



## **Cylinder Boring/Honing Caution For 1999-2009 Honda 2.0 & 2.2L Engines**

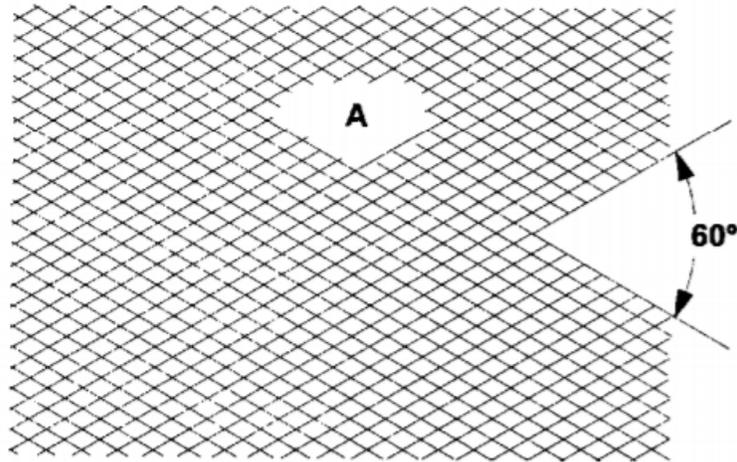
The AERA Technical Committee offers the following information on a cylinder boring/honing caution for 1999-2009 Honda 2.0 & 2.2L engines. These engines are used in the S2000 Honda vehicles and use engine codes F20C1 and F22C1. The cylinder blocks use a fiber-reinforced metal (FRM) in their non-sleeved cylinder bores. Those bores are also a nonferrous metal and require special attention during the honing operations.

If the engine block is to be reused without boring, hone the cylinders and remeasure the bores. Only scored or scratched cylinder bores must be honed. If an oversize bore is required, Honda only supplies a .010" (.250 MM) oversize, aftermarket suppliers list various oversizes.

Hone the cylinders using the following equipment, materials and methods:

- Use only a rigid hone.
  - Honing stones: GC-600-J or finer stones for nonferrous metals
  - Pressure: 200-300 kPa (2-3 kgf/cm<sup>2</sup>, 28-43 psi)
  - Honing rpm: 45-50
  - Honing thickness: Less than 0.02 mm (0.0008 inch)
  - Do not hone more than 20 cycles.
  - Honing lubricant: Oil type
  - Honing pattern: 60 degree cross-hatch (See A below)
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- When honing is complete, thoroughly clean the engine block of all metal particles. Wash the cylinder bores with hot soapy water, then dry and oil them immediately. Never use solvent, it will only redistribute the grit on the cylinder walls.
  - If scoring or scratches are still present in the cylinder bores after honing to the service limit, rebore the cylinders oversize. Some light vertical scoring and scratching is acceptable if it is not deep enough to catch your fingernail and if it does not run the full length of the bore.
  - To prevent stone loading and debris build-up, cleaning the stones every five cycles is recommended.

Aftermarket honing stone suppliers have indicated that using a silicon carbide, 400 grit stone, can provide the desired finish and crosshatch required for this cylinder block.



**Figure 1. Honing Cross-hatch Angle**