

CROMTECH™ GENERATORS

OPERATION & INSTRUCTION MANUAL

Thank you for your selection of a CROMTECH™ Generator.

This Operation Manual explains its use, installation, checking and maintenance. We suggest that you retain this manual for ready reference regarding proper handling of CROMTECH™ Generator.



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2. SAFETY PRECAUTIONS

Please make sure you review each precaution carefully.
Pay special attention to statement preceded by the following words.

⚠ WARNING

“WARNING” indicates a strong possibility of severe personal injury or loss of life if instructions are not followed.

⚠ CAUTION

“CAUTION” indicates a possibility of personal injury or equipment damage if instructions are not followed.

⚠ WARNING

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 an open flame near the fuel tank. Be careful not to spill fuel during refuelling. If fuel is spilt, wipe it off and let dry before starting the engine.



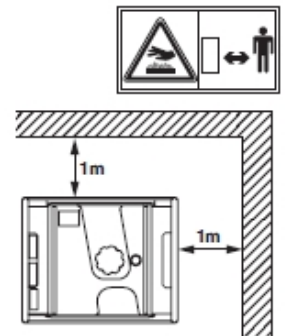
⚠ WARNING

Do not place flammables near the generator.

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

⚠ WARNING

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, an odourless, colourless, poisonous gas, contained in the exhaust gases will endanger human lives. Operate generator only outdoors and far from open windows, doors, ventilation intake and other openings. Keep the generator at least 1 meter (3 feet) away, including overhead, from any structure or building use.



⚠ WARNING

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.

⚠ WARNING

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 is above the upper level.

⚠ WARNING

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.

⚠ WARNING

Do not operate in rain, 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.



⚠ WARNING

If wet, wipe and dry it well before starting. Do not pour water directly over the generator, nor wash it with water.

⚠ WARNING

Ensure all necessary electrical grounding procedures are followed during each and every use. Failure to do so can be fatal.

⚠ WARNING

Do not contact the generator to a commercial power line as connection may short circuit the generator and ruin it or cause electric shock hazard.

⚠ WARNING

No smoking while handling the battery. The battery emits flammable hydrogen gas, which can explode if exposed to electric arcing or open flame.

Keep the area well-ventilated and keep open flames/sparks away when handling the battery



⚠ WARNING

Engine becomes extremely hot during and for some time after operation.

Keep combustibile material 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.



⚠ WARNING

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

⚠ WARNING

It is 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 owner's 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.

⚠ WARNING

Use only heavy duty extension cords.

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.

⚠ WARNING

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

⚠ CAUTION

Make sure the engine is stopped before starting any maintenance, servicing or repair.

Make sure maintenance and repair of the generator are performed by properly trained personnel only.

Symbols and Meanings

In accordance with the European requirements (EEC Directives), the specified symbols as shown in the following table are used for the products and this instruction manual.

	Read the operator's instruction manual.		Fire, open light and smoking prohibited.
	Stay clear of the hot surface.		Do not connect the generator to the commercial power lines.
	Exhaust gas is poisonous. Do not operate in an unventilated room.		Do not operate in rain or snow.
	Stop the engine before refueling.		Call for maintenance.
	Caution, risk of electric shock.		Keep dry.
	HOT, avoid touching the hot area.		

	ON (power and Engine)		IN-position of a bistable push control		Engine start (Electric start)
	OFF (power and Engine)		Protective earth (ground)		Engine stop
	Alternating current		Fuse		Gasoline
	Direct current		Engine oil		Fast
	Plus ; positive polarity		Add oil		Slow
	Minus ; negative polarity		Battery charging condition		Fuel start / Open
	OUT-position of a bistable push control		Choke ; cold starting aid		Fuel stop / Close

P_r	Rated power (kW)	COP	Continuous power	$\cos \Phi_r$	Rated power factor
f_r	Rated frequency (Hz)	U_r	Rated voltage (V)	I_r	Rated current (A)
H_{max}	Maximum site altitude above sea-level (m)	T_{max}	Maximum ambient temperature (°C)	m	Mass (kg)

3. PRE-OPERATION CHECKS

1. 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 and check the engine oil level.
- If oil level is below the lower level line, refill with suitable oil to upper level line.
- Do not screw in the oil filler cap when checking oil level.
- Change oil if contaminated.

