



Mercedes-Benz

# BAS Brake Assist System

Starting MY1998

# Objectives

At the end of this presentation, you should be able to:

1. Explain the function of and purpose for BAS
2. Describe the customer interface with BAS
3. List the components used in BAS
4. Component replacement notes
5. Be able to explain how BAS operates
6. Locate background and diagnostic information concerning BAS

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To help avoid personal injury to you or others, and to avoid damage to the vehicle on which you are working, you must always refer to the latest Mercedes-Benz Technical Publication and follow all pertinent instructions when testing, diagnosing or making repair.

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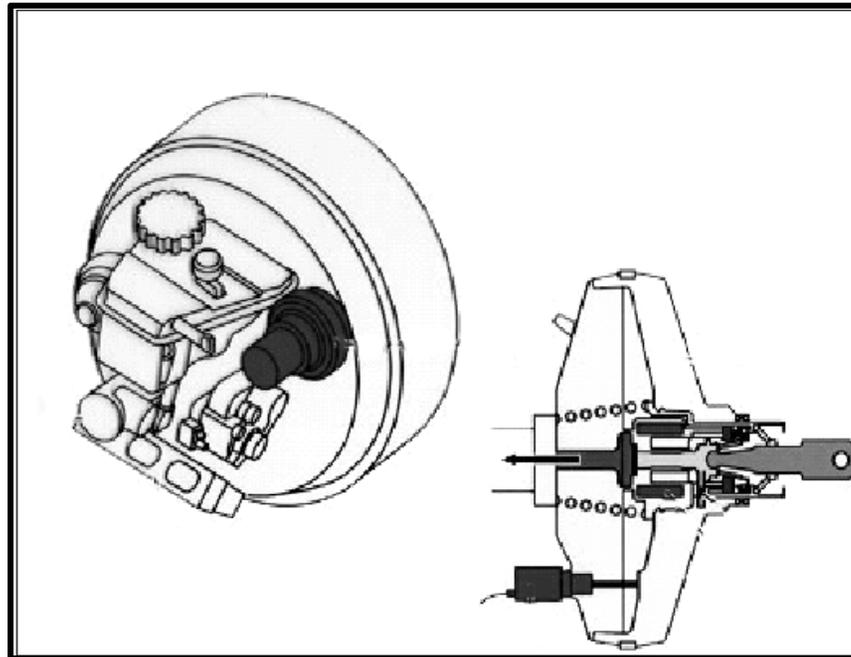
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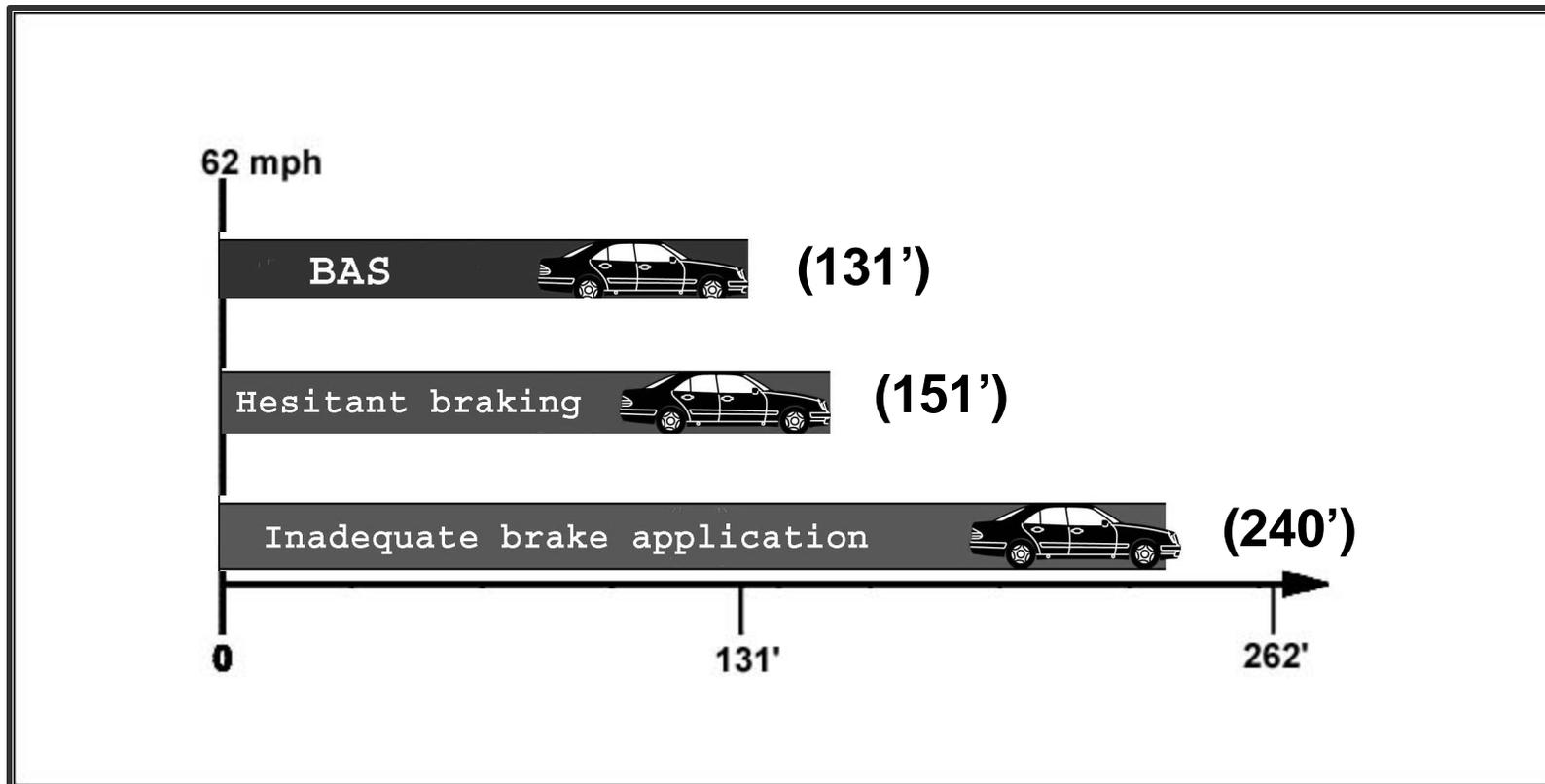
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# Purpose and Function of BAS



