
MOTORVAC

BrakeVac-II

**MODEL NUMBER 500-8100
Brake Fluid Service System**



Operator Manual

Why should the Brake system be Flushed?

Brake fluid is hygroscopic meaning it can absorb moisture from the air resulting in a dangerous reduction of its boiling point. Water contaminated brake fluid under repeated working pressure boils and creates air bubbles. Under severe conditions, this can result in complete brake system failure.

Water contaminated brake fluid causes electrolysis to occur inside the brake system. The oxygen contained in the water droplets cause oxidation. Electrolysis and oxidation corrodes the hydraulic master cylinder and wheel cylinders, and steel brake lines from the inside. Pressure bleeding has been proven the most effective method in flushing and bleeding hydraulic brake systems. Flushing the brake system and replacing the dirty and contaminated brake fluid with fresh brake fluid can often avoid expensive repairs.

Congratulations you now own the cleanest, most efficient and user-friendly brake fluid service machine available today. Your new electric pressure brake bleeder is designed specifically for modern hydraulic brake and clutch systems. It is advised that only professional technicians perform brake system service.

The MotorVac BRAKEVAC-II equipment has been designed for use on all hydraulic brake and clutch systems especially Anti-Lock Braking Systems. The simplicity of our pressure bleeder makes it very user friendly and eliminates the need for hands-on training.

The large capacity (1.5 gallon) reservoir allows you to perform multiple brake fluid services between refills.

The MotorVac BRAKEVAC-II System allows years of clean, safe one-man operation brake services.

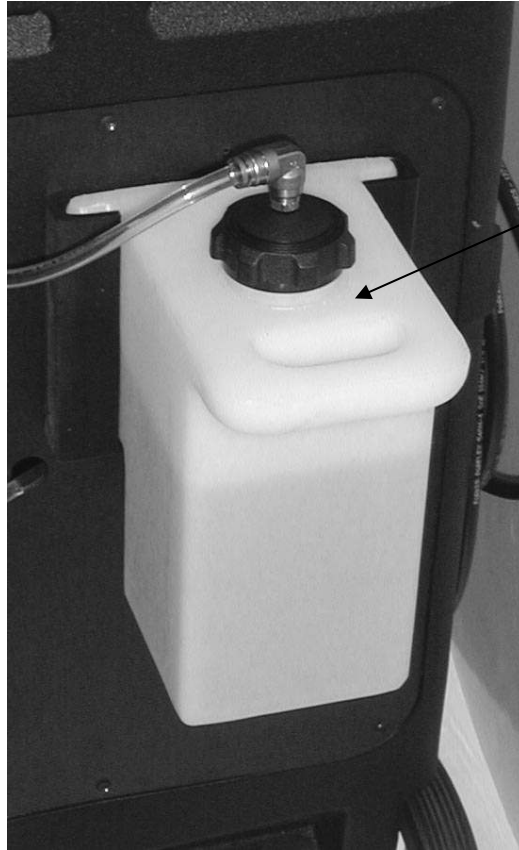
System Features

Front view



System Features

Back view



Waste (used) fluid
capture tank

The following safety instructions should be observed at all times when opening the MotorVac BRAKEVAC-II.

- Perform a visual inspection before each use. If the unit shows defects or damage, do not use! Have your equipment repaired by an authorized MotorVac Service Center.
- The MotorVac BRAKEVAC-II is to be used only in accordance with the written instruction booklet.
- The MotorVac BRAKEVAC-II is to be used only for the maintenance and repair of hydraulic brake fluid and clutch systems.
- Fill the MotorVac BRAKEVAC-II with **BRAKE FLUID ONLY!** Do not mix the different **DOT** standards together. Never use the unit with any fluid other than **BRAKE FLUID!**
- **WARNING! USE OF FLUIDS OTHER THAN BRAKE FLUID CAN DAMAGE THE SEALS IN THE PUMPS! USE OF OTHER FLUID CAN VOID THE WARRANTY!**
- Follow all instructions from the Brake Fluid Manufacturer. Read all cautions on the container. Use proper precautions when coming into contact with brake fluid.
- Keep your MotorVac BRAKEVAC-II clean. Wipe your bleeder with a clean rag and non-flammable solvent. Wipe all residual fluids from the bleeder before use.
- Do not put oil, gasoline, or solvent soaked rags on the bleeder, as this will create a fire hazard.
- Use only manufacturer's recommended adapters and accessories. Always follow the vehicle manufacturer's service and maintenance instructions.

