

Pressman's Toolbox: Press units leaking air? Here's how to fix them

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A significant number of pressrooms I've visited over the past year house presses units that leak air.

Fixing them is another story. Many press techs say they either don't have time to fix them or that they can't track down the source of the leak. The list of excuses goes on and on.

But leaks can and should be found, and fixing them is well worth the time and money spent.

Leaks can consume a significant amount of power since the air compressor has to run more to keep the air lines charged. And the more continuously the air compressor runs, then the more likely the device will break down before it should.

The drawings above illustrate how air systems cause an air cylinder to extend or retract. The air valve can be operated manually or it can be connected to an electrical solenoid for remote-control operation.

Figure 1 illustrates the position of the air cylinder fully retracted, while Figure 2 shows a cylinder fully extended.

These air cylinders are dual-action and the air valve shown is referred to as a 4-way, 2-position valve.

In each drawing the red arrows indicate the flow of air into its respective cylinder, forcing the cylinder shaft to move as the pressure increases inside the cylinder's main cavity.

The blue arrows show the movement of air that has to be expelled from the other side of the air cylinder. The air cylinder would not fully extend without the air exhausting through the port.

Knowing how to troubleshoot

It is important to know how air travels through the system since it will help you understand how to troubleshoot the system when leaks develop.

Consider, for example, what would happen if the exhaust was totally blocked off in one direction or the other. The air cylinder would move until the air pressure equalized on each side of the cavity within the cylinder's internal wall. The end result? The total movement of the cylinder will be less than a full stroke.

There are numerous seals within the air valves and cylinders that prevent the compressed air from escaping; unfortunately, over time the seals become worn and will start to allow air to pass by.

When this happens, you'll hear a continual hissing sound.

To find out where the leak is located - air valve or cylinder - try this: Disconnect the air lines from the air cylinder and block the lines. Then pressurize the system. If the hissing goes away, the leak is in the cylinder and not the valve.

I normally recommend that a newspaper pressroom keep at least two air valves and cylinders to replace ones that are leaking. I also recommend that four repair kits be kept on hand to renew the seals in the air valves or cylinder that have been replaced. The air valves and air cylinder should be tested for leaks once the new seal kits are installed.

The obvious place to check for air leaks is to examine air lines and fittings. Smoke is an excellent way to find an air leak since its appearance quickly proves a leak exists. But don't use a cigarette or any open flame to produce the smoke. Instead, a glycol fogger or a dry ice fogger will produce plenty of fog to assist you in your quest.

Understanding your press' air system and being able to find and repair leaks will improve your sanity and reduce your operating costs.

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