



CE

R.E.M.O. COMPACT

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Español

Elaborazione grafica e impaginazione

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TRANSLATION OF ORIGINAL INSTRUCTIONS

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EN

INTRODUCTION

The purpose of this manual is to furnish the owner and operator of this equipment with a set of practical and safe instructions for the use and maintenance of the wheel aligner.

Follow all the instructions carefully and your equipment will assist you in your work and give lasting, efficient service in keeping with CORGHI traditions.

The following points define the levels of danger regarding the equipment, associated with the warning captions found in this manual.

DANGER

Refers to immediate dangers with the risk of serious injury or death.

WARNING

Dangers or unsafe procedures that can cause serious injury or death.

ATTENTION

Dangers or unsafe procedures that can cause minor injuries or damage to property.

Read these instructions carefully before powering up the equipment. Conserve this manual and all illustrative material supplied with the equipment in a folder near the equipment where it is readily accessible for consultation by the operators. The technical documentation supplied is considered an integral part of the equipment; in the event of sale all relative documentation must remain with the system.

The manual is only to be considered valid for the equipment of the model and with the serial number indicated on the nameplate applied to it.



WARNING

Adhere to the contents of this manual: the operator is to be held responsible for any operation not specifically described in this manual.

IMPORTANT

Some of the illustrations in this manual have been taken from photographs of prototypes: standard production systems may differ in some details. These instructions are for people with a certain level of knowledge as to the mechanics and use of computer operating systems.

We have therefore not considered it necessary to describe every single operation, such as the procedure for loosening or tightening fixing devices, etc. Never carry out operations which exceed your level of operating skill, or of which you do not have experience. If assistance is required, contact an authorised service centre.



WARNING

The aligner is a measuring tool, as a result the prompts for the adjustments to be made on the vehicle (animations or fixed help messages) are purely indicative only. The operator must always have read and understood the instructions or guidelines provided by the manufacturer before carrying out any work on the vehicle, and carry out said adjustments in compliance with these instructions.

The manufacturer declines all responsibility for the actual implementation and consequences of the aforementioned adjustments.

TRANSPORT, STORAGE AND HANDLING

Equipment transport conditions

The aligner must be transported in its original packaging and kept in the position indicated on the packaging itself.

Ambient conditions for storage of the equipment

Please refer to the "Technical Data" paragraph.



WARNING

Do not stack other items on top of the packing or damage may result.

Handling

To move the packing, insert the tines of a fork-lift truck into the slots on the base (pallet) .

Remove any brackets or other fixing means there may be. Remove the aligner components, being extremely careful when handling. Be particularly careful not to break any of the components.



CAUTION

Keep the original packaging materials so that the machine can be safely shipped at a later date if necessary.

The warranties on the monitor, personal computer and printer are no longer valid if the original packaging is missing.



CAUTION

If this is the first installation or a spare part, keep the batteries vertical and in a dry place without any heat sources nearby. For all other information please refer to the machine's storage conditions as given in this document.

INSTALLATION



WARNING

Carry out the unpacking, assembly, lifting and installation operations described with care.

Failure to comply with these instructions could damage the machine and put the operator at risk.

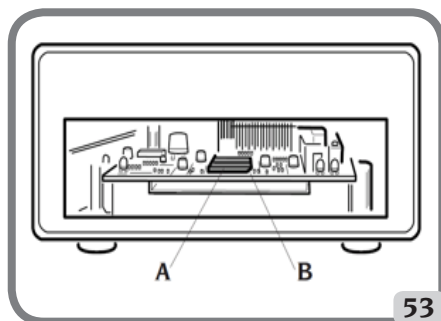
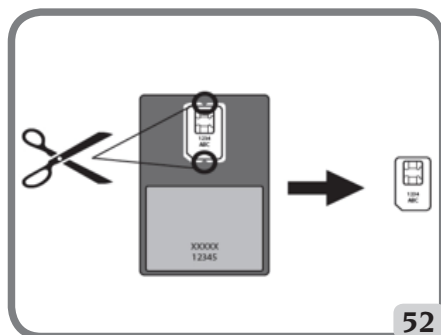
IMPORTANT Depending on the different machine configurations that can be ordered, some components or subsystems in this manual might not correspond to what you have ordered.

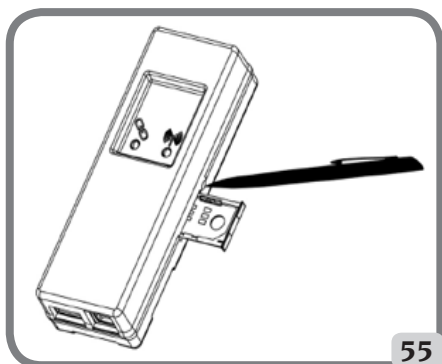
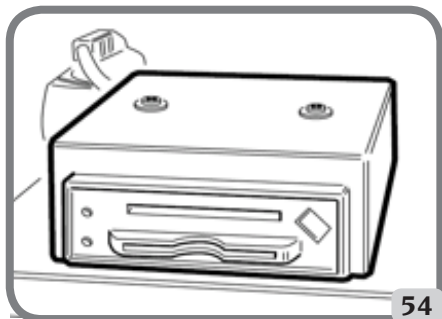
Assembling the equipment

- Unpack the equipment, placing the packaging in the position shown by the markings on it.
 - Remove the monitor from its packaging.
 - Fit the monitor in its position threading the power supply and signal cables through the specific slot; secure the monitor base with the specific clamp and lock everything with the screws supplied with the aligner. If a monitor with a very small base is used, use also the adapter supplied with the aligner.
 - Remove the rear panel of the lower cabinet.
 - Take the aligner Sim Card (Fig. 52) and remove it from its profiled support (keep the Sim Card support, with serial number for any requests you may have or future assistance).
- a) If you are using the SIM CARD READER, put the sim card in the connector (A, fig.53 with the box open) with the golden contacts facing down and the chamfered side facing the outside of the reader (B, fig.53). Put the front back on (fig.54). The reader can be put on the table by the side of the PC;
- b) If you are using the HARD LOCK device, put the Sim Card in its connector (extractable and recallable using any pointed object, as shown in fig.55) with the golden contacts

facing down and the chamfered side facing the outside of the reader (A, fig.55). Reinsert the extractable connector now holding the Sim Card.

- Take the PC out of the packaging.
- Position the computer on the upper vertical column.
- Plug the cables into their connectors. All plugs are marked unequivocally on their PC sockets. Put the plugs right in without any excessive force and screw down any safety screws there may be.
- The aligner is supplied ready for a 230 Vac power supply.
- Put the power cable in the plug on the robotized unit recharging station but before doing this read the "electrical hook-up" chapter.
- Turn on the aligner with the main switch and the monitor and the printer with the specific switches.
- Update the wheel aligner software if necessary, "Updating the Wheel Aligner Software" section, and install any optional kits, "Installing Additional Functions" section.





CAUTION

For technical features, warnings, maintenance instructions and any other information relative to the monitor or PC, see to the relative user manuals provided with the machine documentation.

ELECTRICAL HOOK-UP

The manufacturer pre-sets the aligner to operate with a power supply of 230V AC. **To alter this setting, contact Corghi SpA Technical Assistance.**



WARNING

Any connections to the workshop electrical board are the customer's responsibility, and must be made by staff qualified in accordance with the relevant legal requirements.

- The electric hook-up must be suitably rated in relation to:
 - The machine input power, specified on the machine data plate.
 - The distance between the equipment and the electric hook-up point, so that voltage drops under full load do not exceed 4% (10% during start-up) below the rated voltage specified on the dataplate.
- The user must:
 - Fit a power plug in compliance with the current regulations on the power supply lead.
 - Connect the equipment to its own electrical connection having a specific automatic differential circuit-breaker, with sensitivity 30 mA.
 - Fit protection fuses to protect the power supply line, rated in accordance with the instructions provided in the general wiring diagram in this manual.
 - Provide the workshop's electrical system with a grounding circuit in good working order.
- To prevent the risk of unauthorised usage of the machine, always disconnect the mains power supply plug when the machine is not used (switched off) for long periods.
- If the machine is connected directly to the mains via the main electrical panel (without a plug), a key switch or padlockable switch must be installed to prevent use of the machine by unauthorised persons.



WARNING

For correct and safe operation of the machine it must be connected to an efficient ground connection.

NEVER connect the earth wire to a gas or water pipe, telephone wire or any other unsuitable objects.



WARNING

Before connecting the power supply plug to the power panel make sure that the line voltage is the same as indicated on the data plate of the machine.

SAFETY REGULATIONS

The equipment is intended for professional use only.



WARNING

Only one operator may work on the equipment at a time.



WARNING

Failure to comply with the instructions and danger warnings may cause serious injury to operators and to others in the vicinity.

Before starting up the equipment, always ensure you have read and understood all the danger/warning signs in this manual.

Only qualified, authorised operators are capable of using this equipment correctly. A qualified operator is considered to be a person who has read and understood the manufacturer's instructions, is suitably trained, and is aware of the safety and adjustment procedures for operations.

Operators must not use the equipment under the influence of alcohol or drugs which may affect their capacity. In all cases, it is essential to:

- Be able to read and understand all the information in this manual.
- Have a thorough knowledge of the capabilities and features of this machine.
- Keep unauthorised persons well clear of the area of operations.
- Make sure that the equipment has been installed in compliance with all the relevant legislation and standards.
- Make sure that all system operators are suitably trained, that they are capable of using the equipment correctly and safely and that they are adequately supervised during their work.
- Do not touch power lines or electrical equipment without first making sure that the power supply has been disconnected.
- Read this manual carefully and learn how to use the machine correctly and safely.

- Always keep this operator's manual in a place where it can be readily consulted and to consult it whenever appropriate.



WARNING

Do not remove or deface the Attention, Warning or Instruction decals. Replace any missing or illegible labels. Replace any missing or illegible decals. Missing or damaged decals can be obtained at your nearest Corghi dealer.

- When using and carrying out maintenance on the equipment, observe the standardised industrial accident prevention regulations.
- Unauthorised alterations or changes to the equipment relieve the constructor of all liability for any consequent damage or accidents. In particular, tampering with or removing safety devices constitutes a breach of Safety at Work Regulations.



WARNING

During work and maintenance operations, always tie up long hair and do not wear loose clothing, ties, necklaces, watches or any other items that may become tangled in the moving parts.



WARNING

Take particular care when crossing the manoeuvring space of the robotic units to avoid the risk of injury caused by tripping over or colliding with runways and floor ramps



WARNING

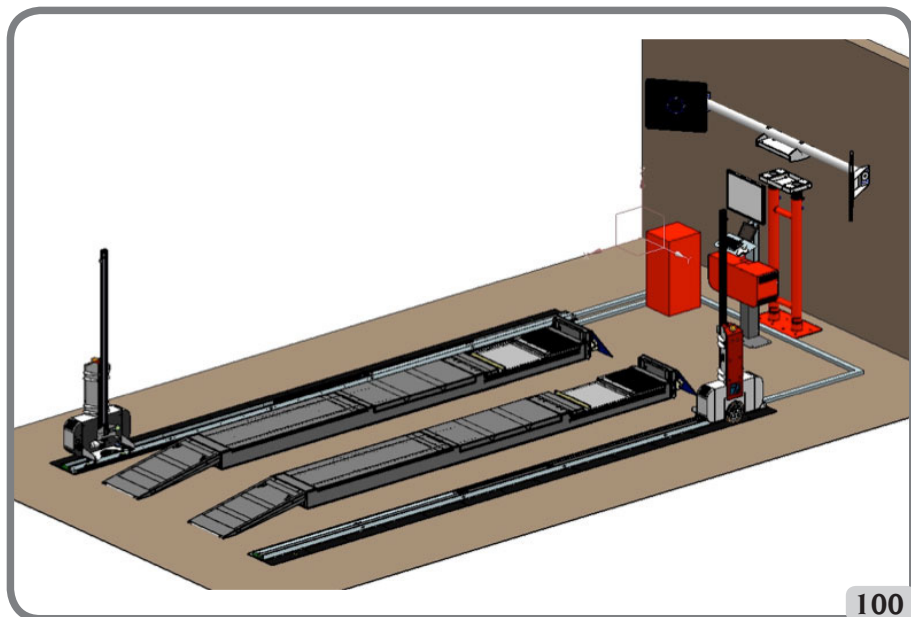
Infrared Radiation!
Avoid prolonged close-up exposure. Do not observe directly with optical instruments. Do not look directly at the light devices.

