

APPENDICES

Appendix A - Definitions

Adjusted weight.

See Car Factor.

Car Factor.

A train's tonnage must be calculated to ensure there is sufficient horsepower in the locomotives assigned to the train to allow the train to proceed at least at minimum speed and without stalling at some point on the trip. The total tonnage of a train includes the tare (empty) weight of the cars plus the weight of the lading in the cars. Because empty cars roll "harder" per ton of car weight than loaded cars, the train weight used for assigning power includes an adjustment made to the actual tonnage of a train to account for the difference. This adjusted weight is referred to as the "Adjusted weight" or "Equated weight". The adjustment factor is called the "Car Factor". The "Car Factor" has units of "tons/car". The adjusted weight that is added to the train is the Car Factor times the number of cars in the train.

The car factor depends on grade and design speed. As a grade increases the difference in rolling resistance between empty cars and loaded cars becomes less important. The car factor, as applied will vary between 12 (for low grades) and 3 (for steep grades). In the prototype world the car factor can usually be found in an employee document such as an employee timetable, a train handling manual or some other document. In today's world, this can also be found in the railroad's operations control program.

In ProTrak, the Car Factor, which is directly dependent on grade, is shown on the "Changing Station: X of: Y" window where the grade data is entered. As on the prototype, the Car Factor adjustment is applied when the train consists of between 25% and 75% of empty cars. The gross train tonnage (total weight) shown on the train-journal (switchlist) is the "Equated weight" and is the tonnage used to assign suitable power to a train.

Car Quality.

The term "Car quality" refers to how clean the car is. A box car, for instance which has floor and walls that are clean and free of holes or nails, and which has had all residue from a previous load removed is classified as being "A". As a car remains in service without being cleaned the condition degrades, and so does the quality rating. ProTrak automatically changes the rating as time elapses and a car can have it's rating upgraded by being sent to a cleaning track.

Classification Yard.

A classification yard is used to take incoming traffic and re-sort it to get cars into appropriate outbound trains. Some modelers use staging tracks as classification yards, while others use the staging tracks as a means of having a train 'disappear' behind/below the layout, then re-appear later as a different train, but with all the same cars that it entered the staging track with. A classification yard is sometimes also referred to as a reclassification yard.

Clearance Plate.

The term "Clearance Plate" is based on the definitions in the Official Railway Equipment Register (ORER). In each edition of the ORER there is a section titled "Plate Diagrams" where both height and width limits are shown. While ProTrak only deals with height, a reduced width could also be a reason to select a particular Plate. For instance at a customer the loading platform might stick out towards the track limiting the maximum width or car shape. In addition to height and width, the ORER plates also include "maximum allowable gross weight" which may be a further reason to select a specific plate. Note that as railroading has progressed in North America, the number of Clearance Plates has also increased. If you are modeling a railroad in 1940, some of the newer plates (such as Plate G) will not be appropriate for use with your railroad.

Clearance Point.

The term "Clearance Point" refers to the point at a track switch where a moving car may pass a stationary car without sideswiping it. The diagram below tries to illustrate this.

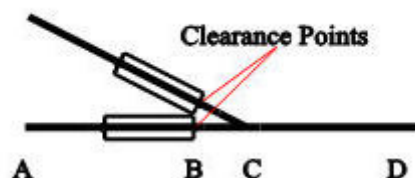


Figure A-1

To find the clearance point, you have to actually put a couple of cars on the tracks and move them along to find the actual point where the cars will collide.

Core Segment.

The term "Core Segment" refers to the main subdivision of your railroad. If you refer to Figure A-2, the portion of the railroad from WES to EAS (including JTJ) is

the core segment while the portion from JTJ to ORI is not, it is a separate subdivision. Note that JTJ is included in both the "core segment" (the main subdivision), as well as in the 2nd subdivision.

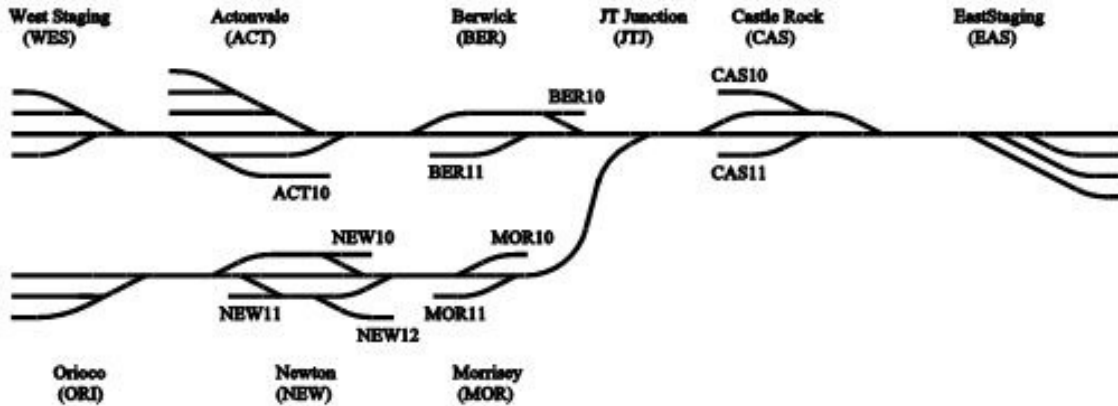


Figure A-2

Equated weight.

