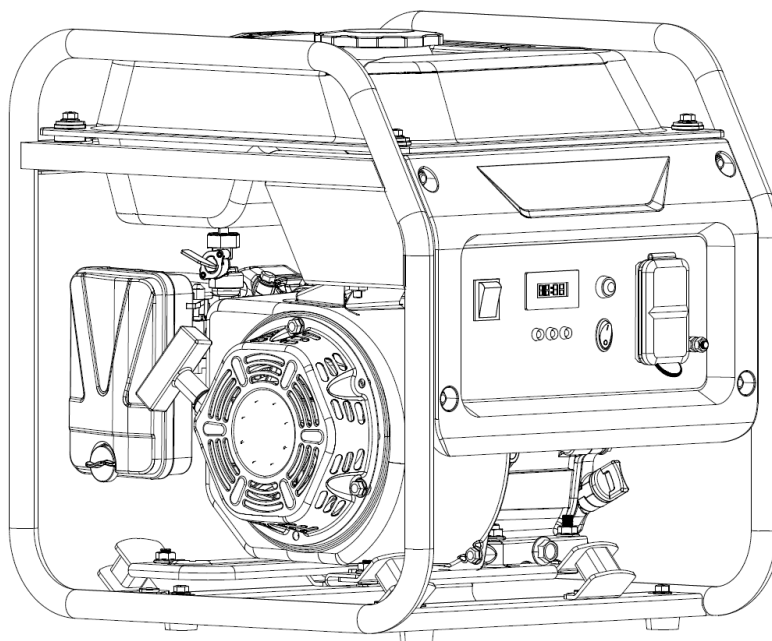


Promate[®]

PM4400io

Operator Manual



PORTABLE INVERTER GENERATOR

IMPORTANT – Please make sure everyone who will be using this equipment reads and understands these instructions as well as any additional instructions provided before using it.

Record the model and serial numbers of your Generator below:

Model No. _____ Serial No. _____

FOREWORD

Thank you for purchasing Promate PM4400io. This operator manual is for proper handling, minor checking, and maintenance of the PM4400io. Before using your generator: Please read these instructions completely and carefully in order to operate it safely and make the best use of it. Due to constant efforts to improve our products, certain procedures and specifications are subject to change without notice. If you have any questions, please contact Promate Service. Latest version is available for download from website.

	Contents	
1	Safety Precautions.....	1
2	Controls and Features.....	2
3	Specifications.....	4
4	Before Starting.....	5
	4.1 Adding Engine Oil.....	5
	4.2 Adding Oil Procedure.....	5
	4.3 Adding the Fuel.....	5
	4.4 Operation at High Altitude.....	6
	4.5 Grounding the Generator.....	6
	4.6 Connecting to a Building's Electrical System.....	6
5	Operation.....	6
	5.1 Starting the Generator.....	7
	5.2 Connecting Electrical Loads.....	8
	5.3 Stopping the Engine.....	8
	5.4 Low Oil Shutdown.....	9
6	Maintenance.....	9
	6.1 Maintenance Schedule.....	9
	6.2 Engine Maintenance.....	10
	6.3 Spark Plug Maintenance.....	11
	6.4 Air Filter Maintenance.....	11
	6.5 Cleaning the Spark Arrestor.....	12
	6.6 Valve Clearance Maintenance.....	12
7	Storage.....	12
	7.1 Short Term Storage.....	13
	7.2 Long Term Storage.....	13
8	Troubleshooting.....	14
9	Service Information.....	15
10	Exploded Diagram & Parts List	16

Diagram

1	Generator Parts.....	2
2	Control Panel Features.....	3
3	Recommended Engine Oil Type.....	5
4	Adding Oil Procedure.....	5
5	Outside Operation.....	6
6	Engine Switch Location.....	7
7	Fuel Switch Location.....	7
8	Choke Lever Location.....	7
9	Recoil Starter Location.....	7
10	Eco Mode Switch Location.....	8
11	Connecting Electrical Loads.....	8
12	Disconnecting Electrical Loads.....	8
13	Correct Spark Plug Gap.....	11
14	Air Filter Maintenance.....	12
15	Long Term Storage.....	13
16	Exploded Diagram.....	16

Table

1	General Specifications.....	4
2	Preventive Maintenance Schedule.....	10
3	Valve Clearance Maintenance Schedule.....	12
4	Troubleshooting your Generator.....	14
5	Generator Part List 1.....	17
6	Generator Part List 2.....	18

1. SAFETY PRECAUTIONS

This manual provides safety information for Promate PM4400io, including preparation, operation, and maintenance instructions. Before running this generator, please read and observe all warnings and instructions that are provided both on the generator labels and in this instruction manual. Failure to follow the guidelines below may cause personal injury.

The terms **DANGER**, **WARNING**, **CAUTION**, and **NOTICE** are used throughout this manual to highlight important information. Make sure that everyone who operates, maintains, or is around the generator understands the meaning of this safety information.



This safety alert symbol appears with most safety statements. It means attention, become alert, your safety is involved! Please read and abide by the message that follows the safety alerts symbol.



⚠ WARNING

EXHAUST PRECAUTIONS

- Never inhale exhaust gasses. They contain carbon monoxide, a colorless, odorless and extremely dangerous gas which can cause unconsciousness or death.
- Never operate the generator indoor or in a poorly ventilated area, such as tunnel, cave, etc. Practice extreme care when operating the generator near people or animals. Keep the exhaust pipe free of unwanted objects.

⚠ WARNING

REFUELING PRECAUTIONS

- Refueling should be done outside or in a well-ventilated area. Before refilling, turn off the generator. DO NOT overfill the tank. If fuel is spilled, wipe it away carefully before starting the engine.

⚠ WARNING

WHEN CHARGING THE BATTERY

- Battery electrolyte contains sulfuric acid which is a harmful chemical. Be careful of your eyes, skin and clothing. In case of any contact especially in the eyes, wash thoroughly with water and get prompt medical attention.
- Charge the battery in a fully ventilated area.
- Check the polarity of the battery.

OTHER SAFETY PRECAUTIONS

Be careful of hot parts.

The muffler and other engine parts become very hot while the engine is running or just after use. Operate the engine in a safe area and keep children away while the engine is in use.

Where to use the generator

DO NOT use near flammables. Use it at least 1 meter away from buildings or any other facilities.

When using the generator

DO NOT tip or move.

DO NOT cover it with a box or fence it off.

DO NOT unscrew the dipstick; oil splatter can cause scalding. Avoid touching the generator in the rain or with wet hands.

To prevent electric shock, ground the generator from the ground terminal.

Avoid using generators on soft ground.

Never connect the generator to the wiring of your provider.

2. CONTROLS AND FEATURES

Read this owner's manual before operating your generator. Familiarize yourself with the location and function of the controls and features. Save this manual for future reference.

