The illustration features a dark, grid-patterned sky with a crescent moon, several stars, and a planet with a ring. In the foreground, there is a large, dark silhouette of a tree. To the left of the tree is a tent with musical notes floating above it. To the right of the tree is a picnic table and a chair. Further to the right is a silhouette of a station wagon. In the top right corner, there is a logo for 'Robin' featuring a bird in flight within an oval.

Robin
Generator
R650

INSTRUCTIONS FOR USE
MANUEL D'UTILISATION
BEDIENUNGSANLEITUNG
GEBRUIKSAANWIJZING

CE1

3ZZ9990015

EC- DECLARATION OF CONFORMITY
EG-KONFORMITÄTSERKLÄRUNG
DÉCLARATION DE CONFORMITÉ "EC"
EU VERKLARING VAN CONFORMITEIT
DICHIARAZIONE DI CONFORMITÀ EC
ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ Ε.Ε.

DECLARACIÓN DE CONFORMIDAD DE LA CE
CE-DECLARAÇÃO DE CONFORMIDADE
EG-FÖRSÄKRAN OM ÖVERENSSTÄMMELE
EC-YHDENMUKAISUUSSELITYS
EC-KONFORMITETS DEKLARASJON
EU-DEKLARATION OM KONFORMITET

Manufacturer/ Hersteller Fabricant Fabrikant Costruttore Κατασκευαστής	Fabricante Fabricante Tililverkare Valmistaja Produsent Fabrikant	FUJI HEAVY INDUSTRIES LTD. 1-7-2, Nishishinjuku, Shinjuku-ku, Tokyo 160-9317 Japan
---	--	---

Name and address of the person who keeps the Technical Documentation Name und Anschrift der Person, die für technische Dokumentation verantwortlich ist Nom et adresse de la personne qui garde la Documentation Technique Naam en adres van de degene bij wie de Technische Documentatie berust Nome e indirizzo della persona che conserva la documentazione tecnica Όνομα και διεύθυνση υπευθύνου για τις Τεχνικές Τεκμηρίώσεις Nombre y dirección del encargado de la documentación técnica Nome e endereço do responsável pela conservação da Documentação Técnica Namn och adress gällande den juridiska person som förvarar den tekniska dokumentationen Sen tahon nimi ja osoite, jonka hallussa teknillinen dokumentaatio on Navn og adresse på personen som står for teknisk dokumentation Navn og adresse på den person, der opbevarer den tekniske dokumentation	FUJI HEAVY INDUSTRIES LTD Industrial Products Division Saitama Plant 4-410 Asahi, Kitamoto City, Saitama 365-8512 Japan K. Kato QA Assistant Manager.
---	---

Description of the equipment Beschreibung des Geräts Description de l'équipement Beschreibung van de apparatuur Descrizione dell'apparecchiatura Περιγραφή μηχανήματος	Description del equipo Descrição do equipamento Beskrivning av utrustningen Laitteen kuvaus Beskrivelse av utstyret Beskrivelse af udstyret
---	--

Product : Power Generator Produkt : Stromgenerator Product : Générateur d'énergie Product : Stroomgenerator Prodotto : Generatore di energia elettrica Προϊόν : Ηλεκτρογεννητήρια Producto : Grupo electrógeno Produto : Gerador de Força Produkt : Kraftgenerator Tuote : Sähkögeneraattori Produkt : Kraftgenerator Product : Stremgenerator	Trade name Handelsbezeichnung Marque déposée Handelsnaam Dénomination commerciale Εμπορικό Όνομα Nombre comercial Nome comercial Handelsnamn Kauppanimi Handelsnavn Handelsbetegnelse	ROBIN R650 ROBIN R1300 ROBIN RG12800 ROBIN RG4100 ROBIN RG5100 ROBIN RG17500	Start serial number Eerste Serienummer Numéro de série de démarrage Eerste serienummer Numero di serie iniziale Αρχικό αόζών αριθμός Número de serie inicial Número de serie inicial Start serienummer Käynnistysken sarjanumero Startserienummer Startlæbenummer:	:RG0060-1251770 :RG0130-1016500 :RGV290-1003065 :RGV410-1005473 :RGV610-1076404 :RGV750-1001365
---	--	---	---	--

The undersigned, F. Tachibana, representing the manufacture, herewith declares that the product in conformity with the provisions the following EC-directives;
 Der Unterzeichnende, F. Tachibana, den Hersteller repräsentierend, erklärt hiermit, daß das Produkt mit den Forderungen der folgenden EG-Amtsblattverfügungen übereinstimmt:
 Le soussigné, F. Tachibana, représentant le fabricant, déclare que le produit est en conformité avec les Directives EC suivantes:
 Ondergetekende, F. Tachibana, in zijn hoedanigheid als vertegenwoordiger van de fabrikant, verklaart hierbij dat het product voldoet aan de eisen zoals gedefinieerd in de volgende EU richtlijnen
 Il sottoscritto F. Tachibana, in rappresentanza del costruttore non il presente documento dichiara che il prodotto è conforme alle norme delle seguenti direttive EC:
 Ο υπογράφων, F. Tachibana, αντιπροσωπεύω του κατασκευαστή, μετά της παρούσης δηλώνω ότι το προϊόν αυτό ανταποκρίνεται με τους κανονισμούς των ακόλουθων οδηγιών της Ε.Ε.:\n
 EL firmante, F. Tachibana, representando al fabricante, declara que el producto conforma las provisiones de las siguientes normativas de la CE:
 O abaixo assinado, F. Tachibana, representando o fabricante, declara por meio desta que o produto está em conformidade com as disposições das seguintes diretivas de CE:
 Undertecknad, F. Tachibana, representerande tillverkaren, försäkrat härmed att produkten är i överensstämmelse med bestämmelserna i följande EG-direktiv:
 Ailekirjoittanut, F. Tachibana, joka edustaa tuottajaa, täten ilmoittaa, että tuote on yhdenmukainen seuraavien EC-direktiivien sopimusehtojen kanssa;
 Undertegnede og representant for produsenten, F. Tachibana, erklærer herved at produktet er i samsvar med bestemmelserne i følgende EC-direktiver;
 Undertegnede, F. Tachibana, der repræsenterer fabrikanten, erklærer hermed, at produktet er i overensstemmelse med de bestemmelser, der findes i følgende EU-direktiver:

References Zur Bezugnahme Références	Referentias Riferimentii Αναφορές	Referencias Referências	Vititeet Referanser Referencer
69/336/EEC, 93/68/EEC			
98/37/EC			
2000/14/EC	Notified body Benachrichtigte Stelle Organisme avisé In kennis gestelde autoriteit	Ente notificato Κοινωνιoγμένος οργαός Persona notificada Corpo notificado	Anmäitt organ Ilmoitettu runko Kunnigöringsorgan Anmeldt til fig. instans
			SNC-H 11, Route de Sanweiler 5230 Sandweiler Luxembourg
Measured Sound Power Level Gemessener Schalldruckpegel Niveau de puissance acoustique mesurée Gemeten geluidsdrukkniveau Livello di rumore misurato Μετρηθέν Ενintέδο ήχοος Ηχητικών Εκπομπών	Nivel de potencia sonora medido Nível de potência sonora medido Uppmätt bullernivå Mitattu äänivoimataso Målt lydeffektnivå Μάτi lydeffektnivå		R650 84.4 dB R1300 91.7 dB RGV2800 93.9 dB RGV4100 97.7 dB RGV6100 98.3 dB RGV7500 98.3 dB
Guaranteed Sound Power level: Garantierter Schalldruckpegel: Niveau de puissance acoustique garantie: Opgegeven geluidsdrnkkniveau: Livello di rumore garantito: Εγγυημένο Ενintέδο ήχοος Ηχητικών Εκπομπών:	Nivel de potencia sonora garantizado: Nível de potência sonora garantido: Garanterat bullernivå: Takuu äänivoimataso: Garantert lydeffektnivå: Garanteret lydeffektniveau:		R650 85 dB R1300 92 dB RGV2800 94 dB RGV4100 98 dB RGV6100 99 dB RGV7500 99 dB
Conformity Assessment Procedure Bewertungsverfahren zur Feststellung der Übereinstimmung Procédé d'évaluation de conformité Toetsprocedure conformiteit Procedura di valutazione di conformità Διαδικασία εκτίμησης αντιστοίχισης	Procedimiento de evaluación de conformidad Procedimento de avaliação da conformidade Procedur för bedömning av överensstämmelse Yhtenmukaustuen arviointimenetelmä Prosedure voor conformiteitsvurdering Procedura anwadi wed beoedemse al conformiteit		Annex VI procedure 1

