

Exhaust 11-1 Exhaust system

Summary of legislation

Applicable legislation

- Land Transport Rule: Vehicle Equipment 2004
- Land Transport Act 1998, section 115

Mandatory equipment

1. A motorcycle with an internal combustion engine must be fitted with an exhaust system.
2. A vehicle that is presented for a WoF or CoF because it has been ordered off the road by an enforcement officer for non-compliant exhaust noise must pass an LVVTA objective noise test before the vehicle may be issued with a WoF or CoF (**Note 4**).

Condition

3. An exhaust system must not be constructed or modified in a way that allows a person to interfere readily with its operation or reduce its effectiveness.
4. An exhaust system must be designed, constructed, positioned and maintained in a way that minimises the risk of heat or fumes emitted from the system harming the vehicle's occupants.

Performance

5. An exhaust system must be effective and in good working order.
6. The noise output from the exhaust system of a class LC, LD or LE vehicle:
 - a) must be less than or similar to the noise output from the vehicle's original exhaust system at the time of the vehicle's manufacture, or
 - b) must not, if the noise output of the vehicle's original exhaust system at the time of the vehicle's manufacture is not known, exceed the applicable maximum decibel level when tested and certified by an LVV specialist certifier in accordance with the LVVTA objective noise test.

Modification

7. A class LC, LD or LE vehicle that has been modified so as to increase its exhaust noise output must have the exhaust system inspected, tested and certified by an LVV specialist certifier as having passed the LVVTA objective noise test, unless:
 - a) the increased noise output is clearly below the applicable noise limits (**Note 3**), and
 - b) it has been inspected in accordance with the requirements in this manual, including those for equipment, condition and performance.
8. When a vehicle has been certified by an LVV specialist certifier as having passed the LVVTA objective noise test:
 - a) the owner must produce a valid objective exhaust noise emissions test certificate (**Figure 11-1-1**), and
 - b) the exhaust system tailpipe must be fitted with a valid LVVTA noise test label (**Figure 11-1-2**).

Reasons for rejection

Mandatory equipment

1. A vehicle is not fitted with an exhaust system that includes a means of sound reduction (**Note 1**).
2. A vehicle is presented for a WoF or CoF because it has been ordered off the road (pink- or green-stickered) by an enforcement officer for non-compliant exhaust noise, and there is no evidence that the vehicle has passed an LVVTA objective noise test since the vehicle was ordered off the road, ie:
 - a) the owner cannot produce a valid objective exhaust noise emissions test certificate (**Figure 11-1-1**) issued after the vehicle was ordered off the road (**Note 5**), and
 - b) the exhaust system tail pipe is not fitted with a valid LVVTA noise test label (**Figure 11-1-2**).

Condition

3. An exhaust system is not securely mounted.
4. The exhaust system is so constructed or modified that its operation or effectiveness can be readily interfered with, eg the driver is able to interfere with the exhaust system by operating a manual switch or the exhaust is fitted with a flame-thrower kit.
5. The exhaust system is so constructed that emitted heat or fumes are likely to harm vehicle occupants.

Performance

6. There is a leak of exhaust fumes from the exhaust system.
7. The exhaust noise output from a class LC, LD or LE vehicle is not less than or similar to the noise output the vehicle (or a vehicle of a similar type – see **Note 2**) would have had when it was manufactured with its original exhaust system, and:
 - a) the increased noise output exceeds the relevant noise limit in **Table 11-1-1** when assessed by the vehicle inspector:
 - i. using their own experience, or
 - ii. using the Noise Quick Check specified in **Technical bulletin 1**, or

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Reasons for rejection

- b) there is no evidence that the vehicle has passed an LVVTA objective noise test, ie:
 - i. the owner cannot produce a valid objective exhaust noise emission test certificate (**Figure 11-1-1**), and
 - ii. the exhaust system tail pipe is not fitted with a valid LVVTA noise test label (**Figure 11-1-2**).

Table 11-1-1. Noise limits for the Noise Quick Check

Vehicle	Noise limit (decibels) (Note 3)
Class LC, LD, LE with an engine capacity of 125 cc or less	93 dBA
Class LC, LD, LE with an engine capacity of more than 125 cc	97 dBA

Note 1 Definition


Exhaust system means a pipe assembly through which the engine exhaust gases pass to the atmosphere and includes some means of sound reduction such as a silencer or resonator.

Note 2 For the purpose of reason for rejection, a vehicle of a similar type means a vehicle of similar age, vehicle size, body type, engine size and power output, and may be of a different make and model.

Note 3 The noise limits in **Table 11-1-1** are lower than the noise limits specified in legislation, and considered to be 'clearly below' the legal noise limits. Vehicles with an exhaust noise output clearly below the legal limits do not require an Objective Noise Test.

Note 4 A new objective noise test is required every time the vehicle is ordered off the road for non-compliant exhaust noise, even if the vehicle is presented for WoF or CoF with a quieter or original exhaust system.

Note 5 Sight the ordering off the road notice or phone the NZ Police to find out when the ordering off the notice was issued.

