



NATIONAL TRANSPORTATION SAFETY BOARD
Investigative Hearing

Washington Metropolitan Area Transit Authority Metrorail train 302 that encountered heavy smoke in the tunnel between the L'Enfant Plaza Station and the Potomac River Bridge on January 12, 2015

GROUP	H
EXHIBIT	
28	

Agency / Organization

Washington Metropolitan Area Transit Authority

Title

Gauge Rod Training

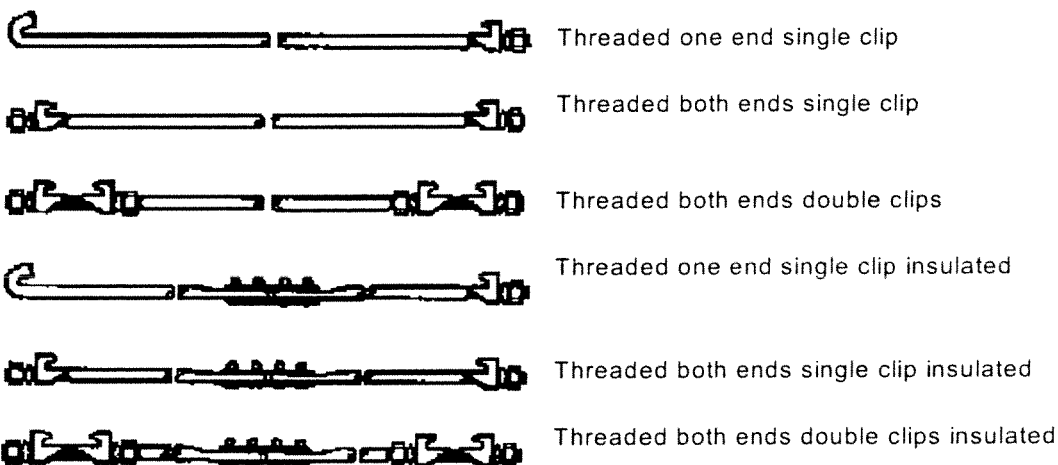
GAUGE RODS

GAUGE OR GAGE RODS

I What is a gage rod?

Gage rod. ---A device for holding track to correct gage, generally consisting of 1 ¹/₄ inch rod with a forged jaw on one end and a malleable jaw on the other end, adjustable through a locknut. Sometimes consists of a rod made in two parts with a solid jaw on each.

II Different types of gage rods

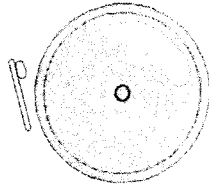


III When do you use a gage rod ?

If standard rail fastening components cannot maintain track gauge to tolerance specified in the Track Standards Manual due to deterioration or breakage of the fastening system, gauge rods may be used as a temporary measure for the safe passage of trains until permanent repairs are made. Prioritization of defects by Track Inspectors or implementation of speed restrictions will be in accordance with applicable standards and procedures based on the measurements of the defect **before** gauge rods were installed.

NOTE: Installation of a gauge rod is considered a **temporary measure** in that it does not repair the defect, negate the need for a speed restriction or affect the priority designation for reporting purposes. It's purpose is to insure the safe operation of trains until appropriate permanent repairs are made.

GAUGE OR GAGE RODS



EMERGENCY

1.3.1 Emergency: Any condition which can or has resulted in harm to customers or employees; damage to equipment or property; a service disruption; or any combination of these circumstances. (MSRPH)

IV Prior to Installing Gauge Rods

- For any condition(s) which may not be covered in the Track Standards Manual, but which constitutes an emergency, proper action shall be taken. Any action taken must be reported immediately to the Rail Operations Control Center and the employee's immediate supervisor. (Track Standards Manual page 1.1)
- Determine if there is sufficient clearance between the bottom of the rail and the concrete and ballast to install a gauge rod (are there gaps in the grout pads).
- Determine the prescribed gauge for that area.