Reference to harmonized standards: Verweis auf harmonisierte Normen: Référence aux normes harmonisées: Referentie aan geharmoniseerde standaarden: Riferimento alle normative armonizzate: Αναφορά στα εναρμονισμένα πρότυπα:	Referencia a normas relacionadas: Referência para harmonizar standards: Hänvisning till harmoniserade standarder: Lähdeviittimet standardien saamiseksi sovellettuun: Referanse til samstemmende standarder: Reference til harmoniseringsstandarder:	EN 292-1 EN 292-2
--	---	----------------------

Other national standards or specifications used:
 Andere angewandte nationale Normen oder Spezifikationen:
 Autres normes nationales ou spécifications utilisées:
 Overige gebruikte nationale standaarden of specificaties:
 Altre normative nazionali o specifiche impiegate:
 Άλλα κριτικά πρότυπα ή τεχνικές προδιαγραφές που χρησιμοποιούνται:
 Otras normas nacionales o especificaciones utilizadas:
 Outros padrões ou especificações nacionais utilizados:
 Övriga använda nationella standarder eller tekniska specifikationer:
 Muut käytetyt kansalliset standardit tai tekniset tiedot:
 Andre anvendte standarder eller specifikationer:
 Andre anvendte nationale standarder eller specifikationer:

Signature : *F. Tachibana*

Fusao Tachibana	Kitamoto	Date:	February 15, 2002	Quality Assurance Manager
Done at:	Kitamoto	Date:	15. Februar 2002	Manager für Qualitätssicherung
Ort:	Kitamoto	Date:	15. Février 2002	Directeur d'assurance de la qualité
Fait à	Kitamoto	Date:	15. februar 2002	Manager Kvalitetsbewaking
Localis:	Kitamoto	Preparato a:	15. Febrero 2002	Responsabile Assicurazione Qualità
Firma:	Kitamoto	Δημοσιονύθης:	15. februar 2002	Διευθυντής Εξασφαρισής Ποιότητας
Ημερομηνία:	Kitamoto	Fecha:	15. febrero, 2002	Encargado del seguro de calidad
Hecho en:	Kitamoto	Preparado em:	15. febrero 2002	Gerente de Garantia de Qualidade
Ort:	Kitamoto	Date:	15. februar 2002	Chief for kvalitetsbewaking
Alekirjoittajapääkka:	Kitamoto	Päivämäärä:	15.2.2002	Laatuvaltuutusvirkaalla
Uttet den:	Kitamoto	Dato:	15. februar 2002	Ansvaret for kvalitetsikking
Udst:	Kitamoto	Dato:	15. februar 2002	Chief for kvalitetsikking

FOREWORD

Thank you for purchasing this portable generator. This manual contains information and operating procedures necessary for the effective, economical and safe operation of the generator. Please take a moment to familiarize yourself with proper operation and maintenance in order to maximize the safe and efficient use of this product.


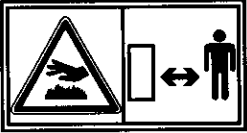





NOTE

● Due to a constant effort to improve the product and because of a continuous program of research and development, certain procedures, specifications and equipment are subject to change without notice.

















TABLE OF CONTENTS

1. SAFETY PRECAUTIONS	1
2. COMPONENT IDENTIFICATION	3
3. CONTROLS AND INDICATORS	5
4. PRE-OPERATION CHECKS	9
5. OPERATING PROCEDURES	12
6. PERIODIC MAINTENANCE	17
7. EASY CHECKING AND MAINTENANCE	19
8. PREPARATION FOR STORAGE	21
9. TROUBLESHOOTING	22
10. WATTAGE INFORMATION	23
11. SPECIFICATIONS	25
12. WIRING DIAGRAM	26

SYMBOLS

	<p><i>Read the operator's instruction manual.</i></p>
	<p><i>Stay clear of the hot surface.</i></p>
	<p><i>Exhaust gas is poisonous. Do not operate in an unventilated room.</i></p>
	<p><i>Stop the engine before refueling.</i></p>
	<p><i>Fire, open light and smoking prohibited.</i></p>
	<p><i>Caution, risk of electric shock.</i></p>
	<p><i>Do not connect the generator to the commercial power lines.</i></p>

SYMBOLS

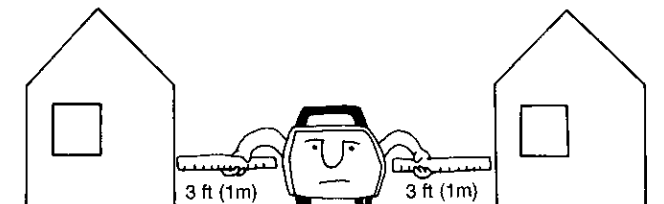
	<i>ON (power)</i>		<i>Protective earth (ground)</i>		
	<i>Off (power)</i>		<i>Fuse</i>		
	<i>Alternating current</i>		<i>Engine oil</i>		
	<i>Direct current</i>		<i>Battery charging condition</i>		
	<i>Plus ; positive polarity</i>		<i>Choke; cold starting aid</i>		
	<i>Minus ; negative polarity</i>		<i>Engine start</i>		
	<i>OUT-position of a bistable push control</i>		<i>Fast</i>		
	<i>IN-position of a bistable push control</i>		<i>Slow</i>		
P_r	<i>Rated power (kW)</i>	COP	<i>Continuous power</i>	$COS \Phi_r$	<i>Rated power factor</i>
f_r	<i>Rated frequency (Hz)</i>	U_r	<i>Rated voltage (V)</i>	I_r	<i>Rated current (A)</i>
H_{max}	<i>Maximum site altitude above sea-level (m)</i>	T_{max}	<i>Maximum ambient temperature (°C)</i>	m	<i>Mass (kg)</i>

1. SAFETY PRECAUTIONS

Please make sure you review each precaution carefully.

SURROUNDINGS

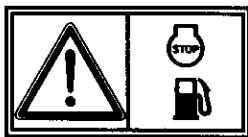
- Operate the generator on a stable, level surface free of small rocks, loose gravel, etc.
- Do not use around dry brush, twigs, cloth rags, or other flammable material.



- Keep generator at least 3 feet (1 meter) away from building or other structures.
- Keep generator away from flammables and other hazardous materials (trash, rags, lubricants, explosives).
- Keep children away from generator at a safe distance to protect them.
- Keep unit dry (do not operate in rainy conditions or near water).

FIRE PREVENTION

- Be sure to stop engine prior to refueling.
- Do not operate while smoking or near open flame.
- Do not overfill fuel tank.
- If spillage does occur, wipe away spilt fuel thoroughly and wait until fuel has dried before starting engine.
- When changing oil, make sure that fuel cap is secure to prevent spillage.



