

OPERATIONS MANUAL

**PLEASE READ THIS INSTRUCTION BOOK
BEFORE USING THIS KIND OF MACHINE**

PREFACE

Thank you for purchasing our machines and hope that you enjoy operating one of the finest models in the market.

This Manual deals with the information and specifications concerning operation and maintenance of gasoline engines, generators, welding generators, water pump, etc. and should be considered as a permanent part of the machine you bought and should remain with it if it is resold.

Please note the safety marks pasted on the machines.

If you are aware of any problem, please consult the authorized dealer.

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I MANUAL FOR GASOLINE GENERATOR

1 SPECIFICATION

Model	PT-RWD1200	PT-RWD2500	PT-RWD2500A	PT-RWD3300	PT-RWD3300A
Engine	3.5HP	7.0HP	7.0HP	7.0HP	7.0HP
EngineType	4-stroke,singlecylinder				
Displacement	108cc	212cc	212cc	212cc	212cc
TurningSpeed	3200-3600				
CoolingSystem	AirCooled				
EngineOil	0.45	0.6	0.6	0.6	0.6
FuelTank	6	15	15	15	15
ACGenerator					
RatedVoltage	220V ± 10%				
RatedFrequency	50-60HZ				
DCoutput	12V				
EngineModel	156F/P	170F/P	170F/P	170F/P	170F/P
RatedPower	1KVA/1KW	2.5KVA/2.2KW	2.5KVA/2.2KW	3KVA/3KW	3KVA/3KW
Max.Power	2KVA/1.2KW	3.0KVA/2.5KW	3.0KVA/2.5KW	4.0KVA/3.3KW	4.0KVA/3.3KW
Starting	manual	manual	manual&Electric	manual	manual&Electric
Length*Width* Height	49*38*45cm	61*45*52cm	61*45*52cm	64*47*54cm	64*47*54cm
G.W(kg)	26	42	45	47	52

Model	PT-RWD6000A	PTS-ED-250AE	PT-RWD9000A	PT-RWD13000A
Engine	13.0HP	15.0HP	18.0HP	459cc
EngineType	4-stroke,singlecylinder			
Displacement	390cc	420cc	439cc	459cc
TurningSpeed	3200-3600			
CoolingSystem	AirCooled			
EngineOil	1.1	1.1	1.3	1.3
FuelTank	25	25	25	25
ACGenerator				
RatedVoltage	220V ± 10%			
RatedFrequency	50-60HZ			
DCoutput	12V			
EngineModel	188F/P	190F/P	192F/P	192F/P-C
RatedPower	6.0KVA/5.5KW	5.0KVA/5.0KW	8.0KVA/7.5KW	9.0KVA/8.5KW
Max.Power	7.0KVA/6KW	6.0KVA/5.5KW	9.0KVA/8.0KW	10KVA/10KW
Starting	manual&Electric	manual&Electric	manual&Electric	manual&Electric
Length*Width* Height	71*55*61cm	71*54*58cm	71*55*61cm	79*74*64cm
G.W(kg)	89	87	96	112

1 SPECIFICATION

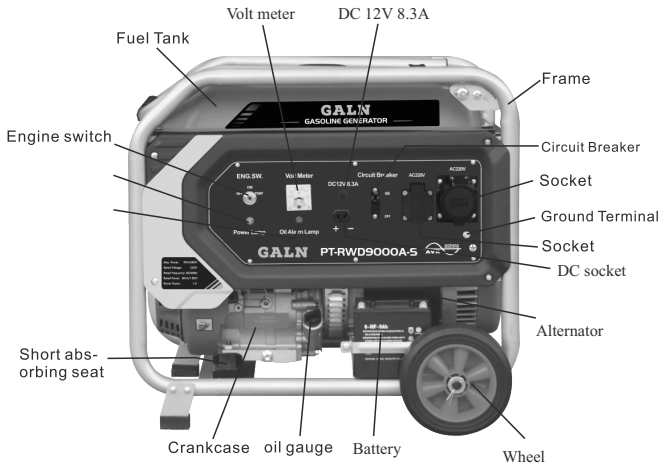
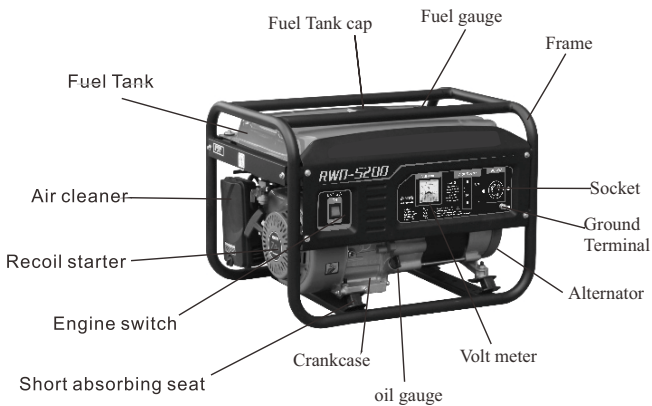
Model	RWD-1500	RWD-3800	RWD-5200	RWD-5200A	W-150
Engine	3.5HP	7.0HP	7.0HP	7.0HP	7.0HP
EngineType	4-stroke,singlecylinder				
Displacement	108cc	208cc	208cc	208cc	212cc
TurningSpeed	3200-3600				
CoolingSystem	AirCooled				
EngineOil	0.45	0.6	0.6	0.6	0.6
FuelTank	6	15	15	15	3.6
ACGeneratorEDON					
RatedVoltage	220V $\pm$ 10%				22V-28V
RatedFrequency	50-60HZ				50-60HZ
DCoutput	12V				230V
EngineModel	156F/P	170F/P	170F/P	170F/P	170F/P
RatedPower	1KVA/1KW	2.5KVA/2.3KW	3.0KVA/3.0KW	3.0KVA/3.0KW	1KVA/1KW(AC)
Max.Power	2KVA/1.2KW	3.0KVA/2.5KW	4.0KVA/3.2KW	4.0KVA/3.2KW	-
Starting	manual	manual	manual	manual&Electric	manual
Length*Width* Hight	49*38*45cm	61*45*45cm	61*45*45cm	61*45*45cm	52*47*40cm
G.W(kg)	26	40	44	52	42

