FORNEY TEST MACHINES

CA-0496-LT AUTOMATIC RETROPAK

CA-0496-LT | CONTROL CONSOLE UPGRADE FOR LT-1000 MODEL



CONTROL SYSTEM	TEST TYPES	DESIGNED & BUILT BY FORNEY
RetroPak	Tension	Exceeds ACI Recommendations

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GET A CONNECTED MACHINE AND SAVE $1,500

NATIVE TWO-WAY INTEGRATION WITH CMT SOFTWARE

Connected Testing Machines allow technicians to get more done faster with minimal human error through a two-way integration with ForneyVault. Resulting in 99.9%+ fewer manual errors, 66%+ increase in productivity, and 100% unalterable, unquestionable data.

- "One-touch" test starts and automatic controls
- Pre-test "Smart Checks" to validate test parameters
- Automatic preload calculations, notifications for individual and average low breaks and excessive variance, automatic data transfer, and more

SEE HOW IT WORKS | GET A CONNECTED QUOTE

CLICK TO CLOSE ADDITIONAL PRODUCT INFORMATION

UPGRADE YOUR TESTING CAPABILITIES WITH FORNEY'S UNIVERSAL SERIES RETROFIT SOLUTIONS

Engineered by Forney, the Universal Series machines are built for precision tension testing across a wide range of materials—including rebar, rebar assemblies with joints or T-Caps, bolts, and select non-metallic materials like fiber-reinforced polymers (when properly equipped). These machines accurately measure force, displacement, velocity, and strain. All new models feature Forney's advanced Variable Frequency Drive (VFD) and control technology, delivering enhanced automation and streamlined data and workflow management. Many legacy machines—regardless of original manufacturer—can be upgraded with this same cutting-edge technology, significantly extending their capabilities.

The CA-0496-LT is a powerful retrofit solution for high-force, high-speed testing applications, making it an ideal upgrade for virtually any Universal load frame.

PRODUCT SPECIFICATION

SYSTEM DESIGN:

Independent, Floor-Mounted Control Console
The control console is a standalone, floor-mounted unit designed to be positioned approximately 24 inches to the right of the load frame. This offset layout minimizes the potential for shock transfer to the load indication system—supporting more stable and accurate test results. It's an ideal configuration for both new installations and retrofits with existing frames.

Robust, Accessible Construction
Built with a heavy-duty welded frame, the console features removable side and end panels for easy service access. Inside, the console is divided into two key chambers:

- An electronic control chamber that houses power supplies and electrical components for load frame operation
- A hydraulic power chamber that contains pumps, valves, and related hydraulic equipment

Integrated Control & Power Systems
The console brings together all core systems—hydraulics, electrical, and user interface—in one compact footprint. Central to its operation are two components:

- The ForneyLink touchscreen interface, a user-friendly HMI that simplifies machine setup, operation, data viewing, and export
- The Variable Frequency Drive (VFD), which delivers precise motor speed control for efficient, consistent hydraulic power output

Together, these components provide intuitive operation, ensure compliance with testing standards, and support repeatable, high-performance testing.

Forney VFD Auto Control Package – Precision and Flexibility Redefined

Forney's Variable Frequency Drive (VFD) Auto Control Package expands your testing capabilities while addressing the limitations of traditional control systems. Built for precision, consistency, and versatility, the control package delivers a powerful, modern alternative.

Key Capabilities Include:

- Input load rates in engineering units such as lb/min, psi/s, or in/min
- Maintain precise control of loading rates, independent of factors like machine wear, oil temperature, or operator influence
- Program advanced test profiles including monotonic, cyclic, and segmented tests
- Ensure long-term repeatability of testing parameters
- Capture multi-channel data with the ability to store and analyze test results
- Export test data to common spreadsheet or database platforms for further analysis
- Control multiple load frames from a single hydraulic power source (note: simultaneous operation requires a specialized configuration)
- Support tension, compression, and flexural testing with the appropriate load frame and accessories

Engineered for Accuracy
The system features a close-coupled, closed-loop architecture that delivers better-than-1% accuracy from 1% to 100% of load range—exceeding ASTM E4 standards for indicated load.

Custom Solutions Available
Have unique testing requirements? Forney's sales team can help configure a custom system tailored to your needs.