SHOCK PREVENTION

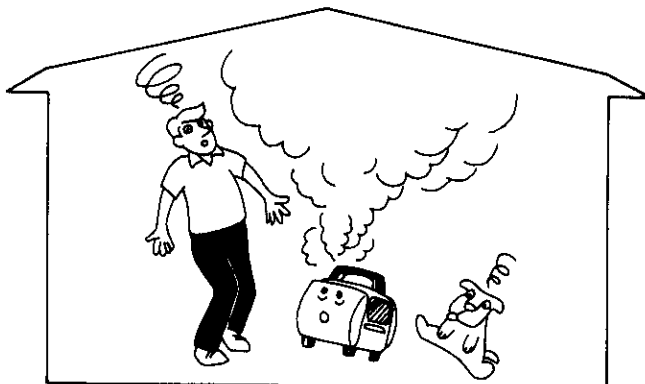
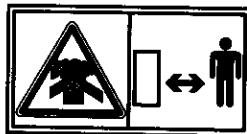
- Keep generator away from water.
- Do not use in the rain.
- Do not handle with wet hands.
- Do not clean parts with water (see "How-To" Maintenance for cleaning procedures).



1. SAFETY PRECAUTIONS

EXHAUST PRECAUTIONS

- Never inhale exhaust gasses ; they contain carbon monoxide, a colorless, odorless, extremely dangerous gas which can cause unconsciousness or death.
- Never operate generator indoors or in an enclosed area such as a garage or shed.
- Exercise extreme care when operating near people and domestic animals.
- Keep exhaust pipe free of foreign objects.



OTHER IMPORTANT POINTS

- Never connect the generator to a residential power source. This could result in a malfunction of the generator or appliance to which it is connected or could even lead to fire.
- If excessive noise, odor or vibration occurs, stop the engine immediately and contact your nearest service location.
- Do not move the generator while in operation.
- If extension cables or movable distribution networks are used, their total length, for a cross section of 1.5mm² may not exceed 60m, for a cross section of 2.5mm², not more than 100 m.

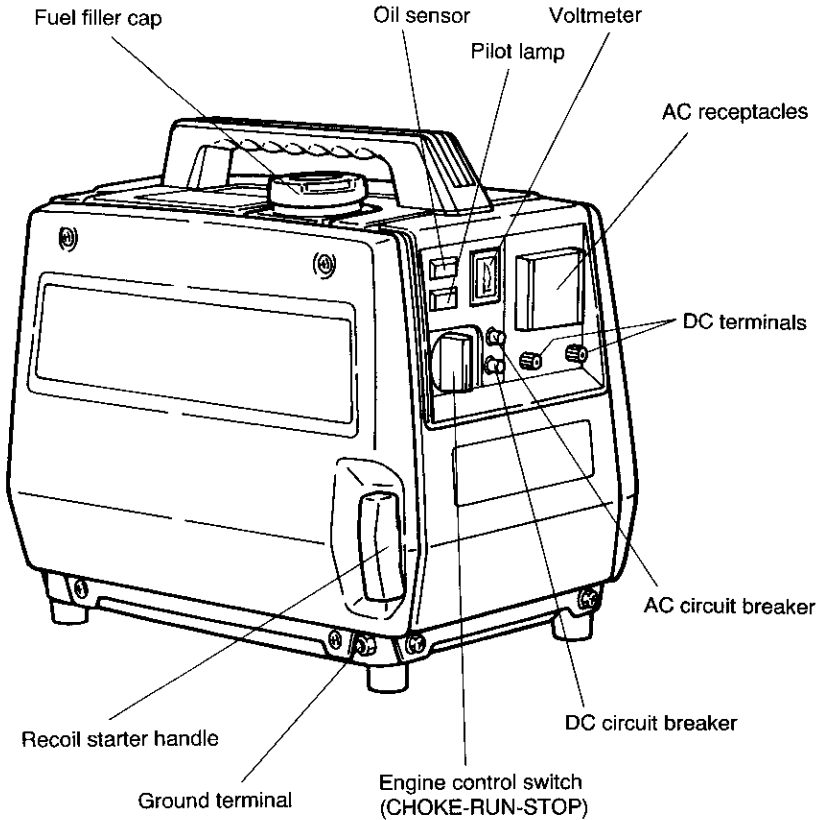


PERIODIC INSPECTION IS VITAL !

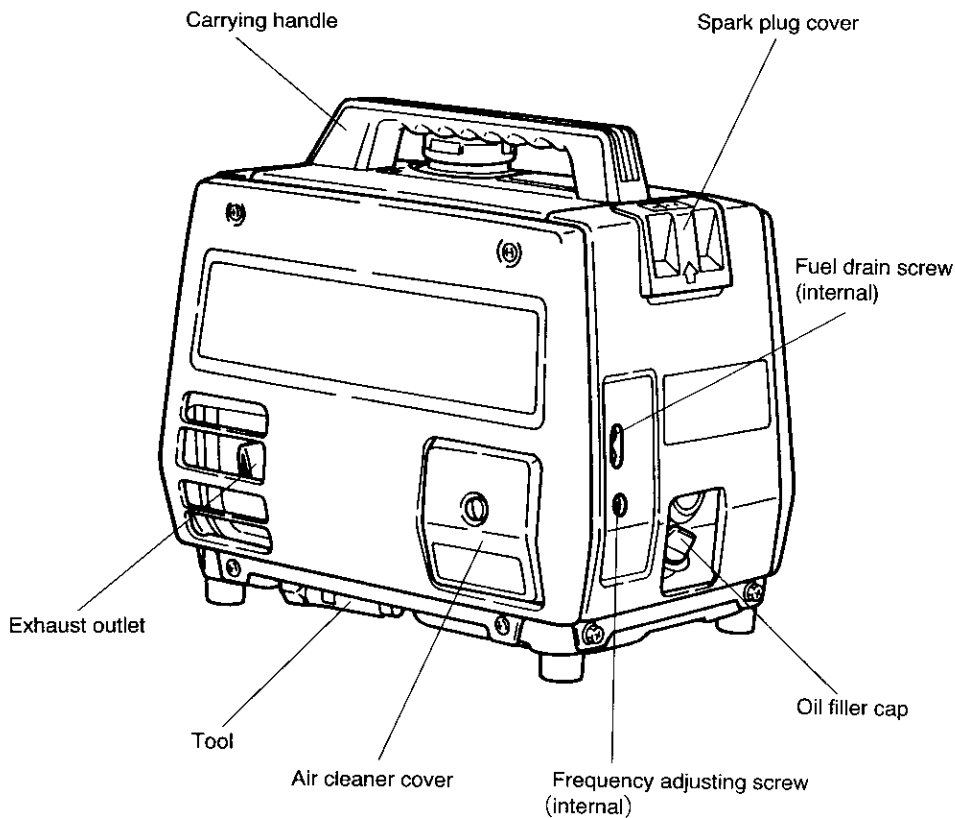
Before operation :

- Check engine oil and refill if necessary.
- Check fuel level and refill as necessary. Take care not to overfill tank.
- Check area surrounding generator.
- Disconnect any appliances connected to the generator prior to startup.
- Perform periodic maintenance as necessary.

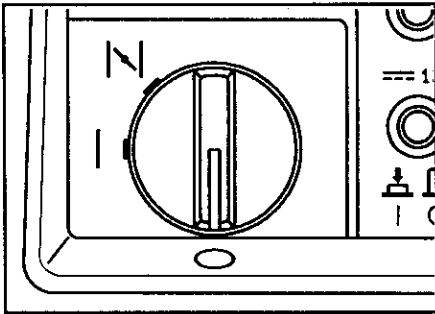
2. COMPONENT IDENTIFICATION



2. COMPONENT IDENTIFICATION



3. CONTROLS AND INDICATORS

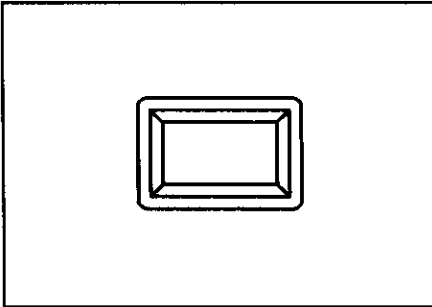


Engine control switch

- The fuel shut-off valve and choke valve are integrated with the engine switch so that the engine can be easily started.

