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Your Ref: Honda Engine
(number R18A1715039)
Our Ref : CI/TP21010669/D

18 October 2021

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#16-38
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INSPECTION REPORT OF A HONDA ENGINE WITH NUMBER R18A1715039

1. I refer to your request on 04 October 2021 to conduct a physical inspection of a Honda engine.

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 12 October 2021 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 my observations and comments pertaining to this inspection.

Inspection of the Honda Engine

6. Firstly, I had noted that the Honda engine was a used engine and not fitted on any motor car at the time of my inspection. 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 R18A1715039.

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. It was also observed to be a complete assembly with all mechanical parts still intact, within the engine housing.

Photo 2 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.

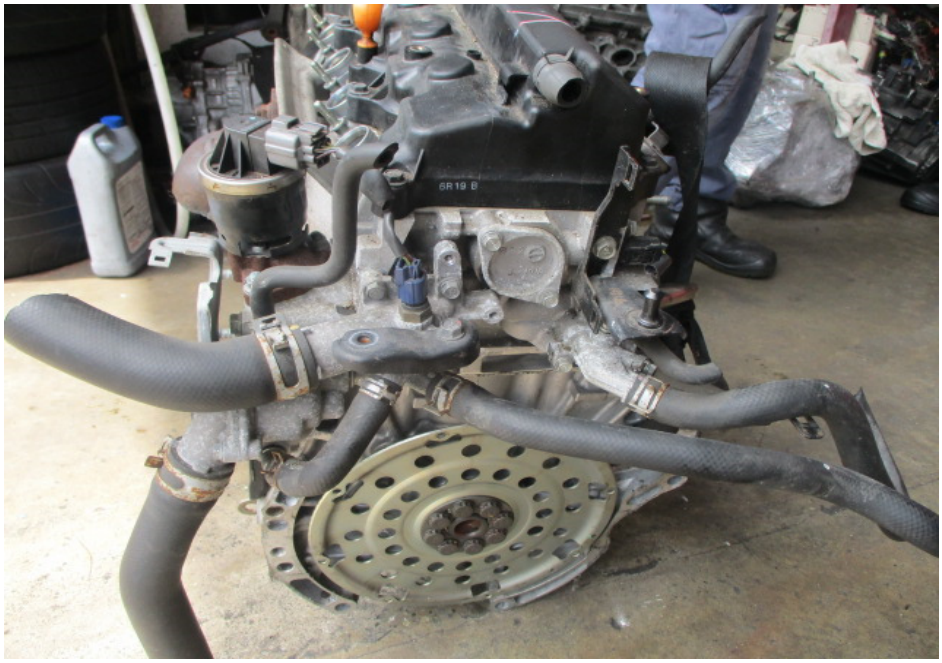
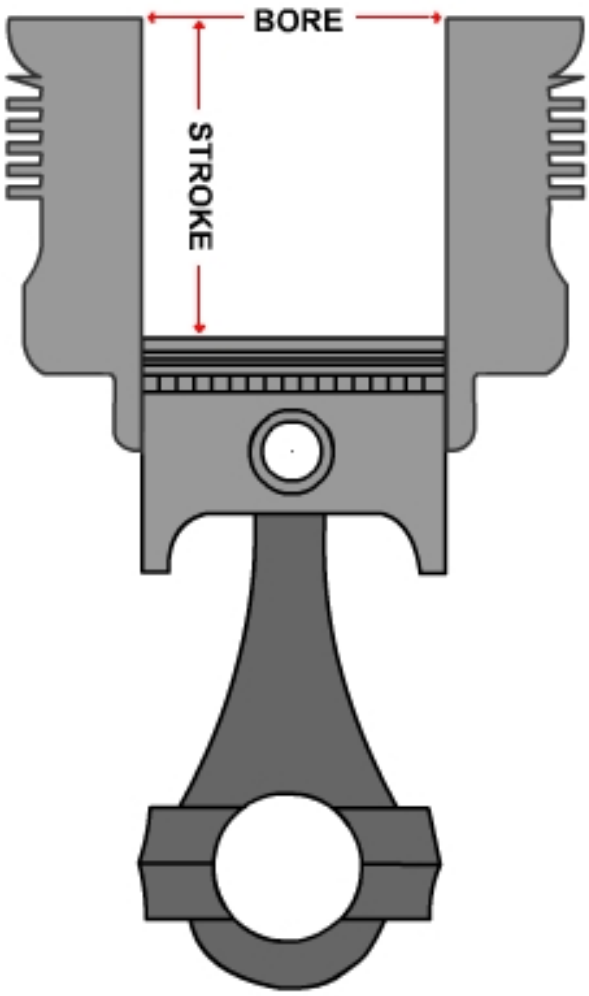


Photo 3 shows another view of the Honda engine that I had inspected. My visual examination of the engine housing revealed the housing to be of serviceable/satisfactory condition. There was no crack and/or hole observed on the engine housing.

