

## FluidPRO® BFX-10 Brake Fluid Exchange

User manual



### BRIEF INSTRUCTIONS

The following brief instructions are not to be used as a substitute for the operating instructions. Please carefully study and follow the operating instructions.

1. Select reservoir adapter and connect to the master cylinder.
2. Refer to vehicle manufacturers specifications for maximum pressure setting, if this is unavailable, 2 bar (29 psig) is recommended.
3. Switch on the device >>ON<< and press >>START<<.
4. The pressure can be adjusted using the pressure regulator. Pay attention to the comments given by the respective car manufacturers, otherwise 2 bar (29 psig) is recommended.
5. Draw the old brake fluid from each wheel brake cylinder.
6. Afterwards, switch off the device >>OFF<<, in case the pressure does not drop after the device is switched off, reduce the remaining pressure by using the pressure regulator.
7. Disconnect the no-pressure filling hose from the adapter.

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SPECIFICATIONS  
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# 1 Information

## 1.1

### Document warnings

#### Warning notices- Structure and meaning

Warning notices warn of dangers to the user or people in the vicinity. Warning notices also indicate the consequences of the hazard as well as preventive action. Warning notices have the following structure:



**KEYWORD** - Nature and source of hazard!  
Consequences of hazard in the event of failure to observe action and information given. Hazard prevention action information.

The key word indicates the likelihood of occurrence and the severity of the hazard in the event of non-observance:

Keyword	Probability of occurrence	Severity of danger if instructions not observed
<b>Danger</b>	<b>Immediate</b> impending danger	Death or severe injury
<b>Warning</b>	<b>Possible</b> impending danger	Death or severe injury
<b>Caution</b>	Possible <b>dangerous situation</b>	Death or severe injury

#### Symbols in this documentation

Symbol	Designation	Explanation
	<b>Attention</b>	Warns about possible property damage
	<b>Warning</b>	Poisonous
	<b>Environmental</b>	Dispose of waste in manner consistent with local regulations
	<b>Personal protection</b>	Wear protective goggles
	<b>Personal protection</b>	Wear protective glasses

## 1.2

### Important notes



Before start up, connecting and operating MAHLE products it is absolutely essential that the Original instructions/owner's manual and, in particular, the safety instructions are studied carefully. By doing so you can eliminate any uncertainties in handling MAHLE products and thus associated safety risks upfront; something which is in the interests of your own safety and will ultimately help avoid damage to the device. When a MAHLE product is handed over to another person, all documentation and information on its designated use must be handed over to the person. Contact MAHLE if you detect a problem that you cannot solve with this manual.

### 1.2.1

## User group

The product may be used by skilled and instructed personnel only. Personnel scheduled to be trained, familiarized, instructed or to take part in a general training course may only work with the product under the supervision of an experienced person.

All work conducted on pressurized equipment may be performed by persons with sufficient knowledge and experience in the field of refrigeration, cooling systems and coolants and, also be aware of the risks involved in the use of pressurized devices.

### 1.2.2

## Agreement

By using the product you agree to the following regulations:

### Copyright

Software and data are the property of MAHLE or its suppliers and protected against copying by copyright laws, international agreements and other national legal regulations. Copying or selling of data and software or any part thereof is impermissible and punishable; in the event of any infringements MAHLE reserves the right to proceed with criminal prosecution and to claim for damages.

### Liability

All data in this program is based—where possible—on manufacturer and importer details. MAHLE does not accept liability for the correctness and completeness of software and data; liability for damage caused by faulty software and data is ruled out. Whatever the event, MAHLE liability is restricted to the amount for which the customer actually pays for this product. This disclaimer of liability does not apply to damages caused by intent or gross negligence on the part of MAHLE.

## 1.3

## Important safety instructions

### 1.3.1

## BFX-10

Always carefully study and follow all the safety regulations before using the MAHLE product. Correct use of the BFX-10 is important for your personal safety and for trouble-free functionality. Incorrect use can cause damage to the unit or lead to incorrect functionality.