Generator

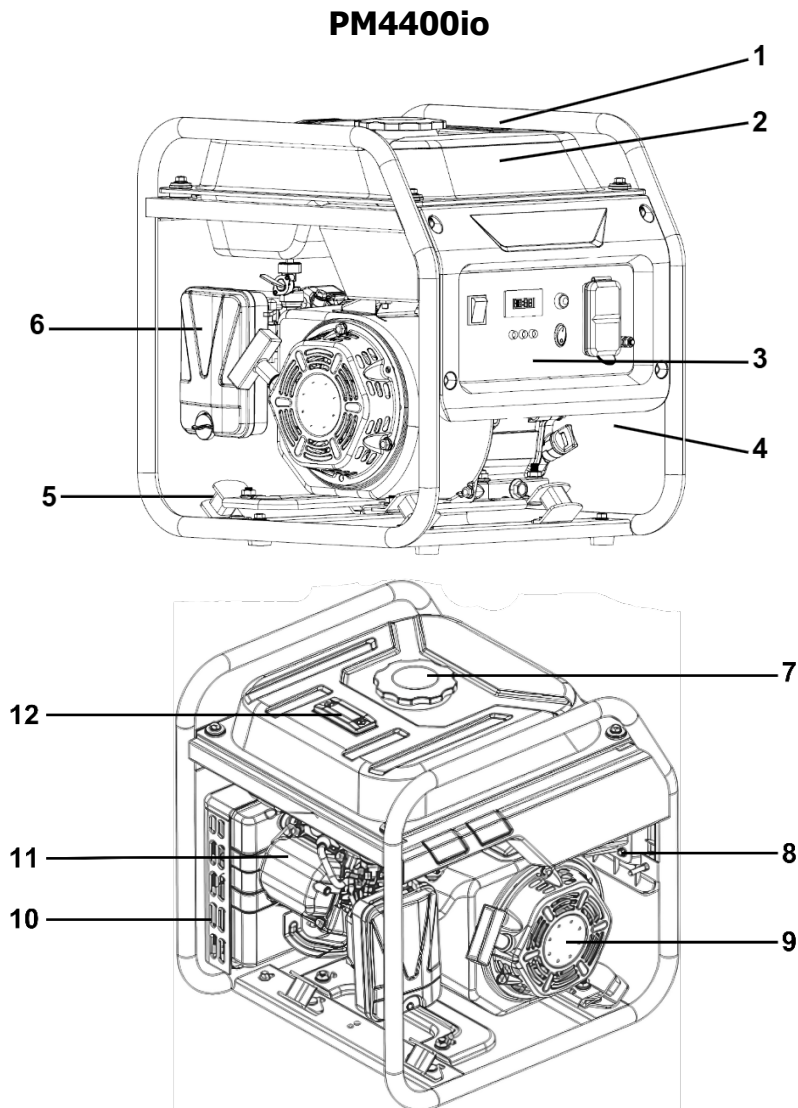


Diagram 1. Generator Parts

- | | | | |
|----------|---------------|-----------|--------------------------|
| 1 | Handle | 7 | Fuel Cap |
| 2 | Fuel Tank | 8 | Inverter |
| 3 | Control Panel | 9 | Recoil Starter |
| 4 | Right Cover | 10 | Muffler |
| 5 | Rubber Bottom | 11 | Power Cylinder Head |
| 6 | Air Filter | 12 | Gasoline Level Indicator |

2.1 Control Panel Features

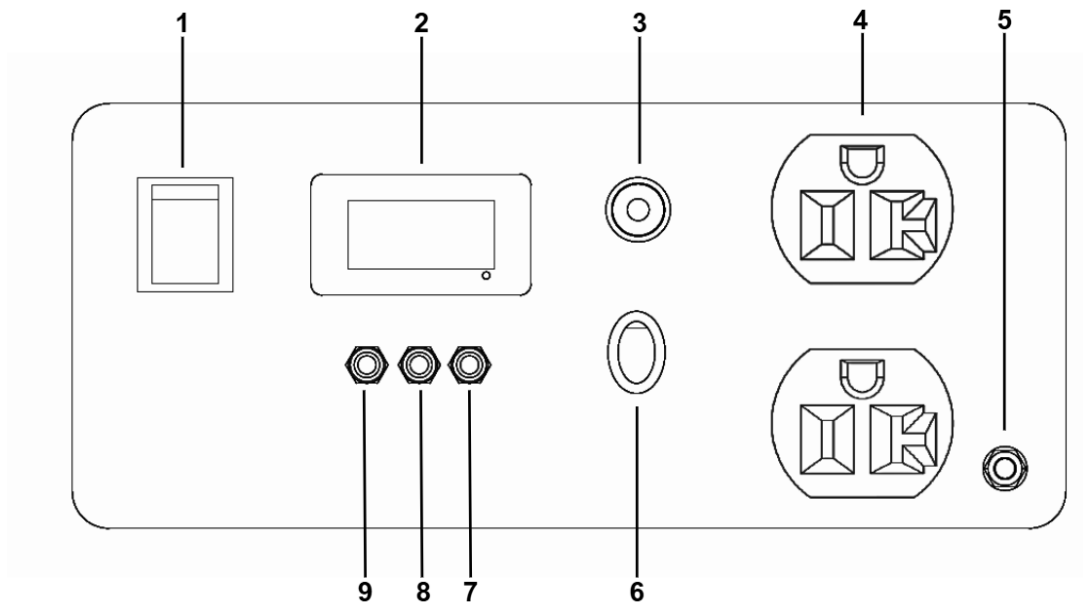


Diagram 2. Control Panel Features

- 1** Engine Switch
- 2** Digital Display
- 3** AC Reset Button
- 4** 230V Duplex
- 5** Grounding Terminal
- 6** Eco Mode Switch
- 7** Running Indicator
- 8** Overload Alert
- 9** Low Oil Alert

3. SPECIFICATIONS

Table 1. General Specifications

Model	PM4400io
Surge Power	4400W
Rated Power	3500W
Rated AC Voltage	230V
Rated Frequency	60Hz
Phase	Single
Grounding System (AC)	Neutral Floating
Engine Type	Single Cylinder, 4-Stroke OHV Air Cooled
Engine Displacement	212cc
Starting System	Recoil
Low Oil Shutdown	Yes
Oil Type	10W-30
Oil Capacity	0.6L
Spark Plug OEM Type	F7TC
Fuel Tank Capacity	10L
Fuel Type	Gasoline
Maximum Ambient Temperature	104°F (40°C)
Battery Spec	NA
Box Dimensions	456*410*485 mm
Net Weight	25.5 kg

⚠ NOTICE

The Promate PM4400io is designed and rated for continuous operation at ambient temperatures of up to 40°C. If needed, this product can be operated at temperatures ranging from 15°C - 50°C for short periods. If the product is exposed to temperatures outside of this range during storage, it should be brought back within this range before operation. Promate PM4400io must always be operated outdoors, in a well-ventilated area, and far away from doors, windows, and other vents.

Fuel BTU content, ambient temperature, altitude, engine conditions, and other factors have an impact on the maximum wattage and current levels. Maximum power drops by around 3.5% for every 1,000 feet above sea level, as well as 1% for every 6°C above 16°C ambient temperature.

4. BEFORE STARTING

4.1 Adding Engine Oil

We recommend using SAE 10W-30 APISJ oil for best performance. Other high-quality detergent oils (APISJ or higher) are acceptable. DO NOT use special additives. Ambient temperature determines the proper oil viscosity for this engine. Use the chart to select the proper oil for the outdoor temperature range expected.

⚠ NOTICE

Do not try to crank or start the engine unless it has been correctly filled with the recommended type and amount of oil. Damage caused by operating without oil will void your warranty.

