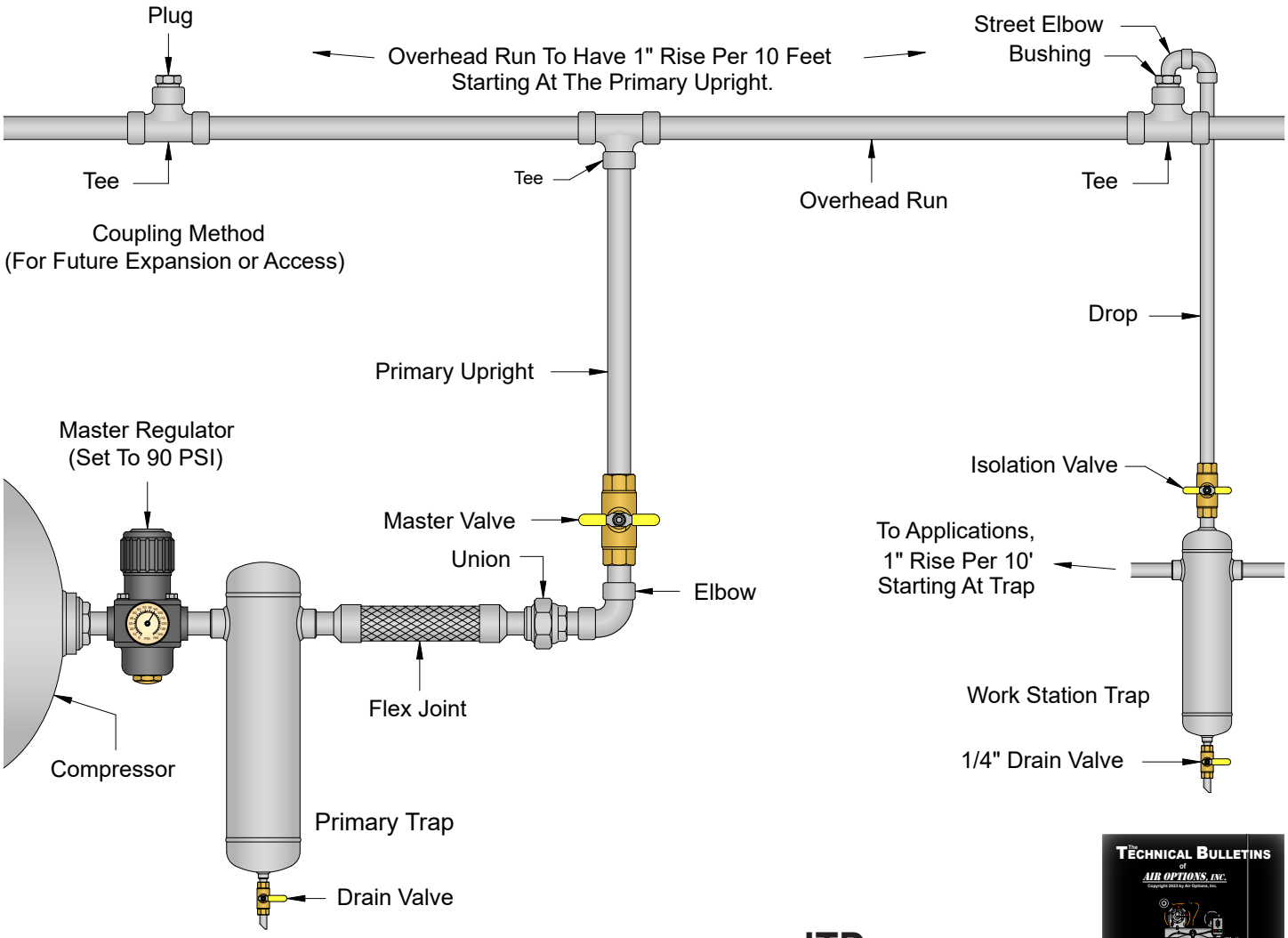
Technical Bulletin 02

Basic Plumbing for Compressed Air

by Brian S. Elliott

More often than not, the plumbing that is installed to service any given compression system is wholly inadequate. There are a few basic guidelines to follow when installing or adapting the plant's compressed air piping. The illustrations provided in this paper should be used as a guide to designing, modifying or evaluating compressed air distribution systems. Traps are very important to any compression system. Similarly, the method used to connect drops to overhead pipes is very important. Valves should be liberally applied, as these will provide easy servicing to individual sections of the system. Take particular notice of the rise in the horizontal pipes, as this allows water to freely drain back into the traps. Sizing the pipe for your particular system is reviewed in the technical bulletin titled "Pipe Sizing for Compressed Air Systems".



