

Developing Equipment Standards for the Vintage Trolley Field

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Equipment Standards for the Vintage Trolley Field



Why have Standards?

- Self Policing is Preferable to Government Regulation
- Safety Benefits
- Operational Benefits
- Production Cost Benefits
- Help New Starts



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The APTA RTSS “Standard for Vintage Trolley Vehicle Equipment” defines a Vintage Trolley (a.k.a. Heritage Trolley) as:

- “An electrically propelled rail vehicle for the conveyance of passengers, originally manufactured prior to January 1, 1956, or a new vehicle designed to replicate the appearance and function of such vehicles. Term also used to describe similar rail vehicles which are not electrically propelled, but have the same appearance and function.”



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**Part I-
Fact Finding /
Initial Research**



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Equipment and Operating Environments Vary Widely

Full scale transit operations with large fleets of vintage vehicles



Small non-profit groups operating 1-2 cars on a part time schedule



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Equipment and Operating Environments Vary Widely

- Regulatory requirements vary from state to state, few have provision for VT operation.
- Need to differentiate between railway museums and VT systems operating in an urban public transit environment.



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Not Covered by Other Standards

- Typically no provision for the unique vehicles found in VT operations.
- VT operators are in the unusual position of intentionally seeking something that is not “modern” or “state of the art”.
- Seeking a decidedly “retro” vehicle that is still safe and sustainable.
- Standards / RPs which were generically applicable (typically periodic inspection) were incorporated by reference.



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The Need for Safety

- VTs need to maintain an outstanding safety record.
- “Old” does not necessarily equate to “Unsafe”, but.....
- A 20-ton Vintage Trolley rolling down the tracks has the potential to do as much damage to itself or something it collides with as any of its modern counterparts.



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Not Reinventing the Wheel

- Loss of much first-hand knowledge
- Wealth of documentation and other resources remain from the trolley era.
- Preserved by an eclectic mix of railway museums, consultants, operators and even by enthusiast collectors.
- The Standard seeks to compile a large collection of information from the bygone trolley era and translate it into today's terms, helping users avoid the need to "reinvent the wheel".



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Part II- The Standard



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Building on Precedent

- Started in with an adaptation of the *Historical Streetcar* section of California Public Utilities Commission (CPUC) General Order (GO)143B.
- GO 143B defined a Vintage Trolley as “an LRV or streetcar originally manufactured prior to January 1, 1956, which may not meet all the requirements set forth in this General Order for LRVs”.



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Certain parts of the General Order apply to historic and modern cars alike:

- Operating Speeds
- Requirements of Safety Sensitive Employees
- Operating Rules
- Inspections, Tests and Maintenance
- Audible Warning Devices
- Grab Handles
- Safety Bars (pilots/fenders)
- Warning Devices for Stopped Vehicles
- Parking Brakes
- Interior Lighting
- Emergency Exits



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CPUC recognized inherent differences between LRT and VT, exempting “Historical Streetcars” from many of the LRV requirements, creating instead separate standards for vintage cars covering:

- Service Braking System
- Stopping Distance (< 120 feet from 20 mph (2.5 mph/ps))
- Headlights
- Taillights
- Windshields and Windows
- Safe Operating Speeds
- Operating Rules



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Three primary components of the Standard

Grouped in accordance with where each would typically be documented by the operating entity.

1. Programs and procedures applicable to all vintage trolley operations (SSPP)
2. Minimum vehicle equipment requirements (Vehicle Safety Certification)
3. Additional equipment, applicable where conditions warrant (Vehicle Safety Certification)



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Programs and Procedures Applicable to All Vintage Trolley Operations

- Operating Rules
- Program of Instruction
- Maintenance Procedures and Instruction
- Maintenance Facility



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Minimum Vehicle Equipment Standards

- Intended to cover all basic equipment needs
- Challenging to assemble because of the wide range of equipment covered
- Acknowledges role of local regulations for certain appliances (eg: headlights, audible warnings)
- Requires analysis of local operating conditions



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Example of how diverse equipment complicated drafting of the Standard



The issue of door interlocks is complicated enough



What about cars with no doors?



