

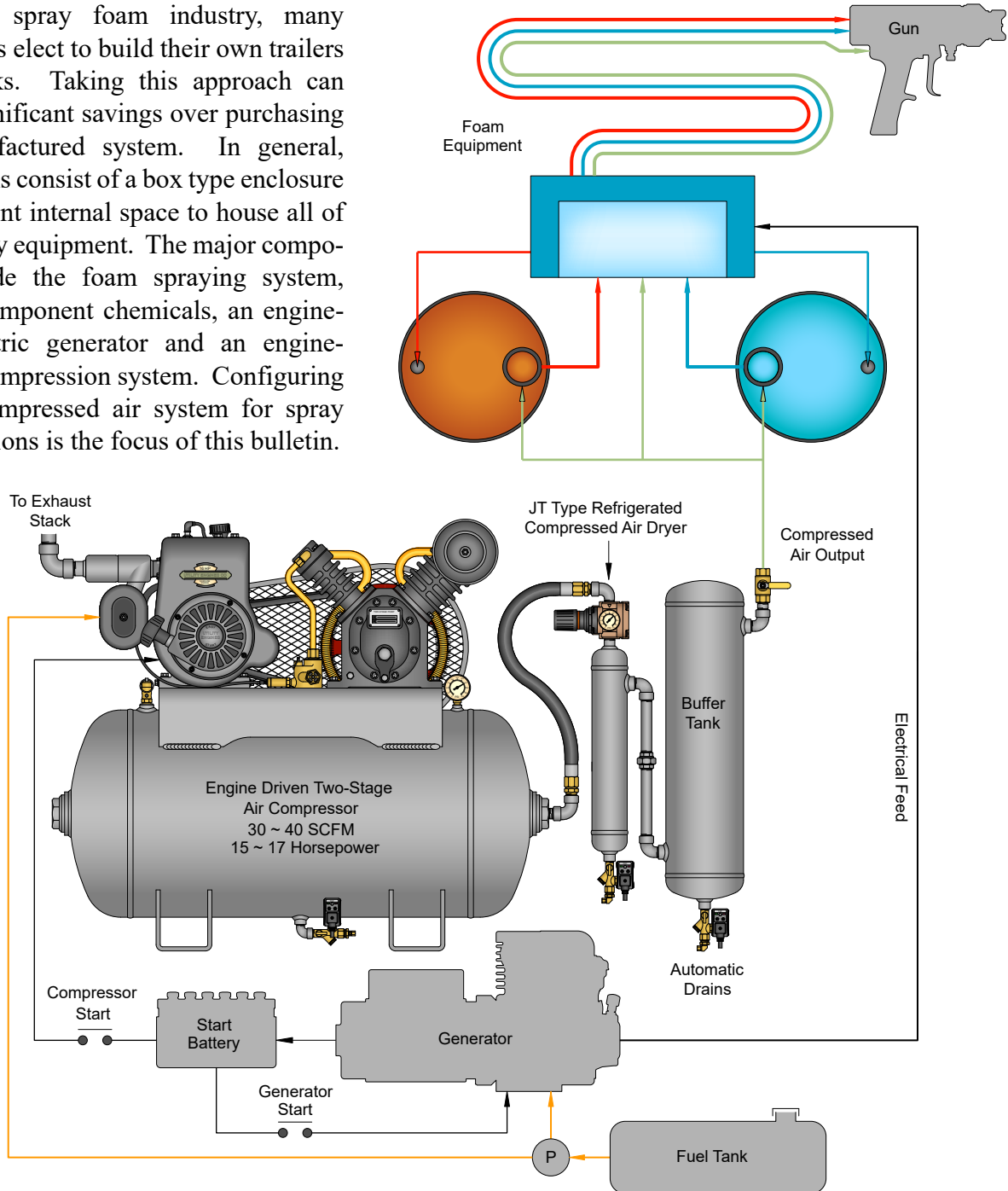
# Technical Bulletin 98

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## Spray Foam Air Compression Systems

by Brian S. Elliott

Within the spray foam industry, many professionals elect to build their own trailers and/or trucks. Taking this approach can result in significant savings over purchasing a pre-manufactured system. In general, these systems consist of a box type enclosure with sufficient internal space to house all of the necessary equipment. The major components include the foam spraying system, drums of component chemicals, an engine-driven electric generator and an engine-driven air compression system. Configuring a proper compressed air system for spray foam operations is the focus of this bulletin.



