



CIRCULAR NO.3-2-1

AUSTRALIAN DESIGN RULE NO.3 - DYNAMIC TEST PROCEDURES

Introduction

1. The Board has received a number of requests to specify the requirements for acceptance of dynamic test procedures for the demonstration of compliance to the requirements of ADR 3.

The ADR allows the use of dynamic test techniques but does not specify the procedures to be followed. Therefore the Board considers that manufacturers wishing to avail themselves of dynamic techniques have the responsibility of satisfying the Board that the dynamic test is equivalent to the static test specified by the Design Rule.

Demonstration of Compliance

2. It shall be the responsibility of the manufacturer to demonstrate that the dynamic test is equivalent to the specified static tests.

3. To establish equivalence at least, the following criteria need to be met:

- (a) the acceleration pulse applied shall be such that all the parts of the seat and supporting structure, which anchors it to the vehicle, have at least an acceleration of 20 g applied simultaneously in the same direction;
- (b) any additional forces due to the loading of seat belt anchorages or child restraint anchorages shall be achieved simultaneously with the 20 g acceleration required in (a) above;
- (c) the measurement of the dynamic forces shall be made with acceleration and force transducers at all critical points on the seat and the support structure. The force transducers shall be capable of measuring the force applied to any seat belt anchorage or child restraint anchorage along a line of action required by the ADR. Further it shall be the responsibility of the manufacturer to demonstrate that the transducers were located at all critical points.

Test Reports

4. Test reports covering dynamic tests shall incorporate the following:

- (a) the rationale justifying the location of the acceleration and force transducers;
- (b) copies of traces recorded for all acceleration and force transducers used during the test, with the scales shown thereon; and
- (c) photographs of the seat and supporting structure (including restraining devices and release controls where fitted) before and after each dynamic



test. Additionally, these photos should show the location of the acceleration and force transducers.

5. Reports shall be made on the Board's standard form CB; Annex A, Part 1, completed in the sections that are relevant and supported by the additional requirements specified in para 3 above.

Laboratory Equipment

6. The test report shall be accompanied by a Laboratory Equipment Report unless the Laboratory is approved by the Board for the conduct of dynamic tests. The Laboratory Equipment Report shall be provided on the Board's standard: form CB3, Annex A, Part 2, completed in the relevant sections and supported by the additional information on the dynamic test equipment. The additional information shall show that the instrumentation has an accuracy of $\pm 2\frac{1}{2}$ percent. For the measurement of acceleration and force, and the associated filtering, amplification and recording equipment has a frequency response which is flat within ± 5 percent from 1 to 1000 Hz.