

Introducing the MTS Landmark Servohydraulic Test System

by Paul Lehman, MTS Systems Corporation

1. MTS Landmark System Sets New Standard

More than 40 years ago, MTS Systems Corporation pioneered the servohydraulic load frame technology that is still a mainstay across a broad spectrum of industries. The latest MTS load frame technology, found in the new MTS Landmark™ System, delivers the accuracy, repeatability and flexibility needed to meet a full spectrum of static and dynamic material test requirements.

In designing the system, MTS representatives conferred with people who regularly use servohydraulic load frames and documented these users' requirements and challenges. MTS engineers and product developers worked with this "to-do" list to develop a system that would satisfy these customer demands. Top priorities included performance that exceeded minimum needs and accommodated future requirements, high up-time and easy-to-change test setups.

The MTS Landmark Systems are currently available worldwide in three floor-standing models with force capacities of 100, 250 and 500 kN. Capable of performing highly accurate and repeatable durability, fatigue crack growth, high and low cycle fatigue, and fracture toughness testing, these models are well-suited for studying small components and a wide variety of materials such as aluminum, composites, steel and super alloys.

The MTS Landmark System comprises a 370 load frame, MTS actuators, a SilentFlo™ hydraulic power unit, smooth-ramping hydraulic service manifolds, a FlexTest® digital controller and MTS application software. These system components and MTS' world-class support form MTS Performance. Together they provide system accuracy, repeatability and flexibility, and help

customers to achieve outstanding testing results. MTS fields the most experienced service, support and consulting staff of any testing solution provider. This global team offers complete lifecycle management services to maximize the return on a customer's investment and helps customers quickly meet their exact test requirements.

2. More Robust Load Frame

The heart of the MTS Landmark System is a highly stiff, ergonomic and easy-to-maintain load frame, based on a new Cylinder-Centric Design. This design integrates fatigue-rated actuators directly into a cast steel cross-beam to create an Integrated Actuator Beam. This integration minimizes the number of required joints, yielding a frame that exhibits high axial and lateral stiffness and superior reliability. Easy access to both sides of the cylinder facilitates quick and efficient servicing. The Integrated Actuator Beam is easily configured for crosshead-mounted actuation to deliver the same level of performance and serviceability for applications requiring the actuator to be positioned above the test space.

Precision-machined connections between the actuator cylinder and end-caps guarantee extremely tight and consistent alignment over the life of the system, adding to the actuator's overall reliability and eliminating the need for realignment after periodic maintenance.

Direct mounting and porting of servovalves on the Integrated Actuator Beam minimizes pressure loss for more efficient delivery of hydraulic power. A single-plane interface provides for high-integrity connections to the hydraulic service manifolds.

The SilentFlo hydraulic power unit is quiet enough to be located right next to the test system. The system also features smooth-ramping

hydraulic service manifolds that feature five-port servovalves; proportional, local hydraulic station control; close-coupled accumulators; and Off-Low-High pressure control for controlled pressure ramp-up.

The system is powered by versatile FlexTest SE, FlexTest 40 and FlexTest 60 digital controllers, which provide the flexibility needed to address a full spectrum of testing needs and adapt readily to evolving standards or requirements. Scalable and easy-to-use, FlexTest controllers provide the high-speed closed-loop control, data acquisition, function generation and transducer conditioning required for reliable multi-channel, multi-station testing. The MTS Landmark System accommodates TestWorks®, MultiPurpose TestWare®, and MTS Fatigue & Fracture Testing software to provide test definition, test execution, and report generation for virtually all types of material tests.

3. Improved Ergonomics and Safety

The MTS Landmark System also features a user-friendly testing environment that emphasizes operator well-being and simplifies test setup and operation, enabling operators to safely perform more tests with fewer damaged or misaligned specimens.

Ergonomic controls keep operators focused while setting-up tests. Conveniently located to eliminate any need for awkward bending and long reaching, they feature easy-to-turn handles and clear, universally-understood labeling.