See Car factor.

Gateway.

In the prototype world a Gateway is a city where traffic tends to funnel and where railroads interchange cars. In ProTrak this is the same, but usually, the gateway is a city represented by a staging track.

Interval.

The term interval as used in ProTrak is the distance from the previous station to the current station. The interval length includes the turnouts at each end of the section of track. (See also the definition of Siding)

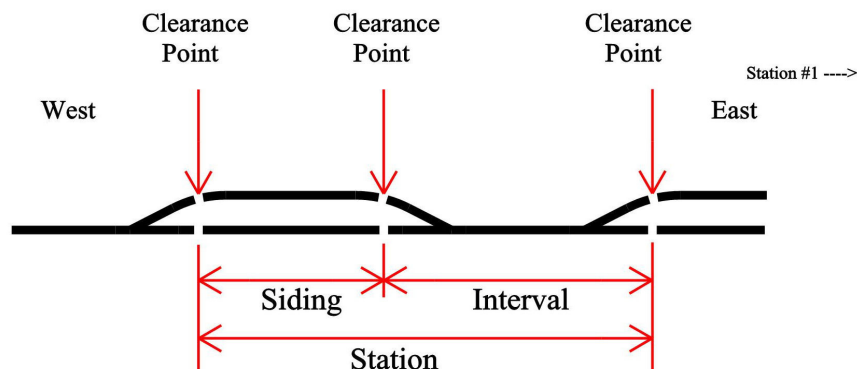


Figure A-3

For our purposes, we do not need to have an exact clearance point, but rather we can choose to arbitrarily choose a point where measurements are made from. This may be the ends of the rails in the case of RTR track switches or it may be a fixed number of inches (or centimeters, if you chose) from the point of the frog. What is important from the perspective of ProTrak is that the ending point for one measurement becomes the starting point for the next measurement. If we look at the clearance point drawing above (Figure A-1), 'B is the end point for the length of the lower yard track in this diagram (A – B), but it is also the starting point for the lead track (B – D). Do not use the measurement of C to D as this will leave the section B-C out of the total length of track calculation.

Liveload.

The term "liveload" (or more properly "live load") likely is a carryover from the world of structural engineering. In the case of a bridge, for instance, the weight of the bridge itself is called the "dead load", while anything crossing the bridge is called the "live load". In terms of railroad cars, the load in the car is called the "live load".

For modeling purposes, a 'liveload' is anything that can be placed in or on an open car. They may be a plaster casting of scrap metal which can be put into a gondola, a plaster casting of a coal load for a hopper, or a wooden block which has been wrapped with lumber wrappers for a bulkhead flat car, to list just a few examples. These loads would be added to the car when the car is being loaded (in staging, for example) and removed when the car reaches the consignee.

If the "liveload" data field in the "Uniform Bill of Lading" window has a value in it, ProTrak assumes that when the car is at the location where it will be loaded, that a load will in fact be added to the car and it uses the total weight of the car plus the load to assist in determining the placement of the loaded car in the train.

It has been suggested that the waybill number that has the weight of a particular dummy load be marked on the underside of the casting. It is important to make sure that the correct load is used for a particular shipment/load.

ORER.

See Official Railway Equipment Register.

Official Railway Equipment Register.

Official Railway Equipment Register's (ORER) are publications used by all North American railroads to get information about another railroad and that railroad's cars. ORERs are currently being published quarterly.

Reclassification Yard.

See Classification Yard

Region.

The term region is used in two locations within ProTrak. The first is used to establish the geographic area where a railroad operates – Rocky Mountains, North-East, etc. The second is used in conjunction with staging tracks. In this instance the term region means a group of individual staging tracks which represent a common traffic origin or destination. You may have two staging tracks which are used for traffic to and from Chicago for example. In this case, both tracks would have the same region number. (See Appendix E under the section headed “Gateways, Regions and other considerations for a fuller discussion of Regions in Staging”).

Siding.

The term siding as used in ProTrak is:

- a) The distance between clearance points in the case of double ended sidings; or
- b) The distance from the clearance point to the end of the track.

The phrases “distance between clearance points” and “siding” are, in reality, the same thing. Here are two diagrams to illustrate a “siding”:

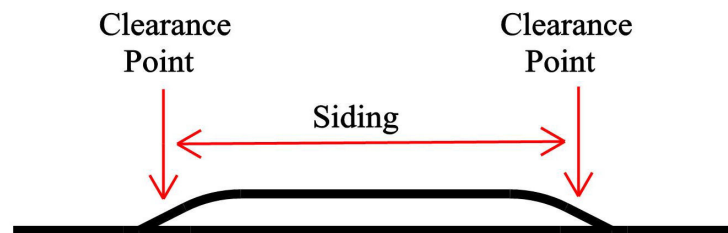


Figure A-4

Double ended siding.

