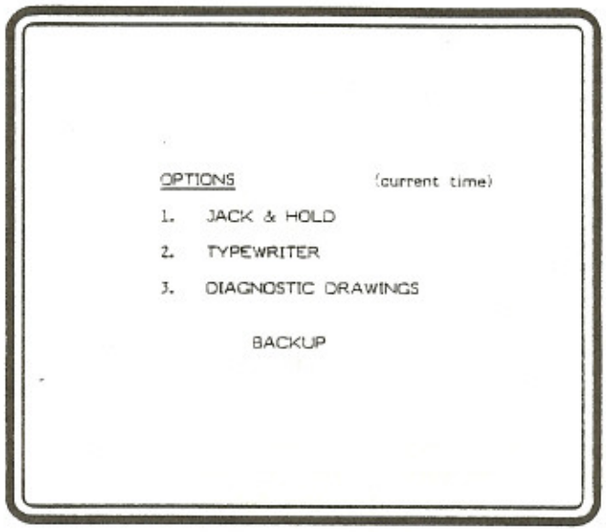
TABLE OF CONTENTS

INTRODUCTION

The Options menu is accessible from the Alignment Angle Display screens or the Caster, Camber and Toe Meter screens.

Press the letter "O" on the keypad (or the "Options" button on the remote control panel) to select the Options menu. This menu displays:

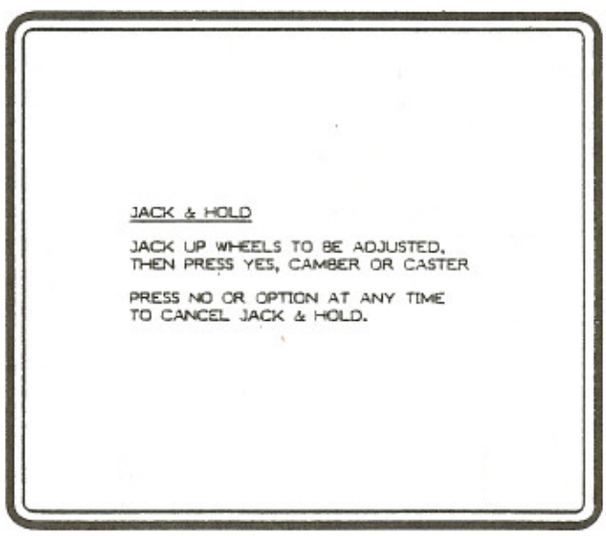
1. Jack & Hold
2. Typewriter (See Page 5-3)
3. Diagnostic Drawings



JACK & HOLD

Jack & Hold is used when a vehicle's alignment angles are difficult or impossible to adjust with the vehicle resting on its wheels.

Choose Jack & Hold (1) when the vehicle is resting on its wheels. You may then raise it. The computer preserves the readings taken with the vehicle down and ignores any change of angles resulting from raising the vehicle off its wheels.



ACTION:

1. To select Jack & Hold, press 1 from the Options screen, and wait while the computer takes angle readings.

   NOTE: The vehicle must be resting on its wheels before you select Jack & Hold or the angle readings will be incorrect.

2. When prompted, use the jacking system supplied with the rack to raise the wheels you want to adjust.

3. Press the CASTER/CAMBER or TOE picture key on the keypad (or remote control panel) to display caster/camber or toe meters for the jacked wheels.

NOTE: You may also press YES or the appropriate WHEEL picture key to display the caster/camber meters.

The meters reflect readings taken before the wheels were raised.

4. Adjust the raised wheels as needed. Any changes you make will appear on the displayed meters immediately.

5. When adjustments are complete, lower the vehicle to rest on its wheels. Press NO (or the letter "O") to exit the Jack & Hold mode.

The first Alignment Angle Display screen will appear showing the adjustments you made.

NOTE: If you exit Jack & Hold at any time, you must lower the vehicle to rest on its wheels before entering Jack & Hold again.

Displayed Keys:

BACKUP, from Options screen, returns to the Alignment Angle Display screen.

Active Keys:

CASTER, CAMBER and TOE picture keys.

WHEEL picture key.

NO key exits Jack & Hold mode.

The letter "O" key exits Jack & Hold mode.

DIAGNOSTIC DRAWINGS

"Diagnostic Drawings" was created to assist the automotive repair person in locating wheel alignment adjustment points. A "drawing" may be an actual graphic line drawing with arrows pointing to the parts to be adjusted, or it will be a written instruction for making adjustments.

Specifications must be entered for the vehicle you are working on in order for the computer to locate the correct drawings.

ACTION:

Choose **3** from the Options Menu to view the drawing for the vehicle being tested. (Remember that for certain vehicles there are no drawings and a message will appear to that effect.)

Active Keys:

If there are two drawings, you may alternate between the first and second screen by pressing any of the following keys:

- ENTER from the console
- CONTINUE from the console
- YES from the console or any wheel unit
- The number **1** from the remote control unit.

To exit the drawing screen, press any of the following keys:

- NO from the console, remote control unit or wheel unit
- The letter **O** from the console
- The "Options" button from the remote control unit
- CONTROL ESCAPE (CTRL ESC) from the console (returns you to the Master Menu)

To exit the Options Menu press BACKUP. The Alignment Angle Display screen will appear.