Legacy Products – December 2022

With the demise of the automotive IC engine, the first three machines listed become legacy products.

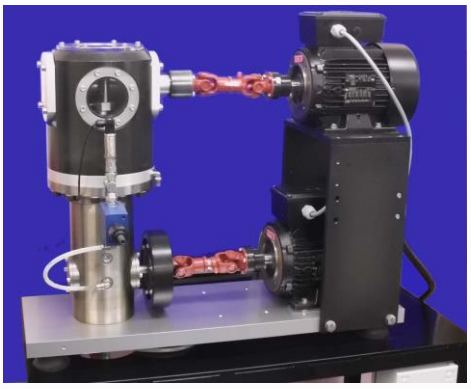
TE 34 Piston Ring Micro Welding Rig

This was our version of a Japanese standard test for investigating frictional welding between piston ring and cylinder groove.

TE 35 Valve Recession Rig

As with TE 34, this unit was designed to run an existing Japanese standard test, but with a technically much more sound solution, compared with the original, resulting in a much quieter and lower maintenance unit.

TE 36 Dynamic Bearing Fatigue Rig



This was an attempt to produce a cheaper and more flexible version of the Glacier Metals "Sapphire" bearing test machine, originally developed in the 1950s.

There was significant interest in the machine from bearing manufacturers in a number of emerging markets, but without devoting a considerable amount of time to finishing development, we were never going to achieve significant sales.

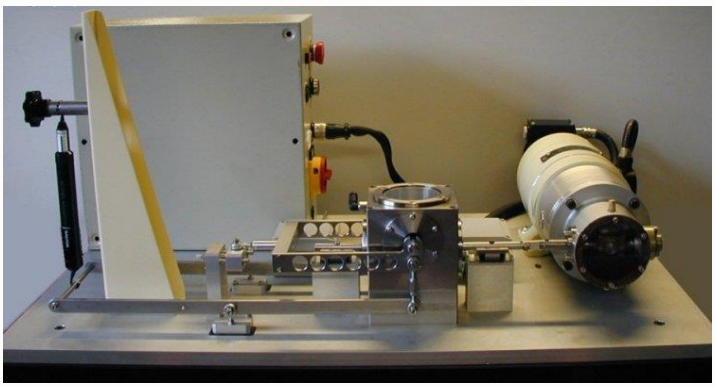
TE 38 Long Stroke Low Load Reciprocating Rig

Designed for low load reciprocating friction tests, thus machine is just one of many similar units in a competitive market.

TE 56 Multi Station Block on Ring Machine

Designed exactly to meet the requirements of ASTM G137 Standard Test Method for Ranking Resistance of Plastic Materials to Sliding Wear Using a Block-On-Ring Configuration, the unit worked as required.

TE 57 Pressurized Lubricity Tester

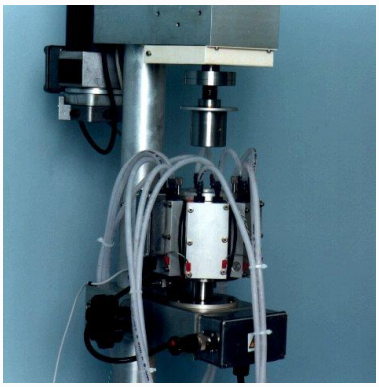


This unit has resulted in the generation of numerous well-received papers on refrigerant lubricants. The spring loading is antiquated and the specimen mounting is clumsy, however, the basic concept of applying load and measuring friction through bellows in shear is sound. The concept has been re-cycled into the recently designed adapter for TE 77.

TE 62 Bench Viscometer

With this design, we essentially secured a patent on the Half-Sommerfeld equation! This is essentially a low shear viscometer that will work with dirty/contaminated oils. As a bench viscometer, its main application was measuring the viscosity of oils sampled in service and the main client was British Railways; the engines in the HS 125 locomotives suffered either from fuel dilution of the sump oil or sludge formation. The product was successful, but interest ceased as soon as the problems of oil dilution and sludge formation had been solved.

TE 63 Grease Viscometer



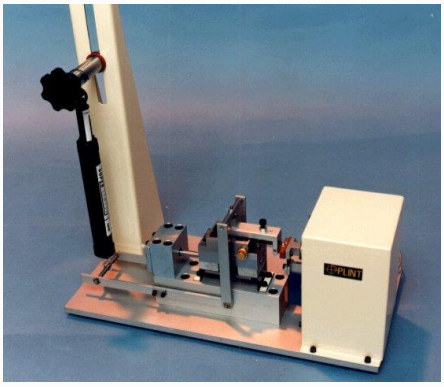
This is another patented design which, although clever, failed to achieve commercial success, mainly because we failed to realise that grease is a low value, relatively low volume, product, compared with, say, automotive crankcase lubricants; as a consequence, little serious money is spent of research, development and testing of greases. The engine doesn't blow up if the grease in a wheel bearing fails!

