0171953en	003
0709	

Mobile Generator

G 150
G 180
G 240

OPERATOR'S MANUAL

0171953EN

Foreword

Machine Documentation

- Keep a copy of the Operator's Manual with the machine at all times.
- Use the separate Parts Book supplied with the machine to order replacement parts.
- If you are missing either of these documents, please contact Wacker Neuson Corporation to order a replacement or visit www.wackerneuson.com.
- Contact Wacker Neuson Product Support for information on servicing and repairing the machine.
- When ordering parts or requesting service information, be prepared to provide the machine model number, item number, revision number, and serial number.

Expectations for information in this manual

- This manual provides information and procedures to safely operate and maintain the above Wacker Neuson model(s). For your own safety and to reduce the risk of injury, carefully read, understand, and observe all instructions described in this manual.
- Wacker Neuson Corporation expressly reserves the right to make technical modifications, even without notice, which improve the performance or safety standards of its machines.
- The information contained in this manual is based on machines manufactured up until the time of publication. Wacker Neuson Corporation reserves the right to change any portion of this information without notice.

Copyright notice

CALIFORNIA Proposition 65 Warning:

Diesel engine exhaust, some of its constituents, and certain vehicle components, contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Laws pertaining to spark arresters

NOTICE: State Health Safety Codes and Public Resources Codes specify that in certain locations spark arresters be used on internal combustion engines that use hydrocarbon fuels. A spark arrester is a device designed to prevent accidental discharge of sparks or flames from the engine exhaust. Spark arresters are qualified and rated by the United States Forest Service for this purpose. In order to comply with local laws regarding spark arresters, consult the engine distributor or the local Health and Safety Administrator.

Trademarks

All trademarks referenced in this manual are the property of their respective owners.

1 Safety Information

1.1 Signal Words Found in this Manual

This is the safety alert symbol. It is used to alert you to potential personal hazards.
- ▶ Obey all safety messages that follow this symbol.

DANGER
DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
- ▶ Obey all safety messages that follow this symbol to avoid injury or death.

WARNING
WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- ▶ Obey all safety messages that follow this symbol to avoid possible injury or death.

CAUTION
CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- ▶ Obey all safety messages that follow this symbol to avoid possible minor or moderate injury.

NOTICE: Used without the safety alert symbol, NOTICE indicates a situation which, if not avoided, could result in property damage.

Note: *Contains additional information important to a procedure.*

1.2 Safety Guidelines for Operating the Machine

WARNING
Machines operated improperly or by untrained personnel can be hazardous.
- ▶ Read the operating instructions contained in both this Operator's Manual and the engine operator's manual.
- ▶ Familiarize yourself with the location and proper use of all controls.
- ▶ Inexperienced operators should receive instruction from someone familiar with the machine before being allowed to operate it.

Before starting the machine

Before starting this machine:
- Have a certified electrician set up the generator set. Do not allow untrained personnel to operate or service the generator.
- Make a walk-around inspection of the generator set before starting it. Open side doors and visually inspect engine compartment for obvious damage or the presence of foreign objects which might affect operation.
- Follow starting and stopping instructions described in this manual. Know how to operate and stop the generator before starting it.
- Do not start a machine in need of repair.
- Make sure the machine is on a firm, level surface and will not tip, roll, slide, or fall while operating.
- Remove all tools, cords, and other loose items from the generator before starting it.

Electrical safety

To increase electrical safety while operating this machine:
- Do not operate the generator, or tools attached to the generator, with wet hands.
- Do not use worn electrical cords. Severe electrical shock and equipment damage may result.
- Do not operate generator in standing water.
- Make certain the machine is well-grounded and securely fastened to a good earthen ground per national and local regulations.
- Do not overload the generator. The total amperage of the tools and equipment attached to the generator must not exceed the load rating of the generator.

WARNING
Backfeed from the generator into the public power distribution system can seriously injure or kill utility workers!
- ▶ Improper connection of generator to a building's electrical system can allow electrical current from the generator to backfeed into utility lines. This may result in electrocution of utility workers, fire, or explosion.
- ▶ Connections to a building's electrical system must be made by a qualified electrician and comply with all applicable laws and electrical codes.
- ▶ If connected to a building's electrical system, the generator must meet the power, voltage, and frequency requirements of the equipment in the building.

Operating safety

To increase operating safety while running this machine:

- Do not operate the generator when open containers of fuel, paint, or other flammable liquids are in the vicinity of the generator.
- Do not place flammable material or liquids near the generator.
- Do not operate the machine indoors unless exhaust fumes can be adequately ventilated.
- Do not touch the hot engine, exhaust, or generator components. Burns will result.
- Do not use the emergency stop button except in case of an actual emergency. Do not restart the engine until the cause of the trouble has been determined and fixed.

Always do the following:

- Wear hearing protection when operating equipment.
- Keep the machine at least one meter (three feet) away from structures, buildings, and other equipment during use.
- Keep the area immediately surrounding and underneath the machine clean, neat, and free of debris and combustible materials. Make sure that the area overhead is clear of debris that could fall onto or into the machine or exhaust compartment.

Storing the machine

Store the machine properly when it is not being used. The machine should be stored in a clean, dry location out of the reach of children.

1.3 Operator Safety While Using Internal Combustion Engines

WARNING
Internal combustion engines present special hazards during operation and fueling. Failure to follow the warnings and safety standards could result in severe injury or death.

▶ Read and follow the warning instructions in the engine owner's manual and the safety guidelines below.

1. Do not run engine indoors or in an area with poor ventilation unless exhaust hoses are used.
2. Do not fill or drain the fuel tank near an open flame, while smoking, or while the engine is running.
3. Do not refuel a hot or running engine.
4. Refill the fuel tank in a well-ventilated area.
5. Do not touch or lean against hot exhaust pipes.
6. Replace the fuel tank cap after refueling.
7. Do not start the engine if fuel has spilled or a fuel odor is present. Move the generator away from the spill and wipe the generator dry before starting.
8. Do not remove the radiator cap when the engine is running or hot. The radiator fluid is hot and under pressure and may cause severe burns!

1.4 Towing Safety

WARNING
Towing a large trailer requires special care. To reduce the possibility of an accident:
- ▶ Both the trailer and vehicle must be in good condition.
- ▶ The trailer and the vehicle must be securely fastened to each other.

Hitch and coupling

Before towing, follow the instructions below to ensure that the hitch and coupling are ready for use.

- Check that the hitch and coupling on the vehicle are rated equal to, or greater than, the trailer's Gross Vehicle Weight Rating (GVWR).
- Inspect the hitch and coupling for wear or damage. DO NOT tow the trailer using defective parts.
- Make sure the coupling is securely fastened to the vehicle.
- Connect the safety chains.
- Connect the breakaway cable safety hook to the bumper or rear of the vehicle. Do not attach to the vehicle hitch.

Tires and wheels

Before towing, follow the instructions below to ensure that the tires and wheels are ready for use.

- Check the tires on the trailer for tread wear, inflation, and condition. Replace worn tires.
- Check that the lug nuts holding the wheels are tight and that none are missing.

Brakes and lights

Before towing, follow the instructions below to ensure that the brakes and lights are ready for use.

- Test the surge brakes on the trailer.
- Test the brakes on the vehicle that will be used for towing.
- Make sure directional and trailer lights are connected and working properly.

1.5 Guidelines for Service Safety

WARNING
A poorly maintained machine can be a personal injury hazard.
- ▶ Follow the Periodic Maintenance schedule in this Operator’s Manual.
- ▶ Repair or replace any damaged or defective components immediately.

Prerequisites

Before servicing this machine:

- Stop the engine.
- If the engine has an electric starter, isconnect the negative terminal on the battery.
- Attach a “DO NOT START” sign to the machine. This will notify everyone that the machine is being serviced and will reduce the chance of someone inadvertently trying to start the machine.

Ground connection

- The generator must be connected to a good earthen ground for proper operating safety!
- Ground the generator in accordance with the standards defined in national, state, and local regulations.

Personal injury avoidance

- Let the engine and muffler cool before transporting or servicing the machine.
- Do not service the machine if your clothing or skin is wet.
- Do not allow untrained personnel to service this machine. Only trained electrical technicians should be allowed to service the electrical components of this machine.