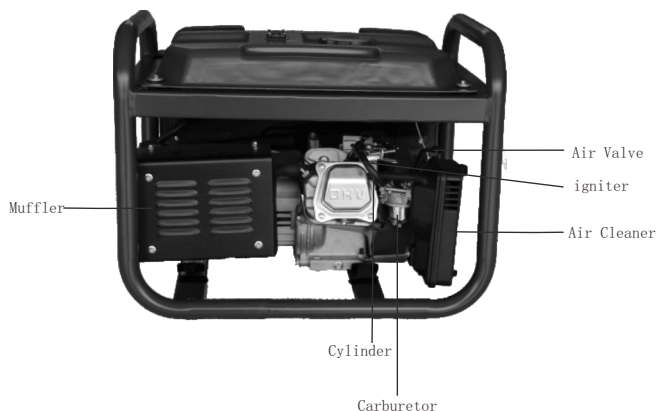
Model	PT-RWD6000A-S	PT-RWD9000A-S	PT-RWD13000A-S	PT-RWD15000A-S	ED-AXQ-140A ED-AXQ-160A
Engine	13.0HP	18.0HP	459cc	-	7.0HP
EngineType	4-stroke,singlecylinder				
Displacement	389cc	439cc	459cc	500cc	212cc
TurningSpeed	3200-3600				
CoolingSystem	AirCooled				
EngineOil	1.1	1.3	1.3	1.3	0.6
FuelTank	25	25	25	25	3.6
ACGeneratorEDON					
RatedVoltage	220V $\pm$ 10%				22V-28V
RatedFrequency	50-60HZ				60HZ
DCoutput	12V				220V
EngineModel	188F/P	192F/P	192F/P-C	194F/P	170F/P
RatedPower	6.0KVA/5.5KW	8.0KVA/7.5KW	10KVA/9.3KW	12KVA/12KW	1KVA/1KW(DC)
Max.Power	7.0KVA/6.0KW	9.0KVA/8.0KW	11KVA/10.0KW	13KVA/13KW	-
Starting	manual&Electric	manual&Electric	manual&Electric	manual&Electric	manual
Length*Width* Hight	71*56*61cm	71*56*58cm	71*56*61cm	71*56*61cm	51*42*47cm
G.W(kg)	89	93	94	98	29

1 SPECIFICATION

Model	PT-7000D	PT-9000D	PT-13000D
Engine	13.0HP	18.0HP	-
EngineType	4-stroke,singlecylinder		
Displacement	389cc	439cc	500cc
TurningSpeed	3200-3600		
CoolingSystem	AirCooled		
EngineOil	1.1	1.3	1.3
FuelTank	25	25	25
ACGenerator			
RatedVoltage	220V $\pm$ 10%		
RatedFrequency	50-60HZ		
DCoutput	12V		
EngineModel	188F/P	192F/P	194F/P
RatedPower	5.0KVA/5.0KW	7.0KVA/7.0KW	9.0KVA/9.0KW
Max.Power	6.0KVA/5.5KW	8.0KVA/7.5KW	10KVA/9.5KW
Starting	manual&Electric	manual&Electric	manual&Electric
Length*Width*Hight	71*53*56cm	71*53*56cm	71*53*56cm
G.W(kg)	75	87	90

2. Instruction





3 SAFETY

- Read this manual carefully- familiarize yourself with the appliance. Follow all operational notes and restrictions, and take note of possible hazards of this device.
- Place the appliance on stable surfaces only.
- The load must not exceed the power marked on the rating label of the generator. Overloading may result in damage to, or a shorter life of the appliance.
- The motor must not be operated with excessive rotary speed. The operation of the motor with excessive rotary speed raises the risk of injury. Parts which affect the rotary speed must be altered or replaced.
- Do not operate or store the appliance in wet or humid surroundings or on highly conductive surfaces such as metal coatings or steel constructions.

⚠ DANGER: POISONOUS GAS. Engine exhaust gas is poisonous; don't operate in an unventilated room. When installed in ventilated room, additional requirement for fire and explosion protection shall be observed.

