Structural & Transportation Laboratory

Million Pound Machine

CTLGroup's Million Pound Baldwin Southwark Tate-Emery Testing Machine can apply up to 1 million pounds of force.

With it, we have tested concrete, rail car components, track components, bridge components, beams, columns, and more. What makes this specific machine unique is its large test bed that can accommodate specimens as large as 20' x 10' x 15'.

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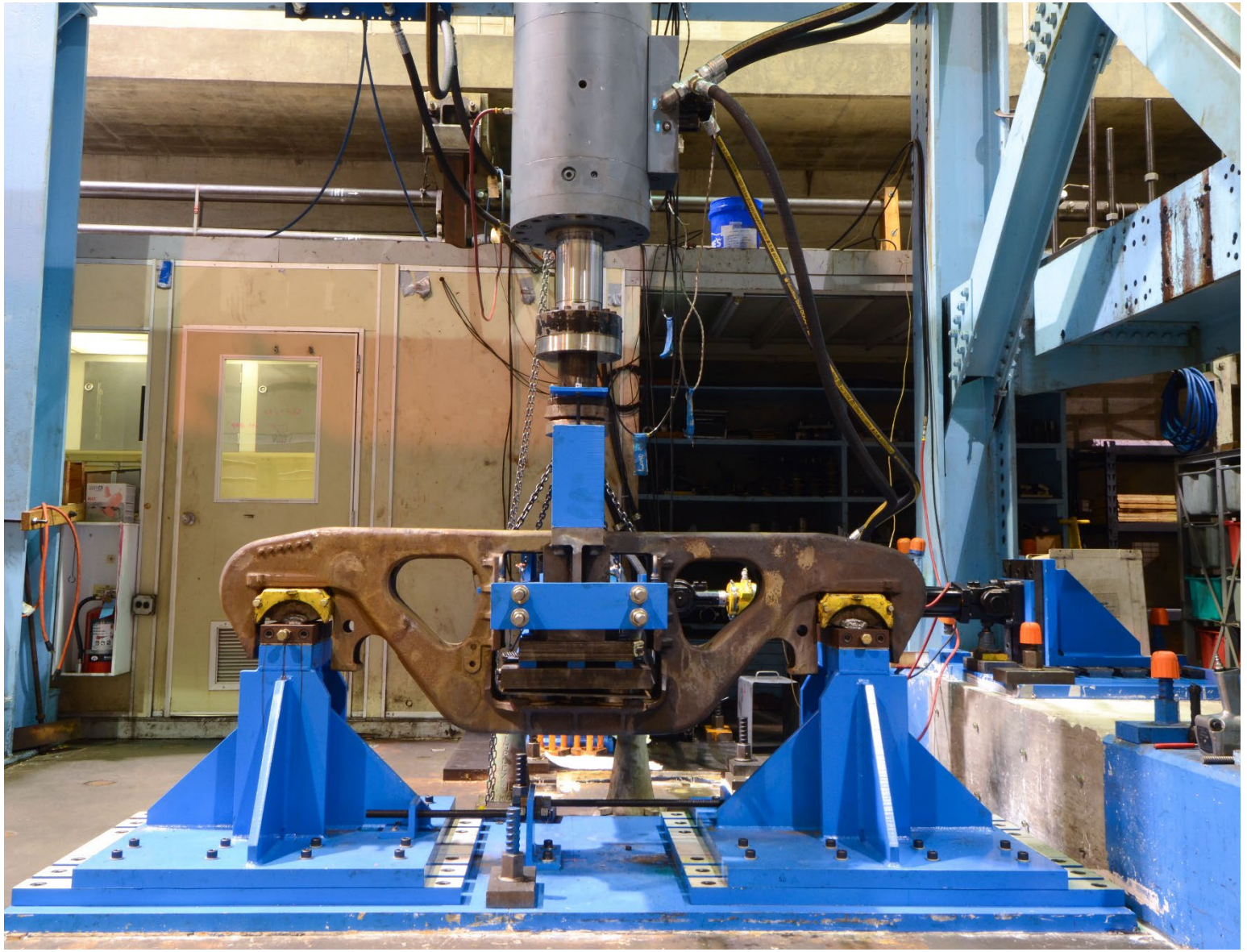
Bolster Fatigue Testing

Bolster fatigue testing is performed per AAR M-202. During cyclic testing, visual inspections are performed periodically. Aided by a solution, active linear indications (cracks) that may develop during the life of test are identified.