ALIGNER SOFTWARE UPGRADE

Contact the Corghi SpA Technical Assistance Service if the aligner measuring application software is to be upgraded.

CONFIGURING A COMPLETE SYSTEM

Figure 100 shows a possible configuration of a complete clampless system.



This configuration, variable depending on the end user's different work requirements, comprises the following subsystems:




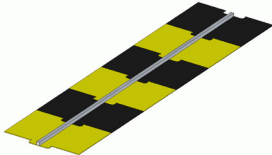

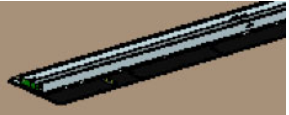
<p>Central Unit ("client")</p> 	<p>LH and RH robotic units ("server")</p> 	<p>Field target</p> 
<p>Runways with guide</p> 	<p>Lift</p> 	<p>Cable sleeve</p> 

Table 100

Installation space



WARNING

Choose the place of installation in strict observance of local regulations regarding safety in the workplace.

The floor must be able to withstand a load equal to the sum of the weight of the equipment itself and the maximum payload, bearing in mind the lift support surface area and anchor fixtures used.

Figure 102 illustrates the layout and relative nominal installation area of a complete system in which the robotised units are equipped with "5-5-6" type heads. Therefore, the working space necessary to installation of a complete clampless wheel alignment measurement system is: L x W x H = 9.20 x 5.20 x 2.50 m³



CAUTION

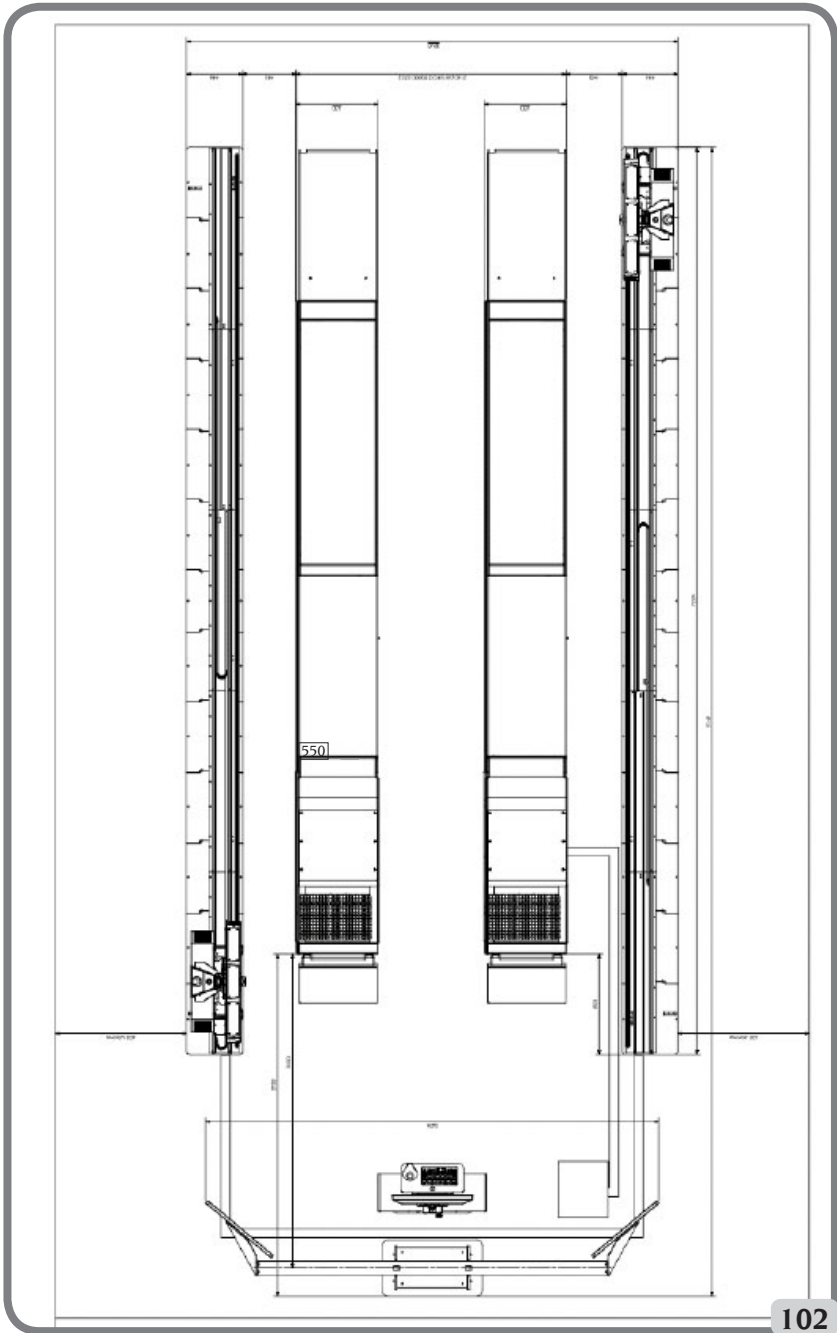
The values indicated previously are indicative. Corghi SpA reserves the right to modify the dimensions of the installation area indicated above at any time and without notice. For more detailed information, see the website www.remotion.com or contact the Corghi SpA Technical Support Service.



WARNING

Always keep a safe distance when the robotized units are moving. Also avoid looking directly at the artificial light sources (laser and lights).

IMPORTANT: for correct, safe use of the equipment, users must ensure a lighting level of at least 300 lux in the place of use.



Configuration with robots with "5-5-6" heads



CAUTION

Make sure that there are no permanent magnets, electromagnets or sources of heat in the vicinity of the machine as these could cause irreparable damage (they might irreparably damage the programme disk and the Personal Computer).



WARNING

Ensure there are no apertures near the machine (e.g. windows, doors, skylights, portlights, etc.) allowing sunlight to shine directly onto the cameras, even if only briefly, while the aligner is in use. If necessary, obscure these apertures completely or partially.

Ambient working conditions

Relative humidity	20% - 80%.
Temperature range	0°C - 40°C.
Minimum brightness level:	300 lux



WARNING

The machine must not be operated in potentially explosive atmosphere.

NOMENCLATURE OF COMPONENTS ON BOARDS AND ELECTRICAL INSTRUMENT PANELS

Electrical controls integrated in robotic unit



Key:

- A: button panel with head movement controls
- B: AUTO/MAN selector
- C: flashing warning lamp and buzzer
- D: emergency button

TURNING THE MACHINE ON AND OFF



CAUTION

Make absolutely certain that you carry out the operations listed below with maximum attention and precision to guarantee maximum duration of the batteries incorporated in the robotized units.

Turning the machine on

- Check that the **AUT-MAN** selector is on **AUT** (automatic working mode).
- While the machine's operating systems are loading, make sure that in the working area there are no obstacles that can hinder movement of the robotized units or lift.
- when the screen page shown in figure 110 appears the aligner is ready to work.

Turning the machine off

- Before putting the robotized units in the idle status and turning the aligner off, make sure that in the working area there are no obstacles that can hinder movement of the robotized units or lift.
- Lower the lift to the floor.
- Carry out the correct sequence of controls to turn the aligner programme off (see the "Example of a wheel aligner check" paragraph).



EN

GENERAL CHARACTERISTICS

- Display of angle data with 0.01° resolution.
- Databank on Hard disk or USB PEN DRIVE.
- User databank and jobs archive.
- Guide to vehicle adjustment with stationary or animated images.
- 27" SVGA LCD colour monitor (minimum resolution 800x600 pixels, 256 colours).
- Professional alphanumeric keypad.
- Great operating freedom, possibility of going from one adjustment to another as desired.
- Data displayed in degrees, grades, millimetres and inches.
- Graphic comparison between the data read and the databank values.
- Vehicle chassis diagnostics.

TECHNICAL DATA

- **Measuring ranges:**
 - toe ± 24°
 - camber ± 10°
 - caster ± 30°
 - king pin ± 30°
 - setback ± 22°
 - thrust angle ± 22°
 - steering angle ± 24°
- **Power supply:**
 - 230 Vac central unit: (50-60 Hz) single phase single robotized unit:
 - 230 Vac (50-60 Hz) single phase
 - power consumption of central unit 280 W
 - power consumption of individual robotized unit: 250 W
- **Dimensions (LxWxH):**
 - central unit (without target and 17" monitor):
 - 3605 x 580 x 2810 mm
 - central unit (without monitor):
 - 860x 320 x 1740 mm
 - robotized unit:
 - 980 x 440 x 2500 mm
- **Weight:**
 - central unit 200 kg
 - target 100 kg
 - electrical/electronic components 100 kg
- **Ambient conditions for machine storage:**
 - relative humidity 20% - 80%
 - temperature range -10°C ÷ +60°C.
- **Ambient conditions in the place of operation:**
 - relative humidity 20% - 80%

- temperature range 5°C - 40°C
- **Necessary light level in working conditions:** 300 lux
- **Noise level when operating:** ≤70 db(A)
- **Artificial light source classification:**
 - Measuring light (single) class 3B
 - Field light (single) class 3B
 - Laser diodes (pair) class 3B
 - Stadimeter class 2

WHAT A WHEEL ALIGNER IS

An aligner or wheel aligner is defined as an instrument for measuring characteristic alignment angles of a vehicle (see the "Characteristic angles" section).

Characteristic values

1) ROC (Run Out Compensation). Off-centre and plane error compensation.

ROC renders the angle measurements independent of geometrical errors in the rim and/or wheel mounting.

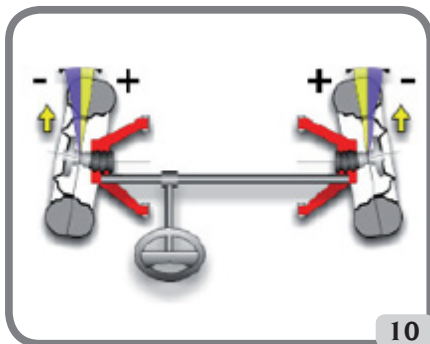
This procedure should be performed on all wheels.

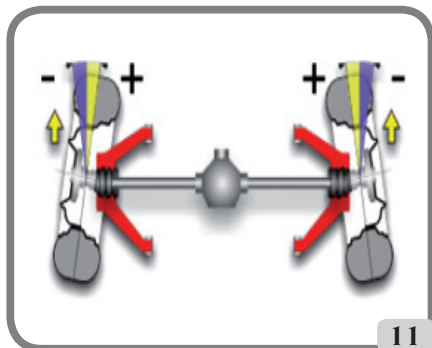
2) Toe.

Angle formed by the equatorial plane of the wheel and the axis of symmetry or thrust axis of the vehicle (Figs.10 and 11).

The axis of symmetry of the vehicle is the imaginary line which divides the vehicle in half lengthways, while the thrust axis is the travel direction established by the rear axle.

The units of measurement of toe are the degree and the millimetre.





3) Camber or Inclination.

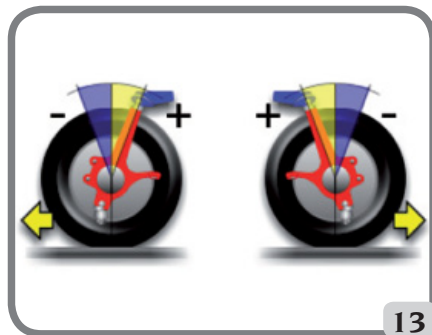
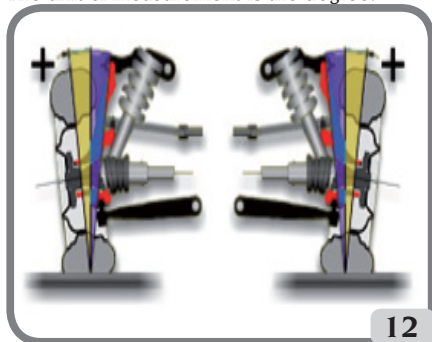
The angle formed by the equatorial plane of the wheel and the vertical plane (Fig. 12): camber is positive when the top of the wheel tilts outward. The unit of measurement for camber values is degrees.

