Thank you for purchasing a Robin generator.

This manual covers operation and maintenance of the Robin generators. All information in this publication is based on the latest production information available at the time of approval for printing.

Pay special attention to statements preceded by the following words:

⚠ WARNING

Indicates a strong possibility of severe personal injury, loss of life and equipment damage if instructions are not followed.

CAUTION

Indicates a possibility of personal injury or equipment damage if instructions are not followed.

NOTE:

Gives helpful information.

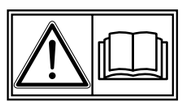
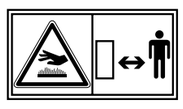
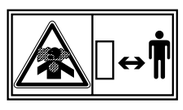
If a problem should arise, or if you have any questions about the generator, consult an authorized dealer or service shop.

⚠ WARNING

The generator is designed to give safe and dependable service if operated according to instructions.
Do not operate the generator before you have read and understood the instructions. Failure to do so could result in death, personal injury or equipment damage.

SYMBOLS AND MEANINGS

In accordance with the ISO standard, the specified symbols as shown in the following table are used for the products and this instruction manual.

	Read the operator's instruction manual.
	Stay clear of the hot surface.
	Exhaust gas is poisonous. Do not operate in an unventilated room.
	Stop the engine before refueling.

	Fire, naked flame and smoking prohibited.
	Caution, risk of electric shock.
	Do not connect the generator to the commercial power lines.

	ON (Switch Engine)		Engine oil
	OFF (Switch Engine)		Add oil
	Alternating current		Battery charging condition
	Direct current		Choke (cold starting aid)
	Plus : positive polarity		Engine start (Electric start)
	Minus : negative polarity		Engine stop (Electric start)
	STOP-position of a bistable push control		Fuel
	ON-position of a bistable push control		Fast
	Protective earth (ground)		Slow
	Fuse		

P r	Rated power (kW)
f r	Rated frequency (Hz)
H max	Maximum site altitude above sea-level (m)
COP	Continuous power (kW)
U r	Rated voltage (V)
T max	Maximum ambient temperature (°C)
COs phi	Rated power factor
I r	Rated current (A)
m	Mass (kg)

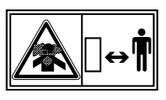
1. SAFETY PRECAUTIONS

⚠ Do not operate the generator near gasoline or gaseous fuel because of the potential danger of explosion or fire.

⚠ Do not fill the fuel tank with fuel while the engine is running. Do not smoke or use a naked flame near the fuel tank. Be careful not to spill fuel during refueling. If fuel is spilt, wipe it off and let dry before starting the engine.

⚠ Do not place inflammable near the generator. Be careful not to place fuel, matches, gunpowder, oily cloths, straw, trash, or any other in flammables near the generator.

⚠ Do not operate the generator inside a room, cave, tunnel, or other insufficiently ventilated area. Always operate it in a well-ventilated area, otherwise the engine may become overheated, and the poisonous carbon monoxide gas contained in the exhaust gases will endanger human lives. Keep the generator at least 1 meter (3 feet) away from any structure or building during use. If the generator must be used indoors, the area must be well-ventilated and extreme caution must be taken regarding the discharge of exhaust gases. Failure to follow the correct procedures can be fatal.



⚠ Do not enclose the generator nor cover it with a box. The generator has a built-in forced air cooling system, and may become overheated if it is enclosed. If generator has been covered to protect it from the weather during non use, be sure to remove it and keep it well away from the area during generator use.

⚠ Operate the generator on a level surface. It is not necessary to prepare a special foundation for the generator. However, the generator will vibrate on an irregular surface, so choose a level place without surface irregularities. If the generator is tilted or moved during operation, fuel may spill and/ or the generator may tip over, causing a hazardous situation. Proper lubrication cannot be expected if the generator is operated on a steep incline or slope. In such a case, piston seizure may occur even if the oil level is above the minimum level.

⚠ Pay attention to the wiring or extension cords from the generator to the connected device.
If the wire is under the generator or in contact with a vibrating part, it may break and possibly cause a fire, generator burnout, or electric shock hazard. Replace damaged or worn cords immediately.