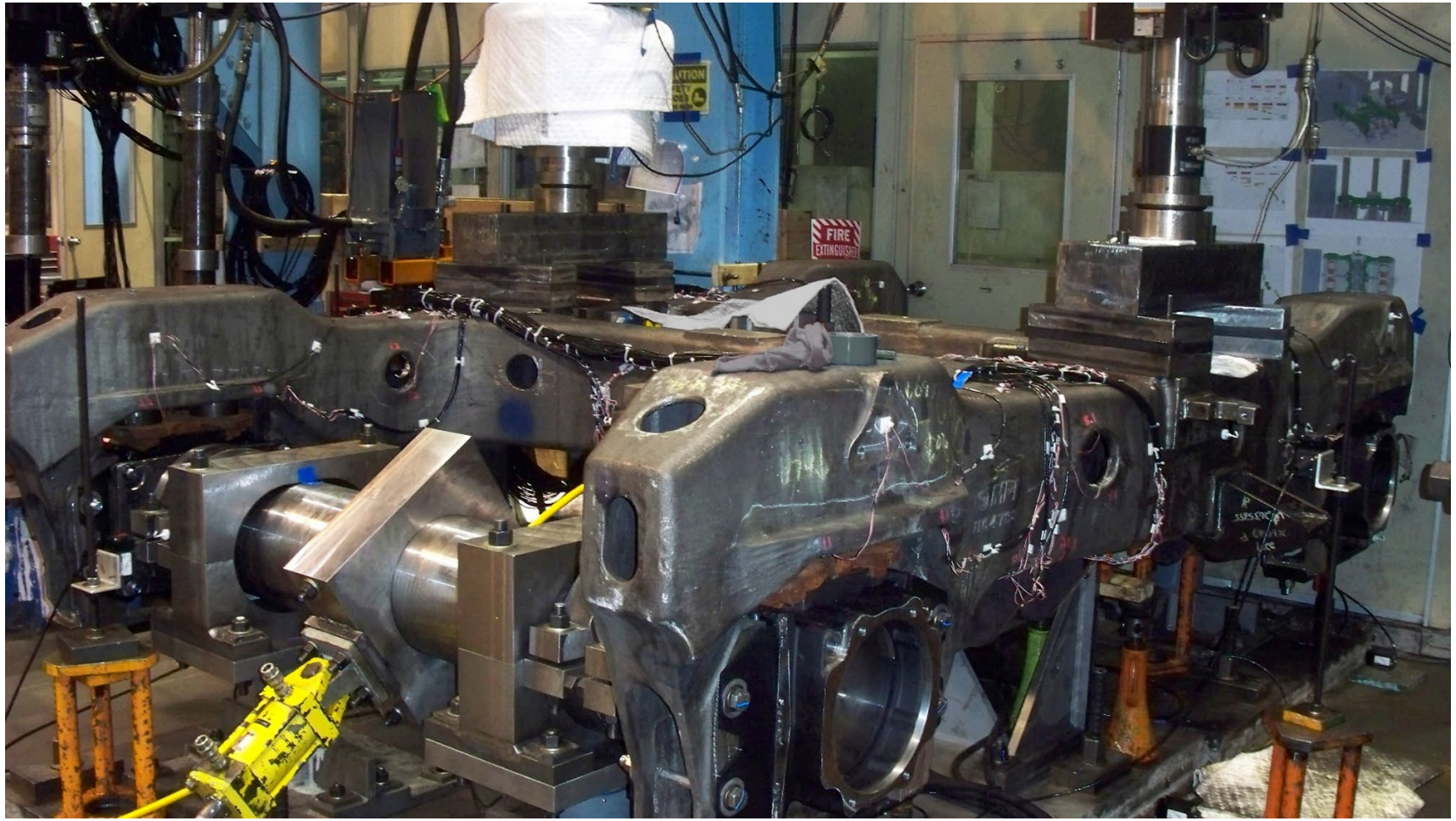
Side Frame Testing

Multi-axial fatigue test machines are common at CTLGroup. This is a side frame fatigue test, in accordance with AAR M-203. This procedure requires three load axis: vertical, transverse, and twist.