2. RECOMMENDED ENGINE OIL

Use 4-stroke automotive detergent oil of API service class SE or higher grade SG, SH or SJ recommended. SAE 10W-30 or 10W-40 is recommended for general, all-temperature use.

3. CHECK ENGINE FUEL

WARNING

Do not refuel while smoking or near open flame or other such potential fire hazards. Otherwise fire accident may occur.

- Check fuel level at fuel level gauge
- If fuel level is low, refill with fuel, use unleaded petrol.
- Be sure to use the fuel filter screen on the fuel filter neck.

WARNING

Make sure you review each of the warnings in order to prevent fire hazard.

- Do not refill tank while engine is running or hot.
- Before filling fuel, turn the engine switch into fuel stop/close position.
- Be careful not to allow dust, dirt, water or other foreign objects into fuel.
- Wipe off split fuel thoroughly before starting engine.
- Keep open flames away.

4. CHECKING COMPONENT PARTS

Check the 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.

5. CHECK GENERATOR SURROUNDINGS

WARNING

Make sure you review each warning in order to prevent fire hazard.

- Keep area clear of flammables or other hazardous materials.
- Keep generator at least 1 metre 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 open flames. NO SMOKING!
- Keep generator on a stable and level surface.
- Do not block generator air vents with paper or other material.

6. GROUNDING THE GENERATOR (if applicable)

- These Generators are ground to earth via the frame.
- If grounding to Earth via an Earth spike/stake is required, follow below instructions.
 - 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 electric tool or appliance being used.
 - Earth stake requirements - Please refer to Australian Standards AS/NZS 3012:2010

4. OPERATING PROCEDURES

1. STARTING THE GENERATOR

CAUTION

Unplug all appliances connected to Generator before starting.
Check the oil level before each operation as outlined by the article "CHECK ENGINE OIL".

- Turn the engine switch to the position 'I' (On).
- Open the fuel valve.
- Set choke lever to close if the engine is cold.
- Recoil Start**
Pull the starter handle slowly until passing the compression point (resistance will be felt), then return the handle to its original position and pull briskly.
 - If the engine fails to start after several attempts, repeat above procedures with choke lever returned to "OPEN" position.
 - Do not fully pull out the rope.
 - After starting, allow the starter handle to return to its original position while still holding the handle.

CAUTION – IF ELECTRIC START FITTED

- Do not run the starting motor over 5 seconds continuously. If the engine fails to start, return the key to the "I" (on) position and wait about 10 second then start again.
- Do not turn the key switch to start position when the engine is running to prevent damage of starting motor.
- When starting the engine by recoil starter, set the key switch at the "I" (on) position and pull the starter handle.

- After the engines started, return the choke lever gradually to "OPEN" position.
- Warm up the engine without load for a few minutes.

2. STOPPING THE GENERATOR

- Turn off the power switch of the electric equipment and unplug the cord from receptacle of the generator.
- Allow the engine about 3 minutes to cool down at no-load before stopping.
- Recoil starter model** - Turn the engine switch to the position 'O' (off).
- Close the fuel valve

3. 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 AC circuit breaker, and check the oil level. Refill engine oil to the upper level as instruction on page 6 and restart the engine.
- c) If the engine does not start by usual starting procedures, check the oil level.

5. 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 centre 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 50% to 30% 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 5000w generator can power an 1800 to 4000w electrical tool.
- Loads such as submersible pumps and air compressors require a very large force to start. They need 3x to 5x times the normal running wattage to start. For example, a 5000w generator would only be able to drive a 1000 to 1700w pump.