⚠ Do not operate in rain, in wet or damp conditions, or with wet hands. The operator may suffer severe electric shock if the generator is wet due to rain or snow.

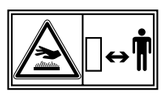
⚠ If the generator is wet, wipe and dry it before starting. Do not pour water directly over the generator, never wash it with water.

⚠ Be extremely careful that all necessary electrical grounding procedures are followed during each and every use. Failure to do so can be fatal.

⚠ Do not contact the generator to a commercial power line. Connection to a commercial power line may short circuit the generator and ruin it or cause electric shock hazard. Use the transfer switch for connecting to domestic circuit. In the special case where the generator will be connected as stand by to the commercial network, the installation must be carried out by a qualified electrician taking into account the technical specifications of the generator and the commercial network.

⚠ No smoking while handling the battery. The battery emits flammable hydrogen gas, which can explode if exposed to electric arcing or a naked flame. Keep the area well-ventilated and keep naked flames/sparks away when handling the battery.

⚠ Engine becomes extremely hot during and for some time after operation. Keep combustible materials well away from generator area. Be very careful not to touch any parts of the hot engine especially the muffler area or serious burns may result.



⚠ Keep children and all bystanders at a safe distance from work areas.

⚠ It is absolutely essential that you know the safe and proper use of the power tool or appliance that you intend to use. All operators must read, understand and follow the tool/appliance owners manual. Tool and appliance applications and limitations must be understood. Follow all directions given on labels and warnings. Keep all instruction manuals and literature in a safe place for future reference.

⚠ Use only "Homologated" extension cords according to CEI 245-4. When a tool or appliance is used outdoors, use only extension cords marked "For Outdoor Use". Extension cords, when not in use should be stored in a dry and well ventilated area.

⚠ Always switch off generator's circuit breaker and disconnect tools or appliances when not in use, before servicing, adjusting, or installing accessories and attachments.

2. SPECIFICATIONS

		EXPERT 2410 X	EXPERT 3010 X	EXPERT 4010 X	EXPERT 5010 X EXPERT 5010 XL12	MIXTES 4500
MAXIMUM OUTPUT ISO 8528		1,85 kW	2,6 kW	3,3 kW	4,3 kW	4,3 kW
RATED POWER FACTOR				1		
RATED CURRENT		8,0 A	11,3 A	14,3 A	18,7 A	18,7 A
MAXIMUM AMBIENT TEMPERATURE				40 °C		
MAXIMUM SITE ALTITUDE				1000 m		
ALTERNATOR	NOMINAL VOLTAGE			230V Single phase		
	ALTERNATOR TYPE			Brushless alternator, 2 poles		
	VOLTAGE REGULATION			Condenser		
	FREQUENCY			50 Hz		
	EQUIPMENT			2 Single phase sockets IP44 – 10/16A		
	PROTECTION			Sockets protected by a thermal circuit breaker		
ENGINE	ENGINE MODEL	EX 13	EX 17	EX 21	EX 27	EX 27
	ENGINE TYPE			4 stroke gasoline– OHC		
	COOLING SYSTEM			Air-cooled		
	MAXIMUM OUTPUT	4,3 HP - 4000 rpm	5,7 HP - 4000 rpm	7 HP - 4000 rpm	9 HP - 4000 rpm	9 HP - 4000 rpm
	PISTON DISPLACEMENT	126 cm^3	169 cm^3	211 cm^3	265 cm^3	265 cm^3
	FUEL			Unleaded Petrol 95		
	FUEL TANK CAPACITY VERSION X	2,7 liters	3,6 liters	3,6 liters	6,1 liters	6,1 liters
	FUEL TANK CAPACITY VERSION XL	-	-	-	12 litres	-
	AUTONOMY AT 3/4 LOAD VERSION X	2 h 55	2 h 45	2 h	3 h	3 h
	AUTONOMY AT 3/4 LOAD VERSION XL	-	-	-	5 h 45	-
	STARTING SYSTEM			Recoil starter including rope system		
	ELECTRONIC OIL SENSOR			Serial		
FRAME				Full steel frame		
DIMENSIONS LxWxH		(600x470x415) mm	(600x470x415) mm	(600x470x415) mm	(765x570x520) mm	(765x570x520) mm
WEIGHT (DRY / GROSS)		(34 / 35) kg	(35 / 36) kg	(38,5 / 39,5) kg	(60 / 62) kg	(71 / 73) kg

3. PRE-OPERATION CHECK

CHECK ENGINE OIL

Before checking or refilling oil, be sure generator is located on stable and level surface with engine stopped.

