

Advanced Steam Traction Trust

Building a future for the
Steam Locomotive

www.advanced-steam.org

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Building a future for the
Steam Locomotive

Starts in 5 minutes

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Building a future for the
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Starts in 4 minutes

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Building a future for the
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Starts in 3 minutes

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Building a future for the
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Starts in 2 minutes

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Building a future for the
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Starts in 1 minute

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John Hind

Chairman

ASTT

Advanced Steam Traction Trust

Welcome

Tracey Parkinson

General Manager

East Lancashire Railway

Introduction

- 2nd Conference
- Pleased at the response
- Interest world wide
- Received a number of apologies
- More speakers available
- Potential for an event in 2018

Feedback

- Your feedback is important to us
 - Helps us to decide on event for next year
- Approach me, Chris or any other committee member
 - at the breaks or
 - after we close or
 - E-mail Chris Newman

Feedback from 2016

- Two day
- Broad themes or topics
 - Talks
 - Dinner
 - Visit
- ELR Museum was recommended

The Boring Bits

- Tea/Coffee – On Arrival
- Lunch – 12.30 – 13.15
- Afternoon Tea/Coffee – 15.30 – 16.00
- Loos
- Fire Alarms
 - None Planned

Saturday Morning Program

- 09:45 – Registration & Coffee
- 10:15 – Welcome – Tracey Parkinson East Lancashire Railway & Introduction – John Hind
- 10:30 – The Clan Project: 21st century manufacturing for a 20th century locomotive – Geoff Turner & Phil Yates
- 11:30 – The Physiology of the Locomotive Boiler – Adrian Tester
- 12:30 – Lunch, Networking and informal discussion

During the Day

- Q & A Session at the end of each talk
- Opportunities for 1 to 1's over lunch or at close



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Saturday Afternoon Program

- 13:15 – Austerity 90733 Horn Guide and Frame Re-Design – Tom Kay
- 14:45 – Improving small gauge live steam locomotives – William Powell
- 14:30 – On the latest restoration of Flying Scotsman – Colin Green
- 15:30 – Coffee Break
- 16:00 – Chapelon and the Advanced Steam Locomotive – Joseph Cliffe
- 1700 – Meeting Room closes
- 1900 – Conference Dinner

Sunday Morning Program

- 09:00 – Assembly & Registration
- 09:15 – Workshop Tours
- 11:45 – Coffee Break
- 12:00 – LNWR George the Fifth – Coupling rod analysis for the modern railway – Jamie Keyte
- 12:45 – 13:30 Lunch, Networking and informal discussions

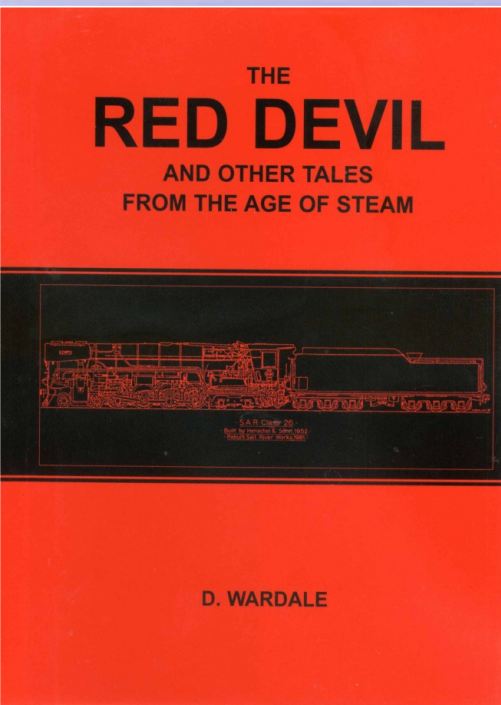
Sunday Afternoon Program

- 13:30 - CSR Biofuels Trials in the USA – Wolf Fengler
- 14:30 - Update on ASTT's steam locomotive instrumentation developments – Mike Horne
- 15:15 – Coffee Break
- 15:45 – A new boiler to meet the challenges of the 21st century – Owen Jordan
- 16:45 – Wrap Up – John Hind
- 1700 – Meeting Room closes

A Final Thought

- What would Bowen Cooke, Chapelon, Gresley, Stanier, make of 21st Century Engineering Tools
 - 3D CAD
 - Finite Element Analysis
 - Spreadsheets
 - Simulation Software
 - Electronic Data Logging

2000 - 2011



2000 – Article in ‘Locomotive International’ outlined concept and main features

2002 - Fundamental Design Calculations started

2004 – Completed Fundamental Design Calculations, which show that it will deliver the performance