It has the following three positions :

CHOKE	To start the engine, turn the knob to this position. (Choke valve will operate.)
RUN	Keep the knob in this position after the engine starts. (The engine can be started with the knob at this position when the engine is warm.)
STOP	To stop the engine, return the knob to this position. (Fuel shut-off valve will close.)

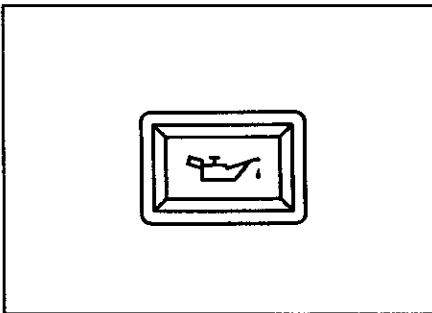


Pilot lamp

- Indicates the generator is in operation :
ON (green) ··· The generator is in operation.
OFF ······· The generator is not operating.

NOTE

When AC circuit breaker is off, pilot lamp also turns off.

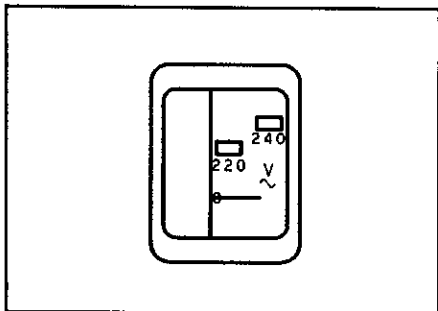


Oil sensor (OPTION)

When the level of the engine oil falls below the prescribed value, the alarm lamp lights up and the engine stops automatically. When the engine stops due to oil shortage, it can not be started anymore even by pulling the start knob (just the alarm lamp flickers). In such a case, replenish engine oil up to the mouth of the oil filling port.

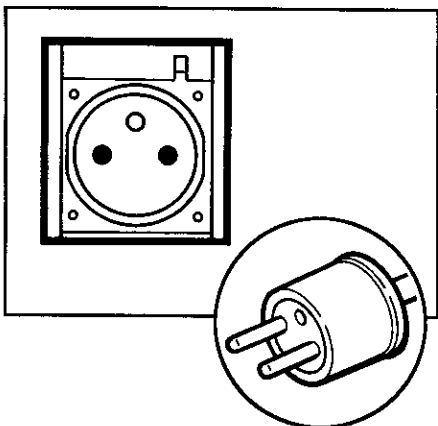
(Refer to page 9 for details about the oil replenishing procedure).

3. CONTROLS AND INDICATORS



Voltmeter

- Indicates the voltage of electric power being generated.

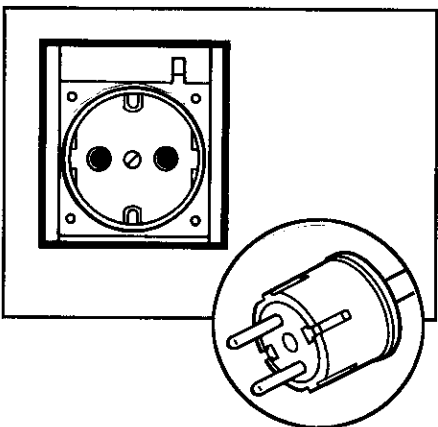


AC receptacle

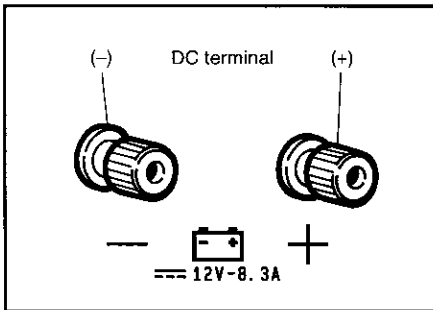
- AC electric power is available through this receptacle. Use a ground type, three-leg plug as shown.

⚠ CAUTION

- Do not plug more than two appliances into the generator at a time.
- Do not put foreign objects into the plug receptacle.

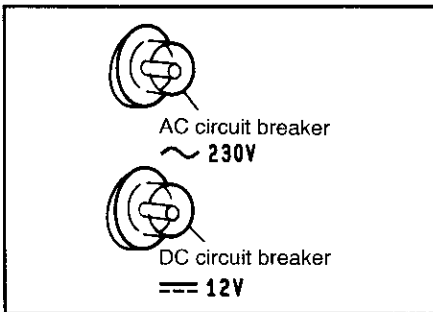


3. CONTROLS AND INDICATORS



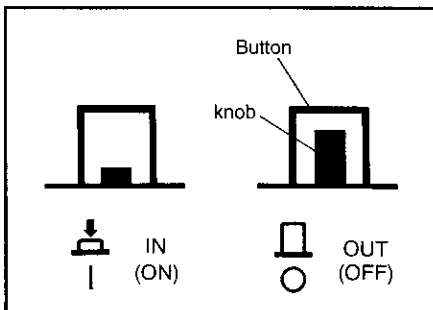
DC terminals

- DC electric power for battery charge is available.
Red is positive (+) terminal.
Black is negative (-) terminal.



AC circuit breaker DC circuit breaker

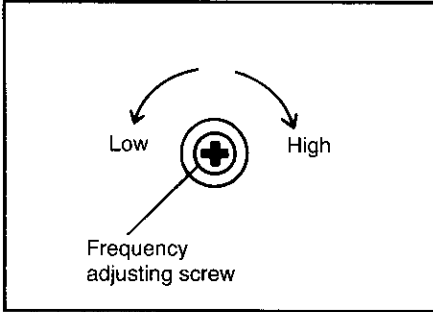
- Both AC and DC circuit breakers will cut off electric current when the current exceeds its limit or a malfunction occurs in the connected appliance.
Check for excessive current consumption or defects in the appliance. After making sure everything is in order, push the circuit breaker button IN and return the engine knob to the "RUN" position, restarting if necessary.



! CAUTION

- If circuit breaker continues to be activated, discontinue use and check generator and/or appliance for malfunction with their respective service representatives.
Never interfere with the operation of the circuit breaker knob or keep pushing it in the "ON" position.

3. CONTROLS AND INDICATORS

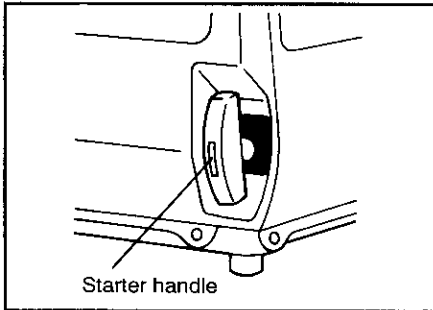


Frequency adjusting screw

- Frequency can be finely adjusted by turning the frequency adjusting screw with a Phillips screwdriver.

CAUTION

Usually, no adjustment is required because it comes properly adjusted when shipped.

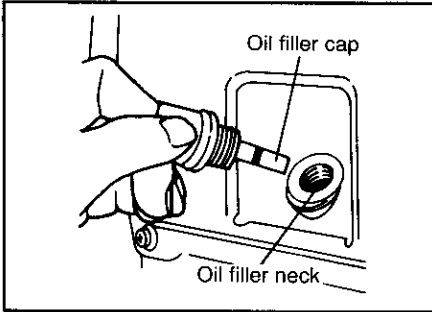


Starter handle

- This is a recoil starter handle, located on the lower front side of the generator.

