

A black and white photograph of a mechanical disc brake. The central caliper is shown in detail, with a disc rotor mounted on the left side. A cable and a lever are attached to the right side. In the upper left corner, there is a graphic element consisting of a white speech bubble shape with a black border. Inside the bubble, the letters 'MD' are written in a large, bold, sans-serif font. To the right of 'MD', there is a small black circle containing a white dot. Below this graphic, the words 'MECHANICAL' and 'DISK BRAKE' are printed in a bold, sans-serif font, separated by a small black circle containing a white dot.

MD • 1

MECHANICAL

• DISK BRAKE

## **MANUALE ISTRUZIONI**

OPERATING MANUAL

MANUEL D'INSTRUCTIONS

BETRIEBSANLEITUNG

MANUAL DE INSTRUCCIONES

## **WARRANTY CONDITIONS**

- 1) Formula's warranty covers the product specified in this certificate against defects for the period of one year.
- 2) The warranty begins on the date of delivery of the product.  
In case of hidden defects, which cannot be noted at the delivery, the warranty period begins as soon as the defect is discovered and notified to the manufacturer by written communication within 8 days.
- 3) For the warranty to be effective:
  - a) the purchaser shall send this coupon to Formula together with the defective product after filling in all its parts and sign it for acceptance of any and all clauses it contains;
  - b) the warranty extends only to the substitution of defective parts arising from faulty design, and the workmanship necessary for the substitution;
  - c) the purchaser must keep a copy of the purchase document with care.
- 4) The warranty does not extend to:
  - a) parts subject to wear and tear;
  - b) defects and breakings arising from transport, wrong installation, improper use, modifications or repair works carried out by persons who are not expressly authorized by Formula;
  - c) transport freights, delivery and return of the product for check and repair purposes.
- 5) Formula is not responsible for possible delays in the repair works or bike stops.
- 6) This is the only enforced warranty. Nobody is permitted to change the warranty terms or to agree to other written or oral warranty conditions.
- 7) In case of dispute, sole competent court is the Court of Prato (Italy).
- 8) This warranty is subject to the Italian laws.

## **GENERAL INDEX**

- S.1 General rules
- S.2 General safety rules
- S.3 Braking system safety rules
- 1.0 Installation**
  - 1.1 Mounting the brake disk
  - 1.2 Mounting the front/rear caliper
  - 1.3 Mounting the cable
  - 1.4 Mounting the wheel
- 2.0 Operation instructions**
  - 2.1 Preliminary adjustments
  - 2.2 Adjusting the braking
- 3.0 Maintenance**



## **S.1 GENERAL RULES**

This manual provides information for a safe and proper mounting and use of the braking system and for its rational maintenance.

The strict respect of its rules assures the braking system the best performances, a duty economy and a longer lifetime and allows to avoid the commonest causes of accidents which may occur during operation and maintenance.

- ***WARNING: Read the SAFETY RULES with care and inform the charged staff adequately to grant a proper use of the braking system.***

In this handbook, within each paragraph, there are the following safety notices:

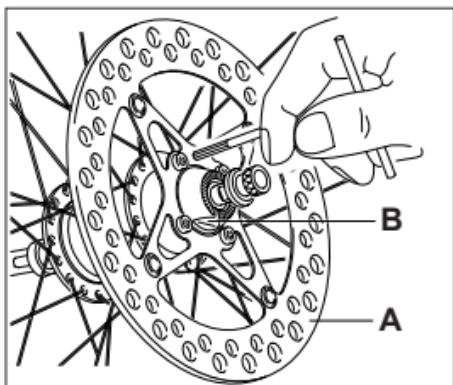
- ***CAUTION: directs your attention to unsafe practices which could result in damages to the equipment.***
- ***WARNING: directs your attention to unsafe practices which could result in personal injury or damages to the equipment.***

## **S.2 GENERAL SAFETY RULES**

- ***FORMULA's brakes have been designed to be exclusively used on two-wheel vehicles driven by human propulsion. Any other application may result in personal injury and voids the warranty by raising the manufacturer FORMULA from any and all responsibilities for possible damages.***
- ***The operator charged with the installation shall be skilled, know well the braking system and have read both this operating manual and the relevant enclosed documents from front to back.***
- ***Do not introduce your hands close to or within moving parts; always use strong five-fingered gloves ensuring sensitivity and a powerful grip.***
- ***Do not change the parameters of the braking system to obtain other performances than those established by the manufacturer.***
- ***Before starting any mounting operations, carefully check for dangerous conditions of the working site. When the site is darken, use all available light sources and make sure they are efficient before starting working.***
- ***Concentrate and take the due precautions before using components which could cause damages.***
- ***When using the bike, it is advisable to wear an helmet and to drive with care and sense of responsibility.***