1. Remove the fill cap from the MotorVac BRAKEVAC-II clean fluid tank and fill with new brake fluid. You can observe the fluid level by looking at the level indicator window at the front of the unit. Replace the fill cap.
2. Attach the power cord to a good 12 volt DC power source.
3. Use the vacuum hose to remove the dirty fluid from the vehicles' master cylinder reservoir. Refill the vehicles' reservoir with clean fluid to minimize air in the chamber. When using the Chrysler "twin" cylinder adapter (066-6010) it is not necessary to refill until the end of the bleeding sequence.
4. Install the proper master cylinder reservoir adapter and connect the black pressure hose coupling to the adapter.
5. Turn the pressure switch to the **ON** position and check for leaks.
6. Adjust the pressure regulator until the desired pressure is reached. (35 lb. maximum). To set pressure, relieve any residual pressure from the service hose by inserting the 'fill' adapter into the coupler at the hose end. Open the regulator valve 'counter-clockwise' before starting the pump. If control knob is locked, pull outward slightly until knob clicks off the locking tab. After starting the pump adjust the regulator in 'clockwise' until the correct pressure reading is obtained. Control knob can be locked by pushing knob 'in' towards control panel.
7. Attach the transparent (vacuum) hose to the bleeder adapter and connect to the vehicles' first wheel bleeder valve in the sequence. Turn on the "Vacuum" switch. Open the bleeder valve and observe the fluid flow. When the fluid is clean, close the bleeder valve.
8. Bleed the brake system according to manufacturer's recommended sequence by moving the vacuum hose from bleeder to bleeder in the proper sequence.
9. When finished, turn the "Pressure" switch and the "Vacuum" switch to the **OFF** position. This relieves the pressure in the fluid hose allowing a clean disconnection from the master cylinder adapter. Adjust the fluid level using adapters in either vacuum or pressure hoses as required.
10. Reinstall the original master cylinder cover.

11. Empty the waste capture tank into a recycle container to prepare for the next vehicle service.

Note: If the Pressure Bleeder does not operate when the switch is in the **ON** position, check the circuit breaker mounted in the front of the unit. Replace if necessary or contact your MotorVac BRAKEVAC-II service center.

Adjusting the pressure regulator

The pump has a preset pressure of **30 PSI/** or **2 bar** by the manufacturer. In some cases the recommended procedure may call for a lower pressure. Residual pressure in the output line must be bled off before setting regulator to 'lower' pressure settings. Release the locking knob by pulling outward then turn the knob counter-clockwise to open the regulator to the lowest pressure setting. Then turn *on* the 'Pressure' pump and turn the regulator knob in clockwise (when starting from 0 PSI on the pressure gauge) until the proper pressure is reached.

Low-pressure leak down test

A low-pressure leak down test can be performed with the MotorVac BRAKEVAC-II. Fill the master cylinder reservoir with brake fluid and connect the pressure hose to the appropriate bleeder adaptor. Make sure all bleeder valves are securely closed. Turn "Pressure" switch on. The system is now under working pressure. Inspect all bleeder valves for leaks. Inspect brake cylinders and lines for signs of leakage.

Automatic low fluid level warning system and shut off

The MotorVac BRAKEVAC-II will shut off automatically when the fluid level in the tank reaches 0.8 liters. This ensures that no air will be injected into the brake system. When the unit shuts down the low level warning light will activate and an audio buzzer will sound alerting you to the low level condition. Remove the fill cap and add fluid and replace cap. Begin bleeding where you left off.

