

Your Ref: Mitsubishi Engine
(number 4G63LA9851)
Our Ref : CI/TP23005034/D

16 May 2023

Attn: Ng Su Ying

INSPECTION REPORT OF A MITSUBISHI ENGINE WITH NUMBER 4G63LA9851

1. I refer to your request on 08 May 2023 to conduct a physical inspection of a Mitsubishi engine.
2. The purpose of this inspection was to primarily determine whether the Mitsubishi engine is a Mitsubishi 4G63 model engine.
3. Following the request, I had carried out a physical inspection of the Mitsubishi engine on 12 May 2023 at the premises of No. 1 Bukit Batok Crescent #04-52, WCEGA Plaza, Singapore 658064.
4. Measurements of the bore and stroke of the Mitsubishi engine were obtained and thereafter compared with the bore and stroke measurements as stated in the technical specifications of a Mitsubishi 4G63 model engine.
5. I now set out below my observations and comments regarding this inspection.

Inspection of the Mitsubishi Engine

6. Firstly, I had noted that the Mitsubishi 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 4G63LA9851.
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 Mitsubishi 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 Mitsubishi engine that I had inspected. The Mitsubishi 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 Mitsubishi 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.

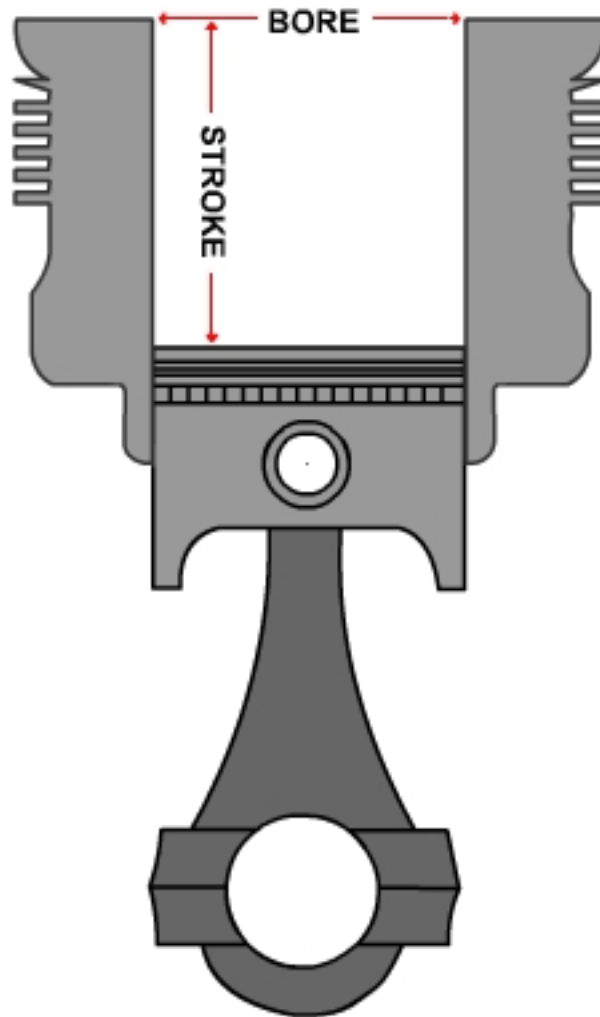


Photo 3 shows a general view of the Mitsubishi engine that I had inspected. My visual examination of the engine housing revealed the housing to be of serviceable/satisfactory condition. There was no crack and/or hole observed on the engine housing.



Photo 4 shows the engine number engraved on the housing of the Mitsubishi engine that I had inspected. The engine number was 4G63LA9851.