6. SPECIFICATIONS

GENERATOR MODEL		GEN4-3200	GEN6-5000	GEN8-7000	GEN10-8000
Generator	Power Factor (max.)	4.0kw	6.0kw	8.5kw	10.0kw
	Wattage - Maximum Output	3200w	5000w	7000w	8000w
	Wattage - Continuous Output	3000w	4700w	6400w	7500w
	Mecc Alte Alternator (Brushless)	S15W-150/2	S16W-15/2	S20W-110/2	
	Type	Single Phase, 2 Pole			
	Voltage regulating system	Capacitor			
	AC Output (Rated Voltage - Frequency V-Hz)	240V – 50hz			
	Model Number	CTG40	CTG60	CTG85	CTG100E
SUBARU ENGINE MODEL		EX21	EX27	EX40	
Engine	Type	Subaru (Honda powered option available)			Briggs & Stratton
	Horse Power	7.0hp	9.0hp	14.0hp	16.0hp
	Piston Displacement cc	211cc	265cc	404cc	
	Fuel	Automotive Unleaded Gasoline (Petrol)			
	Fuel tank capacity L	3.6L	6.1L	7.0L	
	Engine oil capacity L	0.6L	0.6L	1.2L	
	Spark Plug	NGK BR6HS			
	Starting system	Recoil Start			Electric Start
	Noise Level (db@7m)	68db	70db	72db	
	Direction of rotation	Counter - clockwise			
GENERATOR DIMENSIONS		STANDARD MODELS			
Dimension	Length mm	610mm	710mm	710mm	810mm
	Width mm	450mm	500mm	500mm	450mm
	Height mm	410mm	480mm	540mm	610mm
	Dry weight kg	40.0kg	56.5kg	70.0kg	100kg

Specifications are subject to change without notice.

7. STANDARD GENERATOR & TRADE PACK OPTIONS

Standard Features

- Genuine Subaru Industrial Engine
- Low oil sensor
- Genuine Mecc Alte Brushless Alternator
- Overload protection
- Australian fabricated steel frame (25mm)
- Australian assembled and tested
- Single phase
- 2x Power outlets
- 2 Years manufacturer's warranty
- 3 Years Subaru engine warranty
- **Honda powered options available**
- **CTG100E - Briggs & Stratton engine**

Trade Pack Option (Adds 5kg)

- Weatherproof outlets with RCD Protection
- 2x Wheel kit (in-board)
- Transport handles
- Central lifting hook/bar



8. MAINTENANCE SCHEDULE

DAILY	<ul style="list-style-type: none"> • Check oil level • Check all components according to "PRE-OPERATION CHECKS."
EVERY 50 HOURS	<ul style="list-style-type: none"> • Wash air-cleaner element (more often if used in dirty/dusty environments). • Check spark plug, clean if necessary.
EVERY 100 HOURS	<ul style="list-style-type: none"> • Change engine oil. *- more often if used in dirty/dusty environments. • Clean spark arrestor.
EVERY 200 HOURS	<ul style="list-style-type: none"> • Adjust spark plug gap. • Clean fuel strainer.
EVERY 500 HOURS	<ul style="list-style-type: none"> • Replace spark plug and cleaner element. • Clean and adjust carburettor, valve clearance, and valve seat along with cylinder head.
EVERY 1000 HOURS (24 MTHS)	<ul style="list-style-type: none"> • Inspect control panel parts. • Check rotor and starter. • Replace engine mount rubber. • Overhaul engine. • Change fuel lines.

NOTE: (*)

- Initial oil change should be performed after first twenty (20) hours of use. Thereafter change oil every 100 hours.
- Before changing 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 instruction on proper disposal.
- **HONDA Engine – Please see Honda engine manual for maintenance schedule.**
- **BRIGGS & STRATTON Engine – Please see Briggs & Stratton manual for maintenance schedule**

9. "HOW-TO" MAINTENANCE

CAUTION

Make sure the engine is stopped before starting any maintenance, servicing or repair.

NOTE

It is recommended to use ear protection when performing operation, maintenance and repair of the generator set.

1. ENGINE OIL CHANGE (refer to engine manual for full details)

- a) Change engine oil every 100 hours. (For new engine, change oil after 20 hours).
- b) Drain oil by removing the drain plug and the oil filler cap while the engine is warm.
- c) Reinstall the drain plug and fill the engine with oil until it reaches the upper level on the oil filler cap.
- d) Use fresh and high-quality lubricating oil to the specified level as directed on page 6. If contaminated or deteriorated oil is used or the quantity of the engine oil is not sufficient, 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 causes damage and wears out the engine. Always keep the element clean.