EASY AUTOMATIC TESTING:

With the push of a single button, the machine performs the entire test cycle—from controlled loading at a precise, pre-set rate to automatic piston retraction. This not only guarantees compliance with ASTM (or other) specifications, but also ensures consistent, repeatable results every time. The fully automated process frees up the operator to focus on other tasks while testing is underway.

HYDRAULIC POWER PISTON ASSEMBLY:

Testing force is generated by applying hydraulic pressure to large diameter power piston. Precision ground and polished to an 8 RMS (0.20um) finish, the piston is mounted in a honed, solid steel cylinder with a non-frictional "O" ring and Teflon back-up ring for sealing.

HYDRAULIC PUMPING SYSTEM:

The pump and motor groups are vertically mounted, with the pump submerged in a welded steel reservoir. This arrangement provides for quiet operation, and greatly reduces possible leakage points, with filler breather, sight gauge, and appropriate external connections. The power unit is rated at 6,000 psi maximum. Appropriate pump flow rates are determined by testing specifications.

The hydraulic unit is supplied complete, as a fully integrated assembly. Customer hook-up is limited to the connection of the hose supplying the load frame cylinders. The unit is pre-piped and pre-wired. Wherever possible, valving is manifold-mounted to reduce external connections. This simplifies piping, resulting in fewer leakage points, and provides for quicker system response, necessary for close tolerance hydraulic system performance.

Additionally, an optional precision proportional control valve offers fine control of the testing process. It facilitates test protocols such as Modulus of Elasticity and Cyclic Testing, which require controlled release of hydraulic pressure.

HYDRAULIC GRIPPING SYSTEM:

Hydraulic gripping is standard equipment on larger universal testing machines. Actuation is by pushbutton. Both gripper controls and the crosshead jog pushbutton are mounted on the side frame of the testing unit within arm's reach. Front loading access makes positioning the grips, inserting and removing specimens, a one man operation. Gripper jaws are easily interchanged for testing metallurgical specimens from 0.375″ (9.525mm) to 2.38″ (60.5mm) in diameter and flat plate jaws for up to 4.00″ (101.6mm) wide X 2.00″ (50.8mm) thick gripping dimensions. Rapid traverse while inserting specimens is easily obtained by momentarily depressing the jog button.

CONTROL SYSTEM:

A PC-based control system sends a command signal to the variable frequency drives to advance the load frame piston. When there is no load on the piston, the hydraulic system utilizes the low-pressure rapid advance pump(s) to advance the piston. When a load is applied, the hydraulic system switches to high pressure and controls the piston via the variable frequency drives. The control system varies the speed of the pumps based on the amount of flow required. Utilizing high pressure only when needed, and varying the speed of the pumps reduces heat and extends the life of the hydraulic components. Here are the main components of the system:

ELECTRICAL

A PC-based system utilizes a variable frequency drive to control the hydraulic pump motor. This maximizes efficiency – only running the pump at speeds necessary to achieve the desired pressure. This energy-efficient approach dramatically reduces heat build-up in the hydraulic system and greatly extends hydraulic component life.

Here are the main components of the system:

- Variable frequency drive (VFD)
- Windows-based touchscreen human-machine interface (HMI)
- Pressure transducer that provides pressure feedback
- E-stop PB

- Limit switch
- Solenoid-operated dump valve

230 VAC 3 Phase, 32 amps is necessary and is determined by the specific drive capacity.

SAFETY FEATURES:

Several safety features are incorporated to protect both the operator and the testing machine.

• Maximum Capacity Protection: A high-pressure safety valve protects the hydraulic circuit and load frame from exceeding their maximum capacity. This high-pressure relief valve, directly connected to the hydraulic pump, is preset at the factory. Once maximum system capacity is reached, the high-pressure relief valve stops the machine from going beyond the maximum capacity of the load frame.

• Piston Travel Limit Switch: To prevent the hydraulic power piston from overextending, a limit switch is electrically wired to the pump start circuit. When the piston travels 10″, the limit switch signals the system to release hydraulic pressure, preventing further piston extension.

ARCHITECTURE AND SOFTWARE

DATA ACQUISITION:

Standard functionality includes data collection by the ForneyLink HMI for printing and transfer.

Data from optional extensometer and compressometer displacement transducers are also collected by the HMI. This data is captured with the same timestamp as the load data.

