



Engine Diagnostics and Repair

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- Typical faults: ភាពខុសប្រក្រតីសាមញ្ញ
 - engine does not start
 - loss of power
(អស់ថាមពល ម៉ាស៊ីនខ្សោយកម្លាំង)
 - excessive smoke



- Basic diagnostic procedures without advanced equipment
- Engine disassembly and assembly



ENGINE DIAGNOSTICS AND REPAIR



- Engine Diagnostics
 - Engine diagnostics is the process of identifying the cause of problems using observation, basic checks, and logical thinking
 - The goal is to find the real cause of failure, not only the visible symptoms អាការៈ
 - Correct diagnostics reduces repair time and cost

TYPICAL FAULTS ភាពខុសប្រក្រតីសាមញ្ញ

- Common Engine Problems បញ្ហាឈឺម៉ាស៊ីនដែលកើតជារឿយៗ
 - Most engine problems are related to fuel supply, air intake កម្រិតឧស្ម័នចូល, or mechanical wear ការកកិតមេកានិក
 - Typical symptoms include starting problems បញ្ហាពេលបញ្ចុះ, loss of power, and abnormal smoke
 - Understanding symptoms helps to identify the source of the problem យើងយល់ពីរោគសញ្ញាអាចជួយយើងកំណត់ប្រភពនៃបញ្ហា

TYPICAL FAULTS

- Engine Does Not Start
 - Possible causes include lack of fuel, blocked air supply ការផ្គត់ផ្គង់
ឧស្ម័នត្រូវបានស្ទុះ, weak battery, or ignition failure មិនអាចផ្គត់ចំហេះ
 - Always check simple things first (fuel level, battery condition,
connections)
 - Start with basic inspection before more complex actions

TYPICAL FAULTS

- Loss of Power (អស់ថាមពល ម៉ាស៊ីនខ្សោយកម្លាំង)
 - Loss of power can result from clogged filters ស្ទះតំរឹង, poor fuel injection បាញ់ប្រេងអត់ដល់, or worn engine components ផ្នែកណាមួយនៃម៉ាស៊ីនត្រូវបានបាក់បែក ឬប្រេះស្រាំ
 - Restricted airflow or exhaust ស្ទះប្រព័ន្ធខ្នាចចូល can also reduce performance
 - Gradual power loss often indicates wear ម៉ាស៊ីនខ្សោយទៅៗអាចបញ្ជាក់ថាមានផ្នែកណាមួយសិក រិចរិល, sudden loss may indicate failure ម៉ាស៊ីនលែងដើរតែម្តងគឺអាចមកពីផ្នែកណាមួយខូចលេងដំណើរការ

TYPICAL FAULTS

- Excessive Smoke ហ៊ុយផ្សែងខ្លាំង
 - Smoke from the exhaust indicates problems in combustion or engine condition បញ្ហាទាក់ទងនឹងចំហេះឥន្ធនៈខាងក្នុង ឬស្ថានភាពម៉ាស៊ីន
 - Black smoke = too much fuel (rich mixture)
 - White smoke = coolant or cold engine
 - Blue smoke = oil burning inside the engine

BASIC DIAGNOSTIC METHODS

- Visual Inspection and Observation ការពិនិត្យមើលដោយផ្ទាល់ និងការអង្កេត
 - Check for leaks, loose parts គួររលុងផ្នែកណាមួយ, damaged hoses ខូចបំពង់ណាមួយ, and worn components វិចារិល ឬប្រេះបំណែកណាមួយ
 - Observe engine behavior សង្កេតមើលម៉ាស៊ីននិងវាមានបញ្ហាញូលក្នុងៈចម្លែកអីអត់, vibrations រង្វី សំលេងប្លែក, and unusual smells
 - Many problems can be identified by careful observation

BASIC DIAGNOSTIC METHODS

- Basic Checks
 - Always check fuel system, air filter, and oil level first
 - Verify ត្រូវប្រាកដថា that fuel reaches ឥន្ធនៈត្រូវបានបញ្ជូនដល់ម៉ាស៊ីន the engine and air can flow freely
 - Simple checks can quickly eliminate common causes

BASIC DIAGNOSTIC METHODS

- Systematic Approach វិធីសាស្ត្រជាប្រព័ន្ធ
 - Follow a logical step-by-step process when diagnosing problems
 - Do not replace parts without identifying the real cause
 - Work from simple to more complex checks

BASIC DIAGNOSTIC METHODS

- **Tools and Equipment**

- Basic tools (wrenches ម៉ាស៊េត ស្រោ, screwdrivers, gauges ឧបករណ៍ស្ទង់) are often sufficient
- Advanced diagnostic tools are helpful but not always necessary
- Knowledge and experience are more important than equipment

DISASSEMBLY AND ASSEMBLY

- **Disassembly**

- Disassemble the engine carefully to avoid damage
- Use proper tools and follow correct procedures ធ្វើតាមនីតិវិធីត្រឹមត្រូវ
- Take notes or photos if needed

DISASSEMBLY AND ASSEMBLY

- **Organization** រៀបចំទុកដាក់ **and Inspection**
 - Keep parts clean, labeled, and organized
 - Inspect all components for wear, cracks, corrosion, or contamination
 - Identify parts that must be repaired or replaced

DISASSEMBLY AND ASSEMBLY

- **Assembly and Final Check**

- Assemble components in the correct order and position
- Ensure proper tightening and alignment
- After assembly, check for leaks, correct operation, and unusual noises