Provides maximum boost assist during emergency braking.

# How BAS Reduces Accident Risk



Tests have shown that most drivers use hesitant or inadequate braking, resulting in long braking distances.

# Driving with BAS

- Braking is normal, except in an emergency
- BAS recognizes an emergency braking situation by the speed of the brake pedal application
- BAS can provide increased brake pressure even if pedal is not pressed hard enough

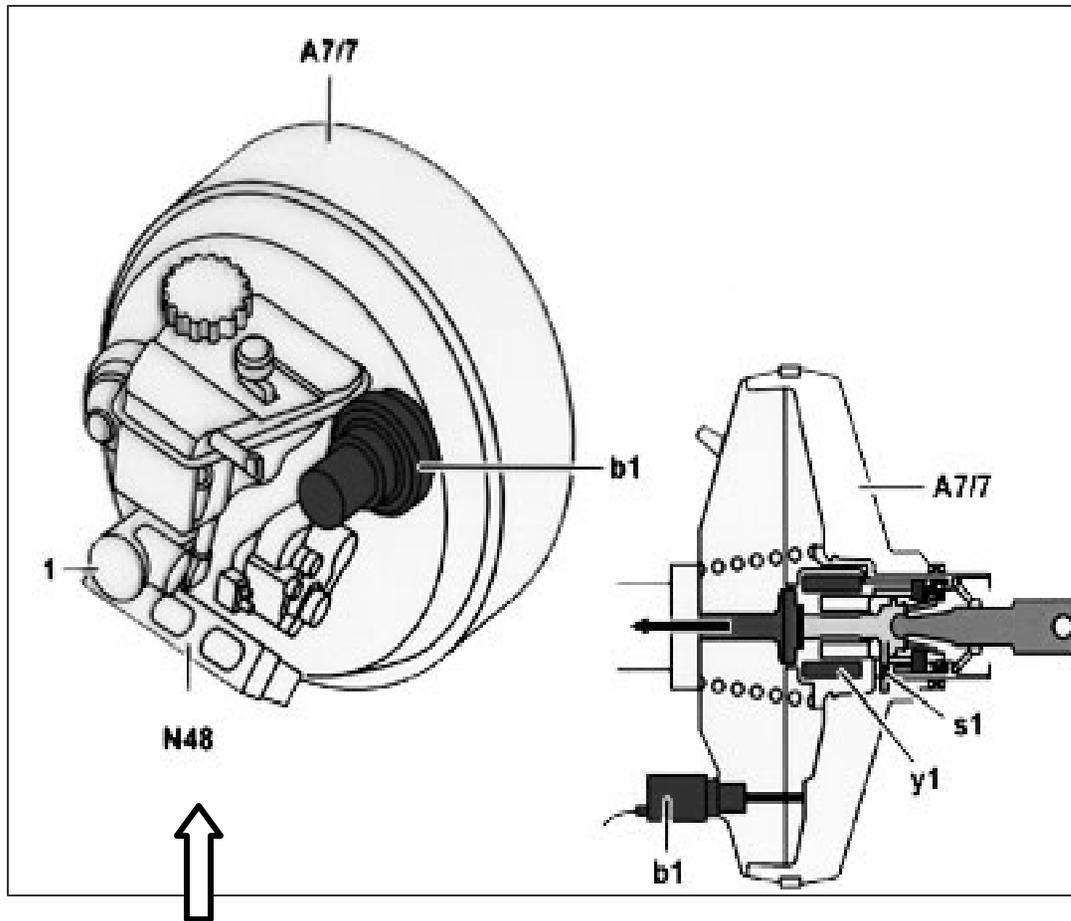
# BAS Can Operate Whenever:

- Speed > 5mph
- Brake light switch is activated
- Brake pedal application is abrupt
- No faults are recognized

# BAS Cannot Operate When:

- Pressure on brake pedal is reduced  
(BAS release switch)
- Vehicle speed < 1.8mph
- No signal from brake light switch (S9)
- A BAS fault is recognized

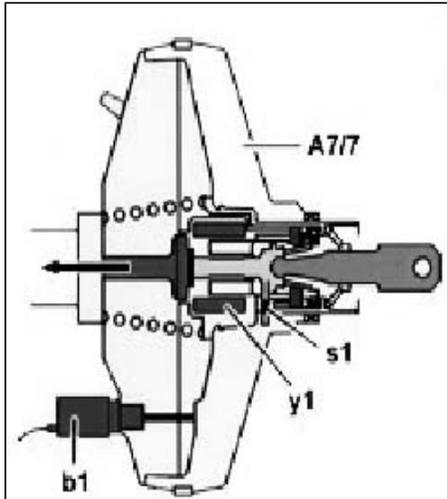
# BAS Components



- A7/7 - Brake booster
- A7/7b1 - Membrane travel sensor
- A7/7s1 - Release switch
- A7/7y1 - Solenoid valve

