

Your Ref: Honda Engine  
(number R18A1748243)  
Our Ref : CI/TP19021207/D

02 December 2019

**Muhammad Wazini Bin Mohamed Taib**  
Block 6 Choa Chu Kang Grove  
#01-11  
Singapore 688240

### **INSPECTION REPORT OF A HONDA ENGINE WITH NUMBER R18A1748243**

1. I refer to your request on 20 November 2019 to conduct a physical inspection of a Honda engine with number R18A1748243.
2. The purpose of this inspection was to primarily determine whether the Honda engine is a Honda R18A model engine.
3. Following the request, I had carried out a physical inspection of the Honda engine on 27 November 2019 at the premises of SKM Motor Works Pte Ltd, No. 10 Kaki Bukit Road 2 #03-31 First East Centre, Singapore 417868.
4. Measurements of the bore and stroke of the Honda engine were obtained and thereafter compared with the bore and stroke measurements as stated in the technical specifications of a Honda R18A model engine.
5. I now set out below my observations and comments.

#### **Inspection of the Honda Engine**

6. Firstly, I note that the Honda engine was a used engine and not fitted on any motor car. It was observed to be a complete assembly with all mechanical parts still intact, within the engine housing. The engine number engraved on the housing was R18A1748243.
7. My visual examination of the engine housing revealed the housing to be of serviceable/satisfactory condition. There was no crack and/or hole observed on the engine housing.
8. Upon my request, the Honda engine was dismantled, specifically the top block was separated from the bottom block. This was to enable me to carry out measurements of its cylinders, in particular the bore and stroke measurements of each cylinder, which typically can be used to determine the engine displacement or more commonly referred to as engine cc or engine size. See photo 1 – 4 below.



**Photo 1** shows a general view of the Honda engine that I had inspected. The Honda engine was observed to be a used engine and was not fitted on any motor car. My visual examination of the engine housing revealed the housing to be of serviceable/satisfactory condition. There was no crack and/or hole observed on the engine housing.



**Photo 2** shows a closer view of the Honda engine that I had inspected. My visual examination of the engine housing revealed the housing to be of serviceable/satisfactory condition. There was no crack and/or hole observed on the engine housing.

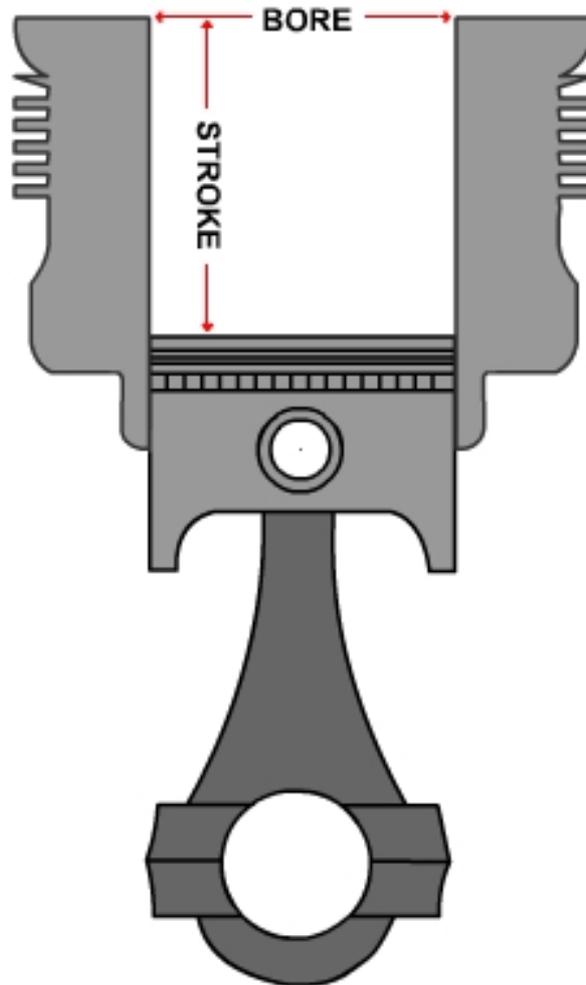


**Photo 3** shows a general view of the Honda engine that I had inspected. My visual examination of the engine housing revealed the housing to be of serviceable/satisfactory condition. There was no crack and/or hole observed on the engine housing.



**Photo 4** shows the engine number engraved on the housing of the Honda engine that I had inspected. The engine number was R18A1748243.

9. The bore of an engine refers to the measurement of the inside diameter of the cylinder while the stroke refers to the distance the piston moves in one direction of upward or downward movement in the cylinder. See diagram below for illustration purposes.



10. The bore and stroke measurements of the 4 cylinders of the Honda engine are set out in the table below. Photo 5 – 21 thereafter shows the photographs taken during the measurements.

