

**TECHNICAL REPORT****J127**

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**SELECTION OF TIRES FOR LIGHT DUTY TRUCKS
FOR NORMAL HIGHWAY SERVICE—SAE J127**

SAE Recommended Practice

Report of Tire Committee approved September 1969.

1. PURPOSE AND SCOPE

This SAE Recommended Practice specifies procedures for tire selection.

2. APPLICATIONS

This SAE Recommended Practice applies to light duty (up to and including 10,000 lb gross vehicle weight) trucks used in normal highway service.

3. DEFINITIONS

3.1 CURB WEIGHT means the weight of a truck with standard equipment, for a specific manufacturer's gvwt, including the cab and/or utility body and maximum capacity of engine fuel, oil, and coolant.

3.2 MAXIMUM GROSS VEHICLE WEIGHT RATING means the vehicle manufacturer's prescribed maximum loaded vehicle weight, including all accessories, occupants, cargo, and extra equipment.

3.3 ACCESSORY WEIGHT means the combined weight of those regular production options (not previously considered in curb weight) weighing 5 lb or more, and less than 75 lb, such as radios, power steering systems, and power brakes. If such options replace standard items, include only the excess if the excess weighs over 5 lb.

3.4 HEAVY ACCESSORY WEIGHT means the combined weight of installed regular production options (not previously considered in curb weight) weighing 75 lb or more, such as optional engines, transmissions, and air conditioning systems. If such options replace standard items, include only the excess.

3.5 EXTRA EQUIPMENT WEIGHT means the weight of any items other than accessories which are affixed to the vehicle (snow plows, special racks, etc.).

3.6 DRIVER WEIGHT means the weight of the vehicle driver at 150 lb.

3.7 OCCUPANT WEIGHT means 150 lb times the vehicle's designated seating capacity, which includes the driver.

3.8 LIGHT DUTY TRUCK MAXIMUM FRONT TIRE LOADING means the maximum load imposed on the front tire at the ground. It is computed by determining the distribution to the front axle of the combined curb, occupant, accessory and cargo weight, and if so equipped, heavy accessory weight, and dividing by two. Weights of individual items shall be located at the component center of gravity. For the purpose of this definition, the cargo weight is equal to the maximum gross vehicle weight rating less the combined curb,

occupant, accessory, and if so equipped, heavy accessory weight. The cargo weight is distributed evenly over the cargo area.

3.9 LIGHT DUTY TRUCK MAXIMUM REAR TIRE LOADING means the maximum load imposed on the rear tire at the ground. It is computed by determining the distribution to the rear axle of the combined curb, driver, extra equipment, and cargo weight and dividing by number of tires on the axle. For the purpose of this definition, the cargo weight is equal to the maximum gross vehicle weight less the combined curb and driver and extra equipment weight. The cargo weight is distributed evenly over the cargo area.

3.10 TRUCK SERVICE FACTOR is the multiplier by which the actual load on the tires is increased prior to the selection of passenger car tires for use on trucks. It represents the relative severity of truck service as compared to passenger car service.

4. TIRE SELECTION PROCEDURE

4.1 LIGHT DUTY TRUCKS - Light duty truck maximum front tire loading and light duty truck maximum rear tire loading shall be determined as outlined in paragraph 3. Note that maximum front tire loading is calculated with full occupant load and maximum accessory weight, and with heavy accessory weight, if used on the vehicle in question. Since these weight items typically are located so that most of their weight is distributed to the front axle, this practice results in higher front axle loading than would result from use of greater cargo weight associated with use of base vehicle weight since cargo weight is carried primarily on the rear axle. Maximum rear axle load, on the other hand, results from use of maximum possible cargo weight. Therefore, occupants (other than the driver) and accessories are *not* considered in this calculation so as to provide minimum vehicle weight and maximum cargo weight. Occupant weight is located at the H point position (as described in SAE J826) for these calculations.

4.2 If cargo, accessory, and extra equipment weights and center of gravity of each are known and restricted, an alternate method may be used to determine maximum front and rear tire loadings in lieu of the procedure referenced in paragraph 4.1. In this case, calculate the actual load distribution to the front and rear tires using the combined curb, occupant, accessory, cargo, and extra equipment weights, at the center of gravity of each item. Divide each distribution by two for maximum tire loading. Since cargo, accessory, and extra equipment weights are known for the vehicle, assumptions with regard to minimum vehicle/maximum cargo weight, or maximum possible accessory weight are not necessary and actual

loadings may be used.

5. REQUIREMENTS

5.1 GENERAL

5.1.1 Truck tires used on light duty trucks shall meet requirements specified in SAE J341.

5.1.2 Passenger car tires used on trucks shall meet the requirements specified in SAE J918.

5.2 TIRE LOAD LIMITS

5.2.1 If tires used are passenger car tires, the maximum

load on a tire multiplied by a truck service factor of 1.1 shall not be greater than the maximum load rating specified in the current Tire and Rim Association Yearbook.

5.2.2 If tires used are truck-bus tires, the maximum load on a tire shall not be greater than the maximum load rating specified in the appropriate table of the current Tire and Rim Association Yearbook, for single and dual usage.

5.3 DUAL TIRE SPACING - Wheel equipment shall be selected which provides at least the minimum spacing between tires as specified in the current Tire and Rim Association Yearbook.

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