



cable pressure AirMAIL

System Studies Incorporated

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Make Sure Your Connection is Air-Tight

When taking a pressure reading on a cable, you need to make sure that your air chuck is attached to the tank valve correctly. Otherwise, you could create a leak that interferes with the accuracy of your reading.



Here's a simple procedure to make sure your air chuck is connected properly:

1. Squeeze the trigger.
2. Place the chuck on the valve.
3. Release the trigger.
4. Give the chuck a quarter turn clockwise. This movement screws the chuck down on the valve threads to get a tight seal.

Once the chuck's properly seated, your chances for getting accurate readings improve dramatically.

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What's in this Issue



We're dedicating this AirMAIL bulletin to Tools, specifically four of the more important ones that every cable pressurization technician should carry on his or her truck. Two of the tools described below, the Digital Pressure Gauge and the new Direction of Flow Indicator, are modern upgrades for the trusty old C pressure gauge and the now-discontinued block-style flow direction indicator. The third item, the Flow Gauge, is an indispensable tool for any wire center or area where the Flow Finder System of Measurement is used. Finally, we think it's a good idea that you have an air pipe cutter available. This simple, inexpensive tool helps to prevent leaks when installing fittings in pneumatic tubing and 1/2 inch air pipe.

New Quick-Connect Flow Finder Attachment

In addition to the more commonly used tools described above, we've recently come up with a special purpose Flow Finder attachment that can be used with a 9800-3100 Flow Gauge to replace the expensive and sometimes-difficult-to-read portable flow rater. Like the flow rater, this attachment is used to take individual cable flow readings at legacy distribution panels and old-style air pipe manifolds—equipment that does not have built-in Flow Finders. It can also be used to read air flow at a bypassed plug (where a bypass valve is installed). One of the primary advantages of this Flow Finder attachment is that it enables you to read flow rates up to 38 SCFH, twice the nominal range of the Flow Finder.

If you're looking to replace that old portable flow rater, this tool will allow you to use your Flow Gauge to obtain extended readings quickly and easily.

The **Quick-Connect Flow Finder Attachment**, Part No. 9800-3266, is supplied with a 0-19 SCFH Flow Finder and two 22.5-inch lengths of tubing. The standard air chucks attached to each tube end are supplied with a swivel connector to make it easier to attach the chuck to the tank valve. Swivel fittings are also installed at the connections to the Flow Finder. Using the Flow Gauge's time-two button and red flow scale, it's possible measure flow rates up to 38 SCFH.



Your Must-Have Air Pressure Tools

There are many important cable pressurization tools that a well-equipped maintenance technician should keep on the truck. Obviously, some are used more than the others, but even the more specialized ones have their place. The tool that you don't have available when you need it may be the one that prevents you from completing an important job or leak locating procedure.

Shown below are a few of the more commonly used air pressure maintenance tools. It is recommended that you have one of each on your truck.



Flow Gauge

The **Flow Gauge**, Part No. 9800-3100, is an indispensable component of the Flow Finder System of Measurement. It makes it possible to manually read individual Flow Finders, Flow Finder Manifolds and High Resolution Flow Transducers. It has a quick-connect sampler fitting that screws onto the Flow Finder or transducer being measured and provides a positive, leak-free connection. The gauge face provides four color-coded scales which correspond to the four primary Flow Finder ranges (0-9.5, 0-19, 0-47.5 and 0-95 SCFH). The gauge also has a times-two button located on the top which makes it possible to take accurate flow readings up to twice the indicated maximum range of the device being read.



Digital Pressure Gauge

The highly popular and widely used **Digital Pressure Gauge**, Part No. 9800-3123, is an easier and more accurate way to take pressure readings than the old-style C Pressure Gauge. The digital version reads from 0-30 psi with over range protection to 60 psi. The gauge has a large 4-digit output display, with each digit measuring approximately .425 in high by .234 in wide. The gauge is supplied with a 20-inch length of tubing and a standard tank valve secured to the protective rubber boot. The tank valve makes it possible to attach the air chuck for greater carrying and storage convenience.



Direction of Flow Indicator

The Part No. 9800-3210 **Direction of Flow Indicator** is ideal for chasing flow in interlaced cables. As a replacement for the manufacturer-discontinued plastic block flow direction indicator, this new product offers excellent directional sensitivity and reading recognition when tracking the movement of air between cables. It is also used to check for leaks in pneumatic plugs. Even if you have one of the old flow direction indicators available, you may want to consider upgrading. This new metered tool makes it much easier and faster to determine flow direction when you're hot on the heels of a troublesome leak.



