# Safety Chain of Full Trailers or Converter Dollies – SAE J697a

**SAE Recommended Practice**
**Editorial Change March 1974**



THIS IS A PREPRINT WHICH IS SUBJECT TO REVISIONS AND CORRECTIONS. THE FINAL VERSION WILL APPEAR IN THE 1983 EDITION OF THE SAE HANDBOOK.

SAE *The Engineering Resource For Advancing Mobility*

**PREPRINT**

# SAFETY CHAIN OF FULL TRAILERS OR CONVERTER DOLLIES—SAE J697a

## SAE Recommended Practice

Report of Truck and Bus Technical Committee approved May 1958 and last revised July 1966. Reaffirmed with editorial change March 1974.

This SAE Recommended Practice is intended as a guide for manufacturers and users of full trailer or converter dollies. Its inclusion in state, federal, or any laws or regulations where flexibility of revision is lacking is discouraged.

Emergency safety is the basis of this recommendation.

***Scope***—This SAE Recommended Practice covers the number, location, and method of attachment of safety chains for full trailers or converter dollies.

***Definition***—A safety chain is the chain from the front of a full trailer or converter dolly to rear of the towing vehicle for purpose of retaining connection between towing and towed vehicles and of controlling direction of travel of the towed vehicle in event of failure of drawbar or connection on rear of towing vehicle.

NOTE: A single chain or two chains, or single cable or two cables, or a bridle arrangement of a single chain or cable, may be used if all requirements are met.

***Installation***—The safety chain shall be attached by suitable means to the frame of the trailer or converter dolly to which the hinged drawbar is attached and to the frame of the towing vehicle. Converter dollies with solid tongues and without hinged tow bars may have chain attached to solid tongue. The connection or coupling device shall not be used as a means of attaching safety chain to the towing vehicle frame. The means of attachment of the safety chain shall be capable of developing the full capacity of the chain into the frame member of the towing and towed vehicles. The safety chain shall be so installed as to support the drawbar and prevent it from dropping to the ground in event of failure of the drawbar or connection on the rear of towing vehicles.

The safety chain shall be attached and installed so as to keep the trailer in a straight line back of the towing vehicle insofar as practicable in event of failure of the drawbar, connection or coupling device.

The safety chain shall have no more slack, when in use, than is necessary to permit proper turning of the vehicles.

NOTE: Two cables, when used, may be attached to the full trailer front axle or converter dolly axle near the wheels in lieu of this attachment. The means of attachment shall develop the full capacity of the cables into the axle.

***Capacity***—The safety chain capacity shall be equal to the gross vehicle weight of vehicle or vehicles being towed.

For the purpose of this recommended practice, the safety chain capacity should be the published break test load or the ultimate strength by actual test. The safety cable capacity should be the published breaking strength or the ultimate strength by actual test.

NOTE: When two chains or two cables are used, each chain or cable shall have a capacity equal to the gross vehicle weight of vehicle or vehicles being towed.

Breaking strengths are given in Table 1.

**TABLE 1**

| Type | Published Breaking Strength, lb |
|---|---|
| Alloy Steel Chain, in. | |
| 1/2 | 32,500 |
| 5/8 | 50,000 |
| 3/4 | 69,500 |
| Wire Rope Fed Spec RR-W-410a Type 1, Class 2, 6 × 19 Plow Steel with Steel Core, in. | |
| 1/2 | 23,000 |
| 9/16 | 29,000 |
| 5/8 | 36,000 |
| 3/4 | 51,200 |
| 7/8 | 69,200 |
| Roebling Royal Blue Wire Rope 6 × 19, in. | |
| 1/2 | 26,600 |
| 9/16 | 33,600 |
| 5/8 | 41,200 |
| 3/4 | 59,800 |
| 7/8 | 79,600 |

The ultimate strength of chains and cable, by actual test, is about 10% higher than the published breaking strength.