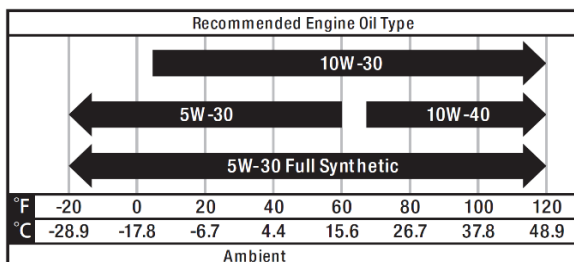


Diagram 3. Recommended Engine Oil Type

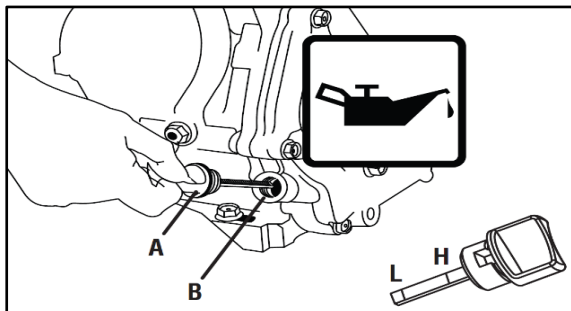


Diagram 4. Adding Oil Procedure

Promate PM4400io is equipped with low oil shut-off and will stop when the oil level in the crankcase falls below the threshold level.

4.2 Adding Oil Procedure (Diagram 4)

1. Place the generator on a flat, level surface.
2. Wipe the area around the oil fill and remove the yellow oil fill cap/dipstick (**A**).
3. Clean the dipstick.
4. Using the oil funnel, slowly pour oil into the oil filler neck (**B**) up to the "H" mark on dipstick. Be careful not to overfill. Overfilling the oil tank may cause the engine to start slowly.
5. Fully tighten the oil fill cap/dipstick (**A**).
6. Oil level should be checked prior to each use and at least every 8 hours of operation. Maintain the oil level.

⚠ NOTICE

We consider the first 5 hours of runtime to be the unit's break-in period. During the break-in period, keep the load at or below 50% of the running watt rating and lower it occasionally to allow the stator windings to heat and cool. Adjusting the load will also cause the engine speed to change, allowing piston rings to seat more effectively.

4.3 Adding Fuel

⚠ DANGER

The fuel and its vapor are extremely flammable and explosive. Add fuel in a well-ventilated area. Keep sparks, open flames and other ignition sources away. Failure to do so will result in death and serious injury.

⚠ DANGER

Do not overfill tank. Allow space for fuel expansion. If fuel spills wait until it evaporates before starting engine. Failure to do so will result in death and serious injury.

Fuel must meet these requirements:

- Clean, fresh, unleaded gasoline.
- Use regular UNLEADED gasoline with a minimum 87 octane / 87 AKI (91 RON). **DO NOT** use E85 or E15.
- For high altitude use, see "Operation at High Altitude".
- **DO NOT** mix oil with gasoline.
- **DO NOT** change the engine to run on other fuels.

⚠ NOTICE

During storage, it is important to prevent gum deposits in the fuel system components such as the carburetor, fuel hose, or tank. Alcohol blended fuels (gasohol, ethanol, or methanol) can attract moisture, causing the separation and development of acids. Acidic gas can damage an engine's fuel system while it is stored. To avoid engine problems, drain the gasoline system if storing it for 30 days or more. See the "Long Term Storage" section. Never use engine or carburetor cleaner in the fuel tank as it may cause permanent damage.

4.4 Operation at High Altitude

At altitudes over 5,000 feet (1524 meters), a minimum of 85 octane gasoline is acceptable. Engine power and generator output drops at approximately 3.5% for every 1000 feet (305 m) of elevation above sea level. High altitude can lead to problems starting, increased consumption of fuel, and spark plug blockage. To operate at high altitudes, a high-altitude carburetor main jet is required. Contact Promate Service to acquire the alternate main jet and installation instructions.

⚠ NOTICE

Using an alternative main jet at elevations below the specified minimum altitude can cause engine damage. To operate at lower elevations, the supplied standard main jet must be utilized.

Operating the engine with the wrong main jet may result in increased exhaust emissions, fuel consumption, and reduced performance.

4.5 Grounding the Generator

⚠ WARNING

Shock hazard. Failure to properly ground the generator may result in electric shock.

The National Electrical Code requires the generator to be connected properly to an appropriate ground to help prevent electric shock.

The generator has a system ground that connects its frame components to the ground terminals on the AC output outlets. There may be federal or state regulations, municipal statutes, or ordinances governing the generator's intended usage. Consult a qualified electrician, an electrical inspector, or the municipal authority with jurisdiction.

4.6 Connecting to a Building's Electrical System

Connections to your home's electrical system must use an authorized transfer switch installed by qualified electrician. The connection must separate the generator power from the utility electricity while complying with all applicable regulations and electrical principles.

5. OPERATION

Generator Location

⚠ WARNING

Review each warning to prevent fire hazard.



Diagram. 5 Outside Operation

⚠ DANGER

Never use the generator in wet or damp locations. Never expose generator to rain, snow, water spray or standing water while in use. Protect generator from all hazardous weather conditions. Moisture, or ice can cause a short circuit or other malfunction in the electric circuit. Water contact

with a power source, if not avoided, will result in death or serious injury.

- Remove any flammables or other hazardous materials.
- Choose a dry, well-ventilated, weather-protected area.
- Keep exhaust pipe clear of foreign objects.
- Keep the generator away from open flame.
- Keep the generator on a stable and leveled surface.
- DO NOT block the air vents with paper or other material.

Surge Protection

Electronic devices, such as computers and many programmable appliances, rely on components that are designed to work within a specific voltage range and are susceptible to brief voltage changes. While there is no way to avoid voltage fluctuations, you can take precautions to protect sensitive electronics.

Install UL1449, CSA-listed, plug-in surge suppressors on the outlets feeding your sensitive equipment.

Surge suppressors come with a single or multiple outlet configuration. They are intended to defend against almost all short-term voltage changes.

5.1 Starting the Generator

1. Before starting the generator, check for any loose or missing parts, as well as any damage that happened during shipping and handling damage.
2. Disconnect all electrical loads from the generator. Never start or stop the generator with electrical devices plugged in or turned on (Diagram 11)

Turn the Engine Switch to "ON" position.

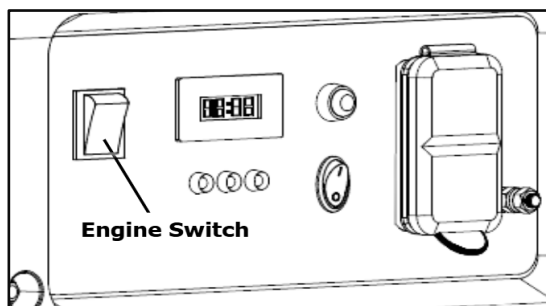


Diagram 6. Engine Switch Location

Turn the Fuel Switch to "ON" position

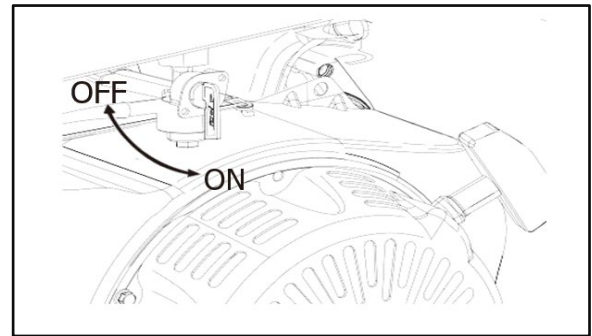


Diagram 7. Fuel Switch Location

Move the engine choke lever to the "START" position.