- Remove oil filler cap (a) and check the engine oil level.

- If oil level is below the lower level line (c), refill with suitable oil (see table) to upper level line (b). Do not screw in the oil filler cap when checking oil level.

- Change oil if contaminated. (See "How-To" Maintenance.)

Oil capacity	UPPER LEVEL
EXPERT 2410 X	0,6 L
EXPERT 3010 X	0,6 L
EXPERT 4010 X	0,6 L
EXPERT 5010 X / XL12	1,1 L
MIXTES 4500	1,1 L

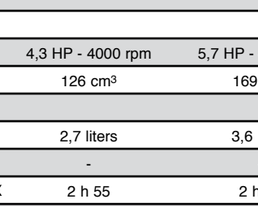
Recommended engine oil: Use class SE (API classification) oil or a higher grade oil according to the table below. **SAE 10W-30** or **10W-40** is recommended for general, all temperature use. If single viscosity oil is used, select the appropriate viscosity for the average temperature in your area.

CHECK ENGINE FUEL

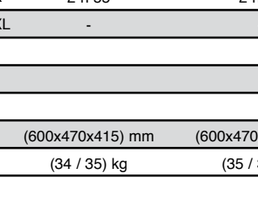
⚠ WARNING

Do not remove the fuel tank cap while the engine is running. Do not refuel while smoking or near naked flame or other such potential fire hazards. Otherwise fire accident may occur.

Check fuel level at fuel level gauge (standard with large fuel tanks). If fuel level is low, refill with unleaded automotive gasoline. Be sure to use the fuel filter screen on the fuel filter neck.



Fuel tank capacity : See table page 7.



⚠ WARNING

- Make sure you review each warning in order to prevent fire hazard.
- Do not refill tank while engine is running or hot.
- Close fuel cock before refueling with fuel.
- Be careful not to admit dust, dirt, water or other foreign objects into fuel.
- Wipe off spilt fuel thoroughly before starting engine.
- Keep naked flames away.

CHECKING COMPONENT PARTS

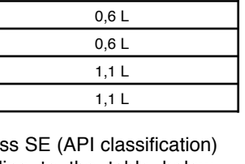
Check following items before starting engine :
- Fuel leakage from fuel hose, etc;
- Bolts and nuts for looseness;
- Components for damage or breakage;
- Generator not resting on or against any adjacent wiring.

⚠ WARNING

Make sure you review each warning in order to prevent fire hazard.
- Keep area clear of in flammables or other hazardous materials.
- Keep generator at least 3 feet (1 meter) away from buildings or other structures.
- Only operate generator in a dry, well ventilated area.
- Keep exhaust pipe clear of foreign objects.
- Keep generator away from naked flame. No smoking!
- Keep generator on a stable and level surface.
- Do not block generator air vents with paper or other material.

GROUNDING THE GENERATOR

- To ground the generator to the earth, connect the grounding lug of the generator to the grounding spike driven into the earth or to the conductor which has been already grounded to the earth.
- If such grounding conductor or grounding electrode is unavailable, connect the grounding lug of the generator to the grounding terminal of the using electric tool or appliance.

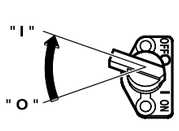


4. OPERATING PROCEDURES

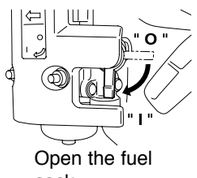
⚠ WARNING

Check the oil level before each operations as outlined on page 8. Never change the accelerator position which is set at the factory.

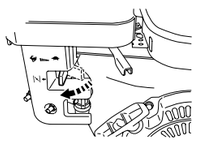
1. STARTING THE ENGINE



Turn the engine switch to the position " I " (ON).

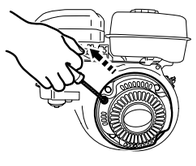


Open the fuel cock.