TE 63 was intended to replace a number of tests, the first two being those associated with grease working followed by repeat penetrometer tests; the machine both "works" the grease and measures the resulting change in stiffness continuously. By adding chiller pads, the unit could also perform the function equivalent to the "cold-cranking" grease test. By adding water, the viscometer also performed the equivalent of numerous different "water absorption" tests. So, it did a lot of things rather well, but it was an instrument, so looked a lot more complicated (and expensive) compared with a simple grease worker and a cone penetrometer.

TE 64 Slurry Jet Erosion Rig

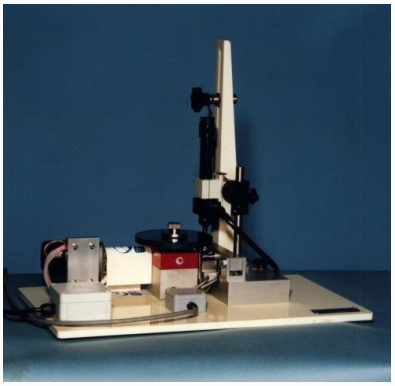
The particle amplifier design worked well, but it is difficult to make something like this look anything more than a piece of plumbing. Sure, the design can be improved, but it is still going to be large, cumbersome and dirty to operate. Perhaps there are no neat solutions to free-jet slurry erosion testing.

TE 70 Micro Friction Machine



This was actually not a bad design, if the sole aim was to compete with the PCS HFRR. Unfortunately, we did not spot the demand for a simple diesel fuel lubricity test early enough to have a significant impact on what proved to be a very large market.

TE 71 Optical Elastohydrodynamic

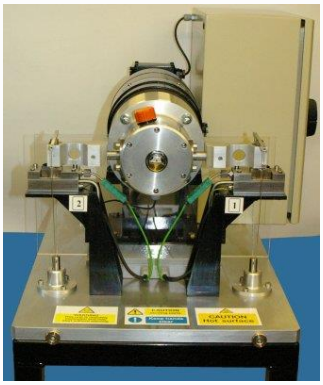


This worked fine for a bit, but the development and patenting of the Spacer Layer Imaging Method (SLIM) by Imperial/PCS, which reduced the optical dead-band by orders of magnitude, rendered the unit essentially redundant for anything other than simple EHD demonstrations.

TE 76 Scanning Micro Hardness Tester

This technically interesting design was licensed from the National Physical Laboratory, but generated only very limited market interest; why take a matrix of hardness readings when you could perhaps get away with taking just one?

TE 80 Two Station Fuel Lubricity Wear Test Machine



This product perhaps only succeeded because it was targeted at an already existing volume market, that created by the PCS HFRR based diesel fuel lubricity test.

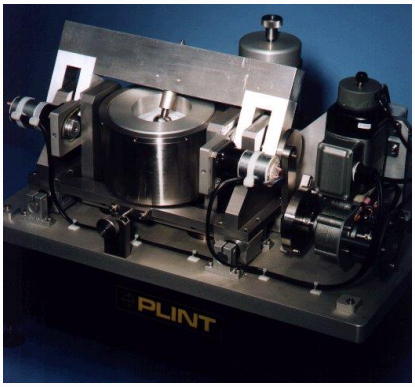
81 Single Station Lubricity Test Rig

This unit, designed for SwRI, clearly demonstrated the superiority of a line contact fuel lubricity test over a point contact test, but who cares, if the ASTM standard specified a point contact?

TE 85 Tooth Brushing Rig

This is essentially a custom design unit with no obvious volume market.

TE 89 Hip and Knee Friction Simulator

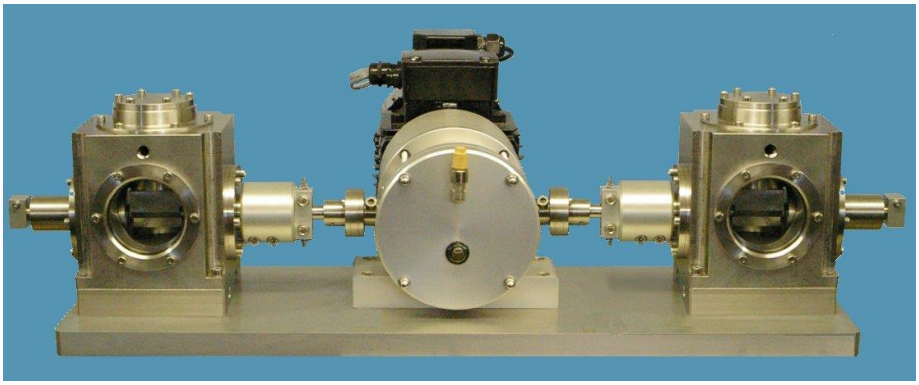


The TE 89 was based on an existing rig developed at Durham University and a client wanted a commercially manufactured and supported version of the rig. There are few companies worldwide producing prosthetic implants and few interested in joint friction.