Photo 4 shows the engine number engraved on the housing of the Honda engine that I had inspected. The engine number was R18A1715039.

9. The bore 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 – 20 thereafter shows the photographs taken during the measurements.

	Bore (mm)	Stroke (mm)
Cylinder 1	80.59	87.23
Cylinder 2	80.63	87.28
Cylinder 3	80.78	87.25
Cylinder 4	80.87	87.28

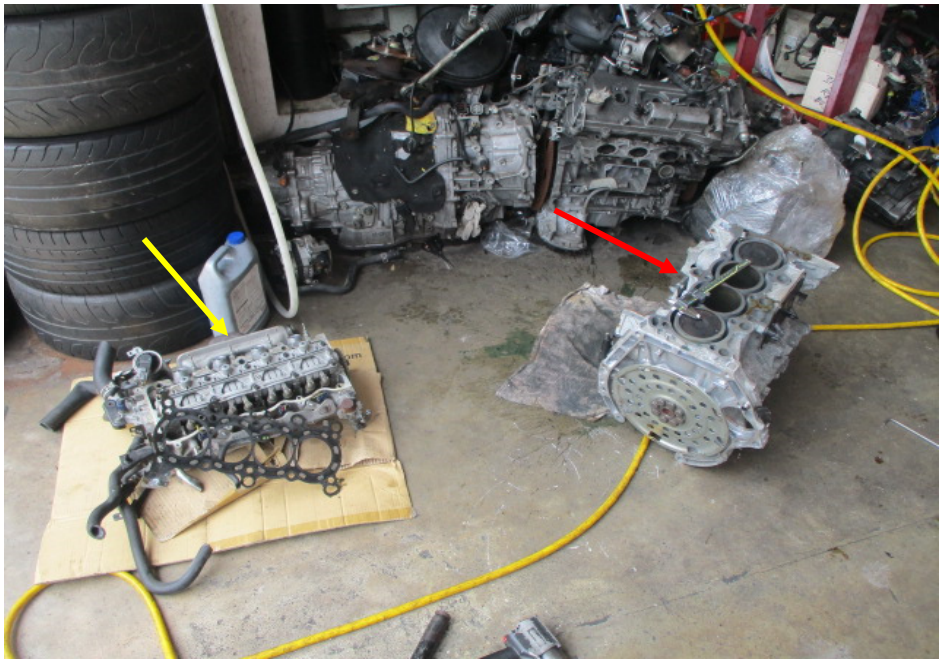


Photo 5 shows the top block (yellow arrow) of the Honda engine separated from its bottom block (red arrow). This was to enable me to carry out measurements of its cylinders, in particular the bore and stroke measurements of each cylinder, which typically can be used to determine the engine displacement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

