1	ASSESMENT OF ALTERNATIVE METHODS OF PREPARING INTERNAL
2	COMBUSTION ENGINE CYLINDER BORE SURFACES FOR FRICTIONAL
3	IMPROVEMENT
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9	Abstract
10	A smooth polished dimpled surface is more ideal to achieve low friction and wear in an
11	internal combustion engine (ICE). Alternative methods to create a smooth dimpled surface on
12	a hypereutectic aluminum (aluminum die cast) ADC12 substrate for frictional improvements
13	are evaluated in this study using an oscillating wear tester (OWT). It was found that the
14	samples embossed with #480 grit sandpaper and sandblasted with #240 sieve sand samples
15	had the more desired properties with a reduced coefficient of friction (μ) of 23% at low
16	sliding speeds before hydrodynamic lubrication mode and 6.9% in the fully hydrodynamic
17	lubrication region. Although samples cast with added graphite powder had much lower
18	friction, it had insufficient oil retention volume and resistance against catastrophic wear.
19	Keywords: Internal combustion engine, oscillating wear tester, aluminum matrix, lubrication
20	Introduction

Aluminum-silicon alloys have received much attention especially for applications in ICEsdue to its high specific strength compared to common casting alloys such as cast iron. The