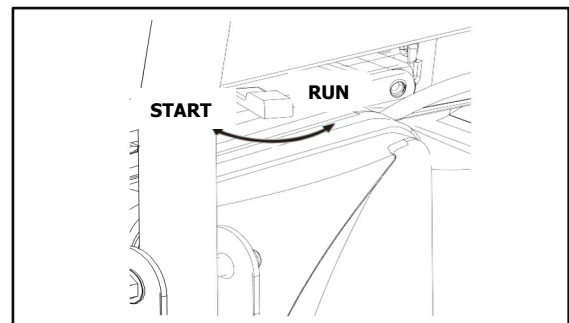


Diagram 8. Choke Lever Location

For Recoil start, firmly grasp the recoil handle and pull slowly until increased resistance is felt.

Pull rapidly up and away.

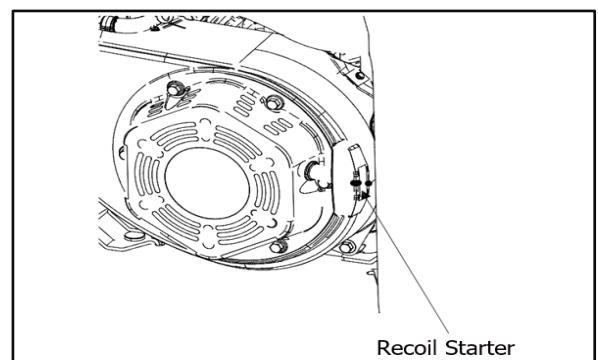


Diagram 9. Recoil Starter Location

Allow the generator to operate at zero load for a few minutes after each initial start-up to allow the engine and generator to stabilize. When the engine starts, put the choke to "RUN" position.

Notice: If engine fires, but does not continue to run, move choke lever to the RUN position and repeat starting instructions.

⚠ WARNING

Starter cord kickback (rapid retraction) will pull hand and arm toward engine faster than you can let go which could cause broken bones, fractures, bruises, or sprains resulting in serious injury.

3.

When starting engine, pull cord slowly until resistance is felt and then pull rapidly to avoid kickback.

Never start or stop the engine with electrical devices plugged in and turned on.

Notice: If the engine fails to start at 3 pulls, or if unit shuts down during operation, make sure that the unit is on a level surface and check for proper oil level in the crankcase. This unit may be equipped with a low oil protection device. If so, oil must be checked at proper level for engine to start

TIP:

Keep the choke lever in a "START" position for only one pull of the recoil starter. After the first pull, move the choke lever to "RUN" for the next three pulls of the recoil starter. Too much choke causes

spark plugs clogging and engine flooding due to a lack of air coming in. This will cause the engine to fail to start.

If the engine starts after three pulls but fails to run, or if the unit shuts down while in operation, ensure that it is on a leveled surface and check for the proper oil level. This unit may be equipped with a low oil protection device. If this is the case, the engine must have the right oil level to start.

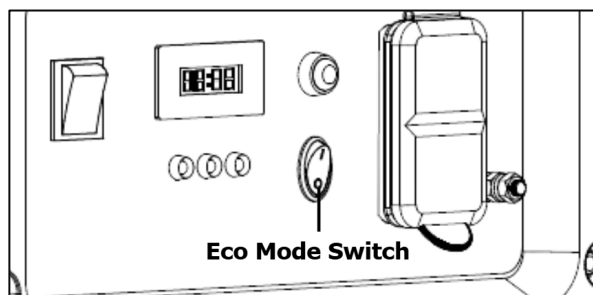


Diagram 10. Eco Mode Switch Location

Promate PM4400io is equipped with an ECO MODE Switch (Diagram 10). Engaging this switch allows the system to regulate the engine speed and automatically adjust its fuel consumption to match

the required load. When the electrical load changes, the generator engine will automatically speed up and slow down as needed. This reduces fuel consumption and noise levels while extending the runtime and engine's lifespan.

5.2 Connecting Electrical Loads

The Promate PM4400io has undergone pre-testing and adjustment to handle its full capacity. Before starting the generator, unplug all loads. Apply load only after the generator has started. Voltage is regulated by the engine speed, which is set at the factory for proper output.

Re-adjusting will void warranty.

TIP:

When applying load, do not exceed the maximum wattage rating of the generator especially when using one or more receptacles.

Do not apply heavy electrical load during break-in period (the first five hours of operation).

1. Let the engine stabilize and warm up for few minutes after starting.
2. Ensure that the circuit breaker on control panel is in on position.
3. Plug in and turn on the desired 230V AC, single phase, 60Hz electrical loads. It is better to plug the item with the largest load first.

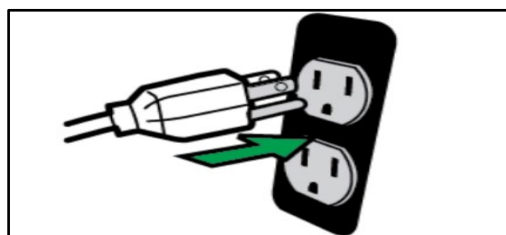


Diagram 11. Connecting Electrical Loads

5.3 Stopping the Generator

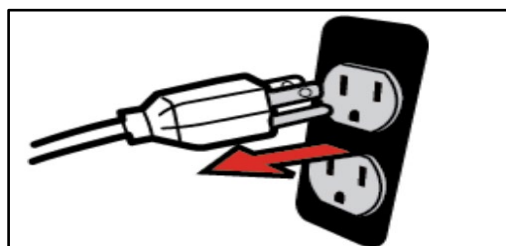


Diagram 12. Disconnecting Electrical Loads

1. Turn off and remove any electrical loads. Never start or stop the generator while any electrical

- equipment is connected or turned on.
2. Let the generator run at no-load for two minutes to stabilize the internal temperatures of both the engine and the generator (Diagram 12).
 3. Move the ON/OFF switch to "OFF" position. Close the fuel valve.

WARNING

The fuel and its vapors are extremely flammable and explosive which could cause burns, fire or explosion resulting in death or serious injury.

DO NOT stop the engine by moving choke control to "START" position.

TIP:

When the engine is not in use, ensure that the fuel valve is in "OFF" position.

If the engine will not be used for a period of two weeks or longer, please see the Storage section for proper engine and fuel storage.

5.4 Low Oil Shutdown

Promate PM4400io is equipped with low oil shutdown. If the oil level drops below the minimum, the sensor will activate a warning or stop the engine. If the generator shuts off and the oil level is within specifications, check to see if the unit is placed at an angle that forces oil to shift. Place it on an even surface to correct this. If the engine fails to start, there may not be enough oil to activate the low oil level switch. Make sure the sump is completely filled with oil.

If the engine oil level drops below the threshold level, an oil switch will shut down the engine. You need to check the oil level with a dipstick.

If the oil level is between LOW and HIGH mark on dipstick yet still doesn't run normally:

1. DO NOT try to restart the engine.
2. Contact an Authorized Promate Service Center.
3. DO NOT operate the engine until the oil level is corrected.

If the oil level is below the LOW mark on dipstick:

1. Add the oil to bring the level to HIGH mark.
2. Restart the engine and if the engine stops again a low oil condition may still exist. DO NOT try to restart the engine.
3. Contact Promate Service.
4. DO NOT operate engine until the oil is at the right level.

DO NOT overload the generator- Overloading a generator above its rated wattage capacity may result in damage to the generator and other attached electrical devices.

If overloading occurs, the unit's internal protection system will automatically shut off the output. To restore operation, disconnect all connected loads and press the reset button.

To extend the life of your generator and connected devices, perform the following steps on adding electrical load:

1. Start the generator with no electrical load attached.
2. Allow the engine to run for several minutes to stabilize.
3. Plug in and turn on the first item. It is best to attach the item with the largest load first.
4. Allow the engine to stabilize.
5. Plug in and turn on the next item.
6. Allow the engine to stabilize.
7. Repeat steps 5-6 for each additional item.