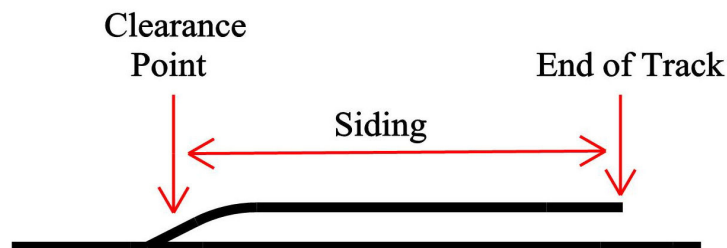


Figure A-5

Single ended siding

Also refer to the definition of “Interval”

Stringlining.

Stringlining is the tendency of a train on a curve to fall inwards. The term is derived from the action you see when you take a piece of string, laying in a curve on a table. If you grasp both ends of the string and pull, the string starts to straighten out. This is the same action that occurs with a train. One end of the 'string' is being pulled by the locomotive, and the other end is being held in place by the resistance of the cars.

Subdivision.

A subdivision is a portion of a railroad designated by timetable. In the prototype world a subdivision is typically 100 miles or so long. In the model worlds this, of course, is much shorter.

tt.

See Tool Tip

Tool tip.

A tool tip is a brief piece of helpful text which will appear if you 'hover' your mouse pointer over a data field or other area in a ProTrak window. Note that not all data fields have a tool tip. Where a data field is known to have a tool tip it will be indicated with a (tt) symbol where the data field is referred to in the text of this manual.

Trailing Point and Facing Point.

The terms Trailing Point and Facing point are relative terms. A track switch may be a trailing point switch for a train proceeding one direction (westward, for example) but that same switch is a facing point switch for a train proceeding in the opposite direction (eastward this time). This must be kept in mind when reading the balance of this definition.

A trailing point switch is one where the industry can be switched by a train once the train has passed over the switch **without the locomotive running around the train**. A facing point switch is one where the locomotive must run around the train, or in the case of a "turn" train, may be switched on the return leg.

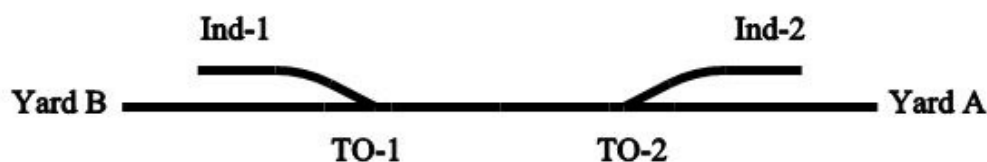


Figure A-6

Using Figure A-5, a train proceeding from Yard A to Yard B would switch TO-2 as a trailing point switch. The train would stop before TO-2 and split immediately **behind** the car(s) to be delivered to Ind-2. It would then run ahead until it had passed over TO-2, the switch would be thrown and the locomotive and car(s) can then back into Ind-2. At no time did the locomotive need to run around the train.

Ind-1 on the other hand, requires the same train to do some extra operations. One option is to stop the train before reaching TO-1, split it immediately **ahead** of the cars to be set out, run around the train (the run-around track is not shown in the diagram) and push the whole train up to Ind-1. Once the cars for Ind-1 have been set out, the balance of the train is pulled back and the locomotive and any cars behind the locomotive are again run back to the front of the train and recoupled. Obviously this requires that there be at least one double ended siding for the train to run around in.

A second option exists if the train is running as a turn (i.e. Yard A to Yard B and back to Yard A). In this case the car can be carried right through to Yard B and then when the train makes the trip from Yard B to Yard A, the switch at TO-1 becomes a trailing point switch.

Train Reporting Location.

A train reporting location is:

- a) for a freight train, one of: a "Yd" yard, a single track "y" yard, an interchange or a staging track,
- b) For a passenger train, a "01" passenger station or a staging track,
- c) any location (yard) where the train exchanges cars with other trains,
- d) the limit of any switching / local-service zone for a switching train.

A train reporting location is where a new train journal/switchlist is printed. A train reporting location may be referred to simply as a reporting point

Train Switching Zone.

The train switching zone is the mainline track between reporting locations for that train. (See "Train Reporting Location" above).

Zone Code.

The zone code is a 1 to 4 character identifier assigned to a specific location, typically a town. The zone plus a track number identifies siding number (or location on a siding) at that location. Originally, the program assumed that all siding numbers would be 6 characters long and the zone code portion would be 3 characters long. Over the years, this has been changed to allow anything from

1 to 4 characters. If the zone code is less than 3 characters, a '-' is inserted between the zone code and the track number. Here's an example of how the program uses these:

- In the Stations window, you enter a zone code – let's say CQ for ComQuat. The program remembers "CQ"
- You now enter a customer which you select as being at the station CQ.
- You add the track number "12". The program adds "CQ" and "12" and gets "CQ12" It checks and finds that this is 6 or less characters and inserts a "-" to get "CQ-12".
- The data field is actually 6 characters long so the zone code is really "CQ-12 " (one blank on the right side).
- When the program is running it finds the zone by
 - Looking for the "-"; or
 - Finding the first numeric digit.