PROTO®

MINIMIZING AIRCRAFT MAINTENANCE COST AND PRODUCTIVITY INEFFICIENCIES

INTRODUCTION: THE NEED TO DO MORE FOR LESS

Aircraft demand is on the rise while customers expect lower costs and increased efficiency. Yet a 9% gap[1] between available technicians and higher technician demand looms, leaving maintenance shops under considerable pressure to compete.

Aircraft maintenance operations require innovative solutions to decrease overall maintenance costs in labor, turn time, and hard materials without sacrificing safety.

A new range of torque wrenches and in-house torque testing and calibration solutions are now available to help meet these needs. Designed for efficiency, solutions by PROTO® help increase safety while reducing overhead costs.

IN THIS PAPER WE DISCUSS:

- How electronic torque wrenches increase safety by reducing margin of error.
- The cost and time-saving benefits of in-house check and calibration technology.
- How utilizing these solutions will increase efficiency while reducing overhead and costly mistakes.

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BACKGROUND

As aircraft demand continues to rise with active global commercial fleet projected to grow 4.2% annually over the next 5 years[2], customers - from airlines to government defense procurement officials—continue to expect more value for their money. Economic and competition pressures remain high, causing customers to demand increased reliability, reduced maintenance costs, shorter maintenance times, and better, more competitive mechanics tool offerings. In fact, the global aerospace and defense sector is expected to continue to experience pricing pressure, resulting in the need for more efficiencies and reduced costs on all levels.

Additionally, a shortage of current and future maintenance technicians puts further stress on the maintenance industry. Over the next 10 years, a projected increased demand in maintenance technicians, paired with a current shortage in qualified applicants, will lead to a 9% gap by 2027[2].

These demands directly affect maintenance operations, putting pressure on divisions and managers to continually find new solutions to work smarter, and save time and money while increasing efficiency.

One area of high investment that can quickly add up is aircraft maintenance tools. Tight spaces and stringent specifications demand specialized tools that reach into constricted areas, clearly meet torque requirements, and contain an aerospace-compliant plating that helps prevent corrosion and potential FOD.

Traditionally utilized aerospace-grade mechanical torque wrenches are a staple in any aviation maintenance toolbox. Yet there are times when an extra level of precision can make all the difference between a quick turn and a long, costly maintenance delay. A micrometer torque wrench with a high-tooth-count ratcheting head and slim pear design can allow mechanics to access tough-to-reach fasteners. Downtime can be avoided if the user is able to achieve accessibility with a single, precise torque wrench. Those who prefer an electronic torque tool can achieve precision with the help of warning lights on the approach to target torque rather than an abrupt warning or “click” at the correct point. The increased access of high tooth count micrometer torque wrenches can help technicians get their job done faster and more efficiently, while the improved feedback of electronic torque wrenches can help reduce the risk of a costly over-torque, saving time and money.

Torque tools, whether electronic or mechanical, also require check and calibration steps to ensure compliance. In many cases, the tools must be shipped to their manufacturers’ facilities for calibration, requiring maintenance organizations to absorb shipping costs, calibration fees, and up to a week of downtime or the cost of additional backup tools.

For a maintenance shop or tool crib with a large number of wrenches on site relying on outside calibration services, for example, an average of 100 wrenches a week would spend up to a week out of service for their annual calibration. To maintain maintenance schedules, the shop would need to procure, maintain, and calibrate an additional 100 wrenches to make up for those out for calibration.

The cost-effective solution to these concerns lies in advancements in torque tools, testing, and calibration.

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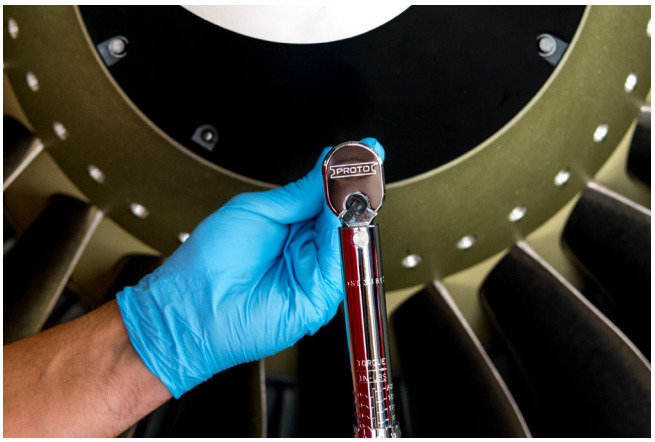
THE SMARTER SAFETY, EFFICIENCY, AND COST SAVINGS SOLUTION

