

PROCEDURA DI SPURGO
BLEEDING PROCEDURE
PROCÉDURE DE PURGE
SÄUBERUNG
PROCEDIMIENTO DE EXPURGACIÓN

C1
CR1
CR3

- I** Scarica il manuale del prodotto direttamente dal web:
- GB** Pls. download the products' instruction manual from the website:
- F** Merci de bien vouloir telecharger le manuel d'instructions sur la page:
- D** Bitte entladen Sie die Betriesanleitung vom den folgenden website:
- E** Por favor, descárgate el manual de instrucciones de nuestros productos de la web:
- BG** Моля, изтеглете наръчника на потребителя от следния адрес:
- HR** Molimo download-aite nstrukcijski priručnik sa internetske stranice:
- SLO** Prosimo, da si naložite navodila o uporabi na strani:
- CZ** Stáhněte si prosím návod k použití z této webové stránky:
- DK** Download venligst produktets betjeningsvejledning fra følgende hjemmeside:
- SF** Ole hyvä ja lataa tuotteen käyttöohje seuraavalta sivulta:
- LV** Lādzu lejupielādējiet instrukciju brošūru no adreses:
- PL** Proszę pobrać instrukcję obsługi produktu ze strony:
- P** Por favor, descarga o manual de instruções dos nossos produtos na web:
- SK** Prosím stiahnite si manuál produktov a inštrukcie z web stránky:
- S** Download venligst produktets betjeningsvejledning fra følgende hjemmeside:
- H** Kérem, tölts le a termékek használati utasításait a website-ról:
- N** Last ned instruksjonsmanual for dette produktet på vår webside:
- NL** Aub. Download de product handleiding van de website:
- CN** 请到网页下载产品使用手册:

<http://support.formula-brake.com>

TORX® è un marchio registrato di CAMCAR / TEXTRON INC. Tutti i marchi appartengono ai rispettivi proprietari.

TORX® is a registered trademark of CAMCAR / TEXTRON INC. All trademarks are the property of their respective owners.

TORX® est une marque déposée de CAMCAR / TEXTRON INC. Toutes les marques appartiennent aux propriétaires respectifs.

TORX® ist ein registriertes Warenzeichen der CAMCAR / TEXTRON INC. Alle Warenzeichen gehören den respektiven Eigentümern an.

TORX® es una marca registrada de CAMCAR / TEXTRON INC. Todas las marcas pertenecen a los respectivos propietarios.

WARNING! BEFORE INSTALLING AND USING THIS NEW FORMULA SRL PRODUCT IT IS CRITICAL TO YOUR SAFETY THAT YOU READ AND STRICTLY ADHERE TO THE INSTRUCTIONS IN THIS MANUAL. FAILURE TO DO SO COULD CAUSE SERIOUS INJURY, DEATH AND INVALIDATE YOUR LEGAL RIGHTS.

KEEP THIS MANUAL IN A SAFE PLACE FOR FUTURE REFERENCE AS IT CONTAINS INFORMATION CRITICAL TO YOUR SAFETY.

WARNING! DON'T TRY TO DISASSEMBLE OR MODIFY IN ANY WAY THIS NEW FORMULA SRL PRODUCT!

SERVICE ON THIS PRODUCT MUST BE PERFORMED ONLY BY QUALIFIED PROFESSIONAL MECHANICS WHO ARE FAMILAR WITH AND UNDERSTAND THE TECHNICAL DETAILS OF HOW THIS PRODUCT WORKS.

IF YOU DECIDE TO IGNORE THIS IMPORTANT SAFETY WARNING, YOU ARE DOING SO AT YOUR OWN RISK AND AT NO LEGAL LIABILITY TO FORMULA SRL OR ITS DISTRIBUTORS.

Note: AS FOR ANY MANUAL, THIS ONE MAY BE UPDATED. CONTACT YOUR MECHANIC, OR CHECK OUR WEB SITE REGULARLY, (www.formula-italy.com) TO RECEIVE ANY SUCH UPDATES.

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

By following the rules contained in this manual you will ensure that the braking system has the best performance and operating life, along with avoiding the most common causes of accidents that may result from improper operation and maintenance.

 **WARNING: Carefully follow safety rules for proper braking system function.**

In this handbook you will find the following safety notices:

 **CAUTION: Directs your attention toward unsafe practices which could result in damages to the equipment.**

GENERAL SAFETY RULES

• **FORMULA SRL's brakes have been exclusively designed for use on 2-wheel vehicles moved by human propulsion. FORMULA SRL declines responsibility for any other use, as it is considered dangerous.**

• **Brakes are an essential product for bicycle safety. Improper set-up and use of the brakes may result in loss of control or accidents, with consequential injuries.**

• **The draining operation is one of the most important phases for guaranteeing perfect functioning of any brake system. The purpose of this operation is to remove all the air that is found in the circuit. FORMULA RECOMMENDS THAT THE USER NEVER PERFORMS DRAINING OPERATIONS BY HIM/HERSELF. THIS OPERATION MUST BE PERFORMED BY A MECHANIC. However, if the user does decide to perform the draining operations by him/herself, he/she must follow all the instructions carefully, always keeping in mind that he/she is acting at his/her own risk.**

WARNING: The brake system fluid damages the painted parts of the bicycle. It is also very harmful if it comes into contact with eyes and skin.