### S.3 BRAKING SYSTEM SAFETY RULES

- *The brake disc shall be assembled on wheels suitable for the use type. A wheel with spokes of insufficient section or with radial coupled spokes may collapse under the action exerted by the braking system and result in serious personal injury or accidents.*
- *Frequently check the spoke tension and condition. A damaged spoke may break suddenly, interfere with the braking system and result in serious personal injury or accidents.*
- *The bike frame or fork shall be suitable for mounting the braking system. Only in this case, the correct dimensioning of the supports and the suitable positioning of the elements which form it is assured.*
- *Do not install the braking system by using adapters or supports supplied by other manufacturers. This will void the braking system warranty immediately. Use only parts manufactured or recommended by FORMULA.*
- **FOR THE MAXIMUM EFFICIENCY OF THE BREAKING SYSTEM, ALLOW IT TO SET SUITABLY.**
- **THE BRAKING SYSTEM HAS BEEN DESIGNED AND MUST BE USED ONLY WITH HANDLEBAR LEVERS OF V-BRAKE TYPE.**
- **SHIMANO STX/RC LEVERS SHALL BE ADJUSTED TO POSITION "HI".**



*Fig. 1*

### 1.0 INSTALLATION

#### 1.1 Mounting the brake disk

**WARNING: read the safety rules**

Lay the brake disk A (fig. 1) onto hub B of an already assembled wheel, orient the screw head seat outwards, then fix with the special M5 screws crosswise at  $5,75\text{Nm} \pm 5\%$ . torque. Thoroughly remove grease or oil from the disk.

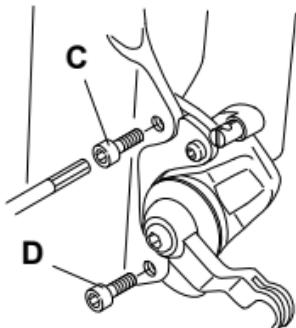


Fig. 2

## 1.2 Mounting the front/rear caliper

### **WARNING: read the safety rules**

Mount the front and/or rear caliper onto the special attachments as shown in the figure by securing it with **C-D M6** screws at a torque pressure of  $9,85\text{Nm}\pm5\%$ .

**Warning:** When the thickness of the attachment placed on the fork is smaller and/or greater than 8 mm (fig. 3), replace the supplied fixing screws with new ones having a length equal to the difference.

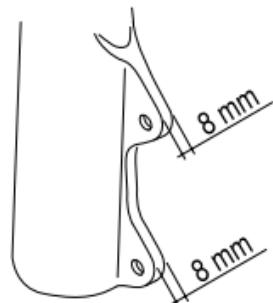


Fig. 3

## 1.3 Mounting the cable

### **WARNING: read the safety rules**

Insert the complete cable into the V-BRAKE type lever according to the instructions of the lever manufacturer. Remark: Shimano STX/RC levers shall be adjusted to position "HI". Both cable and sheath shall have a length which suits the movements of the different bike elements.

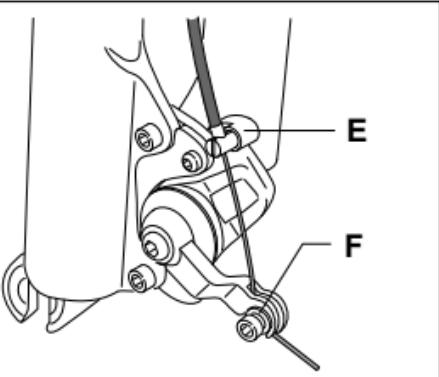


Fig. 4

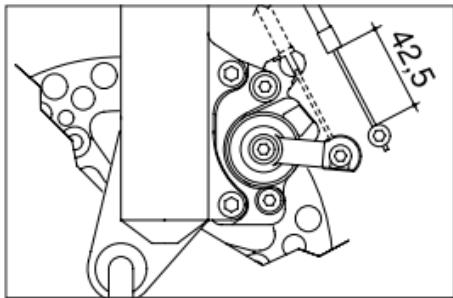


Fig. 5

**Warning:** Too short cables or sheathes may reduce the driveability of the bike and result in serious accidents.

Place the sheath end onto the sheath stop **E** (fig.4), fit clamp **F** at the distance shown in fig. 5-6, then tighten the clamp screw at a torque of  $2,91\text{Nm}\pm5\%$ .

