NHTSA disagrees with ITT–TEVES recommendation to dramatically increase the stopping distance requirement for the variable proportioning valve test. The agency believes that it would be inconsistent with motor vehicle safety to allow a vehicle that is so greatly influenced by an operational variable proportioning valve that when the valve fails the brakes lock up and the vehicle needs 168 meters to stop. The agency further notes that the problem discussed by the commenter, which might affect trucks in rare cases, is even less likely to affect passenger cars.

The GRRF stated that the 60% cold effectiveness requirement is more stringent than the European specification in Regulation 13. Nevertheless, the GRRF stated that it could accept the proposed performance requirement for variable proportioning valve functional failure for purposes of Regulation 13H, provided that its concerns set forth below with respect to S7.9.2(g)(1) are met.

Chrysler, Ford, MVMA, and the GRRF commented that when a variable proportioning valve is disconnected or fails for any reason, it reverts to a default position, functioning at the lowest pressure possible in its proportioning range. Therefore, they state that S7.9.2(g)(1) should be changed to reflect this default condition. They believe that to require the proportioning valve to be operated in any specified position in its operating range would require equipment that is not found on current vehicles.

NHTSA agrees with the commenters that S7.9.2(g)(1) should be revised to allow the variable proportioning valve to return to its normal, default, position, when disconnected, since this will more accurately test the vehicle's real world braking ability. Accordingly, the agency has decided not to require the variable proportioning valve to be held in any position in its operating range, thus allowing it to revert to its uncontrolled condition.

NHTSA notes that the stopping distances for variable proportioning valve functional failure are shorter than those of FMVSS No. 105 (while the stopping distances for structural failure are longer). The agency has determined that the stopping distances which are more stringent for functional failures are appropriate, since functional failures are more likely to occur.

d. Hydraulic circuit failure. In the 1991 SNPRM (Notice 5), NHTSA proposed a stopping distance of 168 m (551 feet) from a test speed of 100 km/h. This proposal is identical to that included in the proposed Regulation 13H. It maintains the same deceleration term as in the 1987 SNPRM (Notice 4), but reflects the proposed reaction time changes in the equation for the cold effectiveness performance requirement.

Advocates stated that increasing the stopping distance in the hydraulic circuit failure test by 42 feet from the NPRM (Notice 1) decreased the Standard's stringency compared to the initial proposal. It further stated that the 1991 SNPRM (Notice 5) also was less stringent than the 1987 SNPRM (Notice 4). There were no other comments regarding the stringency of this requirement.

Based on testing and other available information, NHTSA has decided to adopt the proposed stopping distance of 168 meters (551 feet) from a test speed of 100 km/h for both the hydraulic circuit failure tests. The agency has decided to adopt the stopping distance formula ($0.10V+0.0158V^2$), as proposed in the 1991 SNPRM. As explained in previous notices, it is not possible to compare the stringency of FMVSS No. 105 and FMVSS No. 135 directly when discussing hydraulic circuit failure requirements. This is primarily because there is a significant difference in allowable pedal force during the test. FMVSS No. 105 limits pedal force to 150 lbs, whereas the maximum pedal force in FMVSS No. 135 is 500 N (112.4 lbs). Although as a general matter, the stopping distance of a vehicle improves as greater pedal force is applied, it is not possible to quantify a precise relationship between stopping distance and pedal force. The relationship between these factors is non-linear; it varies among vehicle models, and depends upon various parts of the vehicle, including tires and brake system components. It is broadly true, however, that as pedal force increases, stopping distance decreases.

In response to Advocates' comment regarding the changes between the 1985 NPRM (Notice 1) and the 1991 SNPRM (Notice 5), the rationale for those changes was set forth in the two SNPRMs.

Bendix requested that S7.10.3(f) be clarified so that the induced failure for testing would be limited to the normal braking circuits, but not as part of the ABS that is not part of the normal braking circuit.

NHTSA notes that it is not clear exactly what Bendix means by ''normal braking circuits.'' Section S7.10.3(f) states that the failure is to be induced in the service brake system. The failure could be anywhere in that system, including any part of an ABS that is common to the service brake system. Any part of the ABS that is not common to the service brake system would be subject to testing to the failed ABS requirements, not the hydraulic circuit failure requirements. The agency believes the test condition is clear as stated, and further clarification is unnecessary. Therefore, S7.10.3(f) is adopted as proposed.

e. Power assist unit inoperative. In the 1991 SNPRM, NHTSA proposed a stopping distance of 168 m (551 feet) from a test speed of 100 km/h. This proposal is identical to that included in the proposed Regulation 13H. It maintains the same deceleration term as in the 1987 SNPRM, but reflects the proposed reaction time changes in the equation for the cold effectiveness performance requirement.

Advocates opposed the proposed stopping distance of 168 m for stops with an inoperative power assist, stating that it compared unfavorably with the 165 m proposed in the 1987 SNPRM and the 155 m proposed in the NPRM. In contrast, Ford and GM stated that the agency had proposed a significant increase in stringency from FMVSS No. 105. These commenters recommended a stopping distance of 177 meters (580 ft), stating that such a distance would be equivalent to R13, and would still be more stringent than the 456 foot stopping distance in FMVSS No. 105 because of the decreased maximum pedal force.

After reviewing the comments, NHTSA has decided to adopt the proposed stopping distance of 168 meters (551 feet) from a test speed of 100 km/h for stops when the power assist is inoperative. The agency has decided to adopt the stopping distance formula, ($0.10V+0.0158V^2$), as proposed in the 1991 SNPRM.

As explained in the section on hydraulic circuit failure, it is not possible to compare the stringency of FMVSS No. 105 and FMVSS No. 135 directly when discussing power assist failure requirements, primarily because there is a significant difference in allowable pedal force during the test. None of the commenters who asked for a more or less stringent stopping distance value provided justification for their requests.

9. Parking Brake Requirements

a. Dynamic test. In the NPRM and 1987 SNPRM, NHTSA proposed a dynamic parking brake test that it believed was consistent with the GRRF decisions. The dynamic test was intended to ensure that the driver could use the parking brake to stop a moving vehicle during emergency situations. In the 1991 SNPRM, NHTSA proposed requiring that vehicles utilizing the