⚠ WARNING: Gasoline is highly flammable and easily ignited.

- Don't refuel during operation and while smoking or near naked flames, Fueling when the machine is not hot;
- Don't spill fuel, If gasoline is spilled, don't attempt to start the engine but move the machine away from the area of spillage
- Empty gasoline tank before storing or transporting the generator.
- Before transporting, turn fuel valve to off and disconnect spark plug.

⚠ WARNING: This generator produces powerful voltage, which can result in electrocution.

- ALWAYS ground the generator before using it (see the "Ground the Generator" portion of the "PREPARING THE GENERATOR FOR USE" section).

- Generator should only be plugged into electrical devices, either directly or with an extension cord. When using extension lines or mobile distribution networks the total length of lines for a cross section of 1.5 mm^2 should not exceed 60 m; for a cross section of 2.5 mm^2 this should not exceed 100 m.

- Do not use in rainy or wet conditions.

- Protect children by keeping them at a safe distance from the generating set. Do not allow children or non-qualified persons to operate.

⚠ WARNING: This generator produces heat when running.

- Some parts of the internal combustion engine are hot and may cause burns. Do not touch hot surfaces. Pay attention to the warnings on the generating set.

CAUTION: Misuse of this generator can damage it or shorten its life.

- Use generator only for its intended purposes.

- Operate only on dry, level surfaces.

- Allow generator to run for several minutes before connecting electrical devices.

- Shut off and disconnect any malfunctioning devices from generator.

- Do not exceed the load capacity of the generator by plugging in more electrical devices than the unit can handle.

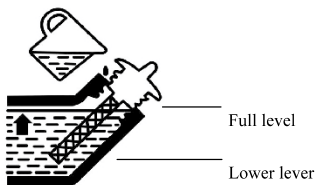
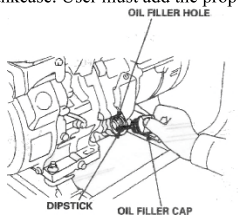
- Do not turn on electrical devices until after they are connected to the generator.

- Turn off all connected electrical devices before stopping the generator.

4 PREPARATIONS FOR USING THE GENERATOR

1). Fill engine oil

The generator requires engine oil to operate properly. New generator fresh from the package contains *no* oil in the crankcase. User must add the proper amount of oil before operating the generator for the first time.



2). Fill fuel

To ensure that the generator runs smoothly use only **FRESH, UNLEADED GAS** .

IMPORTANT:

- Never use an oil/gasoline mixture.

- Never use old gas.

- Avoid getting dirt or water in the fuel tank.

- Gas can age in the tank and make it hard to start up the generator in the future. Never store generator for extended periods of time with fuel in the tank.

3). Ground the Generator

⚠ WARNING: Failure to properly ground the generator can result in electrocution.

Ground the generator by tightening the grounding nut against a grounding wire. This grounding wire should be connected at the other end to a copper or brass grounding rod that is driven into the earth.



When using, connect it to earth with wire

5 STARTING THE GENERATOR

Before starting the generator, make sure you have read and performed the steps in the “PREPARATIONS FOR USING THE GENERATOR” section of this manual.

⚠ CAUTION: Disconnect all electrical loads from the generator before attempting to start.

To start the generator using the electric start function, perform the following steps:

5.1 Make sure no electrical devices are connected to the generator. Such devices can make it difficult for the engine to start.

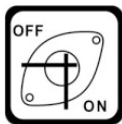
5.2 Check that the generator is properly grounded.

5.3 Check the oil and gas levels.

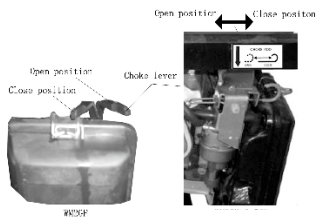
5.4 Turn the fuel valve to the “on” position.

5.5 Move the choke rod to the “closed” position.

Fuel valve



Air cleaner



5.6 Set the engine switch to the “on” position.

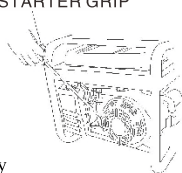
5.7.1 Pull on the recoil starter grip slowly until a slight resistance is felt. Then pull quickly to start the engine. Return grip gently into the machine. Never allow STARTER GRIP the cord to snap back.

5.7.2 If engine fails to start, repeat step

5.7.1. NOTE: After repeated attempts to start the engine, please consult the troubleshooting guide before attempting again.

5.8 Once the engine has started, move the choke rod to the “open” position.

Allow the generator to run for several minutes before attempting to connect any electrical devices.



6 USING THE GENERATOR

⚠ WARNING: Never connect a generator directly to other power sources.

·Be sure that all appliances are in good working order before connecting them to the generator. Faulty appliances or power cords can create a potential electrical shock. If an appliance begins to operate abnormally, becomes sluggish, or stops suddenly, turn off the engine switch immediately. Then disconnect the appliance and examine it for signs of malfunction.

·Most motorized appliances require more than rated load for startup.

·Substantial overloading will open the circuit breaker. Exceeding the time limit for maximum power operation or slightly overloading the generator may not switch the circuit breaker OFF, but will shorten the service life of the generator.

