

Aftermarket Service Offerings

Solutions to Keep Your
New Test System Running





28320 Lakeview Drive
Wixom, MI, 48393
+1 (248) 573-4980

Congratulations!

You've just accepted delivery of your new test system, commissioning is complete, and you are testing parts with confidence. What happens next?

How will you keep up with constantly changing OEM test documentation? What will you do when spare parts are needed? Who will service your equipment when it is required?

At Testek Solutions, our Aftermarket Services division gives you peace of mind after the sale is complete. We have everything covered to keep your machine running properly.

On the following pages, we outline for you several service programs that we offer to keep your test system running like the day it left our factory, including:

- Onsite or Remote Technical Solutions and Support
- Predictive Planned Maintenance
- System Calibration
- On-Demand Repair Service
- Spare Parts Solutions
- Upgrade Services

We will work to meet your specific needs should you desire a customized plan for your operational conditions.

The offered aftermarket services are designed to protect your significant investment in capital equipment and your overall MRO and production operations. Utilizing Testek Solutions as your technical resource will reduce down time and improve overall maintenance upkeep of your test stand(s). For more information, please do not hesitate to contact our team.

Sincerely,

Testek Solutions Aftermarket Services Team

Solutions@testek.com

+1 (248) 573-4980 x 1005



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ONSITE TECHNICAL SOLUTIONS AND SUPPORT

For complete and comprehensive support, Testek Solutions offers multi-year In-House Maintenance Support Contracts. With this program, you will have a Testek field service engineer for daily and on-call maintenance, calibration, repair, and other services. This experienced field service engineer will live near your facility and will be dedicated to your operation.

The onsite staff will function as your engineering resource to perform the following based on the customer's priorities:

- Preventative Maintenance Services
- Calibration Services
- Access to the latest updates in software and test capability
- On-Demand Repair Service
- Recommended Spare and Repair Parts stocked at site
- Upgrades to your test systems
- Support of development and integration of future test capabilities
- Training for your operation and maintenance staff
- Custom program tailored to your support needs

This option is especially beneficial for customers who:

- Own multiple Testek Solutions, legacy Testek, legacy Avtron, or legacy AAI/ACL test systems
- Must adhere to high operations availability (OA) or up-time requirements
- Maintenance staff limitations
- High Turnover or Staffing Change within it's operation or maintenance teams

Our customers with a large installed base such as Hill Air Force Base, KLM Airlines, and others have taken advantage of our expertise to support their equipment.

Notes

1. The Onsite Technical Solutions and Support will be negotiated and carefully planned to ensure we meet the customer's needs.
 2. For cost-effectiveness, Testek recommends a multi-year onsite technical solution and support program contract.
 3. Stocked spare and repair parts are invoiced on an as-used basis. 4. Custom Support Contract Offerings are available upon
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PREDICTIVE PLANNED MAINTENANCE

The Predictive Planned Maintenance (PPM) offering from Testek Solutions is a scheduled proactive in-depth service and support program that will ensure the health and long-term sustainment of your test system. With this program, a Testek field service engineer will perform PPM on each individual system in accordance with provided test stand Operations and Maintenance Manual.

The expertise of our field service engineers on all our test systems provides greater value to your operation that will result in minimized down time and impacts to workflow.

Below is a list of available PPM service options. Other services can be performed upon request.

- Filter replacement
- Onsite oil analysis (if applicable)
- Technical review of periodic calibration reports. Address any degrading performance of instrumentation and data Acquisition System (DAS)
- Strainer cleaning
- Leak Repair
- Inspection/cleaning of contactors/high voltage electrical connections.
- Reservoir cleaning and visual inspection
- Verify all power supplies for proper operation
- Verify Electrical loads are in-accordance with original design
- Piston pump case flow measurement to determine health
- Stocking of consumable and critical repair parts materials either at site or at Testek's facility
- Review Operational issues encountered since last PPM event. Provide maintenance/repair course of actions to remedy
- Training and support of your in-house maintenance staff
- Inspection of Adapters and interface cabling
- Geometrical tolerance inspection of rotating assemblies and UUT adapters (Run-outs, perpendicular, angular, TIR tolerance)
- Motor and rotating device inspection and lubrication (Gearbox, Motor, Encoder, Coupling). Discovery of an outside influence to reduce the lifespan of the equipment found and resolved before detrimental harm to associated equipment)
- Lube system Inspection

