

# AMENTUM CALCULATED OVER \$828,000 IN SAVINGS FROM AIR LEAKS ALONE DURING A 5-YEAR PERIOD USING THE ULTRAPROBE 3000



## ABOUT

Amentum is a global leader in engineering, project management and solutions integration, trusted to modernize critical missions anywhere in the world today and in the future. They are uniquely positioned to deliver solutions faster and solve what's coming next. They have earned their customers' confidence by successfully managing and executing highly complex programs of scale, providing solutions for an unpredictable world.

## THE PROBLEM

In this case study, Amentum was assigned to restructure the reliability program for Caterpillar Inc. Corinth, MS remanufacturing facility. Their purpose was to increase the facility's pressure efficiency on their compressed air systems and improve quality assurance. Upon investigation, it was immediately clear that many compressed air leaks were present in their equipment. They have vertical mills, grinders, flash cleaner machines, dunk tanks, valves, arm drills, and many more types of equipment. Despite the use of air tools throughout the facility, the absence of a quantifiable ultrasonic program to precisely measure and assess the impact of air leaks on equipment was proving to be a huge challenge.

Amentum brought forth their reliability program to Caterpillar and implemented it successfully. This program provided ways to accurately locate, quantify, and repair compressed air leaks while simultaneously improving machinery efficiency.

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## THE SOLUTION

After thorough research on the most cost effective and technically sufficient device, Amentum determined the Ultraprobe 3000 by UE Systems was the best solution. The Ultraprobe 3000 is an advanced digital ultrasonic leak detector that specializes in compressed air and gas leak detection, steam traps, and valves. This instrument is versatile and offers additional reporting capabilities such as on-board data logging. Combined with UE System's DMS software, this instrument allows users to download leak data, add comments and pictures, and quantify leak costs, and create reports.



The Ultraprobe 3000 was the perfect addition to their arsenal because it is easy to use and fits all their needs – an affordable tool that allows them to quickly locate, quantify, and repair compressed air leaks. To ensure proper utilization throughout the facility, Amentum provided their technicians with introductory courses on how to use the instrument in their work areas.

In addition to acquiring two Ultraprobe 3000s to support their large team, Amentum strategically divided their extensive facility into 11 manageable zones. This segmentation allows each section to receive dedicated time and attention for leak detection routes. A maintenance technician was then assigned to inspect each zone according to a pre-planned schedule.

## THE RESULTS

Amentum recognized the benefits immediately, observing a substantial reduction in air leaks within each designated zone. This led to significant cost savings, customer satisfaction, several quality-of-life improvements, increased equipment longevity, and a much quieter working environment. Understanding the science of ultrasound, learning how to calculate for different types of compressed air, and properly training their technicians proved to be an instant success. Over the next 5 years, Amentum calculated over \$828,000 in savings from air leaks alone.

Moving forward, Amentum plans to continue utilizing the power of ultrasound in all their customer's facilities. While they continue to use the Ultraprobe 3000, they are actively looking to upgrade and grow their reliability program with an ultrasonic instrument that can provide more than just ultrasonic leak detection, such as the Ultraprobe 10,000 or UltraView Camera (Si124). These two instruments have allowed them to excel in condition-based lubrication, bearing condition monitoring, steam trap & valve inspection, and partial discharge detection, making them more valuable to their clients.



*"The small leaks add up over time. One small leak isn't necessarily a detriment to the facility, but when you look further and see that there are multiple leaks, it adds up quickly."*

**Austin Lemons, Predictive Maintenance Program Manager at Amentum**

## SUMMARY

- Amentum was assigned to restructure CAT Corinth facility's reliability program with the purpose of increasing pressure efficiency and improving quality assurance.
- After thorough research, UE Systems' Ultraprobe 3000 stood out above the rest. The ability to efficiently locate air leaks, create reports, download leak data, and quantify leak costs would be in invaluable addition to their reliability arsenal.
- Amentum recognized the benefits immediately, observing a substantial reduction in air leaks within each designated zone. This led to significant cost savings, customer satisfaction, several quality-of-life improvements, increased equipment longevity, and a much quieter working environment.
- Over the next 5 years, Amentum calculated over \$828,000 in savings from air leaks alone.
- Moving forward, Amentum plans to continue growing their ultrasound presence for their clients. They are actively looking into upgrading their equipment, giving them the ability to excel in ultrasonic leak detection, condition-based lubrication, bearing condition monitoring, steam trap & valve inspection, and partial discharge detection.