<p>NOTE: Remember the radius of the track determines the gauge of the rails. Verify the radius of the area with the Metro Operating System Track Maintenance Charts (Track Charts)</p>

WMATA uses an insulated gage rod at all times.

- Use the Track Standards Manual as your reference for using gauge rods. Track gauge:(section 11-3) Table 11-2. Defective ties: (section 6.9) Table 6.3. Defective grout pads: (section 6.14). Direction fixation rail support: (section 7.10.2.4)
- Determine the length of the defect (will one gauge rod secure the defect or will it take more than one).

GAUGE OR GAGE RODS

V Procedures for Installing Gauge Rods

- Implement any speed restrictions if needed for the severity of the defect using proper procedures.
- Chose one inspector as lookout for oncoming trains and the other to install the gauge rod.

Hook Type Gage Rod

- Remove the nut and other hardware from the end of the gauge rod.
- From center of track insert the hook end of the gauge rod under the base of the rail next to the 3rd rail side. Slide the gauge rod under far enough to clear the opposite rail, then back the other direction until the hook is engaged on the base of rail.
- Reinstall the hardware and hex nut on the threaded end of the gauge rod insuring the clip is properly engaged with the base of the rail.
- Tighten with track wrench to the desired track gauge as determined above.

Double End Gauge Rod

- Remove the field side nuts and clips from each end of the gauge rod.
 - From the center of track insert one end of the gauge rod under the base of the rail. Slide the gauge rod under far enough to clear the opposite rail, then back the other direction until the gauge rod is centered in the track.
 - From the center of track install the field side clip and nut on the rail next to the 3rd rail. Position both the field side and gauge side clips to the base of rail and hand tighten both nuts. Secure clips with a track wrench tightening the **gauge side nut only**.
 - Install the clip and nut on the field side of the rail opposite the 3rd rail. Tighten the field side nut with a track wrench until the desired gauge is attained. Secure the clip assembly by tightening the gauge side nut with a track wrench.
- Recheck gauge throughout the defect area for any undesired variations.

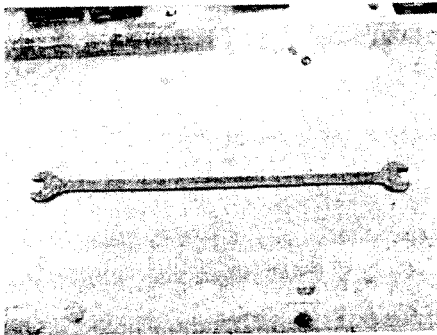
GAUGE OR GAGE RODS

- Perform a visual inspection to determine if the tightening of the gauge rod has caused any undesired variations in the alignment of either rail.
- Insure all necessary information is recorded for documentation of defects on the Daily Inspection Report.

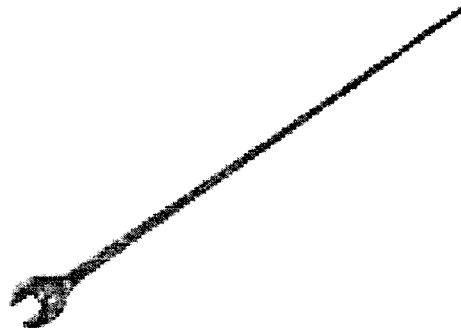
NOTE: Check both rails for movement when installing gage rods.

VI Track Wrench

Approximate weight 8 to 18 lbs., length 30" to 54". Track wrenches come in three types: single end, double end and speed wrench. We'll deal with the single end wrench. This wrench has jaws on one end only. It is designed to fit only one nut size. Gauge rods nuts are $1\frac{7}{8}$ ". A track wrench is used to install and remove track bolts. Always use a wrench that fits the nut. Inspect wrench for metal burrs and slivers, and all foreign material such as grease, oil, cresote, etc. With firm footing and grip on handle, properly braced guarding against the wrench slipping off the nut. Always pull (never push) on the wrench, apply or remove the nut. (Always face the nut).



DOUBLE END



SINGLE END