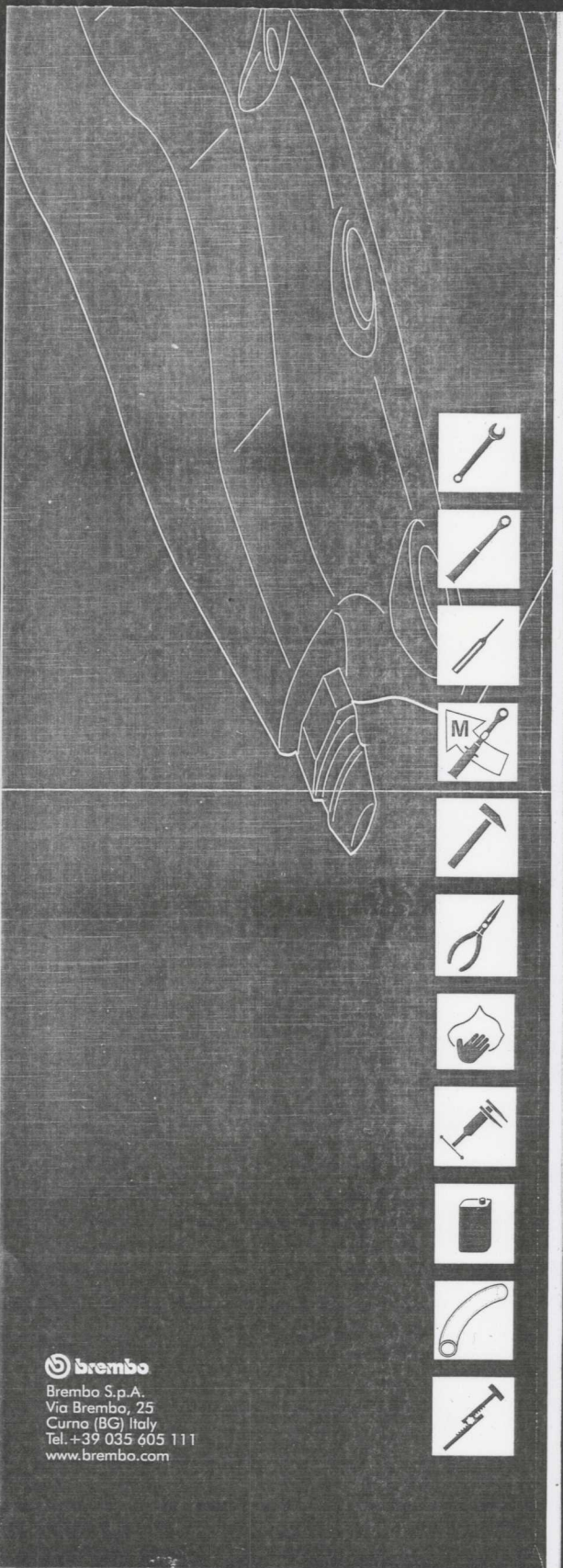


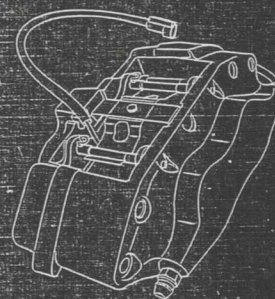


Brembo S.p.A.
Via Brembo, 25
Curno (BG) Italy
Tel. +39 035 605 111
www.brembo.com



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B



IT

ISTRUZIONI per la SOSTITUZIONE della PINZA FRENO

Pinza Fissa Auto

EN

INSTRUCTIONS for REPLACEMENT of BRAKE CALIPER

Automobile Fixed Caliper

Leggere e seguire
Questo documen
sostituzione della
dei seguenti tipi c
• A: Pinza con
• B: Pinza con
• C: Pinza con
Eseguire solo le c
ricambi desiderati
Ogni informazion
diversamente spe

Se l'installazione del P
consegnato all'utilizzat
prodotta. Nel caso la
questo documento dal
LIMITAZIONI DI
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bene, il consumatore
due mesi dalla data in
difetto si prescrive nel
conformità, l'utilizzat
ovvero ad una riduzio
disposto dall'art. 130
LA PRESENTE GARANZI
PRESENTE PRODOTTO
SCRITTA.