TE 90 Four Station Reciprocating Tribometer

The concept was based on the assumption that people would be interested in increasing testing capacity, especially for boundary lubricated contacts. Whether that assumption was wrong or whether a decline in interest in boundary lubricated contacts resulted in limited sales, hardly seems to matter.

TE 90 Pressurised Lubricity Tester



This was a spin-off from the TE 57 design and was used for testing the lubricity of volatile fuels such as DME, which requires a pressurised test chamber. It may be that with DME likely to be part of any future green fuel mix, pressurised testing may become of interest again.

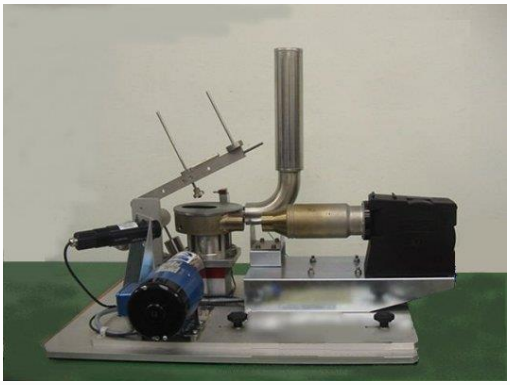
TE 91/92 Back-to-back Gear Adapter

This was designed for testing gears in space applications. An axially applied load is used to wind in torque in a compact back-to-back gar arrangement. The concept could be adapted for other applications, for example, testing plastic gears.

TE 96 Inertia Micro-tribometer

This was a miniaturised sliding four ball test, with 3 mm diameter test balls, designed for the National Physical Laboratory, for testing greases for vacuum applications.

TE 98 Low Load High Temperature Pin on Disc Machine

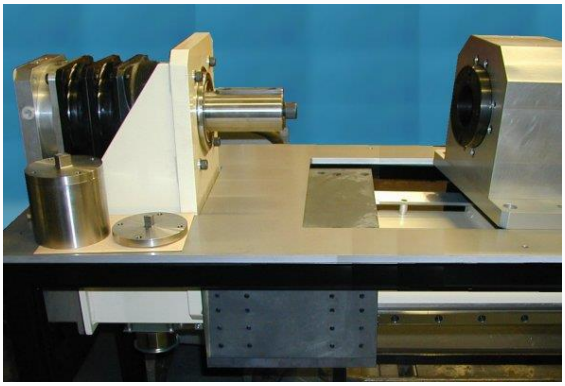


Designed to provide a simple 500°C pin on disc machine and based on TE 79, this is now an option on TE 79, as opposed to a free-standing instrument.

TE 99 Universal Wear Machine

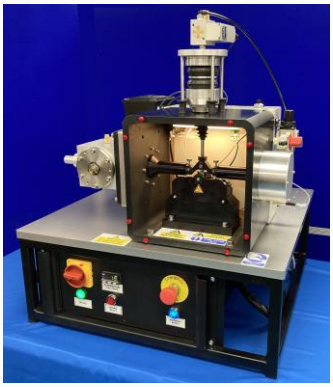
The Eyre-BICERI Universal Wear Machine was based on a design by Dr Terry Eyre at Brunel University, who also acted as a consultant during the design of the TE 67 machine. This resulted in two more or less identical specification machines appearing on the market, at the same time, one with pneumatic loading and one with dead-weight loading. When BICERI went into administration, we acquired the design rights to their machine, which we re-designated TE 99.

DN 66 Screw Tension/Friction Test Machine



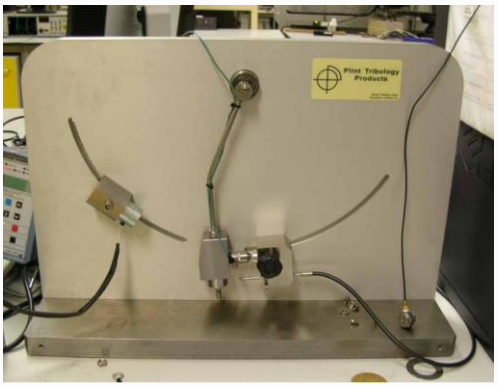
This was essentially a custom design project, but for doing a fairly standard test.

SRT Standard Reciprocating Tribometer



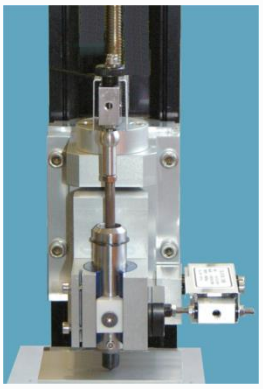
This was essentially designed to demonstrate that you do not need to use an expensive electromagnetic oscillator to run numerous ASTM standard ball on flat tests; you can get comparable results with a simple mechanically driven machine.

Impact Hardness Tester



Once again, designed and built for the National Physical Laboratory, we never got round to exploiting the device, despite generating useful results.

Scratch Tester



This was something else we were too busy to exploit.

Three Station Block on Ring Wear Generator in Salt Mist Cabinet

Just latest addition!