

equipment used both on and off track. The Task Group further divided two remaining categories of roadway maintenance machines into five sub-categories: Large self-propelled equipment; medium self-propelled equipment; small "walk-along" equipment; hi-rail equipment; and motor cars.

The Task Group conducted a systematic review of various types and configurations of machinery, as well as of their current use in the railroad industry. The Task Group determined that the railroad industry is rapidly phasing out the use of motor cars, replacing them with hi-rail vehicles. In fact, motor cars have not been manufactured for use in the United States in several years. Therefore, it was decided that there was no need to write a rule covering motor cars. However, if in the future, the industry returns motor cars for widespread use as inspection vehicles, FRA may reconsider its decision to exclude motor cars from this regulation.

Next, the Task Group decided to eliminate small "walk-along" track equipment from the scope of the new regulations. "Walk-along" equipment includes small pieces of track maintenance equipment that rolls on the rails but may not be self-propelled. This type of equipment includes tie borers, nut runners, portable rail grinders and other track maintenance equipment of similar size which can be placed on, or removed from, the track with relative ease by one or more roadway workers. The Task Group determined that the great variety of this type of equipment would necessitate writing a very complicated set of regulations governing a category of equipment that does not pose a very significant safety hazard. Therefore, the Task Group decided to focus the rulemaking on the three remaining sub-categories of roadway maintenance equipment: Large on-track machines, medium on-track machines, and hi-rail vehicles.

To distinguish large on-track machines from medium-sized on-track machines, the Task Group decided to consider the light weight of the vehicles. Large equipment was designated as "Category I" equipment and included on-track self-propelled roadway maintenance machines having a light weight of 17,500 pounds or more. "Category II" machines included similar equipment whose light weight was less than 17,500 pounds but more than 7,500 pounds.

The final categorization of covered roadway maintenance machines dealt with the age of the vehicles. The Task Group determined that all of the

regulations would apply to new machines. The Group decided to define "new" as any machine ordered for manufacture 90 days after the issuance of a final rule, to prevent the rule from interfering with the manufacture of new equipment already on order but not yet completed when the rule is issued.

Likewise, the Task Group believed it necessary to limit the number of older roadway maintenance machines that would need retrofitting following the issuance of a final rule. Because technology has changed and many types of roadway maintenance machines have been redesigned in more recent years, the Task Group determined that the new rule should not apply to the oldest equipment in the industry's collective fleet. Therefore, the Task Group decided that the requirements for retrofitting would not apply to any roadway maintenance machine manufactured prior to January 1, 1991.

With the parameters about types of equipment agreed upon, the Task Group then set out to determine what safety features on the machines should be covered by the regulations. The Group reviewed existing standards for work equipment issued by the Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor, and discussed the American National Standards Institute (ANSI) and the Society of Automotive Engineers (SAE) standards, which are voluntary industry standards. The Group identified 18 items on the Category I and Category II machines that should be included in the regulations:

- Operator Seating;
- Brakes;
- Horn;
- Work Lights;
- Mirrors;
- Change of Direction Alarm;
- Fire Extinguisher;
- Safety Glass;
- Power Wipers;
- Strobe Light;
- Heat and Ventilation for Non-Pressurized Cab;
- Flagging Equipment;
- Headlights;
- Turntable Positive Restraint Device;
- Equipment Light Weight Displayed;
- Heat, Ventilation, and Air Conditioning for Pressurized Cab;
- Brake Lights; and
- First-Aid Kit.

For hi-rail vehicles, the Group determined that the regulations should address:

- Operator Seating;
- Brakes;
- Horn;
- Mirrors;
- Fire Extinguisher;

- Safety Glass;
- Power Wipers;
- Heat and Ventilation for Non-Pressurized Cab;
- Headlights;
- Equipment Light Weight Displayed;
- Brake Lights;
- Change of Direction Alarm;
- Strobe Light;
- Flagging Equipment; and
- First-Aid Kit.

Because the regulations are intended to cover hi-rail vehicles only when they are being used as on-track vehicles, the Task Group determined that the regulations should not replace any Federal or State requirements covering hi-rail vehicles when they are used as roadway motor vehicles.

As the discussions continued over many months in preparation of a proposed rule, some early decisions made by the Task Group changed. For example, the Category I and II designations, which helped the Task Group early in the discussions, eventually became unnecessary as proposed requirements changed. This final rule makes the distinction between large equipment and medium-sized equipment in only two instances, making it unnecessary to maintain the designated categories for purposes of the rule.

Shunting

Early in the deliberations, the Task Group explored whether or not the regulations should require that the covered track maintenance machines be non-insulated for the purpose of shunting the track circuits. Machines capable of shunting track circuits would enable a track circuit to indicate track occupancy by the machine, affording an extra measure of protection for the track crew through the signal system, as well as protection at highway-rail crossings through the activation of warning devices at crossings so equipped.

The railroad industry has struggled many years to develop a technology that would provide reliable shunting capabilities for track maintenance machines. Even heavy equipment such as single unit self-propelled passenger cars and single unit locomotive consists without cars do not always shunt the track circuits. The Task Group discussed the advantages of current shunting technologies when the technologies work successfully, and balanced them against the possibility that the technologies might fail. Roadway workers could develop a false sense of security when using machines designed to shunt track circuits, perhaps relying too heavily on shunting as a