Air Door System Maintenance

By: Terry Tanner
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(ED. While this has been covered in past issues of The Bricklin - it was very long ago. Since then, many cars have changed hands. But unfortunately, the paperwork that accompanied the air door system is long since gone. So the poor "new" owners of many Bricklins don't know anything about the air door system. In a recent conversation with Terry, I told him I wanted to do an article about the care and feeding of the air doors. I had some copies of the original documentation that was provided with the air doors on my car, and would use that information. Terry said that he'd write a new article about the subject, and here it is!)

The air compressor
- They wear out! The compressor is the major wearing part. Originally we used a vacuum powered unit which is no longer manufactured. Therefore, replacement with an electric compressor is the way to go. But all of the 12 volt units manufactured for automotive use are designed for air horns or air shocks. Unfortunately, these units do not produce enough cubic feet per minute (cfm) to meet the Bricklin's demand. We have a compressor, designed for a Bricklin air door system, that will fill the tank in four minutes and cycle automatically at 125 psi to 135 psi.

2) Air regulator leaks
- Regulators have a rubber diaphragm that die with age. The only cure is to replace a leaking unit.

3) Dirt in control valves
- Air contains water and dirt. When compressed to 150 psi, the dust looks like rocks and the water forms rust that gets in the valve and will not allow the piston to close. Cleaning the valves is very easy. To clean a valve, remove the 9/16 hex nut from the front of the valve and remove coil assembly. Using a screwdriver (do not remove spindle with pliers or channel locks as they will mar the spindle) loosen spindle and remove. Clean the piston and spring and then reinstall. One way to help reduce the amount of dirt getting into the air control valves is to install a filter between the air tank and the regulator.

4) Lubrication
- In addition to the filter, it is strongly recommended that you install a lubricator in the air system to lubricate the various seals (in the regulator and lift rams). About September, fill the lubricator with 100% antifreeze. This will keep the system lubricated and keep the solenoids and air cylinders from freezing. If you have an electric compressor, the lubricator should be mounted on the output side of the compressor. If you still have the vacuum operated compressor, the vacuum compressor - usually mounted on the front of the driver's front fender well
lubricator should be mounted in the air distribution panels compartment behind the driver's seat. The air line from the accumulator should be attached to the input to the lubricator and the output of the lubricator should go to the regulator.

With the vacuum compressors, there is a possibility that moisture will collect in a low lying part of the air hoses that go from the tank (in the rear bumper) to the compressor. On very cold nights, it is possible for this moisture to freeze and plug the air lines.

It is also recommend that the lubricator and air filter not be of the plastic type. They have a high rate of failure. We carry an all-aluminum lubricator and air filter.

5) Load stabilizer cylinder - These "assist struts" should be removed any time the car is stored. This will remove stress on the door and the cylinder. Every year clean the mounting balls and cylinder ends and apply new grease. Check that the mounts are tight. (ED) When I started putting my doors together, I found it almost impossible to install these struts. With the doors opened, I couldn't compress the the struts enough to get them to attach to the door. After a little cursing, I decided I must be doing something wrong. I found that if I pulled the pin that attaches the lift ram to the back of the door, you can raise the door just the extra little bit required to connect the assist struts.

6) Electrical - A door control valve needs 12 volts at 4 amps to work. The door latch release solenoids requires 12 volts at 15 amps to function. (Note: These latch release solenoids are no longer manufactured and only have 12 pounds of pull) As the cars grow older, we have voltage drops in the main door wire loom and in the switches. Cleaning the switch terminal ends and wire ends will increase current flow. It has also been necessary to replace the main door wireloom. Replacing the door latch solenoids with an air latch system will reduce the electrical draw by 15 amps and increase the latch release pull by 70 pounds.