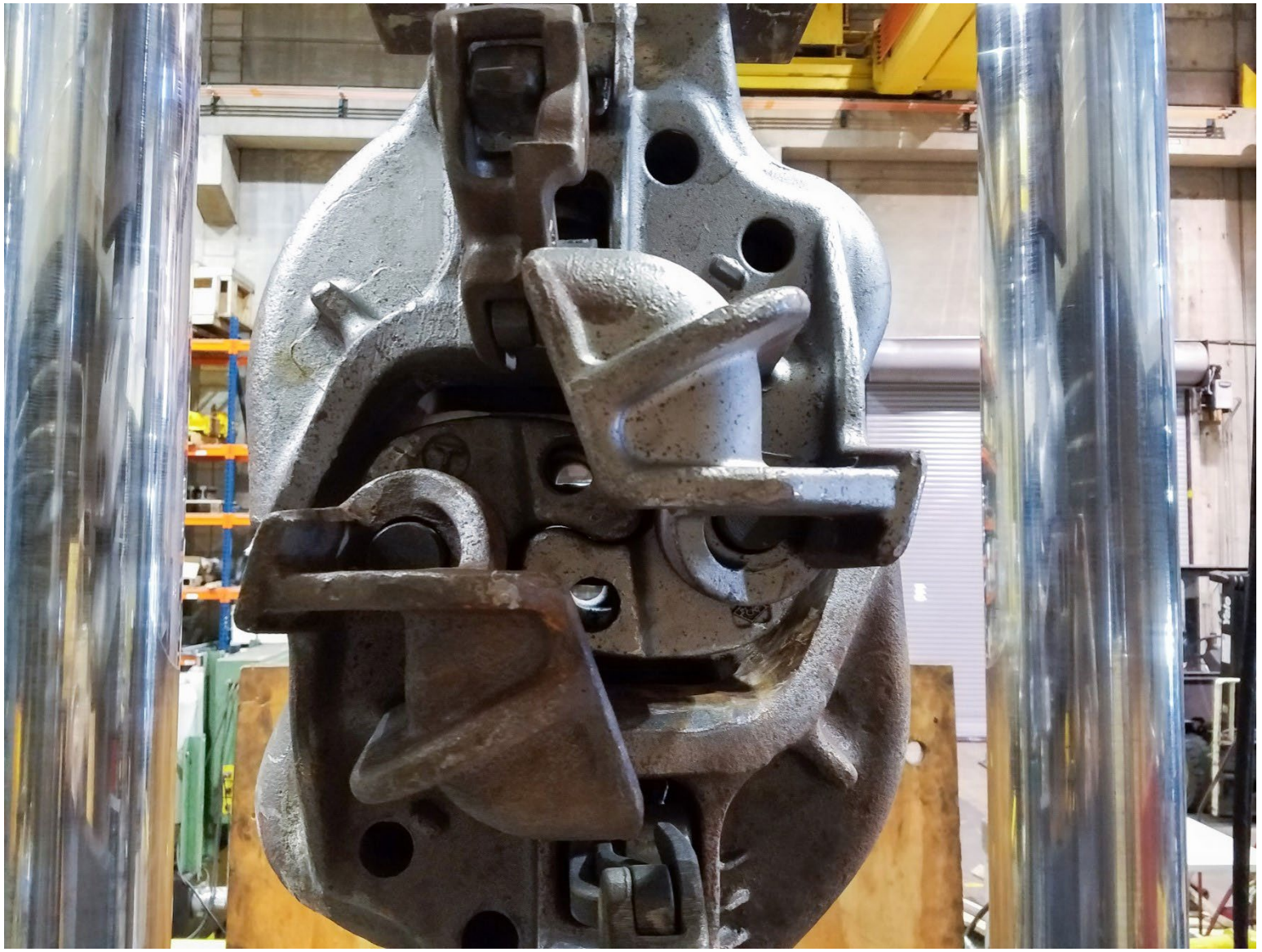
Passenger or Locomotive Truck (Bogie)

Passenger or locomotive bogies are subjected to numerous simultaneous static or fatigue loading conditions. CTLGroup has performed testing with up to 25 load conditions and over 350 data acquisition channels that include strain, displacement, load, and temperature. Our systems can be expanded beyond these capabilities.



Coupler and Knuckle Testing

CTLGroup operates the fastest knuckle AAR M-216 cycle fatigue test frame in the world. Using its one-million-pound capacity, knuckles are subjected to 125,000 cycles in a 24-hour period.