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 Mitsubishi engine are set out in the table below. Photo 5 – 23 thereafter shows the photographs taken during the measurements.

| | Bore (mm) | Stroke (mm) |
|-------------------|------------------|--------------------|
| Cylinder 1 | 84.61 | 87.92 |
| Cylinder 2 | 84.77 | 87.63 |
| Cylinder 3 | 84.64 | 87.64 |
| Cylinder 4 | 84.79 | 87.96 |

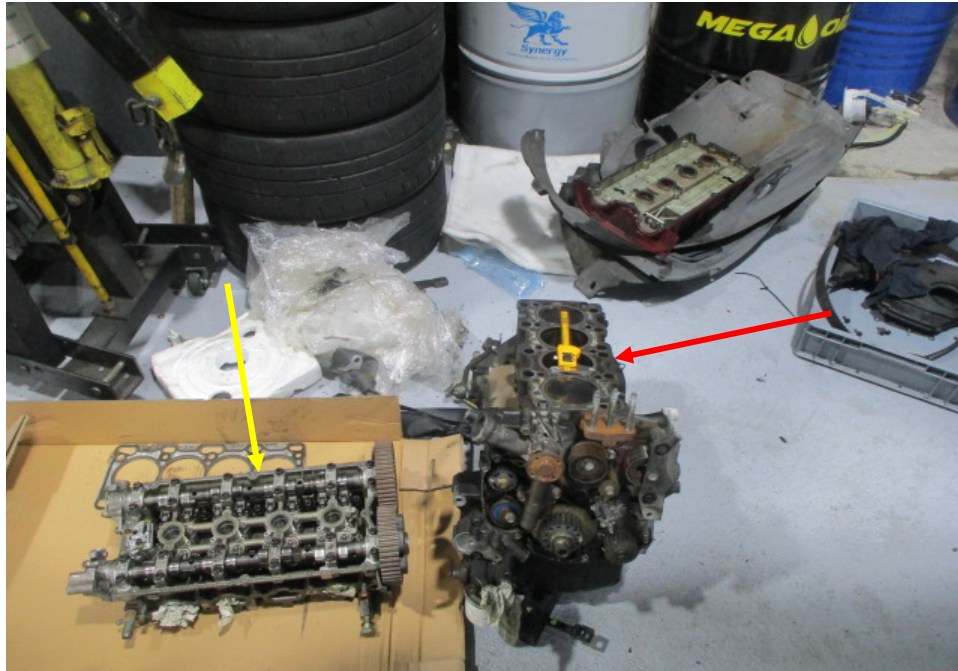


Photo 5 shows the top block (yellow arrow) of the Mitsubishi engine separated from its bottom block (red arrow). This was to enable me to carry out measurements of its cylinders, in particular the bore and stroke measurements of each cylinder, which typically can be used to determine the engine displacement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

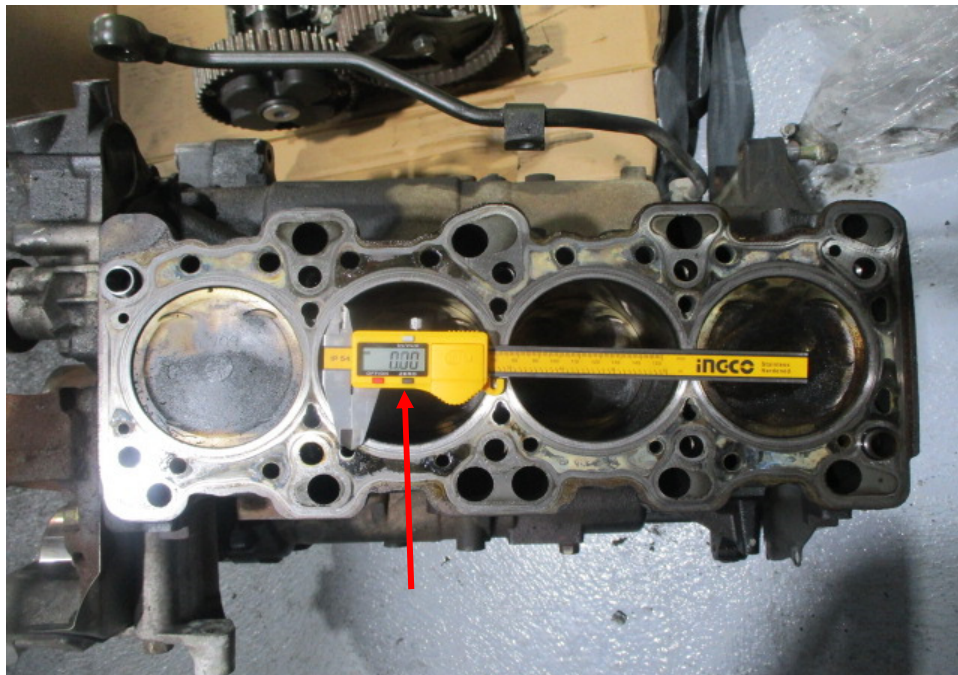


Photo 6 shows the bottom block of the Mitsubishi engine and the digital Vernier Caliper (arrowed) that was used to measure the bore and stroke measurements of each cylinder, which typically can be used to determine the engine displacement or more commonly referred to as engine cc. The digital Vernier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