4) Caster.

The angle formed between the vertical and the projection of the steering axis onto the longitudinal plane of the vehicle (Fig. 13).

Caster is measured with the wheels turned through 10° or 20° .

The unit of measurement is the degree.



5) King pin angle.

The angle formed between the vertical and the projection of the steering axis onto the transverse plane of the vehicle (Fig. 14).

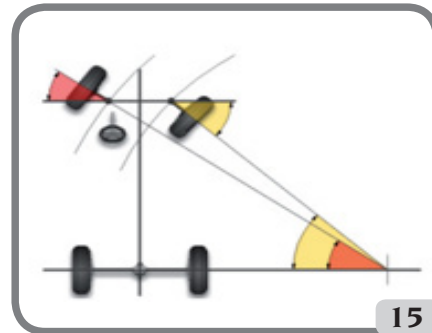
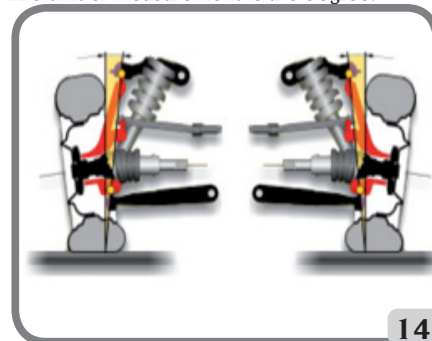
King pin angle is measured by locking the steering to 10° or 20° .

The unit of measurement is the degree.

6) Steering angle difference.

The difference between the values of the steering angles of the front wheels; by convention it is measured when the wheel on the inside of the bend is locked to 20° (Fig. 15).

The unit of measurement is the degree.



7) Misalignment of wheels on the same axle or Set-Back.

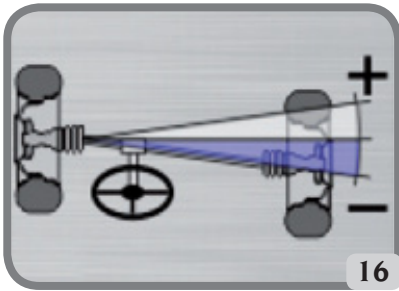
The measurement of the difference in position of one wheel in relation to the other, referred to the perpendicular of the vehicle's longitudinal axis (Fig. 16).

There are both front set-back and rear set-back; the latter is not to be confused with the thrust angle. The unit of measurement is the degree.

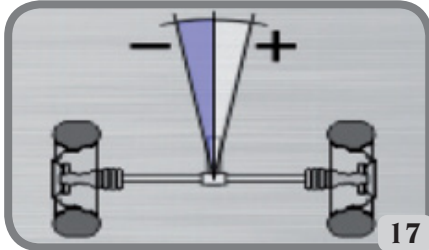
8) Thrust angle.

The angle formed between the axis of symmetry of the vehicle and the travel direction of the rear axle (Fig. 17).

The unit of measurement is the degree.



16



17

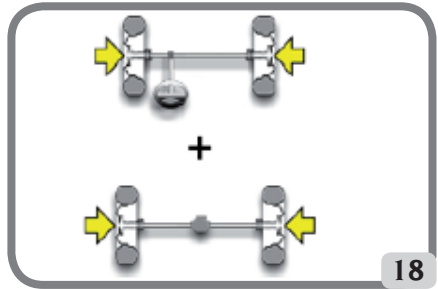
9) Track difference.

Angle formed by the line joining the ground contact points of the front and rear wheels on the left-hand side and the line joining the ground contact points of the front and rear wheels on the right-hand side of the vehicle (Fig. 18).

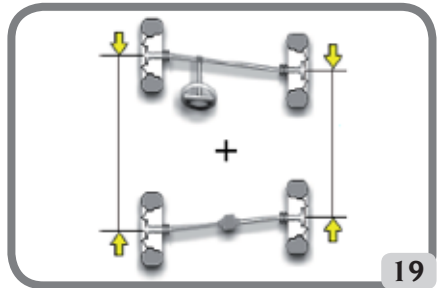
The units of measurement of track difference are the degree or the millimetre, only if the wheel base is known.

10) Wheel base difference.

Angle formed by the line joining the ground contact points of the front wheels and that of the rear wheels (Fig. 19).



18



19

11) Side offset.

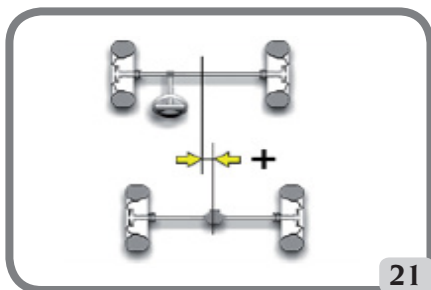
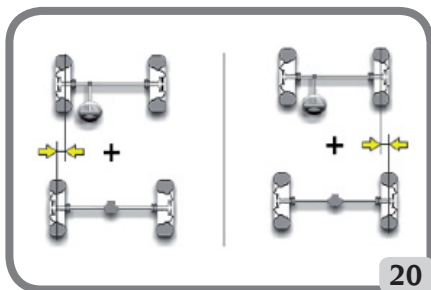
Angle formed by the line joining the ground contact points of the front and rear wheels on the left-hand side, or the right-hand side, and the vehicle's axis of symmetry (Fig. 20).

The units of measurement of side offset are the degree or the millimetre, only if the wheel base is known.

12) Axle offset.

Angle formed by the line bisecting the track difference angle and the vehicle's thrust axis (Fig. 21).

The units of measurement of axle offset are the degree or the millimetre, only if the wheel base is known.



MAIN WORKING ELEMENTS OF THE MACHINE



WARNING

Get to know your machine. The best way to prevent accidents and obtain top performance from the machine is to ensure that all operators know how the machine works.

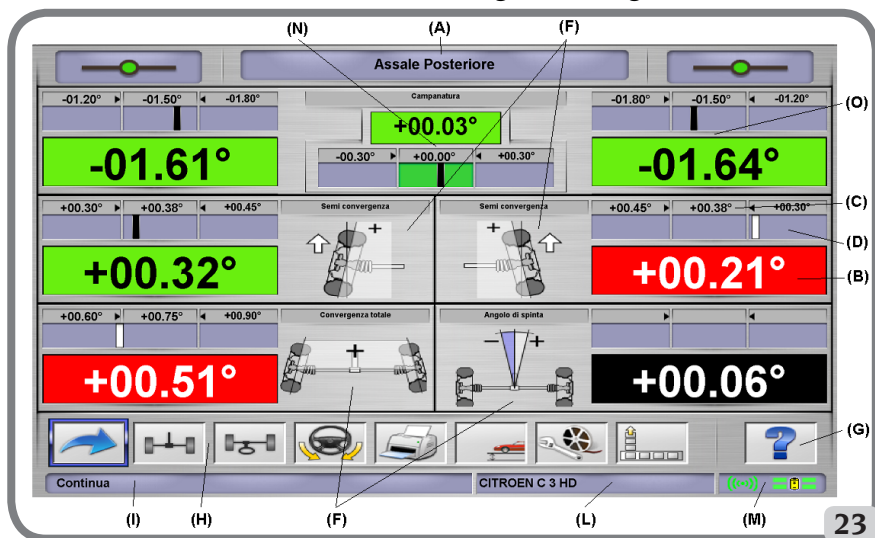
Learn the function and location of all commands. Carefully check that all the commands on the machine are working properly.

To avoid accidents and injury, the machine must be installed properly, correctly operated and regularly serviced.

Central unit

- Monitor: shows the working screens with the diagrams of the angles measured; the operating commands are in the bottom part.
- Keypad: used to select the commands available and enter alphanumerical data.
- The ENTER key recalls the command selected by the arrow keys.
The ESC key returns the programme to the previous step.
- Personal Computer: contains and executes the vehicle wheel alignment program. Also contains the wheel aligner control electronics.
- Sim Card: this card enables the aligner to work.
- Power supply plug.
- Electrical cabinet.

Work screen for recording wheel aligners



- A) Title (e.g. FRONT AXLE): indicates the procedure being used.
- B) Values measured on the vehicle.
- C) Databank values.
- D) Graphic comparison between the values measured and databank values.
- F) **Type of angles measured** at present.
- G) HELP: command which recalls the on-line help function.
- H) Icon bar: icons you can use to move around the program. More information about the selected icon is provided in the feedback bar.
- I) Feedback bar: displays a help message about the function of the selected icon.
- L) Vehicle name bar: displays the name of the vehicle selected from the databank. During selection of the vehicle from the databank, it shows the market selected.
- M) **Status bar**: view the client-server communication status and the state of the robotized unit batteries.
- N) Axle value difference: window containing the value and databank reference for the difference between the right-hand and left-hand values of the angle measured. The window only appears when the databank contains a reference value.
- O) Operating Zone: part of the screen which displays the working information.

PERSONAL COMPUTER

Turn on the aligner using the main switch. Wait a few seconds to allow the monitor to switch on and the computer to load the program. The personal computer, and thus the entire wheel aligner, can only be switched off using the command provided in the wheel alignment program.



IMPORTANT

Switching off the personal computer without using the command provided may damage the software installation.



IMPORTANT

When the aligner is switched off via software, the PC, monitor and robotised units enter standby mode. To switch off these devices completely, use either the relative on and off buttons, or the PC feeder switch, or cut off the wheel aligner power supply at the mains.

Keep the original USB pen drives containing the aligner software for future system updates.



IMPORTANT

The software on the USB PEN DRIVE is the property of Corghi S.p.a. and can be used only with the personal computer supplied with the equipment.

Adjusting the monitor

With the personal computer turned on, operate the monitor commands (for detailed instructions, refer to the monitor user manual).

OPERATOR INTERFACE

Commands and information for moving around the vehicle wheel alignment program.



IMPORTANT

Depending on the country where the aligner is used some of the software functions proposed below might not be applicable.

Icons

An icon is a key on the screen which performs a specific action when it is selected. This function is the same throughout the procedure.

The icon's function is identified by a graphic symbol; a brief comment is also provided in the feedback bar.

Use the ←, →, ↑ and ↓ cursors keys on the keypad to navigate to the icons and press **ENTER** to select.

If the icon selected has a sub-menu, it will open vertically and the icon selected will be replaced



by . Use this icon or the ESC key to close the menu.



identifies additional icons in the menu for display.

Icons which are not active are plain grey in colour.

Main menu



Start Begins the vehicle alignment procedure.



Alignment procedure Selects the wheel alignment procedure: quick, complete or customised.



Databank and job management Tools for management of the jobs archive and user databank.



Set-up and maintenance Gives access to the utility functions for wheel aligner set-up and maintenance.



Service programs Gives access to the wheel aligner service and troubleshooting functions.



Last job Restarts the wheel alignment procedure by loading the data of the job just completed.



Shutdown Activates the programme closure and wheel aligner switch-off procedure.



Help Recalls the information for the current video page to the screen. The on-line instructions back up the Operator's Manual but do not replace it in all respects.

Programme step recall



Diameter selection Recalls input of the rim diameter to be used in toe measurements in millimetres / inches.



Chassis height For vehicles where this is necessary, recalls input of the chassis heights necessary to obtain the databank references.



Steering angle Recalls the steering lock procedure for measurement of the caster, king pin, steering angle difference at 20° and maximum steering angle.



Data summary Recalls the summary of the vehicle data.



Front axle Recalls the front axle adjustment step.