7) Air leaks - No magic here. You have to hunt down the leak with a mixture of dishwashing soap and water and a 1" paint brush. The normal places to look are at the air compressor first, then the tank fitting, the control panel regulator third. A system can be leak proof if installed correctly. We had a car that sat for 9 years with air in the tank. When the switches were pressed to open the doors, they opened!! When installing a replacement air compressor, the air line must be retightened after running. (ED) Terry supplies special fittings for the air line. I went looking for them at several of the local fastener shops, but no one carries them. So you can get new fittings from Terry, or you can replace them with a more traditional one. However, be sure to get the metal inserts for the air hose. Otherwise, as you tighten the nuts, the ferrels will collapse the air hose and you will have a leak! Also be sure that you have ferrels in front of the nuts.)

8) Up speed - The speed with which the doors open is controlled by the air control regulator mounted in the center of the panel. Turning the knob clockwise will increase the up speed. Ideal opening speed is 2 seconds. Turning the knob counter clockwise will slow up

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The Doors Open?

From: David Ebel  #0841
Tempe, AZ

Here's a weird question you might know the answer to as a multiple Brick owner. Does anyone ever drive with the doors open? Even slow? Just wondered for a while. I asked one lady, and she looked very shocked that I had even considered the idea...

From: John T. Blair  #887
Va. Beach, VA

Dave, If you have the original hydraulic doors, this is a REAL NO NO! With the doors open, the rams are full of hydraulic fluid. They become like solid steel rods. If you move the car, or someone leans on the opened doors, it WILL cause the doors to bend and break! Look for a crack on the back edge of the door where it goes from horizontal (the roof) to vertical, the side of the body. If there is a crack, the doors will NOT fit correctly and you will damage the doors if you don't get it fixed.

However, with the air doors, you CAN drive with the doors open - for instance in a parade, or if you are backing out of your driveway. Then as you are moving, you can close the doors. The reason you can drive with the doors open is that the cylinders, now filled with air, act like a shock absorber, since the air is compressible. Therefore, if you hit a bump, the doors will start to close and then reopen. Thus NOT putting excess stress on the back of the doors.

Letter of Thanks

From: John Stead  #2709
Christchurch, Canterbury, NZ

Hi there,
Here are a few words to explain, that I do not put pen to paper - nor read a lot, but since I received my Ist copy of Brickine / April 99, I have read each copy from cover to cover, several times. All of the articles have been very informative and some relate to problems we have had. My point in writing this is to Thank Everyone involved, for putting their time and effort into producing "The Brickine" and we look forward to receiving the next issue.

Thanks everyone, keep up the good work.

Welcome new members

Ron Bonyak  #1336
Phillip Carpenter  #2634
John Coolidge  #1335
Mike DeLaca  #1557
Mark Dills  
Patrick Feltes  
Paul Jelley  #2081
Roderick Keeler  #0445
Bob Key  #1510
Tim Nilsen  #1202
Dr. Charles Pankratz  #1831

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speed. (Note: do not adjust regulator without 125 psi in the air tank.)

9) Closing speed - The speed at which the door closes is controlled by the bleed valves mounted in the bottom port of the door valves. Each door has a control bleed valve. Screwing the screw in (or clockwise) will slow down closing speed. (Note - these valve are very sensitive and small adjustments should be made.) The ideal closing speed is 2.5 seconds. The door should pause approximately 8" to 10" from door sill and slam closed. (ED. These screws can vibrate in or out of their seats easily and change the closing speed. To keep this from happening, put some loctite on the threads of the screw. Also George Malaska gave me a nice tip, "Go to the hardware store, and find some small "O" rings that will fit on the bleed screws. Then screw the bleed screws in and adjust. The "O" ring will put some resistance between the head of the bleed screw and its seat, and help hold the screw in place.")

Bricklin Farts and Service has been manufacturing the air doors system since October 1975 and produced hundred of systems that are and have been operating for 20 years or more. If you have a problem with your air doors, feel free to call and we will help.

David Peabody  #0569
Jean Peloquin  
Jeffrey Popik  #0433
Rick Remdenok  #2028
Bob Stewart  #2809
Reitzel Swaim  #0239
Ken Thompson  #0046
Barry Winburn  #0897