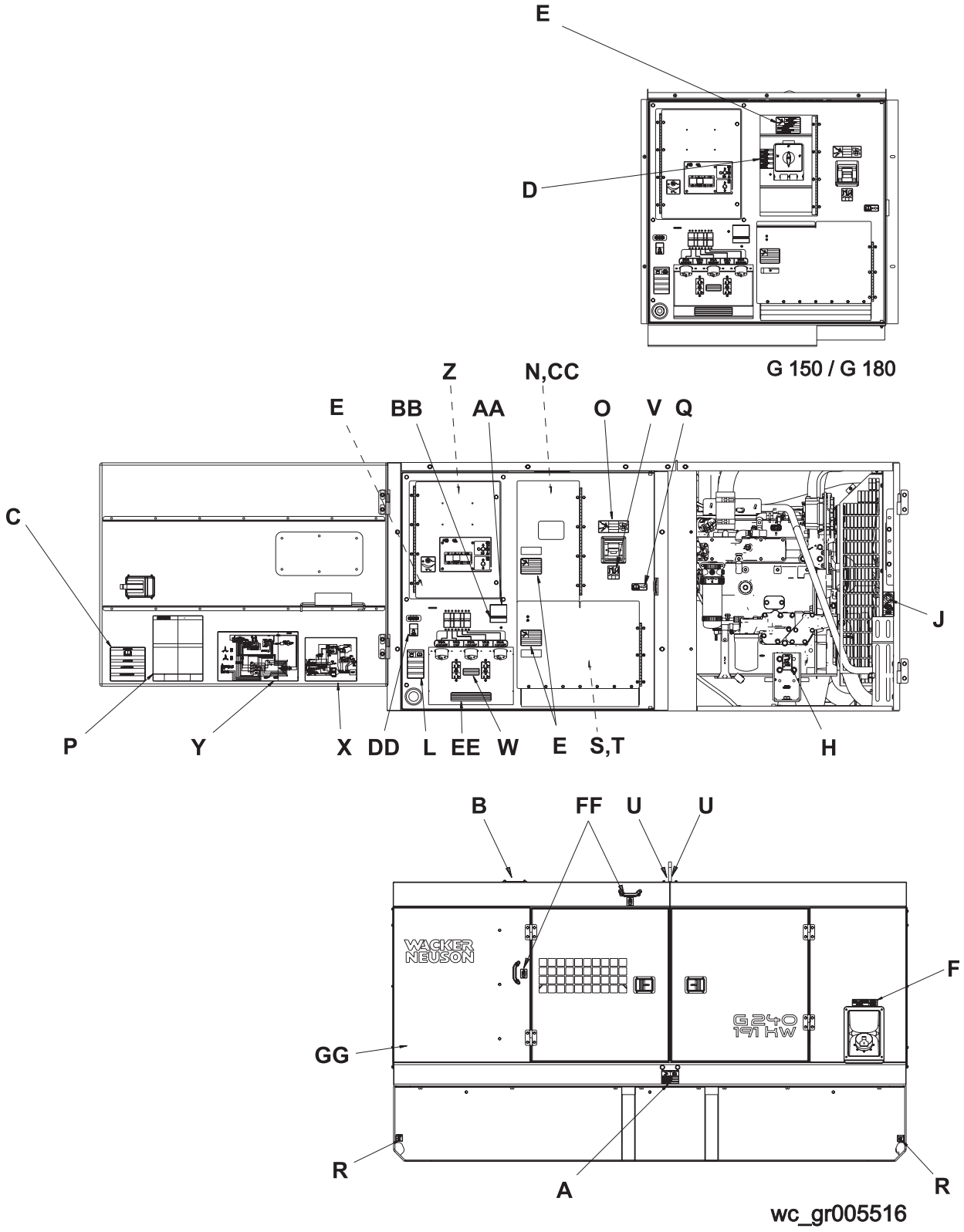
Service safety

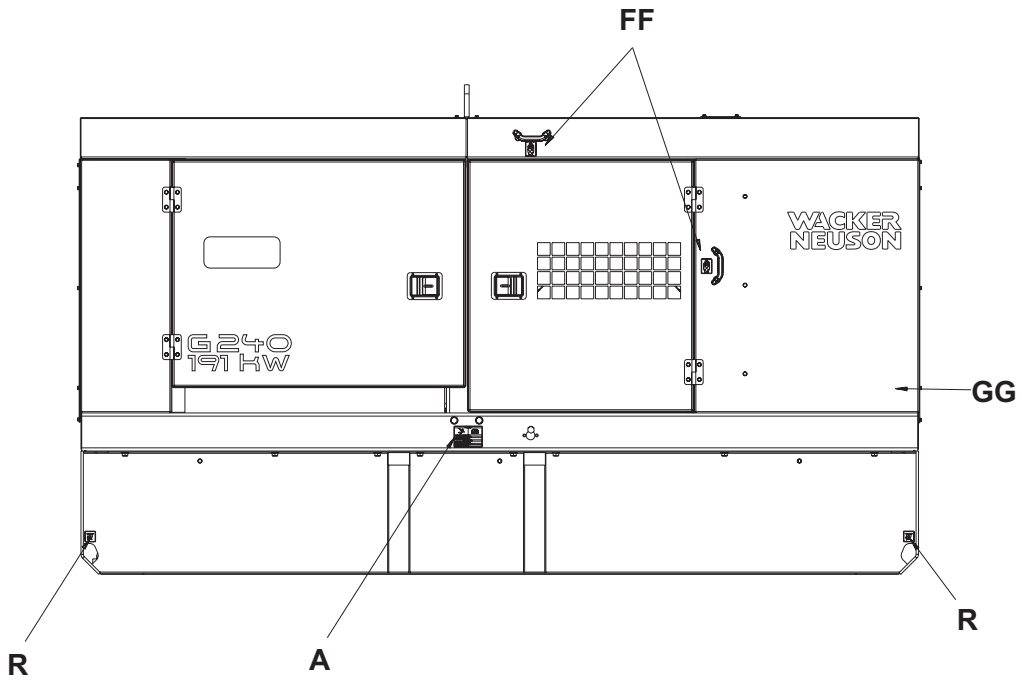
- Do not modify the machine without the express written approval of the manufacturer.
- Do not allow water to accumulate around the base of the machine. If water is present, move the machine and allow the machine to dry before servicing.
- When cleaning the unit, do not pressure wash the control panel or any other electrical components.

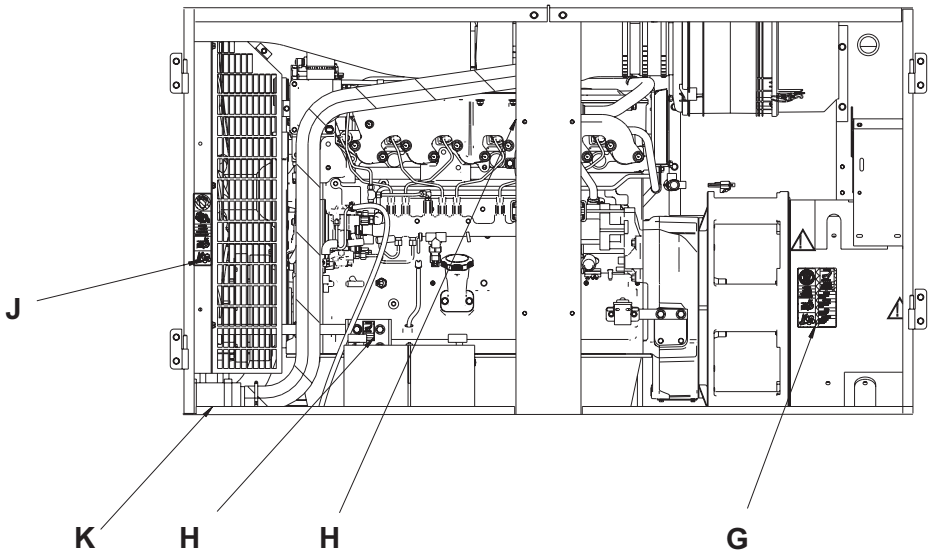
Replacing parts and labels

- Replace worn or damaged components.
- Use only spare parts recommended by Wacker Neuson.
- Keep the fuel lines in serviceable condition. Leaking fuel and flames are extremely explosive!
- Replace all missing and hard-to-read labels. Labels provide important operating instructions and warn of dangers and hazards.
- Check all external fasteners at regular intervals.

1.6 Label Locations







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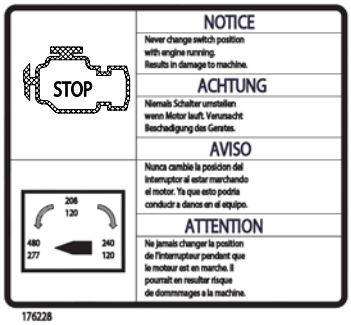
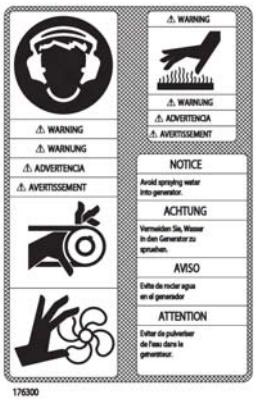
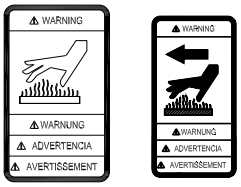
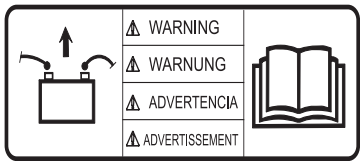
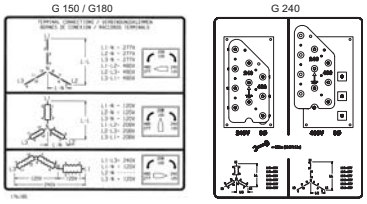
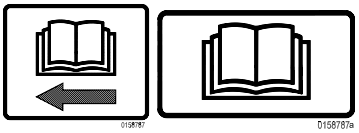
1.7 Safety and Warning Labels

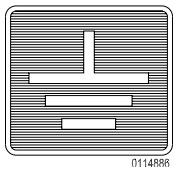
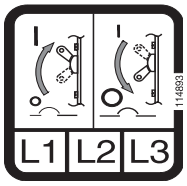
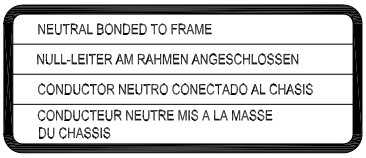
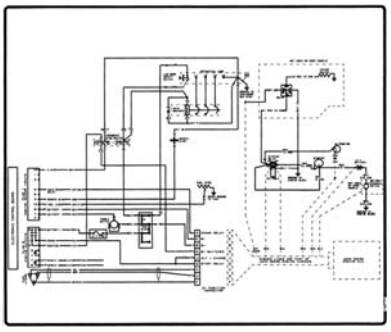
Ref.	Label	Definition
A		WARNING! Lock doors. Access can cause electric shock, arc flash, or injury.
B		WARNING! Pressurized contents. Do not open when hot!
C		WARNING! Read and understand the supplied Operator's Manual before operating the machine. Failure to do so increases the risk of injury to yourself or others.
D		NOTICE Never change switch position with engine running. Results in damage to machine.
E		WARNING! Electric shock and arc flash can cause serious injury or death.

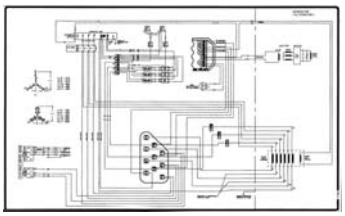
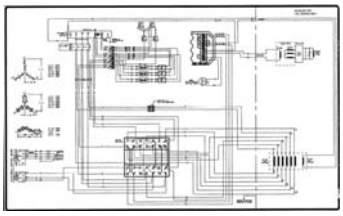
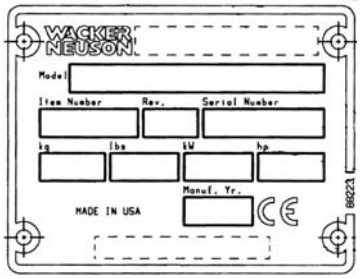
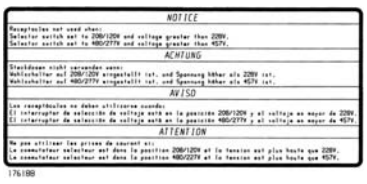
Ref.	Label	Definition
F		DANGER! Asphyxiation hazard. Read the Operator's Manual for instructions. No sparks, flames, or burning objects near machine. Stop the engine before adding fuel. Use only diesel fuel.
G		WARNING! To prevent hearing loss, wear hearing protection. Hand injury if entangled in moving belt. Rotating machinery! Do not reach inside with engine running. WARNING! Hot surface! NOTICE Avoid spraying water into generator.
H		WARNING! Hot surface!
J		WARNING! To prevent hearing loss, wear hearing protection when operating the machine. WARNING! Pressurized contents. Do not open when hot! WARNING! Hand injury if entangled in moving belt. WARNING! Rotating machinery! Do not reach inside machine with engine running.
K		WARNING! Disconnect battery before servicing. Read the Operator's Manual.

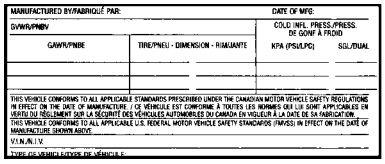
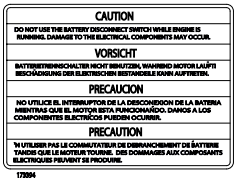
Ref.	Label	Definition
L		WARNING! Generator can automatically start which can cause serious injury. Disconnect battery before servicing.
O		DANGER! Electric shock will cause serious injury or death. Danger of asphyxiation!
S		WARNING Stop engine. Electrical hazard. Read Operator's Manual.
Z		WARNING Electric shock at cooling fins.
CC		Stop engine.

