



GPX 250e
ZS172FMM-5 (PR250)
Engine
Operation and Maintenance
Manual

Preparation:

Proofreading:

Countersignature:

Review:

Standardization:

Approval:



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Chapter 1 Main technical parameters and specifications of the engine

1. Type: Single Cylinder, vertical, air-cooled, four-stroke, overhead
cam)
 - b. Maximum torque and corresponding speed $N \cdot m / (r/min)$:
18.0(1±5%)/6000(1±5%)
 - c. Idle speed (r/min): 1400(1±10%)
 - d. Minimum fuel consumption rate (g / kWh): 354
3. Main structural parameters:
 - a. Bore×stroke: 72×61.4mm
 - b. Total displacement: 249.9mL
 - c. Compression ratio: 9.2:1
 - d. Ignition Advance Angle: 15°
 - e. Lubrication: Pressure Lubrication, Splash Lubrication
 - f. Valve Clearance (Cold): 0.04mm~0.06mm
 - g. Igniter Type: CDI
4. Clutch Type: Manual, Wet Multi-disc
5. Gear Change : Constant meshing two-stage transmission six-speed transmission
Primary reduction ratio: 3.091
Transmission ratio of each gear:
first gear: 2.909 Second gear: 1.786 Third gear: 1.375 Fourth gear: 1.167 Fifth gear: 0.9
6. Start mode: electric start
7. Spark plug model : Equivalent to D8TC model
8. Fuel and oil:
gasoline grade: ≥RQ90
lubricant grade: Equivalent to SJ10W/40 model (GB 11121-2006)
Lubricant capacity: 1.1L
9. Dimensions: 342×346.5×436mm
10. Net mass: 33.5kg

Chapter 2 Use and Maintenance

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1. When the engine is started in a non-neutral gear, the clutch should be fully disengaged. When starting the engine from cold, close the choke valve and operate the throttle valve gently to start. After running for 1~3min, accelerate again.
 2. When starting with electricity, the starting time should not exceed 5 seconds each time, and the interval between restarting should be 10 seconds. If it fails to start 5 times in a row, check whether there is any fault. After starting the operation, it is strictly forbidden to press the start button again.

Note: If the battery power is not enough, it can be used after driving for a few kilometers.

3. After the cold engine is started, the 1to3 engine speed should be gradually increased after
4. of the new machine: very important, if the running-in is not good, the failure will increase

(1) During the running-in 0~500 kilometers, the engine should not be subjected to excessive load, and the throttle should not be fully opened to avoid using the same gear for a long time. , the speed of the vehicle should not exceed 30Km/h;

(2) Within 500~1000 kilometers, the engine should not be subjected to excessive load, the throttle should not be fully opened, and each gear can only be 80% driven at a speed. Avoid using the same gear for a long time, and the vehicle speed should not exceed 50Km/h;

(3) The new engine 500Kms should be maintained Clearance, clutch release stroke, etc.

5. Daily maintenance:

(1) After the running-in period, generally replace the lubricating oil after driving for 2000 kilometers or after each race. If the oil quality changes, it can be replaced in advance;

(2) Turn the oil dipstick to check the oil level before driving every day, if the oil level is lower than half of the gauge adjust

the valve clearance. Generally, the valve clearance has been adjusted when the engine leaves the factory. When abnormal noise occurs in the cylinder head, the valve clearance can be adjusted to the specified value: 0.04mm ~ 0.06mm;

(4) The carburetor should be cleaned regularly, and necessary inspection and adjustment should be carried out;

(5) The air filter should be cleaned regularly Inspection and cleaning: first remove the filter element, if it is a sponge filter element, wash it with detergent, dry it after washing, and then apply a little oil on the filter element and install it; if it is a disposable paper filter element, replace it with a new filter element directly. Yes;

(6) Regularly check and adjust whether the fastening bolts are loose.

6. Idle speed adjustment:

(1) Preheat the engine to the working temperature;

(2) Tighten the idle speed adjustment screw first, and then back it 1.25 turns;

(3) Adjust the throttle stop screw to make the speed reach the specified idle speed. If the speed is too low, the engine is easy to stall;

(4) Fine-tune the idle speed adjustment screw left and right, and fix it at the position of the highest stable speed of the engine;

(5) Then re-adjust the throttle stop screw to make the speed reach the specified idle speed. ;

(6) Repeat(3), (4)and(5)until the idle speed screw is tightened or loosened, but the speed does not drop, so far the idle speed adjustment is completed.

