18. EVAPORATIVE EMISSION CONTROL SYSTEM

EVAPORATIVE EMISSION CONTROL SYSTEM

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18. EVAPORATIVE EMISSION CONTROL SYSTEM

SCHEMATIC DRAWING

Fuel Tank

Purge Control Valve

Charcoal Canister

S EVAPORATIVE EMISSION CONTROL SYSTEM LOCATION
EVAPORATIVE EMISSION CONTROL SYSTEM

EVAPORATIVE EMISSION CONTROL SYSTEM FUNCTION

FOREWORD:
The Evaporative Emission Control System is abbreviated to E.E.C. System. This device collects the fuel vapor from the carburetor and fuel tank and then the fuel vapor is drawn into the engine for re-burning to avoid air pollution caused by the fuel vapor diffused into the air.

FUNCTION

<table>
<thead>
<tr>
<th>Item</th>
<th>Purpose</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purge Control Valve</td>
<td>Control vaporized HC from fuel tank not to diffuse into the air.</td>
<td>The charcoal canister absorbs vaporized HC from the fuel tank. When the engine is running and the purge control valve is open, the fuel vapor in the charcoal canister is drawn into the engine for re-burning.</td>
</tr>
<tr>
<td>Charcoal Canister</td>
<td>Absorb and store the vaporized HC from the fuel tank and carburetor.</td>
<td>The vaporized HC is absorbed in the charcoal canister and the specified volume of HC in the emission should not exceed 2g.</td>
</tr>
<tr>
<td>P.C.V.</td>
<td>Completely recover the HC of blow-by gas in the crankcase for re-burning.</td>
<td>Through the P.C.V. system, the blow-by gas from the crankcase is separated into fuel vapor and fuel and then drawn into the cylinder for re-burning.</td>
</tr>
</tbody>
</table>

TROUBLESHOOTING

Engine loses power or runs erratic at idle speed
1. Clogged P.C.V. system
2. Clogged air cleaner
3. Faulty purge control valve
4. Loose or broken E.E.C. system tubes or connectors

Engine idles or accelerates roughly
1. Faulty fuel cut-off valve
2. Faulty purge control valve
3. Clogged or faulty charcoal canister
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## 1. EMISSION CONTROL SYSTEM MAINTENANCE SCHEDULE:

<table>
<thead>
<tr>
<th>Item</th>
<th>Inspection</th>
<th>Service Mileage (KM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>300</td>
</tr>
<tr>
<td><strong>Engine Parts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive belt</td>
<td>Belt thickness</td>
<td></td>
</tr>
<tr>
<td>Drive chain</td>
<td>Chain tension &amp; length</td>
<td></td>
</tr>
<tr>
<td>Cam chain</td>
<td>Chain length</td>
<td></td>
</tr>
<tr>
<td>Valve clearance</td>
<td>IN/EX clearance</td>
<td></td>
</tr>
<tr>
<td>Manifold &amp; cylinder head bolts</td>
<td>Lock bolt</td>
<td></td>
</tr>
<tr>
<td>Air Cleaner</td>
<td>Clean or replace air cleaner element</td>
<td></td>
</tr>
<tr>
<td>Cooling water</td>
<td>Check for engine cooling</td>
<td></td>
</tr>
<tr>
<td>Engine oil</td>
<td>Engine lubrication</td>
<td></td>
</tr>
<tr>
<td><strong>Fuel System</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gear oil</td>
<td>Inspect or add gear oil</td>
<td></td>
</tr>
<tr>
<td>Fuel filter</td>
<td>Clean or replace fuel filter screen</td>
<td></td>
</tr>
<tr>
<td>Choke system</td>
<td>Check for proper operation</td>
<td></td>
</tr>
<tr>
<td>Fuel line connectors</td>
<td>Check for leaks, block or breakage</td>
<td></td>
</tr>
<tr>
<td>Carburetor idle speed</td>
<td>Inspect, clean or adjust</td>
<td></td>
</tr>
<tr>
<td>Oil filter</td>
<td>Clean filter screen</td>
<td></td>
</tr>
<tr>
<td><strong>Ignition Parts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ignition timing</td>
<td>Inspect ignition timing</td>
<td></td>
</tr>
<tr>
<td>Spark plug</td>
<td>Clean, inspect or replace</td>
<td></td>
</tr>
<tr>
<td>Ignition system wire connection</td>
<td>Check wire connectors</td>
<td></td>
</tr>
<tr>
<td><strong>Exhaust Emission Control System</strong></td>
<td>Check for leaks, clogged or loose pipe connection</td>
<td></td>
</tr>
<tr>
<td>Secondary air inlet line</td>
<td>Check for leaks, clogged or loose pipe connection</td>
<td></td>
</tr>
<tr>
<td>Intake manifold bolt</td>
<td>Check manifold connector and replace if necessary</td>
<td></td>
</tr>
<tr>
<td><strong>Evaporative Emission Control System</strong></td>
<td>Check for leaks, clogged or loose pipe connection</td>
<td></td>
</tr>
<tr>
<td>Engine compartment pipe connection</td>
<td>Check air vent hole for damage and clean it</td>
<td></td>
</tr>
<tr>
<td>Charcoal canister</td>
<td>Check for loose or broken tube connectors</td>
<td></td>
</tr>
<tr>
<td>Purge control valve</td>
<td>Check for loose or broken tube connectors</td>
<td></td>
</tr>
</tbody>
</table>

## 2. EMISSION CONTROL SYSTEM IRREGULAR MAINTENANCE:

<table>
<thead>
<tr>
<th>Item</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Burned crankshaft bearing</td>
<td>Before riding, inspect the engine for engine oil leaks to avoid crankshaft bearing burning during riding.</td>
</tr>
<tr>
<td>☑ Burned cylinder or piston</td>
<td>Long-time or severe use may cause worn or seized cylinder or piston. Clean or replace them with new ones.</td>
</tr>
</tbody>
</table>
SERVICE INFORMATION

GENERAL INSTRUCTIONS
• Do not smoke or allow flames or sparks near the working area.
• Note the locations of tubes for proper installation.
• Replace any damaged tube with a new one.
• Make sure to tighten the connector of each tube securely.
• Install the charcoal canister with the drain hole facing down.