1.8 Informational Labels

Ref.	Label	Definition
N		Voltage selector label
P	OPERATING INSTRUCTIONS FOR MOBILE GENERATORS BEFORE STARTING 1. READ OPERATOR'S MANUAL. 2. LEVEL UNIT. 3. BLOCK WHEELS. 4. GROUND UNIT. 5. CHECK ALL FLUID LEVELS. MANUAL STARTING 1. DISCONNECT ALL EXTERNAL LOADS. 2. SET VOLTAGE SELECTOR SWITCH. 3. LOCK VOLTAGE SELECTOR SWITCH. (•2 & •3 NOT INCLUDED ON G12) 4. TURN EMERGENCY STOP BUTTON TO "ON" POSITION. 5. PUSH ENGINE START SWITCH TO "START/RUN" POSITION. 6. ENGINE WILL MAKE 3 ATTEMPTS TO START. REMOTE START 1. SEE OPERATOR'S MANUAL. STOPPING 1. DISCONNECT ALL EXTERNAL LOADS. 2. PUSH ENGINE START SWITCH TO "OFF" POSITION. 3. FILL FUEL TANK. BETRIEBSANLEITUNG FÜR MOBILEAGGREGATE VOR DEM STARTEN 1. BETRIEBSVORSCHRIFT LESEN. 2. GERÄT WAAGRECHT STELLEN. 3. RÄDER BLOCKIEREN. 4. GERÄT ERDEN. 5. STAND ALLER FLÜSSIGKEITEN PRÜFEN. HANDSTARTEN 1. ALLE ÄUSSEREN BELASTUNGEN ABSCHALTEN. 2. SPANNUNGSWAHLSCHALTER SETZEN. 3. SPANNUNGSWAHLSCHALTER VERRIEGELN. (•2 & •3 NICHT EINGESCHLOSSEN MIT G12) 4. NOTSTOPKNOPF IN "ON" POSITION SETZEN. 5. MOTORSTARTSCHALTER AUF POSITION "START/LAUF" DRÜCKEN. 6. MOTOR VOLLZIEHT 3 STARTVERSUCHE. FERNSTART 1. SIEHE BETRIEBSVORSCHRIFT. ABSCHALTEN 1. ALLE ÄUSSEREN BELASTUNGEN ABSCHALTEN. 2. MOTORSTARTSCHALTER AUF POSITION "OFF" DRÜCKEN. 3. KRAFTSTOFFTANK FÜLLEN. INSTRUCCIONES PARA LA PUESTA EN MARCHA DE GENERADORES MOVILES ANTES DEL ARRANQUE 1. LEA EL MANUAL DEL OPERARIO. 2. NIVELE LA UNIDAD. 3. COLOQUE CUÑAS DEBAJO DE LAS RUEDAS. 4. CONECTE LA UNIDAD A TIERRA. 5. CONTROLE TODOS LOS LIQUIDOS. ARRANQUE MANUAL 1. DESCONECTE TODAS LAS CARGAS EXTERNAS. 2. AJUSTE LA LLAVE SELECTORA DE VOLTAJE. 3. BLOQUEE LA LLAVE SELECTORA DE VOLTAJE. (•2 & •3 NO ESTA INCLUIDO CON G12) 4. GIRE A LA POSICION "ON" EL BOTON DE PARADA DE EMERGENCIA. 5. OPRIMA A LA POSICION "ARRANQUE/MARCHA" EL INTERRUPTOR DE ARRANQUE DEL MOTOR. 6. EL MOTOR INTENTARA ARRANCAR 3 VECES. ARRANQUE REMOTO 1. VEA EL MANUAL DEL OPERARIO. DETENCION DEL MOTOR 1. DESCONECTE TODAS LAS CARGAS EXTERNAS. 2. OPRIMA A LA POSICION "OFF" EL INTERRUPTOR DE ARRANQUE DEL MOTOR. 3. LLENE EL TANQUE DE COMBUSTIBLE. INSTRUCTIONS D'OPERATION DU GENERATEUR MOBILE AVANT LE DEMARRAGE 1. LIRE LA NOTICE D'EMPLOI. 2. NIVELER LA MACHINE. 3. BLOQUER LES ROUES AVEC CALES DE ROUES. 4. METTRE A TERRE LA MACHINE. 5. VERIFIER LE NIVEAU DE TOUS LES FLUIDES. DEMARRAGE A LA MAIN 1. DECONNECTER TOUS LES REGIMES EXTERNES. 2. REGLER LE COMMUTATEUR DES TENSIONS D'ALIMENTATION. 3. SERRER LE COMMUTATEUR DES TENSIONS D'ALIMENTATION. (•2 & •3 PAS COMPRIS AVEC G12) 4. TOURNER LE BOUTON D'ARRET D'URGENCE A LA POSITION "ON". 5. PRESSER L'INTERRUPTEUR DE DEMARRAGE DU MOTEUR A LA POSITION "DEMARRAGE/MARCHE". 6. LE MOTEUR S'ESSAYERA DE DEMARRER 3 FOIS. DEMARRAGE A DISTANCE 1. LIRE LA NOTICE D'EMPLOI. ARRET 1 DECONNECTER TOUS LES REGIMES EXTERNES. 2. PRESSER L'INTERRUPTEUR DE DEMARRAGE DU MOTEUR A LA POSTION "OFF". 3. REMPLIR LE RESERVOIR A CARBURANT. OPERATOR'S MANUAL MUST BE STORED ON MACHINE. REPLACEMENT OPERATOR'S MANUAL CAN BE ORDERED THROUGH YOUR LOCAL WACKER DISTRIBUTOR. DIE BETRIEBSVORSCHRIFT MUSS AN DER MASCHINE AUFBEWAHRT WERDEN. ZUR BESTELLUNG VON ERSATZBÜCHERN WENDEN SIE SICH BITTE AN IHREN ÖRTLICHEN WACKER HÄNDLER. EL MANUAL DE OPERACION DEBE SER RETENIDO EN LA MAQUINA. CONTACTE A SU DISTRIBUIDOR WACKER MAS CERCANO PARA PEDIR UN EJEMPLAR ADICIONAL. LA NOTICE D'EMPLOI DOIT ETRE MUNIE SUR LA MACHINE. CONTACTER LE DISTRIBUTEUR WACKER LE PLUS PROCHE POUR COMMANDER UN EXEMPLAIRE SUPPLEMENTAIRE. 164720	
Q		Operator's Manual must be stored on machine. Replacement Operator's Manual can be ordered through your local Wacker Neuson distributor.

Ref.	Label	Definition
R		Tie-down point.
T		Electrical ground
U		CAUTION Lifting point.
V		Operating the main circuit breaker supplies or interrupts power to the customer connection lugs.
W		Neutral bonded to frame
X		Engine wiring

Ref.	Label	Definition
Y	 	G 240 G 150 / G 180
AA		A nameplate listing the model number, item number, revision number, and serial number is attached to each unit. Please record the information found on this plate so it will be available should the nameplate become lost or damaged. When ordering parts or requesting service information, you will always be asked to specify the model number, item number, revision number, and serial number of the unit.
BB		This machine may be covered by one or more patents.
DD		Remote start operation. Read Operator's Manual for instructions.
EE		NOTICE Receptacles not used when: Selector switch set to 208/120V and voltage greater than 228V. Selector switch set to 480/277V and voltage greater than 457V.

Ref.	Label	Definition
FF		Hand hold
GG		Protecting Our Environment Fluid containment system (if equipped)
		Certification Label (VIN Number) Also attached to each unit is a Certification Label. This label specifies that the trailer conforms with all Federal Motor Vehicle Standards in effect at the time of manufacture. The label includes the Vehicle Identification Number (VIN) for the trailer.
		Trailer Wiring G - Right brake light and directional Y - Left brake light and directional Br - Tail, side, and license plate lights W - Ground L - Electric brakes B - Battery charge
		(if equipped) CAUTION: Do not use battery disconnect switch while engine is running. Damage to electrical components may occur.

2 Operation

2.1 Application

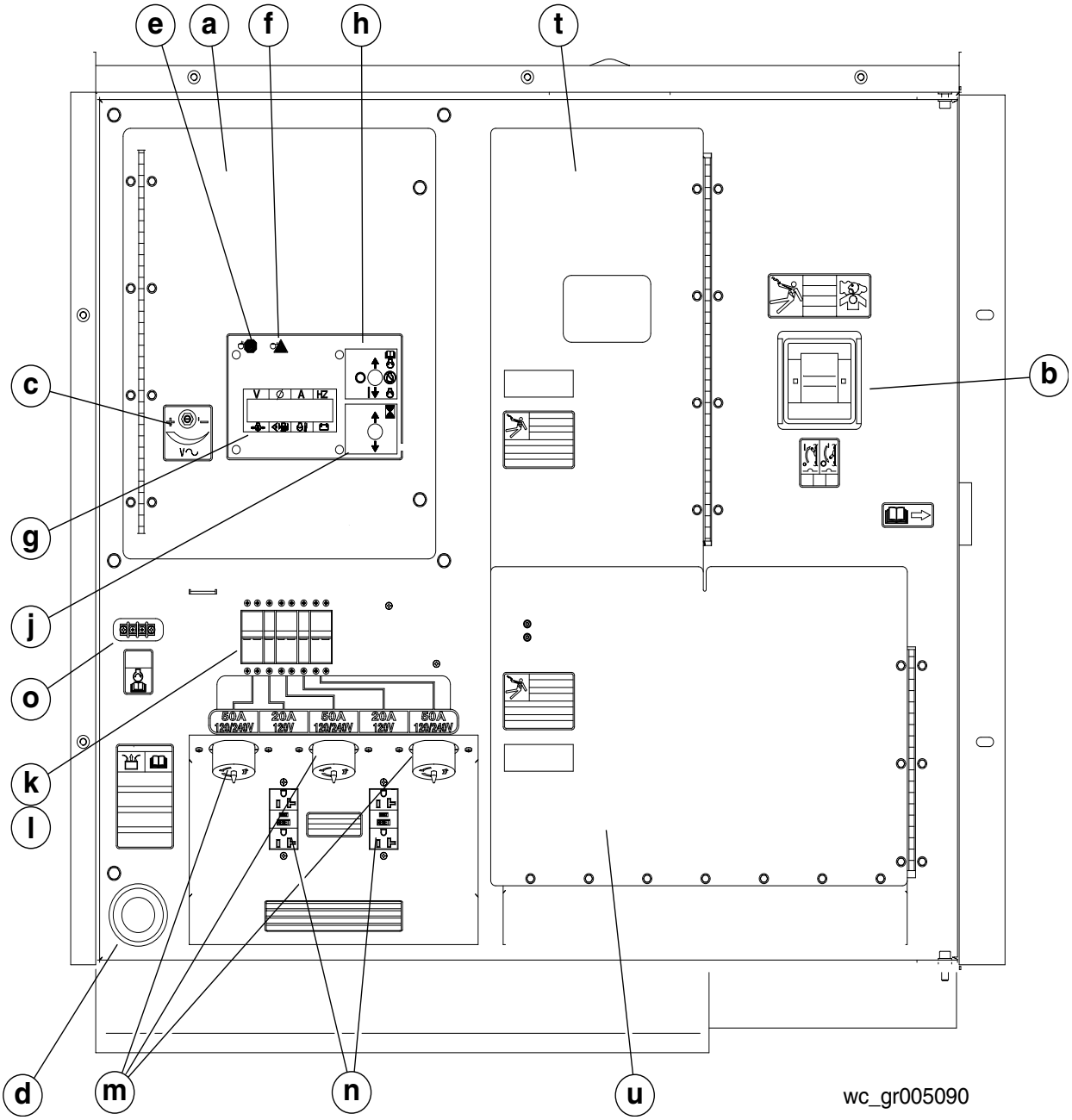
Generator application

This machine is a heavy-duty sound-attenuated generator designed to provide single and three-phase power for construction, commercial, and industrial applications where reliable power is needed.

Safety notices

- Do not exceed the power output of the generator. Damage to tools or generator will occur. Refer to *Technical Data*.
- When using the generator as a standby or substitute power supply, make sure the voltage and phase rotation of the line connections match those of the utility lines. Failure to match phase rotation and voltage may cause equipment connected to the generator to operate incorrectly! This could create unsafe operating conditions.
- Do not exceed the rated current limit of any receptacle.
- The bonding bar between the ground connections must remain in place at all times unless a qualified electrician determines otherwise.

2.2 Control Panel



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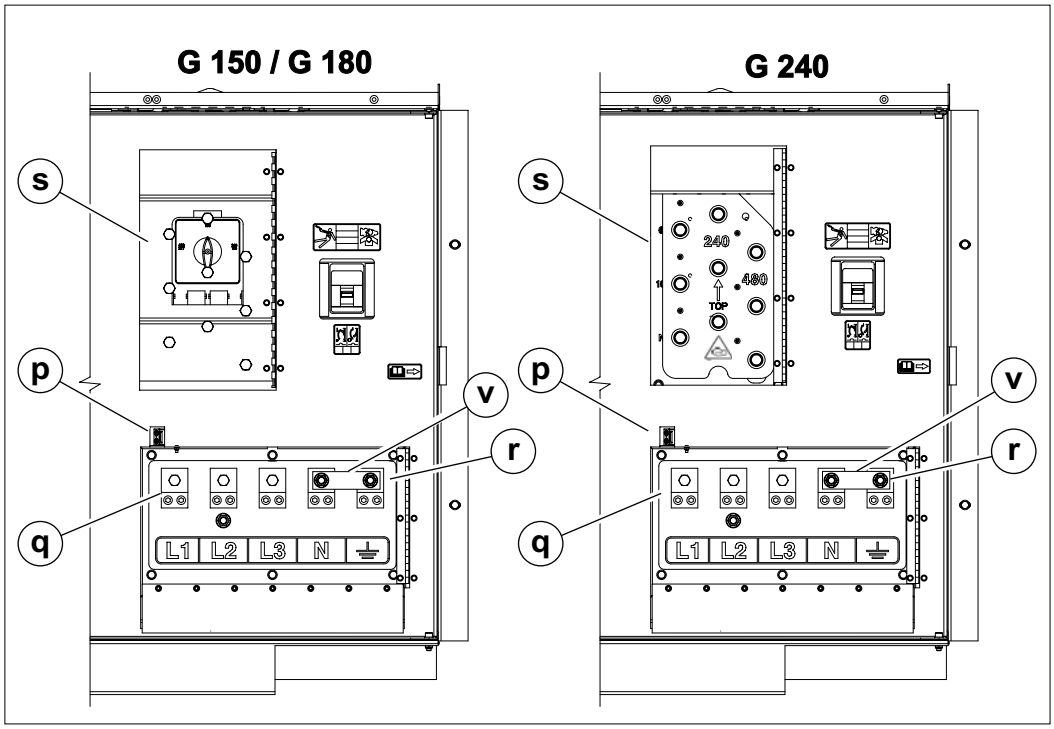
Control panel with open access doors