If someone comes in contact with the brake fluid accidentally, wash the interested parts with plenty of water. If the fluid comes into contact with the eyes, go to a doctor immediately. In the case of accidental contact with or loss of DOT4 brake fluid, consult the relative safety card on the website <http://support.formula-brake.com>.

BRAKING SYSTEM SAFETY RULES

- Do not use products other than those recommended in this manual, as they can damage the system and make the brakes unreliable.
- The brake oil or other oils or greases used for bicycle lubrication must not come into contact with the disks. If this occurs, clean the disks with isopropyl alcohol.
- The brake oil and lubricants must not come into contact with the brake pads. If this occurs, the pads will become contaminated and must be replaced.
- The brake oil and lubricants must not come into contact with the painted parts of the bicycle. If this occurs, clean with isopropyl alcohol (see above).
- Only use DOT 4 oil that comes from a container that has just been opened. Never re-use oil that was previously drained from the drain fitting. Old oil or used oil may contain water, which would compromise correct system operation.
- Always make sure that the system is not losing oil before each outing. To do so, activate the lever and hold it down, then, check the pipe connection and tank cover for possible oil loss. Go to a professional mechanic if oil loss is present. Oil loss can cause serious accidents!
- **THE BRAKE SYSTEM REQUIRES A SETTLING PERIOD TO REACH MAXIMUM EFFICIENCY.**

ENVIRONMENTAL NOTE

In order to safeguard the environment, please refer to these simple instructions for the correct disposal of Formula srl products.

1) In regards to the brake liquid DOT4, it is recommended to follow the instructions in the safety sheet available from: <http://support.formula-brake.com>.

FOREWORD

Hydraulic brake fluid

Use only DOT 4 Super hydraulic brake fluid from sealed containers. Don't leave the bottles of DOT fluid open for a long time as this product absorbs moisture in the air and this will change its physical properties, seriously affecting the efficiency of the brakes. Change the oil in the system every year to maximize performance.

Always wear the appropriate protective gloves and goggles when performing this operation. Refer to the general safety standards.

MATERIAL REQUIRED FOR PERFORMING DRAINING OPERATIONS

- Draining kit containing 2 syringes, two connection pipes and two fittings
- Riser to insert between the brake pads.
- 50 cc bottle of Dot.4 oil
- 100 cc (approximately) clean and dry glass jar
- T10 torx wrench for drainage dowels, possibly mounted on the starter and adjustment torque device
- One cloth rag for cleaning the pieces

If the sealing O-rings must be replaced, procure the original O-rings diameter 3x1. (go to a trusted reseller for original FORMULA spare parts).



WARNING! READ THE FOLLOWING INFORMATION AND INSTRUCTIONS VERY CAREFULLY. NOT DOING SO COULD LEAD TO SERIOUS INJURY AND/OR AFFECT YOUR LEGAL RIGHTS.

SAFETY INFORMATION

Brakes are a critical safety related component of a bicycle. Improper set up or use of brakes may result in reduced braking power and, thus, loss of control of the bicycle which could ultimately cause serious injury or even death.

Bleeding is one of the most important steps to assure the perfect functioning of any hydraulic braking system. The goal of bleeding is to remove the air in the braking system. Any air inside a hydraulic braking system reduces its performance. **FORMULA STRONGLY RECOMMENDS THAT YOU AVOID BLEEDING YOUR BRAKES YOURSELVES BUT HAVE AN EXPERT MECHANIC PERFORM THIS DELICATE AND CRUCIAL FUNCTION FOR YOU.** Should you decide to perform it yourself, follow these instructions very carefully and please remember that you do so at your own risk.

Use only DOT.4 fluids with your Formula brakes. Do not use a fluid other than the DOT.4 fluids suggested. Doing so will damage the system and make the brakes unsafe to use.

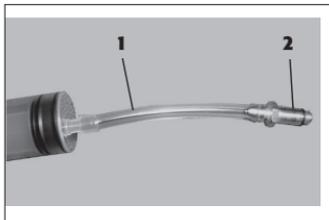
⚠ WARNING! The DOT.4 fluid used in this braking system may be dangerous to your eyes or skin upon contact. ALWAYS WEAR APPROPRIATE GLOVES AND GOGGLES WHEN BLEEDING YOUR FORMULA BRAKES. In case of accidental contact, rinse your eyes and/or skin abundantly with running water. In case of contact with your eyes seek immediate medical assistance.

DOT.4 fluids also damage painted surfaces. If any fluid comes in contact with a painted surface, wipe it off immediately and clean with isopropyl alcohol. Do not allow any brake fluid to come in contact with the brake rotors. If this occurs, clean the rotors with isopropyl alcohol. Do not allow any brake fluid to come in contact with the brake pads. If this occurs, the pads are contaminated and must be replaced. Do not touch the braking surface of any rotor with your bare hands, because the oils from your fingers will degrade its performance. Always wear gloves, or handle the rotor by its spokes. Disc brakes become very hot during use. Do not touch the caliper or rotor immediately after use. Make sure the brake has cooled down before making any adjustments.