Emptying the tank for changing fluid types

Use the Pressure hose and attach an adapter that will allow brake fluid to be drained into a container. Place the adapter in a fashion that will allow the brake fluid to drain into a clean capture tank or bottle.

Turn on the "Pressure" switch to drain the brake fluid. Brake fluid will start to flow immediately when the "Pressure" switch is turned to the **ON** position. The tank level switch will turn off the flow when the brake fluid tank is almost empty. To drain the remainder of the brake fluid from the tank and hose, press and hold the "Drain Tank"

switch until the brake fluid tank and hose is completely empty. Release the “Drain Tank” switch and turn off the “Pressure” switch.

After filling the tank with new fluid, attach any adapter to the black hose coupler and direct the fluid flow to a capture container. Turn on the “Pressure” switch to bleed all the air out of the black hose prior to beginning a new service.

The unit is now ready for the next service.

Tips for hydraulic brake bleeding

After installing the correct master cylinder reservoir adapter and connecting the MotorVac BRAKEVAC-II you can begin the bleeding process. Open one bleeder at a time until the brake fluid flows clean and free of air bubbles.

To better observe the brake fluid flow and insure cleanliness of the shop we recommend using the MotorVac ‘vacuum’ recovery. This will allow you to observe the fluid color, keep the fluid off the shop floor and allow for easy fluid disposal.

After a complete hydraulic brake system overhaul we recommend that all bleeders be opened simultaneously so the air can escape by the path of least resistance. This process eliminates backpressure and the possibility of the new fluid mixing with contaminated brake fluid remaining in the system. When the fluid flows clean and free from bubbles, close the bleeder nipples and tighten them one after the other and double check tightness.

We recommend during this pressure bleeding process to slowly press the brake or clutch pedal a few times to insure complete purging of air and fluid between the primary and secondary master cylinder chamber. Fixed calipers can be equipped with multiple bleeder valves, which can require a larger volume of brake fluid. Each bleeder valve must be bled one after another.

In brake systems with load sensitive brake force regulators, the hydraulic flow to the wheel cylinders may be restricted when the axles are hanging during lifting. In this case, the axles must be put under load. Consult manufacture’s repair manual for proper brake bleeding or brake fluid replacement procedures.

Caution:

In brake systems with a *hydraulic* brake booster, the brake system operates with brake fluid and the hydraulic booster system operates on hydraulic fluid. The two fluids must not be interchanged!

Tips for hydraulic clutch bleeding

When bleeding hydraulic clutch systems, we recommend using the reverse bleeding hose # **060-6014** (available as an optional accessory). When used this hose connects to the bleeder valve at the slave cylinder and pushes the old dirty fluid back up to the master cylinder. Remove the old fluid from the master cylinder with the vacuum wand and repeat the procedure until all air has been bled from the system and the fluid is clean.

Suction hose filter assembly.

Filter screen must be cleaned routinely to avoid loss of suction.







BrakeVac - System Accessories





Basic Adaptor Kit: 200-3118





Standard Adapter kit for BRAKEVAC-II

The following is a list of the adaptors included with your BrakeVac-II unit.


MOTORVAC PART & NUMBER	QTY	DESCRIPTION
 <p style="text-align: center; border: 1px solid black; display: inline-block; padding: 2px;">066-6000</p>	1	Chrysler with twin caps, 2 piece, 3 tabs, expandable O-rings. (BA-01)
 <p style="text-align: center; border: 1px solid black; display: inline-block; padding: 2px;">066-6002</p>	1	3 Tab twist on with Expandable o-ring. Fits Ford, Hyundai, Chrysler, Kia, Mazda, Pontiac, Nissan and Subaru. (BA-03)
 <p style="text-align: center; border: 1px solid black; display: inline-block; padding: 2px;">066-6003</p>	1	Three tab twist on with expandable o-ring. Fits GM, Chevrolet, Cadillac, Mazda, Pontiac and Daewoo. (BA-04)
 <p style="text-align: center; border: 1px solid black; display: inline-block; padding: 2px;">066-6004</p>	1	Threaded screw cap. Fits all European makes as well as domestics with Bosch or Teves master Cylinders. (BA-05)