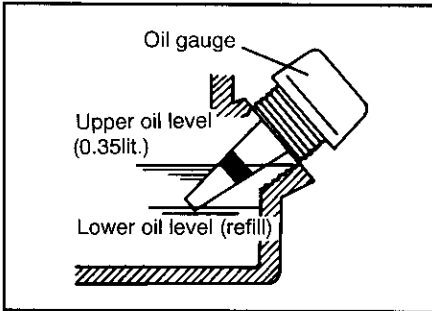
4. PRE-OPERATION CHECKS

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 (see table) to upper level line. Do not screw in the oil filler cap when checking oil level.
- Change oil if contaminated.
(Refer to "Easy CHECKING AND MAINTENANCE.")



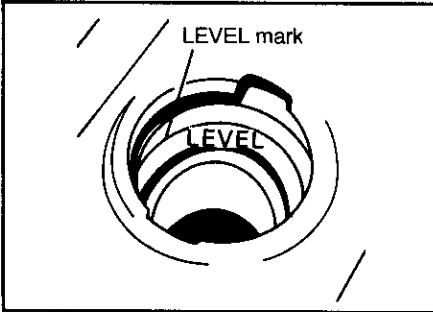
- Oil capacity 0.35 lit.

● Recommended engine oil :

Single grade	5W						
	10W						
	20W						
	# 20						
	# 30						
Multigrade	10W-30						
	10W-40						
Ambient temperature	-20	-10	0	10	20	30	40°C
	-4	14	32	50	68	86	104°F

Use class SC (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.

4. PRE-OPERATION CHECKS



Check engine fuel

WARNING

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

- Stop engine and open cap. Check to see if fuel level meets full level mark.
- Use unleaded gasoline only.
- Refill to full level mark. **DO NOT OVERFILL!**
Tank holds up to 0.53 gallons (2 liters) of gasoline.

Fuel tank capacity 2 lit.
(up to the specified level marked "LEVEL")

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 open flames away.

4. PRE-OPERATION CHECKS

Check generator surroundings.



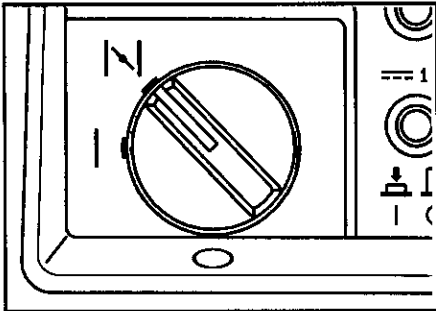
WARNING

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

- Keep area clear of inflammables or other hazardous materials.
- Keep generator at least 3 feet (1meter) away from buildings or other structures.
- Keep children away from generator at a safe distance to protect them.
- Only operate generator in a dry, well ventilated area.
- Keep exhaust pipe clear of foreign objects.
- Keep generator away from open flame. No smoking!
- Keep generator on a stable and level surface.
- Do not block generator air vents with paper or other material.

- Be sure to disconnect the appliance from the generator before starting. It is very dangerous to start the engine with the appliance on since the appliance may start suddenly.
Check to be sure that the switch of the appliance is turned off or its plug is disconnected from the receptacle.
- Generating sets may only be loaded up to their rated power under the standard ambient conditions. If generator use is under conditions which do not conform to the reference conditions as stipulated in their standard, and if the engine or alternator cooling is impaired, e.g. as a result of operation in restricted areas, a reduction in power is necessary.
If the generator is used in high temperature or high altitude, generator load must be reduced to accomodate with power drop of the engine.

5. OPERATING PROCEDURES

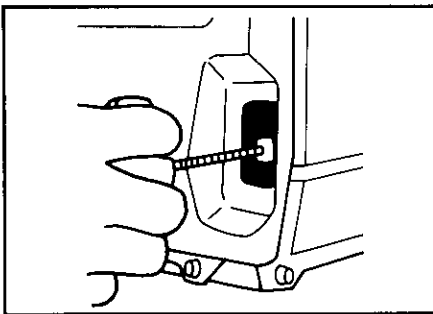


Starting the generator

- Check oil and fuel levels.
- Make sure the appliance is disconnected.
- Turn engine switch to "CHOKE" position.
(When engine is warm or temperature is high, start engine with the switch at "RUN" position.)

CAUTION

- Do not connect defective appliances including lines and plugs.
- Be sure appliances are not connected to generator when starting up. Starting the generator with an appliance connected could result in damage to the generator and/or appliance and in personal injury.

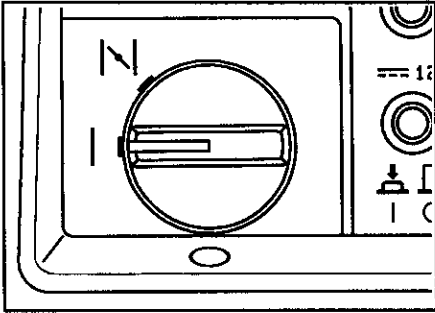


- Pull the starter handle slowly until passing the compression point (resistance will be felt), then return the handle to its original position and pull swiftly.
- After starting, allow the starter handle to return to its original position with the handle still in your hand.

NOTE

When engine fails to start after several attempts, repeat the starting procedures mentioned above with the engine switch placed at "RUN" position.

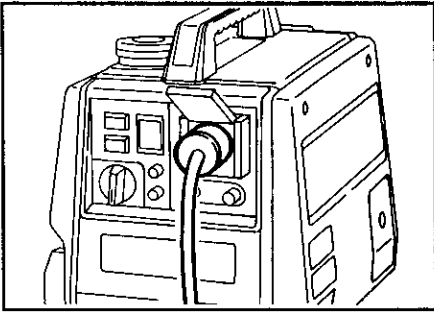
5. OPERATING PROCEDURES



- After 20 to 30 seconds of warm-up is completed, turn the engine switch to "RUN" position.
- Make sure the pilot light is on. This indicates that the generator is properly operating.

NOTE

When the pilot light does not work, push the AC circuit breaker button IN.



AC application

- Check the voltmeter to show proper voltage.
The generator is thoroughly adjusted and tested in the factory. If the generator does not produce the specified voltage, consult your nearest generator dealer.
- Check the electrical appliance to see if its switch is turned off, then connect the appliance to the generator by inserting the plug into the AC receptacle.

CAUTION

- Make sure the appliance is **TURND OFF** before connecting it to the generator.
- Do not move generator while in operation.

5. OPERATING PROCEDURES

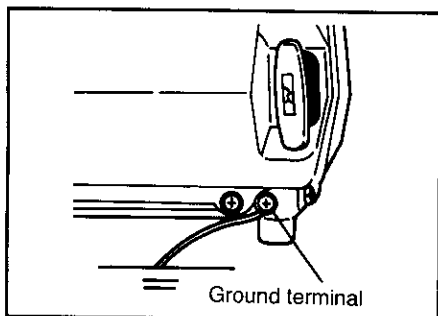
● AC applicable limit :

The following table shows the maximum wattage of various appliances which can be connected to the generator. Before connecting an appliance, make sure its wattage is within the range.

Electrical appliance	Applicable limit
	50Hz
Lamp, electrical heater, radio, stereo sets, etc.	up to 450W
Electric tools	up to about 350W

CAUTION

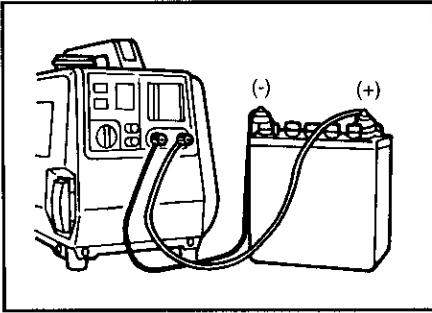
- When connecting two appliances at once, make sure the total wattage does not exceed capacity. Otherwise, the generator will not operate due to excessive wattage.
- Some power tools require a large starting current. Using an appliance that needs more starting current than available from the generator could result in a malfunction in one or both units. Refer to page 23, or consult your dealer to obtain the necessary information.
- When overloaded, the AC circuit breaker pops out to cut off the current. In such a case, make sure that the applied wattage of the appliance has not exceeded the wattage limit and that there are no defects in the appliance. Then push the circuit breaker button IN.