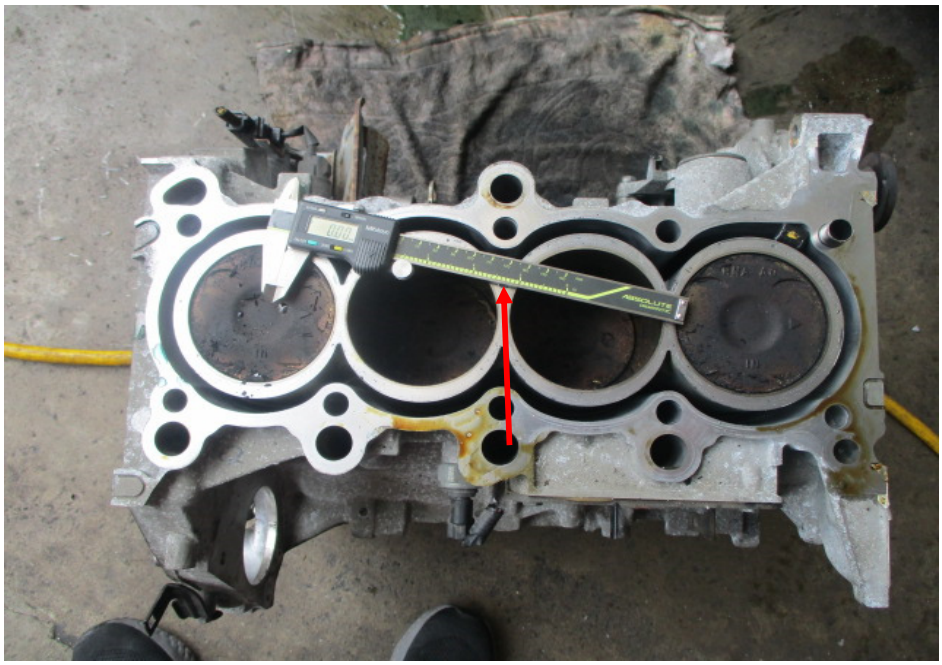


Photo 6 shows the bottom block of the Honda engine and the digital Vernier Caliper (arrowed) that was used to measure the bore and stroke measurements of each cylinder. The digital Vernier Caliper was calibrated before the start of the measurements.

Photo 7 shows measurement being carried out to the bore of cylinder 1 of the Honda engine. The measurements were carried out using a digital Vernier Caliper that was calibrated before the start of the measurements.

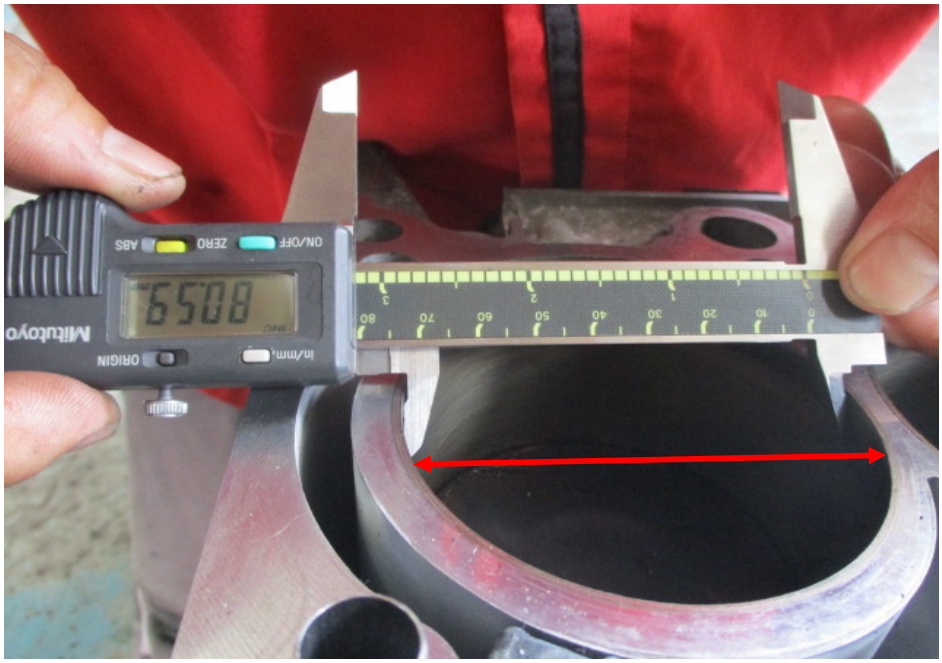


Photo 8 shows measurement being carried out to the bore (arrowed) of cylinder 1 of the Honda engine. The bore measurement of cylinder 1 was recorded to be 80.59mm.