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

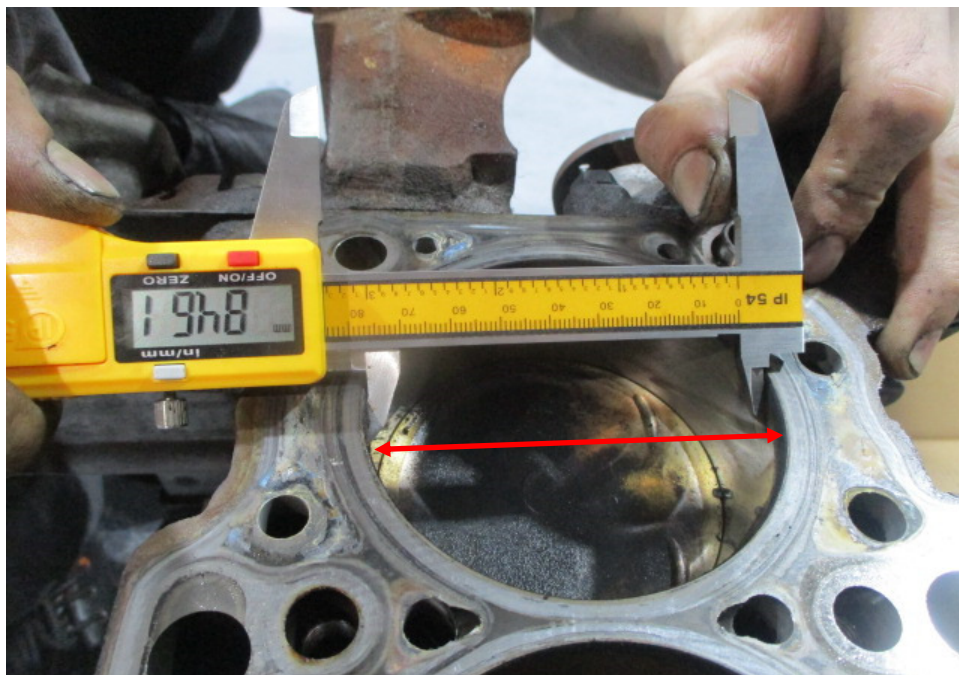


Photo 8 shows measurement being carried out to the bore (arrowed) of cylinder 1 of the Mitsubishi engine. The bore measurement of cylinder 1 was recorded to be 84.61 mm.



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



Photo 10 shows measurement being carried out to the stroke (arrowed) of cylinder 1 of the Mitsubishi engine. The bore and stroke measurements of the Mitsubishi engine were carried out using a digital Vernier Caliper that was calibrated before the start of the measurements.



Photo 11 shows the stroke measurement of cylinder 1, which was recorded to be 87.92mm.