- Motor inspection including couplings and connections
- Verify critical safety interlocks are functional
- Inspect hoses for wear and degradation
- Verification of rotating assembly's total indicator reading alignments (training an option)

Notes

1. Upon completion of Preventative Maintenance Testek will provide a detailed Findings Report with upgrade and improvement recommendations (as required) that address reported issues, life cycle, and obsolescence.
 2. PPM includes changing of parts that are listed as Preventative Maintenance section of the test stand Operations and Maintenance manual only. However, components outside of reasonable planned maintenance requiring replacement can be included under a separate Corrective Maintenance Plan.
 3. Testek Solutions requires 2–5 days for full system check and maintenance typical for a single machine. We will provide a detailed checklist prior to our scheduled visit to ensure we are prepared to address the issues most important to you.
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SYSTEM CALIBRATION

Testek Solutions offers onsite System Calibration for your in-service equipment in accordance with the Testek Operations and Maintenance Manual. Calibration can include some or all instrumentation in a system. System Calibration service can include using the customer supplied calibration standards or Testek-supplied calibration standards.

The expertise of our field service engineers on all of our test systems provides greater value to your operation that will result in minimized down time and impacts to workflow.

Some of the services provided include the following:

- Calibration of all test stand instrumentation in accordance with NIST traceable and ISO compliance.
- Pressure/Vacuum/Flow instrument calibration
- Temperature Instrument Calibration
- High and Low voltage AC/DC electrical Instruments.
- Force. Load, Weight Instruments
- Linear Dimensional Instruments
- Tension Torque Instruments
- Full system calibration with customer provided calibration standards.
- Full system calibration with Testek provided calibration standards.
- Calibration training of personnel. Training can include calibration procedures, how to input calibration data into the system, how to use calibration standards, maintenance and operation of the test stand.
- Provide “as found” and “as left” data for each instrument calibrated.
- Provide total uncertainty data for each instrument calibrated.
- Provide historical trend data to indicate if your instrumentation is trending toward an out of tolerance condition.
- “Calibration Measurement Requirements Summary” (CMRS). Provide a full system assessment of the instruments against the LRU requirements for measurement and provide to validate a 4:1 “Total Uncertainty Ratio” (TUR) is achieved.

Notes

1. Some calibrations cannot be accomplished onsite due to temperature considerations, customer or Testek calibration standards, or because of service scope limitations. Our field service team will resolve these issues, as required, and insure a top quality professional onsite experience for the Customer.
 2. Calibration takes approximately 1–3 days typically for a system.
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ON-DEMAND REPAIR SERVICE

Testek Solutions offers a large range of onsite On-Demand Repair Services for test stands. We can assist with:

- Onsite repair service for all Testek Solutions, legacy Avtron, legacy Testek, and legacy AAI/ACL products
- Test Stand commissioning
- Diagnostics (testing, evaluating, troubleshooting)
- Repair, as necessary

Note

It is possible for Testek to provide repair service for equipment manufactured by other test stand OEMs. This is evaluated on a case-by-case basis.

We offer two service options for our Field Service Specialists to support your reactive support needs: half- or full day service options and service blocks

Full Day Service Options

Our Full Day Service Option is available to cover most on-demand repair needs. This option has a standard lead time of ten (10) working days. Labor costs are detailed in the Service Rates section of this document. Travel expenses are billed at rates with an 18% surcharge. Pricing of parts requiring replacement is not included.

Service Block Options

Service Block Option pricing provides the customer with a discounted hourly rate from our standard On-Demand Repair Service daily rate. The block of hours selected can be used as desired for troubleshooting assistance, phone/email support, training, on-site support, repairs ect.

Blocks of service can be purchased as defined in the attached Service and Support Block Rate table. Blocks of support hours purchased in forty (40) hour or greater increments can be used to cover site visits and/or remote support via email, phone, or Team Viewer connection to the equipment. The twenty (20) hours block of time if purchased can be used solely for remote support.

To receive the discounted rate, the Service Block of hours must be purchased in advance and will be pool of hours that we will draw from to support as requested. The purchased Service Block must be used within 12 months from date of purchase or as negotiated prior to award.