Air Pipe Cutter

Having the right tool for even the simplest of tasks can make all the difference in the world. When cutting 1/2" air pipe or 3/8" tubing, you don't want to be using your snips. It's too easy to cut the end on a diagonal and end up with a leak after you connect the pipe or tube to a fitting.

The hand-held **Air Pipe Cutter**, Part No. 9800-3508, helps to solve this problem. Using this tool to cut CA3131 air pipe will ensure a clean, 90° crosscut and will minimize the possibility of having the pipe end go out of round. It works just as well for making clean cuts on 3/8" plastic tubing.

Monitoring the Heart of Your Air Pressure System

If you're responsible for maintaining air pressure in a large metropolitan office or several offices where multiple air dryers are required, here's a monitoring technique that can indicate whether or not your office air dryers are supplying adequate delivery pressure to the panels. Thanks to System Studies' High Resolution Pressure Transducer, which has the ability to read from 0 to 30 psi, it is possible to accurately monitor the delivery pressure of your entire system.

This is accomplished by installing the pressure transducer at the central office balance manifold and pneumatically connecting it to one of the manifold ports (see example below). The manifold combines the individually-regulated low side air dryer output from multiple dryers to achieve the necessary delivery pressure to the panels. It is important that each dryer is set to 18 psi minimum because air delivery pressure to the panel rack assembly must be at least 5 psi more than the highest regulated pressure of any panel. This back pressure is required in order for the panel regulators to hold the desired delivery pressure.

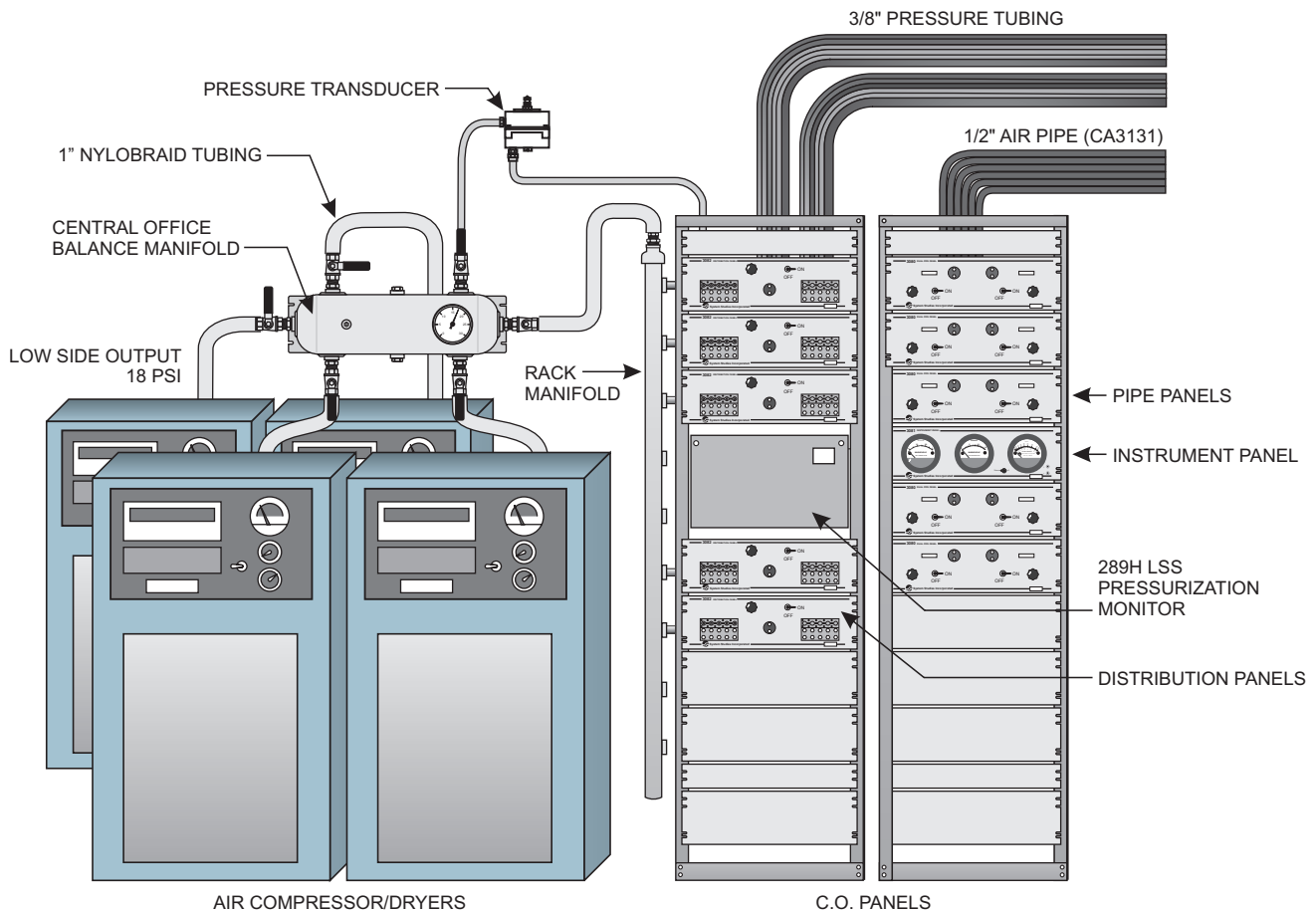
To provide the critical alarming needed for the monitoring application, the 0-30 psi transducer is assigned a special PressureMAP Device Type designation, called a \$P. The dollar sign (\$) designation gives you the ability to specify the exact amount of pressure drop that occurs before the device generates an alarm. For this monitoring application, the \$P device should be set to alarm for a drop of 2 psi (from 18 to 16 psi, for example). It is worth noting that a dollar sign device type also