Rear axle Recalls the rear axle adjustment step.



Data summary and printout Recalls the job data summary, printout and save step.



Recalculate measurement Repeat measurement from beginning.



Find wheel It carries out the find-wheel procedure for the wheel of the vehicle selected



as follows:



Truck/motorhome selection Notifies the programme that the measuring procedure is carried out on a truck or motorhome (vehicles with extensive wheel bases).



Vehicle selection Recalls selection of the vehicle from the databank.



Databank data summary Recalls the full summary vehicle's databank references.



Chassis situation Recalls the vehicle chassis situation step.



Visual check Recalls the procedure for visual checking of the vehicle.



End of session Ends the current job and returns to the main menu.



Vehicle adjustment Selects the help function for adjustment of the vehicle. Only the help selections available are active.



Stop measuring Interrupts the measuring procedure at whatever point it is in.

General functions



Continue Moves on to the next programme step in the pre-set sequence.



Last step Returns to the previous programme step.



Skip operation Skips to the next programme step without requiring execution of the current step.



Back to selection Moves the active cursor from the icon bar to the working zone.



Increase Increases the value of the selected object (for example, it increases the rim diameter to the value above).



Decrease Decreases the value of the selected object (for example, it decreases the rim diameter to the value below).



Exit Ends the current operation.



Next page Displays the sequence of pages of the on-line help function. The icon is only active when there is more than one page.



Save Saves the vehicle's pre-adjustment values.



Yes Confirms the selection made or the value entered.



No / Abort Aborts the selection made or the value entered.



User code For changing the user code.



Manufacturer's Set-up Changes the set-up settings, entering the CORGHI factory defaults.

Special functions



Single value Shows only one angle of the selected axle at a time.



Maximum steering angle Activates and deactivates the maximum steering angle procedure.



Raise lift Informs the application that the lift will be raised for the adjustment.

Menu management



Open menu Opens the menu containing the additional icons for which there is no room in the icon bar.



Recall other icons Displays the second set of icons in the sub-menu.



Close menu Closes the menu containing the additional icons.

Raise Lift



Raise lift and find rear axle Notifies the application that a find raised lift is required and that the robot must position itself by the rear axle.



Raise lift and find front axle Notifies the application that a find raised lift is required and that the robot must position itself by the front axle.



InitSystem Relaunch Resets the aligner and relaunches a new initialisation of the robots and of the measurements.

Databank



Car markets Selection of the distribution markets of the databank vehicles.



Commercial description of vehicle Description of the vehicle with the commercial name.



Manufacturer's description of vehicle Description of the vehicle with the name given by the manufacturer for univocal identification of the alignment reference data.



Databank selection Selection of the databank archive from which the vehicles will be selected.



Main databank Sets the main archive supplied by CORGHI as the databank for use.



User databank Sets the secondary archive entered by the user as the databank for use.



Both databanks Sets the combination of the main and secondary archives as the databank for use.

Printout and job record



Print Prints the data.



Save and print Saves the current job in the jobs archive and prints the data.



Save job Saves the current job in the jobs archive.



Compile job record Recalls compilation of the job record data.

Vehicle adjustments



Copy Starts copying of the vehicle adjustment help function.



Pause Stops copying of the vehicle help function and restarts it from the same point.



Stop Stops playback of an animation, returning to the first image (only applies to animations, not to stationary images).



Front toe Selects the front toe adjustment help function.



Rear toe Selects the rear toe adjustment help function.



Front camber Selects the front camber adjustment help function.



Rear camber Selects the rear camber adjustment help function.



Front caster Selects the front caster adjustment help function.



Front king pin Selects the front king pin adjustment help function.

Set-up and maintenance



Demo Vehicle wheel alignment procedure is executed in demonstration mode; use of targets not required.



Set-up Recalls the aligner set-up procedure.



Save data Procedure for saving or refreshing the job archive and the user databank.

Service Programs



Software update Wheel aligner and/or main databank software update.



Technical assistance Service programmes restricted to technical assistance.



Exit to Windows Exits to the operating system. A password must be entered in order to access the operating system.

Administration functions and job archives



Job records Manage job archive.



Client files Manage client data archive.



Vehicle files Manage previously measured vehicle data archive



Operator files Manage operator archive.



Brands Enter brands not included in the main database in the user database.



New Enter new file



Edit Edit selected file.



Delete Delete selected file.



Cancel selection Cancel all files selected



Search Parameter-based job record search tool.



Check Confirm OK

Data sorting



Alphabetical order Data on screen arranged in alphabetical order.



Chronological order Data on screen arranged in chronological order.



Order by client Order job records by client.



Order by registration number Order job records by vehicle registration number.



Order by order number Order job records by order number.



Order by operator Order job records by operator.

Units of measurement



Unit of measurement Selects the units of measurement of the data on screen.



Weight unit of measurement Switches the weight unit of measurement between kilograms and pounds.



Degrees or lengths Switches the display of values between units of length and degrees.



Length unit of measurement Switches the length unit of measurement between millimetres and inches.



Unit of measurement in degrees Switches the unit of measurement for angle values between centesimal and sexagesimal degrees.



Pressure unit of measurement Switches the unit of measurement for pressure values between PSI and BAR.

Technical assistance



Smart Card update Main Smartcard update procedure.



Smart Card Data Record Smartcard reading.



Job counter Displays the number of jobs done.

Status bar

The status bar shows messages of use during execution of the program, in graphic form.



Insertion mode Using the keys ← and → the cursor moves within the field and not between two adjacent fields.



Maximum steering angle enabled.



Non standard **thrust angle sign convention.**



Save job in progress.

Characteristic angle symbols for adjustment screens

In the adjustment screens, the vehicle's characteristic angles are referred to by means of graphic symbols.



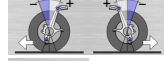
Total front toe with standard signs.



LH and RH half toes with standard sign conventions.



LH and RH camber.



Left and right front castor values



Total rear toe with standard sign conventions.



Thrust angle with standard sign conventions.



Front setback.



Rear setback.

Characteristic angle symbols for data summary screens

In the data summary screens, the vehicle's characteristic angles are referred to by means of graphic symbols.



Total front toe



Total rear toe



Front LH half toe



Rear LH half toe



Front RH half toe























Rear RH half toe.



LH front camber




LH rear camber

-  RH front camber
-  RH rear camber
-  LH front caster
-  Thrust angle
-  RH front caster
-  Rear setback
-  LH front king pin
-  RH front king pin
-  Track difference
-  LH included angle
-  RH included angle
-  LH side offset
-  Front LH steering angle difference.
-  RH side offset
-  Front RH steering angle difference
-  Axle offset
-  LH front maximum steering angle
-  Wheel base difference
-  RH front maximum steering angle
-  Front setback

SET-UP

User set-up



To access the user set-up, select the  and



icons from the main menu.

From the user set-up, you can customise the alignment procedure to adapt it to your own requirements.

Customisation options for the alignment procedure are groups in folders (see example in fig. 44); each folder contains similar customisation functions.

The different options available are provided for each setting.

Move within the set-up windows using the keys \uparrow , \downarrow , PAGE \uparrow , PAGE \downarrow , \leftarrow , \rightarrow and **RETURN** to confirm the option selected. The ESC key aborts the selection just made.

The option currently saved is highlighted in blue. The option that is not active (because the aligner version does not allow its use, or other selections prevent it from being used) is transparent.



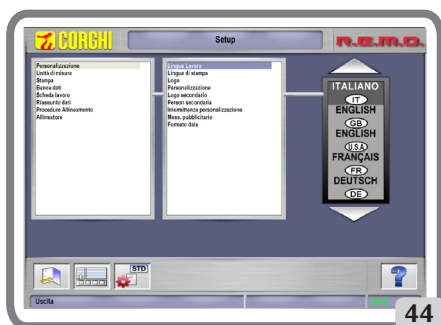
Exit the set-up function by selecting the icon and save the options set by selecting the



icon in the information window.



Selecting this icon quickly changes the setup by calling up predefined configurations.



44

PREPARING THE VEHICLE FOR THE ALIGNMENT OPERATION

For the wheel alignment operation to be carried out correctly, all parts of the vehicle must conform to the constructor's specifications; in particular, it is important to check the tyre pressure and eliminate any backlashes in the bearings and ball joints.

Place the vehicle over the pit or on the lift equipped for the alignment operations, taking care to ensure that the turntables and oscillating footboards are locked in position.

Standard working sequence

Alignment procedure for 2-axle vehicles (cars).

- 1) Aligner switch-on.
- 2) Start work.
- 3) Databank / Job record.
- 4) Preparation for wheel alignment.
- 5) Wheel diameter input.
- 6) Compensation.
- 7) Chassis height input.
- 8) Angle measurement with steering locked to 10° or 20°.
- 9) Data summary.
- 10) Rear axle measurement.
- 11) Front axle measurement.
- 12) Angle measurement with steering locked to 10° or 20°.
- 13) Front axle measurement.
- 14) Print out of data measured.

(1) Switching on the aligner

IMPORTANT For the first start-up, the "Monitor adjustment" chapter must be read.


Turn on the device using the main switch. Wait a few seconds to allow the monitor to switch on and the computer to load the program. In this stage, the central unit runs a functional self-diagnostics test and loads the operating system; if everything is in order, the "Main menu" screen will appear (Fig. 33).


(2) Work start selection


Initial page



To access this function from the rest of the pro-


gram, select the  icon.


Select the  wheel alignment procedure

and start the job .

 restarts the previous job.

 and  access the service and maintenance utilities, and wheel aligner customisation.


 ends execution of the program, shuts down all the applications open and switches off the wheel aligner.

 **WARNING**
Close all active alignment programs correctly before switching the aligner off.

(3) Databank


/ Job record



To access this function from the rest of the pro-


gramme select the  icon or the F8 key. To select the vehicle from the database, use the ↓, ↑, **PAG** ↓, **PAG** ↑, ← and → keys to scroll through the menu, and use the alphabetic keys to select the desired brand and model description, then press **ENTER** to confirm the selected vehicle.

During selection, the vehicle code is shown in the status bar.

The model of the vehicle selected will be loaded in the "Vehicle name bar", which contains the name of the market set while selection is in progress. All the cars and vans up to and including 3500 kg are shown on the screen.

 recalls the market selection. The screen only shows the vehicles on sale on the selected

market.  allows selection of the reference databank. The vehicles belonging to the user databank are marked by the  symbol.

 displays the vehicle descriptions sup-

EN

plied by the manufacturers for wheel alignment operations.



displays the commercial descriptions of the vehicles.



accesses compilation of the job record. If the user set-up field "Alignment procedure customisation / vehicle selection mode" = "Job record" the data input form will be displayed. Selection of the vehicle from the databank can be selected from the record.

Different job record options are available in the set-up, "Job record / type" field.

Database abbreviations key

/	Separates different models
4WD - 4x4	Four Wheel Drive
4WS	Four wheel steering
ALU	Lightweight alloy wheels
DR	Door
CAB	Enclosed light commercial vehicle
CABR.	Convertible
ESTATE - SW	Estate Version (Station Wagon)
HD	Heavy Duty or all-terrain
S	Special or Sport
PAS	Power Assisted Steering
LHD	Left Hand Drive
RHD	Right hand drive
FWD	Front Wheel Drive
RWD	Rear Wheel Drive
AS	Pneumatic suspension system
HS	Hydraulic suspension system
SLs	Self-levelling suspension system
RS	Rigid suspension system
T	Turbo
TD	Turbo diesel
TDI	Turbo Diesel Direct Injection
R - RT	Radial Tyre
XP	Conventional Type Tyre
IFS	Independent front suspensions
IRS	Independent rear suspensions
SPS	Sports suspensions
LWB	Long wheel base
MWB	Medium wheel base
SWB	Short wheel base
MM/AA+	After the indicated date (month/year)
MM/AA-	Before the indicated date (month/year)
8565050+	From this chassis number

8565050-	Up to this chassis number
AT	Automatic Transmission
TA	Twin axle
TS	Single axle
LOA	Loaded
PLO	Partially loaded
UNL	Unladen
AB	Anti-roll bar

Updating the databank online

It is possible to update the databank online by following these instructions.

