

KEEP IT DOWN



HOW DO YOU MAKE SURE YOUR NEW BUILD'S BONNET PROTRUSIONS PASS LVV CERTIFICATION? WHILE IT MIGHT SEEM A BIT COMPLICATED, IT'S REALLY NOT HARD AT ALL – HERE'S HOW TO CHECK

New Zealand has always had a thing for go-fast gear hanging out the bonnet. In fact, it's been a principle that's almost as old as hot rodding itself – letting the next fella know that your car is packing some heat. However, while the local rules were once pretty lenient in all areas of vehicle modification, the 1992 introduction of Vehicle Standards saw the establishment of the LVTA to ensure that the vehicle modifiers still had some say. Thanks to

LVTA's negotiation with the NZ Transport Agency (NZTA) (or, more correctly, its predecessors), we have the freedom to have some components hanging out of the bonnet, assuming they meet a few simple requirements. Sure, you can't go running a top-alcohol style hat and injection, but it's far better than the alternative – of not being able to have anything sticking out at all, like some countries. Besides the visibility requirements that need to be taken into account, there are factors to consider to minimize the potential for bodily contact with

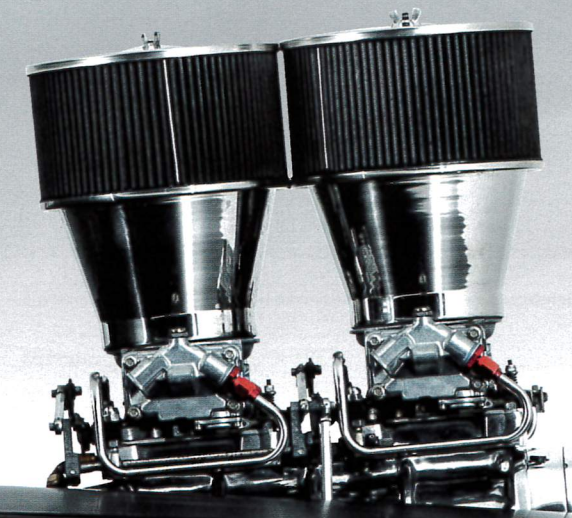
moving parts. These issues may sound technical to check, but the reality is that it isn't difficult at all. This guide aims to show you how to figure out your legality, and all you'll need is a measuring device, a bit of masking tape, a length of string, and a flat area with at least 15m clear ahead of the car. We knew of a pro-street Pontiac GTO, belonging to Herb Ingham, that was being worked on at Mike Bari's Nxt Lvl Automotive, so we decided to intrude for five minutes to show you how to check it. >

The first, and maybe easiest, area to consider is contained within chapter 9.6 of The New Zealand Car Construction Manual (CCM) and explicitly concerns protruding engine components. It states:

"An engine fitted to a low volume vehicle with a mechanical supercharger protruding above the line of the engine hood must have any exposed forward-facing moving components protected by the incorporation of a shield or cover to minimise the likelihood of contact.

"An engine fitted to a low volume vehicle with protrusions extending beyond the line of the engine hood must comply with:

- The external projection requirements specified within 'Chapter 13 – Body Modification and Construction'; and
- The visibility requirements specified within 'Chapter 15 – Glazing and Vision'."



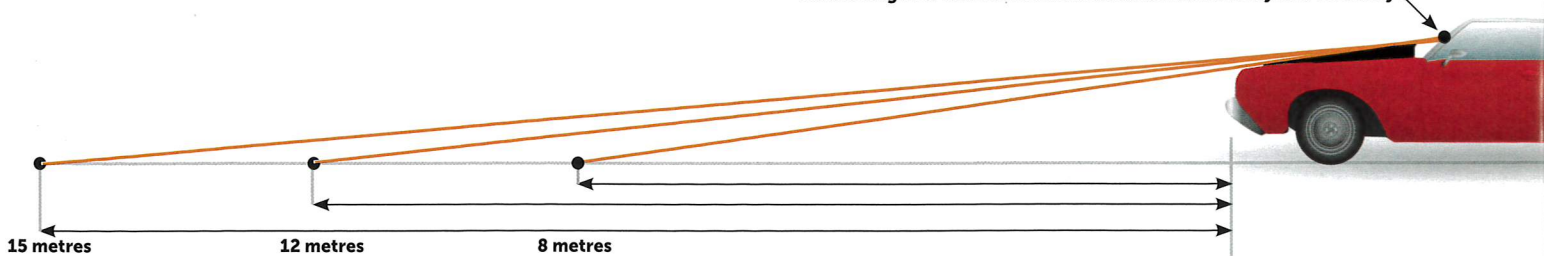
351-HACK



STEP ONE

The first part is relatively easy if you don't have a protruding supercharger, as you're not going to need a belt guard. If you do, you'll need to make sure your blower has a suitable belt guard installed, and that there are no sharp forward-facing edges that could injure a pedestrian, should you come into contact with one. Since Herb's Pontiac GTO used in this example runs a naturally aspirated big block under its reverse-cowl induction scoop, this first step isn't an issue. But, due to the large scoop, it will be subject to forward vision requirements.