results in a higher priority alarm dispatch than a similar condition on a device that is not high priority. It also alarms on a single occurrence of an error reading, such as OPEN, SHRT, NSE, etc.

One of the key advantages of monitoring the balance manifold is that it can, in some cases, eliminate an unnecessary and expensive after-hours response to an air dryer alarm. If a dryer contact alarm is generated, you can first check the \$P device to determine if air feed to the system has been jeopardized. Even with one dryer down, it's possible that the other air dryers can carry the load for a short while until scheduled repairs can be made. So, if the \$P device doesn't go into alarm, adequate delivery pressure is still being supplied to the system.

Another possibility for improving delivery system monitoring is the use of a special PressureMAP monitoring designation, called a Mega Office. A Mega Office provides the ability to map individual balance manifold \$P devices from multiple offices to a single, designated office location. This capability further improves analysis and alarming for the important \$P devices. With this setup if you see an alarm for the Mega Office, you know you've got a serious situation—one that requires immediate attention.

If you have any questions about delivery pressure monitoring, \$P Device Types and or Mega Offices, give us a call at (800) 247-8255. We'll be happy to provide whatever additional help you may need.



The Ten Commandments of Leak Locating

Years ago before email publishing was commonplace, System Studies produced and mailed a four-color, printed AirTalk newsletter once or twice a year to all of our telephone company contacts. Those newsletters contained, among other articles, a cartoon feature that included important cable pressurization leak locating and monitoring tips. One of the more relevant cartoons introduced the Ten Commandments of Leak Locating. These leak locating tips are as valid today as they were back then, and we thought you might find them useful.

Just in case your old-world language comprehension skills are a little rusty, we offer the simple translation below:

- I** Begin leak locating at the air source, not at the end of the route.
- II** Use System Studies' leak locating tools and techniques.
- III** Take your own accurate pressure and flow readings.
- IV** Calculate a Zero Leak Projection and stay within the area of search.
- V** Chase the highest flowing leak first.
- VI** Calculate air flow from manhole to manhole, and continue to chase the largest percentage of flow.
- VII** Stay focused and make sure you're chasing the majority of the original flow (SCFH) measured at the air source.
- VIII** If the calculated flow at a manhole indicates that you have passed the leak, and you have been checking for leaks at each location, maybe you've got a section leak. And there's a whole gospel dedicated to that one.
- IX** Once you've found the highest flowing leak, you should systematically go after the next worse leak in the system.
- X** Don't be suckered into using inferior monitoring systems and software. The majority of the enlightened world is enjoying the advanced analysis and diagnostics capabilities of PressureMAP and the 289H LSS monitors.

This flow-based strategy for prioritizing and locating cable leaks has proven to be very successful throughout the years. It is the basis of our leak locating training and our approach to cable pressurization system maintenance. If you would like a more detailed explanation of this approach or any of the individual steps, please give us a call at (800) 247-8255. We'd be happy to hear from you.

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