- a) Remove the bolt of air cleaner cover.
- b) Remove the air cleaner cover and cleaner element.
- c) Urethane foam: wash urethane foam element in kerosene or diesel fuel. Then saturate the element in a mixture of 3 parts kerosene or diesel fuel and 1 part engine oil. Squeeze the element to remove the mixture and install it in the air cleaner.

NOTE

Instead of washing oil (kerosene), it is possible to wash the urethane foam element in a solution of mild detergent and warm water. Then rinse the element thoroughly in clean water. Allow the element to dry thoroughly. Soak the element in clean engine oil and squeeze out excess oil.

3. CLEANING AND ADJUSTING SPARK PLUG

- a) If the plug is contaminated with carbon, remove it and clean it with a plug cleaner or wire brush.
- b) Adjust the electrode gap to 0.6 to 0.7mm (Spark Plug: BR6HS)

4. CLEANING FUEL STRAINER

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

- a) Remove the strainer cup and clean out any 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. PERIODIC OPERATION AND INSPECTION

When generator is used as an emergency electrical power source, periodic operation and inspection is required to ensure machine will operate when needed.

Fuel (gasoline/diesel) and engine oil will deteriorate overtime, and this may cause the engine to be difficult to start and will result in improper engine operation and fault.

CAUTION

Since the fuel (gasoline/diesel) will have deteriorated overtime, replace with fresh fuel periodically, every (3) months is recommended.

- a) Check the fuel (gasoline/diesel), engine oil and air cleaner.
- b) Start engine.
- c) With appliances, such as lights activated, run the engine for over ten minutes.
- d) Check for the following:
 - Proper engine running.
 - Adequate output and the indicator lamp turned on properly.
 - The engine switch normally operated.
 - No leakage of engine oil and fuel.

11. TRANSPORTING

When transporting the generator, make sure that the fuel (gasoline/diesel) is drained from the tank.

WARNING

- To prevent fuel spillage due to the vibration and impact, never transport the generator with the fuel filled in the tank.
- Secure the tank cap thoroughly.
- To avoid the risk of the gasoline flammability, never leave the generator in an area exposed to direct sunlight or high temperatures for a long time.
- Keep the fuel in the exclusive gasoline/diesel storage tank made by steel when transporting.

- a) Turn the engine switch to the "STOP" position.
- b) Drain the fuel from the tank.
- c) Secure the tank cap.

CAUTION

- Do not place any heavy objects on the generator.
- Select and place the generator in the proper position of the transport vehicle so that the generator does not move or fall. Fix the generator with rope were necessary.

12. 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/diesel left in the fuel tank will eventually deteriorate making engine starting difficult.
- Remove the carburettor float chamber and drain the carburettor.
- 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.

13. TROUBLE SHOOTING

When generator engine fails to start after several attempts, or if no electricity is available at the output socket, check the following chart. If your generator still fails to start or generate electricity, contact your nearest SUBARU engine dealer or service agent for further information or corrective procedures. To locate your nearest service agent, go to www.crommelins.com.au.

When Engine Fails to Start:

Check if choke lever is in its proper position.	↔	Set the choke lever to "CLOSE" position.
Check if fuel valve is open.		If closed, open fuel valve.
Check fuel level.		If empty, refill fuel tank making sure not to overfill.
Check if engine switch if in OFF position.		Turn engine switch to "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.

NO Electricity Is Generated at Receptacle:

Check and reset the overload protection button on the front of the alternator	↔	The Overload Protection may have been tripped from excessive load. Check the load source.
Check to make sure AC circuit breaker is in the "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 AC circuit breaker to the "ON" position. If breakers continue to actuate, consult your nearest service agent.
Check AC receptacle and DC terminals for loose connection.		Carbon brushes are excessively worn.
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.
Low power.		Carbon brushes are excessively worn.

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