

## DAFTAR ISI

<b>LEMBAR PERSOALAN .....</b>	<b>ii</b>
<b>LEMBAR PENGESAHAN .....</b>	<b>iii</b>
<b>LEMBAR PERNYATAAN .....</b>	<b>iv</b>
<b>KATA PENGANTAR.....</b>	<b>v</b>
<b>INTISARI .....</b>	<b>vii</b>
<b>ABSTRACT .....</b>	<b>viii</b>
<b>DAFTAR ISI .....</b>	<b>ix</b>
<b>DAFTAR GAMBAR.....</b>	<b>xii</b>
<b>DAFTAR TABEL .....</b>	<b>xiv</b>
<b>BAB I PENDAHULUAN.....</b>	<b>1</b>
<b>1.1 Latar Belakang.....</b>	<b>1</b>
<b>1.2 Rumusan Masalah .....</b>	<b>2</b>
<b>1.3 Tujuan Penelitian.....</b>	<b>2</b>
<b>1.4 Batasan Masalah .....</b>	<b>2</b>
<b>1.5 Manfaat Penelitian.....</b>	<b>2</b>
<b>1.6 Metode Penelitian .....</b>	<b>3</b>
<b>1.7 Sistematika Penulisan.....</b>	<b>3</b>
<b>BAB II LANDASAN TEORI .....</b>	<b>5</b>
<b>2.1 Mesin Diesel.....</b>	<b>5</b>
<b>2.2 Komponen Mesin Diesel.....</b>	<b>6</b>
<b>2.2.1 Blok Mesin .....</b>	<b>6</b>
<b>2.2.2 Kepala Silinder.....</b>	<b>7</b>
<b>2.2.3 Cylinder Liner .....</b>	<b>7</b>
<b>2.2.4 Oil Pan.....</b>	<b>8</b>
<b>2.2.5 Camshaft .....</b>	<b>8</b>
<b>2.2.6 Piston.....</b>	<b>8</b>
<b>2.2.7 Crankshaft.....</b>	<b>9</b>
<b>2.3 Sistem Pada Mesin Diesel.....</b>	<b>9</b>
<b>2.3.1 Sistem Pemasukan Udara dan Gas Buang .....</b>	<b>10</b>
<b>2.3.2 Sistem Pendingin.....</b>	<b>10</b>

2.3.3 Sistem Pelumasan .....	11
2.3.4 Sistem Bahan Bakar .....	12
2.4 <i>Maintenance</i> .....	13
2.4.1 Tujuan <i>Maintenance</i> .....	13
2.4.2 Klasifikasi <i>Maintenance</i> .....	14
2.5 Analisis Kegagalan Material .....	17
2.5.1 Prinsip - Prinsip Patahan .....	19
2.5.2 Prinsip Keausan .....	22
2.5.3 Jenis - Jenis Beban .....	25
2.6 Analisis Pelumas .....	26
2.6.1 Fungsi Pelumas .....	27
2.6.2 Sifat Pelumas .....	27
<b>BAB III METODOLOGI PENELITIAN</b> .....	28
3.1 Diagram Alir Penelitian .....	28
3.2 Penjelasan Diagram Alir .....	29
3.3 Tempat dan Waktu Penelitian .....	29
3.4 Bahan Penelitian .....	29
3.5 Peralatan Penelitian .....	30
3.6 Spesifikasi <i>Engine</i> .....	31
3.7 Pengumpulan Data .....	31
3.8 Pengamatan Visual dan Foto Makro .....	32
<b>BAB IV HASIL DAN PEMBAHASAN</b> .....	33
4.1 Hasil Pengumpulan Histori Data .....	33
4.1.1 Histori Pemasangan .....	33
4.1.2 <i>Maintenance History</i> .....	34
4.1.3 <i>Oil Top Up History</i> .....	34
4.2 Hasil <i>Oil Sampling</i> .....	35
4.2.1 <i>Wear Metals</i> .....	37
4.2.2 <i>Contaminants</i> .....	38
4.2.3 <i>Oil Additives</i> .....	39
4.2.4 <i>Infra Red</i> .....	40
4.3.1 Blok Mesin .....	41
4.3.2 <i>Cylinder Head</i> .....	42

<b>4.3.3 Camshaft .....</b>	<b>42</b>
<b>4.3.4 Liner .....</b>	<b>43</b>
<b>4.3.5 Piston.....</b>	<b>44</b>
<b>4.3.6 Connecting Rod.....</b>	<b>45</b>
<b>4.3.7 Bearing Connecting Rod .....</b>	<b>46</b>
<b>4.3.8 Cap and Main Bearing Crankshaft.....</b>	<b>47</b>
<b>4.3.9 Crankshaft.....</b>	<b>47</b>
<b>4.4 Analisis Hasil.....</b>	<b>49</b>
<b>4.5 Root Cause Analysis .....</b>	<b>51</b>
<b>BAB V KESIMPULAN DAN SARAN .....</b>	<b>52</b>
<b>5.1 Kesimpulan.....</b>	<b>52</b>
<b>5.2 Saran .....</b>	<b>53</b>
<b>DAFTAR PUSTAKA.....</b>	<b>54</b>
<b>LAMPIRAN .....</b>	<b>55</b>