·Do not exceed the current limit specified for any one receptacle. If an overloaded circuit causes the AC circuit breaker to switch OFF, reduce the electrical load on the circuit, wait a few minutes and then reset the circuit breaker.

NOTICE:

If the generator is to supply two or above loads with power supply, be sure to connect them one with higher start current first.

Once you have allowed the engine to run for several minutes, you may connect electrical devices to the generator.

AC Usage

CAUTION: Please familiarize yourself with the markings on the panel before connecting electrical devices.

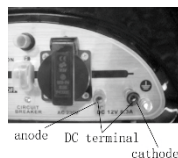
You may connect electrical devices running on AC current according to their load requirements.

NOTICE:

Generating sets may only be loaded up to their rated power under the rated ambient conditions. The reduction in power is probably due to use in higher temperatures, altitudes and humidity than those given in the reference conditions.

The generator set can start-up and operate at ambient temperatures between -15°C and 40°C, and the standard reference conditions is:

- ambient air temperature: 25°C
- ambient air pressure: 100kPa
- relative humidity: 30%
- altitude: 1000m



DC Usage (Just for generator with DC output)

The generator is equipped with a DC terminal. When powered by it, do make sure that both the anode and the cathode are right to those of DC.

NOTICE:

This terminal is not intended for use to charge automotive batteries.

ENG. SW.



7 STOPPING THE GENERATOR

7.1 In an emergency:

To stop the generator in an emergency, turn the engine switch to the OFF position.

7.2 In normal use:

7.2.1 Turn off circuit breaker, then unplug all connected electrical devices.

7.2.2 Allow the generator to run for several more minutes with no electrical devices connected. This helps stabilize the temperature of the generator.

7.2.3 Turn the engine switch to the “off” position.

7.2.4 Turn the fuel valve to the “off” position.

⚠ WARNING: Allow the generator to cool for several minutes before touching areas that become hot during use.

CAUTION: Allowing gas to store in the generator tank for long periods of time without use can make it difficult to start the generator in the future. Never store generator for extended periods of time with fuel in the tank.

8 BATTERY

⚠ WARNING: Battery contains sulfuric acid. Battery acid is poisonous. Tilting the generator with the battery installed can cause battery acid to spill.

⚠ WARNING: Battery gives off explosive hydrogen gas.

CAUTION: Leaving the battery connected for long periods of time without using the generator can cause the battery to drain. Disconnect the negative battery cable from the battery for storage. After disconnecting the cable, cover the free end with an insulator such as electrical tape.

⚠ NOTE: Changing the Battery.

If your generator will start manually (using the recoil starter pull cord) but will not start electrically (with the key), the battery may be drained. In this case, you can recharge the battery by starting the generator manually and allowing it to run for 20 minutes. However, if your battery will no longer hold a charge, you may need to replace it. To replace the battery:

- (1) Disconnect the positive (+) and negative (-) cables from the battery.
- (2) Remove the metal bracket that secures the battery to the generator.
- (3) Install the replacement battery and secure to the generator with the bracket.
- (4) Connect the positive and negative cables to the new battery.

9 MAINTENANCE

Proper routine maintenance of your generator will help prolong the life of your machine. Please perform maintenance checks and operations according the schedule in figure.

CAUTION: Never perform maintenance operations while the generator is running.

Recommended Maintenance Schedule

Due to times for using		each use	first month of use or first 20 hrs	every 3 months or 50 hrs	every 6 months or 100 hrs	every year or 300 hrs	As necessary
Engine oil	check level	x					
	Replace		x	x			x
Air cleaner	check	x					
	Clean			x			
fuel filter cup							
	Clean				x		

Due to times for using		each use	first month of use or first 20 hrs	every 3 months or 50 hrs	every 6 months or 100 hrs	every year or 300 hrs	As necessary
spark plug	check/ clean				x		
gas tank	check gas level	x					
	Clean					x	
Battery	replace						x

9.1 Cleaning the Generator

Always try to use your generator in a cool dry place. In the event your generator becomes dirty you may clean the exterior with one or more of the following:

- a damp cloth
- a soft brush
- a vacuum
- pressurized air

Never clean your generator with a bucket of water or a hose. Water can get inside the working parts of the generator and cause a short circuit or corrosion.

9.2 Changing engine oil

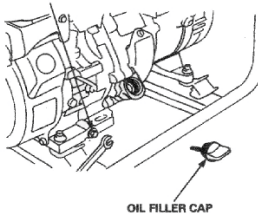
Drain the oil while the engine is warm to assure rapid and complete draining.

1. Remove the drain plug and sealing washer, remove the oil filler cap, and drain the oil.
2. Reinstall the drain plug and sealing washer. Tighten the plug securely.
3. Refill with the recommended oil and check the oil level.

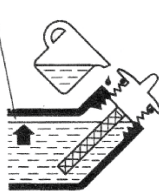
Wash your hands with soap after touching oil

NOTE: Never dispose of used motor oil in the trash or down a drain. Please call your local recycling center or auto garage to arrange oil disposal.