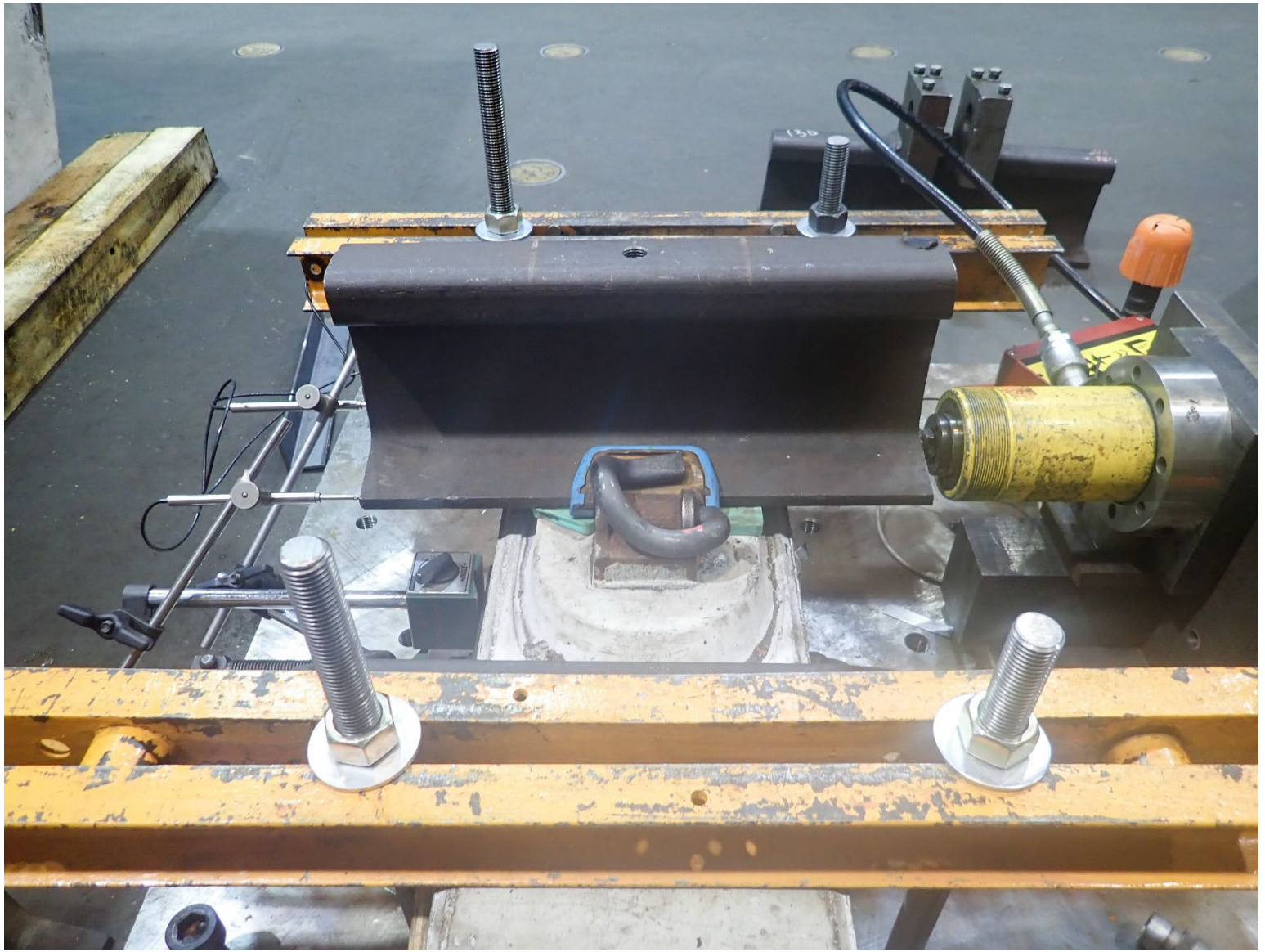


Composite Tie Testing

Composite ties are evaluated for use in both freight and passenger rail applications. CTLGroup performs testing and evaluation for various international certification programs including AREMA and local authority specifications.

Rail Fastener Systems

Longitudinal restraint requirements are evaluated with this rail fastener system. Specified incremental loads are applied to the rail until slip occurs. Force and deflection is continuously recorded via a number of data acquisition systems available at CTLGroup.