**Air Options, Inc.**

P.O. Box 35984

Houston, Texas 77235-5984

Ph.: 713-721-9619

E-Mail: [Info@Air-Options.com](mailto:Info@Air-Options.com)

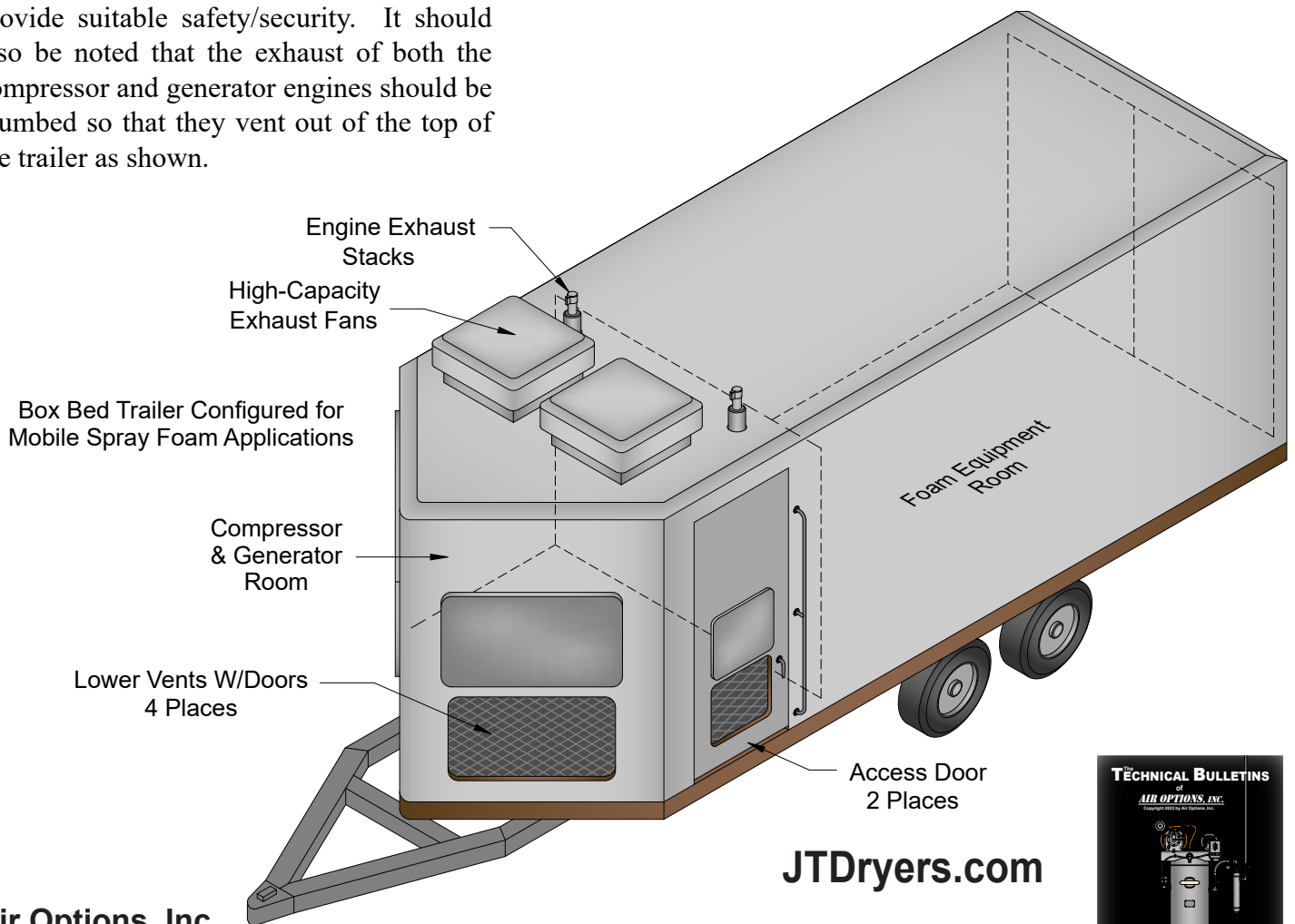
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The single most common error made when setting up a spray foam rig is using an undersized compressor. This is due to the rather confusing way that most compressor manufacturers rate their compressors, which is providing the SCFM rating at continuous pump load. What most professionals don't realize is that piston compressors are intended to be placed into intermittent operation. In most cases, a typical two-stage compressor should not be operated at more than a 50% duty cycle. That is to say, if a compressor loads (on) for five minutes, it should unload (off) for at least 5 minutes. The total cycle is 10 minutes with 5 minutes on and 5 minutes off, or 50%. Ideally, a compressor selected for mobile foam service should have a 30% duty cycle, 3 minutes on and 7 minutes off.

The output of the compressor should be fitted with a JT type refrigerated dryer that is followed by a buffer tank. The illustration on the previous page shows how a compression system like this should be configured in the context of the overall foam spraying system.

As important as selecting a suitable compressor, the environment in which it's installed is critical for its efficient operation. More than anything else, heat is your enemy in this application. A compressor operating at a low-duty cycle and with proper ventilation will provide superior service. The illustration below shows the recommended layout for a mobile trailer spray foam system. Take note that the compressor/generator room is equipped with no less than 4 large lower vents. The ceiling of the room is equipped with a pair of high-capacity exhaust fans. When the trailer is set up on-site, the vents are fully opened and the exhaust fans are turned on. This arrangement assures that the room has adequate air flow when the compressor and generator are in operation. At the same time the access door(s) can be locked so as to provide suitable safety/security. It should also be noted that the exhaust of both the compressor and generator engines should be plumbed so that they vent out of the top of the trailer as shown.



**JTDryers.com**

**Air Options, Inc.**  
 P.O. Box 35984  
 Houston, Texas 77235-5984  
 Ph.: 713-721-9619  
 E-Mail: Info@Air-Options.com

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