Picture of Component



Picture of Leak



Picture of Component



Picture of Leak

Record Number	Asset # or Area	Component Name or Location	Type of Gas	Line Pressure	dB Reading	Problem Description	Repaired (Y/N)	Work Order #	Tag #	Location Within Plant	Notes	Identified Leaks Cost Avoidance	Size of Leak (CFM)
1	M1219	Bridgeport vertical mill	Air	100	88	Cracked airline filter bowl	N	0	1789	E8	0	\$1,151.53	7.4
2	M1925	Okamoto grinder	Air	100	75	Leak at tubing and push lock fitting.	N	0	1786	E8	0	\$920.57	5.9
3	M1081	Mazak vertical mill	Air	100	65	0	N	0	1787	E8	0	\$753.40	4.8
4	M0856	RO system	Air	100	100	Air hose used to cool motor drive. Install fan.	N	0	464	D8	0	\$1,377.28	8.8
5	M1678	Mazak lathe	Air	100	65	Leak at push lock fitting and solenoid.	N	0	463	C7	0	\$753.40	4.8
6	M6732	Flash cleaner machine	Air	100	68	Leak at airline water trap bowl.	N	0	460	D5	0	\$802.54	5.2
7	M1403	RG Hanson dunker tank	Air	100	75	Leak at push lock fitting	N	0	459	D6	0	\$920.57	5.9
8	Engine disassembly area	Engine disassembly	Air	100	56	Leak at hose and barb fitting.	N	0	451	F3	0	\$611.48	3.9
9	M1062	Valve press area	Air	100	65	Leak at tee and lower pipe nipple.	N	0	477	F3	0	\$753.40	4.8
10	M1002	Valve press area	Air	100	75	Leak at regulator gauge and elbow.	N	0	476	F3	0	\$920.57	5.9
11	M0722	Carlton arm drill	Air	100	60	Leak at air drill and male threads.	N	0	475	E3	0	\$673.51	4.3
12	Cell 2	Engine disassembly C-series.	Air	100	65	Leak at air impact gun quick connect.	N	0	473	D1	0	\$753.40	4.8
13	Cell 2	Engine disassembly C-series	Air	100	42	Leak at air impact and male threads	N	0	474	D1	0	\$408.71	2.6
14	MR 3100 Cell 2	Engine disassembly area	Air	100	65	Leak at tee and upper nipple.	N	0	472	D1	0	\$753.40	4.8
15	MR 3100 Cell 1	Engine disassembly	Air	100	65	Leak at air impact gun and male threads	N	0	471	D2	0	\$753.40	4.8
16	CR3100 Cell 1	Engine disassembly	Air	100	90	quick connect set.	N	0	470	D2	0	\$1,188.35	7.6
17	M0928	Detail booth	Air	100	85	Leak at air drill quick connect. Replace set.	N	0	469	A3	0	\$1,096.93	7.0
18	Block machining ECB	Air engraver	Air	100	92	Leak at air engraver male threads and long coup	N	0	468	A4	0	\$1,225.49	7.9
19	M1109	Rotifer block line bore	Air	100	72	Leak at air drill and hose male threads.	N	0	467	A4	0	\$869.42	5.6
20	M1148	Mazak machine center	Air	100	50	Leak at airline water trap bowl. Change out bo	N	0	466	A5	0	\$521.75	3.4
21	M1252	Sunnen mill	Air	100	65	Leak at regulator plug	N	0	465	A8	0	\$753.40	4.8
22	M1883	Air impact gun	Air	100	60	0	N	0	458	C7	0	\$673.51	4.3
23	M0960	RG Hanson dunker tank	Air	100	65	Leak at airline water trap bowl. Replace bowl	N	0	456	A7	0	\$753.40	4.8
24	M0959	RG Hanson dunker tank	Air	100	81	Leak at water trap bowl. Replace bowl	N	0	455	A7	0	\$1,025.33	6.6
25	M1270	RG HANSON block washer	Air	100	65	Leak at hose quick connect. Replace set	N	0	452	A6	0	\$753.40	4.8

Survey Results Table

Total Cost Savings	\$21,168.15				Air Leaks Repaired	
	Identified Leaks Cost Avoidance	Identified Leaks Total CFM	Repaired Leaks Cost Avoidance	% Complete	CFM	Cost
<b>Survey Results</b>	<b>\$21,168.15</b>	<b>136.0</b>		<b>0%</b>		

Cost Savings