



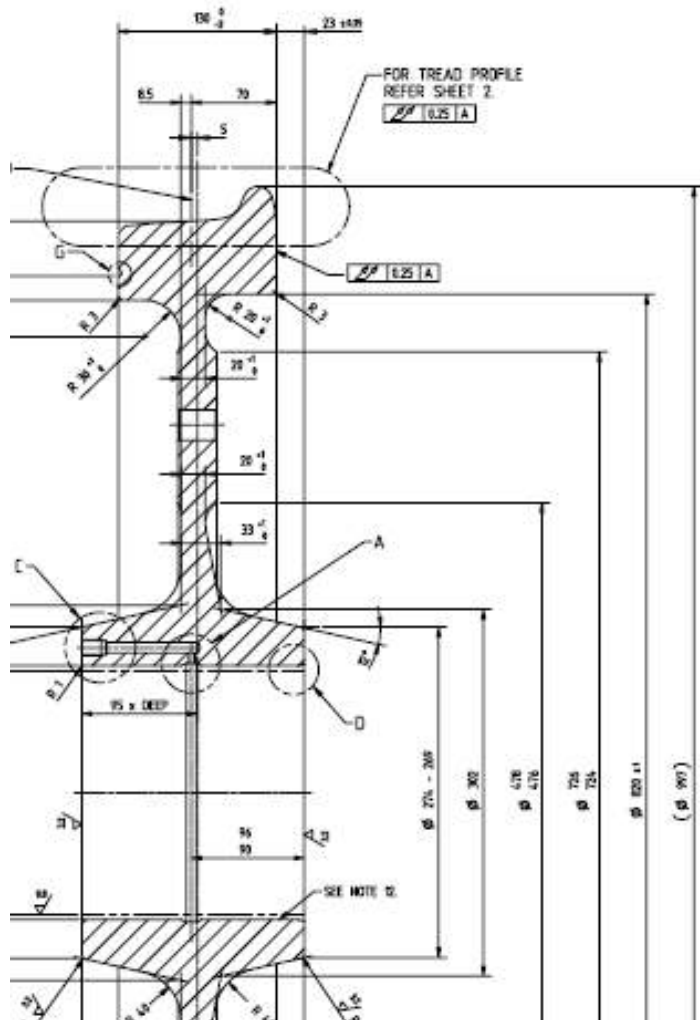
***The Liberty Wheel project:
Part 8: Liberty Wheel ---
The Future***

Andrea Bracciali – Gianluca Megna

Where do we go from here? – Retrofit case 3: MD Trenitalia



Where do we go from here? – Update --- M Set Sydney



- Easy modification to existing monobloc wheel
- Very promising business case
- No experience with tyred wheels in Australia

Where do we go from here?

NEW VEHICLES

- Selling trains is not anymore the most profitable business
- Selling SERVICE is the key to success (20-30 years on the average)
- Saving money every single day may be a key factor to win a tender
- How can a train with tyred wheels be offered/purchased?
- UIC standards were never withdrawn!!!!

“The vehicle shall be equipped with tyred wheels.

Tyres shall be replaceable without any machine tools, e.g. the wheel be designed without retaining ring and with tapered mating surfaces.

EN standards and UIC leaflets in force shall be used for design where applicable with the changes necessary to implement the aforementioned prescription.

The bidder shall provide evidence of the safety of the proposal, which will be evaluated during the analysis of the technical offer”.

What the hell is happening in the world???

 **Andrea Bracciali**
Professor of Railway Vehicles & Track at the University of Florence. Founder an...
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Are you ready for the Liberty Wheel?
See you in Milan at Expoferroviaria on 1-2-3 October...



🔄 90 • 15 Comments

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Incidentally, this was my very first post in my life...

What the hell is happening in the world???

Andrea Bracciali
 Professor of Railway Vehicles & Track at the University of Florence. Founder an...
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WARNING: reading this post can seriously improve your business.
 DISCLAIMER: I am not responsible if your brain is forced to turn on by reading this post. After all, it is not about digital revolution, big data, cyber-something ...see more

September 26, 2019 77 reactions 15 comment



117 reactions 10 comments

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Company	Count
Alstom	145
IAS Worldwide	96
CAF (Construcciones y Auxiliar de Ferrocarriles)	78
Siemens	64
Talgo	56
Hitachi Rail	56
Rete Ferroviaria Italiana	52
Baker Hughes	48

Job Title	Count
Engineer	504
Project Manager	348
Executive Director	284
Technology Manager	239
Operations Specialist	219
Mechanic and Maintenance Tradesperson	160
Information Technology Consultant	148

Location	Count
Milan Area, Italy	284
Naples Area, Italy	207
Madrid Area, Spain	198
Rome Area, Italy	195
Turin Area, Italy	142
London, United Kingdom	103
Zürich Area, Switzerland	94
Paris Area, France	90

Job Title	Count
Engineer	274
Project Manager	184
Executive Director	158
Operations Specialist	129
Technology Manager	110
Mechanic and Maintenance Tradesperson	89
Information Technology Consultant	79

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Rome Area, Italy	195
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What the hell is happening in the world???