First note the number of the SIMCARD (5 figures) and the name of the aligner:

- go to the assistance menu of the aligner and select the item Smartcard management
- or from the main page (LOGO), pressing CAP+F12.

In order to update the aligner databank, you need the DATABANKCARD and a computer connected to the Internet.

Activate the receipt of the cookies in the browser that will be used to download the updates.

REGISTRATION

A. Open the browser (Internet Explorer, Mozilla Firefox) and go to the page: www.corghicom/infoauto.

B. Select the language and continue with the registration, clicking on the registration link.

C. On the registration page, fill in all the fields marked with the symbol "*" (the others are optional).

D. At the end of the registration, continue with the login using the username and password chosen.

LOGIN AND DOWNLOAD OF VEHICLE CARDS
A. Open the browser (Internet Explorer, Mozilla Firefox, etc.) and go to the page: www.corghicom/infoauto.

B. Insert the username and password.

C. The page for selecting the reference market will open. Select the market.

D. At this point, the vehicle/truck selection page opens. Select the make and model of the vehicle you want, and proceed. 1 credit will be subtracted from the card.

E. The vehicle card will open. Here you can set the rim diameter and read the data regarding the characteristic angles of the chosen vehicle. At the bottom of the page there are two links to download the file.


F. Downloading XML file: the vehicle card is converted in a file that will be imported into the aligner.

Click on the link and save the file on a removable support. Save the file downloaded onto the aligner PC in the folder ROOT " C:\ " or " D:\ ".
 G. Downloading PDF file: The PDF file of the vehicle card is opened. It is necessary to have a PDF file reader. This file can be saved and printed. The reference data will then be entered into the aligner databank "by hand".

(4) Preparation for wheel alignment

Information for preparing the vehicle for checking and adjustment of its wheel alignment in accordance with the manufacturer's instructions. The programme step is automatically activated if this information is in the databank.

(5) Diameter input

To access this function from the rest of the program, select the  icon.

The step is only active if it is set in the set-up or operation with toe values in units of length has been selected.

Set the rim diameter of reference to work with toe values in millimetres or inches.



and



scroll through the diameter values in a pre-set list.

(6) Compensation

Runout compensation or ROC is used to compensate any geometrical errors in the rim (runout and plane error) and errors in fitting the clamps. The compensation skip option is available if set in the set-up.

Apply ballast to the vehicle as instructed and select the RUNOUT compensation method required.

The screen shows the databank references for the selected vehicle.



indicates that the angle is adjustable.

indicates that a help function is available for the adjustment.


Complete display of the databank values is available in the DATABANK DATA SUMMARY .

The values which depend on input of the chassis

height values are only shown after these values have been entered.

The compensation procedure is guided by means of graphics showing the status or the operations to be performed on each single target.

(7) Chassis height input

To access this function from the rest of the programme select the  icon or the F9 key.

Prepare the vehicle for wheel alignment as indicated or select the clearance required from the table using the keys as follows:

↓, ↑ to scroll through the list of pre-set values; **ENTER** to confirm the selection.




to skip the input operation.

Failure to enter the clearances requested will prevent provision of the reference values of the angles affected by them.

(8) Angle measurement with steering locked

to 10° or 20°

To access this function from the rest of the programme select the  icon or the F4 key.

In this stage, the system measures the caster, (king pin) angle, 20° steering angle differences and front maximum steering angle values.

Engage the clamping brake, fit the pedal depressor to operate the brake and release the turntables.

The first stage of preparation for the actual steering lock procedure is to set the wheels straight. Once these operations are complete the programme automatically moves on to the screen for the 10° or 20° steering lock.

Following the graphics on the screen:

- Turn the front wheels in the direction shown to 10° or 20°.
- Bring the arrow into the green measurement field; use the zoom window which appears close to the number 10° or 20°.
- Wait for the data to be saved, confirmed by the saving symbol.
- Turn the wheels in the other direction in the same way.

- Wait for the data to be saved.
- Return the wheels to the straight position.



allows execution or abortion of the maximum steering lock procedure, selection of which is displayed in the status bar by the **60°** symbol. After the angles at 20° are saved, turn the steering wheel as far as it will go and wait for the signal that the values have been saved.

(9) Data summary

Once the steering lock procedure is complete, the system automatically moves on to display of all the data measured. This function can other-



wise be accessed by selecting the icon or the F5 key.

If the databank reference values are available, the values are displayed:

on a **red** background if they are outside the tolerance range

on a **green** background if they are inside the range on a **black** background if there are no reference values.

The icons highlighted alongside a measured value carry the following meanings:



indicates that the angle is adjustable.

indicates that a help function is available for the adjustment.

The stylised vehicle illustrates, in an accentuated way, the half toe, camber and setback situation.



saves the vehicle's pre-adjustment values. The icon is only active if saving is set in "Manual" mode in the set-up.

(10) Rear axle measurement

To access this function from the rest of the pro-



gramme select the icon or the F2 key. Level the targets and adjust the angles by bringing the values within the tolerance range (numerical data and graph bar coloured green).



Selecting the icon from the rear axle measurement screen toggles between the two pages of values.



cyclically displays only one value pair at a time. In this phase, the angle symbol shows



the real situation of the car.

(11) Front axle measurement

To access this function from the rest of the pro-



gramme select the icon or the F1 key.

Level the targets and adjust the angles by bringing the values within the tolerance range (numerical data and graph bar coloured green). The 2 front axle measurement screens display the front caster, front camber, front half toe, front total toe and front set-back angle values.

On the front axle measurement screen, the



icon switches alternately between the two pages of values.



cyclically displays only one value pair at a time. In this phase, the angle symbol shows



the real situation of the car. returns to normal display mode.

For adjustment of the caster the data, only available if the steering lock measurement procedure has been carried out, must be on the screen. The data are only shown when the front targets are levelled.

N.B. On exit from this procedure the caster values are saved automatically.

Saving of these values means that the procedure can always be restarted from the last adjustment made.

If a new steering lock procedure is performed, the values recalled will be the last ones measured during the steering lock sequence.

(12) Second angle measurement with steering locked

Repetition of the steering axis angle measurement allows you to check whether errors have been introduced during adjustment of the caster. The procedure is exactly the same as the first time the caster, king pin and steering angle difference values were measured.



The execution of the steering lock or the icon moves the program directly on to front axle measurement.

(13) Second front axle measurement

Repetition of the front axle measurement procedure allows any corrections to the adjustments already made.

(14) Printout of the data measured

To access this function from the rest of the pro-



gramme select the icon or the F4 key. The printout serves to inform the customer about the operations performed and as a reference for subsequent checks on the vehicle.

IMPORTANT: No standard printer is supplied with this aligner. It is the user's responsibility to see to installing either an external or network printer if and as required.

(15) Print-out in graphic format

The current printed report, supplied in alphanumeric form, has now been updated with the addition of two annexes consisting of graphics which illustrate some information about the vehicle in intuitive form.

The first annex, entitled "Vehicle Situation", shows the toe, camber and setback values before and after adjustment.

The second annex, entitled "Chassis Situation", lists the set-back, track difference, wheel base difference, side offset and offset values of the axles after adjustment.

EXAMPLE OF MEASURING A WHEEL ALIGNMENT



IMPORTANT

The procedure given in the following paragraph illustrates the most correct method for aligning as precisely as possible.

Place the vehicle on the lowered lift, check that there are no objects impeding the movement of the robotic units or obstructing their line of sight with the vehicle, then launch the application. The following screen page opens:



Press ENTER or select the icon. The menu goes to the next page:

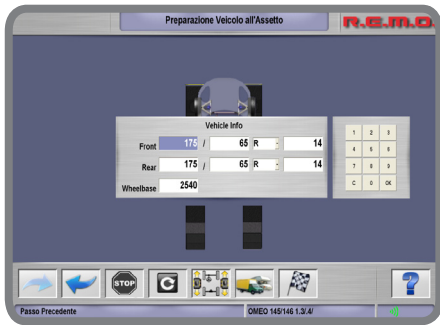


Select the vehicle, navigating the list of available brands and models:

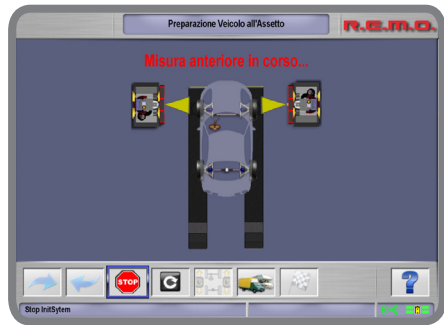


Press ENTER to confirm your choices. In the next window you have the possibility of entering some geometric data of the wheels and vehicle:

EN



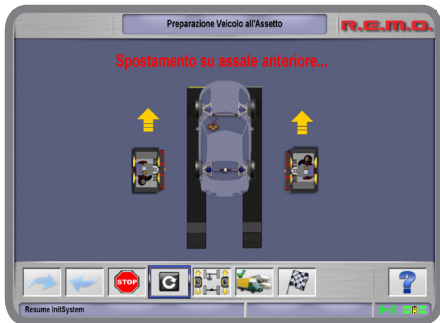
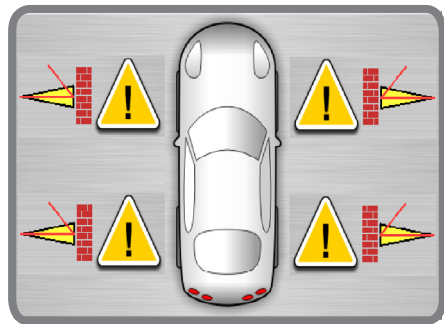
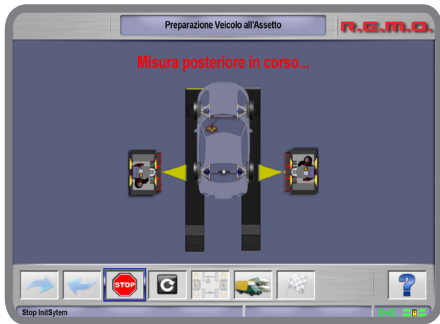
Confirm the values entered by pressing OK. The robots start getting into position in front of the wheels assigned to them, signalling their movements visually and by sound:



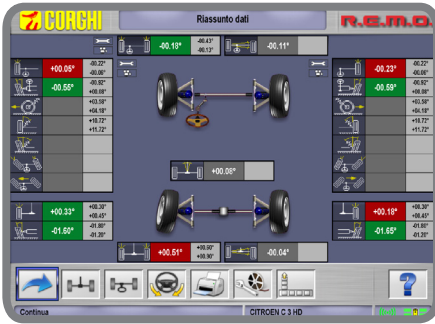
! WARNING

it is mandatory to always keep a safe distance from the robotized units especially when they are moving. Artificial light sources are used - do not look at them for any length of time and/or at close range (i.e. less than 1 metre).

