

TRUE LOAD

Measured Strain Data into Meaningful Load Time Histories

True-Load is a first to market to solution that leverages FEA models to place strain gauges on unmodified physical parts and then back calculate loading. Output directly feeds into True-QSE events, a powerful post processing tool that supports rapid virtual iteration. True-Load directly interfaces to FEA fatigue software to make FEA based fatigue with correlated loading events a natural part of the design cycle.



One of the most challenging tasks for an analyst is to develop load cases for their FEA model that match measured strain values. Typically, it will take weeks to develop the right load cases that match just one or two strain gauges at a single point in time. True Load is a calculation software for product engineering.

True-Load makes that situation a thing of the past. True-Load will determine optimal gauge placement based on the FEA model. Once strains are collected at these optimal gauge locations, the strain data is read into True-Load to calculate load time histories that will typically match the measured strain to within 2% at every point in time. When combined with True-QSE, interrogating any point in the model for strain, stress or displacement is easy and interactive. Typically, it takes a few minutes to determine the strain gauge placement and a few minutes to back calculate the loading profiles.

WHAT IS TRUE LOAD?

True Load software answers to some practical needs that are typical in many industries

- get the design loads (peak & time history) from strain gauge measurements, avoiding installation of load cells
- tell the user where the strain gauges have to be attached to minimize error in load estimation

True-Load provides

- Strain correlated loading
- Full field knowledge from a handful of strain gauges
- Easy interface to FEA durability

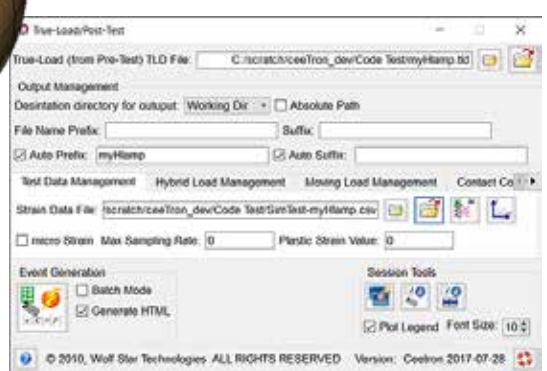
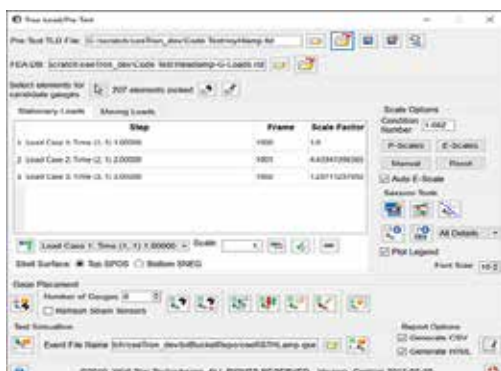
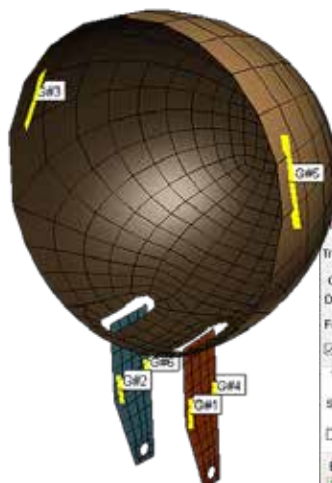
The only condition behind the approach is the linearity of the mechanical system, meaning that:

- components must not undergo large deformations
- contacts must be approximable with ideal constraints

The numerical technique behind True Load is robust. It is based on some fair assumptions and validated algorithms: results are reliable. Conditions 1 and 2 are not so restrictive. Most applications in automotive (suspensions, chassis, steering mechanism) and in machinery meet the requirements. This means that the method is applicable in a wide range of situations.

TRUE LOAD MAIN ADVANTAGES & STRENGTHS

Load cells are very expensive and can influence the system response. True Loads required strain gauges (that are less expensive and don't influence the system response)



Placing strain gauges is always a challenge. It is very difficult to establish design loads from measurements taken in wrong places: True load drives the user to choose the correct position for correct load identification
True Load avoids time consuming post-processing for load identification.

INTERFACE WITH OTHER SOFTWARE

True Load has proper interfaces for the FE code typically in use in these environments as ANSYS Workbench, NASTRAN and ABAQUS. WolfStarTechnologies established development partnerships with: MSC / ANSYS / Dassault System's / Ceetron

As a leading European solution provider, EnginSoft signed a distribution agreement for Europe with Wolf Star Technologies who develops True Load since 2010.

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