Pull the choke knob to close if the engine is cold.

[Recoil starter model]
Pull the starter handle slowly until resistance is felt. This is the "compression" point. Return the handle to its original position and then pull swiftly.



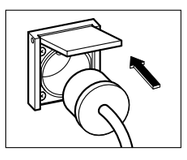
If the engine fails to start after several attempts, repeat above procedures with choke knob returned to open.
- Do not fully pull out the rope.
- After starting, allow the starter handle to return to its original position while still holding the handle.

After the engine started, return the choke knob gradually to “OPEN” position.

Warm up the engine without a load for a few minutes.

2. USING ELECTRIC POWER

AC APPLICATION
This generator is thoroughly tested and adjusted in the factory. If the generator does not produce the specified voltage, consult your nearest Robin dealer or service shop.



Turn off the switch(es) of the electrical appliance(s) before connecting to the generator.

Insert the plug(s) of the electrical appliance(s) into the receptacle.

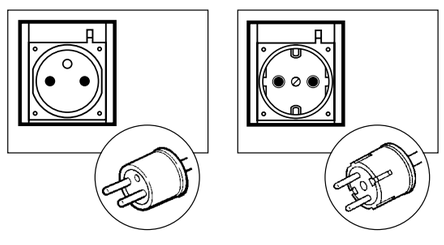
⚠ WARNING

Be sure to ground the generator if the connected electrical device is grounded.
Failure to ground unit could lead to electrical shock.

- Check the amperage of the receptacles, and be sure not to take a current exceeding the specified amperage.
- Be sure that the total wattage of all appliances does not exceed the rated output of the generator.

⚠ WARNING

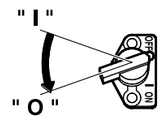
Do not put foreign objects into the plug receptacle.



NOTE:
When the circuit breaker or no-fuse breaker turns off during operation, the generator is overloaded or the appliance is defective. Stop the generator immediately, check the appliance and/or generator for overloading or detect and have repaired as necessary by Robin dealer or service shop.

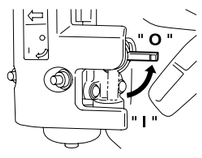
5. STOPPING THE GENERATOR

(a) Turn off the power switch of the electric equipment and unplug the cord from the receptacle of the generator.



(b) Allow the engine about 3 minutes to cool down at no-load before stopping.

(c) Turn the engine switch to the position "O" (OFF).



(d) Close the fuel cock.

6. OIL SENSOR

(a) The oil sensor detects the fall in oil level in the crankcase and automatically stops the engine when the oil level falls below a predetermined level.

(b) When engine has stopped automatically, switch off generator's no-fuse breaker, and check the oil level. Refill engine oil to the upper level as instructed on page 8 and restart the engine.

(c) If the engine does not start by usual, consult your nearest Robin dealer or service shop.

⚠ WARNING

Do not remove OIL SENSOR PROBE when refilling with oil. Remove oil filler cap on the opposite side of carburetor.

7. WATTAGE INFORMATION

Some appliances need a "surge" of energy when starting. This means that the amount of electrical power needed to start the appliance may exceed the amount needed to maintain its use. Electrical appliances and tools normally come with a label indicating voltage, cycles/Hz, amperage (amps) and electrical power needed to run the appliance or tool. Check with your nearest dealer or service center with questions regarding power surge of certain appliances or power tools.

- Electrical loads such as incandescent lamps and hot plates require the same wattage to start as is needed to maintain use.
- Loads such as fluorescent lamps require 1.2 to 2 times the indicated wattage during start-up.
- Loads for mercury lamps require 2 to 3 times the indicated wattage during start-up.
- Electrical motors require a large starting current. Power requirements depend on the type of motor and its use. Once enough "surge" is attained to start the motor, the appliance will require only 30% to 50% of the wattage to continue running.
- Most electrical tools require 1.2 to 3 times their wattage for running under load during use. For example, a 5,000 watt generator can power a 1800 to 4000 watt electrical tool.
- Loads such as submersible pumps and air compressors require a very large force to start. They need 3 to 5 times the normal running wattage in order to start. For example, a 5,000 watt generator would only be able to drive a 1,000 to 1,700 watt pump.