6. MAINTENANCE AND

6.1 Maintenance Schedule

Regular Maintenance will improve the performance and extend the life of your generator. Follow maintenance schedule intervals (whichever occurs first according to use).

TIP: Adverse conditions will require more frequent services.

Walk-Around Inspection

Before starting the engine, perform a visual inspection of the unit. Check for:

- Proper engine oil level
- Proper fuel level
- Fluid leaks
- Loose clamps and bolts
- Cracked fuel line

- Loose or frayed wiring
- Built up debris

Table 2. Preventive Maintenance Schedule

Before Each Use
Check engine oil level Walk-around inspection
First 5 Hours (Break-In)
Change engine oil
First 25 Hours or First Month
Change engine oil
Every 100 Hours or 6 Months
Change engine oil Clean Air Filter Inspect/Adjust/Replace Spark plug Inspect/Clean/Replace Spark Arrester
Every 200 Hours or 12 Months
Replace Air filter Replace Spark Plug Inspect/Adjust Valve Clearance*

** To be performed by Promate Service.*

TIP:

Maintenance should be performed more frequently when generator is used in dusty areas.

When the generator has exceeded the maximum values provided in the table, maintenance should still be performed at the intervals of time or hours specified herein.

Recommendations

Regular maintenance improves the generator's performance and extends its life.

The warranty does not cover operator abuse or negligence. To fully utilize the warranty, the user must adhere by the instructions in this manual.

To keep your generator in good working order, practice a preventive maintenance schedule. All maintenance and adjustments should be performed at least once each season. Follow the instructions on the Maintenance Schedule chart (Table 2).

6.2 Engine Maintenance

Before doing any service, remove and ground the spark plug wire to prevent the generator from starting accidentally.

Engine Oil Level Check

⚠ CAUTION

Avoid skin contact with engine oil. Wear protective clothing and equipment. Wash any exposed skin with soap and water.

⚠ NOTICE

Always use the specified engine oil. Failure to use the specified engine oil can shorten the life of the engine (Diagram 4).

When using the generator under extreme, dirty, dusty conditions or in excessively hot weather, the oil should be changed more frequently.

The ambient temperature has an impact on the performance of engine oil. Change the type of engine oil used depending on the weather.

Check the engine oil level before each use or every 8 hours of operation.

To check (Diagram 4):

1. Place the generator on a level surface and let the engine cool for a few minutes.
2. Use a damp rag to clean around the oil dipstick.
3. Remove the oil dipstick.
4. Wipe the dipstick clean, then insert it into the filler neck. Remove the dipstick and check that the oil level is within a safe operating range.
5. If the level is low, add the necessary engine oil and retest until the dipstick reading is between the L and H marks. Do not overfill. If the oil level exceeds the full mark on the dipstick, drain it to bring it back to the full mark.
6. Replace the oil dipstick and hand tighten.

Change the engine oil according to preventive maintenance schedule (Table 2).

If you use your generator in extremely dirty or dusty conditions, or in excessively hot weather, change the oil more frequently.

⚠ WARNING

Risk of burns

Allow the engine to cool before draining the oil or the coolant. Failure to do so could result in death or serious injury.

⚠ CAUTION

Avoid prolonged or repeated skin contact with used engine oil. (Diagram 4).

1. Remove and clean the oil cap (**A**) and wipe the dipstick.
2. While draining, place a container underneath the oil drain plug to collect used lubricant.
3. Unscrew the oil drain plug (**B**) set aside.
4. Allow lubricant to drain completely.

TIP:

Drain the lubricant while the engine is still warm but not hot. Warm lubricant drains quickly and more completely.

5. Screw in the oil drain plug (**B**) and tighten it securely.
6. Fill the receptacle with oil until it reaches the HIGH(H) level on the dipstick (**A**).
7. Reinstall the oil cap.

Avoid using contaminated or deteriorated oil because it may lead to engine damage and reduced engine life.

Maximum oil capacity: 0.6 L

6.3 Spark Plug Maintenance (Diagram 17)

The spark plug must be properly gapped and free of deposits in order to ensure proper engine operation. To check:

1. Remove the spark plug cap.
2. Clean any dirt around the base of the spark plug.
3. Remove spark plug using the provided wrench.
4. Inspect the spark plug for any damage, and clean with a wire brush before reinstalling. If the insulator is cracked or chipped, spark plug should be replaced.
5. Measure the plug gap. The correct gap is 0.7-0.8 mm. To widen the gap, carefully bend the

ground (top) electrode (only if necessary). To lessen gap, gently tap the ground electrode on a hard surface (Diagram 18).

6. Place the spark plug in position; thread in by hand to prevent cross-threading.

7. Tighten with wrench to compress the washer.

If the spark plug is new, use 1/2 turn to compress the washer to the appropriate amount. If you are reusing an old spark plug, use 1/8 to 1/4 turn for proper washer compression.

TIP:

An improperly tightened spark plug will become very hot and could damage the engine.

8. Reinstall the spark plug cap

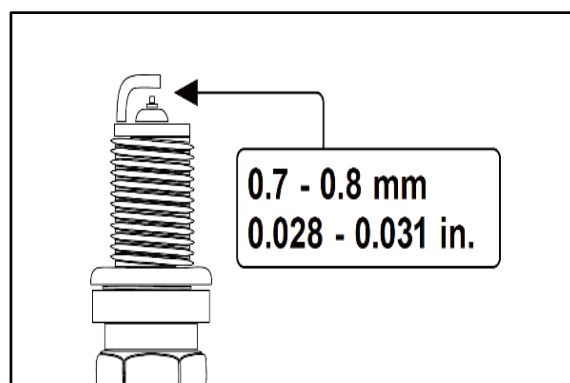


Diagram 13. Correct Spark Plug Gap

6.4 Air Filter Maintenance

Check every 50 hours of operation on preventive maintenance schedule. (Table 2).

Routine maintenance of the air filter helps maintain proper air flow to the carburetor. Regularly check that the air cleaner is free of excessive dirt.

To inspect and clean the air filter:

1. Unscrew the maintenance cover knob, and remove the cover from the side panel.
2. Take the cover off of the air cleaner. Remove the sponge-like air filter element from the casing. Wipe the excessive oil and dirt inside the air filter casing.
3. Check the air filter. If the air filter element is dirty, clean it with warm, soapy water. Dry it up with clean cloth (do not twist or wrine).

Apply a light coat of engine lubricant to the element.

If the air filter element has been damaged, replace it with a new one.

4. Reinstall the air filter element, air filter cover and the maintenance cover.

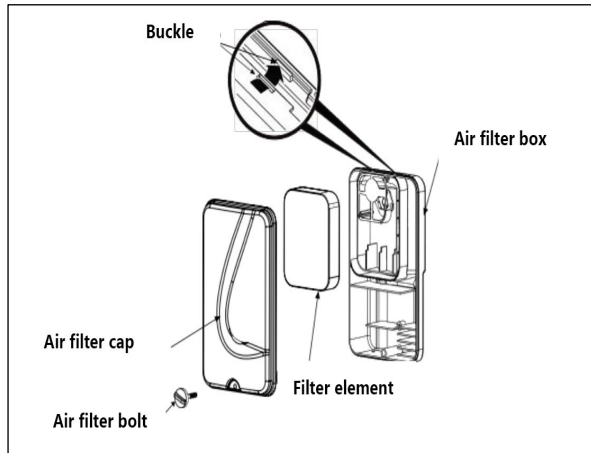


Diagram 14. Air Filter Maintenance

⚠ WARNING

Operating the engine with a dirty, damaged, or missing air filter element may endanger the operator and eventually wear out the engine.