***Brake fluids are poisonous and may cause damage to health!***

***SAVE THESE INSTRUCTIONS!***

Read all instructions! When using garage equipment, basic safety precautions should always be followed, including the following:

- Care must be taken as burns can occur from touching hot parts
- Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged - until it has been examined by a qualified service person
- Do not let the cord hang over the edge of the table, bench or counter or come in contact with hot manifolds or moving fan blades
- If an extension cord is necessary, a cord with a current rating equal to or more than that of the equipment should be used
  - Cords rated for less current than the equipment may overheat
  - Care should be taken to arrange the cord so that it will not be tripped over or pulled
- Always unplug equipment from electrical outlet when not in use
  - Never use the cord to pull the plug from the outlet
  - Grasp plug and pull to disconnect

- Let equipment cool completely before putting away
  - Loop cord loosely around equipment when storing
- To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline)
- Adequate ventilation should be provided when working on operating internal combustion engines
- Keep hair, loose clothing, fingers and all parts of the body away from moving parts
- Use only as described in this manual
  - Use only manufacturer's recommended attachments
- To reduce the risk of injury, close supervision is necessary when this product will be used around children (pertains to cabinets only)
- To reduce the risk of injury, never overload the drawers or shelves.
  - Refer to loading instructions
- To reduce the risk of electric shock or fire, never overload receptacles
  - Refer to the markings for the proper load on receptacles
- Regular maintenance should be performed on the BFX-10 to ensure proper and safe operation
- Improper handling may lead to damage to health or property
- The brake fluid exchange unit may only be operated by those trained to use it
  - Unauthorized persons are not permitted to operate it
- Always check the brake fluid exchange unit, hoses, cables and plugs before use
  - Do not use the brake fluid exchange unit if it is damaged
  - The device may only be repaired by a specialist
  - Never open the brake fluid exchange unit yourself
- To reduce the risk of electric shock, do not use on wet surfaces or expose to rain
- Do not make any changes to the design of the brake fluid exchange unit



***Pull out the plug before doing any work on the brake fluid exchange unit. Plug in the only when the brake fluid exchange unit is switched off.***

- Avoid any contact with brake fluid
- Wash skin immediately with water if it comes into contact with brake fluid

- Remove contaminated clothes
- Do not carry any cleaning cloths or other items soaked in brake fluid in your clothing
- Clean any spills immediately
- Brake fluid is corrosive and will damage the finish on most painted surfaces



***ALWAYS WEAR SAFETY GLASSES! (Everyday eyeglasses only have impact resistant lenses, they are not safety glasses)***

***Wear suitable protective gloves to minimize the danger of injury from contact with skin.***

- Always use vehicle specified brake fluid
  - Failure to do so may cause brake system damage
  - The unit is designed to use DOT specified brake fluid
  - Use of any other fluid type is not recommended and may void warranty
- It is important to test drive every vehicle after the service to verify proper brake system operation
  - Failure to do so could result in undetected brake system failure

***SAVE THESE INSTRUCTIONS!***

## 1.4 Technical data

Feature	Value / Range
Max. container size	1 Gallon
Working pressure	0.4-3.5 bar
Main voltage	110 VAC / 60Hz
Filling hose length	11.5 ft
Unit dimensions	9.8" x 15.3" x 16.1" in
Weight	15.4 lbs.
Noise	≤70 dB(A)
Ambient temp operation	40°F (5°C)
Ambient temp stock / operation	60°F (-20°C)
Permitted humidity (operation)	(<) 95%

## 2 Product description

### 2.1

#### Application

BFX-10 is solely meant for filling brake fluid from brake systems in motorized vehicles. Any other use beyond this is regarded as improper and forbidden.

### 2.2

#### Improper use

Operating the device with fluids other than brake fluid can damage the brake fluid exchange device and is thus forbidden. In the event of improper use, MAHLE is not liable for any damage caused.

### 2.3

#### Operating principle

The brake fluid is withdrawn from the container by means of a pump and constantly pumped into the brake fluid vessel at a pressure of up to 3.5 bar. The used brake fluid can then be drained from the individual wheel brake cylinders until the new brake fluid comes out.