	<b>Bore (mm)</b>	<b>Stroke (mm)</b>
<b>Cylinder 1</b>	80.67	87.10
<b>Cylinder 2</b>	80.40	87.04
<b>Cylinder 3</b>	80.86	87.13
<b>Cylinder 4</b>	80.75	87.12



**Photo 5** shows the top block (yellow arrow) of the Honda engine separated from its bottom block (red arrow). This was to enable me to carry out measurements of its cylinders, in particular the bore and stroke measurements of each cylinder, which typically can be used to determine the engine displacement or more commonly referred to as engine cc.



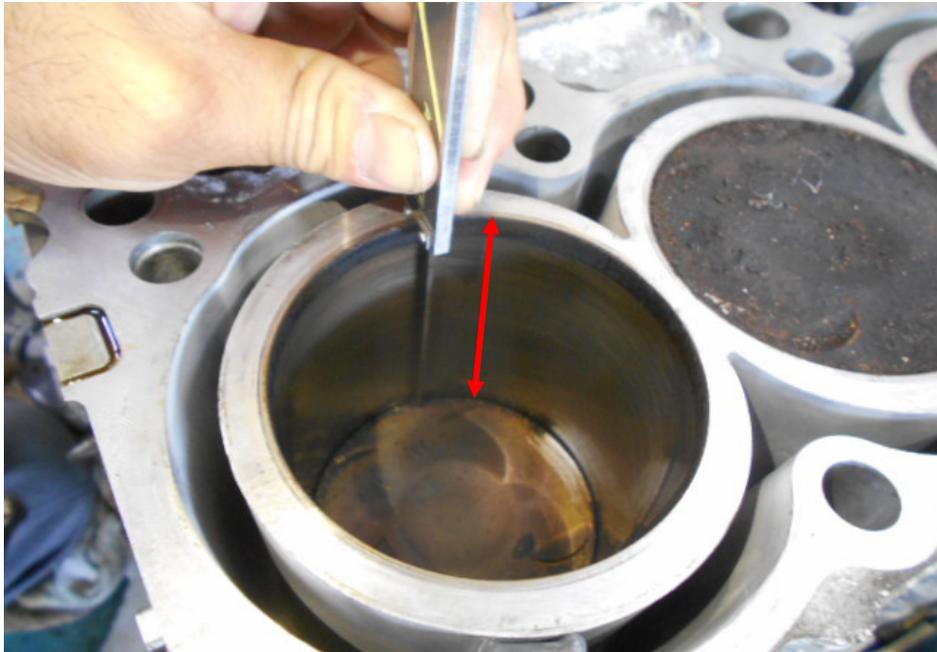
**Photo 6** shows the bottom block of the Honda engine and the digital Vernier Caliper (arrowed) that was used to measure the bore and stroke measurements of each cylinder, which typically can be used to determine the engine displacement or more commonly referred to as engine cc. The digital Vernier Caliper was calibrated before the start of the measurements.



**Photo 7** shows measurement being carried out to the bore (arrowed) of cylinder 1 of the Honda engine. The bore measurement of cylinder 1 was recorded to be 80.67mm.



**Photo 8** shows the bore measurement (arrowed) of cylinder 1, which was recorded to be 80.67mm.



**Photo 9** shows measurement being carried out to the stroke (arrowed) of cylinder 1 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a digital Vernier Caliper that was calibrated before the start of the measurements.



**Photo 10** shows the stroke measurement of cylinder 1, which was recorded to be 87.10mm.



**Photo 11** shows measurement being carried out to the bore (arrowed) of cylinder 2 of the Honda engine. The bore measurement of cylinder 2 was recorded to be 80.40mm.



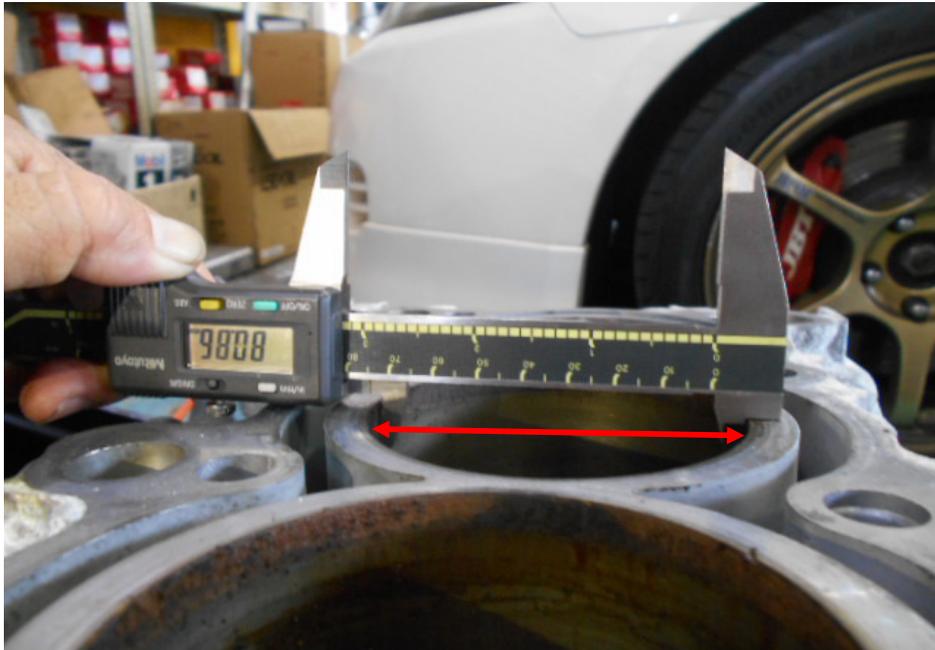
**Photo 12** shows the bore measurement of cylinder 2, which was recorded to be 80.40mm.