6.5 Cleaning the Spark Arrestor

1. Allow the engine to cool completely before cleaning the spark arrestor.
2. Loosen the screw to remove the pressing block
3. Remove the spark arrestor and the screen.
4. With a wire brush, carefully remove the carbon deposits from the spark arrestor screen.
5. If the spark arrestor is damaged, replace it.
6. Position the spark arrestor and screen on the muffler and attach with the screws removed in step 2.

TIP:

Promate PM4400io is equipped with a spark arrestor that has been evaluated by the fire prevention regulations. Check with appropriate

authorities. Contact Promate Service to purchase a replacement spark arrestor.

6.6 Valve Clearance Maintenance

Important: Please contact Promate Service for assistance. Proper valve clearance is essential in prolonging the life of the engine. Check the valve clearance per maintenance schedule.

Table 3. Valve Clearance Maintenance Schedule

	Intake Valve	Exhaust Valve
Valve Clearance	0.004~0.006 inch	0.006~0.008 inch
	0.1~0.15 mm	0.15~0.2 mm
Torque	10-12 N·M	10-12 N·M

**Checking and adjusting valve clearance must be done when the engine is cold.*

7. STORAGE

Make sure that the generator is kept clean and stored properly. Operate the unit on a flat, level surface in a clean and dry operating environment.

TIP:

DO NOT use a garden hose to clean the generator. Water can enter the generator through the cooling slots which might damage the generator windings.

Use a damp cloth to clean the exterior surfaces of the generator.

Use a soft bristle brush to remove the dirt and oil.

Use an air compressor with 25 PSI (172 kPa) to clean the dirt and debris.

Inspect all air vents and cooling slots to ensure that they are clean and unobstructed.

It is recommended that you start and run the generator for 30 minutes every 30 days. If this is not possible, look to the following short-term and long-term storage options.

7.1 Short Term Storage

Fill the tank with fresh gasoline and add the gasoline stabilizer. Drain the carburetor float bowl.

1. If the tank does not already have a correctly formulated FUEL STABILIZER, add one.
2. Run the engine for 10-15 minutes to circulate the stabilizer throughout the fuel system.
3. Allow the generator to cool for a minimum of 30 minutes and then drain the fuel tank.
4. Clean the generator and store in a cool, dry and well-ventilated area out of direct sunlight. Shut off the fuel valve.

7.2 Long Term Storage (over one year)

For long term storage, the gasoline must be drained from the gasoline tank and carburetor (Diagram 15).

1. Ensure the fuel valve is closed.
2. Place an appropriate gasoline container under the carburetor. Use a funnel to avoid gasoline spills.
3. Loosen the carburetor drain screw to allow the gasoline to drain completely from the carburetor.

⚠ CAUTION

- If the generator is stored with gasoline in the tank or carburetor, take extra care to avoid the risk of gasoline vapor ignition.
 - Store the generator in a well-ventilated area, away from any open flames or heat sources.
 - Avoid placing the generator near furnaces, water heaters, clothes dryers, or areas where spark-producing tools or motors are used.
 - Whenever possible, avoid damp environments, as moisture can cause rust and corrosion.
4. Once all the fuel has drained, retighten the carburetor drain screw securely.
 5. Place the gasoline container under the sediment cup and again use a funnel to prevent spillage.
 6. Remove the sediment cup and turn the fuel valve to the ON position.
 7. Allow all gasoline to drain completely, then reinstall the sediment cup properly.

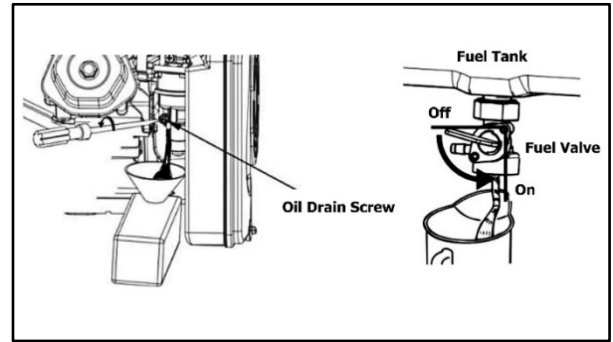


Diagram 15. Long Term Storage

Draining the Float Bowl (Diagram 14)

1. Turn the fuel tank valve to OFF position.
2. Locate the drain screw at the bottom of the carburetor float bowl.
3. Place an appropriate gasoline container under the drain screw to catch the drained fuel.
4. Loosen the float bowl drain screw and allow the fuel to drain.
5. Tighten the float bowl drain screw (not too tight to avoid damaging the screw thread).

⚠ WARNING

Risk of fire and Explosion

Fuel and vapors are extremely flammable and explosive. Store fuel in a well-ventilated area. Keep fire and spark away. Failure to do so will result in death or serious injury.

Verify if the machine has properly cooled before covering or storing the machine. Hot surfaces could result in fire.

8. TROUBLESHOOTING

Table 4. Troubleshooting your Generator

PROBLEM	POSSIBLE CAUSE	SOLUTION
Engine is running, but no AC output is available.	1. The AC Circuit breaker is open.	1. Check the AC load and reset the circuit breaker.
	2. Fault in generator	2. Contact Promate Service
	3. Poor connection or defective cord set.	3. Check and repair
	4. The connected device is bad.	4. Connect another device that is in good condition.
	5. GFCI outlet is open (if equipped).	5. Correct ground fault and press then reset button on GFCI outlet.
Engine runs well at no-load, but "bogs down" when loads are connected.	1. Short circuit in a connected load.	1. Disconnect the shorted electrical load
	2. The engine speed is too slow.	2. Contact Promate Service.
	3. The generator is overloaded.	3. Reduce load.
	4. There is a shorted generator circuit.	4. Contact Promate Service.
	5. Clogged or dirty fuel filter.	5. Clean or replace fuel filter.
	6. The connected device is not good.	6. Connect another device that is in good condition.
Engine will not start; starts and runs rough or shuts down when running.	1. Engine switch set to OFF (O) position.	1. Set engine switch to ON (I) position.
	2. Fuel valve is in OFF (O) position.	2. Move fuel valve to ON (I) position.
	3. Low oil level	3. Fill crankcase to proper level or place generator on level surface.
	4. Dirty air filter	4. Clean or replace air cleaner.
	5. Out of fuel	5. Fill fuel tank.
	6. Stale fuel	6. Drain fuel tank and carburetor; fill with fresh fuel.
	7. Spark plug wire not connected to spark plug.	7. Connect wire to spark plug.
	8. Bad spark plug	8. Replace spark plug.
	9. Water in fuel	9. Drain gas tank and carburetor; fill with fresh fuel.
	10. Flooded	10. Wait 5 minutes and re-crank engine.
	11. Excessively rich fuel mixture.	11. Contact Promate Service.
	12. Intake valve stuck open or closed.	12. Contact Promate Service.
	13. Engine has lost compression.	13. Contact Promate Service.
	14. Clogged or dirty fuel filter.	14. Replace fuel filter.
	15. Shut off due to a system fault & blinking yellow indicator light	15. Contact Promate Service.
	16. Clogged or dirty spark arrester screen.	16. Clean or replace spark arrester screen.
Engine lacks power.	1. Load is too high.	1. Reduce load.
	2. Dirty air filter.	2. Replace air filter.
	3. Clogged or dirty fuel filter.	3. Clean or replace fuel filter.
	4. Clogged or dirty spark arrester screen.	4. Clean or replace spark arrester screen.
	5. Engine needs to be serviced.	5. Contact Promate Service.
	6. Bad fuel.	6. Drain gas tank and carburetor; fill with fresh fuel.
Engine "hunts" or falters.	1. Carburetor is running too rich or too lean.	1. Contact Promate Service.
	2. Clogged or dirty fuel filter.	2. Replace the fuel filter.
	3. Choke is opened too soon.	3. Set choke to halfway position until engine runs smoothly.
Engine shuts down when running.	1. Out of fuel.	1. Fill fuel tank.
	2. Dirty air cleaner.	2. Clean or replace air cleaner.
	3. Low oil level.	3. Fill the crankcase to proper level or place the generator on level surface.
	4. Shut off due to a system fault & blinking yellow indicator light	4. Contact Promate Service.