● Ground terminal :

- Connect ground wire to ground terminal.
- Use a ground spike for sure grounding.

5. OPERATING PROCEDURES



DC application (For charging 12V battery only)

- The DC terminal is used only for charging 12 volt batteries. It provides up to 12V-8.3A (100W) of maximum power.
- Connection of battery charging cables :
 - Positive (+) terminal (red) on generator to positive (+) terminal on battery.
 - Negative (-) terminal (black) on generator to negative (-) terminal on battery.
- Battery charging procedure :
 - Make the proper connection as mentioned above, be careful not to make a wrong connection. Be sure to disconnect all cables connected from battery to any other appliance.
 - Remove all plugs from top of battery.
 - Check electrolyte level and add distilled water if necessary, to bring the electrolyte level to the level marked "UPPER".
 - Turn the frequency changeover switch to 60Hz position (50/60Hz Type only). Push the DC circuit breaker button IN.
 - Start engine to charge battery.

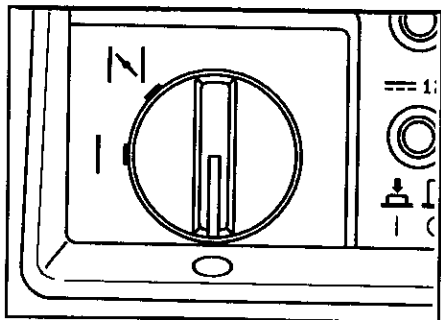
The charging period varies depending on the state of discharge. The specific gravity of a battery electrolyte indicates the state of charge in each battery cell. While charging battery, check the specific gravity with a hydrometer, using a thermometer to correct hydrometer reading for temperature. A corrected specific gravity reading of 1.26 to 1.28 in all cells indicates a fully charged battery.

EXAMPLE : In case of 12V-40Ah automobile battery, it takes 5 to 6 hours to bring a completely discharged battery up to a state of charge.

5. OPERATING PROCEDURES

SAFETY PRECAUTIONS WHILE CHARGING

- An explosive hydrogen gas is discharged through vent holes on the battery during the charging process. Do not allow spark or open flame around the generator or battery during the charging process.
- No smoking and open flame near a charging battery.
- Be sure to perform the battery charging operation in a well-ventilated area.
- Electrolyte fluid can burn eyes and clothing. Be extremely careful to avoid contact. If injured, wash the affected area immediately with large quantities of water, consulting a doctor for treatment.
- When charging a large capacity battery, excessive current may force the DC circuit breaker to the OFF position. In such cases, use the AC output to power a battery charger for charging large batteries.
- The generator can be used for both DC and AC applications at the same time. In this case, make sure that the total wattage of AC appliances does not exceed the limit of 250W (50Hz) or 350W (60Hz).



Stopping generator

Proceed as follows :

- Turn off electrical appliance switch and disconnect cable from receptacle.
- Turn engine switch to "STOP" position.

CAUTION

- Never leave an appliance plugged into the generator when you turn it OFF as damage could result to the generator and/or appliance.

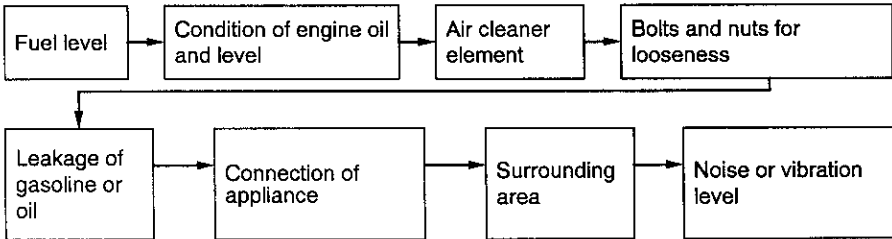
6. PERIODIC MAINTENANCE

Proper maintenance of the generator will allow reliable performance and reasonable maintenance cost. This section outlines a standard schedule for this purpose. This schedule should be adjusted as necessary to conform to the owner's conditions of use.

DO-IT-YOURSELF SERVICE

Checks before use

Be sure to check the following before operating the generator.



Easy maintenance

Every 50 hours

Wash cleaner element, clean spark plug.

Every 100 hours

Change oil.

Every 6 months (200 hours)

Adjust spark plug gap.

See page 19 for detailed information.

Draw up the most convenient schedule for conducting required checks on the basis of the maintenance schedule outlined on the next page.

PERIODIC MAINTENANCE

(UNDER NORMAL OPERATING CONDITIONS)

Every 6 months (200 hours)

Clean fuel filter.

Every 12 months (500 hours)

Replace spark plug and cleaner element, clean / adjust carburetor, cylinder head, valve clearance, valve seat and engine switch.

Every 24 months (1,000 hours)

Inspect control panel parts, rotor and stator.
Replace engine mount, overhaul.

1. Change the fuel lines if there is any leakage or after every two years regardless of usage.
2. Overhauling includes checking dimensions and adjusting or replacing component parts according to Repair Standards in the Service Manual.
It is recommended that the generator be overhauled every 2 years (1,000 hours).

6. PERIODIC MAINTENANCE

MAINTENANCE SCHEDULE

Do-it-yourself service

Item	Interval
Check and add engine oil	...refill as required
Clean air cleaner	Check before each use
Clean and retighten screws	
Wash cleaner element	Every 50 hours
Clean spark plug	Every 50 hours See page 18.
Change engine oil	Every 100 hours
Adjust spark plug gap	Every 6 months (200 hours)

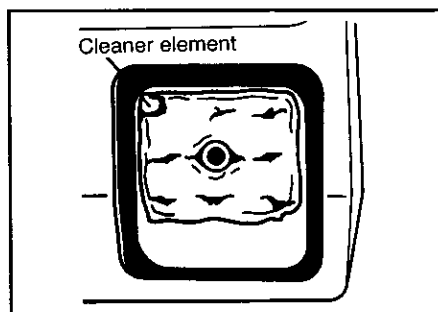
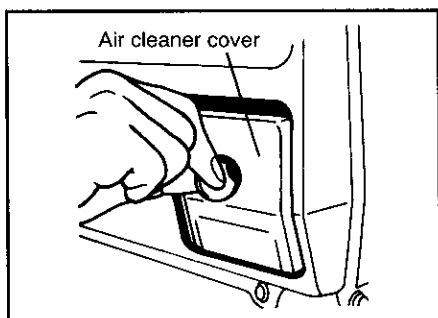
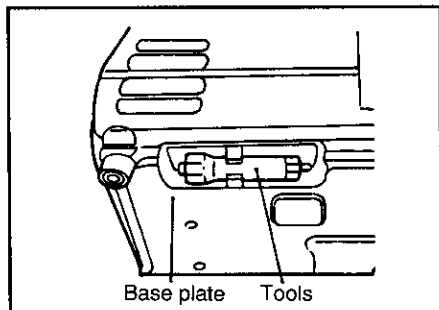
Periodic maintenance

Item	Every 6 months (200 hours)	Every 12 months (500 hours)	Every 24 months (1,000 hours)
Clean fuel filter	#		
Change spark plug		#	
Change cleaner element		#	
Clean carburetor*		#	
Remove carbon from cyl. head*		#	
Check and adjust valve clearance*		#	
Overhaul*			#
Check engine switch*		#	#
Check rotor*			#
Check stator*			#
Change engine mount*			#
Check control panel parts*			
AC receptacle			#
DC terminal			#
Circuit breaker			#
Pilot lamp			#
Voltmeter			#

* Recommended to be maintained by an authorized ROBIN service dealer.

If any part or component requires replacement, it must be replaced with the ROBIN genuine part.