OIL DRAIN PLUG



UPPER LEVEL



9.3 Air Cleaner Maintenance

Routine maintenance of the air cleaner helps maintain proper air flow to the carburetor. Occasionally check that the air cleaner is free of excessive dirt. (See Figure 9-3-1)

- Unscrew the nut on the air cleaner cover.
- Remove the foam elements from the casing.
- Wipe the dirt from inside the empty air cleaner casing
- Wash the foam elements in household detergent and warm water. Allow to dry.
- Soak the dry elements in engine oil. Squeeze out any excess oil.
- Replace the foam elements in the air cleaner casing and replace the cover.

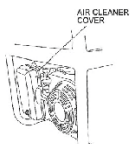


Figure 9-3-1

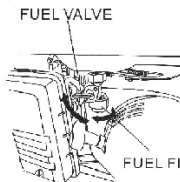
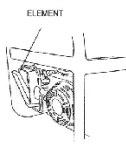


Figure 9-4

9.4 Fuel Filter Cup Cleaning

The fuel filter cup is a small well underneath the fuel valve. It helps to trap dirt and water that may be in your fuel tank before it can enter the engine. To clean the fuel filter cup: See Figure 9-4

- Turn the fuel valve to the “off” position.
- Unscrew the fuel filter cup from the fuel valve using a wrench. Turn the valve toward you to unscrew.
- Clean the cup of all sediment using a rag or brush.
- Reinstall the fuel filter cup.

9.5 SPARK PLUG SERVICE

In order to service the spark plug, you will need a spark plug wrench.

To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

If the engine has been running, the muffler will be very hot. Be careful not to touch the muffler.

- Remove the spark plug cap.
- Clean any dirt from around the spark plug base.
- Use a spark plug wrench to remove the spark plug..
- Visually inspect the spark plug. Discard it if the insulator is cracked or chipped. Clean the spark plug with a wire brush if it is to be reused.
- Measure the plug gap with a feeler gauge.

Correct as necessary by carefully bending the side electrode.

The gap should be : (0.60-0.70 mm)

10.5.6 Check that the spark plug washer is in good condition, and thread the spark plug in by hand to prevent cross-threading.

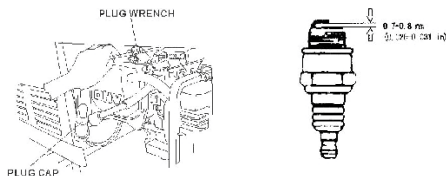
10.5.7 After the spark plug is seated, tighten with a spark plug wrench to compress the washer.

-If installing a new spark plug, tighten 1/2 turn after the spark plug seats to compress the washer. If reinstalling a used spark plug, tighten 1/8-1/4 turn after the spark plug seats to compress the washer.

NOTICE

The spark plug must be securely tightened. An improperly tightened spark plug can become very hot and could damage the engine.

Never use spark plugs which have an improper heat range. Use only the recommended spark plugs or equivalent.



10 STORAGE/TRANSPORTATION

When transporting the generator, turn the engine switch and the fuel valve OFF. Keep the generator level to prevent fuel spillage. Fuel vapor or spilled fuel may be ignited.

⚠ WARNING Contact with a hot engine or exhaust system can cause serious burns or fires. Let the engine cool before transporting or storing the generator.

Take care not to drop or strike the generator when transporting. Do not place heavy objects on the generator.

10.1 Before storing the unit for an extended period:

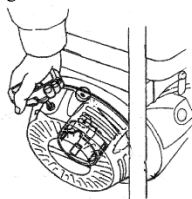
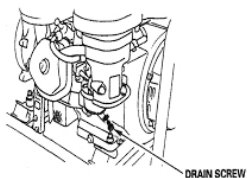
- Be sure the storage area is free of excessive humidity and dust.
- Service according to the table below:

STORAGE TIME	RECOMMENDED SERVICE PROCEDURE TO PREVENT HARO STARTING
Less than 1 month	No preparation required
1 to 2 months	Fill with fresh gasoline and add gasoline conditioner*.
2 months to 1 year	Fill with fresh gasoline and add gasoline conditioner*. Drain the carburetor float bowl.

1 year or more	Fill with fresh gasoline and add gasoline conditioner*. Remove the spark plug. Put a tablespoon of engine oil into the cylinder. Turn the engine slowly with the pull rope to distribute the oil. Reinstall the spark plug. Change the engine oil. After removal from storage, drain the stored gasoline into a suitable container, and fill with fresh gasoline before starting.
*Use gasoline conditioners that are formulated to extend storage life. Contact your authorized WEIMA generator dealer for conditioner recommendations.	

10.2 Storage

- Drain the carburetor by loosening the screw. Drain the gasoline into a suitable container.



⚠ WARNING Gasoline is extremely flammable and is explosive under certain conditions. Perform task in a well-ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the area during this procedure

- Change the engine oil.
- Remove the spark plug, and pour about a tablespoon of clean engine oil into the cylinder. Turn the engine several revolutions to distribute the oil, then reinstall the spark plug.
- Slowly pull the starter grip until resistance is felt, then continue pull until resistance is disappear. At this point, the piston is coming up on its compression stroke and both the intake and exhaust valves are closed. Storing the engine in this position will help to protect it from internal corrosion.