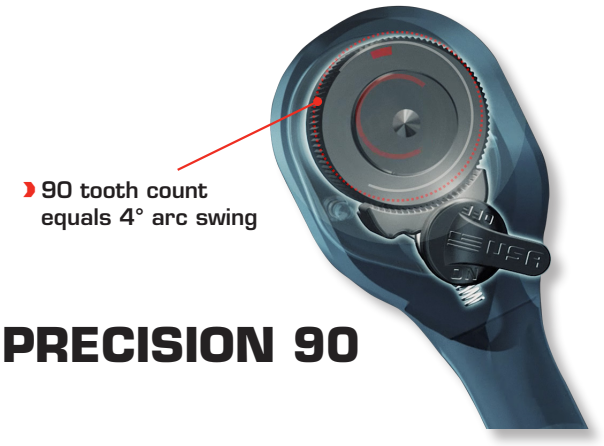
PROTO® Industrial Tools has a new advanced line of electronic torque wrenches that can help increase precision and safety by providing users with live feedback alerts while in use to ensure accuracy.

Users pre-set the desired torque, much like a mechanical torque wrench, before beginning the job. As the desired amount of torque is approached, the wrench's light begins to blink, and a beeping sound is emitted to alert the user. Upon reaching the torque setting, the light stays illuminated while the tone changes to a steady sound – providing the user with visual and auditory confirmation that the fastener is tightened to the correct torque.



Even in a distracting or loud environment, where a mechanical click may be missed and a fastener accidentally over-torqued, the combination of light and continuous sound helps the user avoid accidental over-torque and the associated costs and downtime related to such an incident.

Electronic is certainly not the only option. For shops and technicians favoring the comfortable confirmation click of achieved torque without sacrificing accuracy, a well-designed mechanical solution is available. The PROTO® 90-tooth count torque wrench was developed for aerospace applications. The small, 90-tooth count pear head allows for an accurate 4-degree arc, providing increased precision in confined spaces where a standard wrench turn is difficult or impossible.



When it comes to checking and calibration, the cost and hassle of sending out tools for up to a week puts additional pressure on shops already strapped to provide lower cost, and more efficient service.

The quality of a job is directly tied to the accuracy of the tools used.

Having the ability to check tool accuracy quickly reduces the risk of costly mistakes. PROTO® digital torque testers allow technicians to quickly check tools. In one to two minutes, technicians can easily confirm a tool remains properly calibrated, saving guess work and the risk of using a tool that has fallen out of calibration before its scheduled time. Maintenance shops can also take control of calibration testing costs, timing, and frequency by bringing torque wrench calibration testing in-house. PROTO® will launch their new Torque Calibration Bench in Fall 2018, designed to offer maintenance shops a distinct competitive advantage through a wide range of electronic sensors and intuitive, easy-to-use software. American Society of Mechanical Engineers (ASME) standards recommend calibration once a year or every 5,000 cycles, whichever is sooner. With the PROTO® heavy-duty benchtop calibration kit, technicians can quickly reduce tool downtime to one day for calibration testing, eliminating shipping expenses and delays.

Utilizing this user-friendly and accessible calibration testing system with sensors covering a wider torque range than competing brands, maintenance organizations save the expense of shipping, outside fees, downtime, and the cost of additional tools to stand in when others are out for calibration testing.

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CONCLUSION

When it comes to meeting today's aerospace needs for precision, safety, and reliability, all while delivering high-value service, aerospace maintenance professionals turn to PROTO®.

Offering competitive tools and solutions, PROTO® delivers accuracy, efficiency, and opportunities to reduce overhead through in-house checks and calibration while reducing the risk of costly over-torques.

PROTO® torque wrenches and testers are backed by a 90-day calibration and one-year product warranty. Should there be a need to repair a tool, PROTO® offers three factory-owned service locations across the U.S., onsite pick-up and delivery in participating markets, three torque service center locations, and direct shipping.

When minutes, precision, and safety count, you can count on PROTO® Industrial Tools.

[1]MRO Survey 2017: When Growth Outpaces Capacity; Oliver Wyman; 2017 (http://www.oliverwyman.com/content/dam/oliver-wyman/v2/publications/2017/apr/MRO_Survey_2017.pdf)
[2]Global Fleet & MRO Market Forecast 2018 - 2028 (http://www.planestats.com/mro1_2018jan)