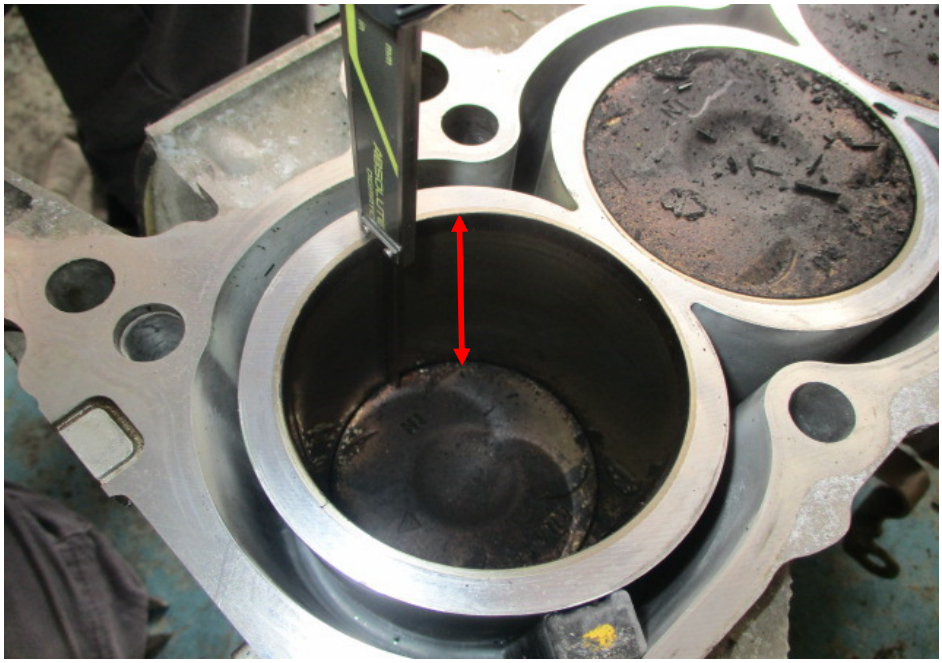


Photo 9 shows measurement being carried out to the stroke (arrowed) of cylinder 1 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a digital Vernier Caliper that was calibrated before the start of the measurements.

Photo 10 shows the stroke measurement of cylinder 1, which was recorded to be 87.23mm.

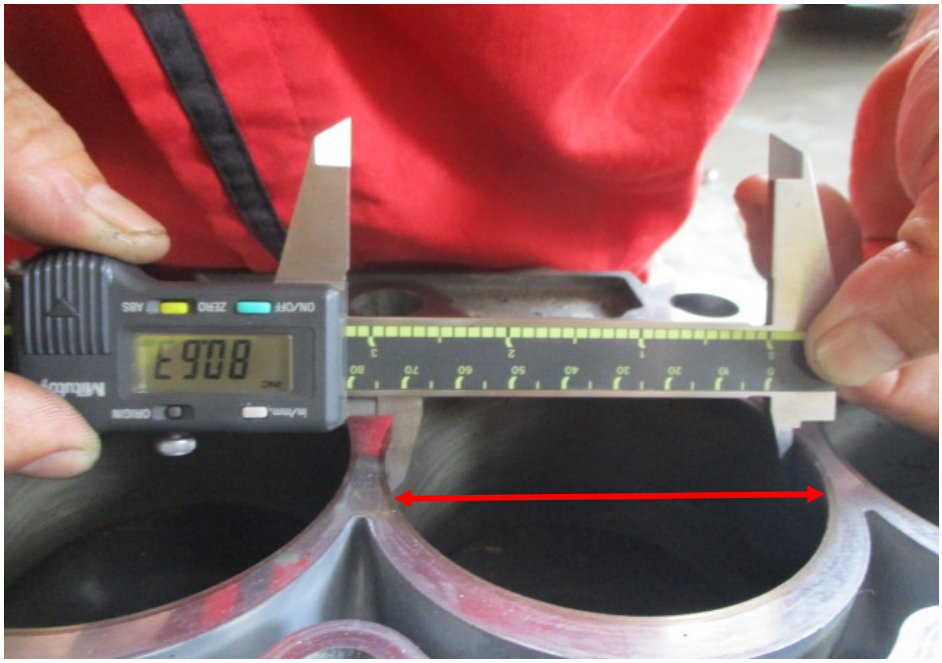


Photo 11 shows measurement being carried out to the bore (arrowed) of cylinder 2 of the Honda engine. The bore measurement of cylinder 2 was recorded to be 80.63mm.