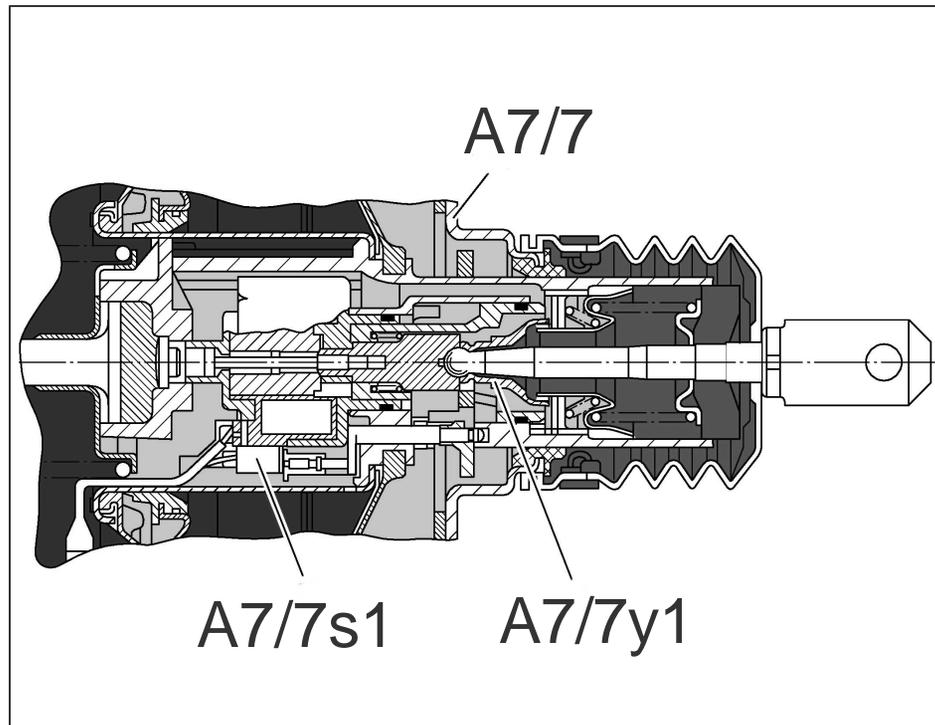
N48 = Separate BAS control module used only for non-ESP vehicles

