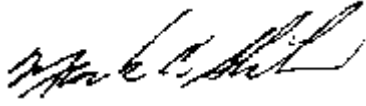



ISSUE DATE: January 13, 2004

PROGRAM INFORMATION BULLETIN NO. P04-01

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SUBJECT: Crushing Hazard on Battery-powered Scoops

Who needs this information?

Underground mine operators, miners' representatives, manufacturers of battery-powered scoops, mine equipment rebuild facilities, Mine Safety and Health Administration (MSHA) enforcement personnel and other interested parties need this information.

What is the purpose of this bulletin?

This bulletin informs the mining community of a potential hazard created when the operator of a battery-powered scoop resets the circuit breaker while the master switch is in the run position and a hydraulic control lever is stuck or inadvertently activated. It also discusses a method to eliminate this hazard.

What is the background of this hazard?

Many designs of battery-powered scoops require the operator to exit the operator's compartment to reset a tripped circuit breaker. These same machines have a master switch with three positions: off, forward, and reverse. This switch has multiple contacts.

The forward or reverse positions of this switch close an additional set of contacts for the pump motor contactor.

If the master switch is inadvertently left in the forward or reverse position while the circuit breaker is reset, the pump motor will start. When the pump motor is started, if a hydraulic control lever is stuck or inadvertently activated during the circuit breaker resetting process, unexpected motion can occur. This unexpected motion can raise a section of the machine, which can pin the operator between the machine and the roof, or cause pivoting of the machine about its articulation point, which can pin the operator between sections of the machine.

In September 2001, in Walker County, Alabama, a scoop operator suffered a dislocated hip when he was pinned between the scoop and the roof while resetting the circuit breaker. The operator leaned across the frame of the machine to reset the breaker and inadvertently pressed the bucket lower lever. When he reset the breaker, the pump motor started, the bucket lowered, and the frame of the machine rose, pinning him.

This accident could have been prevented had a separate start switch for the pump motor been installed in the operator's compartment. Installation of a separate start switch for the pump motor in the operator's compartment would allow the operator to restart the pump motor from the operator's compartment after resetting the circuit breaker.

How can this hazard be prevented?

MSHA recommends that all applicants for MSHA approval of battery-powered scoops include a separate start switch for the pump motor as part of their design. Additionally, MSHA recommends that a separate start switch for the pump motor be installed and maintained on all battery-powered scoops currently in use. Installation of the switches could be done in-house when repair work is performed by the mine or by a rebuild facility. Finally, MSHA recommends that equipment operator training always be provided when upgrading or modifying a battery-powered scoop or other machine or system so that all personnel understand how the changes impact machine function and operation.

What equipment needs a separate start switch?

There are currently two manufacturers of battery-powered scoops with this problem: DBT America and Fairchild International, Incorporated.

DBT America acquired the approvals of S&S, Simmons-Rand, and Long-Airdox and manufactures these machines under the DBT America name. Most battery-powered scoops manufactured by S & S and Simmons-Rand do not have a pump motor start switch. In addition, some battery-powered scoops manufactured by Long-Airdox do not have a pump motor start switch. All battery-powered scoops manufactured by DBT America have a pump motor start switch. The approval numbers and model numbers of the affected machines are listed in Table 1. Most of the approvals have multiple extensions.

Approval No.	Model No.	Approval No.	Model No.
2G-2191	BMUAT86	2G-2954	480
2G-2209	BMUAT74	2G-3054	482
2G-2270	UAT88S	2G-3144	601-605
2G-2474	BMUAT74D	2G-3154	490CX, 492CX
2G-2541	320SS	2G-3157	682
2G-2572	CX-1	2G-3274	820-825
2G-2594	UAT74SS	2G-3338	NTL6
2G-2601	UAT86S	2G-3441	610-615
2G-2664	CX-2	2G-3506	4184, 4186, 4188
2G-2718	UAT74A	2G-3538	606
2G-2732	CX-2S	2G-3558	6412
2G-2748	270	2G-3673	4182, 4482
2G-2831	484, 486, 488	2G-3793	828, 838, 848

Table 1

Fairchild International Inc. acquired the approvals of Triangle Mining Equipment. Most battery-powered scoops manufactured by Triangle Mining Equipment do not have the pump motor start switch. Some battery-powered scoops manufactured by Fairchild International do not have the pump motor start switch. The approval numbers and model numbers of the affected machines are listed in Table 2.

Approval No.	Model No.
2G-3463-0, -1	T336
2G-3463-2	2684C
2G-3599-0, -1	T339
2G-3599-2	3584C

Table 2

How can the switches be obtained?

Pump motor start switch components can be purchased from the appropriate machine manufacturer. These manufacturers can provide recommendations on proper installation and maintenance of the switches.

Contact Ken Matney at (540) 994-3775 with DBT America or Ward White at (540) 726-2380 with Fairchild International Inc. for further information regarding retrofitting machines with pump motor start switches. On a typical battery-powered scoop, the cost will be about \$1,000. This does not include the cost of installation.

What is the authority for this bulletin?

The Federal Mine Safety and Health Act of 1977;30 CFR 18.20(b), 75.523-2.

Is this bulletin on the internet?

This Program Information Bulletin may be viewed on the worldwide web by accessing the MSHA homepage (<http://www.msha.gov>) then choosing "Rules & Regs" and "Compliance Assistance Information."

Who are the contact persons for this bulletin?

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Who will receive this bulletin?

MSHA Program Policy Manual Holders
Special Interest Groups
Underground Mine Operators
Miners' Representatives
Manufacturers of Battery-powered Scoops
Rebuild and Repair Facilities