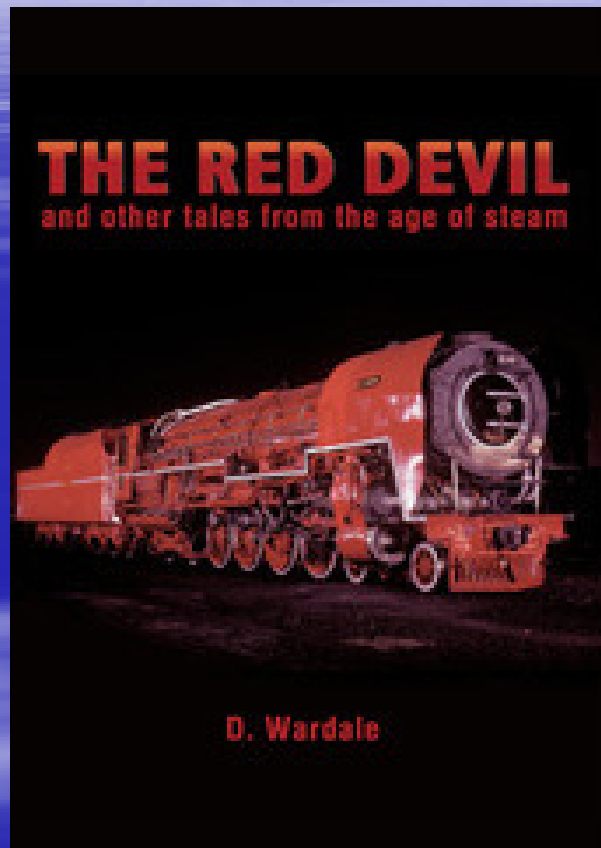
2007 – Costs & Timescale Established

2008 – Indonesian Coal Railway Study

2010 – Feasibility Study Published

2011 – Mexican Tourist Railway Study

2011 - 2015



2011 – Developed New Strategy

2012 – Public announcement
suspension of 5AT build attempt

2012 – HRA Survey

2012 – S160 Lempor Design &
Manufacture

2012 – Biocoal Trials

2013 – Reprint of Red Devil

2013 – S160 Lempor Installation

2014 – Clan Feasibility Study

2015 – Presentations to other Groups

2015 - 2016



2015 – Started George the Vth Cutdown Exhaust Study

2016 – Working with Kirklees Light Railway to develop Electronic Data Recording

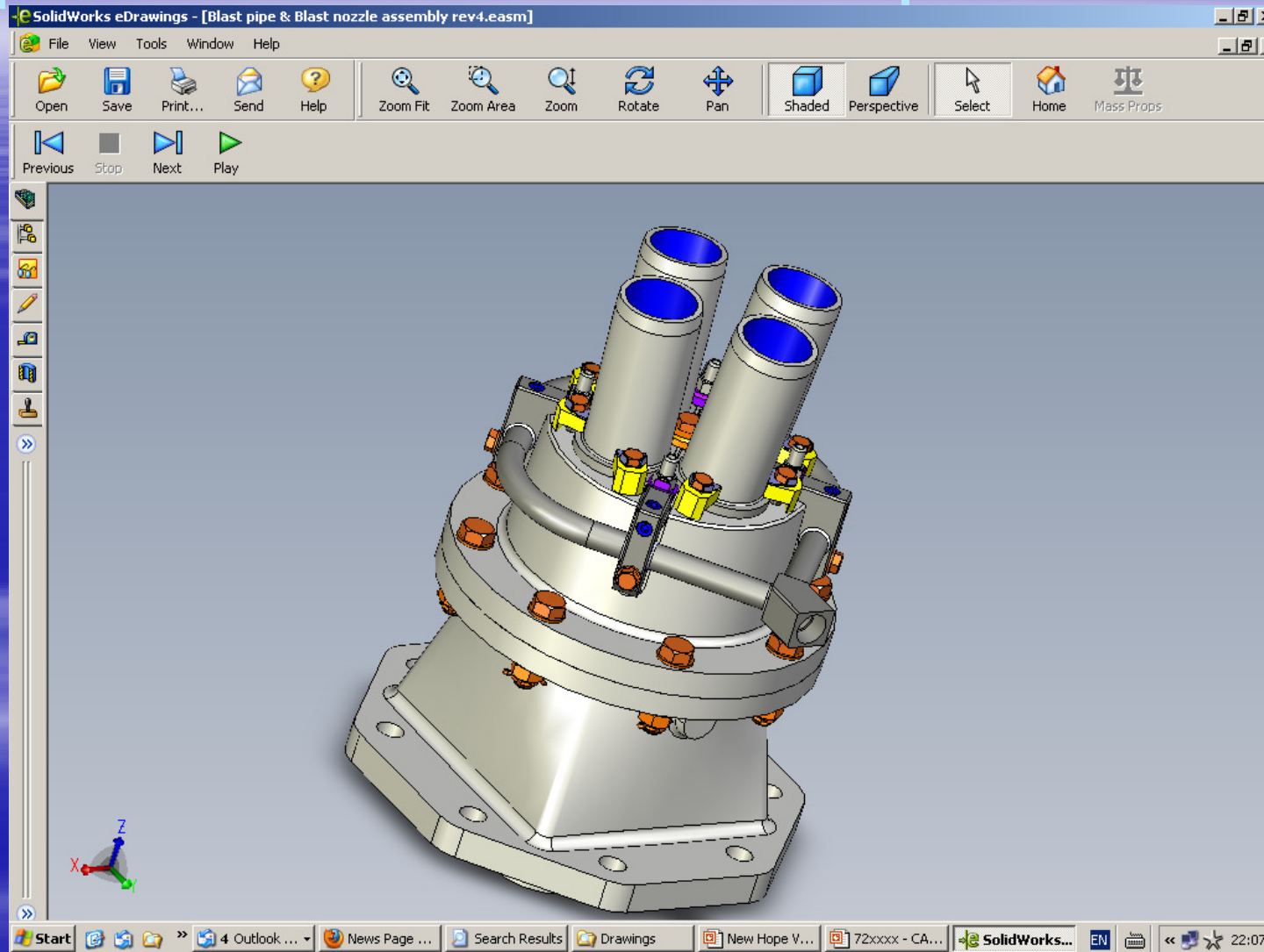
2016 – Published 5AT Fundamental Design Calculations & Feasibility Study