NOTE:
The following wattage chart is general guide only. Refer to your specific appliance for correct wattage.
To determine the total wattage required to run a particular electrical appliance or tool, multiply the voltage figure of the appliance/tool by the amperage (amps) figure of the same appliance / tool. The voltage and amperage (amps) information can be found on a name plate which is normally attached to electrical appliances and tools.

	Expert 2410X	Expert 3010X	Expert 4010X	Expert 5010X / XL12	Mixtes 4500
BULB / HEATING	1800 W	2600 W	3200 W	4300 W	4300 W
HALOGEN / NEON	2 X 500 W	3 X 500 W	4 X 500 W	5 X 500 W	5X500 W
HAND TOOLS WITHOUT VARIATOR	1300 W	1800 W	2200 W	3000 W	3000 W
COMPRESSOR	300 W	500 W	650 W	800 W	800 W
ELECTRIC MOTOR WITHOUT LOAD	1/3 CV	3/4 CV	1 CV	1,1 CV	1,1 CV
WELDER	no	no	no	70 A max	70 A max

8. MAINTENANCE SCHEDULE

DAILY	- Check all components according to ‘‘PRE-OPERATING CHECKS’’. - Check and refill gasoline and engine oil.
EVERY 50 HOURS	- Wash air cleaner foam element more often if used in dirty or dusty environments. - Check the condition of the paper element. Do not wash the paper element.
EVERY 100 HOURS	- Change oil more often if used in dusty or dirty environment. - Check the spark plug and clean it if necessary.
EVERY 200 HOURS	- Replace air cleaner element. - Clean fuel strainer. - Clean and adjust spark plug gap.
EVERY 300 HOURS	- Check and adjust valve clearance.
EVERY 500 HOURS	- Remove carbon from cylinder head and the top of the cylinder. - Clean and adjust carburetor.
EVERY 1000 HOURS (24 MONTHS)	- Inspect control panel parts. - Check rotor and stator. - Replace engine mount rubber. - Overhaul engine. - Change fuel lines.

NOTE:
- Maintenance operations require trained and qualified personel.
- The maintenance schedule is given as a guide. Under severe conditions, the frequency of maintenance must be increased.
- Initial oil change should be performed after first twenty (20) hours of use. Thereafter change oil every 100 hours. Before changing the oil, check for a suitable way to dispose of the old oil. Do not pour it down sewage drains, onto garden soil or into open streams. Your local zoning or environmental regulations will give you more detailed instructions on proper disposal.

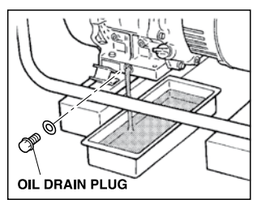
9. "HOW-TO" MAINTENANCE

1. ENGINE OIL CHANGE

- Change engine oil every 100 hours. (For new engine, change oil after 20 hours.)

(a) Drain oil by removing the drain plug and the oil filler cap while the engine is warm.

(b) Reinstall the drain plug and fill the engine with oil until it reaches the upper level on the oil filler cap.



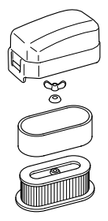
- Use fresh and high quality lubricating oil to the specified level as directed on page 8. If contaminated or deteriorated oil is used or the quantity of the engine oil is not sufficient, the engine damage will result and its life will be greatly shortened.

2. SERVICING THE AIR CLEANER

Maintaining an air cleaner in proper condition is very important. Dirt induced through improperly installed, improperly serviced or inadequate elements damages and wears out engines. Keep the element always clean, as directed on page 15.

Urethane foam dual element type

- Urethane foam cleaning: work and clean the urethane foam with detergent. After cleaning, dry it. Clean the urethane foam element every 50 hours.



- Second element: clean by tapping gently to remove dirt and blow off dust. Never use oil. Clean the paper element every 50 hours of operation, and replace element set every 200 hours.

Clean and replace air cleaner elements more often when operating in dusty environments.

VOLTAGE DROP IN ELECTRIC EXTENSION CORDS

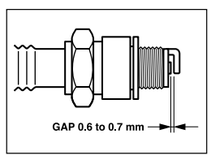
When a long electric extension cord is used to connect an appliance or tool to the generator, a certain amount of voltage drop or loss occurs in the extension cord which reduces the effective voltage available for the appliance or tool.