Automated Crosshead Positioning provides tight

control of crosshead lifting and lowering to ensure safe operation and reduce test setup time. An Actuator Velocity Limiting Circuit restricts the actuator's speed as it moves into test position, preventing unexpected motion that could injure operators. And Positive Specimen Gripping for both the upper and lower grips ensures that specimens are attached securely and won't slip during testing.

These features provide a standard level of safety that exceeds the guidelines of CE and other organizations.

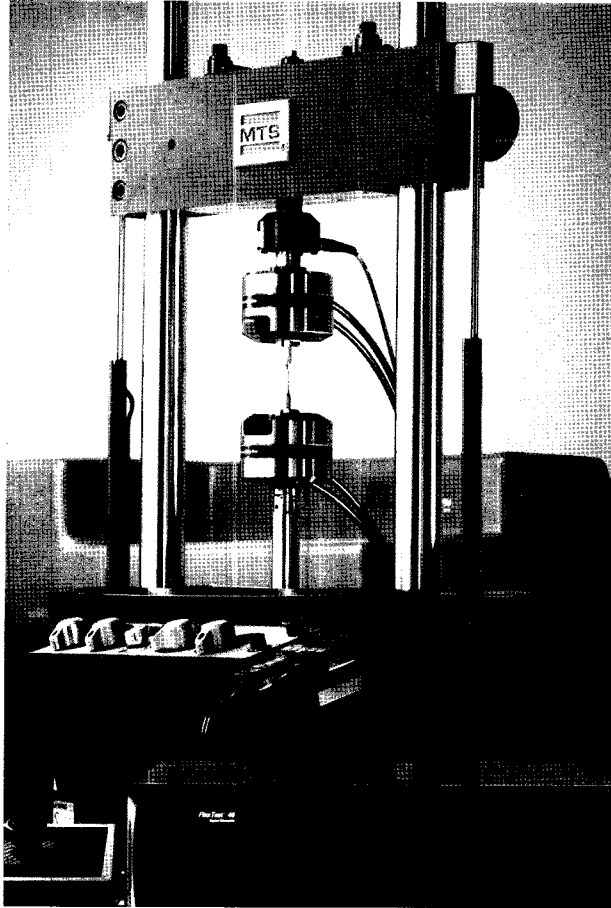
The MTS Landmark System also sets a new benchmark for workspace accessibility and convenience. The 370 load frame stand features a wide footprint, enabling operators to install fixtures and specimens while maintaining an ergonomic body position. In addition, the compact system handset features a clear test status display, precision controls for fine actuator positioning and an ergonomic design for both right- and left-handed operators.

4. Configurable to Exact Testing Needs

Customers can choose the right system for their particular test programs and budgets from among the broad selection of MTS Landmark standard available options. These include performance factors such as hydraulic flow and accumulation, force rating, and actuator stroke, as well as numerous additional options including extended vertical test space, hydraulic crosshead positioning,



Picture 1 Hydraulic Crip & Lift Controller



Picture 2 Landmark System

hydraulic crosshead locks, integrated grip controls, crosshead-mounted actuators, hydrostatic bearings, actuator anti-rotation, column-stiffening tie bar, test area enclosure and alignment fixture.

Straightforward system configuration allows customers to efficiently weigh test system features and costs with the MTS sales engineer in real-time. Customers can quickly match the appropriate standard available platform options with the right mix of testing accessories to meet exact testing needs - without having to pay extra or wait additional time for a custom solution.

A dedicated manufacturing team and facility enables all MTS Landmark orders to receive high

priority status. Paperless operations expedite the system order directly to MTS manufacturing, helping ensure a quick and reliable turnaround.

Thanks to a broad selection of standard available options, easy system and configuration, a dedicated manufacturing facility and paperless operations, MTS can deliver its Landmark System, fully configured to handle a company's unique testing needs.

5. Further Information

For further information, contact Elizabeth Walsh at MTS Systems Corporation;

Tel : (+1) 952-937-4333 Web : www.MTS.com