7. The clutch is started in neutral. When the idling is in gear and the flame is turned off, the clutch adjusting screw needs to be properly tightened.

8. When the clutch is running at idle speed, the noise should be stable and consistent. When refueling and returning oil, it is normal for the clutch to make a slight "gig" sound. When the speed is stable, the sound will disappear.

9. The engine model and serial number are printed on the left crankcase (bottom) where it is easily seen. (See attached drawing 1)

Chapter 3 Engine Trouble Checklist

1、 Difficulty starting or unable to start

Troubles	Cause		Troubleshooting Method
hooting			
operation	Improper		as required by the manual
supply system	fuel		the
	Operate		Trouble
	Fuel accumulated in the		cylinder Exhaust the fuel
	air filter in the cylinder is blocked		Clean the air filter
	system air leakage		the carburetor and air filter connecting
	bolts		Tighten
according	to	intake	regulations Carbon deposits and clean with gasoline
		Spark plug gap	adjustment of the gap

		Improper	0.6~0.7mm
		Spark plug ablation	Replace
electrical components faulty		Ignition coil is broken Replace	replace the
		igniter (CDI) is broken Replace	replacement
		Magneto coil is broken or solder joints fall off	Replace or repair welding
	lines Or check the circuit breaker		connect
the air circuit, the	cylinder compression force is low, and the	plug leaks	Tighten the spark plug
		cylinder head or the joint surface of the cylinder body	and wipe the plane, install the gasket, and tighten the cylinder head nut.
		spark	,
		serious wear of the cylinder block	Replace the piston ring or
		the air leakage of each joint surface of the intake pipe of the	tighten the connecting bolts The
		blocked	Clean the air filter
	not smooth	filter is	air
		exhaust	The
	The valve clearance adjustment is too large or too small	. Adjust the clearance	
other	with the wrong	Replace the fuels	

2. engine

fault clues	Troubleshooting	methods
No idle speed	improper adjustment	tuning screw
	adjust	Re
	-	of
carburetor	-The spring force of the carburetor throttle valve is too	spring

	small	
	. The idle speed orifice is too large.	Replace the carburetor with
unstable idle speed	ignition timing is incorrect	. Adjust the ignition time as specified.
	mixture is too rich or too lean	.
	.	theSpecified value

3. Unstable engine operation

Fault clues	Troubleshooting	method
The oil	state.	oil circuit
electrical	voltage line or the ignition coil leakage	. Replace the
	capacitor with open circuit or	leakage
	blocked	Clear

. Engine overheating

fault clues	Troubleshooting	method
Overload or high-speed long-term operation	Use low gear or long-term operation on bad roads	Improve the operation method or temporarily stop
	for a long time with full throttle operation	Properly adjust the throttle
	clutch slip	Adjust the
Fuel system The	muffler blockage and	remove carbon deposits
	fuel mixture ratio is not correct	. Adjust the oil pump to match the carburetor
	The mixture is too rich or too lean	Adjust the carburetor

.stop

clues	causes	methods
troubleshooting	Fault	fault
	-	-
	-	-
Engine	automatic	and
ofOr	the cylinder is seized seriously, the piston is seized,	repair or replace
	other mechanical seizures. After the fault	identified, repair or replace the
fault	Troubleshooting	methods

clues		
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6. Clutch fault

fault clues	Fault cause	troubleshooting method
Clutch slip	Clutch control system improper adjustment or damage	Adjust, repair or replace the
	friction plate worn or damaged	Replace the
	spring loss of elasticity or shorten the size	Replace the
clutch separation incomplete	separation stroke Improper	adjustment, repair or replace the
	friction platethickness is not suitable	to replace the
	spring with uneven spring force	Adjust the same set of springs

7. Shifting and shifting are not working

clues	Troubleshooting	methods
Can't hang up The shift	fork is broken or deformed	Replace the shift fork
	shift hook or shift shaft assembly is broken or deformed	Replace the
difficulty	shiftingInconsistent operation	Improve the operation
	shift hook is worn or eccentric	Replace the
	cam groove or pin is worn	the
self-shedding	gear contact claw or hole wear	Replace the gear
	limit fast	gear
	cylinder	ReplaceShift Attachment Fork

Chapter 4 Ignition Circuit Diagram of