7. EASY CHECKING AND MAINTENANCE



Attached tools

- The attached tools are placed in a base plate located at the bottom of generator.

CAUTION

Do not remove tools while in operation.

Air cleaner servicing

- If the air cleaner element is clogged, a decrease in generator output, erratic engine operation and/or excessive fuel consumption may result. Be sure to clean air cleaner periodically as follows:
Interval : Every 50 hours (clean every day or every 10 hours when operating extremely dusty conditions.)

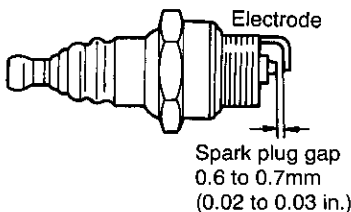
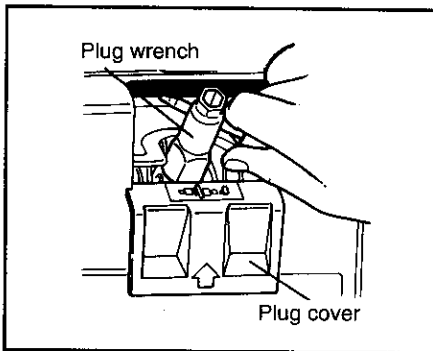
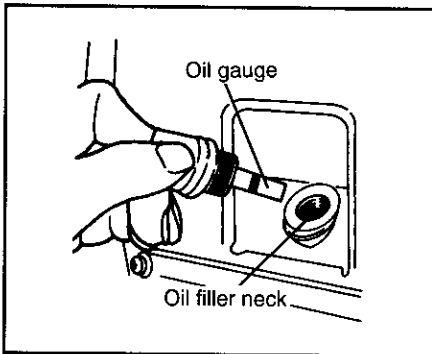
Cleaning procedure

- Using a coin, loosen screw securing air cleaner cover in place and remove cover.
- Remove element and clean with fresh cleaning solvent.
- After cleaning, soak element in a clean fuel mixture of 3 parts kerosene and 1 part engine oil, then squeeze out excess oil and reinstall.

CAUTION

- Clean air filter elements in a well ventilated area free from fire hazards or other flammables.
- When squeezing excess oil out of element, do not twist element, just grasp and squeeze it tightly.

7. EASY CHECKING AND MAINTENANCE



Engine oil change

- Servicing period:
 - Initial servicing: 20 hours after initial operation.
 - Regular servicing period : Every 100 hours.
- Recommended oil:
 - Class SC (API classification) oil or a higher grade of oil.

SAE10W-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.

⚠ CAUTION

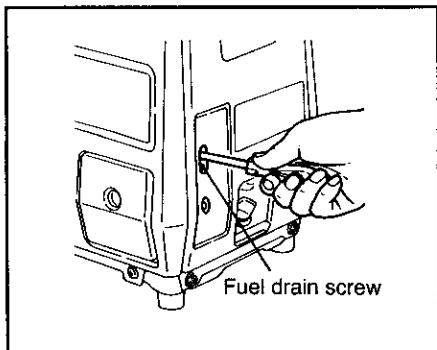
Make sure that gas cap is tightly secured to avoid spillage.

- Oil change procedure:
 - Remove oil filler cap and tilt generator body to assure rapid and complete draining. For more rapid and complete draining, perform while engine is still warm.
 - With generator placed on a level surface, refill with clean oil to level indicated at the top of filler neck.
 - Tighten oil filler cap securely.

Checking the spark plug

- Inspection and adjustment procedure:
 - Open spark plug cover. Remove plug cap and using a plug wrench, remove spark plug. Using plug cleaner or wire brush, clean plug electrode of burnt or deposited carbon.
 - Check for proper gap between electrodes. Adjust gap to 0.6 to 0.7 mm (0.02 to 0.03 in) by bending the side of electrode if necessary.
 - Recommended replacement plug type:
 - BMR4A (make : NGK).
 - RCJ8 (make : CHAMPPION).

8. PREPARATION FOR STORAGE



● The following procedure should be followed prior to storage of your generator for periods of 6 months or longer:

- Drain fuel tank carefully. Gasoline left in the fuel tank will eventually deteriorate making engine-starting difficult.

- Drain carburetor of gasoline, also.

- To drain fuel from carburetor and fuel tank, turn fuel drain screw counterclockwise. Turn the control switch to "RUN".

Do not remove drain screw.

After drain fuel, retighten fuel drain screw and turn the control switch to "STOP".

- Change engine oil.
- Check for loose bolts and screws, tightening them if necessary.
- Clean generator thoroughly (including air cleaner) with kerosene and fuel/oil mixture. Spray with preservative if available.
- Check to make sure engine switch is in "STOP" position.
- Pull starter handle until resistance is felt, leaving handle in that position.
- Store generator in a well ventilated, low humidity area.



CAUTION

- Extreme care must be taken when draining fuel tank. Never use water to clean generator.

9. TROUBLE-SHOOTING

When engine fails to start or if the engine turns but there is no electricity at the receptacles, perform the following checks.

When engine fails to start :

Check if engine switch is in its proper position.	→	Place engine switch to "CHOKE" position to start engine. ("RUN" position when starting a warm engine.)
Check fuel level.	→	If empty, refill fuel tank making sure not to overfill.
Check to make sure that the generator is not connected to an appliance.	→	If connected, turn off the power switch on the connected appliance or unplug.
Check spark plug for loose spark plug cap.	→	Be sure to push spark plug cap in place.
Check spark plug for contamination.	→	Remove spark plug and clean electrode.

When no electricity is generated at receptacle :

Check to make sure circuit breaker (AC or DC) is in the ON position (pushed "IN").	→	After making sure that the total wattage of the electrical appliance is within permissible limits and there are no defects in the electrical appliance, push AC or DC circuit breaker back into "ON" position. If breakers continue to actuate, consult your nearest servicing dealer.
Check AC receptacle and DC terminal for loose connections.	→	Secure connection, if necessary.
Check if engine starting was attempted with the electrical appliance connected to generator.	→	Turn off switch of the electrical appliance and disconnect plug from receptacle. Reconnect after generator has been started properly.

* If engine still does not start, contact your dealer for further information.

10. 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. See the chart on page 24 for appliances you might use with this generator.

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 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 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 its wattage for starting. For example the 550 watts generated could power a 200 to 440 watt electrical drill.
- Loads such as submersible pumps and air compressors require a very large force to start. They need 3 to 5 times the wattage needed to maintain the tool in order to start. For example, a 550 watt generator would only be able to drive a 100 to 180 watt pump.

NOTE :

The following wattage chart is a guideline 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 same. The voltage and amperage (amps) information can be found on a label which is normally attached to electrical appliances and tools.

10. WATTAGE INFORMATION

Appliance	Applicable wattage
	50Hz
Incandescent lamp, hot plate	up to 450W
Fluorescent lamp, Electric tool	up to about 350W
Mercury lamp	up to about 350W
Pump, compressor	up to about 150W

● Voltage drop in long electric extension cords.

When a long wire is used to connect an appliance with the generator, a certain amount of voltage drop occurs in the wire which lessens effective voltage available to the appliance.

The table 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.