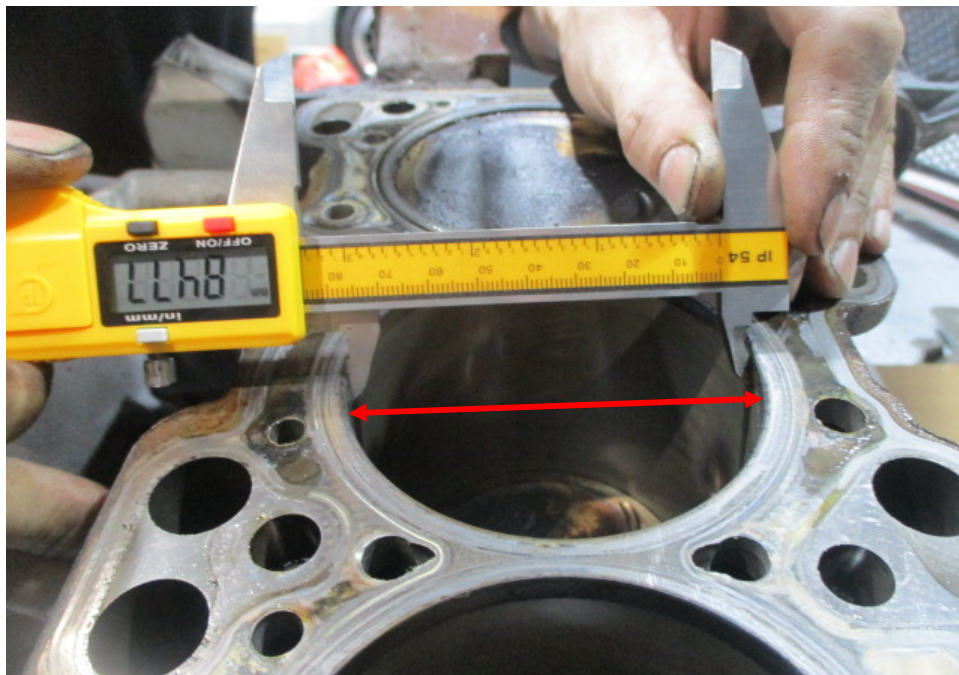


Photo 12 shows measurement being carried out to the bore (arrowed) of cylinder 2 of the Mitsubishi engine. The bore measurement of cylinder 2 was recorded to be 84.77mm.



Photo 13 shows measurement being carried out to the stroke (arrowed) of cylinder 2 of the Mitsubishi engine. The bore and stroke measurements of the Mitsubishi engine were carried out using a digital Vernier Caliper that was calibrated before the start of the measurements.



Photo 14 shows the stroke measurement of cylinder 2, which was recorded to be 87.63mm.



Photo 15 shows measurement being carried out to the bore of cylinder 3 of the Mitsubishi engine. The bore and stroke measurements of the Mitsubishi engine were carried out using a digital Vernier Caliper that was calibrated before the start of the measurements.

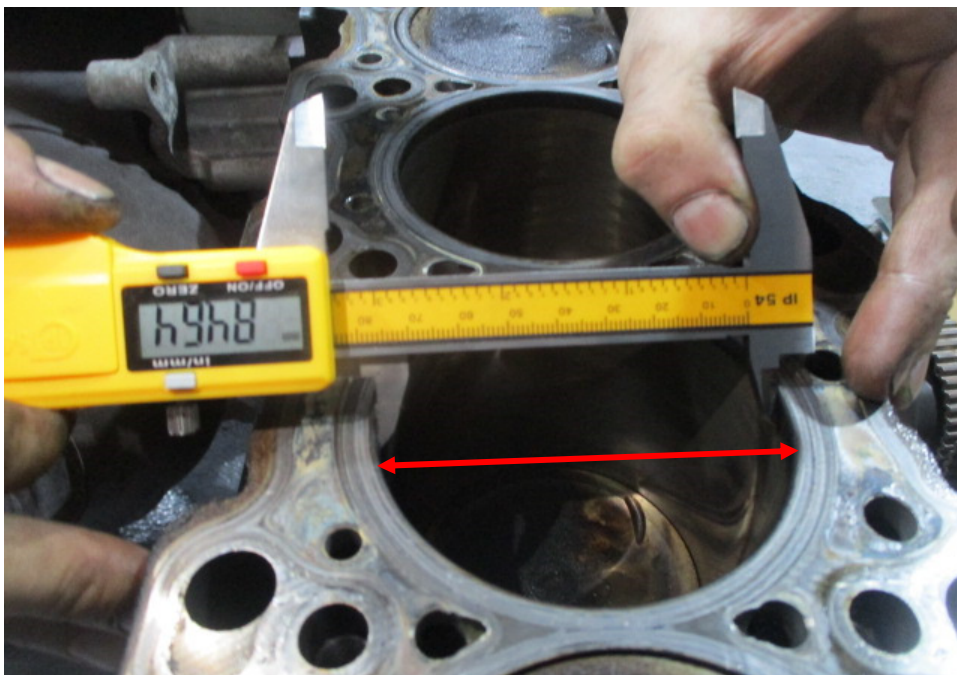


Photo 16 shows measurement being carried out to the bore (arrowed) of cylinder 3 of the Mitsubishi engine. The bore measurement of cylinder 3 was recorded to be 84.64mm.