Centre height of the windscreen measured horizontally and vertically



STEP TWO

To check forward vision requirements, you'll need to consult the CCM. Chapter 15.15, or section 2.3 of the LVV External Projections standard (available free online at the LVVTA website), is where you want to look, presuming that it's a vehicle with a fixed roof that you're working on. If it's an open vehicle, the info is slightly different — see the break-out box below.

As the GTO is a fixed-roof vehicle, we're consulting Chapter 15.15, which states: "A low volume vehicle which has a fixed roof must not have any components or fittings forward of the firewall which protrude above a straight line from the centre-point of the windscreen measured both vertically and horizontally to:

- In the case of protrusions 250mm or less in

- width, a point at ground level 15m forward of the front of the vehicle; or
- In the case of protrusions between 250mm and 400mm in width, a point at ground level 12m forward of the front of the vehicle; or
- In the case of protrusions 400mm or more in width, a point at ground level 8m forward of the front of the vehicle."

STEP THREE

We need to identify the windscreen centre point. The masking tape is going to come in handy here. Using a tape measure, measure the windscreen width at the bottom, from corner to corner. Divide this number by two to determine the centre point, and stick a piece of tape to the glass at this point. Repeat the process at the top of the windscreen, and run the tape straight to the upper halfway point. The vertical tape line will represent the horizontal centre point. In this example, we found that the centre measurement aligned with the upper and lower windscreen trim joints, meaning the reference points were already on the car. Now measure the height of the windscreen — from top to bottom — at this centre point, and divide the number by two to identify the vertical centre point. This is the point that your string line must run from. We marked this with a strip of masking tape, with a marker line identifying dead centre. Alternatively, you can run some string diagonally from each corner; the point where the string intersects will also be your centre point. >

OPEN-TOP VEHICLES

If you've got a convertible, or roadster, then the same measurements to the ground apply, however, they're measured from a point on the vehicle's longitudinal centre line 730mm above and 270mm forward of the junction of the uncompressed seat base and back, with the seat in its rearmost and lowest position.



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STEP FIVE

With all the information we need, the next step is to find the reference point at ground level forward of the car. As our tape measure measured up to 8m, it was just enough to find this reference point.



STEP FOUR

Now we need to determine the width of the protrusion. It comes in at around 530mm, meaning that it must provide a clear sight line from the windscreen centre point to a point at ground level 8m forward of the front of the vehicle.



STEP SIX

Next, we needed to use a string line to check whether it cleared the scoop, in a straight line from the windscreen centre point to a point on the ground 8m forward of the car (remember, this figure may change depending on how wide your protrusion is). Tape the string line to the windscreen centre point — or have a helper hold it in place — and run it forward, all the way to the mark on the ground. The string is going to need to be as taut as you can make it, to ensure that it is as straight as possible.

STEP SEVEN

With the string line in place, ensure that it does not touch the external protrusion at any point. As you can see here, the GTO just managed to sneak through. Due to the size of the scoop, this is attributable to its raked pro-street stance and tall rear tyres raising the windscreen centre point relative to stock. That's all there is to it. This is the exact test your certifier will need to perform, should your vehicle have something sticking out of the hood. While the check itself is not hard, if you didn't manage to pass, obviously you'll need to make some mechanical changes to it. You should check where it is fouling, as it may be a relatively simple fix — such as removing carb spacers — to lower the protrusion enough to pass.

I FAILED. WHAT CAN I DO?

If your car fails the test, there are a few things you can try, such as removing the carb and manifold spacers (if you have them); changing your air-cleaner set-up; or, worst-case scenario, modify your sump and engine mounts to drop the engine lower (bearing in mind that this will have flow-on effects to other areas of the vehicle).

Raising the rear of the vehicle relative to the front — raised rear suspension, or higher-profile rear tyres — can also be helpful if you're close to passing, but it's worth bearing in mind that these will be recorded on your cert plate too, and legally your vehicle must match the cert plate, ride height included. **VB**



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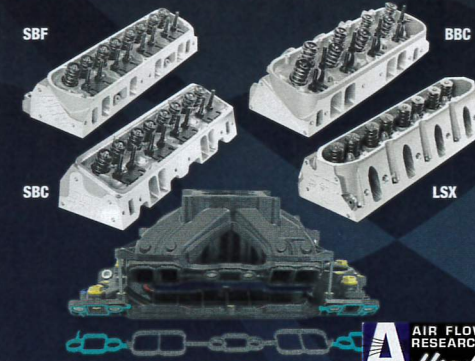
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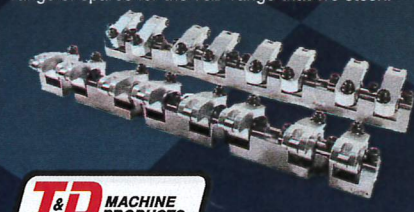
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