**Photo 13** shows measurement of the stroke (arrowed) of cylinder 2 of the Honda engine that I had inspected. The bore and stroke measurements of the Honda engine were carried out using a digital Vernier Caliper that was calibrated before the start of measurements.



**Photo 14** shows the stroke measurement of cylinder 2, which was recorded to be 87.04mm.



**Photo 15** shows measurement being carried out to the bore (arrowed) of cylinder 3 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a digital Vernier Caliper that was calibrated before the start of measurements. The bore measurement of cylinder 3, which was recorded to be 80.86mm.



**Photo 16** shows measurement of the stroke of cylinder 3 of the Honda engine that I had inspected. The stroke measurement of cylinder 3, which was recorded to be 87.13mm.



**Photo 17** shows the stroke measurement of cylinder 3, which was recorded to be 87.13mm.



**Photo 18** shows measurement being carried out to the bore of cylinder 4 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a digital Vernier Caliper. The bore measurement of cylinder 4 was recorded to be 80.75mm.



**Photo 19** shows the bore (arrowed) measurement of cylinder 4, which was recorded to be 80.75mm.



**Photo 20** shows measurement being carried out to the stroke (arrowed) of cylinder 4 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a digital Vernier Caliper that was calibrated before the start of measurements.



**Photo 21** shows the stroke measurement of cylinder 4, which was recorded to be 87.12mm.

### **Honda R18A Engine Technical Specifications**

11. To determine whether the Honda engine that I had inspected was a Honda R18A model engine, I had compared the measurements of the bore and stroke of the Honda engine, obtained during my inspection, with the bore and stroke measurements of the Honda R18A model engine, as stated in its technical specifications. According to the technical specification, the bore and stroke measurement of the Honda R18A model engine were 81.00mm and 87.30mm respectively.
12. Upon comparison with the technical specification, I note that the bore and stroke measurements of the Honda engine that I had inspected (shown in paragraph 10 above) had corresponded to the bore and stroke measurements as stated in the technical specifications of Honda R18A model engine. Although the measurements recorded from the Honda engine were all slightly lesser (at maximum 0.60mm lesser), this difference can be attributed to carbon accumulation within the cylinders, as the Honda engine that I had inspected was a used engine. See technical specifications of Honda R18A model engines below.

**R18A1** [ edit ]

- Found in:
  - 2006–2012 [Honda Civic](#) (South Africa/Thailand/Malaysia/Indonesia/Taiwan/Japan/Pakistani-market FD1, American/Canadian-market FA1 & FG1)
  - 2007–2009 [Honda FR-V](#) (European-market BE1)
  - 2008-2015 [Honda City](#)
  - 2007-2014 [Honda Stream](#)
    - Displacement: 1.8 L; 109.8 cu in (1,799 cc)
    - SOHC iVTEC (Chain driven cam)
    - Compression: 10.5:1
    - Bore & stroke: 81 mm × 87.3 mm (3.19 in × 3.44 in) ←
    - Power: 141 PS (104 kW; 139 bhp) at 6300 rpm (Japanese Spec)
    - Torque: 17.7 kg·m (174 N·m; 128 lb·ft) at 4,300 rpm
    - Fuel Cut Off: 6900 rpm
    - Redline: 6800 rpm

**R18A2** [ edit ]

- Found in:
  - 2006–2011 [Honda Civic](#) (European-market FN1 & FK2)
    - Displacement: 1.8 L; 109.8 cu in (1,799 cc)
    - Compression: 10.5:1
    - Bore & stroke: 81 mm × 87.3 mm (3.19 in × 3.44 in) ←
    - Power: 140 PS (103 kW; 138 bhp) at 6,300 rpm
    - Torque: 17.7 kg·m (174 N·m; 128 lb·ft) at 4,300 rpm
    - cruising/economy happens during VTEC under cruising load only.
    - Redline: 6800 rpm
    - Fuel Cutoff : 7150 rpm

## Conclusion

13. In summary, the Honda engine that I had inspected is a Honda R18A model engine. The engine number engraved on the housing of this Honda engine was R18A1748243.

### Ang Bryan Tani

AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA

Senior Technical Investigator

Technical Investigation & Accident Reconstructionist (SAE-A)

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