

Investigation Report

Worker Fatally Pinned during Skid-Steer Maintenance

December 2, 2014

## The contents of this report

This document reports Occupational Health and Safety's investigation of fatal incident in December 2014. It begins with a short summary of what happened. The rest of the report covers this same information in greater detail.

## Incident summary

A worker was tending to a leaking hydraulic line on a skid-steer while the lift-arm was suspended in the air unsupported. The lift-arm came down on the worker pinning him between the lift-arm and the chassis of the skid-steer fatally injuring him.

## Background information

Spar-Marathon Roofing Supplies (Spar-Marathon) is a distributor of roofing material to roofing companies. It employs six workers in the warehouse and front office.

Spar-Marathon hired an independent owner/operator to repair a leaking hose on the skid-steer. The fatally injured mechanic had been a red seal heavy duty mechanic since 1993. The independent owner/operator had done maintenance work for Spar-Marathon before.

## Equipment and materials

### Skid-Steer

Spar-Marathon owned a 2013 Bobcat skid-steer model S100 (skid-steer) with 290 machine hours. It was used for clearing snow from their yard. A similar machine to the one involved in the incident is included in Figure 1.



Figure 1. Sample of a Bobcat skid-steer. Note: photo from [www.bobcatrental.ca/](http://www.bobcatrental.ca/).

## Sequence of events

The manager from Spar-Marathon had contacted the heavy duty mechanic to come to their shop to repair a leaking hydraulic line on their skid-steer. The mechanic arrived at the work site at approximately 7:00 a.m. and was let in by a labour yard worker.

The skid-steer was near the middle of bay 3. The mechanic spoke to the manager of Spar-Marathon and confirmed there was a hydraulic leak somewhere in the skid-steer. While the mechanic was examining the skid-steer, the manager noted the bucket was down and the backdoor of the machine was open (Figure 2).



*Figure 2. The opened back door to the skid-steer.  
A: The loosened circuit hose.*

The mechanic had opened the back door to the skid-steer in order to loosen off the potentially leaking circuit hose. He did not completely remove the hose which allowed hydraulic oil pressure to remain in the circuit hose. He then raised the lift-arms with the bucket attached and the cab of the skid-steer (Figure 3) in order to access and remove the potentially leaking circuit hose from the control valve inside of the cab area. At this time, the lift arms were still under hydraulic pressure.



*Figure 3. The raised cab of the skid-steer.*

The mechanic had not applied the lift-arm support device to prevent the lift-arms from coming down once the hydraulic oil pressure was lost (Figures 4 and 5).





*Figure 4. The skid-steer lift-arm support was still in the cradle of the boom while the lift-arm with the bucket attached were raised.*



*Figure 5. An example of the lift arm support in position holding the boom while the lift-arms are raised.*

The mechanic then placed himself between the chassis of the skid-steer and the left lift-arm (if looking out of the cab of the skid-steer) and began to loosen the potentially leaking lift circuit line off the control valve (Figure 6).



*Figure 6. The mechanic had removed the suspected leaking lift circuit line off the control valve.  
A: The control valve fitting.*



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Once the lift circuit line was completely removed from the control valve, the remaining hydraulic pressure in the hose released spraying hydraulic oil within the motor unit (Figure 7). This caused the lift-arms with bucket to come down quickly and pin the mechanic between the left lift-arm and the chassis of the skid-steer.



*Figure 7. The sprayed hydraulic oil inside the motor compartment from the loosened hose.*

A warehouse worker in an adjacent bay heard a moaning sound coming from bay 3 and came in to find the mechanic pinned between the lift-arm and the chassis of the skid-steer.

At approximately 7:25 a.m., the warehouse worker came into the manager's office indicating there had been an incident. The manager entered the 3 and found the mechanic pinned between the left lift-arm and the chassis of the skid-steer.

Workers tried raising the lift-arm, which had the bucket attached to it, with a fork-lift but did not succeed. The fire department was called and used their equipment to raise the lift-arm to remove the mechanic from his pinned position. The mechanic was pronounced dead at the scene.

There were postings throughout the skid-steer indicating if the hydraulic line was disconnected it could cause the lift-arm or attachment to drop (Figure 8).





*Figure 8. A tag within the cab of the skid-steer indicated that “disconnecting hydraulic lines can cause the lift arms or attachment to drop.”*

### **Completion**

A preliminary review of the file was arranged with Alberta Justice on February 13, 2015. It was determined the case did not support any charges under the occupational health and safety legislation.

This file was closed on August 26, 2015.

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**Signatures**

ORIGINAL REPORT SIGNED

August 26, 2015

Lead Investigator

Date

ORIGINAL REPORT SIGNED

August 26, 2015

Manager

Date

ORIGINAL REPORT SIGNED

August 27, 2015

Director

Date