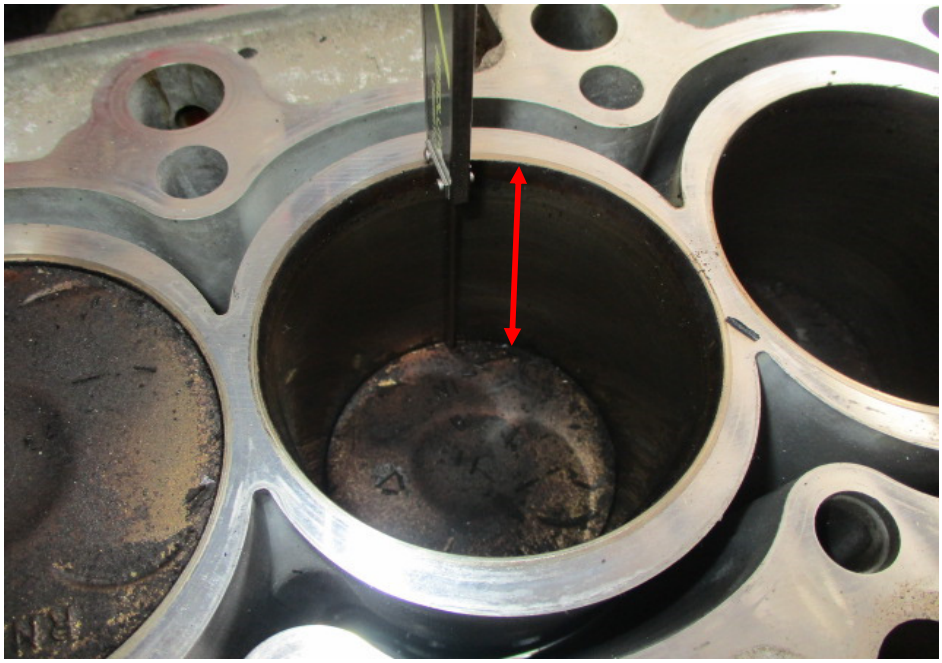


Photo 12 shows measurement of the stroke (arrowed) for cylinder 2 of the Honda engine that I had inspected. The bore and stroke measurements of the Honda engine were carried out using a digital Vernier Caliper that was calibrated before the start of measurements.

Photo 13 shows the stroke measurement of cylinder 2, which was recorded to be 87.28mm.

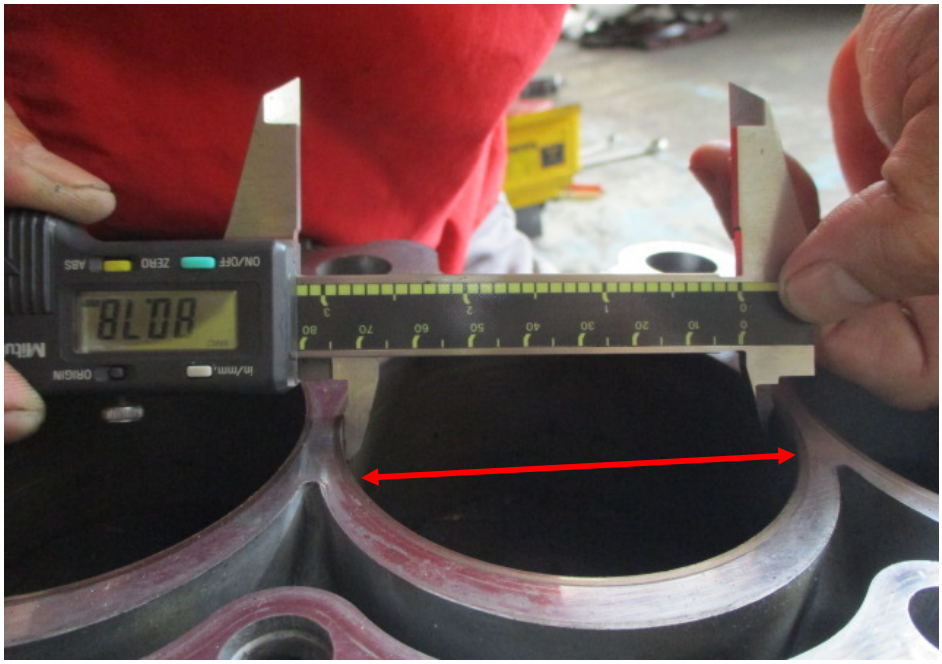


Photo 14 shows measurement being carried out to the bore (arrowed) of cylinder 3 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a digital Vernier Caliper that was calibrated before the start of measurements. The bore measurement of cylinder 3 was recorded to be 80.78mm.