In caso di rilevamento
a pena di decadenza
giorni; contestualme
Prodotto e sulle parti
identificati sia il Prodi
distributore come pa
a spedire il Prodotto
24035 Curno (BG)
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corrosione chimica,
modello diverso da i
indicato dal Prodi
Prodotto nelle istr
reclami legati al con
Il Prodotto è stato pro
Brembo e/o dai distri
(www.brembo.com). Il
e/o nei paesi in cui vie
limitarsi all'osservanza
autorizzazione/omolog
Per i prodotti commerc
Limitazioni di Garanz
del Consiglio del 25.11.
Per i prodotti venduti
conformità a quanto s
applicabile.

INFORMAZIONI
Il presente prodotto B
Prodotti non devono e
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il funzionamento del P
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queste condizioni resp
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"ATTENZIONE" ind
"AVVERTENZA" indica
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destinato. L'installatore
esperienza adeguata c
o errata, dovuta alla n
Limitazioni di Garanz
danni fisici o materiali
causato o a da alcuna
modo non appropriat
"PERICOLO" Le part
altri prodotti. Ciò po
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leggi per la protezione
prodotti i rifiuti o ad c

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addirittura la morte.
"ATTENZIONE" Evit
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• Evitare il contatto dir
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• Non inserire le mani
l'uso di aria compres
• Evitare il contatto dir
caso di contatto acci
veicolo o del liquido
• Non sottoporre i con
danneggiare le parti
• Proteggere i compor
• Assicurarsi che tutti i
accendano le spie di
spie di segnalazione
malfunzionamento d
"PERICOLO" Evitare
delle pastiglie in quant
fisici.

"AVVERTENZA" Non u
potrebbe causare da

Please carefully read and follow the instructions provided.

This document contains the instructions (below "Instructions") for replacement of the BRAKE CALIPER - Automobile Fixed Caliper, on the following types of callipers:

- A Calliper with pad retaining pins.
- B Calliper with central pin.
- C Calliper with central bridge.

Perform only the operations necessary for replacement with the spare or spares required.

Unless otherwise specified, all information contained in this instruction sheet applies to all types of callipers.

If the Product is installed by the supplier, this document shall be delivered to the end user, who is required to keep it for the entire life of the product. If ownership of the vehicle on which the Product has been installed is transferred, this document shall be delivered to the new owner.

WARRANTY LIMITATIONS

This warranty covers all the conformity defects occurring within two years from delivery of the good. The consumer is required to report to the seller the conformity defect within the term of two months from the date of discovery of the defect, without prejudice to the fact that the limitations period for taking action aimed at seeking redress for the defect is twenty-six months from delivery of the good. In the event of a conformity defect, the user has the right to repair or replacement of the good, or to an appropriate price reduction or termination of the contract, as established by art. 130 of the Consumer Code, where applicable.

THIS WARRANTY CONSTITUTES THE ONLY WARRANTY PROVIDED IN RELATION TO THIS PRODUCT AND REPLACES ANY OTHER WARRANTIES, BOTH VERBAL AND WRITTEN.

In the event of the occurrence of defects, the user is required:

- under penalty of invalidation, to notify the manufacturer and distributor in writing within sixty days; at the same time, the user shall provide a description of the defect found on the Product or on the parts returned, and a proof of purchase of the original user which identifies both the Product and the date of purchase (whether purchased retail or sold by a distributor as part of the Product installation);
- to send the Product assumed to be defective to Brembo S.p.A. to the headquarters in via Brembo 25 - 24035 Curno (BG) - Italy, via the distribution chain.

The warranty does not operate for:

- damage to the Product caused, partly or entirely, by incorrect use, accident, fire, chemical corrosion, use for purposes other than those scheduled, illicit use, use on a model different from the one scheduled, incorrect installation, installation contrary to the directions of the Manufacturer, or lack of maintenance on the Product as prescribed by the Manufacturer in the instructions provided;
- complaints connected with comfort, the presence of noise, vibrations or harsh riding characteristics.