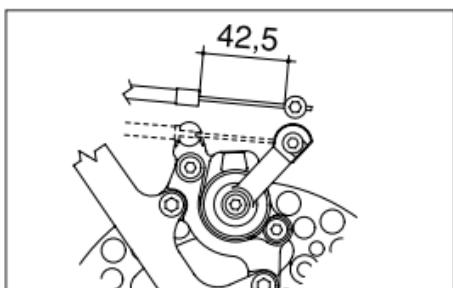


Fig. 6

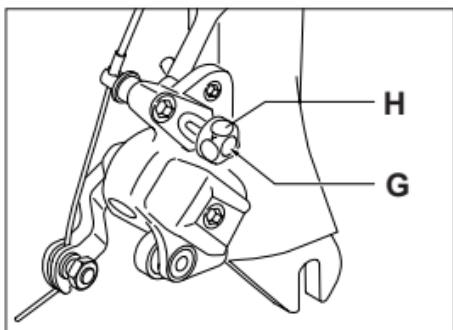


Fig. 7

## 1.4 Mounting the wheel

### **WARNING: read the safety rules**

Before fitting the wheel with mounted disk, make sure the fixing screw **G** (fig. 7) of knob **H** is within the knob itself. Additionally, make sure the distance between the pads is  $2\div2,5$  mm as shown in figure 8. Otherwise, exert a slight pressure on the external pad until it rests on the stop.

Mount the front/rear wheel according to the instructions of the wheel manufacturer.

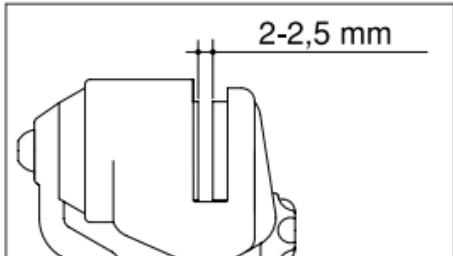


Fig. 8

## 2.0 OPERATION INSTRUCTIONS

### 2.1 Preliminary adjustments

**WARNING: read the safety rules**

Before using the braking system, carry out the following preliminary adjustments.

Move the internal pad so that it touches the disk slightly.

By screwing knob H (fig. 9) the pad nears to the disk; by loosening the knob, it moves away.

To get the desired stroke, use the adjusting screw of the brake lever, on the handlebar, according to the instructions supplied by its manufacturer.

**Warning: After about 50 km using the braking system, then make further adjustments and check the screws P for tightness (Fig. 9.1-9.2).**

**Warning: Failure to perform the above operations may cause serious injury or damage.**

For this purpose, rotate the adjusting screw until achieving the desired braking effect.