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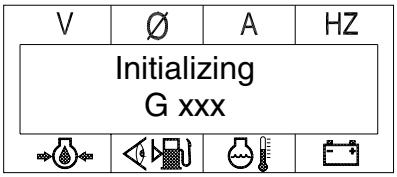
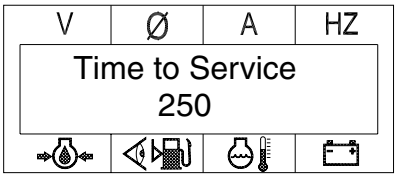
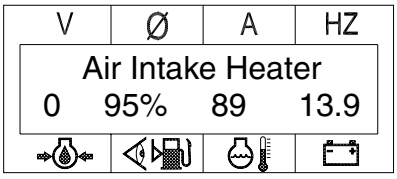
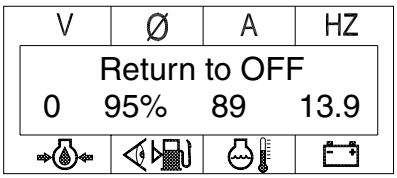
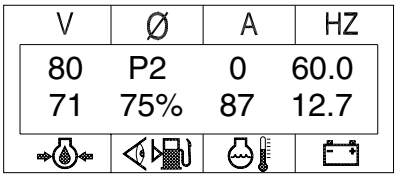
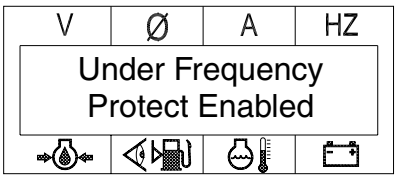
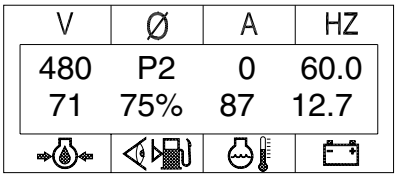
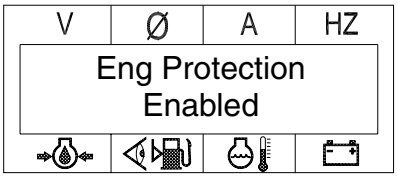
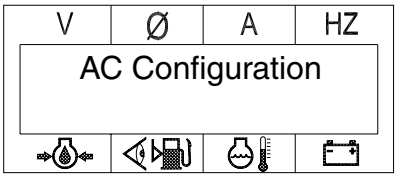
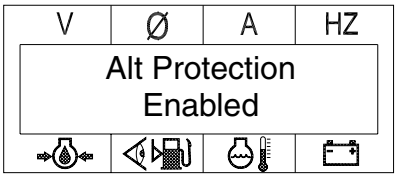
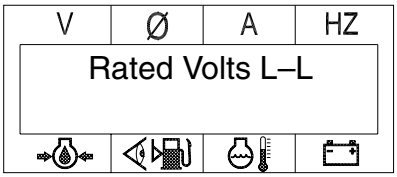
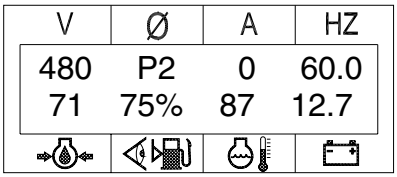
Ref.	Description	Ref.	Description
a	Control panel access door	m	Twist-lock receptacle (120/240 VAC, 50 Amp) - three
b	Main circuit breaker	n	GFI receptacle (120 VAC, 20 Amp) - two
c	Voltage adjustment rheostat	o	Remote run terminal block
d	Emergency stop	p	Interlock switch
e	Shutdown LED	q	Customer connection terminal lugs
f	Pre-alarm LED	r	Ground connection
g	LCD panel	s	Voltage selector
h	Engine start switch	t	Voltage selector access door
j	Engine hours switch	u	Customer connection terminal lugs access door
l	Circuit breaker (120/240V, 50 Amp) - three	v	Bonding bar

2.3 Normal Boot-up Sequence

During the boot-up sequence, the ECM scrolls through several screens before it settles into displaying the run screen.

ECM Display	Description
	Start of the boot-up sequence. The ECM display reads “Initializing” and shows the model of the generator. If the model displayed does not match the model of the generator, call Wacker Neuson Service.
	The ECM displays the countdown time until the next scheduled service. The timer starts at 250 and counts down to 0.
	The ECM displays this screen to indicate that the intake air is being heated.
	The ECM displays this screen to signal that the intake air heating process is complete.
	The ECM displays this screen as soon as the engine starts. Note that some of the values such as voltage, may not be up to their running values at this stage of the sequence.
	The ECM displays this screen to let the operator know that the Under Frequency Protection system (engine speed) has been enabled.

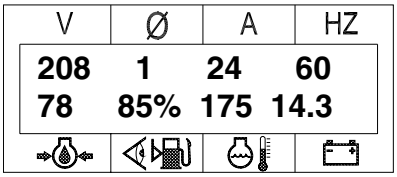
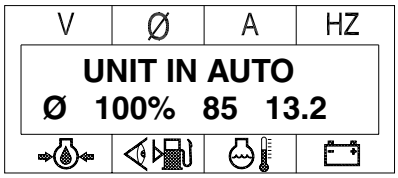
ECM Display	Description
	At this point in the sequence, the ECM displays running values.
	The ECM displays this screen to let the operator know that the engine protection system has been enabled.
	The ECM displays the AC configuration as determined by the position of the voltage selector switch (VSS).
	The ECM displays this screen to let the operator know that the alternator protection system has been enabled.
	The ECM displays the line-to-line voltage. (This screen is shown for 3-phase VSS positions only.)
	At this point, the ECM displays the run screen and the values for the main generator variables: voltage, phase* (leg), amperage, Hertz. The ECM will also display the values for the main engine variables: oil pressure, fuel tank quantity, engine temperature, and battery voltage. ***Note:** *The ECM display scrolls through each phase (P1, P2, P3) if in the 3-phase mode, or L1, L3, and L1 + L3 if in the single-phase mode.*

2.4 Generator monitoring

Generator information is displayed on the top line of the LCD panel and is scrolled continuously while the generator is operating, to show the voltage, amperage and frequency of each phase.

Note: *To prevent the display from scrolling, press the ENG HRS switch down.*

Volts "V"—Displays the AC output voltage being produced by the generator.
Phase "Ø"—Indicates which phase is currently being displayed.
Amps "A"—Displays the AC output amperage produced by the generator. If the generator is operating at no-load, output amperage will display a 0.
Hertz "Hz"—Displays output frequency.

ECM Display	Description
	Sample display with engine running.
	Sample display in "Auto" mode.

2.5 Engine Monitoring

Description With the engine start switch set to “RUN/START” or “REMOTE START”, engine information will be continuously displayed on the bottom line of the LCD panel.

Indicators

OIL - Displays engine oil pressure. The gauge registers oil pressure between 0–100 psi. Normal operating pressure is between 60–80 psi. If oil pressure drops below 15 psi, the engine will automatically shut down.

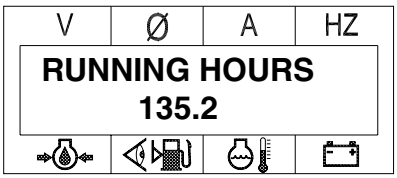
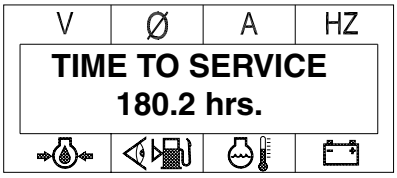
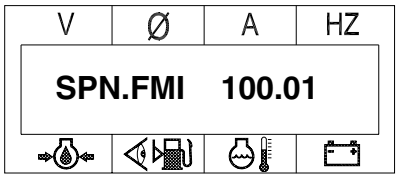
FUEL - Indicates the relative fuel level in the fuel tank. If fuel level drops to 5% the engine will automatically shut down.

TEMPERATURE - Displays the temperature of the engine's coolant. If the coolant temperature gets too high, the engine will automatically shut down.

BATTERY - This gauge measures the engine starting battery voltage. A normal reading is 13.5–14.5V. If the gauge falls much below or above these values, the engine charging system should be checked. With the engine switch set to “REMOTE START” and the generator in stand-by mode, actual battery voltage is displayed.

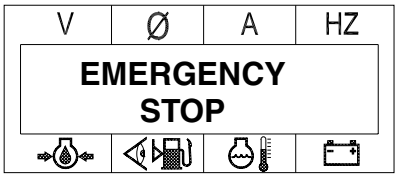
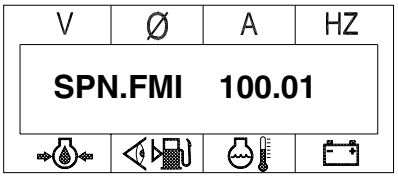
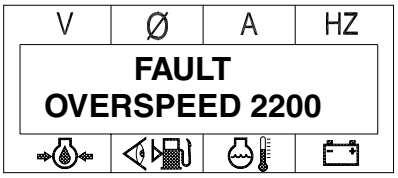
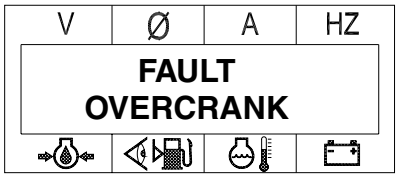
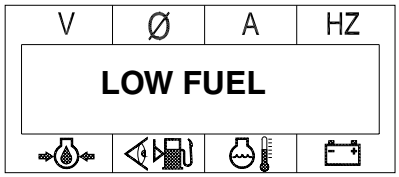
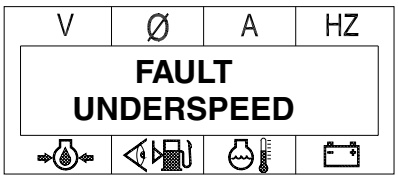
ENGINE HOURS - Pressing the switch UP causes the engine’s running hours, the periodic maintenance timer, and the Engine Diagnostic Trouble Codes set points to be displayed. Engine hours are accumulated only while the engine is actually running.

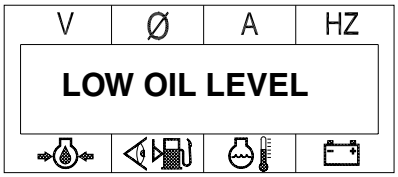
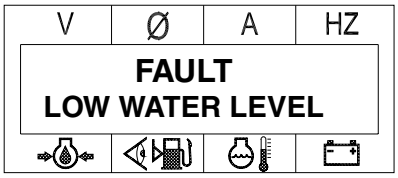
Note: *When held down, this switch can be used to lock in a specific display for a single phase.*

	Sample display of engine hours.
	Sample display of periodic maintenance timer.
	Sample display showing Engine Diagnostic Trouble Codes. SPN = Suspect Parameter Number FMI = Failure Mode Identifier

2.6 Engine Shutdown Faults

Description The engine control module (ECM) continuously monitors vital engine functions for fault conditions. When a fault condition occurs, the engine will shut down and the LCD panel will display the fault causing the shutdown.
To reset the ECM and resume operation, return the Engine Start Switch manually to off “O”. Also refer to section *Warning Light.*

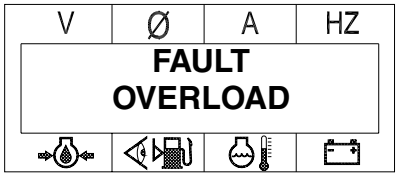
ECM Display	Description
	Indicates that the emergency stop button has been depressed. This display will remain on until the emergency stop button is pulled back out.
	Sample display showing Engine Diagnostic Trouble Codes. SPN = Suspect Parameter Number FMI = Failure Mode Identifier.
	Indicates that the engine speed exceeded approximately 2000 rpm (110% of its rated speed of 1800 rpm) and the ECM has automatically shut the engine down.
	“Fault Overcrank” is displayed when the engine fails to start during the normal cranking cycle, and the Engine Control Module has automatically shut down the generator due to an overcrank condition.
	A low fuel fault condition will be displayed when the fuel tank drops to 5% and the Engine Control Module has shut the engine down. This fault condition prevents the fuel lines from running completely dry and avoids the need to bleed the lines when the tank is refilled.
	Indicates that the engine speed dropped below 55 Hz for more than 15 seconds and the ECM has automatically shut the engine down.

ECM Display	Description
	Normal operating pressure is between 60–80 psi. If oil pressure drops below 15 psi, the engine will automatically shut down.
	For machines with the Low-Coolant Shutdown Option only. This fault will be displayed when the ECM has picked up a signal from the sensor that a low-coolant level exists. During such a condition, the ECM shuts the engine down.

