

Your Ref: Honda Engine
Our Ref : CI/TP18005927/D

04 April 2018

Esprit Motor Trading
210 Turf Club Road
Lot C10
Singapore 287995

INSPECTION REPORT OF A HONDA ENGINE

1. I refer to your request on 26 March 2018 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 B16A model engine.
3. Following the request, I had carried out a physical inspection of the Honda engine on 27 March 2018 at the premises of Block 176 Sin Ming Drive Road #03-03, Sin Ming Autocare Complex, Singapore 575721.
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 B16A model engine.
5. I now set out below my observations and comments with respect to this inspection.

Inspection of the Honda Engine

6. Firstly, I had noted that the Honda engine was a used engine and fitted on a motor car with registration number SCM 8667U. 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 B16A5802604.
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 motor car with registration number SCM 8667U. The Honda engine that I had inspected was a used engine that was fitted on this 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 engine compartment of the motor car with registration number SCM 8667U. The Honda engine that I had inspected was a used engine that was fitted on this motor car. It was also observed to be a complete assembly with all mechanical parts still intact, within the engine housing.

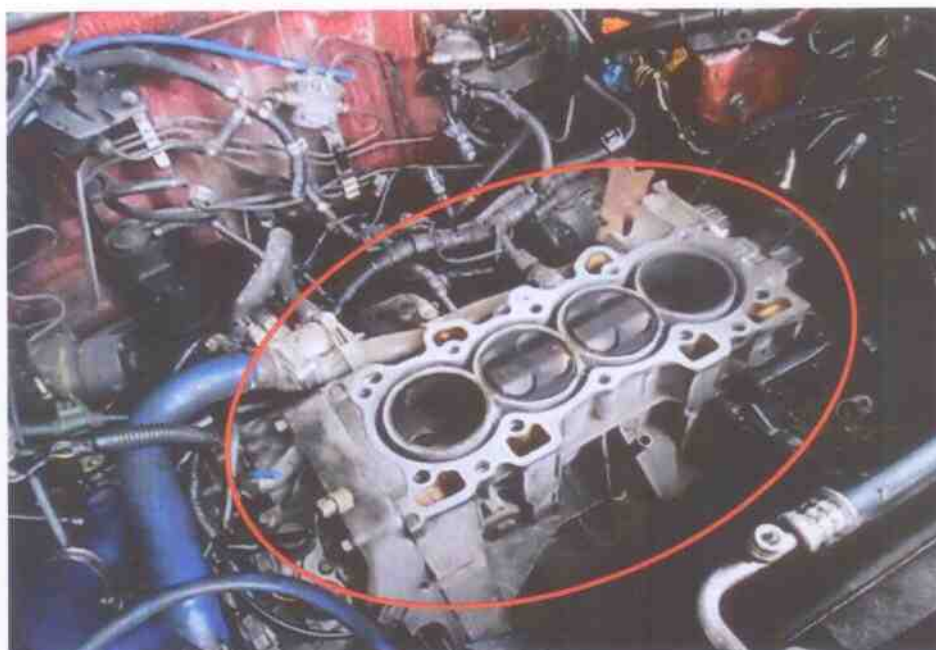
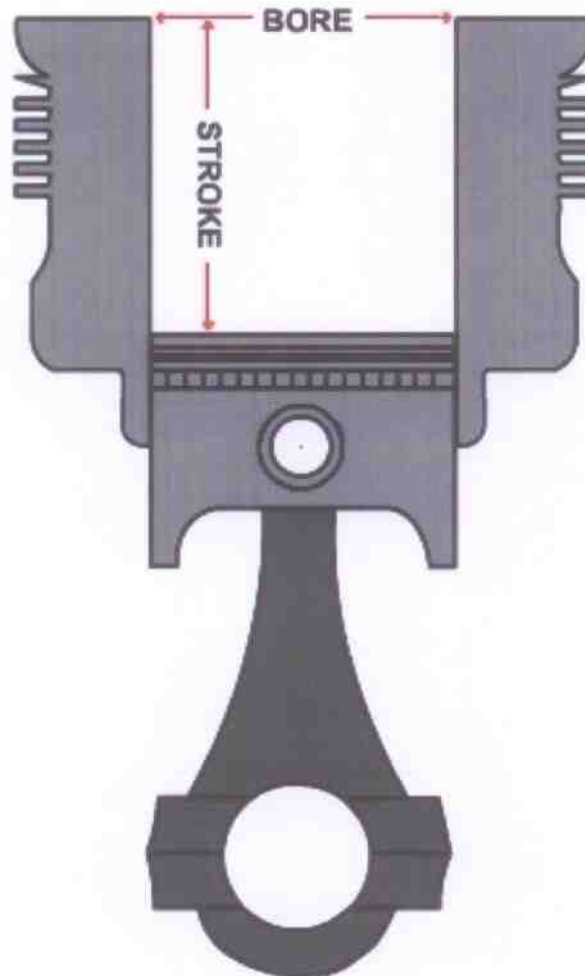


