



U.S. Department
Of Transportation
Federal Motor Carrier
Safety Administration

Memorandum

Subject: **ACTION**: Technical Review of Industry Cargo Securement
Practices for Square Bales of Hay and Straw

Date: SEP 28 2007

From: F. Daniel Hartman
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Field Operations

Reply to: MC-PSV
Attn of: Mike Huntley

To: Field Administrators
Division Administrators
National Enforcement Team
National Training Center

BACKGROUND

Baled hay and straw are not currently covered by a separate commodity-specific rule under the Federal Motor Carrier Safety Regulations (FMCSR), and as such, must be secured in accordance with the general cargo securement requirements outlined in 49 CFR 393.100-114.

Concerns have been raised with respect to the proper securement of loads of square bales of hay and straw. Industry representatives contend that square bales of hay and straw can be secured in a manner that satisfies the current performance requirements under 49 CFR 393.102, although the securement methods may not necessarily satisfy the prescriptive requirements under 49 CFR 393.114. The current industry practices – which in some cases have been formally adopted into State law – employ longitudinal ropes or tiedown assemblies, in conjunction with a loading pattern which interlocks adjacent square bales together, to “unitize” the load such that the individual bales effectively act as a single unit.

The Office of Bus and Truck Standards’ Vehicle and Roadside Operations Division has reviewed the results of a series of tests that were conducted to gather data concerning

(1) friction coefficients for typical loads of square bales of hay and straw, (2) strap tension, and (3) the performance of these securement systems under simulated accelerations. The results demonstrate conclusively that the combination of longitudinal tiedown assemblies and a loading pattern that effectively unitizes the bales of hay and straw, along with the addition of one or two lateral cargo securement devices depending on vehicle length, provides a securement system that meets or exceeds the performance criteria established by the FMCSRs and does not result in any degradation in the level of safety during transport. Therefore, the adequacy of many of the

longstanding industry practices concerning the securement of square bales of hay and straw should be considered as satisfying the performance criteria under 49 CFR 393.102.

TECHNICAL FINDING

In consideration of the Agency's review of the testing performed by the industry, loads of square bales of hay and straw satisfy the "equivalent means of securement" requirements in 49 CFR 393.102(c) under the following conditions:

1. For square bales of hay or straw that are unitized using longitudinal ropes or tiedown assemblies:
 - a. Trucks or trailers 32 feet or less in length require the use of a minimum of one lateral tiedown placed in the approximate center of the length of the truck or trailer.
 - b. Trucks or trailers greater than 32 feet in length require the use of a minimum of two lateral tiedowns which must be positioned at approximately one-third and two-thirds of the length of the truck or trailer.
 - c. In both cases above, the aggregate working load limit requirements of 49 CFR 393.106(d) still apply.
2. For loads of square bales of hay or straw that are NOT unitized using longitudinal ropes or tiedown assemblies:
 - a. These loads must conform to the general cargo securement requirements of 49 CFR 393.100-114.

COMMUNICATION OF FMCSA POLICY WITH STATE AGENCIES

Division Administrators and State Directors are to contact the lead Motor Carrier Safety Assistance Program agency in their States and advise them of the Agency's technical finding concerning the securement of loads of square bales of hay and straw. Please request that the States refrain from penalizing motor carriers that use the "equivalent means" of cargo securement which includes the use of longitudinal ropes or tiedown assemblies – as outlined in the above guidance – instead of applying 49 CFR 393.110 concerning the minimum number of tiedowns based on the length of the articles of cargo.

cc: Associate Administrator for Enforcement and Program Delivery
Associate Administrator for Policy and Program Development