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Additional Equipment Applicable Where Conditions Warrant

- Deadman *
- Low Air Interlock *
- Speedometer
- Turn & Stop Indicators
- Windshield Wiper / Defrosters

* Mandatory items for replica cars



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Additional Equipment Applicable Where Conditions Warrant

Criteria to be considered in the hazard analysis process

- Single-person vs. two-person crew
- Street running vs. private right-of-way
- Number of cars in simultaneous operation
- Interaction between VTs and LRV equipment/infrastructure
- Grade crossings
- Crossings of other rail systems at grade
- Clearances
- Grades
- Operating Speeds



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Appendices

- Vehicle Structural Requirements
- Fire Safety
- ADA Issues



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Appendices – ADA Access



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Part III- A Survey of VT Equipment in use in 2005



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Vintage Trolleys

- “Restored Originals” and “Replicas”
- 130 Restored Original cars in service 2005
- 62 replica built to date since 1984
- Approximately \$500,000 - \$1.5 M, depending on type and options



Little Rock



San Francisco



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Restored Original Cars

- Limited supply of operable vehicles, especially US cars. PCC type cars more abundant.
- Range of carbody types and ages, single and double ended.
- Construction: steel, wood, or composite
- Many European and Australian cars imported to US
- May have higher maintenance requirements



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Restored Original Cars- US Cars

- 50 cars in service, 35 in New Orleans
- Supply of operable cars is very limited
- Some survived as complete cars
- Many were restored from carbody only



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Refurbished "PCC" Type Cars

- Manufactured in US 1937-1951
- About 5,000 cars built.
- Philadelphia, Pittsburgh, Boston, San Francisco kept PCC fleets longer than other cities
- Most single side, single ended
- 45 seats, 50-70 standees
- Typically single unit operation



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Refurbished “PCC” Type Cars

- 17 cars in San Francisco with more on the way
- 5 in Kenosha
- Boston has 11 refurbished cars on the Mattapan-Ashmont Line



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Rebuilt “PCC II” Cars

- 18 cars rebuilt for SEPTA by Brookville in 2004.
- Single Ended, Single Side
- New trucks, motors, controls
- Air conditioned
- Essentially new cars



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Imported Cars

Australian Cars

- 17 Melbourne W-2 type in service on American VT lines
- Built 1924-30
- Double End – Double Side
- No cars imported since 1980s
- Potential for additional W type to become available in future



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Imported Cars

Milan Cars

- 12 Milan cars in service on American VT lines
- Gomaco purchased 71 cars, kept a few complete, most scrapped for parts
- Built 1928
- Single End – Single Side
- Milan reported to have stopped export of cars for now



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Gomaco Replica Trolley

- Manufactured in Ida Grove, Iowa
- Recent orders include Tampa (9), Charlotte (3), Little Rock (5), Memphis (1)
- Double sided, double ended
- 44 seats, 44 standees
- Air conditioning available
- Single unit operation
- ADA access with wayside or car-borne lift



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Gomaco Replica Trolley



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New Orleans Perley Thomas Replica

- Based on classic design of St. Charles Line cars
- 23 built in New Orleans during 2002 for service on new Canal St. line.
- Double sided / double ended
- Modern running gear / propulsion package
- Air conditioned, car-borne ADA lift



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Port of LA Pacific Electric Replica

- Based on classic Pacific Electric "Red Car" design
- 2 built by Port of Los Angeles (San Pedro), more to be ordered in 2005.
- Double sided / double ended
- Rebuilt vintage running gear, new control and air brake systems
- Seats: 48 , Standees: 42
- Not air conditioned
- ADA accessible with high-level platforms



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US Vintage Trolley Operations

- 19 Systems
- About 200 Vehicles
- More to Come.....



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