2016 – Conference - Technical Improvements to New-Build Steam Projects

5AT Project Legacy

- Group of engineers and designers interested in improving steam locomotive performance
- 5AT Fundamental Design Calculations
 - Can be used to improve the performance of any steam locomotive, heritage or new build
- Use of 21st Century Design Tools & Techniques
 - 3D CAD – Solidworks
 - FEA
 - *Perform*
 - STEAM
 - Spreadsheets
 - Exhaust System performance
 - Combustion modelling

Lempor Exhaust – Blast cap



Finished Blast Cap assembly



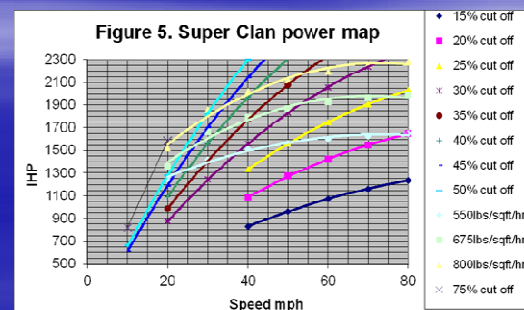
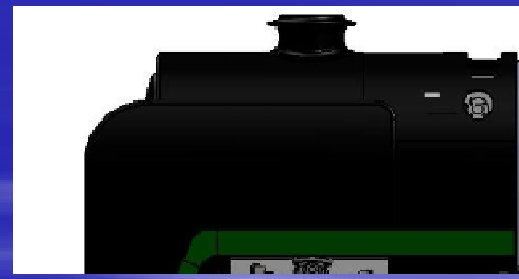
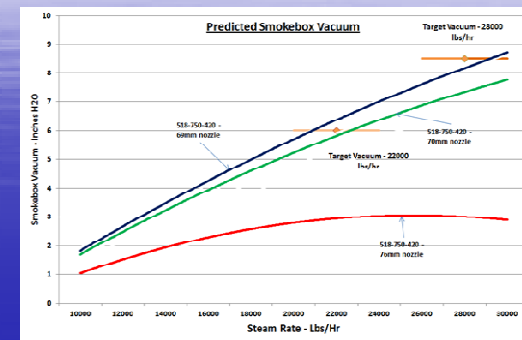
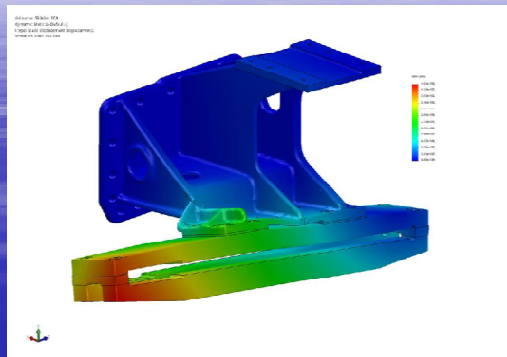
The result !!



5820 speaks for itself



Clan Improvement Project



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Wrap Up
John Hind

Feedback

- Preferred lengths - one or two day
 - Small and cheap like today
 - Longer and more expensive
- Broad themes or topics
- Venue & location
 - North, South, East or West
 - NRM at York, Steam at Swindon, Mosl in Manchester
 - Heritage Railway with conference facilities

Thanks

- Speakers
- Yourselfs
- Chris Newman
- Mike Horne

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