DRAINING PROCEDURE (C1-CR1-CR3)

1:

- The package consists of the parts shown in the figure.
- Assemble the two syringes with the pipe 1 and the fitting 2, as shown in the figure.
- Set up a work surface with a vice to be used to clamp a tube with the same diameter as the bicycle handlebars.



2:

- Open the package of DOT.4 oil
- Extract 20 ml of DOT.4 oil using one of the two syringes

3:

- Loosen brake calliper's bleed screw with the special 10 torque wrench.



WARNING! Check the O-ring present on the bleed screw. Make sure it is intact and, if necessary, replace it.



4:

- Take the syringe containing the oil, and screw the fitting into the hole in the calliper.
- Using the special pad spacing tab (see the photo), bring the pistons to their proper positions; the tab comes in the brake's original package (if it is no longer available, use a 2.8 mm metal shim). This operation proves useful in the case of new brake pads; if the pads are worn out, remove them and place a 10.8 mm metal shim between the calliper pistons.



WARNING! The DOT.4 fluid used in this brake system is dangerous for the eyes and skin. In the case of accidental contact, wash eyes with plenty of water.



5:

- Position the brake calliper as shown in figure A or B.
- Loosen brake master cylinder bleed screw with the special 10 torque wrench.
- Take the second syringe and extract 5 ml of DOT.4 from the can. Screw the syringe fitting onto brake master cylinder bleeding hole, as shown in figure D or E.



A

C1



B

CR1
CR3



D

C1



E

CR1
CR3

6:

- With the two syringes inserted, exert pressure on the plunger of calliper syringe so that fluid is injected into the circuit and comes out in the syringe positioned on the brake master cylinder.
- Stop exerting pressure once 5ml of oil are left inside the syringe positioned on brake calliper.



WARNING! The syringes must be always kept in a vertical position in order to prevent any air bubbles from getting back inside.



7:

- Holding the master cylinder syringe in vertical position and pulling on the plunger of the calliper syringe will create a vacuum that will cause any air bubbles to be sucked into the syringe itself. Stop once 5 ml of oil are left inside master cylinder syringe.

8:

- Holding the calliper syringe in vertical position and pulling on the plunger of the master cylinder syringe will create a vacuum that will cause any air bubbles to be sucked into the syringe itself. Stop once 5 ml of oil are left inside calliper syringe.
- Repeat points 7 and 8 until all the air bubbles have been eliminated.
Once the bleeding procedure has been completed, exert pressure on the master cylinder syringe until 5 ml of oil are left.



WARNING! Make sure that the oil level inside syringes never drops below 5 ml during the suction operations.

9:

- Pull and release the brake lever, simultaneously applying pressure on the master cylinder syringe. This will cause the oil to start flowing.
Let oil pass from the calliper syringe to the master cylinder syringe 2 or 3 times in order to ensure proper bleeding.



WARNING! Small liquid leaks may occur from reservoir compensation holes during the following steps. This is not due to any defects, but is rather due to the possible accumulation of water or condensate (due to washings or atmospheric agents), or else assembly fluids (used during assembly operations).

10:

- Remove the syringe from the calliper, making sure that the bleed screw's lodging is filled with oil. If this is not the case, add the necessary amount of oil.
- Reapply the bleed screw properly, tightening it to 2 Nm.
- Immediately clean away any oil leaks using a clean cloth soaked in alcohol.



11:



WARNING! Before removing the syringe from the master cylinder, pull the brake lever all the way towards the handlebar 3 or 4 times so as to eliminate any air bubbles still present inside the master cylinder. Press the syringe plunger until it becomes hard (this indicates that the reservoir is full)

- Remove the syringe from the master cylinder, making sure that bleed screw's lodging is filled with oil. If this is not the case, add the necessary amount of oil.
- Reapply the bleed screw properly, tightening it to 2 Nm.
- Immediately clean away any oil leaks using a clean cloth soaked in alcohol.



C1



**CR1
CR3**

12:

- Remove the supplied tab or the 10.8 mm shim (in this case, reapply the brake pads)
- Reinstall the brake on the bicycle by following the instructions indicated in the appropriate manual.

Carry out the following checks:

- Pull hard on the lever several times, and make sure that there are no more oil leaks from any points of the system.
- Verify the system's proper functionality in an area closed off to traffic.
- If any leaks or improper functionality are encountered, stop using the system immediately and contact an authorized service centre.



www.formula-italy.com

Formula S.a.s. di "Formula Group S.r.l." & C

Via Erbosa, 63 - 59100 Prato (Italia)

Tel. +39 0574 603 609

Fax +39 0574 611 046

*Information may be enhanced for improvement without prior notice. All rights reserved.
Le informazioni possono essere modificate senza preavviso. Tutti i diritti riservati.*