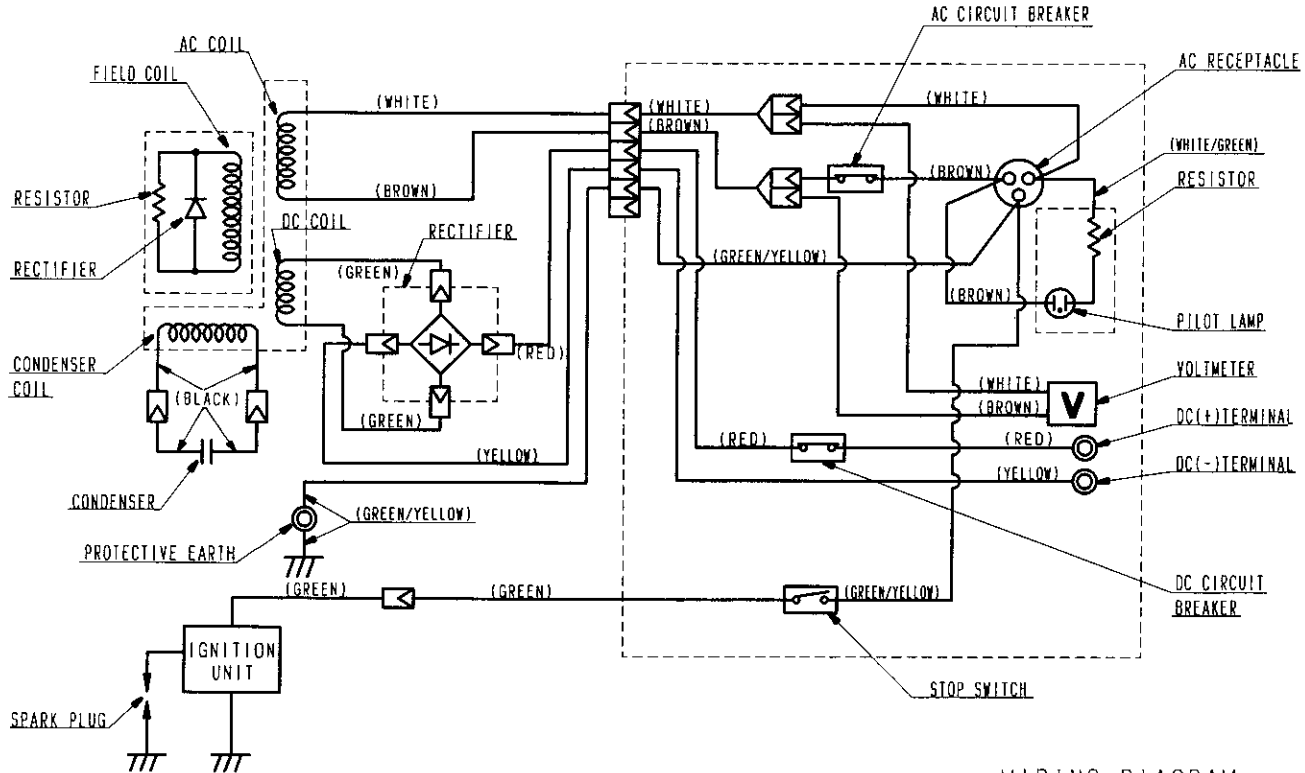
Sectional area mm ²	Allowable current A	No./Diam. wire element No./mm	Resistance Ohm/100m	Current							
				1A	3A	5A	8A	10A	12A	15A	
0.75	7	30/0.18	2.477	2.5V	8V	12.5V					
1.25	12	50/0.18	1.486	1.5V	5V	7.5V	12V	15V	18V		
2.0	17	37/0.26	0.952	1.0V	3V	5.0V	8V	10V	12V	15V	
3.5	23	45/0.32	0.517		1.5V	2.5V	4V	5V	6.5V	7.5V	
5.5	35	70/0.32	0.332		1V	2V	2.5V	3.5V	4V	5V	

11. SPECIFICATIONS

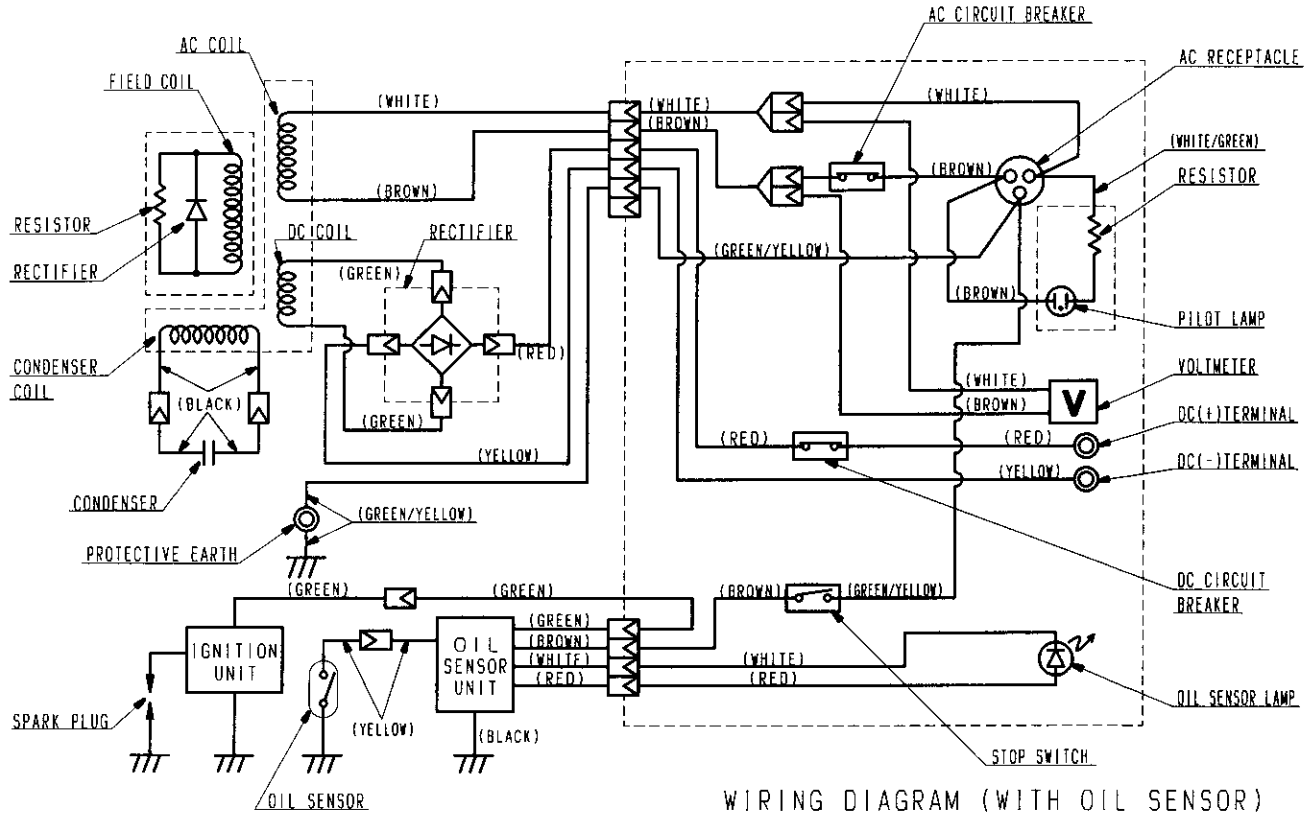
Engine	Type	Forced air-cooled, 4-stroke, side valve, gasoline engine
	Displacement	78 mL
	Fuel tank capacity	2 L
	Oil pan capacity	0.35 L
	Ignition system	Solid state ignition
	Starting system	Recoil starter
	Rated continuous operating hours	Approx. 3.4 hours
Generator	Type	2-pole revolving field type
	Exciting system	Self-exciting
	Voltage regulating system	Condenser type
	Rated power COP	0.45 kW
	Rated power factor	1.0
	Rated frequency	50 Hz
	Rated voltage	230 V
	Rated current	2.0 A
	DC output	12V-8.3A
	Over current protection	Circuit breaker
	Voltmeter	Standard
	Pilot lamp	Standard
	Oil sensor	Option
Maximum site altitude above sea-level	1000 m	
Maximum ambient temperature	40°C	
Dimensions (L × W × H)	370 × 265 × 345 mm	
Dry weight	18,5 kg	

The specifications are subject to change without notice.

12. WIRING DIAGRAM



WIRING DIAGRAM



12. WIRING DIAGRAM