II FOR GASOLINE ENGINE

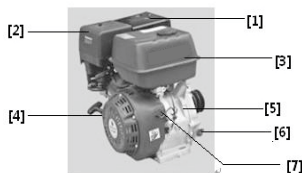
1 SPECIFICATIONS & INTRODUCTIONS

1). SPECIFICATIONS

Model	RWD152F	RWD154F	RWD168FA	RWD168FB	RWD170FB
Bore × Stroke(mm)	52 × 46	54 × 38	68 × 45	68 × 54	70 × 54
Displacement(cc)	97	108	163	196	212
Compression Ratio	7.0 : 1	8.0 : 1	8.5 : 1	8.5 : 1	8.5 : 1
Max. Turning Speed(rpm)	3600				
Max. Power HP(KW)	2.5 (1.8)	3.0 (2.2)	5.5 (4.0)	6.5 (4.8)	7 (5.1)
Rated Power HP(KW)	1.6 (1.2)	2.5 (1.8)	4.6 (3.4)	5.5 (4.0)	6.5 (4.8)
Fuel Tank Capacity (L)	1.4	3/1.6	3.6	3.6	3.6
Engine Oil Capacity (L)	0.45	0.45	0.6	0.6	0.6
Fuel consumption	≤1.5L/H(450g/kw.h)		≤2.6L/H (395g/kw.h)		
Ignition System	Transistor magneto				
Start System	Recoil Start/Electric Start				
Engine Type	OHV25° Single Cylinder, 4 stroke, Valve On Top, Forced Air Cooling				
N.W / G.W (KG)	9 / 10	10 / 12	15 / 17	16 / 18	16 / 18
Dimension (L×W×H)	330×300×395mm		385×320×355mm		

Model	RWD173F	RWD177F	RWD182F	RWD188F	RWD190F	RWD192F
Bore × Stroke(mm)	73 × 58	77 × 58	82 × 64	88 × 64	90 × 66	92 × 66
Displacement(cc)	242	270	337	389	420	438
Compression Ratio	8.2 : 1	8.2 : 1	8.0 : 1	8.0 : 1	8.3 : 1	8.3: 1
Max. Turning Speed(rpm)	3600					
Max. Power HP(KW)	8.0 (5.9)	9.0 (6.6)	11.0 (8.1)	13.0 (9.6)	16.0 (11.8)	18.0 (12.5)
Rated Power HP(KW)	7.0 (5.1)	7.5 (5.5)	8.6 (6.3)	10.0 (7.35)	11.0 (8.1)	16.0 (11.8)
Fuel Tank Capacity (L)	6	6	6.5	6.5	6.5	6.5
Engine Oil Capacity (L)	1.1	1.1	1.1	1.1	1.1	1.3
Fuel consumption	≤3L/H (374g/kw.h))					
Ignition System	Transistor magneto					
Start System	Recoil Start or Electric start					
Engine Type	OHV25° Single Cylinder, 4 stroke, Valve On Top, Forced Air Cooling					
N.W / G.W (KG)	25 / 27	26 / 28	31 / 33	31 / 33	31 / 33	32 / 34
Dimension (L×W×H)	500×430×510 mm					

2). INTRODUCTIONS



- | | | | |
|----------------|----------------------|-------------------|--------------------|
| [1] Muffler | [2] Air filter | [3] Fuel Tank | [4] Manual starter |
| [5] Crank case | [6] Engine oil gauge | [7] Engine Switch | |

2 SAFETY

! WARNING! Safety operation information

1. Please do some pre-operation checking (see chapter 3) before operation to avoid human injury and equipment damage.
2. Keep the engine in good ventilated places at least 1 meter away from buildings and other equipments during operation and Keep the flammables away from the engine to avoid fire.
3. Clear the operation area off children and pets.
4. Make sure that the person who operates the engine receives proper instruction.
5. Keep the flammables (gasoline, matches) away from the operating engine.
6. As gasoline is extremely flammable and explosive under certain conditions, please refuel in a well-ventilated area with the engine stopped.
7. Do not let spill the fuel tank, do not left fuel on the outside of the fuel tank.
8. Make sure the fuel tank cover is tightened.
9. Make sure that any spilled fuel has been wiped up before starting the engine.
10. Do not smoke or allow flames or sparks where the engine is refueled or where gasoline is stored..
11. Do not put any thing else on the fuel tank.

WARNIN! Please special attention to following notes:

- Exhaust contains poisonous carbon monoxide, a colorless and odorless gas. Breathing exhaust can cause loss of consciousness and may lead to death. Do not operate the engine without good ventilation or in enclosed room. If you run the engine in an area that is confined, or even partially enclosed, the air you breathe could contain a dangerous amount of exhaust gas. To keep exhaust gas from building up, provide adequate ventilation .
- Place the engine on level surface, engine's slope angle can not over 20°, otherwise it will leads to fuel spill out to cause dangerous.
- The engine has spark arrestor, it may break the law if you operate the engine without spark arrestor. Please enquiry local regulations and code before operating.
- The muffler becomes very hot during and immediately after operation. Be careful not to touch the muffler while it is hot. Let the engine cool down before storing the engine indoor.