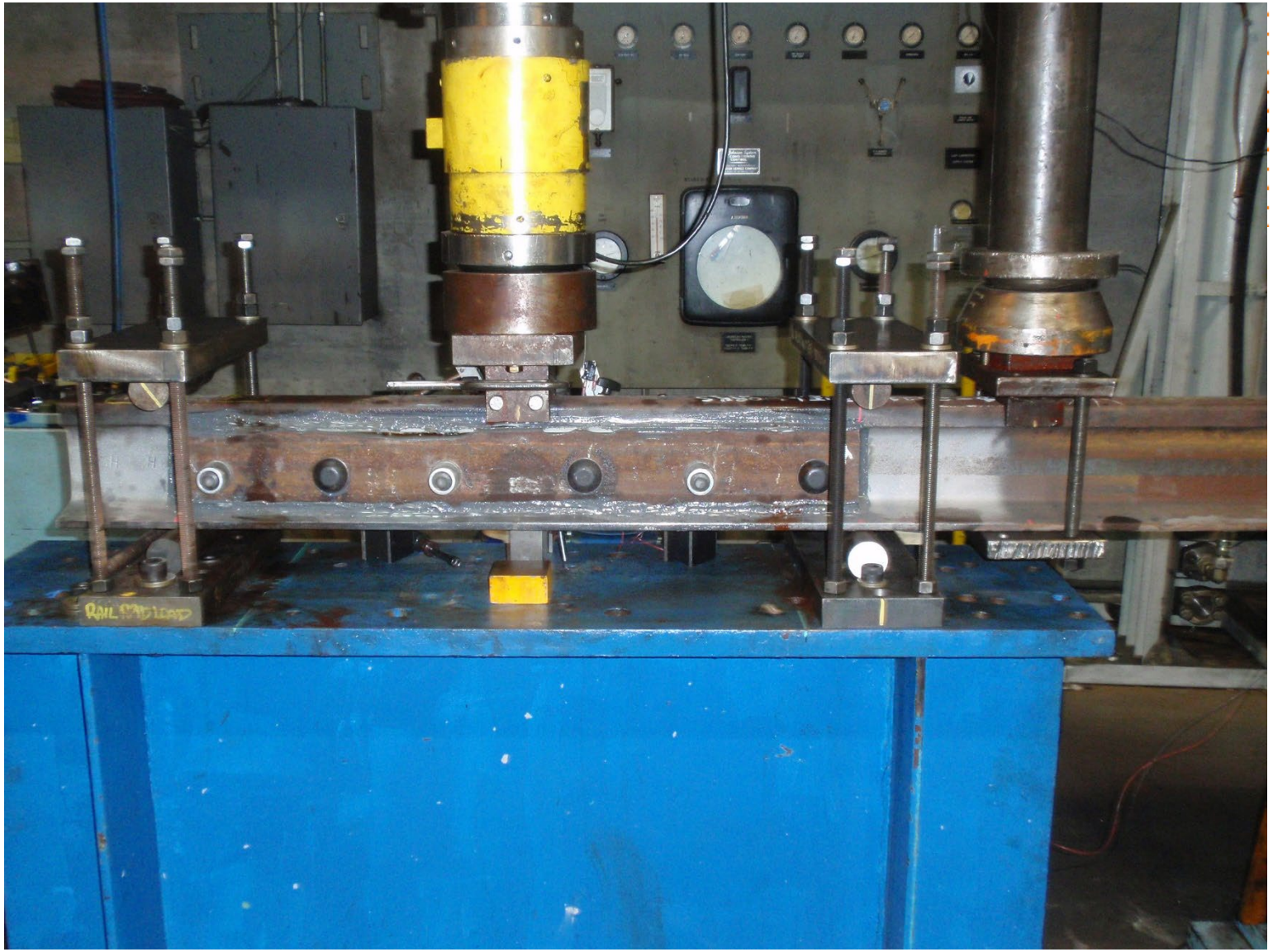


Concrete Ties

Concrete sleepers (ties) undergo material as well as structural testing at CTLGroup per AREMA and other standards. Structural testing consists of static, fatigue, or fastener pull out tests.

Rolling Load Testing

Rail joints are subjected to structural fatigue loading and electrical testing. The rail joint shown here is undergoing fatigue testing replicating the bending moments of a rail wheel rolling across the joint. This test method can be performed at up to 10 Hz.



Cable Testing

With a capacity of 10 millions pounds, this test frame performs static and fatigue tests on cable stay and suspension bridge suspender cables. Test results are used to confirm the bridge design requirements.

Anchorage Qualification Testing

CTLGroup offers both cast-in-place (CIP) and post-installed anchorage qualification testing.

Using custom control software, crack widths in various substrates can be controlled with unparalleled accuracy and precision over a wide range of static or dynamic widths. With ultimate load level capabilities up to 10,000 kips within the laboratory, the behavior and performance of the largest CIP or post-installed anchorage assemblies can be realized.

CTLGroup's Structural Laboratory

CTLGroup's Structural & Transportation Laboratory includes a 6,000 SF reinforced strong floor and numerous test frames, data acquisition systems, environmental chambers, and multiple servo-controlled fatigue rated hydraulic stand-alone actuators.

For over 60 years, this facility has been providing clients with cost-effective product development, quality assurance, and material innovation services.

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