LOW VOLUME VEHICLE TECHNICAL ASSOCIATION Inc 

Objective Exhaust Noise Emission Test Certificate


Vehicle and owner details: <i>(white copy for vehicle owner)</i>			
Owner: (Name)		(Contact Ph #) ()	
Vehicle: (Make)		(Model)	(Sub-model)
(Year)	(Colour)	(VIN)	
Engine: (Make)		(Code if known)	(Modified?)
(Cylinder configuration & #)		(Camshaft & valve arrangement)	
Exhaust system description & details:			
(a) Exhaust manifold(s): (make/type)			
(b) Front pipe(s): (OD/material/length)			
(c) Muffler(s)/resonator(s) #1: (make/material/length/OD)			
(d) Intermediate pipe(s): (OD/material/length)			
(e) Muffler(s)/resonator(s) #2: (make/material/length/OD)			
(f) Tail pipe(s): (OD/material/length)			
(g) Other exhaust system details: (catalytic converter(s)/balance pipe/additional mufflers/other)			
Low Volume Vehicle Certifier's declaration:			
LVV Certifier: (Name)		(ID)	(Contact Ph #) ()
<input type="checkbox"/> PASS:	Approval label: (Number)	(Location of label)	
I, the above-named Low Volume Vehicle Certifier, appointed by the Low Volume Vehicle Technical Association (Inc) for the purpose of Objective Exhaust Noise Emission Testing, declare that, I carried out an objective exhaust noise emission test on the above-described vehicle in accordance with the procedures specified by Low Volume Vehicle Standard 90-20, and confirm that at the time of testing the vehicle complied with all requirements of, and emitted exhaust noise emissions not exceeding that specified by, Low Volume Vehicle Standard 90-20. (Signed)..... (Date).....			LVV certifier's authentication (only if pass is recorded): [Authenticity sticker with hologram security feature]
<input type="checkbox"/> FAIL:	Recommendations to vehicle owner on bringing the exhaust system into compliance (expert advice is offered without any guarantee of a pass as a result of the advice given or implied):		
Vehicle exhaust system schematic:			
			
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Figure 11-1-1. Objective exhaust noise emission test certificate



Figure 11-1-2. Objective noise test label

Exhaust 11-2 Visible exhaust smoke

Summary of legislation

Applicable legislation

- Land Transport Rule: Vehicle Exhaust Emissions 2007

Performance

- A motor vehicle must not emit clearly visible smoke (**Note 2**) when the vehicle's engine is running at its normal operating temperature, under either of the following conditions:
 - for a continuous period of five seconds when the engine is idling
 - as the engine is being accelerated rapidly to approximately 2500 revolutions per minute or approximately half the maximum engine speed (whichever is lower).
- Performance requirement 1 above does not apply if the driver of the vehicle produces documentation that proves that the engine is original equipment for the vehicle and the engine's design means the vehicle cannot reasonably comply (**Note 3**).

Reasons for rejection

Performance

- A vehicle with the engine at normal operating temperature (**Note 1**) emits clearly visible smoke (**Technical bulletin 8**) from the exhaust tailpipe (**Note 2**):
 - for a continuous period of five seconds when the engine is idling and does not meet the additional requirements in **Table 11-2-1**, or
 - as the engine is being rapidly accelerated to approximately 2500 rpm or approximately half the maximum engine speed (whichever is lower) and does not meet the additional requirements in **Table 11-2-1**.

Table 11-2-1. Additional requirements

Type of vehicle	Additional requirements
First registered on or after 1 January 1960 with four-stroke engine, or First registered before 1 January 1960 with four-stroke engine manufactured on or after 1 January 1960.	<ol style="list-style-type: none"> Document produced by the vehicle operator that proves that (Note 3): <ol style="list-style-type: none"> the engine is original equipment for the vehicle, and its design means that the vehicle cannot reasonably comply with the visible smoke emission requirements. The smoke produced is not noticeably and significantly more visible than it would have been when the vehicle was manufactured and supplied with the fuel recommended by the manufacturer.
First registered before 1 January 1960 with four-stroke engine manufactured before 1 January 1960, or Vehicle with two-stroke engine or rotary engine.	The smoke produced is not noticeably and significantly more visible than it would have been when the vehicle was manufactured and supplied with the fuel recommended by the manufacturer (Note 4).

Note 1 Test procedure

- Carry out the idling and acceleration tests in Reason for rejection 1. A vehicle that passes both tests with the engine below normal operating temperature is deemed to have passed with the engine at normal operating temperature.
- If the vehicle has failed either test, ensure the engine is at normal operating temperature. Then purge the system by increasing the engine speed to 2500 rpm (or half the maximum engine speed if this is lower) and holding it there for about five seconds. Repeat the idling and acceleration tests in Reason for rejection 1.

Note 2 Visible emissions caused by the condensation of water vapour do not count as smoke.

Note 3 Acceptable evidence is:

- a letter on the letterhead of the manufacturer or manufacturer's representative, or
- a letter on the letterhead of an appropriate motorcycle club, or
- evidence of equal authority to (a) or (b) above, eg from an appropriate expert.

Note 4 The vehicle inspector may need to take into account further information about unusual or older vehicles, eg from an appropriate expert such as an office holder in a vintage vehicle club.