What the hell is happening in the world???



Andrea Bracciali
Professor of Railway Vehicles & Track at the University of Florence, Foun...
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##

THE LIBERTY WHEEL Andrea BRACCIALI and Gianluca MEGNA

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Received: September 10, 2019

ABSTRACT

A new concept for tyred wheels is introduced in the paper, allowing cost reduction, mass reduction and shorter supply times. The project is based on a deep and critical review of the current practice in wheel maintenance and the current supply chain, finding and solving the criticalities that led to the current monopoly of monobloc wheels. It will be shown that the new tyred wheel, named Liberty Wheel, keeps its promises, allowing seamless rolling stock operation thanks to simple and inexpensive maintenance operations possible in nearly all current maintenance shops. It is a revolution for vehicles running up to at least 140 km/h without "strong" tread breaking (trams, metros, light rail, commuter trains, regional trains, locos for freight trains, etc.)

Keywords: tyred wheels, tyres, machining, dovetail coupling, thermal stresses, ADI cast iron.

1. INTRODUCTION

1.1 Why Liberty Wheels?

Liberty means freedom in an even higher acception. Franklin D. Roosevelt, in the State of the Union Address to the Congress, January 6, 1941, proposed four fundamental freedoms that people "everywhere in the world" ought to enjoy. Freedom of speech, Freedom of worship, Freedom from want, Freedom from fear.

Such freedoms can not all and always be available in the purchasing process of wheels. Wheelset manufacturers managed to drive the market to monobloc wheels solution, claiming it's safer, cheaper, lighter, in a word "better". This was embraced enthusiastically in a historical phase when many state-owned railway administration fell down or downsized dramatically. Outsourcing wheelset maintenance was often a no-alternatives decision, as internal workshops were closing, old workforce retiring and fixed costs reduction became an obsession.

Nowadays, almost all smaller railway enterprises sign "full service" contract with vehicle suppliers or, in the worst case, with external workshops to keep their wheelsets in good shape and to safely operate their fleets. Only larger railway enterprises still have their own "second level workshops", where wheels are replaced, axles are machined and checked and so on.

We have forgotten that the two basic components of a wheelset – the axle and the wheels – are designed for infinite life, i.e. they do not fail if properly operated in service whatever long they serve under a vehicle. This statement falls like a house of cards when considering wheel tread wear.



Andrea Bracciali
Professor of Railway Vehicles & Track at the University of Florence, Foun...
2w • 🌐

After "scientific" presentations at the XIX International Wheelset Congress and the "show" at the Expoferroviaria Italian railway trade fair, it's time to explain managers and technical directors of railways the rationale and the r ...see more

in collaborazione con



Adesione alla manifestazione

Vostro sito:

Siete interessato/interessati:

Sì No

Chiedo di poter partecipare alla Conferenza "Liberty Wheel - La Sala Montata" del 07/11/2019

Bologna, il _____

L'adesione dovrà essere partecipata alla segreteria del CIFI - a mezzo, con e-mail: cifi.bologna@gmail.com o con fax (051.2587900) - entro e non oltre il giorno 05/11 p.v. Per i soci CIFI è sufficiente una conferma alla mail di invio.

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INTRODUZIONE

A seguito della presentazione di un nuovo tipo di ruota alla recente Expoferroviaria, i Relatori ci daranno l'occasione per fare il punto su storia, ricerca e innovazione nel campo delle sale montate.

Nel corso della giornata vedremo inoltre i treni rielaborati e sbriciolati uniti per un approfondimento schematico trattato.

Conferenza

Giovedì 7 Novembre 2019

CIFI 120 Sezione Emilia Romagna

"LIBERTY WHEEL"
LA SALA MONTATA

Giovedì 7 Novembre 2019

Sede della conferenza
RFI S.p.A.
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Conclusions and acknowledgments

- We would like to thank all of the people that helped us in this project
- We have proven that old technologies can still be interesting when using modern tools and knowledge
- We have developed the skill necessary to approach the redesign of old vehicles as well as the design of new vehicles
- We therefore offer our support to all subjects that want to get real advantages from this apparently old technology...
- ...and this is not a dream, we have proven it!!!

Grazie a tutti, grazie CIFI!



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