9. SERVICE INFORMATION

HOW TO ORDER REPLACEMENT PARTS

Even quality-built equipment such as the generator you have purchased will need occasional replacement parts to maintain its good condition over the years.

To order replacement parts and consumable parts, please contact Promate Service and be ready with the following information:

1. Model No., Serial No. and all specifications that are shown on the Model No./Serial No. plate.
2. Part number or numbers as shown in the Parts List section ().
3. A brief description of the trouble with the generator.

LIMITED WARRANTY

Warranty Coverage:

Powertech Asia Pacific Inc., (the Company) warrants to the original retail customer that it will repair or replace, free of charge, any parts found by the Company or its authorized service representative to be defective in material or workmanship. This warranty covers the cost of replacement parts and labor for defects in material or workmanship.

Not Covered:

- a. Shipping/Handling charges for sending the product to the Company or its authorized service representative for warranty service. Shipping/Handling repaired or replaced products back to the customer; these charges must be borne by the customer.
- b. If a separate operator's manual and engine warranty from the engine manufacturer is included with this product, only that warranty will apply to the engine.

- c. Damage caused by abuse, accident, the effects of corrosion, erosion and normal wear and tear.
- d. Warranty is void if the customer fails to install, maintain and operate the product in accordance with the instructions and recommendations of the Company set forth in the owner's manual, or if the product is used as rental equipment.
- e. The Company will not pay for repairs or adjustments to the product, or for any costs of labor performed without the Company's prior authorization.
- f. Consumable parts such as battery, spark plugs, and air cleaner

Warranty Period: One (1) year from the date of purchase on products used solely for consumer applications; if a product is used for business or commercial applications, the warranty period will be limited to ninety (90) days from the date of purchase. For warranty service, the customer must provide dated proof of purchase and must notify the company within the warranty period.

EXCLUSIONS AND LIMITATIONS: THE COMPANY MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED. THE WARRANTY SERVICE DESCRIBED ABOVE IS THE EXCLUSIVE REMEDY UNDER THIS WARRANTY; LIABILITY FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES IS EXCLUDED TO THE EXTENT PERMITTED BY LAW.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow a disclaimer of implied warranties or the exclusion or limitation of incidental and consequential damages, so the above disclaimers and exclusions may not apply.



CONTACT POWERTECH ASIA PACIFIC, INC.

(02) 8 984 2620 | (+63) 9338373922

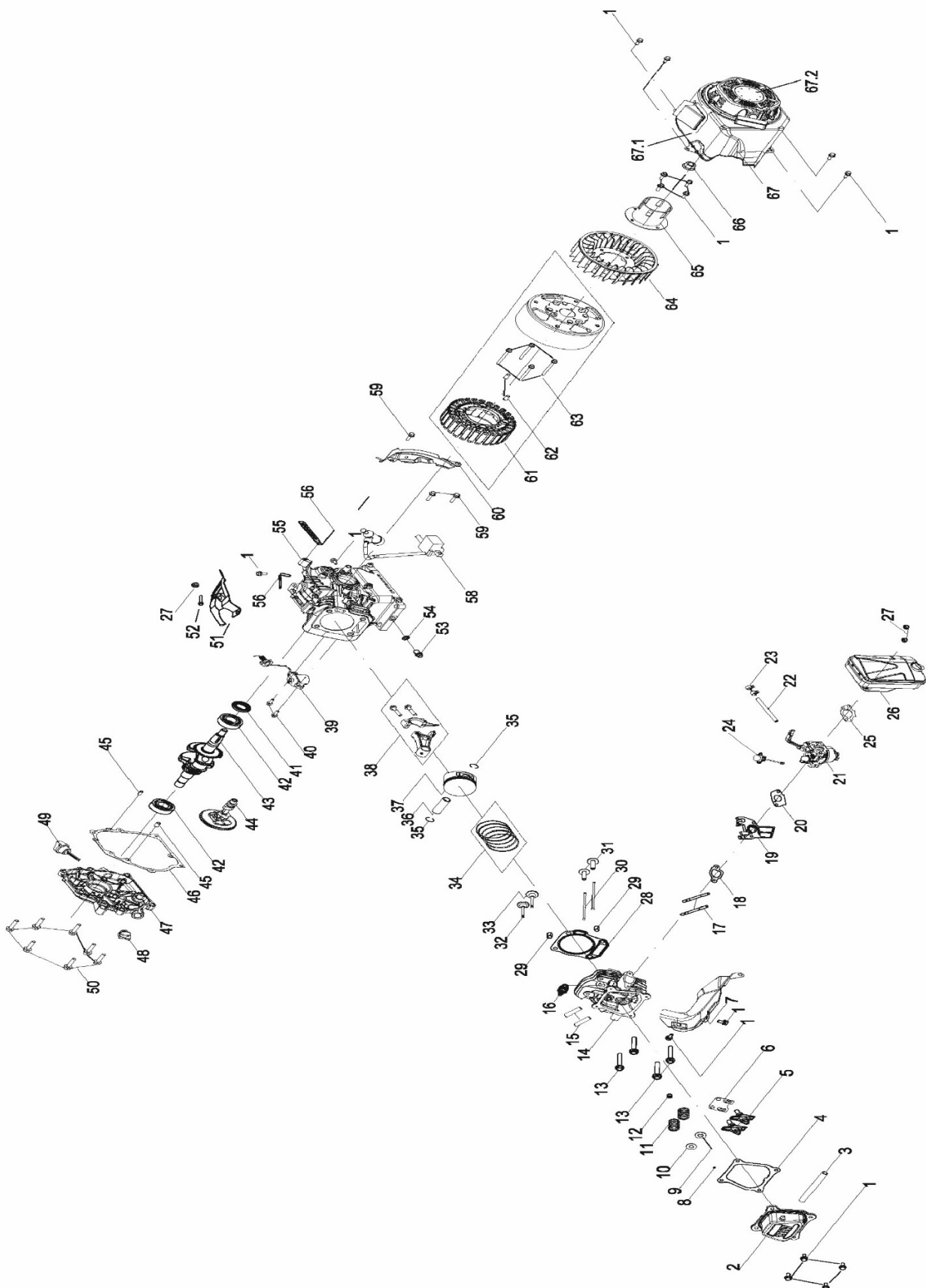
service@powertechasiapacific.com; www.facebook.com/PromateServicePH/

(MAIN) #420 Diamond Warehouse Compound, F. Legaspi St., Maybunga, Pasig City 1607
(DAVAO) Space 10 & 11 Jin-Long Complex R. Castillo St. Agdao District, Davao City 800



