SOCIETY OF AUTOMOTIVE ENGINEERS, INC. • TWO PENNSYLVANIA PLAZA • NEW YORK, NEW YORK 10001

LAND SEA AIR SPACE

TECHNICAL REPORT J260

REAR UNDERRIDE GUARD TEST PROCEDURE — SAE J260

SAE Recommended Practice

Report of Automotive Safety Committee approved September 1971.

1. Scope—This SAE Recommended Practice is intended to provide a uniform basis for evaluating the effectiveness of rear underride devices employed to reduce the likelihood of penetration of the passenger compartment of an impacting vehicle. The procedures described in this report provide means for determining the characteristics of a rear underride guard, taking into consideration the nature and direction of forces involved.

2. Discussion—The static test procedure outlined in this recommended practice was established after a detailed study which included field observations of typical rear-end collisions involving heavier vehicles being impacted by lighter passenger vehicles. These observations, as well as analysis of typical accidents, indicated that the underride guard is essentially an occupant rather than a vehicle protection device. It was also recognized that in establishing the characteristics of an underride guard and the test procedures to evaluate it, due consideration had to be given to establishing a realistic balance between providing protection for the major portion of vehicles operating on United States highways and avoiding undue restriction on the mobility and operating characteristics of vehicles equipped with underride devices. Taking these factors into consideration, it was concluded that the development of uniform procedures for evaluating the characteristics of underride guards would be of assistance in the design and engineering of these types of devices and would provide a basis for comparative tests of the devices at various facilities. It was also recognized, however, that evaluation procedures involving full-scale components and vehicles in dynamic situations, although most representative of actual impacts, had serious limitations.

Thus, few laboratory facilities are available that can readily conduct this type of evaluation, and the establishment of adequate facilities will involve cost outlays beyond the means of many laboratories. Additionally, the limited production of specialized vehicles, which might be equipped with underride guards, would mean destructive testing of an unduly high percentage of the production run. Finally, the varying nature of the configuration and size of passenger vehicles which may impact rear underride guards, as well as the direction and velocity at which the barriers are impacted, further complicates the establishment of uniform full-scale evaluation procedures. For these reasons, it was decided to present a test procedure for static testing of vehicle components.

3. Static Test

3.1 Test Equipment

3.1.1 GENERAL—The static test is conducted with equipment suitable for applying and measuring the required loads and deflections.

3.1.2 LOADING PLATE—The test load is applied to the guard through

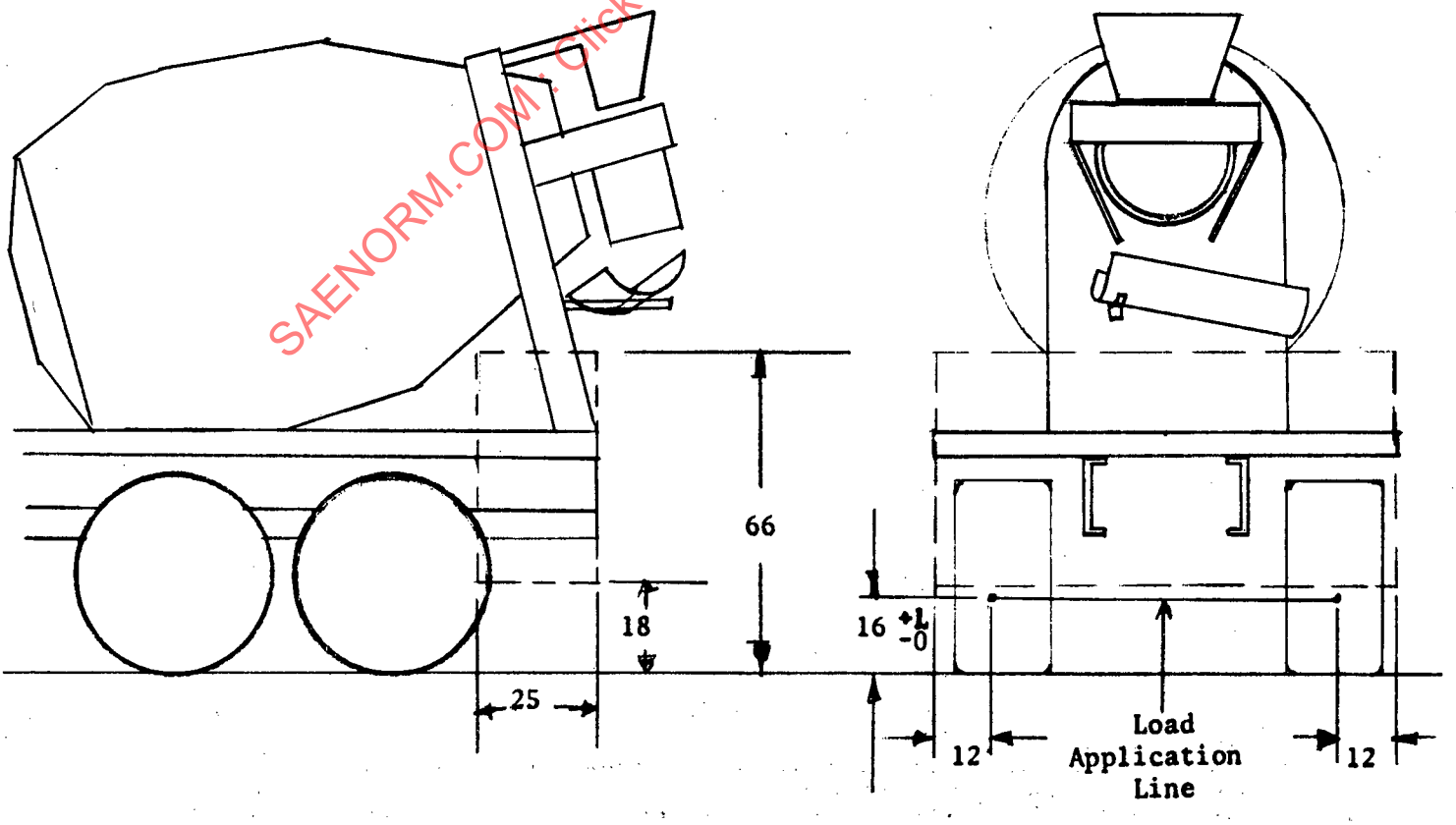

FIG. 1—UNDERRIDE GUARD TEST ZONE