The chart below has been prepared to illustrate the approximate voltage loss when an extension cord of 300 feet (approx. 100 meters) is used to connect an appliance or tool to the generator.

Nominal cross section		Allowable current		Resistance								
mm^2	No.	A	No./mm	/100m	1 A	3 A	5 A	8 A	10A	12A	15A	Voltage drop
0,75	18	7	30/0.18	2,477	2,5V	8V	12V	-	-	-	-	
1,27	16	12	30/0.18	1,486	1,5V	5V	7,5V	12V	15V	18V	-	
2,0	14	17	37/0.26	0,952	1V	3V	5V	8V	10V	12V	15V	
3,5	12 à 10	23	45/0.32	0,517	-	1,5V	2,5V	4V	5V	6,5V	7,5V	
3,5	10 à 8	35	70/0.32	0,332	-	1V	2V	2,5V	3,5V	4V	5V	

3. CLEANING AND ADJUSTING SPARK PLUG

(a) If the plug is contaminated with carbon, remove it using a plug cleaner or wire brush.
(b) Adjust the electrode gap to 0.6 to 0.7mm.

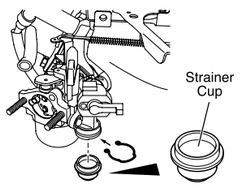


EXPERT 2410 X	NGK BR-6HS
EXPERT 3010 X	
EXPERT 4010 X	
EXPERT 5010 X / XL12	
MIXTES 4500	

4. CLEANING FUEL STRAINER

Dirt and water in the fuel are removed by the fuel strainer.

(a) Remove the strainer cup and throw away water and dirt.
(b) Clean the screen and strainer cup with gasoline.
(c) Tightly fasten the cup to main body, making sure to avoid fuel leak.



10. PREPARATION FOR STORAGE

The following procedures should be followed prior to storage of your generator for periods of 6 months or longer.

- Drain fuel from fuel tank carefully by disconnecting the fuel line. Gasoline left in the fuel tank will eventually deteriorate making engine-starting difficult.
- Remove the carburetor float chamber and also drain the carburetor.
- Change engine oil.
- Check for loose bolts and screws, tighten them if necessary.
- Clean generator thoroughly with oiled cloth. Spray with preservative if available.

NEVER USE WATER TO CLEAN GENERATOR !

- Pull starter handle until resistance is felt, leaving handle in that position.

- Store generator in a well ventilated, low humidity area.

11. TROUBLESHOOTING

When generator engine fails to start after several attempts, or if no electricity is available at the output socket, check the following chart.

When engine fails to start:

Check if choke lever is in its proper position.	Set the choke lever to "CLOSE" position.
Check if fuel cock is open.	Set the choke lever to "CLOSE" position.
Check fuel level.	If empty, refill fuel tank making sure not to overfill.
Check if engine switch is in "O" (OFF).	Turn engine switch to " I " (ON).
Check to make sure generator is not connected to an appliance.	If connected, turn off the power switch on the connected appliance and unplug.
Check spark plug for loose spark plug cap.	If loose, push spark plug cap back into place.
Check spark plug for contamination.	Remove spark plug and clean electrode.

When no electricity is generated at receptacle:

Check to make sure no-fuse breaker is in the " I " (ON) position.	After making sure that the total wattage of the electrical appliance is within permissible limits and there are no defects in the appliance, turn the no-fuse breaker to the " I " (ON) position. If breakers continue to actuate, consult your nearest servicing dealer.
Check AC terminals for loose connection.	Secure connection if necessary.
Check to see if engine starting was attempted with appliances already connected to generator.	Turn off switch on the appliance, and disconnect cable from receptacle. Reconnect after generator has been started properly.

If your generator still fails to start or to generate electricity, contact your nearest Robin dealer or service shop for further information or corrective procedures.

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Instructions for use
Generator
Expert and Mixtes

GB

Models :
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EXPERT 3010 X
EXPERT 4010 X
EXPERT 5010 X / XL12
MIXTES 4500

MU-EXP-GB V2410GB1