10. EXPLODED DIAGRAM AND PART LIST

Model: PM4400io



PART LIST

Table 5. PM4400io Generator Part List 1

No.	Part Name	Qty.
1	Bolt	14
2	Cover comp,cylinder head	1
3	Exhaust Pipe	1
4	Packing,headcover	1
5	Rocker Assembly	2
6	Plate,Push Rod Guide	1
7	Shroud	1
8	Rotator	1
9	Seat, Valve Spring,In	1
10	Seat, Valve Spring,Ex	1
11	Spring,Valve	2
12	Returner,Intake Valve	1
13	Bolt M8 x 60	4
14	Cylinder head	1
15	Bolt, Stud M8 x 35	2
16	Spark Pulg	1
17	Bolt, Stud M6 x 90	2
18	Packing,Intake	1
19	Insulator,carburetor	1
20	Packing,carburetor	1
21	Carburetor Assembly	1
22	Fuel line	1
23	Clip,fuel line	2
24	Stepper Motor	1
25	Spacer,carburetor	1
26	Air Cleaner Assembly	1
27	Nut M6	3
28	Gasket,Cylinder Head	1
29	Pin, Dowel	2
30	Rod,Push	2
31	Lifter,Valve	2
32	Valve Exhaust	1
33	Valve,In	1
34	Scraper Ring Set,Piston	1
35	Clip, Piston	2
36	Pin, Piston	1
37	Piston	1
38	Rod Assembly., Connecting	1
39	Switch Assembly,Oil Level	1
40	Bolt M6 x 16	2

No.	Part Name	Qty.
41	Oil Seal	1
42	Ball bearing	2
43	Crankshaft Assembly	1
44	Camshaft Assembly	1
45	Dowel pin,casecover	2
46	Packing,casecover	1
47	Power right cover	1
48	Oil Plug	1
49	Dipstick	1
50	Bolt M8 x 32	6
51	The wind deflector	1
52	Bolt M6 x 30	1
53	Bolt, Drain Plug M10 x 15	2
54	Washer,Drain Plug	2
55	Crankcase	1
56	Clip	2
58	ignition coil assy	1
59	Bolt M6 x 20	2
60	Wind Shiel Comp.	1
61	Motor	1
62	Dowel pin,casecover	1
63	Bolt M6 x 60	4
64	Fan,recoil starter	1
65	Pulley,Starter	1
66	Nut M14 x 1.5	1
67	Recoil Starter Assembly	1
67.1	Recoil starter case	1
67.2	Recoil Starter Component	1

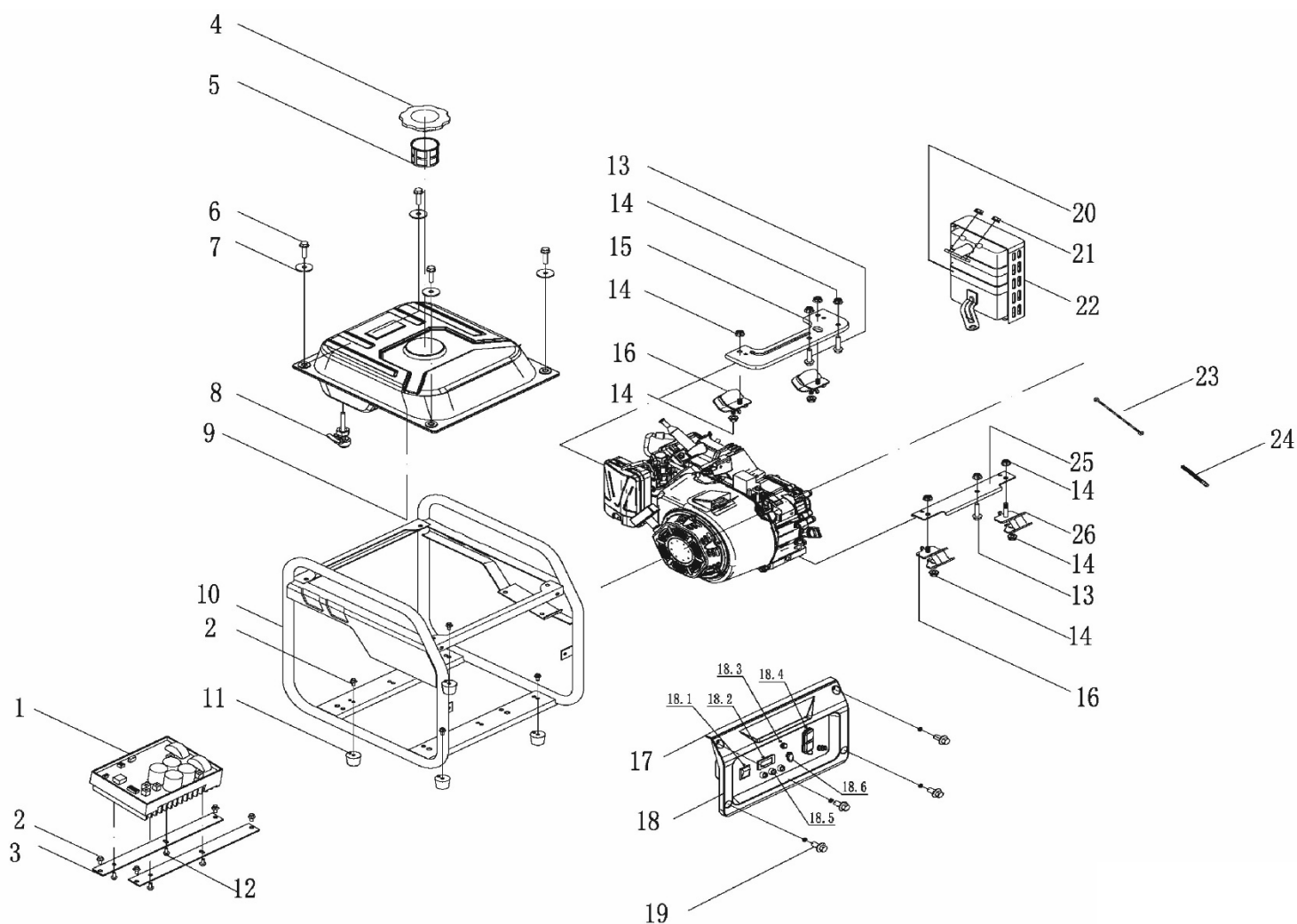


Table 6. PM4400io Generator Part List 2

No.	Part Name	Qty.
1	Inverter	1
2	Bolt	7
3	Inverter Mounting Bracket	1
4	Fuel Cup	1
5	Fuel Filter	1
6	Bolt	4
7	Flat Washer	4
8	Fuel Cock	1
9	Shock-Absorbing Rubber	1
10	Frame	1
11	Rubber Damping Bracket	4
12	Bolt	7
13	Bolt	3
14	Nut	11
15	Chassis-1	1
16	Isolator-1	3

No.	Part Name	Qty.
17	Back Panel Housing	1
18	Control Panel	1
18.1	Engine Switch	1
18.2	Digital Display	1
18.3	AC Reset Button	1
18.4	230V Duplex	1
18.5	Overload Alert	1
18.6	Eco Mode Switch	1
19	Bolt	1
20	Exhaust	4
21	Nut	1
22	Fuel Tank Assembly	2
23	Grounding Wire	1
24	Ties	1
25	Chassis-2	3
26	Isolator-2	1
27	Powertrain	1