In doing so, you avoid having to transfer liquids and the brake fluid can be absorbed in water, unlike conventional systems.

The pump for filling the brake fluid vessel has a pump monitor. The pump switches off if pressure cannot be built up or if the pump sucks air.

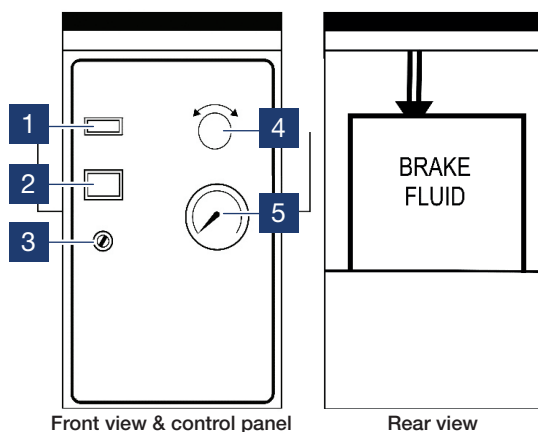
### 2.4

#### Scope of delivery

- BFX-10 unit
- Adapter - BA05 (European round)
- Adapter - BA07 (Universal round)
- Adapter fitment chart
- Operation manual

### 2.5

#### Description of unit



#### Unit component

1	Start button (momentary)
2	Main exchange power switch
3	Fuse (125Vac, 4A)
4	Pressure adjustment valve
5	Pressure gauge

## 2.6 Commissioning

### 2.6.1 Unpack unit



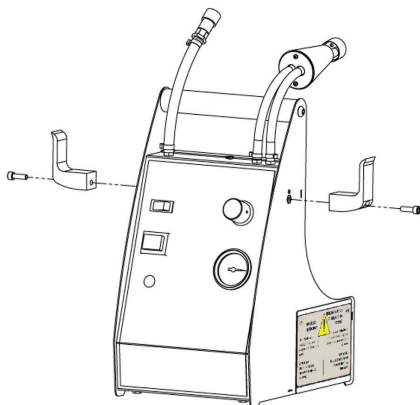
When removing the packaging, use care to ensure there is no damage caused to the BFX-10 unit or any of the included accessories.

Do not unplug any electrical connections and only have internal components opened and repaired by trained customer service personnel.

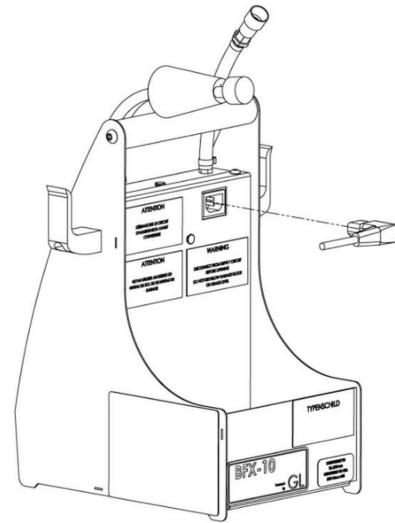
Contact customer service in the event of any transportation damage.

### 2.6.2 Assembly

The plastic hose holders are mounted on the device with one screw per side (type: cap screw M6 x 20).



Connect the device to the power source by using the included power cord set (type: Nema 5-15 to IEC 60320 C-13 /230 cm).



### 2.6.3 Unit setup

Place the brake maintenance device on a level surface. Make sure the filling hose is not under mechanical load caused by, for example, the vehicle being lifted up on a hydraulic ramp.

During operation and use, the workplace is the area surrounding the brake maintenance device. Otherwise, no permanent workplace for the brake maintenance device is foreseen.

## 2.7

### Startup procedure

This section describes the connection of the brake fluid exchange unit to the fresh fluid container as well as the procedure for bleeding air from the system prior to first use.