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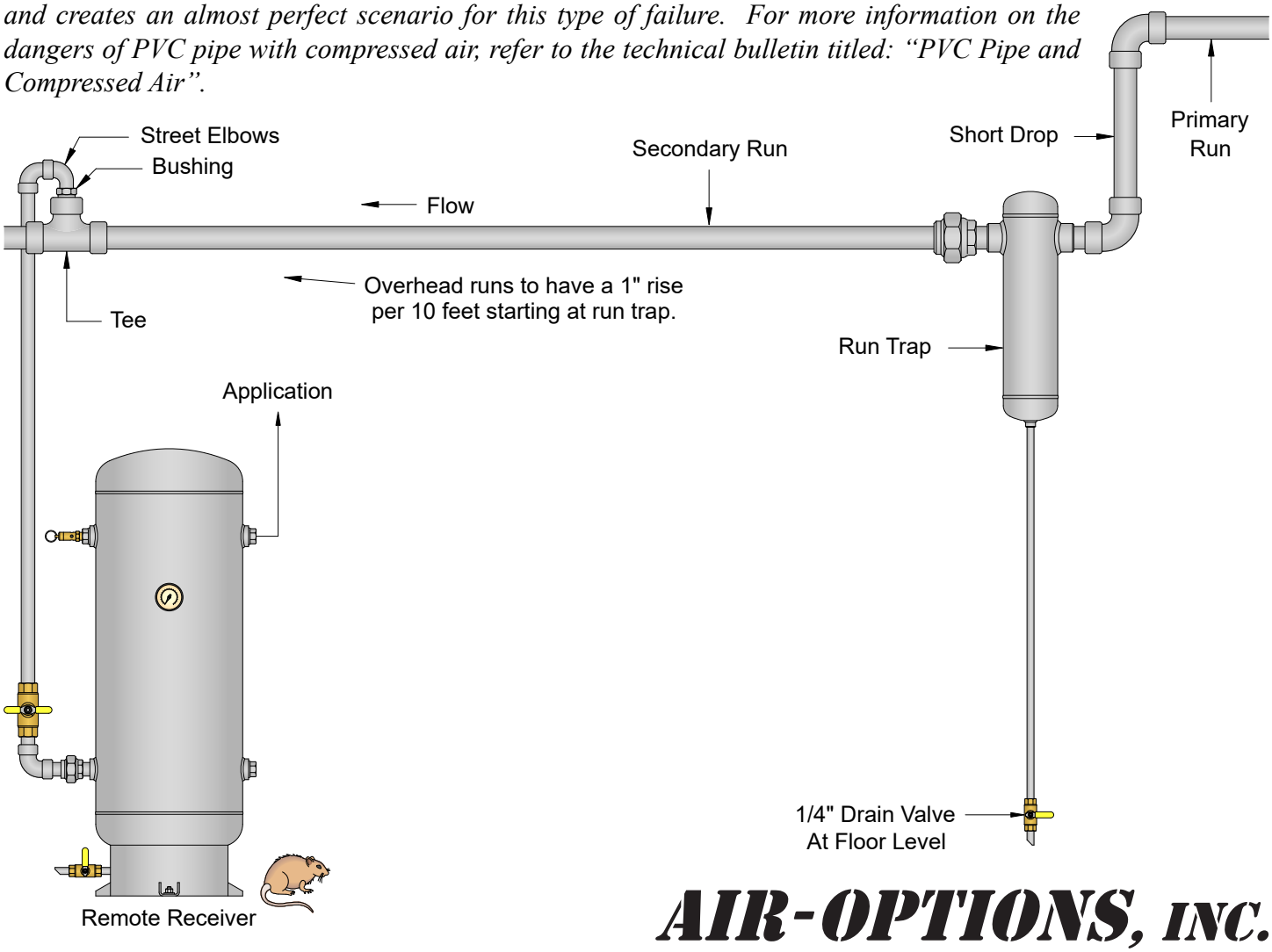
Advanced Technologies for Compressed Air

Large compressed air distribution systems have their unique challenges. For very long overhead runs, it may be impractical to provide a 1" rise per 10' through the entire run. In these cases, a short drop is fed into a drop trap at a lower level and a secondary run is continued from the output of the trap. The trap's drain is plumbed down to floor level.

For applications that require high demands for short periods of time, additional receivers may be placed through the system. The receivers allow high peak loads to be supplied by a rather modest overhead run. In most instances, sizing the overhead run to feed a high peak load would require prohibitively large piping. It should be noted that caution must be exercised when installing auxiliary receivers. Their added volume and use may increase the load on the compressor, and too many may create a situation that could pull the air pressure down to unacceptable levels. For more information on determining the size of remote receivers, refer to the technical bulletin titled: " Sizing Remote Receivers for Compressed Air".

CAUTION: *Under no circumstances are PVC pipe or fittings to be used for compressed air! PVC pipe is not intended for compressed air applications because of the inherent stored energy of the gas. It is only intended for non-compressible fluids. The reason for this is that PVC pipe normally fractures when it fails. As the energy of the compressed air is released, a shock wave travels down the joint of pipe until it encounters a strong point, usually a fitting. As the shock wave propagates along the pipe, it continuously fractures and blasts out hundreds of razor sharp, high-speed shards of plastic. The use of PVC pipe for compressed air applications creates a severe safety hazard. To make matters worse, PVC can react with some compressor oils and form micro-surface cracks on the inside of the pipe and fittings. This, in turn, weakens the pipe and creates an almost perfect scenario for this type of failure. For more information on the dangers of PVC pipe with compressed air, refer to the technical bulletin titled: "PVC Pipe and Compressed Air".*



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