2.7 Current Overload Fault

Background

Along with engine functions the ECM continuously monitors the current load in each phase. The values for current overload are programmed into the ECM at the factory and are different for each generator size.



When an overload condition is sensed in any leg, the engine will shut down and the LCD panel will display the fault condition shown above.

To restart after a current overload fault

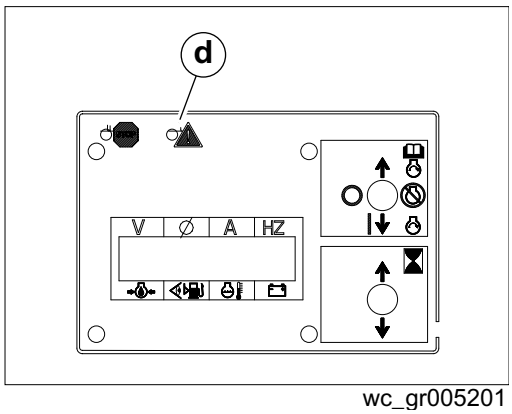
Before restarting the generator:

- Determine and eliminate the cause of the overload.
- Review all loads attached to the generator.
- Make sure these loads do not exceed the power rating of the unit.

2.8 Warning Light

Location and description

The amber warning light **(d)** is located on the metering panel. The light serves as a pre-alarm and turns on prior to a potential engine fault condition. At the same time that the light goes on, the LCD panel will begin blinking to indicate which engine function is approaching its fault value.



wc_gr005201

Engine pre-alarms

- Fuel Level = 15%
- High Temperature = 226°F
- Low Oil Pressure = 20 psi
- Time to Service = 250 hours
- Shutdown = 5%

2.9 Voltage Selector

WARNING
Electric shock and arc flash hazard present at G240 reconnectable panel.
▶ Do not open the access door while the engine is running.

NOTICE: Never change the voltage selector switch with the engine running! This can cause arcing and can severely damage the switch and the generator windings.

Location

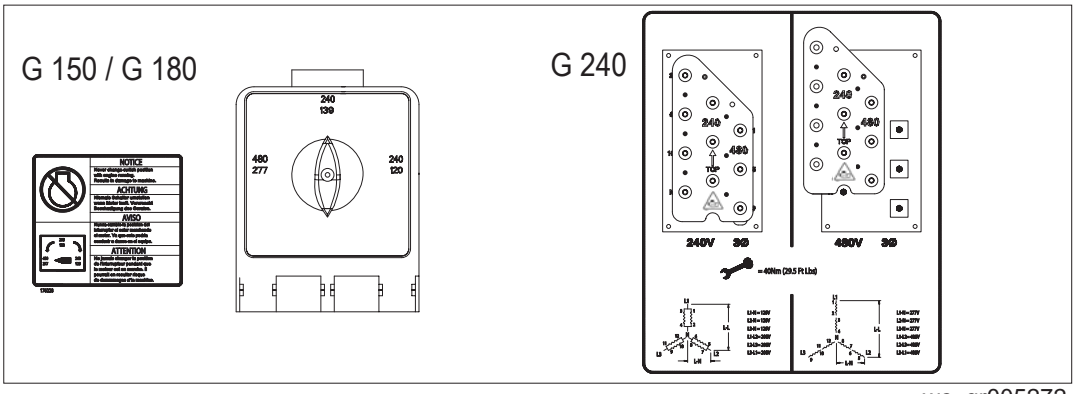
The voltage selector is housed behind the access door in the upper half of the control box.

Note: *The access door cannot be opened unless the customer connection lugs panel access door (lugs panel door) is opened first. Stop engine before opening either of the doors.*

Description

The voltage selector mechanically changes the connections between the generator output leads and the terminal lugs on the generator. This allows different voltage ranges to be selected:

G 150 / G 180	G 240
120/240 VAC 1Ø	240 VAC 3Ø
120/208 VAC 3Ø	480 VAC 3Ø
139/240 VAC 3Ø (Refer to section *Voltage Adjustment Rheostat.*)	139/240 VAC 3Ø (Refer to section *Voltage Adjustment Rheostat.*)
277/480 VAC 3Ø	277/480 VAC 3Ø



wc_gr005272

Operation (G 150 / G 180)

- Select the voltage range by rotating the handle on the voltage selector switch to the desired voltage.

Operation (G 240)

- Select the voltage range by removing the 10 fastening screws on the reconnectable panel, shifting the panel to the desired position (as shown above), and replacing the screws.

Locking the voltage selector switch

- The voltage selector switch is equipped with a locking mechanism. This allows the voltage setting to be locked in place to prevent unauthorized personnel from changing the voltage selection.
- To lock the voltage selector switch in position, push the locking mechanism up and attach a padlock through the openings in the locking strip.

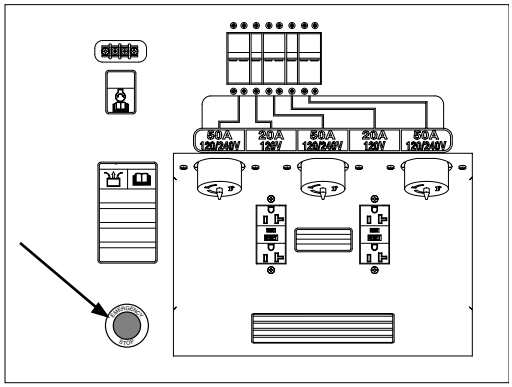
2.10 Emergency stop switch

Location

The emergency stop switch is activated by pressing the red button located to the left of the control panel. The button can be accessed with the panel doors closed. It is electrically isolated from the switch and also from the rest of the metering panel.

Operation

- Activate the emergency stop switch by pressing the red button.
- Activating the emergency stop switch opens the main circuit breaker and the fuel solenoid, and results in the engine shutting down.
- The switch will remain activated until the button is pulled out.



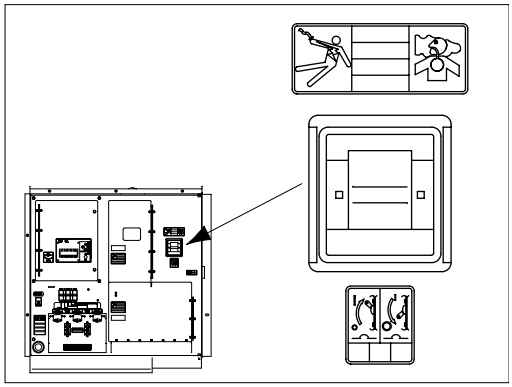
wc_gr005202

NOTICE: Press the emergency stop button only in the case of an actual emergency where the generator must be stopped immediately! In all other instances, open the main line circuit breaker and then turn the engine start switch to off “O”.

2.11 Main line circuit breaker

Location The main line circuit breaker is located on the control panel.

Operation In the off “O” position, the main line circuit breaker interrupts power from the selector switch to the terminal lugs at the bottom of the generator panel. The circuit breaker will also be tripped when the customer connection lug door is opened.



wc_gr005191

NOTICE: Before shutting down the generator or performing any service to the generator unit, make sure the main line circuit breaker is in the off “O” position.

NOTICE: The convenience receptacles are not connected through the main line circuit breaker, but are connected directly to the generator windings. As a result, these receptacles are powered even with the main breaker in the off “O” position.

- ▶ To turn off power to receptacles, open the individual circuit breakers provided for each.

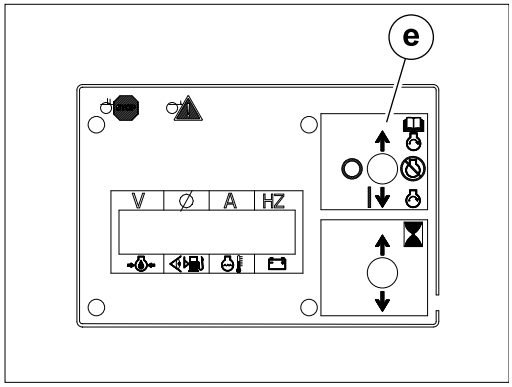
WARNING
Possibility of electrocution! High voltage is present inside the control panel when the generator is operating!

- ▶ Never open the control panel while the generator is operating.

2.12 Engine start switch

Location and description

The engine start switch (e) is located on the right side of the control panel. It is a three-position switch: “REMOTE START,” off “O,” and “START/RUN.”



wc_gr005199

Operation

REMOTE START position:

- The REMOTE START position is the normal setting when the generator is being operated as a back-up power supply connected to a remote switch.
- In the REMOTE START position, the generator is in standby mode and will not start until the remote switch closes.

START/RUN position:

- In the START/RUN position, the switch immediately launches the engine start cycle and activates the starter motor to crank the engine.

Off “O” position:

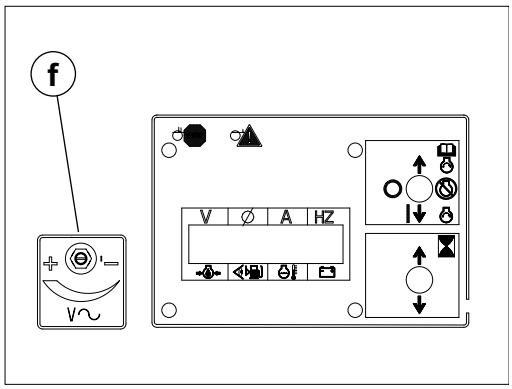
- In the off “O” position, power to the engine’s electrical system, including the fuel solenoid, is disconnected.

Note: *When set in the REMOTE START or START/RUN position, the engine start switch applies battery power to the control module to turn on the LCD panel, and also energizes the engine’s electrical system.*

2.13 Adjusting voltage with the rheostat

Location and description

The voltage adjustment rheostat **(f)** is located directly to the left of the metering panel. Use the rheostat to adjust the AC voltage output.



wc_gr005200

Operation

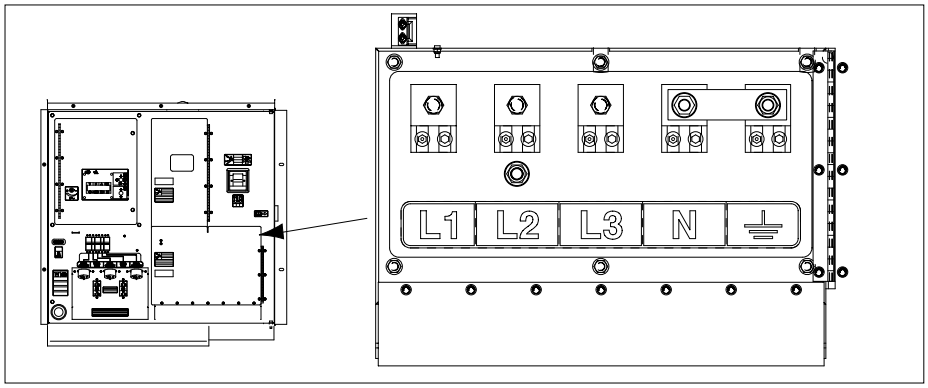
To adjust the AC voltage output:

- Loosen the locking nut.
- Turn the adjusting screw clockwise to increase the voltage output.
- Turn the adjusting screw counterclockwise to decrease the voltage output.
- Monitor the voltage at the LCD panel.

2.14 Connection Lugs

Location and description

The customer connection lugs are located on the lower right side of the control box behind a hinged terminal door. The lugs provide connection points for attachment of outside loads.



wc_gr005273

Connecting to the lugs

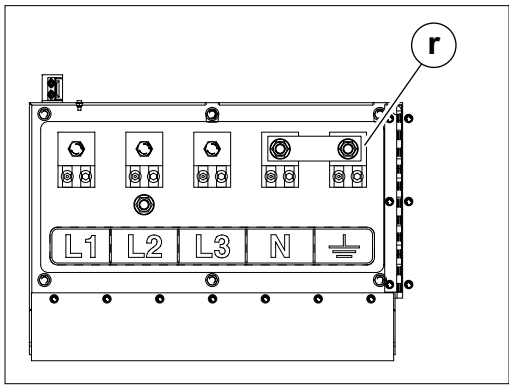
- Make connections to the lugs by running the power cables up through the slots in the bottom of the panel and into the lug.
- Use a 5/16-inch or 8 mm Allen wrench to tighten the cable connections in place.

WARNING
Electrocution hazard! High voltage is present inside the hinged terminal door when the generator is operating.
▶ Do not open the hinged terminal door unless the engine is stopped.