TOOLS
• Vacuum pump
• Pressure pump

SPECIFICATIONS
Purge control valve vacuum pressure 45mm/Hg
Charcoal canister capacity 90cc
Charcoal canister installation angle tilt 60°
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MOTORCYCLE ENGINE EVAPORATIVE EMISSION CONTROL SYSTEM TEST

A. LEAKAGE TEST PIPING DIAGRAM (SIMPLE)

1. Charcoal Canister Plug (Point ø)

B. LEAKAGE TEST LOCATIONS (SIMPLE)

1. Charcoal canister, fuel tank (Point ø)  
   Blow compressed air into the tube at Point ø to test leakage.

2. Vacuum tube (Point ø)  
   Blow compressed air into the tube at Point ø to test leakage.

C. LEAKAGE TEST DIAGRAM (SIMPLE)
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PURGE CONTROL VALVE REMOVAL
1. Remove the frame rear cover. (2-2)
2. Remove the rear right side cover. (2-2)
3. Disconnect the purge control valve vacuum tube that goes to the carburetor and the tubes that go to the air cleaner. Remove the purge control valve/charcoal canister.

INSPECTION
Connect a vacuum pump to the purge control valve tube that goes to the air cleaner and apply vacuum pressure of 250mm/Hg. The specified vacuum must be maintained for one minute. Replace the purge control valve with a new one if vacuum is not maintained.

Connect a vacuum pump to the purge control valve tube that goes to the carburetor vacuum tube and apply vacuum pressure of 45mm/Hg. The specified vacuum must be maintained for one minute. Replace the purge control valve with a new one if vacuum is not maintained.
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PURGE CONTROL VALVE FLOW INSPECTION

1. Connect a vacuum pump to the vacuum tube that goes to the carburetor and apply vacuum pressure of 45mm/Hg.

2. Connect a pressure pump to the tube that goes to the charcoal canister and apply pressure. The flow must be over 9.4 liters per minute and replace the purge control valve with a new one if the specified flow is not reached.

* To prevent damage to the purge control valve, do not use high air pressure sources. Use a hand operated pressure pump only.

INSTALLATION

1. Install the purge control valve in the reverse order of removal.
2. Route and reconnect the purge control valve tubes properly and securely.

* Be careful not to bend, twist or kink the tubes during installation.
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CHARCOAL CANISTER
REMOVAL
Remove the charcoal canister. (18-6)

INSPECTION
1. Plug the tube that goes to the fuel tank and plug the blow-by tube.
2. Connect a vacuum pump to the vacuum tube.
3. Connect a hose to the canister tube that goes to the air cleaner. Blow the hose with mouth. The charcoal canister is normal if air can be blown into it. If clogged, replace it with a new one.
4. Check the charcoal for cracks and replace if necessary.

INSTALLATION
Install the charcoal canister in the reverse order of removal.

* The charcoal canister must be installed at its original position to avoid damage of performance.
* Do not bend, twist or kink the tubes during installation.

To Fuel Tank To Purge Control Valve

To Air Blow-by Tube
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P.C.V. (POSITIVE CRANKCASE VENTILATION) SYSTEM

P.C.V. REMOVAL
1. Remove the frame rear cover. (2-2)
2. Remove the rear left side cover. (2-2)
3. Remove the P.C.V., air cleaner cover screws and the air cleaner cover.
4. Remove the air cleaner element.

AIR CLEANER CLEANING
1. Remove the air cleaner cover screws and the air cleaner cover.
2. Remove the two screws attaching the air cleaner element and remove the element.
3. Wash the air cleaner element, squeeze out and allow to dry. Soak the element in clean engine oil and squeeze out the excess oil.
4. Blow compressed air from inside to clean the P.C.V element.
5. Install the air cleaner element and the P.C.V. element
6. The installation sequence is the reverse of removal.

* Never use gasoline or high vaporable solvent for washing. Use coal oil or diesel oil.
* Be sure to install the air cleaner properly to avoid dust entering the air cleaner.
EXHAUST EMISSION RELATED SYSTEM INSPECTION

Clean or replace the air cleaner. (3-4)
Clean and adjust the carburetor. (5-3)
Inspect the auto choke system. (5-4)
Clean and inspect the spark plug. (3-4)
Inspect the ignition system. (15-6)

EXHAUST EMISSION TEST AND ADJUSTMENT

1. Start the engine and warm up for several minutes. (Engine surface temperature 60°C _ 80°C)
2. Adjust the idle speed to 1700±100 rpm.
3. Connect the emission tester sampling pipe to the exhaust muffler.
   Standard: CO: 2.0_ 3.0% max.
   HC: 4000PPM max.
4. If CO or HC exceeds the specified values, adjust the carburetor pilot screw (P.S.) until CO and HC are within the specified standard values.
   P.S. Adjusting turns: 3±1/2
5. If the adjustment of carburetor makes no difference, inspect exhaust emission related system.