
UNIT 2 BASIC TROUBLESHOOTING OF MOTORCYCLE

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2.1 INTRODUCTION

In Unit 1, you studied about the repairing some parts of a motorcycle. In this unit, we shall mainly emphasise on the troubleshooting of the basic problems. This unit will focus on the problems that may come during the life of a motorcycle and also you will learn how to handle and rectify these problems.

Objectives

After studying this unit, you should be able to

- check, perform inspection and identify the reason(s) of various problems reported by a customer, and
- follow the steps and procedures for correct troubleshooting of the motorcycle.

2.2 CAUSES AND REMEDIES OF MOTORCYCLE PROBLEMS

2.2.1 If Engine Overheats

Causes of Problem	Remedy
<ul style="list-style-type: none"> • Incorrect spark plug make/model used • Longer reach spark plug used • Gasket missing • Plug tightened insufficiently • Worn out/aged spark plug • Timing too much advance • Low octane petrol used • Air-fuel mixture too lean • Lubrication system faulty • Excessive carbon deposits • Valves/Valve springs defective • Compression ratio high • Cylinder head gasket projecting into combustion chamber • Excessive load due to binding brake • Tyre under-inflated • Slipping clutch • Operation at high altitudes • Overloading 	<ul style="list-style-type: none"> • Use correct type • Use correct reach plug • Replace • Retighten • Replace • Adjust • Use good fuel • Adjust carburetor • Check and rectify cylinder head • Decarbonise cylinder head • Rectify/replace • Correct • Replace gasket • Adjust brakes • Inflate to correct pressure • Adjust/replace clutch plates • Avoid • Avoid

2.2.2 If Engine Does Not Start in Wet or Damp Weather

Causes of Problem	Remedy
<ul style="list-style-type: none"> • Insulators are not clean and dry • Fuel tank cap got cracked • Dust and/or moisture on secondary Coil terminal • Wet secondary circuit wires 	<ul style="list-style-type: none"> • Clean and dry insulator • Replace the cracked fuel tank cap • Clean and dry the coil • Dry the wires

2.2.3 If Engine Does Not Start at Cranking Speed

Causes of Problem	Remedy
<ul style="list-style-type: none"> • Incorrect electrode gap of spark plug • Fouled spark plug • Spark Plug insulator cracked • Bridging of electrodes of spark plug • Insufficient or no high tension voltage reaching spark plug terminals • Low compression in engine • Engine valves sticky • Engine valve timing incorrect • Fuel lines clogged • Airlock in fuel lines/air leak in induction system • Carburettor faulty (over flooding) 	<ul style="list-style-type: none"> • Correct • Clean • Replace spark plug • Clean the electrodes • Check ignition system and rectify • Rectify • Rectify the problem • Adjust the valve timing • Clean • Rectify connections • Rectify the fault of carburettor

2.2.4 If Engine Misfires

Causes of Problem	Remedy
<ul style="list-style-type: none"> • Incorrect Electrode gap of spark plug • Electrode worn out • Fouled spark plug • Shorter reach plug used • More than one gasket used • Aged spark plug • Interrupted/Insufficient/Wrong polarity/High Tension Voltage reaching spark plug terminals • Compression low • Valves sticky • Valve springs weak • Tappet clearance incorrect • Valve timing incorrect • Fuel-air mixture too lean 	<ul style="list-style-type: none"> • Correct • File and adjust gap • Clean • Use correct reach plug • Remove extra gasket • Replace • Check ignition System and rectify the problem • Rectify • Rectify • Replace • Adjust • Adjust • Adjust carburettor

2.2.5 If Engine Lacks Power and Poor Pick-Up

Causes of Problem	Remedy
<ul style="list-style-type: none"> • Hotter plug spark used • Longer reach spark plug used • Gasket not fitted • Plug tightened insufficiently • Worn out/aged spark plug • Ignition timing too much retarded • Insufficient HT voltage reaching spark plug Terminals • Compression low • Air filter clogged • Valve timing incorrect • Low octane petrol used • Carburettor faulty 	<ul style="list-style-type: none"> • Fit correct type of spark plug • Use correct reach plug • Replace the gasket • Tighten the plug • Replace the spark plug • Adjust the ignition timing • Check the ignition system and rectify the problem • Trace the ignition system • Clean/replace • Adjust • Use good fuel • Rectify the problem and correct

2.2.6 If Fuel Consumption is High

Causes of Problem	Remedy
<ul style="list-style-type: none"> • Incorrect electrode gap of spark plug • Worn out electrodes of spark plug • Fouled spark plug • Aged spark plug • Ignition timing too much advanced • Insufficient/Interrupted HT voltage reaching to spark plug terminals • Fuel leaking • Idling speed setting too high • Low compression • Clogged air cleaner • Sticky valves • Incorrect valve clearance • Clogged exhaust system • High internal friction • Overloaded engine • Clutch slipping • Brakes dragging • Tyres under-inflated • Gear shifting untimely/driving unsteady 	<ul style="list-style-type: none"> • Adjust • File and adjust gap • Clean • Replace • Adjust • Check the ignition system & rectify • Rectify • Adjust carburetor • Rectify • Clean/replace • Clean/replace • Adjust • Clean • Rectify • Avoid overloading • Adjust/replace clutch plate • Adjust • Inflate to correct pressure • Improve driving habits