3 PRE-OPERATION CHECK

1). Check the oil level(see Figure 1 and Figure 2)

(1) Lubricant oil

CAUTION!:

- Engine lubricant oil is a major factor affecting engine performance and service life. Non-detergent and 2-stroke engine oils will damage the engine and should not be used.
- Before checking engine lubricant oil, please place the engine on level surface.

- Use 4-stroke motor lubricant oil that meets or exceeds the requirements for API service classification SF or SG.

Figure 1

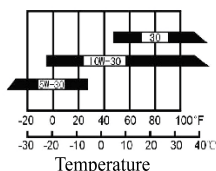
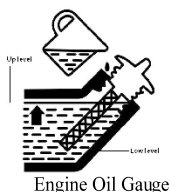


Figure 2



(SAE10W-30 is recommended for general, all temperature use. Other viscosities shown in the chart may be used when the average temperature in your area is within the indicated range.)

- Turn out the oil filler cap and clean the dipstick with a clean cloth.
- Insert the dipstick back into the oil filler hole without turning it in.
- If oil level is below the lower mark of the dipstick, fill oil to the upper level of the dipstick.
- Reinstall the oil filler cap well.

(2) Engine oil alert system (optional function)

The oil alert system is designed to prevent engine damage caused by insufficient oil in the crankcase. When the oil level in the crankcase falls below the safe limit, the oil alert system will automatically stop the engine even if the engine switch remains at the ON position. If the engine stops and cannot be restarted, check the engine oil level before troubleshooting in other areas.

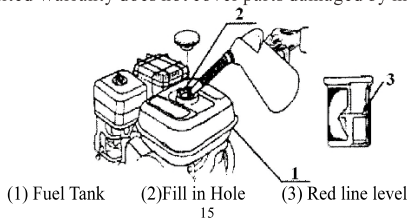
2). FUEL LEVEL

- (1) Check the fuel gauge, and refill the tank if the fuel level is low. Do not spill the fuel out of fuel tank. The fuel 90# gasoline is recommended.
- (2) Unleaded gasoline produces less engine and spark plug fouling and extends exhaust system life.
- (3) Never use stale or contaminated gasoline or oil/gasoline mixture. Avoid getting earth, rubbish and water into the fuel tank.
- (4) If spark knock or pinging occurs at a steady engine speed under normal load, change brands of gasoline. If spark knock or pinging persists, see an authorized dealer.

WARNING:

- Running the engine with persistent spark knock or pinging can cause engine damage.
- It is misuse of the unit to run the engine with persistent spark knocks or pinging, and the Distributor's Limited Warranty does not cover parts damaged by misuse.

Figure 4



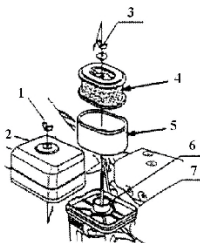
3). AIR CLEANER

The air cleaner is a dry type including paper element and foam element. Note:

- (1) Remove the clip and dismantle the air cleaner housing or remove the wing nuts and air cleaner cover.
- (2) Wash the element in solution of household detergent and warm water, then rinse thoroughly, or wash in nonflammable or high flash point solvent. Allow the element to dry thoroughly.

Figure 5

- | | |
|-------------------|-----------------------|
| [1] Butterfly nut | [2] Air cleaner cover |
| [3] Butterfly nut | [4] paper element |
| [5] Foam Element | [6] seal washer |
| [7] Muffler plate | |



WARNING:

- Do not run the engine without air cleaner.

DANGER

- Using gasoline or flammable solvent to clean the filter element can cause a fire or explosion.

CAUTION:

- Do not run the engine without air cleaner core, otherwise dust and/or other foreign matters may get into the engine through carburetor, and results in rapid engine worn-out.

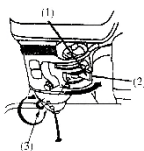
4 STARTING & STOPPING THE ENGINE

1). STARTING THE ENGINE

- (1) Turn the fuel valve to ON position, unscrew the drain plug on carburetor bottom, and fasten the drain plug until oil spills out.
- (2) Pull the choke rod to the CLOSE position. Adjust throttle to proper position. Pull the starter grip lightly until resistance is felt, then pull it rapidly.

Figure 6

- (1) Fuel valve
- (2) Start level
- (3) Drain plug



NOTICE:

- Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.
- After engine started, let engine rotate 1---3 minutes at idle speed, check whether it is balanced, cracked, then pull the throttle to open position, adjust choke rod to OPEN .

- (1) Auto-throttle
- (2) Off position
- (3) Starter knob

Figure 7

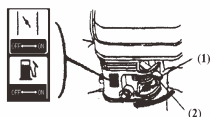


Figure 8



Turn the engine switch to START position and hold a while until the engine started.

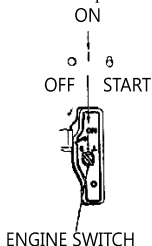


Figure 9

NOTICE:

●Restrict the starting time within 5 seconds to avoid engine damage, If engine can not be started, release starter knob, retry 10s later.