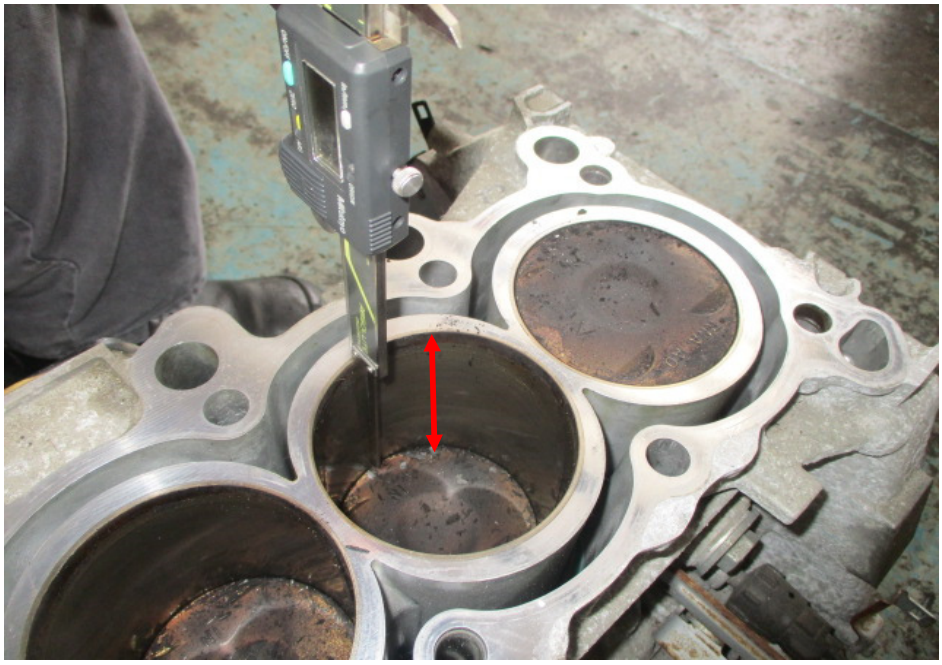


Photo 15 shows measurement of the stroke (arrowed) for cylinder 3 of the Honda engine that I had inspected. The bore and stroke measurements of the Honda engine were carried out using a digital Vernier Caliper that was calibrated before the start of measurements.

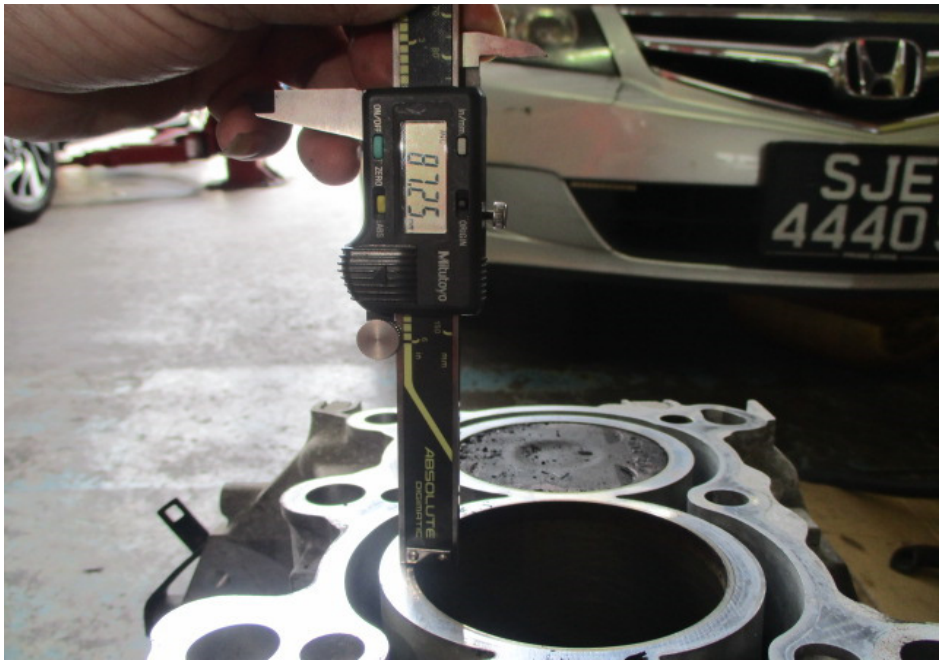


Photo 16 shows the stroke measurement of cylinder 3, which was recorded to be 87.25mm.