Photo 3 shows a general view of the Honda engine (circled) that I had inspected. My visual examination of the engine housing revealed the housing to be of serviceable/satisfactory condition. There was no crack and/or hole observed on the engine housing. During my inspection, its top block was separated from its bottom block 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 4 shows the engine number engraved on the housing of the Honda engine that I had inspected. The engine number was B16A5802604.

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 – 20 thereafter shows the photographs taken during the measurements.

	Bore (mm)	Stroke (mm)
Cylinder 1	80.70	76.10
Cylinder 2	80.50	77.00
Cylinder 3	80.30	77.20
Cylinder 4	81.00	75.90



Photo 5 shows measurement being carried out to the bore of cylinder 1 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a Vernier Caliper. The bore measurement of cylinder 1 was recorded to be 80.70mm.



Photo 6 shows the bore measurement of cylinder 1, which was recorded to be 80.70mm.

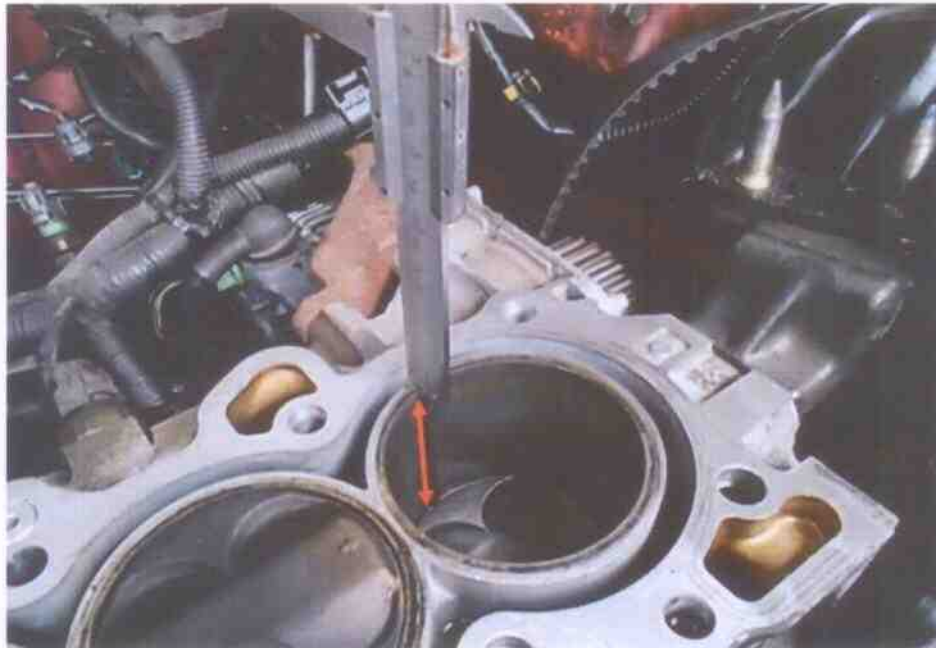


Photo 7 shows measurement being carried out to the stroke of cylinder 1 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a Vernier Caliper.



