

**TRANSPORTATION RESEARCH THESAURUS (TRT)
TERM REVIEW FORM v2.0**

Date 3-29-2010

Term **Contact wires**

Proposed by

Citation(s) contact wires: are high tension wires that keep contact with an overhead pantograph.

Contact wires: are taut wires that interface with pantographs or trolley poles on rail cars, trolley buses, or trams to power onboard traction motors. (Source: Team adapted from: <http://trb.metapress.com/content/q4756rv135222432/fulltext.pdf>)

Definition Numerous tram, trolley bus and train overhead electrification systems rely on Lamifil catenary wires for their power supply.

(<http://www.railway-technology.com/downloads/whitepapers/electrical/file953/type945/>)

A catenary is a system of overhead wires used to supply electricity to a locomotive, streetcar, or light rail vehicle which is equipped with a pantograph. Unlike simple overhead wires, in which the uninsulated wire or cable is attached by clamps to closely spaced crosswires, themselves supported by line poles, catenary systems use at least two wires. One wire, called the catenary or messenger wire, is hung at a specific tension in the shape of a mathematical catenary between line structures. A second wire is held in tension by the messenger wire, and is attached to it at frequent intervals by clamps and connecting wires. The second wire is straight and level, parallel to the rail tracks, suspended over it as the roadway of a suspension bridge is over water.

(http://en.wikipedia.org/wiki/Overhead_lines)

The overhead contact system (OCS) utilizes a bare wire suspended 5 to 7.5 m above the track. Pantographs or trolley poles mounted on the roofs of the rail cars reach up to contact the wire and draw current from it to power onboard traction motors (p. 57)

There are two basic types of OCS. One is called catenary, and the other goes by a variety of names including direct suspension, trolley wire, and tramway wire.

A catenary OCS comprises four elements:

1. A contact wire that is taut and interfaces with the pantographs or trolley poles on the rail cars;
2. Closely spaced, variable length vertical hangers that support the contact wire at a relatively constant distance above the rails;
3. A thick "messenger" cable that is slack and droops above the contact wire to provide support for the hangers; and
4. A series of transverse structures of various types from which the messenger is suspended.

A direct suspension (trolley wire) OCS has only two elements:

1. The contact wire.
 2. A series of transverse components that directly support it. Those supporting components are generally mast arms or cross-span cables attached to lineside poles and, occasionally, to adjoining buildings.
- The four most common methods of supporting a direct suspension OCS are illustrated in Figure 3. (p.58)

OCS=traction power distribution system

(TRB: <http://trb.metapress.com/content/q4756rv135222432/fulltext.pdf>)

Scope note (if needed)

Notational code Pmptmpc

Broader term Overhead utility lines (Pmptmp)

Narrower term

Associative relationships

Related terms: Wire rope (Rbmdxqrw)
Aerial tramways (Pbcud)
Electric railroads (Nbbcqq)

*Catenaries (Pmptmpe) The structure of cables above the track which carries the electric supply for electric locomotives that use overhead electricity collection. The actual cable that carries the current is contact wire. Loosely, the term catenary may also be used for the contact wire itself. (Source: www.irfca.org/faq/faq-jargon.html)

Cross-references:

USE/UF terms Trolley wires

Variant forms

Homographs

Usage/Warrant/Statistics (# of hits/search results for term in quotes, e.g., "automobile factories")

- Search term, variants, and/or synonyms identified if necessary
- Use a minimum of five sources
- Note currency of term usage

CATALOGS	TI	KW	SU	AB
NTL Digital Repository				
VDOT OneSearch				
DOT HQ				
FHWA				
NUCAT (NUTL)				
TranWeb (NUTL)				
NTIS				
TRIS Online				
UMTRI				
RiP				
VDOT				
WorldCat				
Google StateDOT				
Google Scholar				
Other thesauri, taxonomies, or schemes				
LCSH				
Taxonomy Warehouse				

Other/Comments:

Action Add Revise Decline Remove Park

Type Preferred term Non-preferred term