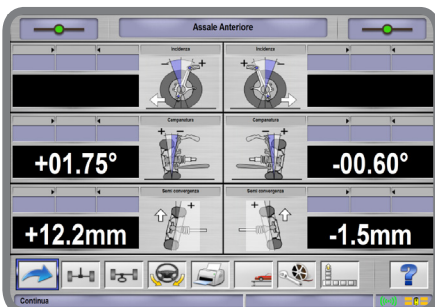
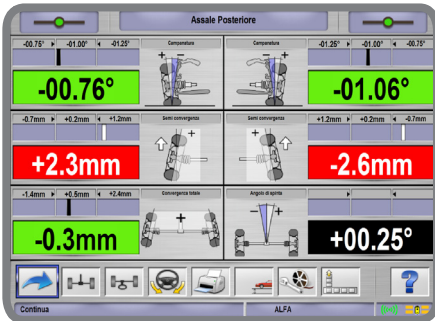
IMPORTANT it is mandatory to make sure there are no objects that could hinder correct movement of the robotized units or that could be a visual impairment to the cameras optical measurement otherwise the following error window could open:



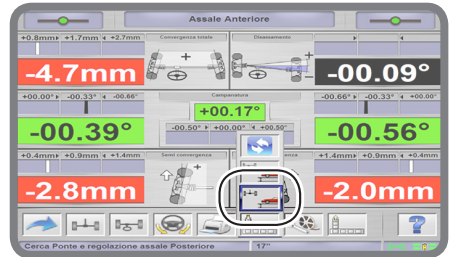
After the vehicle's characteristic angles have been measured, the following summarising screen page appears:



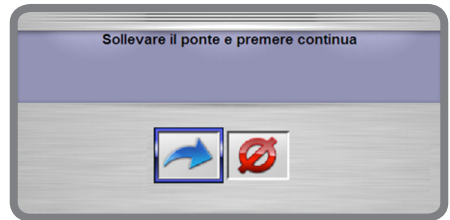
Select the icons to view the parameters for the front and rear axles respectively:




The lift must still be in the lowered position. If you intend to adjust the rear axle and it is possible to do so, select the icon illustrated in the figure:



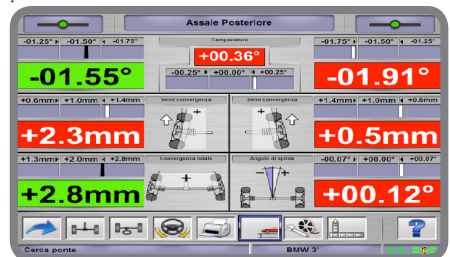
After confirming the selection, the following warning screen is displayed:



WARNING

First raise the lift to the appropriate height for adjustment, then ensure that the vehicle is safely secured before pressing  to confirm the procedure!

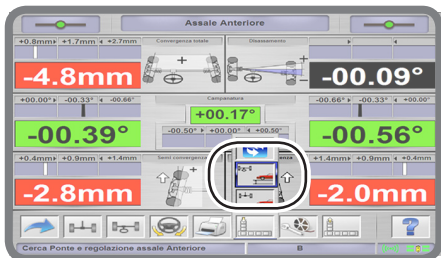
On receiving this instruction, the robotic units will measure both axles and stop at the end of the procedure at the rear axle. The following screen is displayed when measurement is complete :



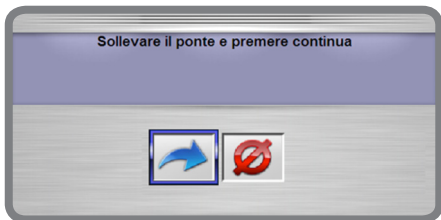
The operator may now (if the necessary conditions are met) adjust the adjuster screws of the vehicle while verifying angle and dimension parameters in real time on the screen.

The lift must still be in the lowered position. To adjust the front axle, select the icon illustrated in the figure:

EN




After confirming the selection, the following warning screen is displayed:

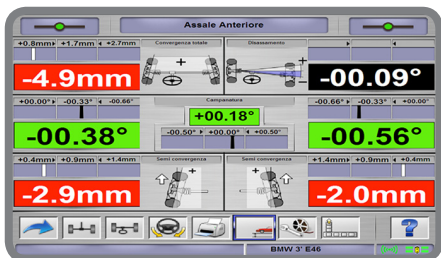


WARNING



First raise the lift to the appropriate height for adjustment, then ensure that the vehicle

is safely secured before pressing  to confirm the procedure!


On receiving this instruction, the robotic units will measure both axles and stop at the end of the procedure at the front axle. The following screen is displayed when measurement is complete:

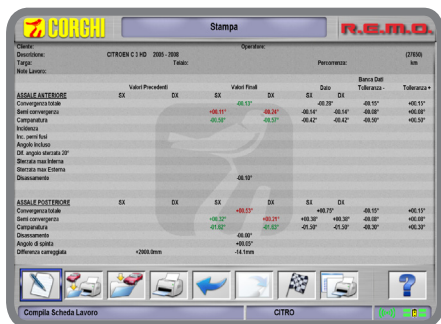



The operator may now (if the necessary conditions are met) adjust the adjuster screws of the vehicle while verifying angle and dimension parameters in real time on the screen.

Select the  and  icons to check the chassis geometry of the vehicle at any time:



Selecting the  icon a screen page opens summarising the following data (which are in the database):

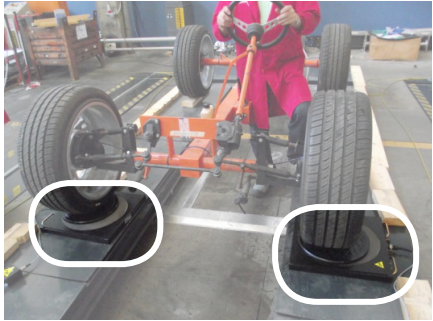


Returning to the previous screen page and selecting the  icon it is possible to access the procedure for measuring steering at 10°, 20° and the maximum angle.

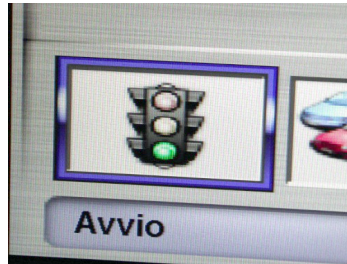
STEERING MEASUREMENT EXAMPLE AT 10°, 20° AND THE MAXIMUM ANGLE

The procedure for steering at 10°, 20° and at the maximum steering angle is given below:

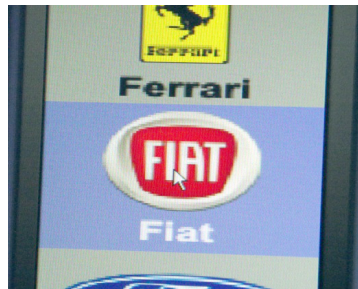
Drive the vehicle onto the lift, positioning the front wheels in the middle of the turntables which are at the beginning of the lift itself:



Select the icon shown in the figure and press ENTER to start the wheel alignment test procedure:



Select the vehicle brand to inspect from the list of available brands (e.g. FIAT as shown in the figure):

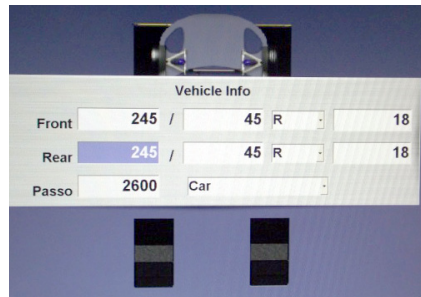


Select the model of the vehicle to inspect from the list of available models:

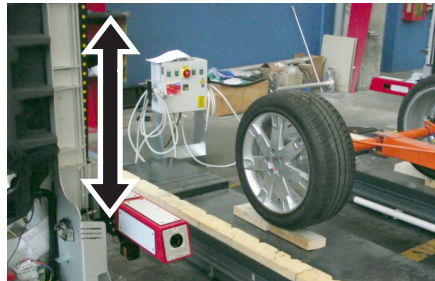


EN

Give the tyre width, shoulder height and rim diameter for both the front and rear wheels:



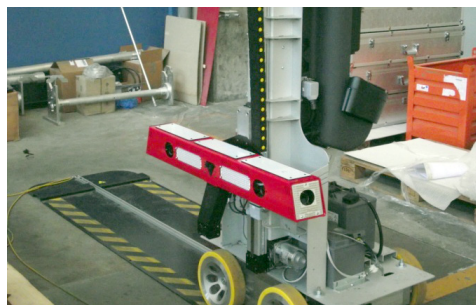
The measuring robots, positioned near the end of the lift, start the position of the lift search, moving their heads vertically:



Once the robots have found the position of the lift they move to the rear axle:



When they are in position by the rear axle wheels, the robots carry out the first measurements on them:



Measuring in progress is displayed on the monitor with the following screen page:



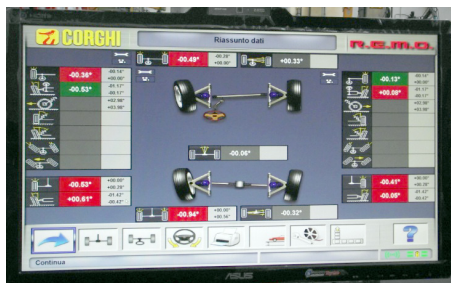
After the rear wheels have been measured the robots move to the front axle wheels:



When they are in position by the front axle wheels, the robots carry out additional measurements on them: Measuring in progress is displayed on the monitor with the following screen page:



When they are in position by the front axle wheels, the robots carry out additional measurements on them: Measuring in progress is displayed on the monitor with the following screen page:

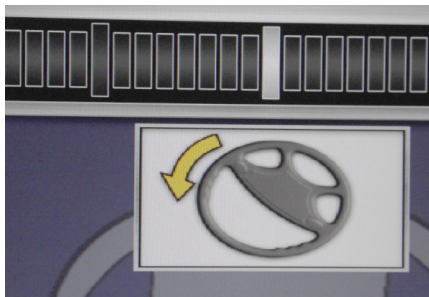


EN

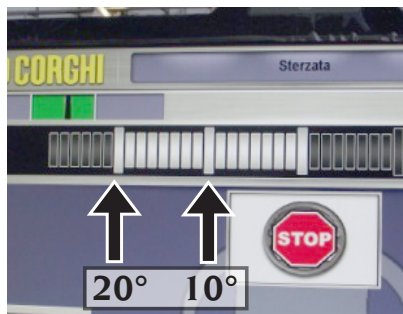
To continue measuring the angles with the wheels steered at 10° or 20° select the icon shown in the figure and press ENTER:



Then follow the instructions given on the screen: to begin with the procedure requires you to turn the steering wheel in the direction shown by the arrow in the icon on the screen:



Continue turning the steering wheel until the white progress bar (shown in the figure) reaches the steering values positioned at 10° or 20° (shown in the figure):



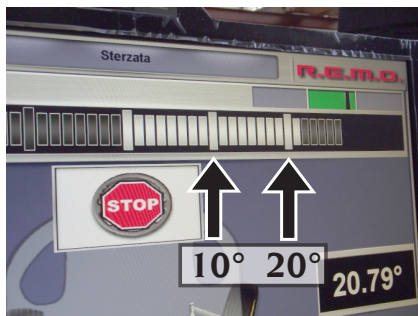
Once the steering wheel has reached desired the steering wheel angle and this is maintained, the procedure shows an icon informing that the measuring value has been saved in the memory:



Then follow the instructions given on the screen: now the procedure requires you to turn the steering wheel in the direction indicated by the arrow in the icon (opposite to the previous direction):



Continue turning the steering wheel until the white progress bar (shown in the figure) reaches the steering values positioned at 10° or 20° (as shown in the figure)



Once the steering wheel has reached desired the steering angle and this is maintained, the procedure shows an icon informing that the measuring value has been saved in the memory:



Once again follow the instructions given on the screen:



To finish, the procedure requires to turn the steering wheel in the direction indicated by the arrow in the icon to bring the wheels back to the initial starting value (0° angle, i.e. with the wheels parallel to the lengthwise direction of the lift):



EN

The procedure for measuring steering at 10° or 20° is completed when the STOP icon appears on the screen:



Now it is possible to proceed with the maximum steering measurement of the front wheels: as per the figure, follow the indications shown by the arrows on the screen:



Move the wheel to its maximum steering value, beyond which it is impossible to go any farther:



Once the steering wheel has reached the desired maximum angle and this is maintained, the procedure shows a second save icon (shown in the figure) informing that the measurement has been saved in the memory:



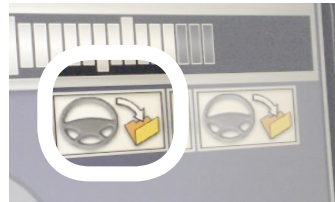
Once again follow the instructions given on the screen for turning the front wheels in the direction opposite that reached previously:



Move the wheel to its maximum steering value, beyond which it is impossible to go any farther:



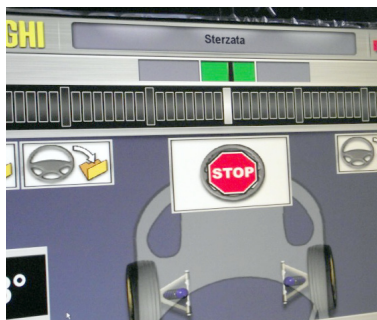
Once the steering wheel has reached the desired maximum angle and this is maintained, the procedure shows a second save icon (shown in the figure) informing that the measurement has been saved in the memory:



To finish, the procedure requires to turn the steering wheel in the direction indicated by the arrow in the icon to bring the wheels back to the initial starting value (0° angle, i.e. with the wheels parallel to the lengthwise direction of the lift):



The procedure for measuring maximum steering is completed when the STOP signal appears on the screen:



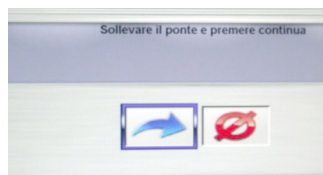
Pressing ENTER it is possible to go to the screen page recapping the measurement of all the angles measured up to this point on the vehicle:



To proceed with adjusting the vehicle's regulators the system must be informed that the lift will be raised. Select the icon in the figure and press ENTER:



The following window opens with two icons:



Get ready to raise the lift with the vehicle on it:



Now that the lift is raised, make sure it is in a safe position:



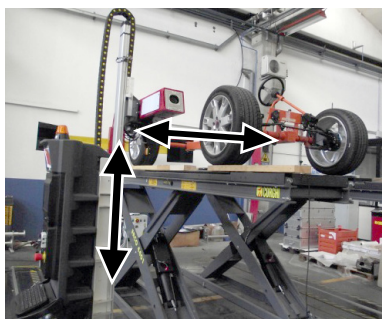
Select, on the previous screen page, the icon in the figure and press ENTER:



The monitor returns to the screen page that sums up all the previously measured angles. Subsequently (at the end of a brief waiting time identified by the load- ing window) the system enters the angle measuring mode in real time:



Simultaneously, the measuring robots start looking for the lift again, moving their heads vertically and positioning themselves by the front wheels:

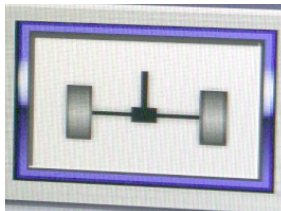


EN

When the waiting time is up, the main screen page shows the total of the wheel alignment values that can now be updated in real time:



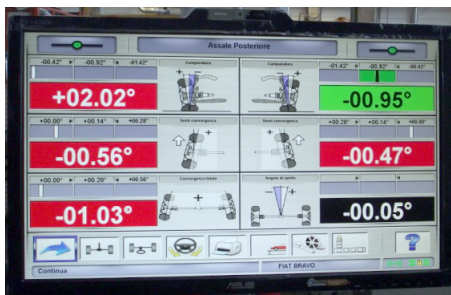
Select the icon in the figure and press ENTER to see the wheel alignment values relating to the rear axle:



The measuring robots move near the rear wheels:



Once the robots are in position, the screen page in the figure opens where the values of the wheel alignments to be done are easy to see from a distance and modifiable in real time:



At this point it is necessary to work on the regulators of one of the two wheels. Intervention on the right rear wheel is shown in the example.



You then need to work on the regulators of the other wheel. Intervention on the left rear wheel is shown in the example.



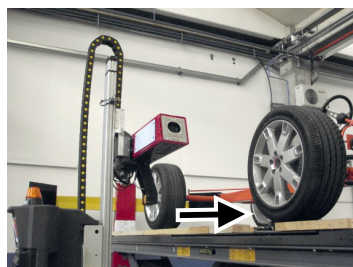
WARNING: if, when adjusting the regulators of a single wheel, the values of the wheel alignment adjusted previously should change, go back and readjust the regulators of the previous wheel!



Select the icon in the figure and press ENTER to see the wheel alignment values relating to the front axle:

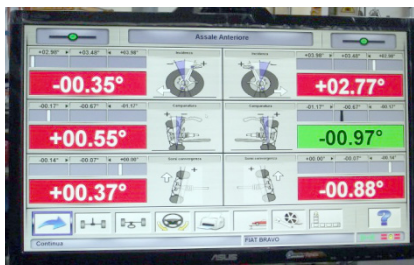


The measuring robots move near the rear wheels:



EN

Once the robots are in position, the screen page in the figure opens where the values of the wheel alignments to be done are easy to see from a distance and modifiable in real time:



At this point it is necessary to work on the regulators of one of the two wheels. Intervention on the right front wheel is shown in the example.



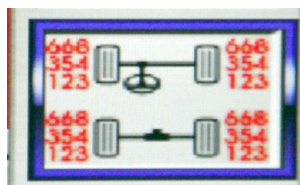
You then need to work on the regulators of the other wheel. Intervention on the left front wheel is shown in the example.



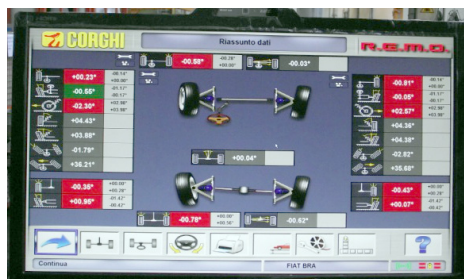
WARNING: if, when adjusting the regulators of a single wheel, the values of the wheel alignment adjusted previously should change, go back and readjust the regulators of the previous wheel!



Once all the regulators have been adjusted, select the icon in the figure and press ENTER to have a global view of the alignments:



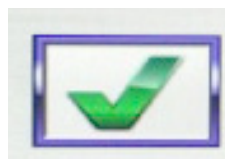
The following screen page appears summing up all the values measured and measurable at that time:



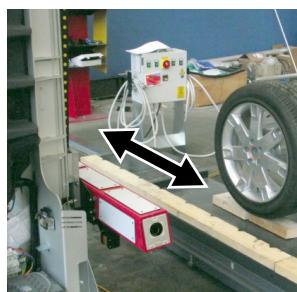
To finish the adjustment procedure and command the measuring robots to return to their idle positions, select the icons in the figure and press ENTER:



To confirm the end of the wheel alignment measuring and adjusting procedure select the icon in the figure and press ENTER



Both robots will move back into their idle position which, in relation to the runways, is at the beginning or end of the lift depending on the position set when installing the machine:



JOB RECORD

From the printing stage, access the job record



using the icon. Use of the job record instead of selection of the vehicle from the databank can also be set in the set-up.

Another setting that can be made in the set-up is the type of job record to be used.

Fill in the job record by using the keys as described in the "DATABANK MANAGEMENT" section.

The compulsory fields are highlighted.



WARNING

When a customer or vehicle is selected from those already on file, the relative data are loaded in the job record (e.g., when a vehicle is selected by means of the registration number, the customer and the vehicle saved in the vehicle record are automatically loaded). These data overwrite those entered previously, so the selected vehicle may be modified in the databank.

When a new value is entered in the REG.N., CHASSIS and CUSTOMER fields, a new record is automatically opened for data input.

When the job done is saved, the vehicle and customer records are also automatically updated.

Aligning procedure count

The equipment now features a count of the number of alignment jobs performed. The count increases after performance of the ROC procedure, including ROC skip.

To display the count, select the



and  icons from the initial screen.

User file backup

From the logo page, select the icons



and



The page shown in Fig. 57 will open, allowing you to select the backup or restore procedure of the data regarding:

- The databank.
- Files of jobs carried out.

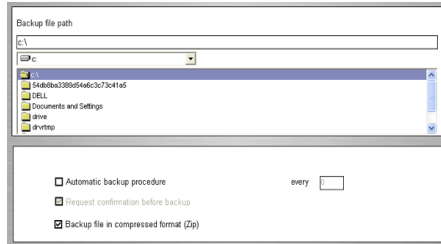
- Customer databank.
- Calibration log.

Backup procedure:

Select the DATA SAVING icon in the "BackUp Func-



tions" window. The following page opens:



- The path for saving (HARD DISK, REMOVABLE SUPPORTS, etc.).
- The frequency of the autosaves.
- Confirmation of the user before carrying out the autosaves.
- Saving in compressed format.

Press Continue to save the data. At the end, the programme returns to the "BackUp Functions"



page. Click on the icon to go back to the LOGO page.

Restore procedure:

Select the DATA RESTORE icon in the "BackUp



Functions" window. The following page opens from where it is possible to select the path where the data to restore reside:



Once the correct path has been selected, the data regarding the save are shown in the lines below.

Press Continue in order to proceed. A new window opens where you have to press Continue to continue with restoring or Cancel to cancel the operation. When restoring is finished you are informed of the alignment programme restart so data restore is effective. The programme returns to the "BackUp Functions" page. Click on the icon



to return to the LOGO page.


DATABANK MANAGEMENT

Database management functions

To access the databank management tools,

from the main menu page select the



and  icons. When prompted, type the password; the aligner is delivered with the default password "databank".

To move around the records, use the keys as follows:


←, → to scroll through the fields and confirm the insertion.

←, → in the INS function (obtained by pressing the Insert key and highlighted in the status bar

by the symbol **INS**) to scroll through the individual characters of the field.

ENTER to confirm the entries.

↑, ↓ to access the choice list in the COMBO boxes

(boxes identified by the symbol  and allowing you to select a value from those already filed) and **ENTER** to confirm the choice.

ESC to abort the last selection or move the cursor along the icon bar.

ENTER to memorise the card and proceed.

Job record selection

To access select the



icons.

Position the cursor on the job you want, and select it with ↓ to visualise the content.



to sort jobs by date, customer, registration number, operator or order.



to select jobs using search parameters.



deletes the job selected by the cursor.



deletes all jobs. If a sorting criterion has been applied, deletes the selected jobs only.



allows modification of the working data, the option must be enabled in the set-up.

Customer records

To access select the



and



icons.

Position the cursor on the card of the customer you want, and select it with ↓ to visualise and/or modify the content.



printout of the addresses of the customers in the correspondence list (marked with the



symbol).



Add a customer to

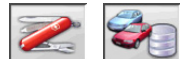


the correspondence list by switching the selection with the space bar.

The fields highlighted in blue are compulsory.

Vehicle records

To access select the



and



icons.

Position the cursor on the card of the vehicle you want, and select it with ↓ to visualise and/or modify the content.

When a customer not previously registered is entered, the record for entering the new customer opens automatically.

The description and make of the vehicle selected from the databank can be modified as required without changing the reference values.

The unit of measurement for "Mileage" can be selected in the set-up.

The fields highlighted in blue are compulsory.

Operator records



To access select the



icons.

Position the cursor on the card of the operator requested, and select it with **ENTER** to visualise and/or modify the content.

Enter the operator's name and surname.

Vehicle selection from user databank



To access select the



icons.

Select the vehicle from the databank using the keys as follows:

↓, ↑, PAGE↓, PAGE↑, ←, → and the letter keys to scroll through the makes and model descriptions. **ENTER** to confirm the vehicle selection and visualise the data.

During selection, the vehicle code is shown in the status bar.

All the cars and vans up to and including 3500 kg are shown on the screen.



creates a new vehicle.

Vehicle data input

Enter the reference data of the vehicle included in the user databank.

The fields highlighted in blue are compulsory.



copies the vehicle's data into a new user databank record and opens it in modify mode.



deletes the selected vehicle.



sets the units of measurement required.

Vehicle selection from main databank



To access select the



icons.

Select the vehicle from the databank using the keys as follows:

↓, ↑, PAGE↓, PAGE↑, ←, → and the letter keys to scroll through the makes and model descriptions.

RETURN to confirm the vehicle selection and visualise the data.

During selection, the vehicle code is shown in the status bar.

All the cars and vans up to and including 3500 kg are shown on the screen.



recalls the market selection. The screen only shows the vehicles on sale on the selected market.



displays the vehicle descriptions supplied by the manufacturers for wheel alignment operations.



displays the commercial descriptions of the vehicles.