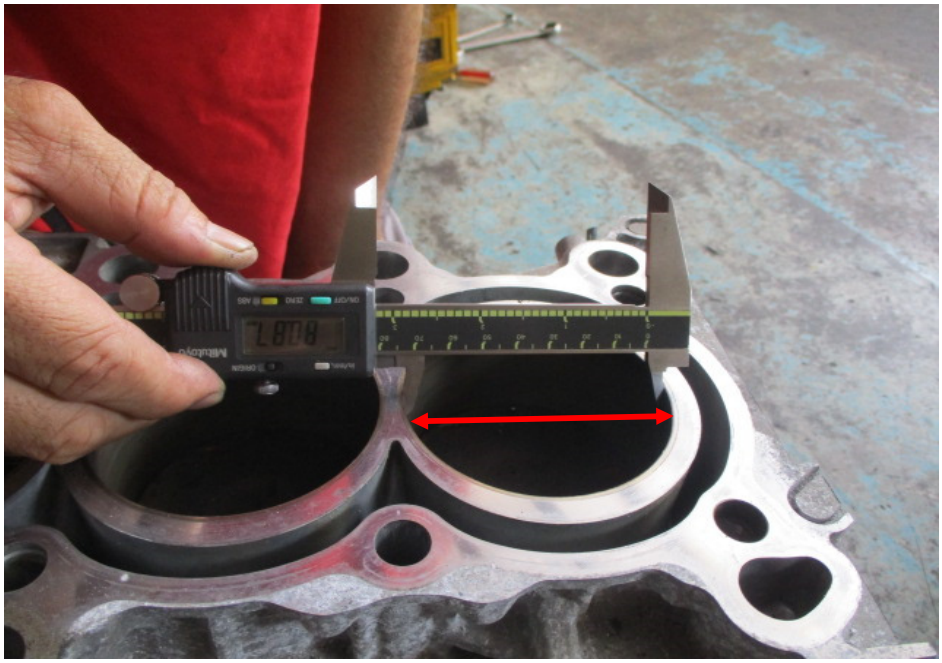


Photo 17 shows measurement being carried out to the bore (arrowed) of cylinder 4 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a digital Vernier Caliper that was calibrated before the start of measurements.

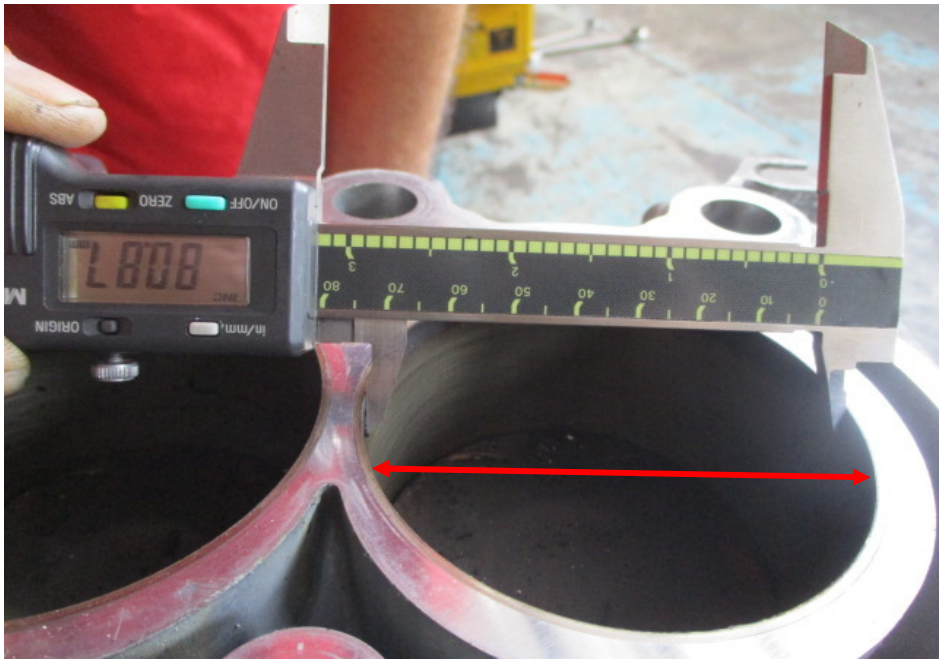


Photo 18 shows measurement being carried out to the bore (arrowed) of cylinder 4 of the Honda engine. The bore measurement of cylinder 4 was recorded to be 80.87mm.