KIT 200-3118 CONTINUED

MOTORVAC PART & NUMBER	QTY	DESCRIPTION
 <p style="text-align: center;">066-6005</p>	1	<p>Universal round adapter With chain tension hold down. Fits round master cylinders with a diameter of .800" to 3.150". (BA-07)</p>
 <p style="text-align: center;">066-6006</p>	1	<p>Expandable O-ring with hold down chain. Fits Honda with diameter of 2.91" and some Isuzu. (BA-08)</p>
 <p style="text-align: center;">066-6007</p>	1	<p>Fits Honda master cylinders with and Inside diameter of 2.11" to 2.17". (BA-09)</p>
 <p style="text-align: center;">066-6008</p>	1	<p>Expandable o-ring with adjustable hold down tabs. Fits Toyota & Lexus with diameter of 1.69" (BA-10)</p>
<p>KIT 200-3118 CONTINUED MOTORVAC PART & NUMBER</p>		

 <p>066-6009</p>	<p>1</p>	<p>Expandable o-ring with adjustable hold down tabs. Fits Toyota & Lexus with diameter of 2.75". (BA-11)</p>
 <p>066-6010</p>	<p>1</p>	<p>Twin cylinders with rubber cones connected together with common hose. Chain tension hold downs. Fits into the inlet holes at the bottom of GM and Chrysler plastic master cylinders. (BA-14) (replaces ST-100)</p>
 <p>066-6012</p>	<p>1</p>	<p>Twist on 2 tab with expandable o-ring. Fits Ford. (BA-02)</p>
 <p>066-6013</p>	<p>1</p>	<p>NISSAN ALTIMA, XTERRA (BA-13)</p>

OPTIONAL ADAPTORS (NOT INCLUDED IN KIT 200-3118.)

MOTORVAC PART & NUMBER	QTY	DESCRIPTION
 066-6011	1	Plate adapter with 2 hold down chains for rectangular cast iron master cylinders. (BA-12)
 066-6014		Clutch master/slave adapter. (ST-67)
 066-0020		Small universal round adapter with chain tension hold-down. Specially designed for clutch reservoirs. (BA-06)

ORDERING PARTS

Parts for the unit may be ordered by calling Customer Service. Please have your machine model and serial numbers available.

Call: 1.800.841.8810 or 905.615.8620

www.motorvac.com

Appendix C – Parts

Service parts for the BrakeVac-II, Brake Fluid Flushing Machine.
Please refer to the part numbers below when ordering parts for this unit.

<u>Part #</u>	<u>Description</u>
010-0027	Wheel (8 x 1.75)
040-0604	Cap Nut (1/2" push on)
040-0507	Axle Bushing (Black Nylon)
010-6008	Axle, rear wheels (1/2" x
011-0014	Hose Bracket
020-8207	Harness, external power
020-0038	Circuit breaker (15 amp)
020-0090	Relay (ear mounted)
200-7006	Pressure regulator assembly
050-1308	Pressure gauge
020-1218	On/off switches
020-0063	Light-amber
020-0073	Light-green
020-0083	Light-red
020-1402	Low level switch (in tank)
200-8114	Pump-Pressure side assembly
200-8115	Pump-Vacuum side assembly
010-6060	Fluid tank cap
010-7050	Waste fluid tank (1 gallon)
050-1009	Screen filter
080-0596	Output service hose assembly
080-8101	Coupler only - Output side (large) 1/4"
080-0597	Vacuum side hose assembly
100-8100	Operators Manual
100-8101	Quick Reference Card

NOTES:

Part No. 100-8100 Rev.0-1