# BAS Part Replacement Notes

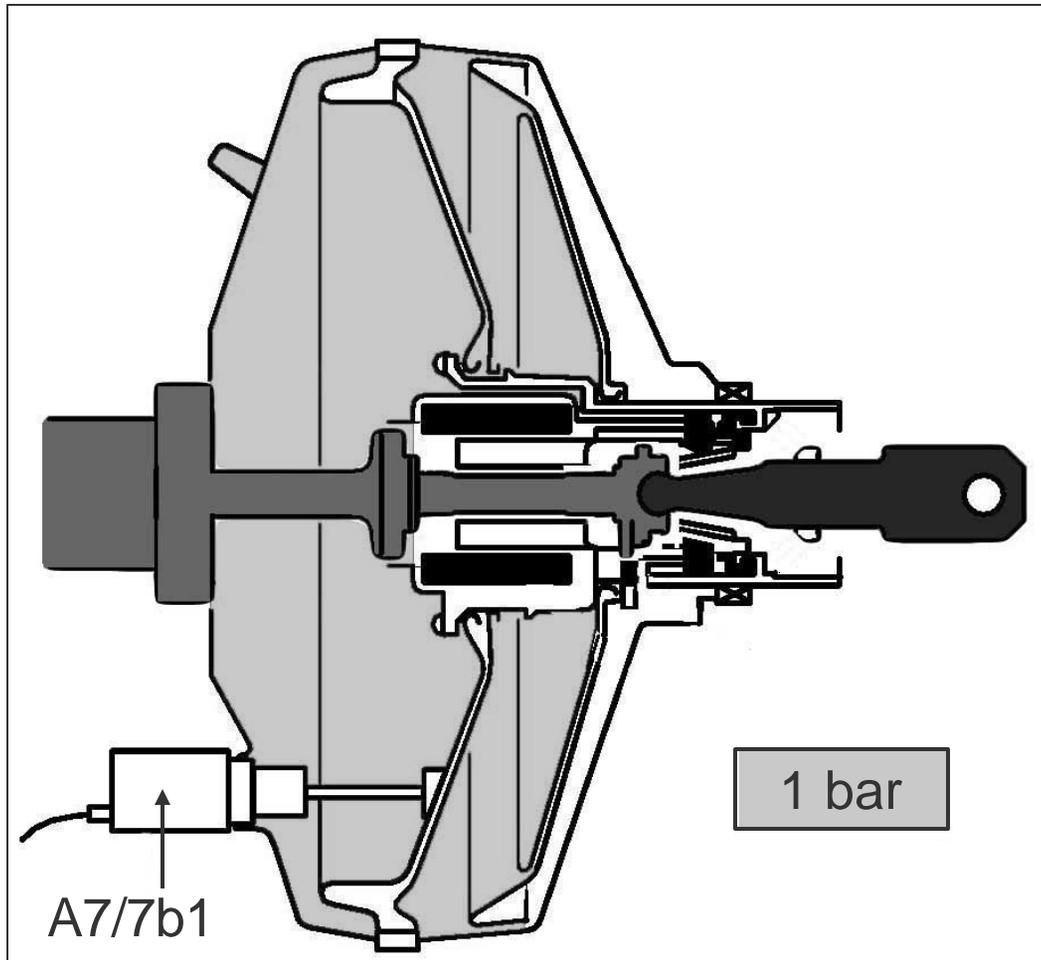


Travel sensor (A7/7b1) can be replaced separately after releasing the pressure.

Switch (A7/7s1) and solenoid (A7/7y1) can only be replaced with booster.