The Product has been designed and produced for the specific model and use indicated in the Brembo catalogues and/or by the Brembo product distributors, both available on the Brembo website (www.brembo.com). The Product shall be used according to the laws in force in the states and/or in the countries where the vehicle on which the Product is installed is used, including, but without limitation to, observance of the regulations of the Highway Code and after obtaining any authorisation/approval, permit or licence required by the state and/or country.

For products sold in the territories of the European Union member states, these Warranty Limitations operate in compliance with the provisions of the Directive 85/374/EEC of the Council of 25th July 1985.

For products sold in the territories of the United States, these Warranty Limitations operate in compliance with any applicable federal or state law.

GENERAL AND SAFETY INFORMATION

This BREMBO product has been designed to comply with all applicable safety standards.

Products are not intended to be used differently from the specific use for which they have been designed and manufactured. Use for any other purpose, or any modification to, or tampering with, the Product can affect the performance of the Product and may render the Product unsafe. Such modification or improper use will void the Limited Warranty, and may subject the individual so using the Product to liability for bodily injury or property damage to others.

As used in these instructions,

"DANGER !" means procedures which, if not observed, have a high degree of probability that they will cause serious injury or even death.

"WARNING !" means procedures which, if not observed, could possibly cause injury.

"CAUTION !" means procedures which, if not observed, could result in damage to the vehicle.

DANGER ! This Product is vital to the safe operation of the vehicle on which it is installed, and it is intended to be installed only by a skilled, qualified individual who has been trained and/or is experienced in the installation and use for which the Product is intended. The installer must be equipped with the proper tools of his trade, and with the knowledge and experience to deal with vehicle repairs. Improper or incorrect installation, whether caused by a failure to faithfully and completely follow these Instructions or otherwise, will void the Limited Warranty and could subject the installer to liability in the event of personal injury or property damage. BREMBO shall not be liable for any damage or injury caused to or by any person operating a vehicle on which a replacement product has been improperly installed.

DANGER ! The used product replaced by this Product must not be installed on any other product. Property damage and personal injury, including death, could result.

WARNING ! In the course of replacing the product, and related items such as brake fluid, brake pads, brake shoes, and the like, the installer will be exposed to fluids and parts that may be deemed to be "hazardous waste" under applicable laws, rules and regulations. All such wastes must be handled, recycled and/or disposed of in accordance with all applicable laws, rules and regulations. The failure to do so can subject the generator of the hazardous waste to penalties under environmental laws, and could result in bodily injury or property damage to the generator or others.

DANGER ! Always check that the brake fluid level in the reservoir is between the minimum and maximum levels indicated on the reservoir. An incorrect level can cause brake fluid leaks or reduced brake system efficiency. Too much or too little brake fluid in the reservoir could cause the brakes not to perform properly, and personal injury, including death, could result.

WARNING ! To avoid creating a defective installation, avoid sharply striking and/or damaging the Product, its parts and its components, as this can impair their efficiency and may cause them to malfunction. If necessary, replace any damaged part or component.

WARNING ! To avoid injury:

- Use suitable equipment to prevent the inhalation of dust raised during cleaning of the parts.
- Always wear gloves during disassembly and assembly of components with sharp edges.
- Do not allow skin surfaces to make direct contact between the pad and shoe linings since this could cause abrasions.
- Do not place your hands in the pad locating seat when removing the caliper pistons with the aid of compressed air, due to the risk of crushing.
- Avoid direct contact with the brake fluid as it can cause irritation to the skin and eyes. In the event of contact, clean thoroughly in accordance with the vehicle or brake fluid manufacturer's instructions.
- Do not subject the electrical components to electrostatic charges or to impact which could damage the plastic parts.
- Protect the disassembled electrical components from humidity.
- Ensure correct connection of any electrical contacts, checking that the warning lights come on. If they do not, non-operation of the warning lights can cause a reduction in efficiency of the braking system, or brake signaling failure.