DATA MANAGEMENT:

The ForneyLink HMI provides data acquisition in real-time throughout test execution up to specimen failure. The readings are displayed in both a graphical and numerical format and the force vs. time plot is shown in real-time. Standard functionality includes easy navigation for printing and local data file management. Two data sets are stored on the ForneyLink HMI device. The summary data provides information about the test performed, including peak break details, the test ID, and basic specimen details. The second data set is the test data and contains the force-vs-time information for the completed test(s). To move the summary or test data sets, an external USB drive, such as a USB thumb or USB flash drive must be attached to the touchscreen.

These data files are saved as .CSV files which can be opened with Excel or any other spreadsheet software on your computer.

OPERATOR INTERFACE: FORNEYLINK TOUCHSCREEN SYSTEM:

The ForneyLink touchscreen interface serves as the central hub for machine operation, enabling complete control over setup, calibration, test execution, data logging, and system security.

Key Features:

- **Intuitive Touchscreen Interface:** Simplifies daily operation with a clean, responsive UI. Manual pushbuttons are limited to essential safety functions, such as emergency stop.
- **Full Test Data Access:** Operators can view, analyze, and print individual test results at their discretion. Printed reports may include (depending on system configuration):
    - Machine make, model, capacity, and serial number
    - Calibration date
    - Test date and time
    - Test type
    - Specimen dimensions
    - Correction factor
    - Ramp rate
    - Load and stress at break

- Break type
- Load vs. time or stress vs. strain graph
- Lab name, address, and contact details

- **Data Reprint Capability:** Operators may also print data from previous tests on demand.
- **Flexible Printing Options:** Supports manufacturer-approved printers via USB, Ethernet, or Wi-Fi—located at the machine or remotely in a nearby office.
- **USB Data Export:** Individual or summary reports can be saved to a portable USB flash drive for backup or analysis.
- **Remote Support Ready:** ForneyLink includes built-in capabilities for remote troubleshooting and factory-supported system updates.
- **Password Protection:** Optional user access controls help prevent unauthorized use and protect test integrity.

CMT SOFTWARE INTEGRATION

Seamless Integration with ForneyVault® CMT Software
Connected machines work in tandem with ForneyVault to streamline critical workflows before and after every test—enhancing accuracy, efficiency, and compliance throughout the testing process.

Pre-Test Intelligence
Before testing begins, integrated machines automatically:

- **Verify specimen identity** through barcode scanning for accurate tracking
- **Run Smart Checks** using preloaded sample data to confirm specimen size, type, date, and expected strength
- **Validate specimen geometry** to ensure conformance
- **Calculate preload settings** based on actual or expected strength, improving consistency

Post-Test Automation
Once testing is complete, the system delivers immediate, actionable results:

- **Generates detailed XY plots** for each test
- **Automatically transfers data** to LIMS, quality control systems, or other connected software platforms
- **Issue automated alerts** for early breaks, low or outlier results, overdue tests, and completed sets—helping you manage compliance, scheduling, and reporting with confidence.
- **Enables intelligent workflows** for streamlined reporting, review, and approval processes

UNIT COLOR:

The control console is painted harbor blue with orange countertops.

SHIPPING:

The control console is shipped in the normal, upright position on a shipping skid and crated. Uncrating, setting up, and positioning will require professional riggers.

REMOTE SUPPORT

With a user-provided Internet connection (either Wi-Fi or Ethernet), the RetroPak system offers real-time online support from the Forney Support Team, covering basic settings and test setup, as well as advanced troubleshooting, fault finding, and software updates.

We offer unlimited Remote Technical Support for all Forney Testing Machines during the two-year warranty period.

For ForneyVault® subscribers, post-warranty remote technical support fees are waived for the life of your subscription.

Please refer any special requirements to a Forney sales representative.

*** Specifications are subject to change without notice.**

FACTORY INSTALLED OPTIONS	
Voltage	230 VAC 3 Phase, 32 amps is necessary and is determined by the specific drive capacity
Optional Test Protocol Capabilities	ASTM C469 MOE (M) ASTM C469 MOE & Poisson's Ratio (MP) *Inquire about other test types
Capacity Options	Contact Us for Special Requests
Frame Options	Contact Us for Special Requests

SPECIFICATIONS	
Load Capacity Range	Frame Dependent
Oil Reservoir Capacity	30
Overall Width	50"
Overall Depth	35"
Overall Height	44"
Unit Weight	1,000 lbs Console Gross Weight
Test Standard Capable	ASTM A370 ASTM F606 ASTM A1061