Photo 8 shows the stroke measurement of cylinder 1, which was recorded to be 76.10mm.



Photo 9 shows measurement being carried out to the bore of cylinder 2 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a Vernier Caliper. The bore measurement of cylinder 2 was recorded to be 80.50mm.



Photo 10 shows the bore measurement of cylinder 2, which was recorded to be 80.50mm.



Photo 11 shows measurement of the stroke for cylinder 2 of the Honda engine that I had inspected.

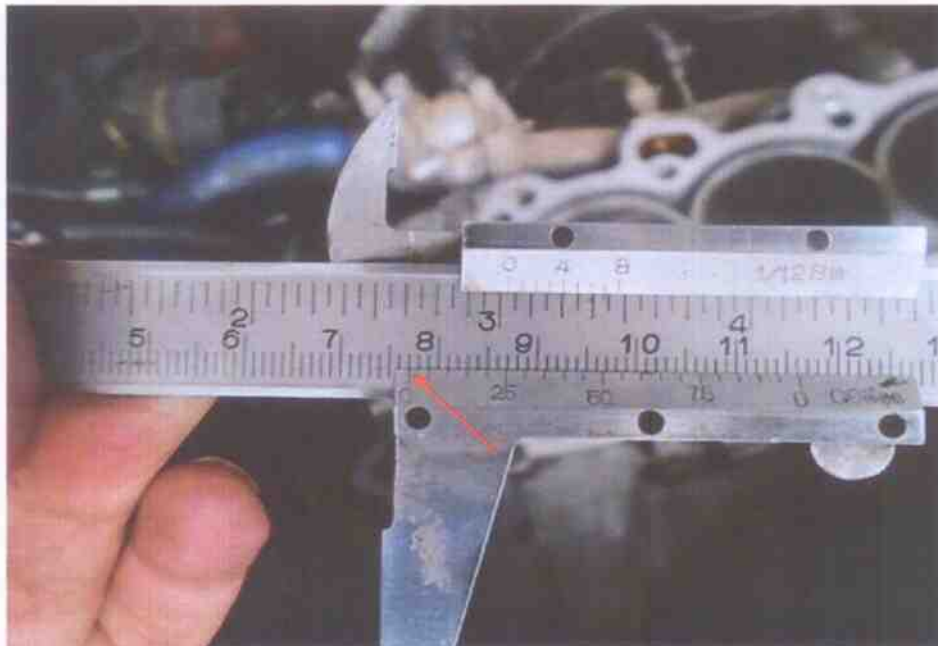


Photo 12 shows the stroke measurement of cylinder 2, which was recorded to be 77.00mm.



Photo 13 shows measurement being carried out to the bore of cylinder 3 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a Vernier Caliper.



Photo 14 shows the bore measurement of cylinder 3, which was recorded to be 80.30mm.



Photo 15 shows measurement of the stroke for cylinder 3 of the Honda engine that I had inspected. The stroke measurement of cylinder 3 was recorded to be 77.20mm.



Photo 16 shows the stroke measurement of cylinder 3, which was recorded to be 77.20mm.