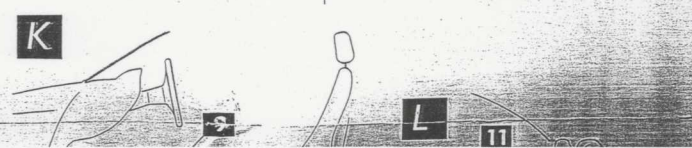
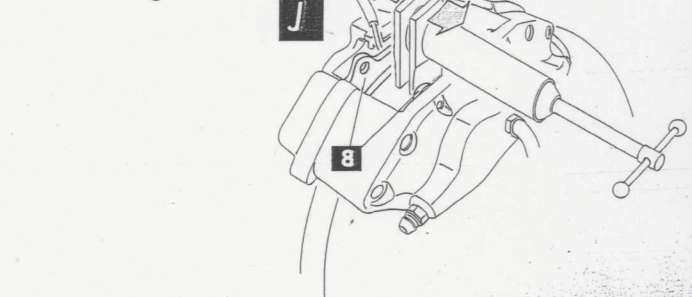
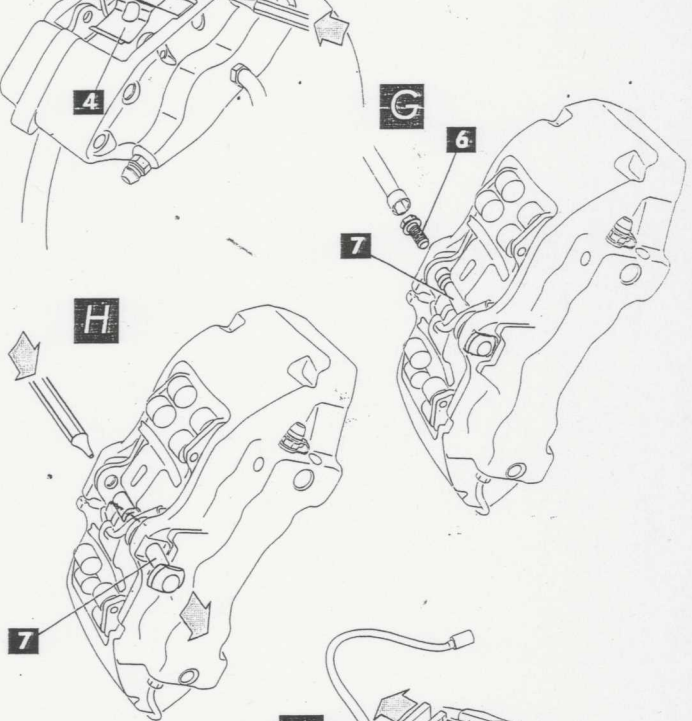
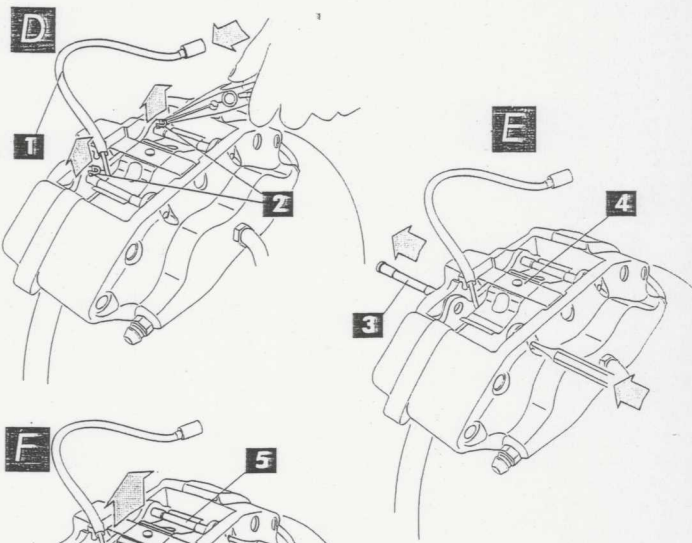
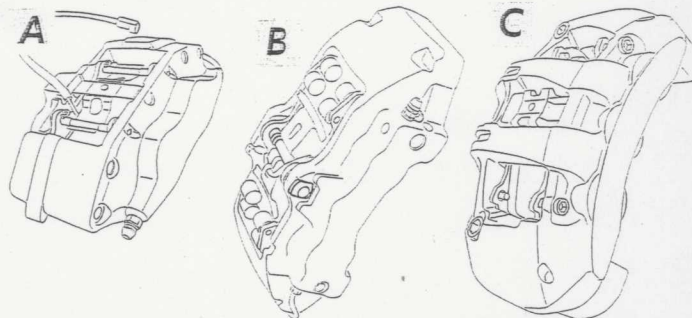
DANGER ! Avoid contact of grease and other lubricants with the braking surfaces of the disc and pads as this could affect the efficiency of the braking system and cause serious physical damage.