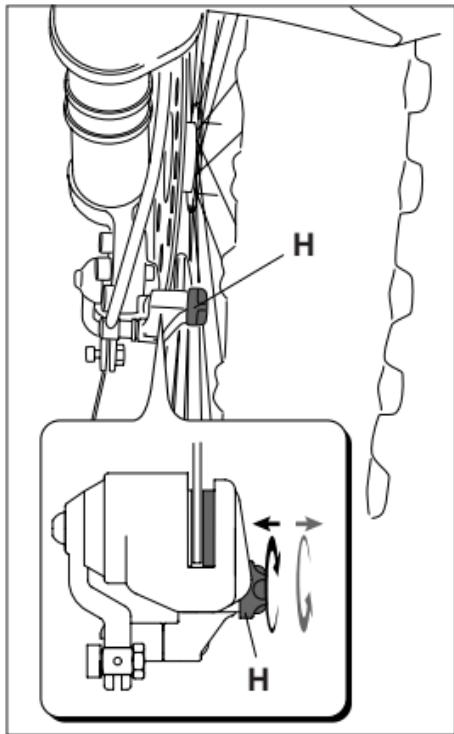


Fig. 9

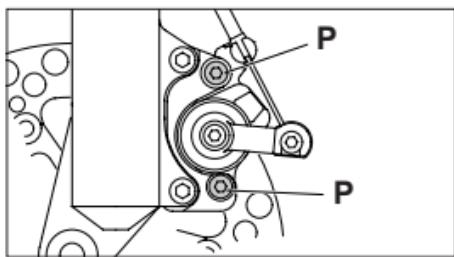


Fig. 9.1

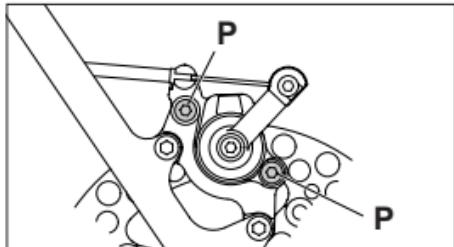


Fig. 9.2

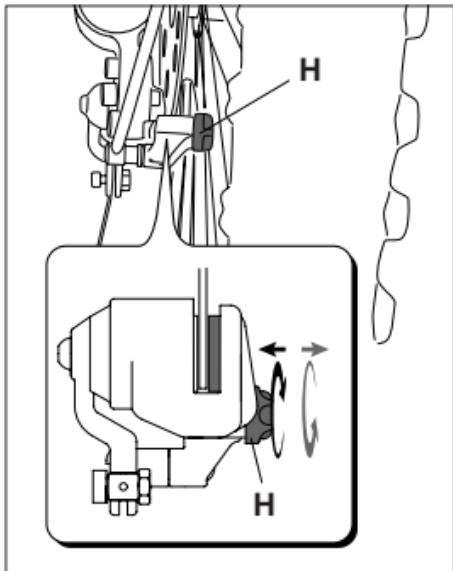


Fig. 10

## 2.2 Adjusting the braking

### ***WARNING: read the safety rules***

When the adjusting device of the handlebar lever has been used up to its limit due to a wear of the braking system pads, proceed as follows.

Reset the adjusting device of the handlebar lever to its starting position.

Operate knob **H** (fig. 10) until the internal pad rubs the disk.

Loosen the fixing screw **L** (fig. 11) of the caliper lever **M** with a 3 mm hexagonal wrench.

***WARNING: do not pull the brake wire for any reason and hold the lever **M** pressed in position.***

Using a 2.5 mm hexagonal wrench rotate the internal dowel **N** clockwise until the external pad slightly touches the disk.

Mount the fixing screw **L**.

Test the braking system and check if the handlebar lever stroke suits the required braking degree.

If the stroke is too long, adjust by means of the adjusting screw fitted on the handlebar lever.

Repeat the adjusting operations above until the braking pads are completely worn, then replace them.

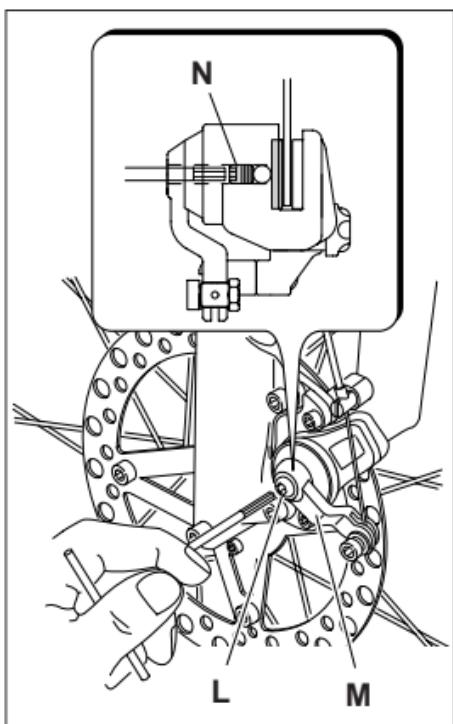


Fig. 11

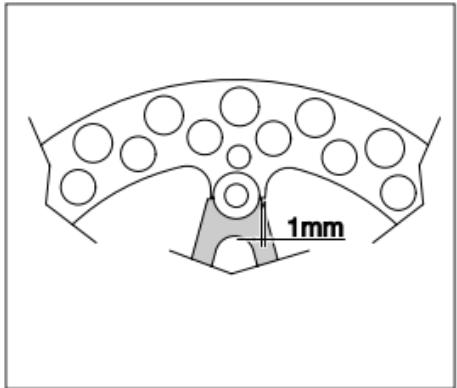


Fig. 12

**WARNING:** After the running-in period, the external disc will show a greater play than the internal one. Under no circumstance, this play may exceed 1 mm.