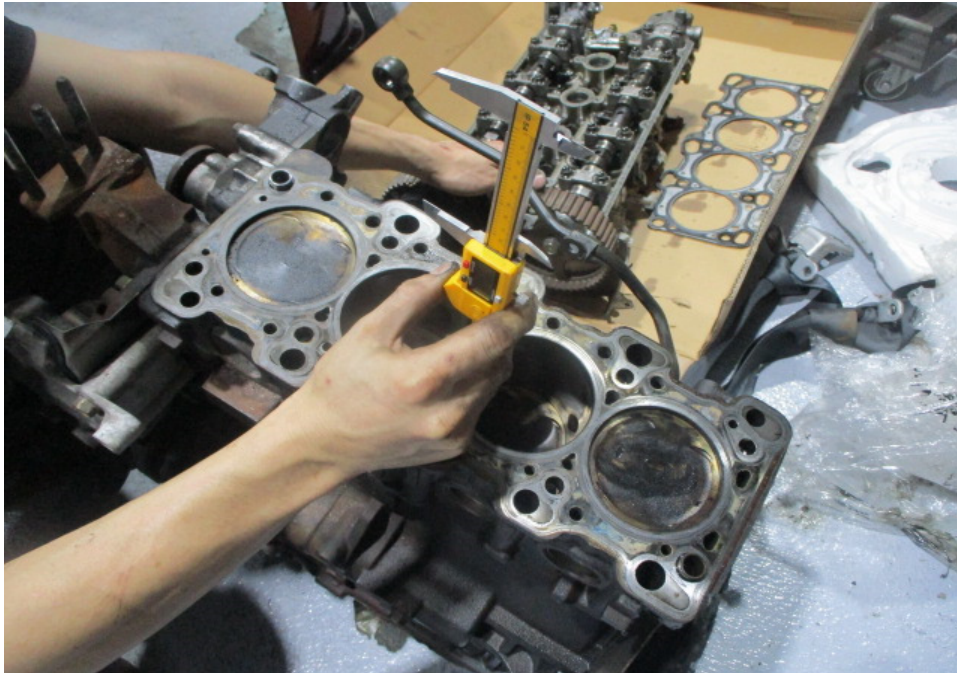


Photo 17 shows measurement of the stroke of cylinder 3 of the Mitsubishi engine that I had inspected. The bore and stroke measurements of the Mitsubishi engine were carried out using a digital Vernier Caliper that was calibrated before the start of measurements.



Photo 18 shows the stroke measurement of cylinder 3, which was recorded to be 87.64mm.

