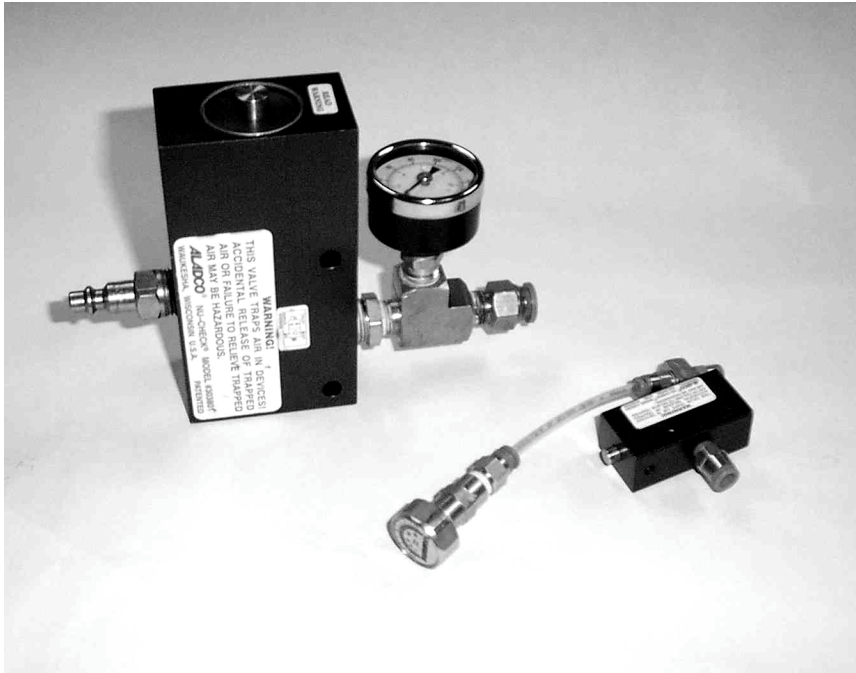


## Portable Leak Tester

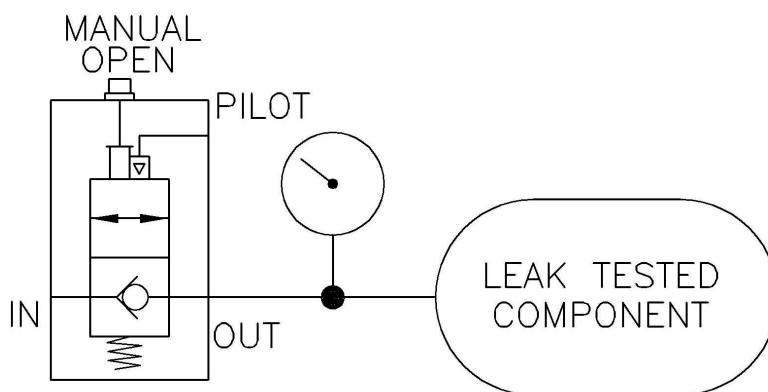
When installing equipment or performing equipment diagnostics, sometimes a leak tester is needed to check a pneumatic component or assembly. A spare Nu-Check® valve can be used to perform the leak testing. Some simple fittings attached to a Nu-Check® valve enable it to be used in a leak tester. The valve's IN port needs to be fitted with a connector to the air supply. The valve's OUT port needs to be fitted with a pressure gauge and a fitting that can connect to the pneumatic component being tested.

The figure below shows two examples of valves setup for leak testing. Pressure gauges are teed off of the fittings on the OUT port.



The larger valve is set up for air to be supplied by a standard compressed air line. The OUT port of the larger valve is set up with a quick disconnect tubing fitting.

The smaller valve is set up for air to be supplied through a quick disconnect tubing fitting. The OUT port of the smaller valve is set up with a quick disconnect tubing fitting.



Schematic of the valve used in leak testing.



## Portable Leak Tester

To perform a leak test, the OUT port of the Nu-Check® valve assembly is fitted to the pneumatic component or line to be tested. Air is supplied to the valve, which pressurizes the pneumatic components. When the pressure stabilizes, the supply air is disconnected from the valve and the pressure is noted.

After a waiting a period of time, the pressure is checked. A drop in pressure is an indication that a leak is probably present. There is no specific guideline as to the amount of time to wait before checking the pressure drop. A general rule of thumb would be to wait for at least a quarter or half of the maximum time the equipment would need to be stopped. For example, if the equipment routinely needs to be stop for over a weekend, a 12 to 24 hour waiting period test would probably be sensitive enough.

Note: During the waiting time, temperature changes will also influence the pressure. The pressure will increase or decrease as the temperature increases or decreases. The affect of temperature (in units of Rakine or Kelvin) on the pressure can be estimated using the relationship below:

$$\text{Pressure Start} * (\text{Temperature End}/\text{Temperature Start}) = \text{Pressure End}$$

For example: if the starting pressure at 90 F. (550 Rakine) is 100 PSI and the temperature drops to 70 F. (530 Rakine). The final pressure due to the change in temperature will be  $100\text{PSI} * (530/550)$  or 96 PSI.

### Finding Leak Location

If a leak is detected, the location of leaks in external joints and fittings can be checked by applying a leak test fluid. A commercial fluid can be used or you can make you own with a hand dishwashing liquid. Add approximately 1 oz. (25 ml) of hand dishwashing fluid to two quarts (two liters) of water. Place the solution in a spray bottle or other suitable applicator

Pressurize the system and take the applicator bottle and roll of paper towels. Check the joints by spraying or brushing on a film of the fluid onto the joints being tested. Bubbles will show up where a leak is occurring. Fix any leaks and wipe down all components checked.