2.15 Ground connection

Location

The ground connection **(r)** is located next to the connection lugs.



wc_gr005280

Connection

Connect the ground lug to a good earthen ground for proper operating safety in compliance with NEC and local standards.

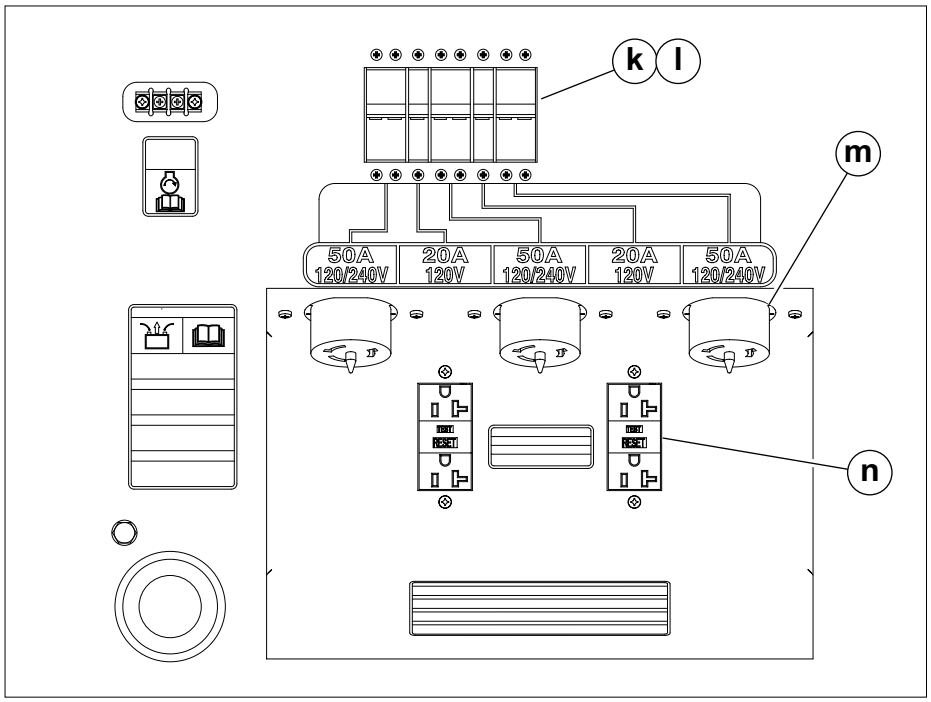
2.16 Convenience receptacles

Description

The generator is equipped with :

- three 120V/240V twist-lock receptacles **(m)** rated at 50A
- two 120V duplex receptacles **(n)** with ground fault interrupts (GFI)

Receptacles **do not** connect through the main line circuit breaker. Each receptacle is protected by its own circuit breaker **(k,l)**.
Power to the receptacles is available anytime the generator is running, even with the main line circuit breaker open.



wc_gr005193

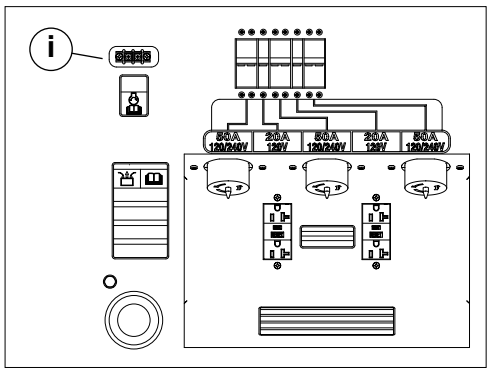
Operating notes

- When the voltage selector switch is in the 480V / 3Ø position, voltage at the duplex receptacles is 139V, and voltage at the 30/50A receptacles is 139/240V.
- When the voltage selector switch is in the 208V / 3Ø position, voltage at the 30/50A receptacles is 120/208V.
- When the voltage selector switch is in the 208V / 3Ø position, the voltage can be adjusted with the voltage adjustment rheostat (f) to 240V / 3Ø. The voltage at the duplex receptacles is 139V, and voltage at the 30/50A receptacles is 139/240V.

2.17 Remote run terminal block

Location

The remote run terminal block (i) is located just to the left of the convenience receptacle circuit breakers.



wc_gr005194

Description

The remote run terminal block provides connection points for installation of a remote start switch. When it is connected to a transfer switch, it allows the generator to be used as a stand-by power supply.

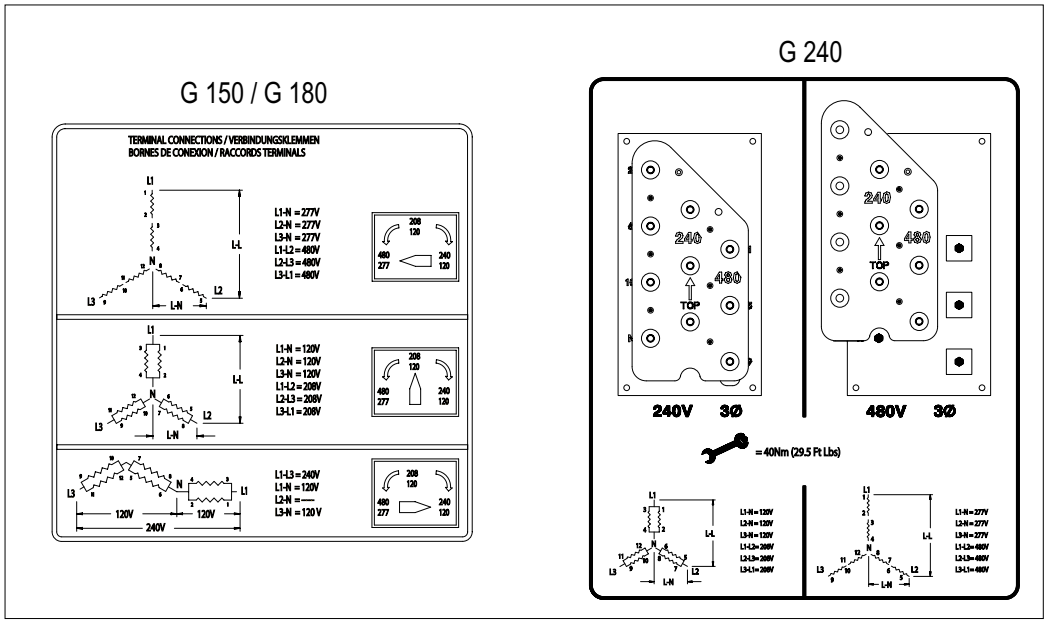
Connections

When connecting a remote start switch or transfer switch, use the inner two terminals on the remote run terminal block.

Note: *The bonding bar between the ground connections must remain in place at all times unless a qualified electrician determines otherwise.*

2.18 Voltage selector label

Location The voltage selector label is found on the inside of the voltage selector access door.



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WARNING
Hazardous voltage! Improperly connected terminals can cause severe electrical shock, burns, or death.
- ▶ All connections to the terminals must be made by a qualified electrician.

2.19 Before starting

Explanation

Before putting the generator into service, review each item on the following checklist. Because generators often run unattended for long periods of time, it is important to make sure that the machine is set up properly to reduce the possibility of malfunction.

WARNING
Personal injury hazard. Failure to follow the listed procedures may cause injury to personnel or damage to the generator.

- ▶ Make sure that all persons setting up the generator are certified or fully trained on the installation of the generator.

Exterior checks

Before starting the generator:

- check for damage that may have occurred during towing or travel to the jobsite
- check for debris that has lodged in vents, near the radiator, or around the fan
- make sure the exhaust compartment is clean, with nothing touching the muffler or exhaust pipes
- make sure that the generator is level
- chock the trailer wheels

Internal and pre-operation checks

- check engine oil, coolant, and fuel levels—fill as required
- check the fan belt and hoses on the engine for loose connections or fraying—tighten or replace as required
- make sure that the generator is grounded to a good earthen ground per local regulations and NEC standards
- check that all electrical connections were made in compliance with local regulations and NEC standards
- determine voltage needs—set voltage selector switch and make correct terminal connections
- close and secure side panel access doors
- review and follow safety instructions found in the front of this Operator's Manual

2.20 Manual start-up

Explanation

Before starting the generator set for the first time, thoroughly review the “Before starting” checklist in the previous section. Proceed with generator startup only after checking each item in that section.
Thoroughly read and make sure you understand the engine operator’s manual supplied with the generator. Follow the steps below in the order listed.

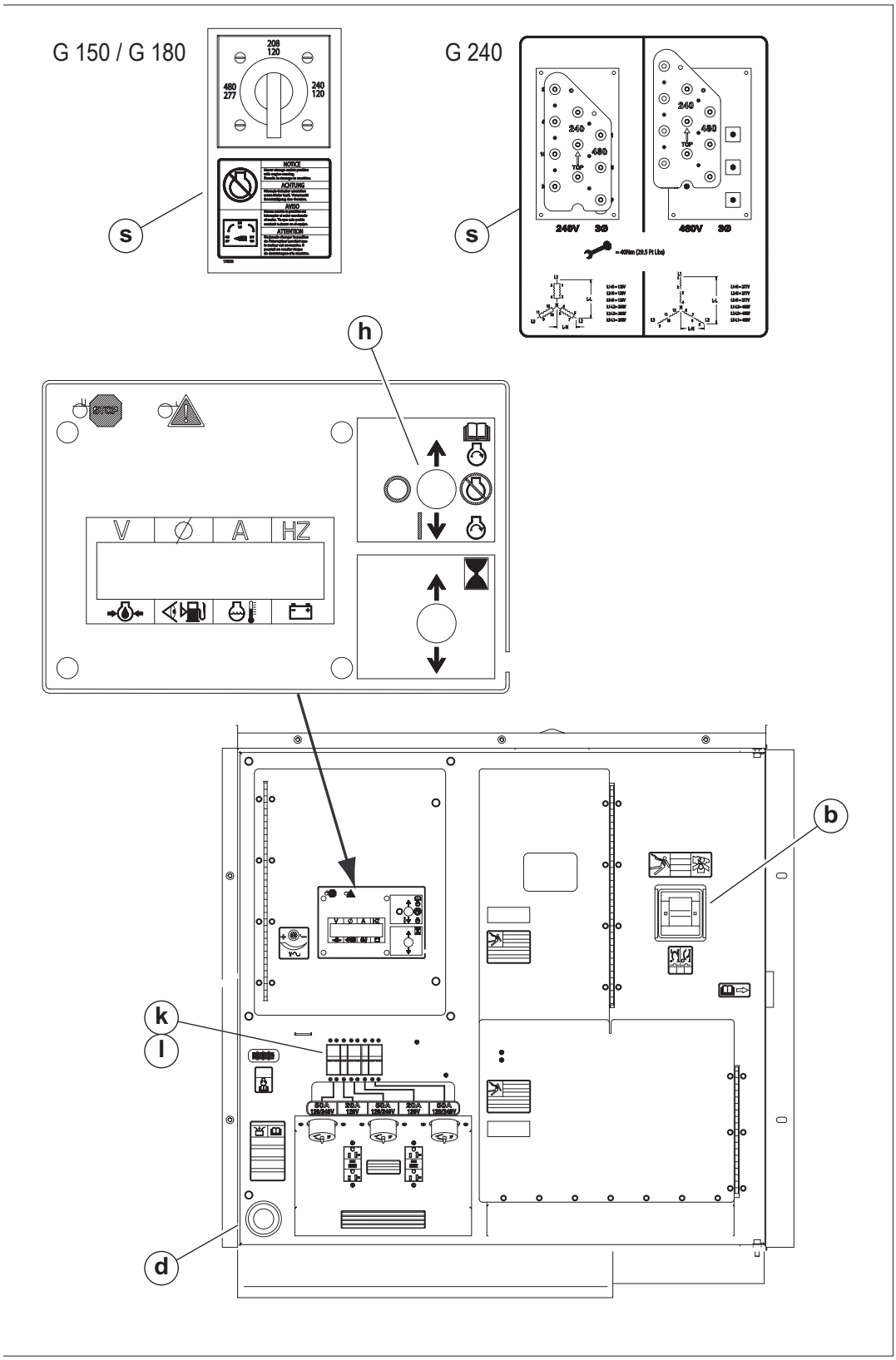
CAUTION!
Possibility of injury or equipment damage. Failure to match phase rotation and voltage may cause equipment connected to the generator to operate incorrectly.

- When using the generator as a standby or substitute power supply, make sure the voltage and phase rotation of the line connections match those of the utility lines or of any other power source normally used.