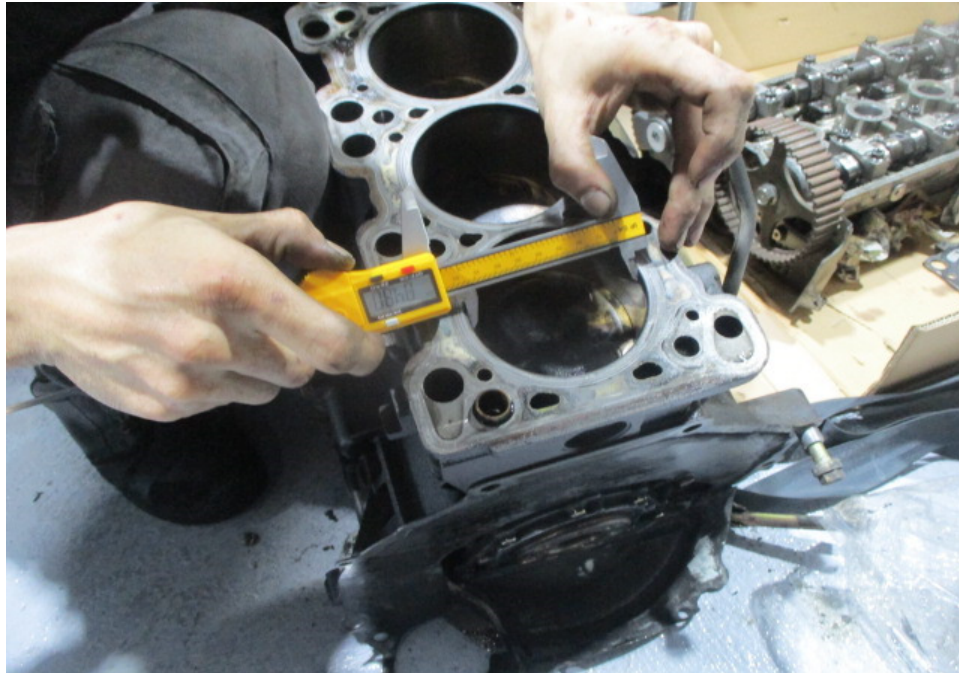


Photo 19 shows measurement being carried out to the bore of cylinder 4 of the Mitsubishi engine. The bore and stroke measurements of the Mitsubishi engine were carried out using a digital Vernier Caliper that was calibrated before the start of the measurements.

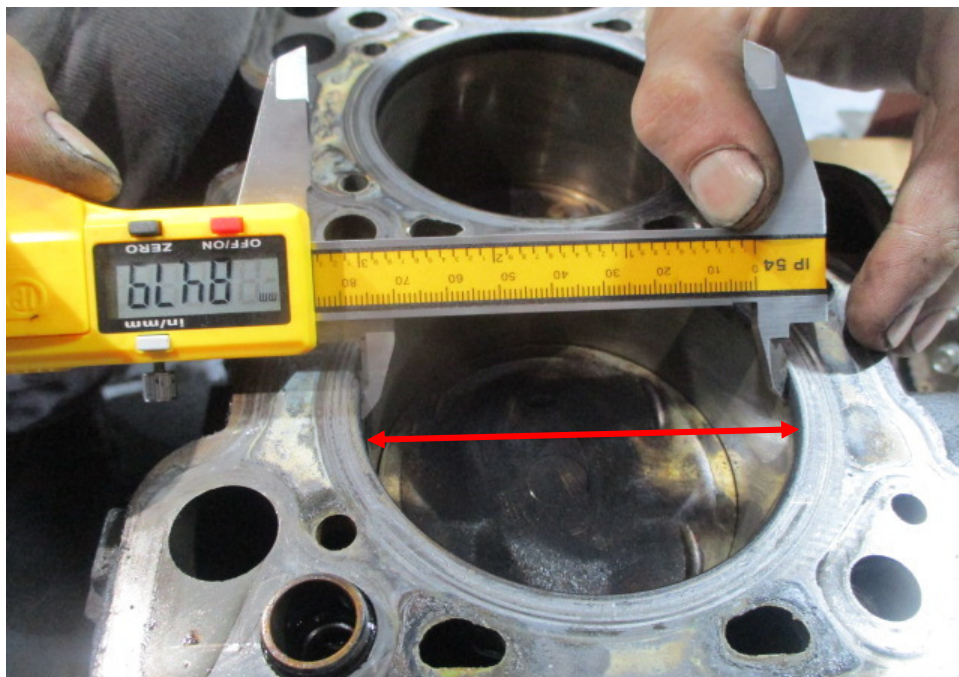


Photo 20 shows measurement being carried out to the bore (arrowed) of cylinder 4 of the Mitsubishi engine. The bore measurement of cylinder 4 was recorded to be 84.79mm.

