

## PRIME POWER AND CONTINUOUS DUTY ENGINE MAINTENANCE GUIDELINES<sup>1</sup>

The actual operating hours should be established through careful and consistent servicing and analysis of engine performance and oil quality.

|   | Interval Hours |           |                                       |                              |                               |                                |                                |
|---|----------------|-----------|---------------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|
|   | Daily          | First 50* | 250 hr<br>oil and<br>filter<br>change | 750<br>hr.<br>Service<br>"A" | 8000 hr.<br>Annual<br>Service | 16000<br>hr.<br>Service<br>"B" | 48000<br>hr.<br>Service<br>"C" |
| <b>General Maintenance Section</b>                                    |                |           |                                       |                              |                               |                                |                                |
| Visual check for fluid leaks (or monitoring)                          | X              | X         | X                                     | X                            | X                             | X                              | X                              |
| Check engine oil level (or monitoring)                                | X              | X         | X                                     | X                            | X                             | X                              | X                              |
| Check coolant level (or monitoring)                                   | X              | X         |                                       | X                            | X                             | X                              | X                              |
| <b>General Maintenance Section</b>                                    |                |           |                                       |                              |                               |                                |                                |
| Sample engine oil as needed   |                | X         | X                                     | X                            | X                             | X                              | X                              |
| Change engine oil and filter**  |                | X         | X                                     | X                            | X                             | X                              | X                              |
| Inspect/replace crankcase ventilation filters                         |                | X         |                                       | X                            | X                             | X                              | X                              |
| Inspect drive belts for tension, cracks, splits, or glazing           |                | X         |                                       | X                            | X                             | X                              | X                              |
| Inspect electrical system and harnesses for cuts, abrasions or wear   |                | X         |                                       | X                            | X                             | X                              | X                              |
| Inspect all vacuum lines and fittings for cracks, breaks or hardening |                | X         |                                       | X                            | X                             | X                              | X                              |
| Check and adjust intake and exhaust valve clearance                   |                | X         |                                       | X                            | X                             | X                              | X                              |
| Grease fan tensioner pulley   |                | X         |                                       | X                            | X                             | X                              | X                              |
| <b>Engine Coolant Section</b>   |                |           |                                       |                              |                               |                                |                                |
| Clean debris from radiator core                                       |                | X         |                                       | X                            | X                             | X                              | X                              |
| Drain flush and replace engine coolant                                |                |           |                                       |                              | X                             | X                              | X                              |
| Replace coolant pump  |                |           |                                       |                              |                               | X                              | X                              |
| Replace thermostat assembly, gaskets and O-rings                      |                |           |                                       |                              |                               | X                              | X                              |
| Inspect coolant hoses for cracks, swelling or deterioration           |                | X         |                                       | X                            | X                             | X                              | X                              |
| <b>Engine Ignition System</b>   |                |           |                                       |                              |                               |                                |                                |
| Inspect ignition coils and harness                                    |                |           |                                       | X                            | X                             | X                              | X                              |
| Replace spark plugs   |                |           |                                       | X                            | X                             | X                              | X                              |
| Replace ignition coils  |                |           |                                       |                              | X                             | X                              | X                              |
| <b>Fuel System Maintenance</b>  |                |           |                                       |                              |                               |                                |                                |
| Inspect/replace air cleaner filter element as needed                  |                | X         |                                       | X                            | X                             | X                              | X                              |
| Inspect Shut-off Valve for leaks and closing                          |                | X         |                                       | X                            | X                             | X                              | X                              |
| Inspect gas piping and hoses for leaks or damage                      |                | X         |                                       | X                            | X                             | X                              | X                              |
| Check air induction for leaks   |                | X         |                                       | X                            | X                             | X                              | X                              |
| Check manifold for vacuum leaks                                       |                | X         |                                       | X                            | X                             | X                              | X                              |
| Replace mixer   |                |           |                                       |                              |                               | X                              | X                              |
| Replace throttle body   |                |           |                                       |                              |                               | X                              | X                              |
| Replace EPR   |                |           |                                       |                              |                               | X                              | X                              |
| Drain LPL vaporizer oil build up                                      |                | X         |                                       | X                            | X                             | X                              | X                              |
| <b>Engine Exhaust System</b>  |                |           |                                       |                              |                               |                                |                                |
| Inspect exhaust manifold for leaks                                    |                | X         |                                       | X                            | X                             | X                              | X                              |
| Inspect exhaust piping for leaks                                      |                | X         |                                       | X                            | X                             | X                              | X                              |
| Inspect HEGO sensors and harness for damage/performance               |                | X         |                                       | X                            | X                             | X                              | X                              |
| Inspect catalyst for mechanical damage and performance                |                | X         |                                       | X                            | X                             | X                              | X                              |
| <b>Engine Overhaul</b>  |                |           |                                       |                              |                               |                                |                                |
| <b>Service B</b>  |                |           |                                       |                              |                               |                                |                                |
| Replace cylinder heads  |                |           |                                       |                              |                               | X                              | X                              |
| Inspect rocker arms, replace as needed                                |                |           |                                       |                              |                               | X                              | X                              |
| Replace turbocharger assembly   |                |           |                                       |                              |                               | X                              | X                              |
| <b>Service C</b>  |                |           |                                       |                              |                               |                                |                                |
| Replace piston assemblies and bearings                                |                |           |                                       |                              |                               |                                | X                              |
| Replace crankshaft assembly, bearings and seals                       |                |           |                                       |                              |                               |                                | X                              |
| Replace camshaft, bearings, seals and timing gears                    |                |           |                                       |                              |                               |                                | X                              |
| Replace exhaust manifold assembly and gaskets                         |                |           |                                       |                              |                               |                                | X                              |
| Replace front accessory drive pulleys, idlers and seals               |                |           |                                       |                              |                               |                                | X                              |

<sup>1</sup> The service life of an engine is influenced by several factors including correct installation, operating at proper rated load, proper service and inspection by trained technicians, and the use of approved engine oil, filters, and coolant.

\* First 50 hours only and after Service "B" and Service "C" activity.

\*\*ACTUAL OIL LIFE AND CHANGE INTERVAL IS DETERMINED THROUGH ENGINE OIL SAMPLING AND ANALYSIS