Start-up procedure

Follow the procedure below to start the generator.

1. Check position of the Voltage Selector **(s)** and make sure it is set for the desired voltage output. Lock the switch in place.
2. Make sure the Engine Start Switch **(h)** is in the off “O” position.
3. Turn main line circuit breaker **(b)** to off “O”.
4. Turn convenience receptacle circuit breakers **(k,l)** to off “O”.
5. Move Engine Start Switch to “REMOTE START” to check operation of engine control module. The LCD panel should momentarily display “UNIT IN AUTO” and engine information. Check fuel level and battery values.
6. Press in the Emergency Stop Button **(d)**. The LCD panel should read “EMERGENCY STOP”. Release the stop button after verifying the display, and return the Engine Start Switch to off “O”.
7. Start engine by moving the Engine Start Switch to the “START/RUN” position.
8. After displaying “INITIALIZING” sequence, the LCD display will read “STARTING ENGINE” as the engine begins its crank cycle. The normal cycle is for the engine to crank for 15 seconds, then rest for 10 seconds. This cycle will repeat three (3) times.
9. If the engine does not start within this time, the Engine Control Module will shut down the engine and “—” will be displayed on the LCD panel.
10. To repeat crank cycle, return start switch to off “O” to reset Engine Control Module. Allow starter motor to cool between start-up attempts.



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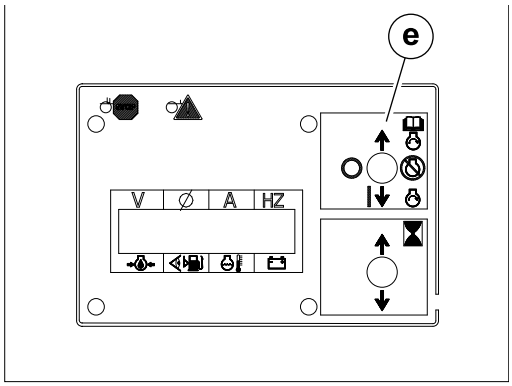
2.21 Running the generator

Switch positions

Leave the engine start switch **(e)** in the START/RUN position while the generator is operating.
If the generator was started using a remote switch, leave the engine start switch in the REMOTE START position.



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Let the generator run for a few minutes to warm the engine before closing the main circuit breaker.

CAUTION
Possibility of unexpected equipment start-up.
- ▶ Disconnect all attached electrical devices before starting the machine.
- ▶ Before closing breakers, make sure that any electrical devices attached downstream from the generator will not start up unexpectedly.
- ▶ Before placing the engine start switch in the REMOTE START position, verify that the contacts on any remote switch linked to the generator set are **open**. This will prevent the generator from immediately starting when the engine start switch is moved to the REMOTE START position.

While the generator is running, check for excessive vibration, oil leaks, or coolant leaks.

2.22 Engine power correction factors

Performance data conditions

Performance data on John Deere engines are measured at the following standard conditions:

- 744 mm (29.31 in.) of mercury dry air pressure
- 183 m (600 ft.) altitude
- 0% relative humidity
- 25°C (77°F) air intake temperature
- 40°C (104°F) fuel inlet temperature

Refer to the table below to estimate the engine power decrease in percent as environmental factors vary from the standard conditions.

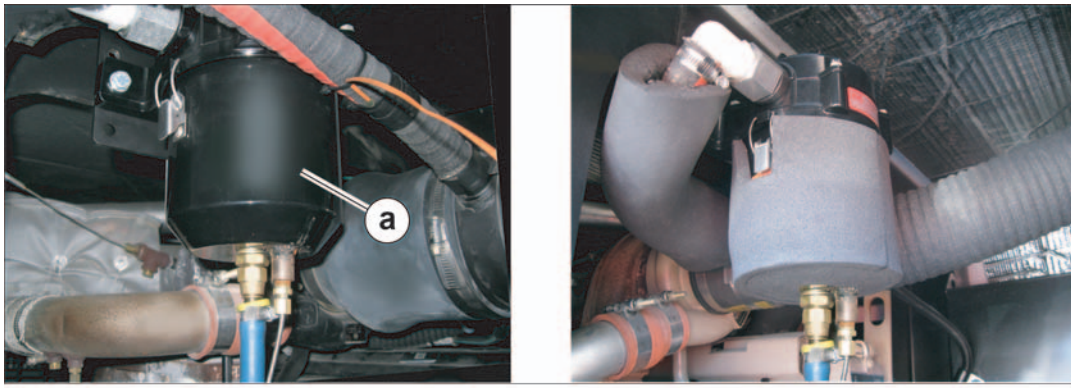
Engine power correction factors

Model	Fuel temp rise of 1°C (1.8°F)	Air temp rise of -12°C (10°F)	Altitude rise of 305 m (1000 ft) above 3050 m (10,000 ft)	Relative humidity rise of 10%	Altitude rise of 305 m (1000 ft) below 3050 m (10,000 ft)
G 150 G 180	None (ECU compensated)	0.50	4.00	0.07	0.5
G 240	None (ECU compensated)	None (ECU compensated)	5.00	0.07	None (ECU compensated)

2.23 Racor® Filter

Location

The Racor crankcase filter **(a)** is located next to the engine.



Description

The crankcase filter removes oil from engine blow-by. Coalesced oil drains into the engine oil pan. Filtered air is then routed to the engine intake system.
The crankcase filter contains a high-performance element which should be replaced after every 750 hours of operation. See *Replacing the Racor Filter Element* in the *Maintenance* chapter.

Filter heater

Your crankcase filter may be equipped with a thermostatically controlled heating system as shown in the illustration on the right. This system prevents water vapor from condensing and freezing on the inner walls of the filter intake hose while operating the generator in extremely cold weather.

2.24 Shutting off the generator

Before shutdown

Check with other personnel on the jobsite and let them know that power is being turned off. Make sure that the power shutdown will not create any hazards by turning off devices such as pumps, heaters, or lights that may need to be kept on.

Shutdown procedure

To shut down the generator:

1. Remove all loads from generator.
2. Open (turn to off “O”) main line circuit breaker.
3. Let engine run for approximately 5 minutes to allow it to cool down.
4. Move Engine Start Switch to the off “O” position.

2.25 Cold weather start-up

Prerequisites

Before starting the generator in cold weather make sure that:

- the battery is at peak power
- the correct weight motor oil is being used
- the starter motor is in good condition

During operation

The cold starting aid will automatically activate when the air temperature is low enough. The ECM will notify you that a preheat is in effect.

2.26 Lifting

Prerequisites

Before lifting the generator:

- refer to the Technical Data section for the proper operating weight of the generator
- make sure the lifting devices have sufficient capacity to lift the machine safely
- make sure the winch or crane to be used for lifting the machine is in operable condition and designed for such work

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Lifting the generator

A central lifting eye is located at the top of the generator and is attached to a lifting frame inside the housing.
When lifting the generator, attach a hook or sling securely to the lifting eye.

2.27 Overnight storage

When storing the generator overnight, make sure all access doors are closed and padlocked.
Do not store the generator overnight in a low lying area that might fill with water during a heavy storm.

2.28 Long-term storage

If the generator is being stored for several months, follow the engine manufacturer's recommendations for long-term storage. These procedures are designed to help minimize engine corrosion.

2.29 Automatic/remote start-up

Background

In the REMOTE START position, the generator can be started remotely, either through a transfer switch or some other type of remote start switch. REMOTE START is the normal setting when using the generator as a stand-by power supply.

Prerequisites

Before placing the generator in the automatic start-up mode, review the *Before Starting* and *Manual Starting* sections in this Operator's Manual and follow the procedure below.

CAUTION

Possibility of accidental equipment start-up. If the contacts on any remote switch linked to the generator are closed, the generator could start unexpectedly when the engine start switch is moved to the REMOTE START position.

- ▶ Before placing the engine start switch **(e)** in the REMOTE START position, verify that the contacts on any remote switch linked to the generator set are OPEN.

Start-up procedure

1. Perform a manual start at least once to verify that the metering panel is operating correctly. Refer to sections *Before Starting* and *Manual Starting* in this Operator's Manual.
2. To perform an optional check of the auto start-up circuit:
   - Attach a short jumper wire (minimum 16 gauge insulated) between the two terminals on the remote run terminal block. The jumper wire applies a ground to the ECM to complete the start circuit.
   - Wait for the engine to crank, start, and run.
   - Move the engine start switch to off "O" to stop the engine.
   - Remove the jumper wire from the remote run terminals after testing is complete.
3. Secure the generator by closing and locking all doors.
4. Set the engine start switch to REMOTE START and close the main line circuit breaker.

The generator is now ready for automatic starting.

Maintaing battery charge

If the generator is to be used as a stand-by power supply, provisions must be made to maintain the battery charge. This can be done either by attaching a battery charger to the battery or by starting the generator manually and running the engine periodically to maintain a charge. See section *Manual Starting.*

2.30 Remote/transfer switch

Background

A transfer switch is designed to transfer electrical loads from the normal power source (utility) to the emergency power source (generator) when normal voltage falls below a prescribed level.
The transfer switch automatically returns the load back to the normal source when power is restored back to operating levels.

WARNING
Electrocution hazard. Failure to isolate the generator from the utility's electrical distribution system could cause output from the generator to backfeed into the utility lines and cause injury or death to utility workers!

- ▶ When the generator is used as a standby power supply, it must be equipped with a device which isolates it from the utility's distribution system.
- ▶ An isolation device is also required if the generator is being used as a backup to some other type of power supply system.

Precautions

- Installation of a transfer switch or other type of remote starting device is the responsibility of the generator user.
- Installation of such devices must be performed by a qualified electrician following all directions supplied by the manufacturer of the switch.
- If attaching the generator to a power supply normally serviced by a utility company, notify the utility company and check local and state regulations.
- Familiarize yourself with all instructions and warning labels supplied with the switch.

CAUTION!
Possibility of injury or equipment damage. Failure to match phase rotation and voltage may cause equipment connected to the generator to operate incorrectly.

- ▶ When using the generator as a standby or substitute power supply, make sure the voltage and phase rotation of the line connections match those of the utility lines or of any other power source normally used.

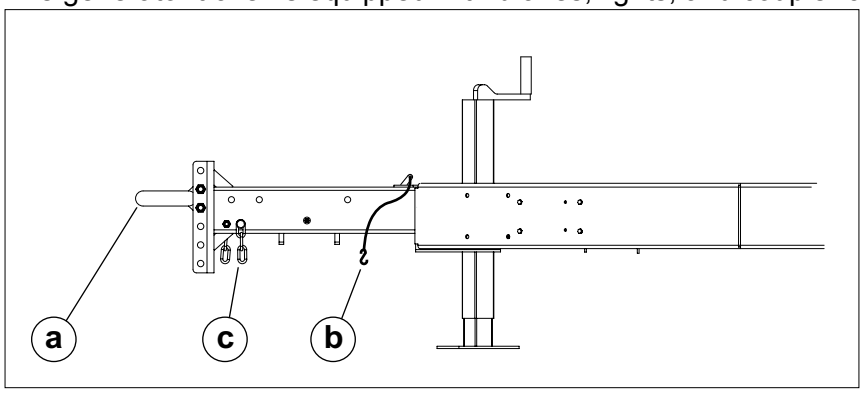
DANGER
Electrocution hazard. Lethal voltage is always present in the transfer switch once it has been properly installed.

- ▶ Disconnect power before servicing the transfer switch.

2.31 Towing

Provided equipment

The generator trailer is equipped with brakes, lights, and coupler connection.



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Prerequisites

Before towing the generator:

- Check that the towing vehicle and hitch have a rating equal to or greater than the GVWR. See *Technical Data*.
- Check the condition of both the coupler and hitch. DO NOT tow the trailer if the coupler or hitch is damaged.
- Make sure that the hitch and coupler are compatible. The generator trailer is equipped with a pintle type coupler (a).
- Check that the directional and running lights on the trailer are working.
- Connect the safety chains (c) using a crossed pattern under the trailer tongue.
- On trailers with surge or electric brakes, connect the breakaway cable (b) on the trailer coupler to the rear bumper or frame of the vehicle. This cable will actuate the brake system on the trailer if both the coupling and safety chains have failed. The breakaway cable is not a parking brake and should not be used as one.
- Check that all fasteners on the coupling are secure.
- Check the tread wear and inflation on the tires. Make sure that all lug nuts are in place and are tight.
- Check the operation of the brakes by braking the vehicle at a slow speed before entering traffic. Both the vehicle and the trailer should brake smoothly. If the trailer seems to be pushing, check the fluid level in the surge brakes or the operation of the electric brakes.