A detailed log of hours, travel, and material used is provided to the customer monthly. The report will include details of who has requested the time, and how the hours have been applied to the purchased block of hours.

Should on-site support be required at the customers facility, the standard lead time for Testek's Field Service Specialist to arrive is ten (10) working days. (Expedited options considered as emergency trips are available at a surcharge, these rates are detailed below our service rate chart)

Travel expenses are not included in the Service Block pricing and are billed at rates with a 18% surcharge.

An optional 20-hour block of remote support is also available, which does not include travel or onsite.

Pricing of parts requiring replacement is not included.

SPARE PARTS SOLUTIONS

Testek Solutions is the *sole source of supply for all Testek Solutions, legacy Avtron, legacy Testek, and legacy AAI/ACL Technology spare parts and support.*

With every test stand we deliver, Testek provides a recommended consumable and repair spare part list within the Operations and Maintenance Manual. We offer obsolescence solutions to support sourcing of alternate parts for fielded legacy test systems and will support sourcing of alternate parts for fielded legacy test systems as a priced effort upon request.

Testek can offer stocking and expedited delivery of spare part in conjunction with our other aftermarket service programs or as a stand-alone service to our customers. We can provide MIL Spec packaging, as well as consolidated and international shipping to all of our customers worldwide. Special long-term pricing can be offered upon request.

UPGRADE SERVICES

Testek Solutions offers system upgrade programs for most of our fielded systems. Regular wear, obsolescence, requirements changes, and desire for new capability can make a *strong business case for a system upgrade.*

If test system upgrade is required or requested, Testek will perform a site survey and provide a detailed report with estimated price and recommendations, included with any of the standard programs defined in this document or as a stand-alone task in accordance with our standard service rates.

EQUIPMENT REFURBISHMENT SERVICES

If you are interested in a refurbishment, Testek will conduct a site survey to evaluate the equipment and provide a detailed report outlining the refurbishment options, along with an estimated price for the recommended services.

Refurbishment eligibility will be assessed on a case-by-case basis, considering the condition and specifications of your test stand. The site survey is included as part of any of the standard programs outlined in this document or may be performed as a stand-alone task, in accordance with our standard service rates.

SERVICE AND SUPPORT BLOCK RATE TABLE

Item	Description	Price (USD)
001 (Labor)	Standard Onsite Field Service Rate	\$2,000/full day
002 (Labor)	Support Time Block: 20 Hours of Remote Support	\$4,850/total
003 (Labor)	Support Time Block: 40 Hours of Onsite or Remote Support	\$9,400/total
004 (Labor)	Support Time Block: 80 Hours of Onsite or Remote Support	\$18,200/total
005 (Labor)	Support Time Block: 120 Hours of Onsite or Remote Support	\$26,400/total
006 (Labor)	Support Time Block: 160 Hours of Onsite or Remote Support	\$34,000/total
007(Travel)	Travel Hours and Trip Preparation: Normal Workday	\$150/hour
008 (Travel)	Travel Hours and Trip Preparation: Weekend or Off Hours	\$200/hour

SERVICE RATE NOTES

- Custom Support Blocks are available upon request, please contact your regions Customer Service Manager for further information
- Emergency trips (defined as requests within 2 weeks of issue of Purchase Order) will be subject to a 50% daily rate increase, subject to availability.
- Emergency Remote Support (defined as requests within 1 weeks of issue of Purchase Order) will be subject to a \$1,500 expedite fee, subject to availability.
- The Standard Onsite Field Service Rate is used to calculate the price for all non-emergency onsite service
- All non-emergency onsite service requires a minimum two (2) week notice to schedule from reception of the Purchase Order.
- Labor rates above do not include per diem expenses.
- Non-consecutive days onsite required may result in additional charges.

- Travel (including transportation and rental car, as required) and lodging is not included in labor rates quoted above. Travel and lodging expenses are invoiced at rates, plus a 18% surcharge.
- Support Time Block pricing is based on advance purchased and used within a 12 month calendar period (or as negotiated prior to award).
- Any materials (including spare parts) required to complete the requested service will be quoted separately.
- Any shipping cost of necessary special tools or equipment required to perform service will be quoted separately.
- PRS Revision Services (annual TPS software updates) available upon request