CAUTION ! Do not use sharp tools when fitting rubber components, since this can damage them. Be sure to replace damaged components.

CONVENTIONS

- The illustrations are provided as a guide.

Before commencing replacement, ensure that the spare parts used for replacement are suitable for the make and model of the vehicle.



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Before commencing replacement, ensure that the spare parts used for replacement are suitable for the make and model of the vehicle.

REMOVING THE CALIPER

- Remove the wheel.
- Mark the positions of the springs, split pins, pins, pads, wear indicator and connection points on the chassis and on the caliper. The marks are necessary for correct refitting of the parts.
- **D** Disconnect the wear indicator cable **1**, if present, from the terminal in the vehicle, releasing it from any connections on the chassis and on the caliper.

TYPE 'A' CALIPERS

- **D** For models provided with safety pins **2**, remove them using a pair of pliers.
- **E** Slide out one of the pins **3** using a hammer and pin driver, far enough to allow the operation to be completed by hand, then remove completely keeping the spring **4** in position with one hand.
- **F** Remove the spring **4** and the other pin **5**.

TYPE 'B' CALIPERS

- Note the position of the pin and fastening screw on the caliper to ensure correct re-assembly.
- **G** Using a pipe wrench, unscrew the fastening screw **6** of the pin **7**.
- **G** Remove the fastening screw **6**.
- **H** Using a hammer and pin driver, slide out the pin **7** far enough to allow the operation to be completed by hand, then remove completely keeping the spring in position with one hand. Remove the spring.

FOR ALL TYPES OF CALIPERS

- Open the plug on the brake fluid reservoir, checking the fluid level.
- WARNING !** The operations for retraction of the pistons described below cause a surge in the level of the brake fluid in the reservoir. Ensure that the fluid does not overflow, damaging the painted parts of the vehicle.

- **J** Move the pistons back slightly using a retractor or other suitable tool, exerting pressure on the pads **8**. The pistons must be retracted far enough to allow the caliper to move away from the disc.

- **K** Position a spacer **9** inside the cab between the seat and the brake pedal so that the pedal remains depressed throughout the procedure.

CAUTION ! This operation permits closure of the brake hydraulic circuit, preventing leakage of the fluid.

WARNING ! During all the phases described below, ensure that the brake fluid does not come into contact with parts of the vehicle that could be damaged, in particular the painted parts. Absorb promptly with paper and clean with water in the event of splashes or accidental leaks of brake fluid.

- **L** Loosen the supply pipe **10** on the caliper far enough to permit complete unscrewing by hand but to prevent leakage of brake fluid.
- **L** Unscrew the fastening screws **11** with an open-end spanner and remove the caliper from the hub carrier.
- **L** Complete detachment of the supply pipe **10** from the caliper.
- Move the caliper away from the vehicle, resting it on a work top.
- Immediately stop any brake fluid leaks.
- Keep the supply pipe raised to prevent accidental fluid leaks.
- **M** Remove the pads **8**.
- Using a felt pen, mark the disc rotation direction on the pads to ensure that they are positioned correctly during re-fitting.

FITTING THE NEW CALIPER

- **N** If present, correctly re-position the stainless steel shims **12** on the back of the pads **8**, replacing them if necessary. The shims are correctly positioned when the two lips **13** rest firmly on the upper edge of the back of the pads and the arrows stamped on them are pointing in the disc rotation direction.
- Fit any springs in their seats.
- **O** Re-fit the pads **8** housing them correctly in their seats, ensuring that any arrows **14** stamped on them are pointing in the disc rotation direction. If there are devices to be fixed to the pads, new devices **15** must be fitted on the pistons **16**.

