POSITIVE AIR SHUTOFF

ARE YOU USING THIS FIRE AND EXPLOSION CONTROL?

SAFETY BULLETIN

ISSUE# 04-2018

Positive air shutoffs are designed to keep a diesel engine from over-revving and "running away". This is a unique hazard with diesel engines because they do not require a spark for ignition and can continue to burn hydrocarbons in the air even when the diesel fuel is exhausted or the key is removed. As a result, positive air shutoffs are an important barrier to prevent the over-revving and subsequent explosion of the engine. Such an explosion could result in injury or be the source of ignition for a larger fire or explosion.

Positive air shutoffs work by closing a valve in the air supply to the engine and come in two forms: manual and automatic. Manual is a button, typically on the dash in the cab of the truck, that the operator can push if the engine starts to over-rev. Automatic systems have a built-in trigger for shut off that is based on engine revolutions.

Destroyed vacuum truck following an engine runaway fire and explosion
Photo Credit: U.S. Chemical Safety and Hazard Investigation Board

LIMITATIONS

When using a positive air shutoff, consider the following:

- It may not prevent other sources of ignition, such as engine backfiring
- It could be inadvertently triggered when the engine over-revs for other reasons, such as placing the engine into a low gear while going down a steep hill

ENERGY SAFETY CANADA

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RECENT REGULATORY CHANGE

CSA B621-14 and B622-14 requires automatic positive air shutoff devices on diesel engines during loading and unloading of flammable gas or liquid dangerous goods. This requirement came into force January 12, 2018.

WHAT CAN SUPERVISORS DO?

Ensure:

- A fire and explosion hazard management plan is in place for your worksite; it should identify potential flammable hydrocarbons and ignition sources, and various controls such as positive air shutoff systems
- Diesel engines on trucks carrying flammable dangerous goods are equipped with automatic positive air shutoffs
- Workers know how to function test a positive air shutoff in accordance with the manufacturer's recommendations
- Automatic positive air shutoffs have proper set points that will not be inadvertently triggered

WHAT CAN WORKERS DO?

- Understand the use and limitations of positive air shutoff systems
- Know how to properly function test a positive air shutoff; contact the manufacturer if you are unsure
- Conduct frequent function tests of positive air shutoff systems and document these tests
- Verify that diesel equipment coming to your site has a positive air shutoff and that it has been recently function tested

REFERENCES

- CSB Investigation Report
- TDG Notification of CSA Standards Updates

PRESENT LIKE A PRO

Before you begin:

Review this material, make sure you understand it and how the topic can be applied.

Research your own company's experience so you can provide examples that pertain to your work areas.

Anticipate questions and be prepared to answer/discuss them.

If you're not able to answer a question, let the person know you will find the information and make sure you follow up.

Consider the audience and their experience with the topic (i.e. how familiar are they with the topic or the terms being used?).

Challenge the group:

Identify any areas or situations on your worksites where a positive air shutoff may be required.

Demonstrate how to conduct a function test with the systems you are currently using.

Discuss and share stories of diesel engine runaways and associated risks on your worksite.

Challenge the group to improve the quality of this control on your worksites.

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