

CHAPTER 7. TROUBLESHOOTING

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CHAPTER 7. TROUBLESHOOTING

7-1. No Start or Difficult to Start

A. Ignition System

Possible Cause	Inspection and Repair
<ol style="list-style-type: none"> 1. Carbon-fouled or worn out spark plug. 2. Gap incorrect or bridged. 3. Contact breaker point burned up or worn out. 4. Point gap incorrect. 5. Ignition timing out of adjustment. 	<p>Clean plug (if possible) and gap to .6 – .7 mm.</p> <p>Clean or change points. Set point gap (.3 – .4mm.) Set ignition timing.</p>
<ol style="list-style-type: none"> 6. Ignition coil no good. 7. Condenser shorted out. 8. Brown or red ignition wires broken or shorted. 9. Main switch no good. 10. Blown fuse. 11. Battery discharged or defective. 	<p>Use electro-tester to measure primary and secondary winding resistance. Also make a standard coil test.</p> <p>Use electro-tester to check capacity and insulation.</p> <p>Turn on main switch. Hit horn and stoplight. No operation means possible broken wire.</p> <p>Check main switch. Replace. Check specific gravity of each cell with hydrometer.</p>

B. Fuel System

Possible Cause	Inspection and Repair
<ol style="list-style-type: none"> 1. No gas. 2. Tank cap vent hole plugged. 3. Petcock defective. 4. Fuel line plugged. 5. Carburetor not level. 6. Carb equalizer tube has hole or loose connection. 	<p>Disconnect fuel line at carburetor, turn fuel petcock on check for fuel flow.</p>

C. Cylinder Compression Measurement Shows Low Pressure

Possible Cause	Inspection and Repair
<ol style="list-style-type: none"> 1. Lack of tappet clearance: valve held open. 2. Valve timing incorrect. 3. Cylinder head gasket broken. 4. Valve seat defective. 5. Piston ring(s) defective. 6. Cylinder tapered or out of round. 7. Valve guide(s) worn out. 8. Guide seals bad. 	<p>Adjust tappet.</p> <p>Camshaft improperly installed or cam chain loose. Check for combustion gases blowing out past gasket. See valve seat section.</p> <p>Too much smoke while riding motorcycle. Especially blue smoke indicating oil burning. See individual wear sections for inspection methods.</p>

7-2. Poor Idle and/or Low Speed Performance

A. Ignition System

Possible Cause	Inspection and Repair
<ol style="list-style-type: none"> 1. Spark plug fouled or incorrect gap. 2. Contact points bad. 3. Incorrect ignition timing. 4. Weak spark. 5. Partially discharged or defective battery. 	<p>Clean and gap, or replace if necessary.</p> <p>Clean and gap, or replace if necessary.</p> <p>Reset timing.</p> <p>Check ignition coil and condenser.</p> <p>Weak horn and lights-check fluid level; recharge.</p>

B. Fuel System

Possible Cause	Inspection and Repair
<ol style="list-style-type: none"> 1. Tank cap vent plugged. 2. Fuel petcock plugged. 3. Carburetor slow speed system inoperative. 4. Pilot screw out of adjustment or plugged. 5. Carburetor float level incorrect. 6. Starter levers on. 7. Air leak. 8. Carburetor not level. 9. Equalizer tube has hole or loose connection. 	<p>Clean or repair as necessary.</p> <p>Manifold equalizer tube cracked, or rubber carburetor manifold cracked.</p>

C. Compression System

Possible Cause	Inspection and Repair
<ol style="list-style-type: none"> 1. Incorrect tappet clearance. 2. Valve timing (camshaft) incorrect. 3. Valve seat leak age. 4. Valve guide worn. 	

7-3. Poor Mid-Range and High Speed Performance

A. Ignition System

Possible Cause	Inspection and Repair
<ol style="list-style-type: none"> 1. Spark plug incorrect. 2. Advance (or spring) defective. 3. Ignition timing off. 4. Points set too close. 	<p>Clean and gap to 6–7mm. or change plug if necessary.</p> <p>Advance not able to turn, governor weight not pivoting. Check for correct "retard" to "full advance" position.</p> <p>Re-gap to 0.3 – 0.45 mm.</p>

B. Oil System

Possible Cause	Inspection and Repair
<ol style="list-style-type: none">1. Oil level too low.2. Oil too thin.3. Oil pump defective.4. Oil passage(s) plugged.	<p>Check and refill.</p> <p>Improper weight or too contaminated-change oil.</p> <p>Loosen oil delivery line to head and check for oil flow.</p> <p>Disassemble engine. Squint solvent on oil through passages.</p>

C. Too Much Blue Exhaust Smoke

<ol style="list-style-type: none">1. Too much engine oil.2. Breather plugged up.3. Cylinder and/or piston rings worn.4. Worn valve guide.5. Cracked valve guide seals.	<p>Check oil level and drain some if necessary.</p> <p>Check and clean if necessary.</p> <p>Make necessary measurements and replace as necessary.</p> <p>Make necessary measurements and replace as necessary.</p> <p>Make necessary inspection and replace as necessary.</p>
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Millimeters to Inches