CAUTION ! Check correct positioning of any springs in the pad seats.

DANGER ! The pads must be inserted with the friction material facing towards the disc.

TYPE 'A' CALIPERS

- **P** Re-fit one of the pins **5** in the housings provided in the caliper and in the pads, locating it using a hammer and pin driver. A pin is correctly located when it will go no farther and the hammer blow sounds stronger and metallic.
- **Q** Refit the spring **4** observing the direction of any arrows.
- **Q** Refit any other pins **3** exerting a firm pressure on the spring with one hand, then locate it using a hammer and pin driver.
- Check correct positioning of the spring.
- **R** For the models provided with safety pins **2**, re-position them using a pair of pliers.

TYPE 'B' CALIPERS

- **S** Position the spring **17**.
- **S** Insert the pin **7** in the housings provided in the caliper, exerting a firm pressure on the spring with one hand, and locate it using a hammer and pin driver.

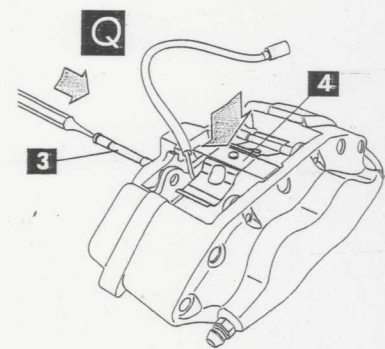
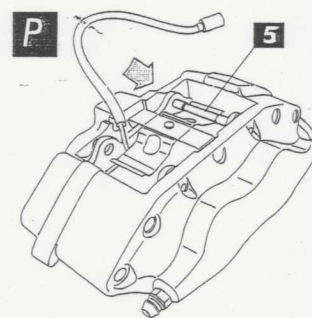
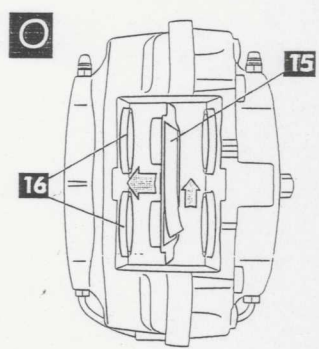
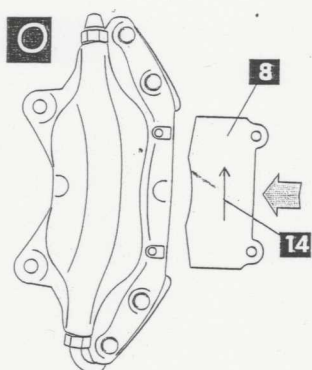
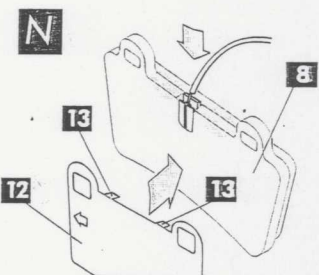
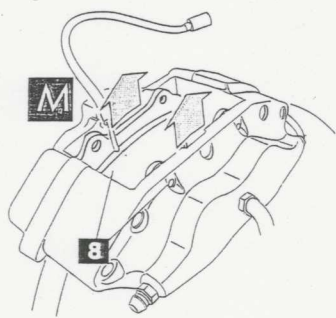
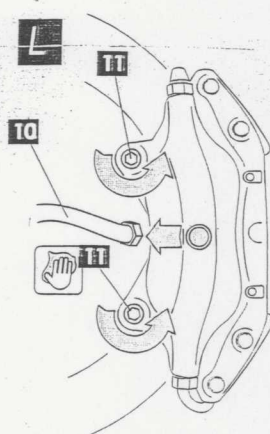
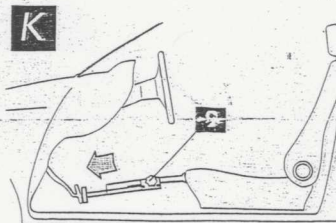
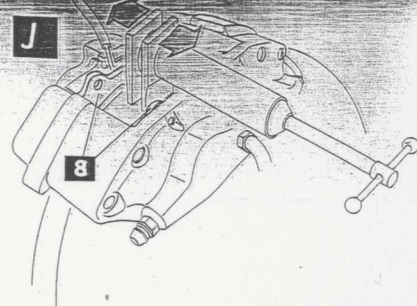
WARNING ! Ensure that the pin is correctly positioned in the seat indicated in the figure **T** and located on the supporting surface.