Main databank data display

Displaying the data for the selected vehicle from the main databank.



copies the vehicle's data into a new user databank record and opens it in modify mode.

Password input window



To access select the



icons.

In the relative fields, enter the old password and the new one, which you will have to type in again to check that it is correct.

Vehicle make records



To access select the



icons.

Position the cursor on the make card, select it with ↓ to visualise and/or modify it.

The fields highlighted in blue are compulsory.



during vehicle selection, identifies the new makes entered by the user, not accompanied by the specific graphic logo.

SYSTEM CALIBRATION

Refer to the service manual.

IMPROPER USE

The Personal Computer installed in the central unit should only be used with the programmes supplied by CORGHI S.p.A.



CAUTION

You are strongly advised not to use the Personal Computer for games or with other software based on unauthorised copies, to avoid reducing the safety of plants and persons. This is mandatory to avoid any possible contamination from viruses.

In any case, you are advised to check the compatibility of all original software not supplied by CORGHI S.p.A. with the Corghi Technical Service.



CAUTION

Do not remove the Personal Computer from its installation position to avoid any damage to the connections.

MOST COMMONLY ENCOUNTERED VEHICLE ALIGNMENT FAULTS

Vehicle tends to wander to the left or the right.

Cause: tyre side slip.

Invert the position of the wheels on the same axle: If the vehicle now tends to wander to the other side, take one of the wheels whose position you have already inverted and turn the tyre on the rim. If the wander direction does not change perform the same operation on the wheels of the other axle.

If this double inversion procedure fails to solve the problem, check that camber values on the same axle are identical, make the same comparison for caster values.

Steering wheel not aligned with vehicle path

Possible causes:

- Mechanical backlash.
- Compensation has been skipped or performed incorrectly.
- Wheel alignment performed using the two-target procedure.
- Wheel alignment performed with the steering wheel off centre.
- Front wheels adjusted with respect to the axis of symmetry.

Disparity between steering locks.

The steering box range must be centred by counting the number of steering wheel revolutions from full lock to full lock.

Position the steering wheel in the centre of its range, clamp the steering wheel and perform the normal procedure for adjustment of the front half toe values.

Position the steering wheels correctly, disassembling it from the steering column if needs be.

Steering wheel is excessively stiff with vehicle stopped.

Possible causes:

- Excessive caster.
- Incorrect king pin angle.
- Excessive camber.

Steering wheel return is too low or too forceful when driving.

Incorrect caster value. Adjust it.

Tyre wear.

- Tyres with irregular wear on both side walls: incorrect pressure - under-inflated.
- Tyre with irregular wear in the centre of the tread: incorrect pressure - over-inflated.
- Tyre wear with stepped wear profile: shock absorber not working properly.
- Tyres on the same axle with irregular wear on a single side wall: toe out of tolerance.
- Only one tyre on the same axle with an irregularly worn side wall: camber out of tolerance.

Vehicles with just one register.

Adjust the total toe to the value specified by the manufacturer.

Set the two front half-toes so that they are equal. Remove the steering wheel from the steering column and move it to the correct position; if the steering wheel has adjustment slots, use them.

Adjusting vehicle with power steering.

Before making the adjustments start the engine, turn the steering wheel to the limit position in

both directions, set the steering-wheel correctly and lock it in place.

During the adjustment operations it does not matter whether the engine is left running or stopped, except for cars where adjustment with the engine on is specified.

Vehicles with hydro-pneumatic or intelligent suspension systems.

Adjust the vehicle with the engine running and the suspensions at the normal height for use.

Vehicles with fixed rear axle.

The rear axle should still be measured to identify any excessive anomalies, after which adjust the front-half-toes in relation to the thrust axis; this eliminates the crooked steering-wheel problem.

TROUBLESHOOTING

COMPLETE SYSTEM

The equipment shows no signs of life

Mains voltage incorrect or not present

➔ Check the electrical system and hook-up the equipment correctly.

Plug not fitted into socket correctly

➔ Connect the plug properly.

PC feeder not switched on

➔ Switch on the PC feeder using the button on the rear of the PC.

Incorrect power supply voltage selected

➔ Set the voltage selector switch to the correct position, and check that the transformer is powered correctly

Monitor power switch is set to OFF

➔ Press the monitor switch. Check that the power cable/monitor screen are connected correctly.

Monitor is not receiving power

➔ Renew the monitor fuse.

Robotized units

The robotized unit does not move or moves irregularly

Check there are no obstacles to hinder unit movement

➔ if there are, remove them.

Check that the power and signal cables are connected correctly.

➔ follow the instructions for connecting the cables if the cables are disconnected.

The robotized unit does not stop by itself

The robotized unit stops only against the mechanical block of one of the external metal sheets.

➔ Check that the travel limit sensor is working and positioned at the right distance when above the metal reference of the mechanical limit stop.

The measuring unit with camera (“head”) does not move or moves irregularly

Check there are no weights on it or impediments to movement.

➔ if there are, remove them.

The power cable is not connected at the bottom

➔ connect the power cable appropriately leading from the cable holder chain.

The power cable is not connected on the side of the robotized unit’s body

➔ connect the power cable appropriately leading from the cable holder chain

The measuring unit with camera (“head”) does not stop

The measuring unit with camera stops only against the mechanical block of the vertical guide

➔ Check that the travel limit sensor is working and at the right distance when above the metal limit stop reference.

Software application for measuring wheel alignment

Problems with loading the operating systems or application

The operating system does not load or remains blocked

➔ Call Corgi SpA Technical Assistance

The application does not react to any command

It remains blocked on the main screen

➔ Press “ESC” on the alphanumeric keypad. Check that the keypad, mouse/trackball are connected properly to the client PC.

The application gives inaccurate values as regards to the characteristic ones

Check correct connection of the camera cables

- Connect the camera cables correctly.

Check that the field targets or field cameras are neither obstructed or covered, totally or partially

- Free the field cameras or field targets from any covering or obstructions.

Check that there are no particularly intense light sources or luminous reflections that could negatively affect the field cameras or field targets

- Prevent such light sources or reflections from affecting the cameras or field targets.

Check that the field and wheel lights, when controlled, turn on their 4 green LEDs

- Call Corgi SpA Technical Assistance centre if the 4 green LEDs never turn on.

Check that the robotized measuring units and/or field targets are not subject to mechanical vibrations generated by the surrounding environment

- Prevent any such mechanical vibrations from affecting the robotized measuring units and/or field targets.

Necessity to calibrate the system

- Call Corgi SpA Technical Assistance Centre and do not carry out any more measuring cycles.

The steering wheels come out bent.

Check that the brake-locking device is correctly in place

- If it is not put it properly in place.

Check that the steering wheel-locking device is correctly in place and the steering wheel itself is straight

- If it is not, put it properly in place, taking care that the steering wheel is straight (i.e. perfectly horizontal).

Keypad

The keypad or mouse/trackball is not accepting any commands

Cable not connected or incorrectly connected

- Check that the cable is plugged properly into the USB connector on the computer.

Possible breakage of the device

- Call Corgi SpA Technical Assistance



WARNING

the “Spare Parts” manual does not authorise the user to do any work on the machine except for that specifically described in the operator’s manual, but does enable the user to provide accurate information to the after-sales service, in order to reduce service times.

MAINTENANCE



WARNING

Corgi cannot be held responsible for any damage or malfunction resulting from the use of non-original spare parts or accessories



WARNING

Before making any adjustments or performing maintenance, disconnect the electrical supply from the machine and make sure that all moving parts are suitably immobilised.

Do not remove or modify any parts of this equipment except in the case of service interventions.



CAUTION

Keep the working area clean.

Do not clean the machine with compressed air or jets of water.

When cleaning, take care to avoid creating and raising dust as far as possible.

Never use solvents to clean the aligner or targets.

Keep clean, but do not lubricate, the turnplates and oscillating footboards on which vehicle alignment is carried out.

SCRAPPING

If the machine is to be scrapped, remove all electrical, electronic, and plastic components and dispose of them separately, as provided for by local legislation.

EN

ENVIRONMENTAL INFORMATION

The disposal procedure described below must only apply to machines with the symbol of



the waste bin with a bar across it on their data plates.

This product may contain substances which may cause damage to the environment and human health if not disposed of properly.

We are therefore providing you with the information below in order to prevent these substances from being released into the environment, and to improve the use of natural resources.

Electrical and electronic equipment must not be disposed of with ordinary municipal waste; it must be disposed of separately by authorised facilities.

The symbol of the waste bin with a bar across it, which appears on the product and on this page, reminds users that the product must be disposed of properly at the end of its working life.

This prevents the inappropriate disposal of the substances which this product contains, or the improper use of some of them, from having hazardous consequences for the environment and human health. It also helps to ensure the recovery, recycling and reuse of many of the materials these products contain.

To allow this, the producers and distributors of electrical and electronic equipment organise special systems for the collection and disposal of such equipment.

At the end of the product's working life, contact your dealer for information about disposal procedures.

When you purchase this product, your dealer will also inform you that you may return another worn-out appliance to him free of charge, provided it is of the same type and has provided the same functions as the product just purchased.

Anyone disposing of the product otherwise than as described above will be liable to prosecution under the legislation of the country where the product is scrapped.

We also urge you to adopt other environment-

friendly practices: recycle the internal and external packaging which comes with the product and dispose of spent batteries (if the product has them) properly.

With your help, we can reduce the amount of natural resources used to produce electrical and electronic equipment, minimise the use of landfills to dispose of old products, and improve quality of life by preventing the discharge of potentially hazardous substances into the environment.

FIREFIGHTING EQUIPMENT TO BE USED

When choosing the most suitable fire-extinguisher refer to the table below.

Dry materials

Water	YES
Foam	YES
Powder	YES*
CO ₂	YES*

YES* *Use only if more appropriate extinguishers are not on hand or when the fire is small.*

Flammable liquids

Water	NO
Foam	YES
Powder	YES
CO ₂	YES

Electrical equipment

Water	NO
Foam	NO
Powder	YES
CO ₂	YES



WARNING

The information in this table is of a general nature and is intended to provide users with general guidance. Contact the manufacturer for details of the applications of each type of extinguisher.

GLOSSARY

Characteristic Angles

This term refers to all the angles that can be normally measured on a wheel aligner (total front/rear toe, left/right and front/rear half toe values, left/right and front/rear camber, left/right caster, left/right king-pin angle, and steering angle difference at 20°).

Equatorial plane

Ideal vertical plane that divides the wheel into two equal parts.

Rotating platform

Base equipped with a disk on which the steered wheels of a vehicle rest; it is used to reduce friction between the wheel and the ground, in order to favour the settling of the suspensions and cancel the measuring errors during the steering.

It is highly important to keep the area between the disk and the base clean at all times.

Oscillating footboard

The function is similar to that of the rotating platform, but it is used for the non-steered wheels only.

Infrared rays (IR)

Electromagnetic waves that are invisible to the naked eye.

Target

Measurement instruments that are applied to the vehicle wheels to measure characteristic angles.

Clamp

Adapter between the wheel and the measuring target.

FINAL COMMUNICATION TO THE USER

Dear user, we from Corghi SpA always do our utmost to supply you with a product that is cutting edge, qualitatively superior but above all that gives you the greatest professional satisfaction possible.

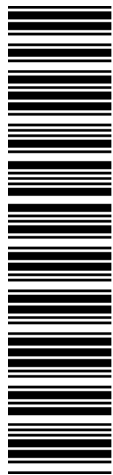
We from Corghi SpA try - for our products - to reach the state of the art not only in terms of design but also as far as the documentation is concerned. This is why, if you feel that there are inaccuracies or inconsistencies in this document we would be very grateful if you would let us know by contacting the Corghi SpA Technical Assistance Service anyway you prefer (phone, email), or even leave us a written communication on our portal (www.corghi.com)!

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A large rectangular area containing 20 horizontal dashed lines, intended for handwritten notes or a checklist.



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