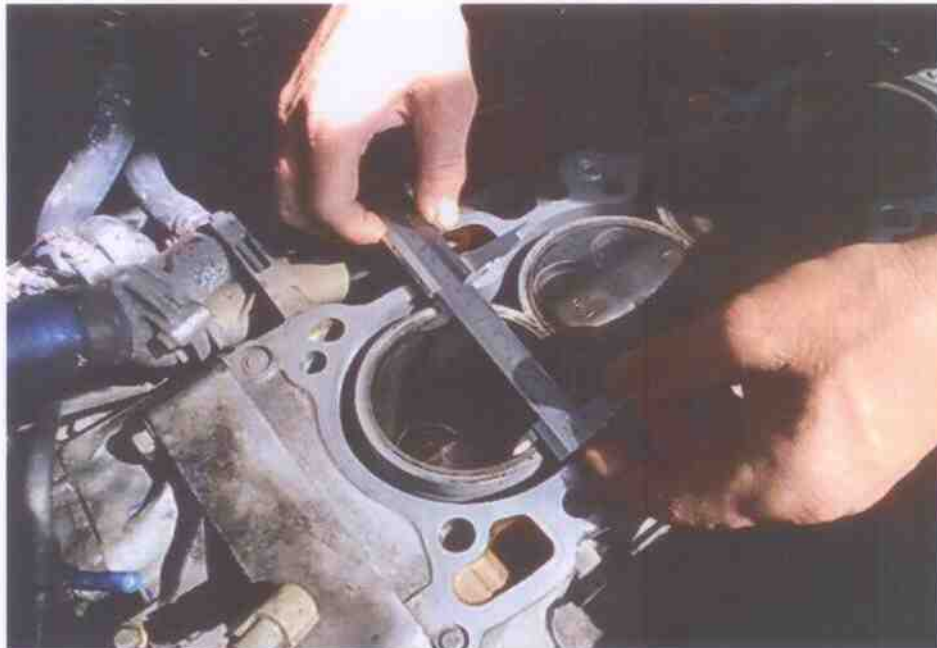


Photo 17 shows measurement being carried out to the bore of cylinder 4 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a Vernier Caliper.



Photo 18 shows the bore measurement of cylinder 4, which was recorded to be 81.00mm.



Photo 19 shows measurement being carried out to the stroke of cylinder 4 of the Honda engine. The bore and stroke measurements of the Honda engine were carried out using a Vernier Caliper.



Photo 20 shows the stroke measurement of cylinder 4, which was recorded to be 75.90mm.

Honda B16A Engine Technical Specifications

11. In order to determine whether the Honda engine that I had inspected was a Honda B16A 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 B16A model engine, as stated in its technical specifications. According to the technical specification, I note that the bore and stroke measurement of all Honda B16 model engine were 81.00mm and 77.4mm respectively. This had included Honda B16A model engine.
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 B16 model engine. Although the measurements recorded from the Honda engine were all slightly lesser (at maximum 1.50mm 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 B16 model engines below.

B-SERIES ENGINE SPECIFICATIONS

Engine	Vehicle	Year	C/R	Displacement	HP/Torque	Bore (mm)	Head CC's	Stroke	Con Rod Ratio	Con Rod Length (mm)
B16A DOHC VTEC (JDM)	EF8, 9/ DA6, 8/ EG2, 6, 9/EK4	88-91	10.2:1*	1595	160hp/112lb-ft	81	42.7	77.0	1.74	134.00
B16A DOHC VTEC (JDM)	EF8, 9/ DA6, 8/ EG2, 6, 9/EK4	92+	10.4:1*	1595	170hp/116lb-ft	81	42.7	77.0	1.74	134.00
B16A2/3 DOHC VTEC (USDM)	Del Sol VTEC/ Civic Si (1999)	93+	10.2:1*	1595	160hp/112lb-ft	81	42.7	77.0	1.74	134.00
B16B DOHC VTEC (JDM)	Civic Type R	97+	10.8:1	1595	184hp/118lb-ft	81	42.7	77.0	1.74	134.00

Conclusion

13. In summary, the Honda engine that I had inspected is a Honda B16A model engine. The engine number engraved on the housing of this Honda engine was B16A5802604.



Ang Bryan Tani

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

Senior Technical Investigator

Technical Investigation & Reconstructionist (SAE-A)

DISCLAIMER OF LIABILITY TO THIRD PARTIES:- This Report is made solely for the use and benefit of the Client named on the front page of this Report. No liability or responsibility whatsoever, in contract or tort, is accepted to any third party who may rely on the Report wholly or in part. Any third party acting or relying on this Report, in whole or in part, does so at his or her own risk.