

# INFORMATION BULLETIN



August 13, 2003

## DEFECTIVE BRAKE CRITERIA

This information bulletin provides clarification regarding the Commercial Vehicle Safety Alliance (CVSA) North American Standard Vehicle Out-of-Service Criteria adopted pursuant to Title 13, California Code of Regulations, Section 1239.

Specifically, Paragraph (1)(a), *Vehicle*, of Part II of the CVSA North American Standard Vehicle Out-of-Service Criteria with regard to brake adjustment limits states, “Defective Brakes: The number of defective brakes is equal to or greater than 20 percent of the service brakes on the vehicle or combination.”

When the number of defective brakes is equal to or greater than 20 percent on any vehicle or combination, the vehicle and/or combination shall be placed out of service (OOS). Defective steering axle brakes are to be included in the 20 percent criteria, notwithstanding any additional criteria that may cause the vehicle to be placed OOS. *A defective brake exists when the reservoir pressure is between 90 and 100 psi; the engine is off; and the service brakes are fully applied (full-treadle valve application), and one or more of the following conditions exists:*

1. The push rod travel of any one brake chamber is equal to or greater than 1/4 inch more than the adjustment limit applicable to the size of that brake chamber; or
2. The push rod travel of any two brake chambers is greater than the applicable adjustment limit, but less than 1/4 inch beyond that limit; or
3. The combined brake lining movement of both the top and bottom shoes of any wedge brake exceeds 1/8 inch.

The above criteria states that the push rod travel of two different brake chambers measuring between the manufacturer’s readjustment limit and 1/4 inch beyond the limit is a defective brake. This means any single brake chamber meeting this criterion would be equivalent to 1/2 of a defective brake. The example given in the CVSA North American Standard Vehicle Out-of-Service Criteria (two brakes at 2-1/8 inch stroke each equals one defective brake) should not diminish the fact that braking efficiency is reduced whenever the manufacturer’s brake adjustment limit is exceeded.

When determining the 20 percent criterion, it is important to include any push rod stroke which exceeds the manufacturer's readjustment limit. Failure to do so could easily result in the operation of a vehicle and/or combination that does not meet design specifications and may also be unable to meet the prescribed stopping distance requirements. This is especially true of a vehicle with six brakes, such as a three-axle motor coach. For this reason, pursuant to HPM 82.6, Chapter 3, Appendix A, a vehicle or combination placed OOS is not permitted to return to service until ALL defective brakes included in the OOS determination have been satisfactorily adjusted or repaired.

In order to simplify the 20 percent criterion, this information bulletin includes a brake OOS reference chart designed to properly apply the 20 percent criterion as prescribed in the CVSA North American Standard Vehicle Out-of-Service Criteria. The reference chart should be used by inspection personnel to assist in calculating the percentage of defective brakes on a vehicle and/or combination for proper application of the 20 percent criterion.

Questions concerning information contained in this information bulletin should be directed to Mr. Mike Ellis, CVS, at (916) 445-1865.

#### ENFORCEMENT SERVICES DIVISION

OPI: 062

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**Commercial Vehicle Safety Alliance  
Twenty Percent Defective Brake Chart**

*Should be used to assist in determining when a vehicle and/or combination is to be placed out-of-service (Clamp Type Brake Chamber Data).*

<b>Brake Type Size</b>	<b>Adjustment Limit</b>	<b>Out of Adjustment</b>
	<b>1/2 Brake (inches)</b>	<b>1 Brake (inches)</b>
6	1-1/4	1-1/2
9	1-3/8	1-5/8
12	1-3/8	1-5/8
16	1-3/4	2
20	1-3/4	2
24	1-3/4	2
30	2	2-1/4
36	2-1/4	2-1/2
<b>Brake Out of Adjustment</b>	<b>Percent</b>	<b>Out-of-Service</b>
1/2 of 4	12%	No
1 of 4	25%	Yes
1-1/2 of 4	37%	Yes
2 of 4	50%	Yes
1/2 of 6	8%	No
1 of 6	16%	No
1-1/2 of 6	25%	Yes
2 of 6	33%	Yes
1/2 of 8	6%	No
1 of 8	12%	No
1-1/2 of 8	18%	No
2 of 8	25%	Yes
2-1/2 of 8	31%	Yes
3 of 8	37%	Yes
1/2 of 10	5%	No
2 of 10	20%	Yes
2-1/2 of 12	20%	Yes