Last date for receipt
of comments is 09/08/2023

DRAFT AMENDMENT NO. 2
TO
IS 15986 : 2015 AUTOMOTIVE VEHICLES — UNIFORM PROVISIONS
CONCERNING THE APPROVAL OF VEHICLES OF CATEGORY M1 AND N1 WITH
REGARD TO BRAKING
(*First Revision*)

(*Page 10*, *clause* **7.1**) ― Substitute the following for the existing:

'**7.1** Extension may be granted based on guidelines given in Table 1 for the changes to the technical specifications of an already type approved vehicle.

Table 1 Guidelines for Deciding Test Vehicle/Extension Criteria
(*Clause* 7.1)

S.No	Parameters and changes	Test to be conducted
1.	Increase in maximum speed which causes the initial speed forType 0 test to be increased by more than 8 percent of the initial speed used in the testing	Type 0 and Type I test to be performed.
2.	A change in drive line ratio that increases engine rpm corresponding to gear and the initial speed for 0 type test	No test
3.	A change in drive line ratio that decreases engine rpm corresponding to gear and the initial speed for 0 type test inexcess of 8 percent	Engine connected type 0 and type I test need to be conducted
4.	Change of category M1 to N1, vice versa	Only the additional tests prescribed for the changed category
5.	Any change of type of transmission (Manual toautomatic/AMT or automatic/AMT to manual)	MT to AT & Vice versa, Engine connected only. MT to AMT & vice versa, No test.
6.	Change in manufacturer of brake liner/Brake material	Type 0 and type I tests to be done if the specification is changed.
7.	Changes in engine which increase or do not reduce the enginebraking effect. (Changes such as increase in swept volume, increase in compression ratio, 2 strokes to 4 strokes, SI to CI etc., are considered to increase the engine braking effect.)	No test
8.	Changes which reduce the engine braking effect (Changessuch as decrease in swept volume, decrease in compressionratio, 4 stroke to 2 stroke, CI to SI, etc., are considered to decrease the engine braking effect)	Engine connected brake Type 0 test & Type I test to be conducted
9.	Increase in the brake lining area	No test

10.	Decrease in the brake lining area	Type I and Type 0 test to be performed
11.	Increase in Brake booster size	
	a) Increase in Brake booster size / Magnification ratio	No Test
	b) Decrease in Brake booster size / magnification ratio	Type 0 test except booster disconnection test as per IS 11852: 2019
12.	Drum to disc or vice-versa	All dynamic tests to be done
13.	Increase in GVW exceeding 10 percent	All dynamic test in laden condition and parking brake.
14.	Increase in GVW up to 10 percent	If the deceleration calculated from the previous type 0 engine disconnected test, corrected for new GVW, using formula[1] is within limits, no tests need to be done. Otherwise, all dynamic tests.
15.	Change in unladen weight	All dynamic test in the unladen condition, If F/R ratio in unladen condition is increased in excess by 10 percent
16.	Decrease in wheelbase in excess of 10 percent	All Type 0 dynamic tests
17.	Increase in dynamic rolling radius in excess of 5 percent	All Type 0 dynamic tests
18.	Change in brake ECU with relevant changes in software	ABS relevant test needs to be performed
19.	Change of manufacturer of brake	Type 0 and Type I tests to be done if the specifications are changed. Only to be tested for foundation brakes
20	Parameters & Changes – Decrease in Wheelbase in excess of 10%	All Dynamic tests including ABS tests to be conducted
21	Change in Type	
	a) Tyre: Increase in rolling radius in excess of 10 %	All dynamic test Type 0, Type I and parking brake to be done
	b) Changes affecting adhesion such as change from radial ply to cross ply or from higher tyre width to lower tyre width	Type 0 and Type I, tests to be done

[1] The stopping distance or the mean fully developed deceleration shall be calculated to the condition of new specified mass by following formulae:

$$S_{ext} = \{(S_{ta} - 0.1\ V_s) \times (M_{ext} / M_{ta})\} + 0.1 V_s$$
$$d_{ext} = d_{ta} \times M_{ta} / M_{ext}$$

Where,

S_{ta} = stopping distance reported in the earlier type approval test;

S_{ext} = stopping distance calculated for the new GVW for which extension is sought;

M_{ta} = mass specified for the earlier type approval test in kg;

M_{ext} = mass for which extension is sought in kg;

d_{ta} = mean fully developed deceleration reported in earlier type approval test in m/s^2;

d_{ext} = mean fully developed deceleration (m/s^2) calculated for the new GVW for which extension is sought in m/s^2; and

V_s = test speed applicable to the vehicle under consideration.'

(*Page 13*, *clause* **B-1.4.3.1**) — Substitute the following for the existing:

'B-1.4.3.1 The test shall be carried out with the engine connected, from the speed prescribed in **B-2.1.1(B)**. The minimum performance prescribed shall be attained. This test is not run if the maximum speed of the vehicle is ≤ 125 km/h.'