***You must strictly obey all safety instructions described in Section 1.3 of this manual.***

1. Prior to initial operation, ensure proper voltage is being supplied to the unit
2. Position the unit on a firm and level surface
3. Unscrew the lid of the new brake fluid container
4. Place new fluid container in the holder of the unit
5. Feed the suction hoses down to the base of the container
  - The depth can be adjusted by sliding the rubber cone up / down the hoses
6. In order to bleed the brake fluid exchange unit, do not mount the adapter on the vehicle, but mount onto the fill hose and hold over a waste fluid bottle
7. Press **main exchange power switch** to **ON** position
8. Then press and hold the **START button** to **ON** position
9. Hold adapter over the waste fluid bottle until brake fluid is dispensed without any air bubbles
10. Disconnect adapter from fill hose while pump is running and press **main exchange power switch** to **OFF** position



## 3 Operation

### 3.1 Brake fluid exchange

The safety instructions in the section "Safety Regulations" must be strictly observed.

Before starting service, please observe the vehicle manufacturer's instructions about the maximum filling pressure and specific working instructions.

In principle, for every type of vehicle, the instructions and guidelines stipulated by the manufacturer for the bleeding of the brake system shall always apply.

The factory setting of the pressure control is a working pressure of 2 bar. This ensures that the brake fluid master cylinder reservoir is not deformed and that there are no leaks at the bleeders. A lower or higher working pressure can be set on the pressure adjustment valve.

1. Install the adapter included onto the opening of the brake fluid master cylinder
2. Connect the fill hose to the previously mounted adapter
3. Power on the brake fluid exchange unit with the **main exchange power switch**
4. Press the **START button** and hold it until the pressure has reached at least 0.5 bar
  - The operating pressure (max. 3.5 bar) can be adjusted to the desired operating pressure using the pressure control
5. Check the master cylinder reservoir as to whether the adapter is connected properly and is leak-tight. If brake fluid escapes, switch off the brake fluid exchange unit immediately and find out the cause

6. Bleed the brakes one after the other beginning with the back right and ending with the front left brake
  - To do so, open the valve on each wheel brake cylinder
  - Collect the old brake fluid in aO BQQSPQJSJBUF waste bottle
  - The valve can be closed again as soon as the new brake fluid escapes from the drain hole bubble-free
7. Turn off the brake fluid exchange unit by pressing the **main exchange power switch**.
8. Check the pressure gauge to see if the pressure has fallen

*Note: The brake fluid exchange unit usually decreases the existing pressure. However, if the pressure was reduced during the filling process, the pressure will still remain in the system.*

*The pressure adjustment valve must first be released of pressure. To do so, turn the pressure adjustment to the right after switching off until the point of release has been reached. The working pressure falls to 0 bar.*

10. Disconnect the pressure-free fill hose from the adapter



If after the bleeding process or after changing brake fluid the pedal actuation on the brake pedal is too long, or the build up of pressure is too "soft", the braking system must be bled again after powerfully activating the brake or clutch several times.

## 4 Maintenance



Inform the manufacturer's service department if your brake fluid exchange unit still does not work properly even after following the previous instructions. You will receive fast and reliable assistance.

### 4.1 Troubleshooting

Problem	Cause	Correction
<b>1000 hour pump usage</b>	<ul style="list-style-type: none"> <li>▪ Fluid container empty</li> <li>▪ Pressure control closed or fully open</li> <li>▪ Fill hose pinched</li> <li>▪ Air in hose</li> <li>▪ Filter on suction hose blocked</li> </ul>	<ul style="list-style-type: none"> <li>▪ Change containers/refill container</li> <li>▪ Set correct working pressure</li> <li>▪ Remove/fix hose pinch</li> <li>▪ Bleed brake fluid exchange unit</li> <li>▪ Clean filter</li> </ul>
<b>Loud flowing noises</b>	Air in pressure control	With fill hose closed, turn on device and adjust pressure a few times
<b>No power</b>	Fuse blown	Replace fuse
<b>Pump does not de-pressurize after filling</b>	While bleeding the device the pressure regulator was turned down	Turn the pressure regulator to the right until you reach the release point

### 4.2 Unit repair

If after consulting the service department, a malfunction of the brake fluid exchange unit is determined, please contact MAHLE Tech Support at (800)-468-2321.







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