	0	.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0		.0039	.0079	.0118	.0157	.0197	.0236	.0276	.0315	.0354
1	.0394	.0433	.0472	.0512	.0551	.0591	.0630	.0669	.0709	.0748
2	.0787	.0827	.0866	.0906	.0945	.0984	.1024	.1063	.1102	.1142
3	.1181	.1200	.1260	.1299	.1339	.1378	.1417	.1457	.1496	.1535
4	.1575	.1614	.1654	.1693	.1732	.1772	.1811	.1850	.1890	.1929
5	.1969	.2000	.2047	.2087	.2126	.2165	.2205	.2244	.2283	.2323
6	.2362	.2402	.2441	.2480	.2520	.2559	.2598	.2638	.2677	.2717
7	.2756	.2795	.2835	.2874	.2913	.2953	.2992	.3031	.3071	.3110
8	.3150	.3189	.3228	.3268	.3307	.3346	.3386	.3425	.3465	.3504
9	.3543	.3583	.3622	.3661	.3701	.3740	.3780	.3819	.3858	.3898
10	.3937	.3976	.4016	.4055	.4094	.4134	.4173	.4213	.4252	.4291

.01mm = .0004
.02mm = .0008

.03mm = .0012
.04mm = .0016

.05mm = .0020
.06mm = .0024

.07mm = .0028
.08mm = .0031

.09mm = .0035
.10mm = .0039

Inches to Millimeters

	0	.1	0.2	0.3	0.4	.05	.06	.07	.08	.09
0		.254	.508	.762	1.016	1.270	1.524	1.778	2.032	2.286
1	2.540	2.794	3.048	3.302	3.556	3.810	4.064	4.318	4.572	4.826
2	5.080	5.334	5.588	5.842	6.096	6.350	6.604	6.858	7.112	7.366
3	7.620	7.874	8.128	8.382	8.636	8.890	9.144	9.398	9.652	9.906
4	10.160	10.414	10.668	10.922	11.176	11.430	11.684	11.938	12.192	12.446
5	12.700	12.954	13.208	13.462	13.716	13.970	14.224	14.478	14.732	14.986
6	15.240	15.494	15.748	16.002	16.256	16.510	16.764	17.018	17.272	17.526
7	17.780	18.034	18.288	18.542	18.796	19.050	19.304	19.558	19.812	20.066
8	20.320	20.574	20.828	21.082	21.336	21.590	21.844	22.098	22.352	22.606
9	22.860	23.114	23.368	23.622	23.876	24.130	24.384	24.638	24.892	25.146
10	25.400	25.654	25.908	26.162	26.416	26.670	26.924	27.178	27.432	27.686

.001" = .0254mm
.002" = .0508mm

.003" = .0762mm
.004" = .1016mm

.005" = .1270mm
.006" = .1524mm

.007" = .1778mm
.008" = .2032mm

.009" = .2286mm
.010" = .254mm

CONVERSION TABLE

LENGTHS

Multiply	By	To Obtain	Multiply	By	To Obtain
Millimeters (mm)	0.03937	Inches	Kilometers (km)	.6214	Miles
Inches (in)	25.4	Millimeters	Miles (mi)	1.609	Kilometers
Centimeters (cm)	.3937	Inches	Meters (m)	3.281	Feet
Inches (in)	2.54	Centimeters	Feet (ft)	.3048	Meters

WEIGHTS

Kilograms (kg)	2.205	Pounds	Grams (g)	.03527	Ounces
Pounds (lbs)	.4536	Kilograms	Ounces (oz)	28.25	Grams

VOLUMES

Cubic centimeters (cc)	.06102	Cubic inches	Imperial gallons	277.274	cu.in.
Cubic inches (cu.in.)	16.387	cc.	Liters (l)	1.057	Quarts
Liters (l)	.264	Gallons	Quarts (qt)	.946	Liters
Gallons (gal)	3.785	Liters	Cubic centimeters (cc)	.0339	Fluid ounces
U.S. gallons	1.2	Imperial-gals.	Fluid ounces (fl. oz)	29.57	cc.
Imperial gallons	4.537	Liters			

OTHERS

Metric horsepower (ps)	1.014	bhp	Foot-pounds (ft-lbs)	.1383	kg-m
Brake horsepower (bhp)	.9859	ps.	Kilometers per liter (km/l)	2.352	mpg
Kilogram-meter (kg-m)	7.234	Foot-pounds	Miles per gallon (mpg)	.4252	km/l
Kilograms/sq.cm (kg/cm ²)	14.22	Pounds/sq.in. (lbs/in ² or psi)			
Centigrade (C°)	(C° x 9/5) + 32	Fahrenheit (F°)			

TORQUE SPECIFICATIONS

Stud size	kg-m	In-lbs*
6mm.	1.0	90
7	1.5	135
8	2.0	180
10	3.2-4.0	300-350
12	4.0-4.6	350-400
14	4.6-5.2	400-450
17	5.87-7.0	500-600

* Ft-lbs = In-lbs divided by 12.