<ul style="list-style-type: none"> • Very low and very high speed driving 	<ul style="list-style-type: none"> • Improve driving habit
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2.2.7 If Engine Keeps on Running after Ignition is Switched Off

Causes of Problem	Remedy
<ul style="list-style-type: none"> • Pre-ignition due to very hot spark plug used • Pre-ignition due to ignition timing too much advanced • High compression ratio in engine cylinder • Excessive carbon deposits in combustion • Cylinder head gasket projecting into the Combustion chamber • Air-fuel mixture too lean 	<ul style="list-style-type: none"> • Fit correct type of spark plug • Adjust the ignition timing • Correct • Decarbonise • Replace gasket • Adjust Carburetor

2.2.8 If Battery is Not Charging

Causes of Problem	Remedy
<ul style="list-style-type: none"> • Electrolyte specific gravity NG • Charging not done fully • Lead plates NG 	<ul style="list-style-type: none"> • Correct • Charge the battery fully • Correct

2.2.9 If Battery Discharges Frequently

Causes of Problem	Remedy
<ul style="list-style-type: none"> • Electrolyte specific gravity NG • Charging not done fully • Lead plates NG 	<ul style="list-style-type: none"> • Correct • Charge the battery fully • Correct

2.2.10 If High Resistance or Low Current in Primary Coil Circuit

Causes of Problem	Remedy
<ul style="list-style-type: none"> • Disconnected or loose wires • Ignition switch is defective • Ignition coil is defective 	<ul style="list-style-type: none"> • Tighten all connections from battery to ammeter, to the fuse, to the ignition switch, to the ignition coil, to the magneto and rectifiers • Check switch for open circuit and replace if it is defective • Check ignition coil and replace if it

	is defective
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2.2.11 If Low Resistance or Very High Current in Primary Coil Circuit

Causes of Problem	Remedy
<ul style="list-style-type: none"> Primary ignition coil short circuited 	<ul style="list-style-type: none"> Replace the ignition coil

2.2.12 If Brakes Drag

Causes of Problem	Remedy
<ul style="list-style-type: none"> Insufficient pedal free play Recommended brake fluid not used Too tight Brakes 	<ul style="list-style-type: none"> Adjust pedal free play to a recommended value Refill recommended fluid and change all the damaged parts Adjust brakes

2.2.13 If Excessive Pedal Pressure Required

Causes of Problem	Remedy
<ul style="list-style-type: none"> Incorrect shoe placement Improper anchor pin position lining Warpage in brake shoes Incorrect linings Brake pedal and/or brake shoe binding 	<ul style="list-style-type: none"> Adjust shoes to their correct position Adjust anchor pin to make complete contact Replace brake shoes Replace linings Free up binding and lubricate if required

2.2.14 If Steering is Heavy

Causes of Problem	Remedy
<ul style="list-style-type: none"> Steering head adjuster too tight Damaged steering cones or steel balls Low front tyre pressure 	<ul style="list-style-type: none"> Loosen steering head adjuster Check and replace steering cones and/or steel balls Fill air in tyre to a recommended value

2.2.15 If Either Wheel is Wobbling

Causes of Problem	Remedy
<ul style="list-style-type: none"> Excessive wheel bearing play Distorted rim Improperly installed wheel hub Excessively worn out swing arm pivot 	<ul style="list-style-type: none"> Check bearing and repair or replace the bearing Balance the rim Check and install properly Replace bushes

bushes <ul style="list-style-type: none"> • Distorted frame • Improper drive chain tension or adjustment 	<ul style="list-style-type: none"> • Align frame • Correct the drive chain tension
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2.2.16 If Motorcycle Pulls to One Side

Causes of Problem	Remedy
<ul style="list-style-type: none"> • Misaligned shock Absorber • Front and rear wheels are not aligned • Front fork bent • Bent swing arm 	<ul style="list-style-type: none"> • Align shock absorber • Align front and rear wheels • Make front fork straight • Make swing arm straight

2.2.17 If Motorcycle Starts but Stops Suddenly

Causes of Problem	Remedy
<ul style="list-style-type: none"> • The spark plug gets short-circuited by heating 	<ul style="list-style-type: none"> • Check the spark plug for short-circuiting, etc. on a spark plug testing machine and replace

SAQ 1



- Why does engine overheat and what will happen if engine overheats?
- Why engine does not start in wet or damp weather?
- What may be the causes if engine dose not start at cranking speed?
- Why does engine misfire?
- What are the reasons behind poor pick-up?

SAQ 2



- What are the causes of high fuel consumption?
- How can the problem of “motorcycle pulls to one side” be corrected?
- How can engine overheating problem be solved?
- Why excessive pedal pressure may be required while applying brake?
- Why does steering become heavy? How can we rectify it?

2.3 SUMMARY

In this unit, we have studied about the basic troubles in motorcycle operation and their solutions. It will help you in finding out the problem with the vehicle and you will be able to correct it whether it is a small fault or a big problem. Now, we shall study in the next unit about general safety and service tips which will be helpful in avoiding accidents at workplace.

2.4 ANSWERS TO SAQs

Refer the relevant preceding text in the unit or other useful books/manuals available on the topic at workshops to get the answers of the SAQs.