- **S** Using a pipe wrench, screw in the fastening screw **6** without tightening it completely.

CAUTION ! The fastening screw is self-locking and has a greater resistance to tightening than ordinary screws.

- **S** Using a torque wrench, tighten the fastening screw **6** to the torque specified in the following table:

Screw type	M8x1,25
Tightening torque	27 + 33 Nm



- **Q** Refit any other pins **3** exerting a firm pressure on the spring with one hand, then locate it using a hammer and pin driver.
- Check correct positioning of the spring.
- **R** For the models provided with safety pins **2**, re-position them using a pair of pliers.

TYPE B CALIPERS

- **S** Position the spring **17**.
- **S** Insert the pin **7** in the housings provided in the caliper, exerting a firm pressure on the spring with one hand, and locate it using a hammer and pin driver.

WARNING ! Ensure that the pin is correctly positioned in the seat indicated in the figure **17** and located on the supporting surface.

- **S** Using a pipe wrench, screw in the fastening screw **6** without tightening it completely.

CAUTION ! The fastening screw is self-locking and has a greater resistance to tightening than ordinary screws.

- **S** Using a torque wrench, tighten the fastening screw **6** to the torque specified in the following table:

Screw type	M8x1,25
Tightening torque	27÷33 Nm

FOR ALL TYPES OF CALIPERS

- **U** Clean the braking area **18** of the disc **19** and the supporting surfaces of the caliper on the hub carrier using a degreasing product (e.g. solvent SE47).
- **U** Position the caliper on the hub carrier, inserting the disc **19** between the pads.
- **U** Re-tighten the fastening screws using an open-end spanner, applying the tightening torque prescribed by the vehicle manufacturer. Use the following APPROXIMATE tightening torques as a reference:

Screw type	M12x1,25	M12x1,5	M12x1,75	M14x1,5
Tightening torque	100 Nm	115 Nm	115 Nm	165 Nm

- Reconnect the cable of the wear indicator, if present, to the terminal in the vehicle and to any connections on the chassis and caliper.
- **V** Reconnect the brake fluid supply pipe **10**.
- Remove the spacer previously positioned inside the cab, thus freeing the brake pedal and allowing the circuit to re-open.
- **V** Remove the protective cap **20** and connect a clear hose to the caliper bleed nipple **21** and place the other end of the pipe inside a brake fluid collection container.
- **W** Open bleed nipple **21**.
- Press the brake pedal several times until brake fluid starts to flow through the bleed nipple.
- Keeping the pedal pressed, close the bleed screw. Free the pedal, wait a few seconds, then repeat the operations until brake fluid without air bubbles flows out and the resistance and usual stroke of the brake pedal are restored.
- **X** Tighten the bleed nipple to a tightening torque as shown in the following table:

Bleed plug	M6x1	M8x1,25	M10x1	M12x1
Tightening torque	5÷7 Nm	7÷10 Nm	17÷20 Nm	18÷22 Nm

- **X** Remove the clear hose and refit the protective cap on the bleed screw.
- Repeat the bleeding procedure also for any other bleeding nipples.
- Once bleeding has been carried out, completely withdraw the piston by means of a suitable tool (e.g. a retractor) and then restore the fluid level as specified by the manufacturer.
- Close the brake fluid tank plug.
- With the engine running, press the vehicle brake pedal hard and check for leaks from the caliper or unusual pressure drops in the circuit and check that the rear brake lights come on.

DANGER ! If fluid leaks from the caliper occur, repeat all the operations described in this document in order to find the cause and correct the problem.

- Refit the wheel.