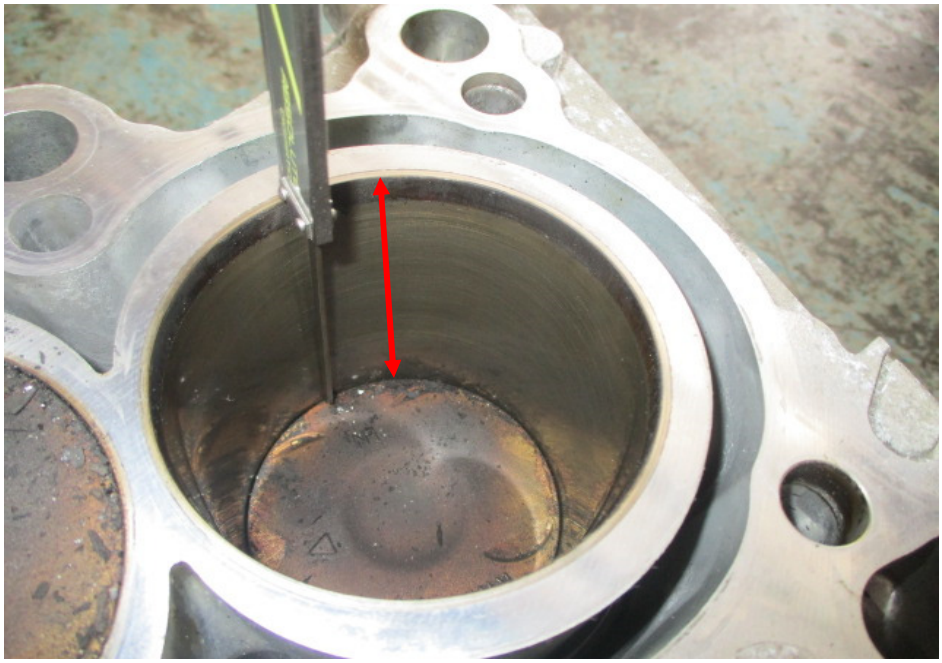


Photo 19 shows measurement being carried out to the stroke (arrowed) of cylinder 4 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a digital Vernier Caliper that was calibrated prior to the start of measurements.

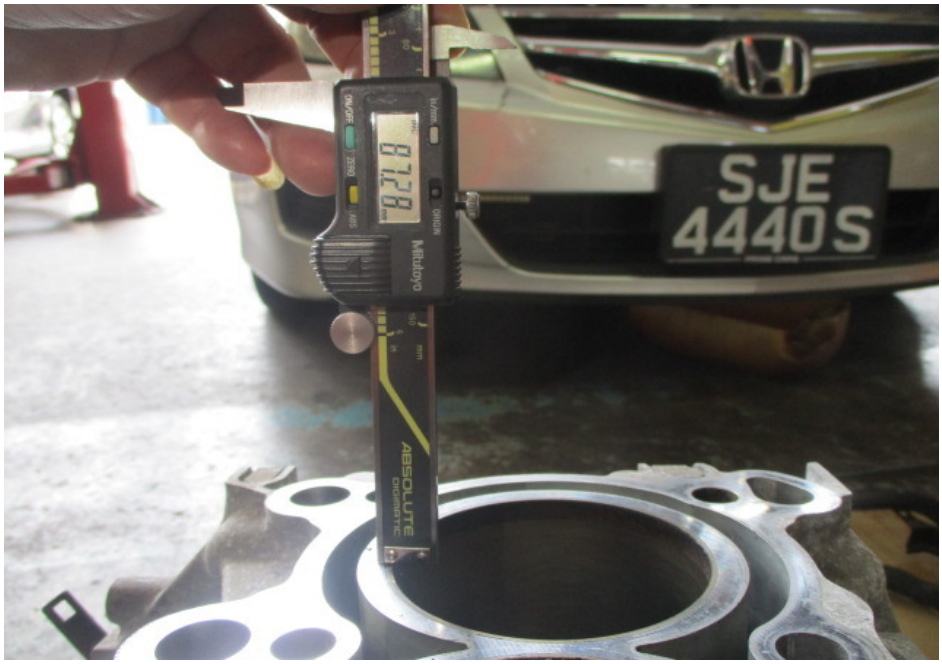


Photo 20 shows the stroke measurement of cylinder 4, which was recorded to be 87.28mm.

Honda R18A Engine Technical Specifications

11. In order 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 with the bore size and stroke size of the Honda R18A model engine, as stated in its technical specifications. According to the technical specification of the Honda R18A model engine, the bore size and stroke size was 81.00mm and 87.30mm respectively.

12. Upon comparison, 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 size and stroke size as stated in the technical specifications of a Honda R18A model engine. The measurements recorded from the Honda engine were all slightly lesser (at maximum 0.41mm lesser). This difference can be attributed to carbon accumulation within the cylinders, as the Honda engine that I had inspected was a used engine.

13. Since the bore and stroke of the Honda engine had corresponded to a Honda R18A model engine, the engine displacement of the Honda engine that I had inspected would then be 1799cc. See technical specifications of Honda R18A model engines below.

Honda R18A/R18Z engine specs

Manufacturer	Honda Motor Company
Also called	Honda R18
Production	2006-present
Cylinder block alloy	Aluminum
Configuration	Inline-4
Valvetrain	SOHC 4 valves per cylinder
Piston stroke, mm (inch)	87.3 (3.44)
Cylinder bore, mm (inch)	81 (3.19)
Compression ratio	10.5
Displacement	1799 cc (109.8 cu in)

Conclusion

14. In summary, the Honda engine that I had inspected was a Honda R18A model engine. The engine number engraved on the housing of this Honda engine was R18A1715039. The engine displacement of the Honda engine is 1799cc as per the technical specification.

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