2). STOPPING THE ENGINE

Adjust throttle to proper position. Reduce engine speed, close the choke. Turn engine switch to OFF position.

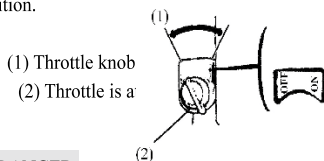


Figure 10

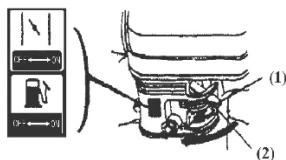


Figure 11

DANGER:

- Gasoline is extremely flammable and explosive under certain conditions.
- Refuel in well-ventilated places with the engine stopped. Do not smoke or allow flames or sparks near the places where the engine is refueled or gasoline is stored.
- Do not add fuel over the shoulder of strainer. After fueling, tighten the tank cover.
- Fuel vapors are extremely flammable and may ignite after the engine has started. Make sure that any fuel spillage has been wiped up before starting the engine.
- Avoid skin contacting with gasoline for a long time, avoid breathing in gasoline vapors. Keep children away from them.

NOTICE:

●Fuel can damage paintings and plastics. Be careful when refueling. Damage caused by spilling fuel is not covered under warranty.

5 MAINTENANCE & TROUBLESHOOTING

1). MAINTENANCE

Do periodic maintenance to keep the engine in good performance. Always follow the inspection and maintenance recommendation and schedules in this manual.

WARNING:

●Stop the engine before maintenance. If the engine must be operated, provide adequate ventilation. Breathing in exhaust can cause loss of consciousness and even lead to death.

(1) Everyday maintenance

①Air cleaner: A dirty air cleaner will restrict air flow into the carburetor. To prevent carburetor malfunction, service the air cleaner regularly. Service more frequently when operating the generator in extremely dusty areas.

- Check air cleaner core, get rid of fouling, keep the core clean.
- Check bolts, fasten loose ones.
- Check whether lubricant oil level is at ranged limits.

(2) Clean the core after the unit working up to 25hrs,.

(3) Clean carbon fouling of the spark plug after working up to 50hrs. Check the clearance, and adjust the gap to 0.6-0.7mm (see figure 12). Check radiator, and clean fouling among radiators.

- Drain the oil while the engine is warm to assure rapid and complete draining.
- Remove the drain plug and sealing washer, remove the oil filler cap, and drain the oil.
- Reinstall the drain plug and sealing washer. Tighten the plug securely.
- Refill with the recommended oil and check the oil level.

Figure 12



(1) Dismantle spark plug (2) adjust clearance

(4) Clean the fuel tank and filter when working time reaches 100hrs: Remove the fuel cover, drop out filter, and wash it with brush lightly. Remove fuel tank, clean the fouling and water inside fuel tank. Reinstall fuel tank, place filter from fill-in hole, filling the clean fuel to red line level.

(5) Check aging of fuel pipe every 2 years. If aging, hardening and cracking is detected, have it replaced. Tighten the joints, and check leakage.

2). TROUBLESHOOTING

(1) Have the engine checked if it is hard to or cannot be started.

①Firstly, check the fuel level of the fuel tank. Turn fuel valve to (2), Fuel should flow from the drain when the fuel valve is turned ON. Tighten the drain plug. (see figure 6)

②Secondly, check the spark plug. Remove the spark plug cap and clean any dirt around it. If the engine still cannot be started after repeating several times, please see the authorized dealer. Users are not allowed to dismantle or reassemble the unit by themselves.

6 TRANSPORTATION AND STORAGE

1) .TRANSPORTANTION

! WARNING

- Contacting with a hot engine or exhaust system can cause serious burns or fires.Let the engine cool down before transporting or storing the engine.

- When transporting the engine, turn the engine switch and the fuel valve to OFF.Keep the engine cool.

2). STORAGE

Maintenance before Long-Time Storage

(1)Before storing the unit for an extended period:

- Make sure the storage area is free of excessive humidity and dust.

If the engine is not used for long time, do the necessary maintenance before its storage.

①Firstly, take off the fuel tank, drain out all fuel, and clean the dirt and water inside the tank.Open the fuel cock, unscrew the drain plug at the bottom of carburetor,drain out fuel in carburetor thoroughly, and then tighten the drain plug.

②Secondly, unscrew the drain plug at the bottom of the crankcase and drain out the lubricant oil in the crankcase thoroughly, then tighten the drain plug.

③Finally, clean the surface of the engine with clean cloth, remove the dirt and dust etc.Then store the engine in a well-ventilated, dirt-free place.

- Service according to the table below.

STORAGE TIME	RECOMMENDED SERVICE PROCEDURE TO PREVENT HARD STARTING
Less than 1 month	No preparation required
1 to 2 months	Fill with fresh gasoline and add gasoline conditioner
2 months to 1 year	Fill with fresh gasoline and add gasoline conditioner Drain the carburetor float bowl Drain the fuel sediment cup
1 year or more	Fill with fresh gasoline and add gasoline conditioner Drain the carburetor float bowl Drain the fuel sediment cup After removal from storage, drain the stored gasoline into a suitable container, and fill with fresh gasoline before starting

