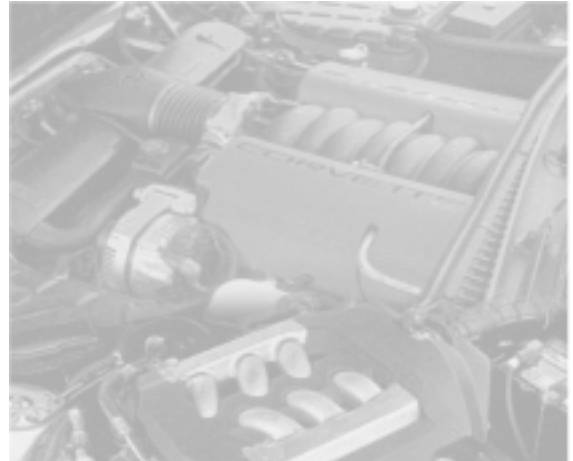


## 8 “DO NOTs” OF REBUILDING

1. Lack of engine cleanliness
2. Rough/Imperfect bore entrance chamfers
3. Burr on bottom of bore
4. Poor cylinder bore finish
5. Spiraling rings manually onto piston
6. Excessive spreading rings manually onto piston
7. Not using / improper use of ring compressor
8. Piston damage – dents, groove damage

### Many things NOT rebuilders fault

- Computers (bad calibration)
- Sensors (bad sensor)
- EGR Valve (too much exhaust)
- Intake Manifold (debris, leakage, run hot)



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## 10 “DOs” OF PISTON RING INSTALLATION

1. Insert rings squarely into the bore and measure end gap with feeler gauge
2. Adjust gap if needed by filing both sides of gap equally
3. Use ring expander tool to install rings on piston, so as not to deform ring—do not spiral on rings
4. Install directional rings with the dot up (otherwise oil pumping may occur)
5. Install 2.0mm 3-piece oil ring with expander points up to avoid catching in drain-back hole/slot in oil groove bottom.
6. Stagger location of end gaps on each ring 180 degrees apart
7. Clean bores with hot soapy water & scrub brush, wipe with clean white rag to check for any residue
8. Lightly oil cylinder walls and rings with regular non-synthetic motor oil
9. Properly tighten ring compressor so rings don't catch on edge of cylinder or pop out in bore (don't force piston if it is hung up)
10. Typical engine break-in: use conventional motor oil—change oil after first 3,000 miles / 4,828 kilometers. Use only synthetic motor oil if originally specified by manufacturer.