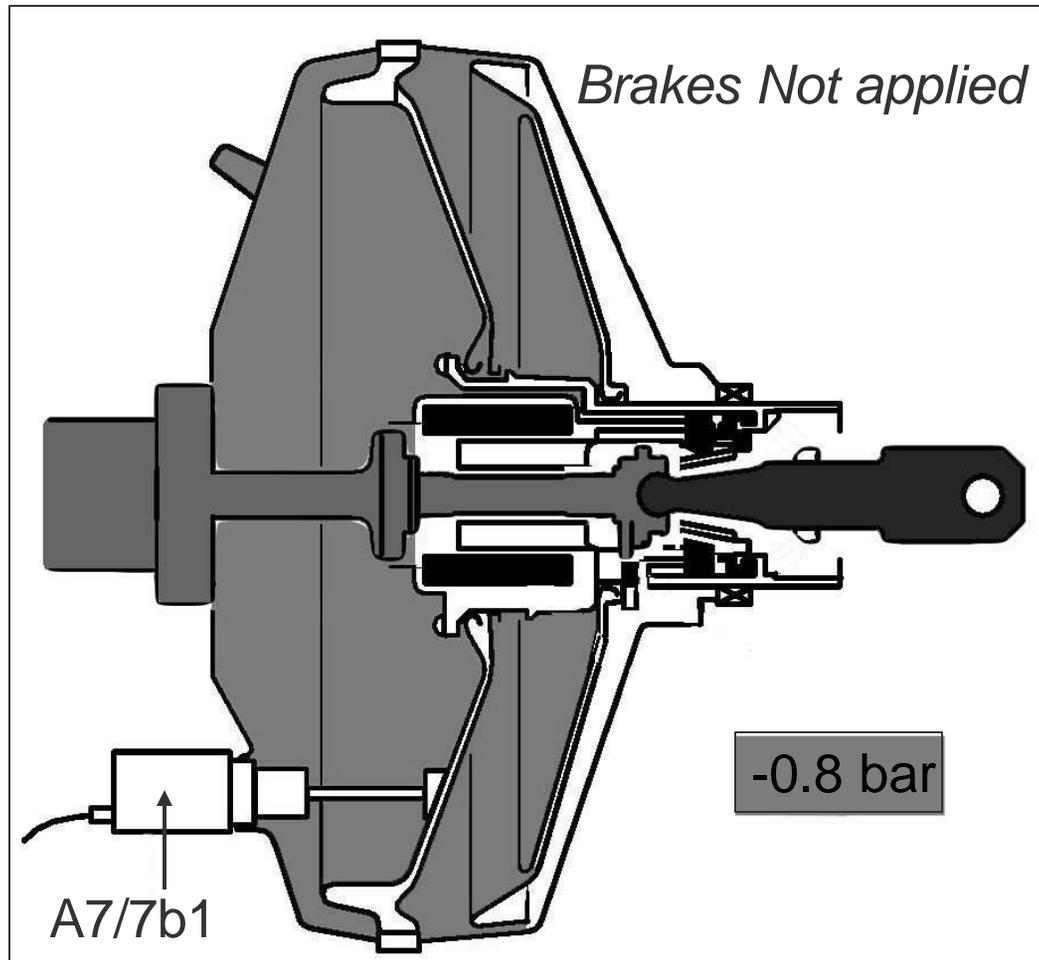
# Vacuum Brake Booster - Engine OFF



No vacuum on either side  
of booster diaphragm:

Booster diaphragm at rest

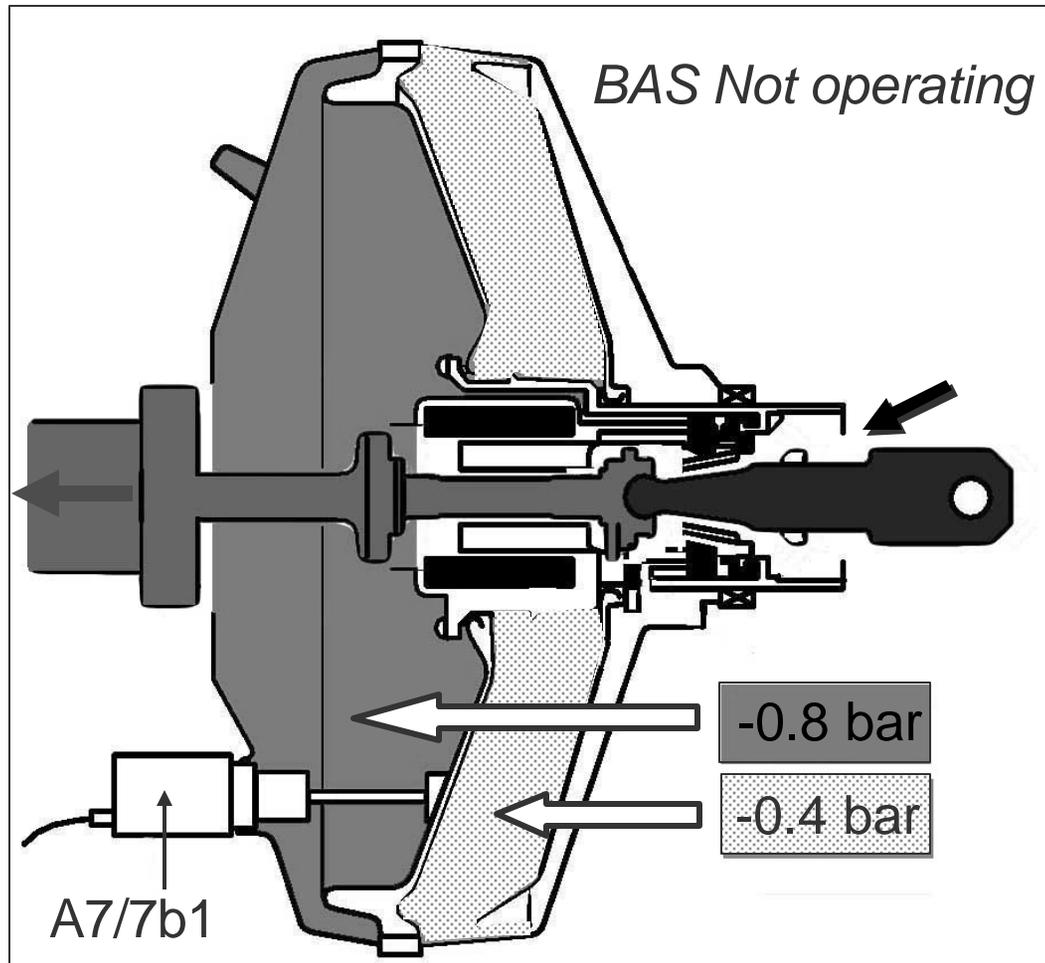
# Vacuum Brake Booster - Engine Running



Equal vacuum  applied to both sides of the diaphragm

Booster diaphragm at rest

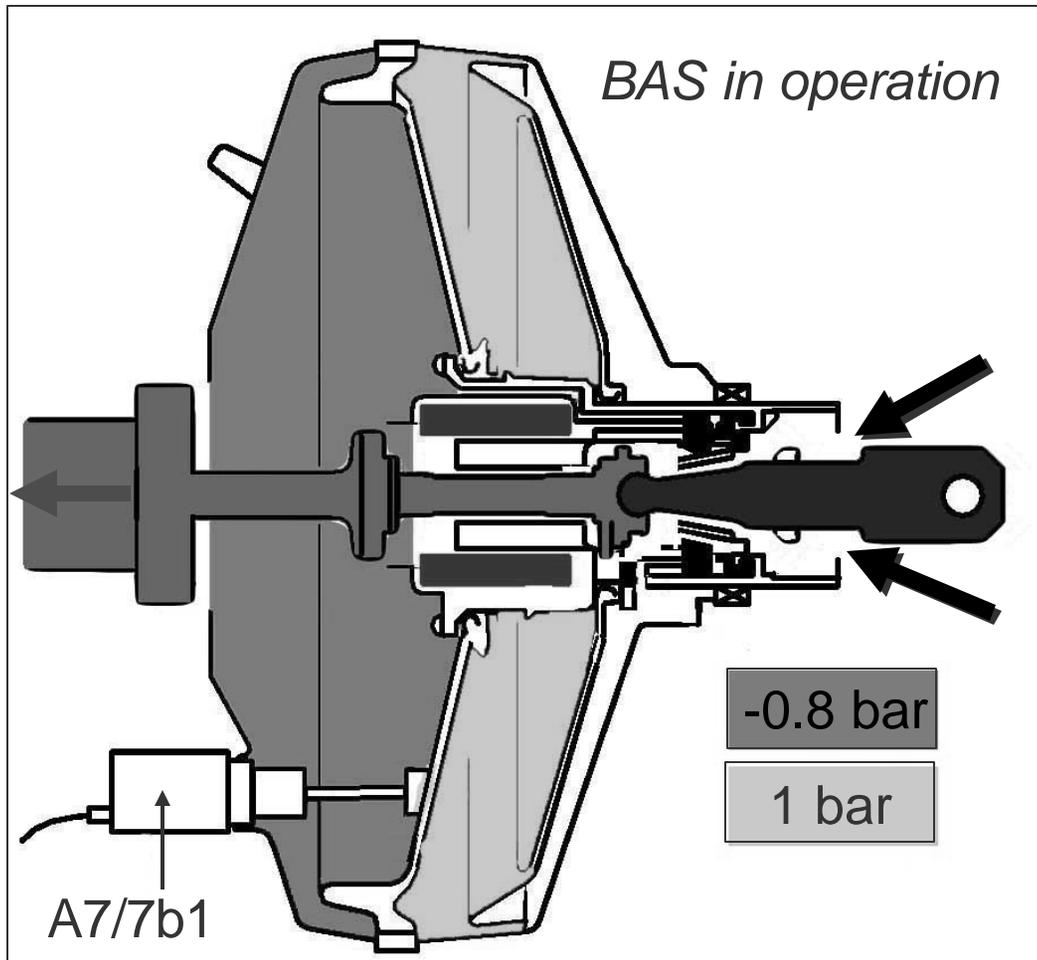
# Vacuum Brake Booster - Normal Braking



Vacuum remains high on master cylinder side of the diaphragm, but is reduced on pedal side

Amount of pressure applied to the master cylinder is increased

# Vacuum Brake Booster - Emergency stop



BAS solenoid valve  
A7/7y1 opens, releasing  
all vacuum on pedal side  
of diaphragm

Full brake boost

# BAS Block Diagram