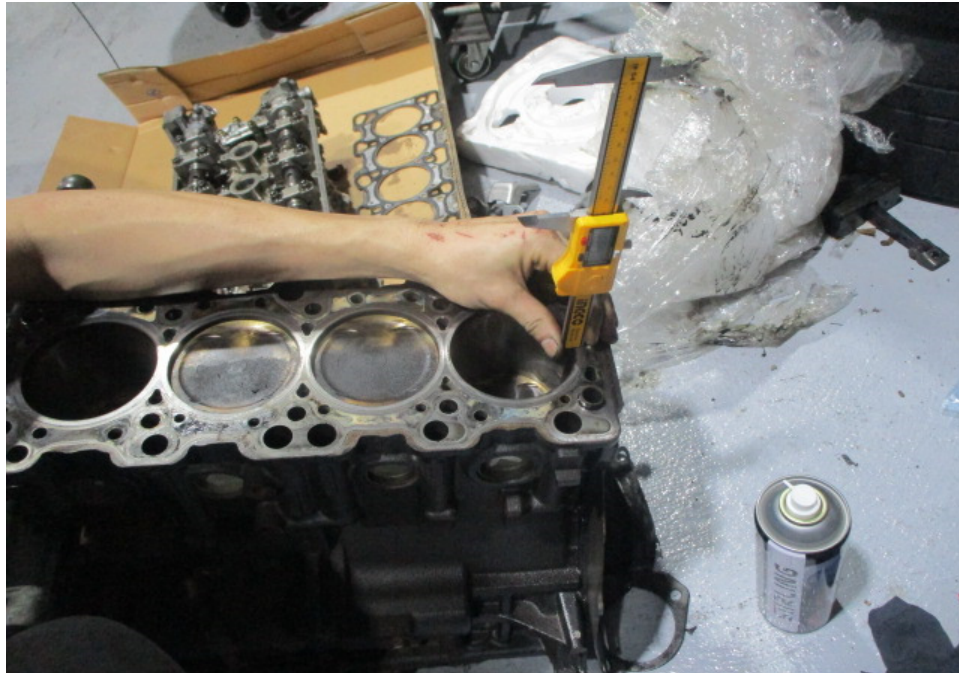


Photo 21 shows measurement of the stroke of cylinder 4 of the Mitsubishi engine that I had inspected. The bore and stroke measurements of the Mitsubishi engine were carried out using a digital Vernier Caliper that was calibrated before the start of measurements.



Photo 22 shows measurement being carried out to the stroke (arrowed) of cylinder 4 of the Mitsubishi engine. The bore and stroke measurements of the Mitsubishi engine were carried out using a digital Vernier Caliper that was calibrated prior to the start of measurements.



Photo 23 shows the stroke measurement of cylinder 4, which was recorded to be 87.96mm.

Mitsubishi 4G63 Engine Technical Specifications

11. In order to determine whether the Mitsubishi engine that I had inspected was a Mitsubishi 4G63 model engine, I had compared the measurements of the bore and stroke of the Mitsubishi engine with the bore size and stroke size of the Mitsubishi 4G63 model engine, as stated in its technical specifications. According to the technical specification of the Mitsubishi 4G63 model engine, the bore size and stroke size was 85.00mm and 88.00mm respectively.
12. Upon comparison, I note that the bore and stroke measurements of the Mitsubishi 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 Mitsubishi 4G63 model engine. The measurements recorded from the Mitsubishi engine were all slightly lesser (at maximum 0.39mm lesser). This difference can be attributed to carbon accumulation within the cylinders, as the Mitsubishi engine that I had inspected was a used engine.
13. Since the bore and stroke of the Mitsubishi engine had corresponded to a Mitsubishi 4G63 model engine, the engine displacement of the Mitsubishi engine that I had inspected would then be 1997cc. See technical specifications of Mitsubishi 4G63 model engines below.

4G63 Engine Specs

- **Engine Code:** 4G63
- **Layout:** Inline 4 I SOHC (2 valves per cylinder) I SOHC (4 valves) I DOHC (4 valves)
- **Displacement:** 2L (1997 cc) ←
- **Fuel System:** Electronic multi-point injection
- **Cylinder Bore:** 85.0 mm (3.35 in) ←
- **Piston Stroke:** 88.0 mm (3.46 in) ←

Conclusion

14. In summary, the Mitsubishi engine that I had inspected was a Mitsubishi 4G63 model engine. The engine number engraved on the housing of this Mitsubishi engine was 4G63LA9851. The engine displacement of the Mitsubishi engine is 1997cc as per the technical specification.



Ang Bryan Tani

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