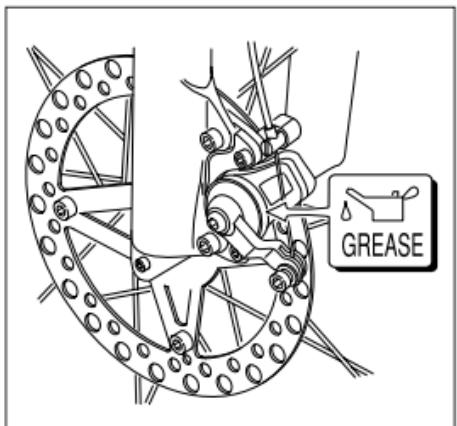


Fig. 13

### 3.0 MAINTENANCE

**WARNING: read the safety rules**

Periodically clean the caliper in relation to the bike use, the route length, and the weather conditions using a biodegradable degreaser suitable for the caliper.

Carefully clean all moving parts.

**WARNING: while lubricating, cover both disc and pads with a rag to prevent any contact with the lubricant, this might result in an alteration of the friction functions between pads and disk.**

**CAUTION:**

**under no circumstances demount the caliper lever using tools.**

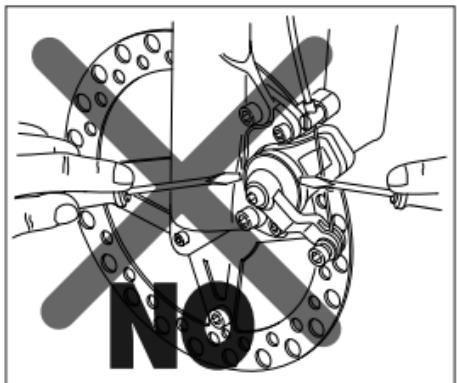


Fig. 14

## **CONDIZIONI DI GARANZIA FORMULA**

Formula's warranty conditions

Conditions de garantie de Formula

Garantiebedingungen Formula

Condiciones de garantía de Formula

Firma Rivenditore

*Seller's signature*

Firma Acquirente

*Buyer's signature*

**Si approvano espressamente le clausole, delle condizioni di garanzia, 7) Foro competente; 8) Scelta della legislazione in deroga degli art. 1341 - 1342 cod. civ.**

The points 7 and 8 are expressly, according to Art. 1341-1342 Civil Code

On approuve expressément les clauses des conditions de garantie, 7) Tribunal compétent; 8) Loi applicable par dérogation aux art. 1341-1342 du code civil.

Es werden ausdrücklich folgende Klauseln der Garantiebedingungen gebilligt: 7) Zuständiger Gerichtsstand; 8) Rechtswahl in Abweichung von den Art. 1341 - 1342 Zivilgesetzbuch.

Se aprueban expresamente las cláusulas, de las condiciones de garantía, 7) Foro competente; 8) Elección de la legislación por derogación de los art. 1341 - 1342 cód. civ.

Firma Rivenditore

*Seller's signature*

Firma Acquirente

*Buyer's signature*



# CERTIFICATO DI GARANZIA

## WARRANTY CERTIFICATE



(DA COMPILEARE E SPEDIRE)  
(TO BE FILLED IN AND SENT)

### AQUIRENTE

*PURCHASER*

Cognome.....  
*Surname*

Nome.....  
*Name*

Via..... N°.....  
*Address*

CAP..... Città.....  
*Zip code* *Town*

Prov..... Paese.....  
*Country*

DA COMPILEARE DAL RIVENDITORE <i>TO BE FILLED IN BY THE DEALER</i>	data d'acquisto <i>Purchase date</i>
	modello <i>model</i>

# CERTIFICATO DI GARANZIA

## WARRANTY CERTIFICATE

(TAGLIANDO DA CONSERVARE COMPILATO)  
(COUPON TO BE KEPT FILLED-IN)

### ACQUIRENTE

*PURCHASER*

Cognome.....

*Surname*

Nome.....

*Name*

Via.....

*Address*

N°.....

CAP.....

*Zip code*

Città.....

*Town*

Prov.....

Paese.....

*Country*

DA COMPILARE DAL RIVENDITORE <i>TO BE FILLED IN BY THE DEALER</i>	data d'acquisto <i>Purchase date</i>
	modello <i>model</i>

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(Worldwide exclusive aftermarket distributor, North America not included)

DEALER:

MANUFACTURED BY:



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