Licensing requirements

- In most states, large trailers must be registered and licensed by the State Department of Transportation. Before towing, be sure to check licensing requirements.
- Drivers towing trailers may be required to carry a commercial driver's license (CDL). Check your local and state licensing regulations before towing the generator.

Coupler maintenance

- A film of grease on the coupler will extend coupler life and eliminate squeaking. Wipe the coupler clean and apply fresh grease each time the trailer is towed.

Towing safety

- When towing, maintain extra space between vehicles and avoid soft shoulders, curbs and sudden lane changes. If you have not pulled a trailer before, practice turning, stopping, and backing up in an area away from heavy traffic.
- Do not exceed 55 mph when towing a trailer.

3 Maintenance

3.1 Periodic Maintenance Schedule

	Daily	Every 50 Hrs or 2 weeks	Every 250 Hrs or 10 weeks	Every 600 Hrs or 12 Mo	Every 1200 Hrs or 24 Mo	Every 2000 Hrs	Other
Check engine oil and coolant level	■						
Check engine air filter gauge & air cleaner dust cap *	■						
Visual walkaround inspection	■						
Check tire inflation, tread wear and lug nuts before towing	■						
Check fuel filter		■					
Service the battery			■				
Change engine oil and replace oil filter**			■				
Clean unit inside and out			■				
Check air intake hoses, connections, and system				■			
Replace fuel filter element				■			
Check automatic belt tensioner and belt wear				■			
Check cooling system				■			
Perform coolant solution analysis & add SCA's				■			
Grease axle				■			
Pressure test cooling system					■		
Flush cooling system***					■		
Check and adjust engine valve clearance						■	
Check brake fluid level in trailer at least monthly							■
Replace the Racor® filter element every 750 hours							■

*Replace the air filter cartridge when yellow indicator of the engine air filter gauge reaches the red line.

**Change the oil after the first 100 hours, then every 250 hours.

***If John Deere antifreeze is used, the flushing interval may be extended. See engine operator's manual.

3.2 Breaking In New Machines

- Run the generator at least 60–100% of continuous load for the first 100 hours.
- Change engine oil and replace oil filter after the first 100 hours.

3.3 Resetting the Periodic Maintenance Timer

Background After maintenance has been performed on the generator, it is necessary to reset the periodic maintenance timer.

Operation

- If the periodic maintenance timer is at zero, press the ENG. HRS switch UP and hold for 10 seconds until the “TIME TO SERVICE” resets to 250 hours.
- If the service time is greater than zero (maintenance was performed prior to the timer running out) press and hold the ENG. HRS switch UP and hold for 30 seconds. This will reset the “TIME TO SERVICE” to 250 hours.

3.4 Replacing the Air Filter Element

Prerequisites

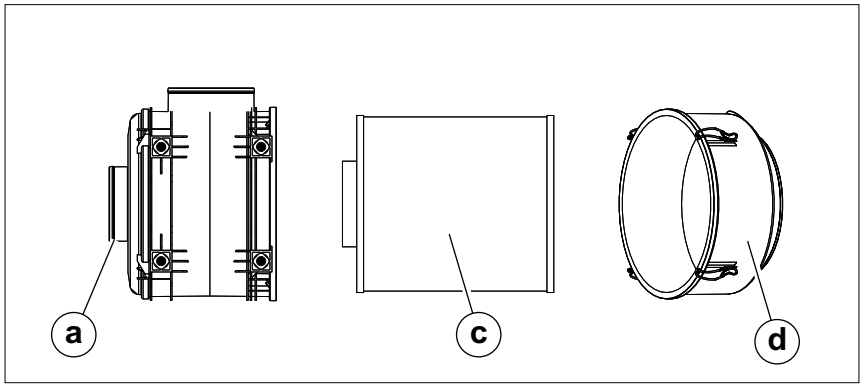
- Machine shut down
- Yellow indicator of the engine air filter gauge has reached the red line

Background

The air cleaner assembly contains a one-piece single element air filter cartridge **(c)**. This cartridge must be replaced when the yellow indicator of the engine air filter gauge reaches the red line.

Procedure

Follow the procedure below to replace the primary air filter element.



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5. Remove the end cover **(d)**, then discard the entire air filter cartridge **(c).**
6. Insert a new air filter cartridge.
7. Re-install the end cover, making sure that the dust cap is clean and pointing downward.
8. Make sure that the intake piping **(a)** is fully engaged over the neck of the filter to ensure a good seal.

Maintenance

- Periodically, make sure the inlet pipe is free from obstructions.
- Check all connections and make sure they are snug. An air leak at the neck clamp, gauge connection, or intake pipe can quickly lead to engine damage.
- If the filter housing, gauge connection, neck, or inlet pipe are crushed or damaged, replace them immediately.

3.5 Replacing the Racor® Filter Element

When

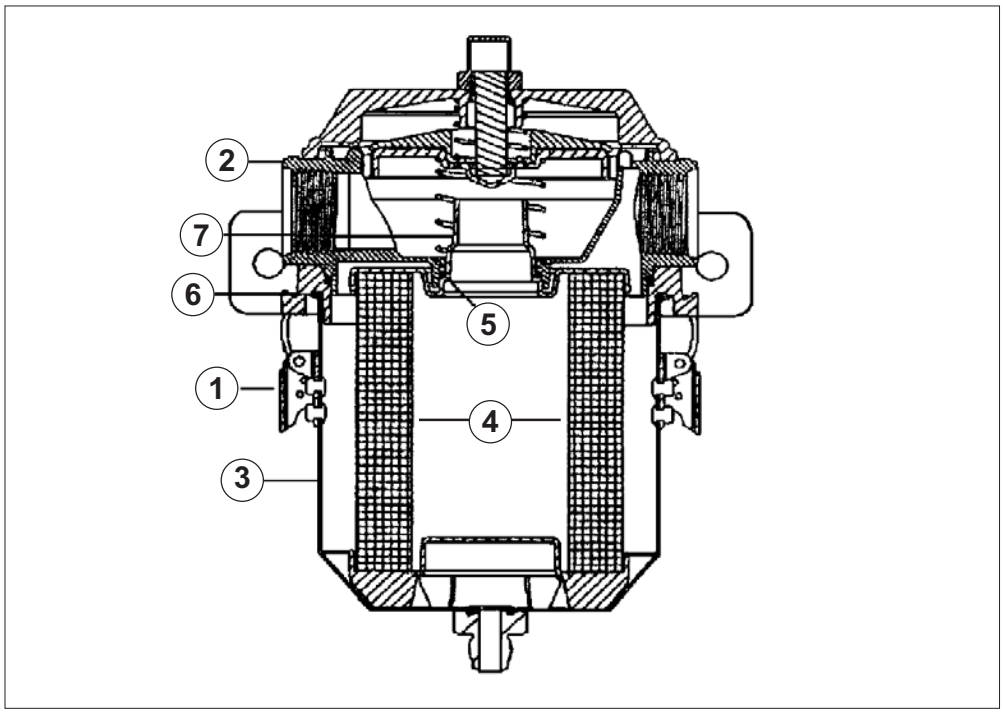
Replace the filter element after every 750 hours of operation, or whenever the red filter service indicator appears.

Prerequisites

- Engine is stopped
- Replacement filter element and O-rings are available
- Shop towels are available to wipe up spills

Procedure

Follow the procedure below to replace the filter element.



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1. Release the latches **(1)** holding the canister **(3)** to the filter head assembly **(2)**.
2. Drop the canister to expose the filter element **(4)**. A small amount of oil may be present inside the canister, so use caution to avoid spills.
3. Pull the filter element down to remove it.
4. Remove the O-ring **(5)** from the top of the filter element end cap **(7)**. Also, remove the O-ring **(6)** from the bottom of the filter head assembly.

Note: *Dispose of the used filter element and O-rings in accordance with local environmental protection regulations.*

5. Install a new O-ring on the bottom of the filter head assembly. Also, verify that a new O-ring is on the top end cap of the replacement filter element.
6. Push the filter element end cap into the hole in the bottom center of the filter head assembly.
7. Replace the canister and align the latches on the canister with the boss on the filter head assembly.
8. Clamp the latches and snap them closed.

3.6 Lubricating the Engine

Checking oil

Check engine oil daily before starting engine.

WARNING
Burn hazard. Engine, engine oil, muffler, and exhaust pipes become extremely hot during operation.

- ▶ Stop the engine and allow the machine to cool before checking the oil or replacing the engine oil or oil filter cartridge.

- Do not operate engine if oil level is below ADD mark on dipstick. Always keep oil level within the crosshatch pattern or “full” mark on dipstick.
- Change oil after first 100 hours of operation and every 250 hours thereafter. Refer to the engine manufacturer’s Operator’s Manual for lubrication specifications.

Break-in Service

- This engine is factory-filled with John Deere Engine Break-in Oil.
- Operate the engine at heavy loads with minimal idling during the break-in period.
- Do not exceed 100 hours of operation with break-in oil.
- If the engine has significant operating time at light load, or more oil is required in the first 100 hour period, a longer break-in period may be required. In these situations, an additional 100 hour break-in period is recommended using a new change of John Deere Engine Break-In Oil and a new John Deere oil filter.

NOTICE: Do not add more oil until the oil level is BELOW the ADD mark on the dipstick. John Deere Engine Break-In Oil (TY22041) should be used to make up any oil consumed during the break-in period.

- During the first 20 hours, avoid prolonged periods of no load or sustained maximum load operation. If engine is to run for longer than 5 minutes without a load, shut unit down.
- After the first 100 hours, change engine oil and replace engine oil filter. Fill crankcase with seasonal viscosity grade oil.

3.7 Checking the Engine Coolant Level

Prerequisites
- Machine shut down
- Engine cool

When Daily

Procedure Follow the procedure below to check the engine coolant level.

WARNING
Burn hazard. Engine coolant is hot and under pressure at operating temperature. It can cause severe personal injury.
▶ Check the coolant level only after the engine has been shut down and is cool.

1. Open the access cover on the roof.
2. Open the radiator filler cap slowly in order to relieve the pressure. Remove the filler cap after the pressure has been released.
3. Verify that the coolant level of the radiator is 3/4-inch below the bottom of the filler neck. Add more coolant if necessary to maintain this level.

WARNING
Burn hazard. Coolant can contain alkali.
▶ Avoid coolant contact with skin and eyes.

4. Inspect the radiator filler cap and filler cap seal for damage. Clean the radiator filler cap or replace it if necessary.
5. Re-install the radiator filler cap.

NOTICE: Solutions of antifreeze and supplemental coolant additives MUST be used year-round. Automotive-type coolants do not contain the correct coolant additives to protect heavy-duty diesel engines. They often contain a high concentration of silicates which can damage the engine and cooling system. Refer to engine operator's manual for coolant recommendations.

3.8 Maintaining the Trailer

Tires

- Keep tires inflated to the proper pressure as shown on the tire sidewall.
- Check tread periodically for wear.
- Replace tires as required.

Wheels

- Check that lug nuts holding wheels are tight.
- Replace any missing lug nuts immediately.

Axle Hubs

- Grease axle hubs using a good wheel bearing grease.

Brakes

- Check operation of brakes before each trip.
- Check level of brake fluid in actuator at front of trailer at regular intervals.
- Fill brake fluid to approximately 1-inch below top of reservoir using DOT-3 heavy-duty brake fluid.
- Tighten filler plug securely.

Note: *If fluid level has fallen too low, bleed brake lines to remove any air trapped in lines. Then fill to proper level with clean brake fluid.*

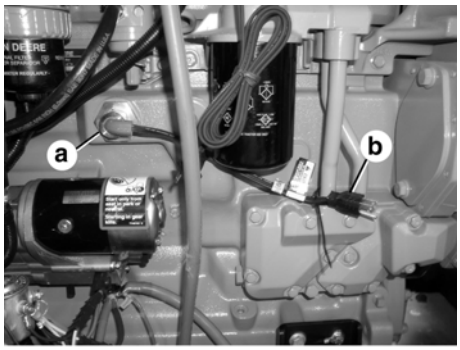
4 Factory-Installed Options

This machine may be equipped with one or more of the following factory-installed options. To verify if any of these options are installed on your machine, contact the Wacker Neuson Corporation at 1-800-770-0957. A nameplate listing the Model Number, Item Number, Revision, and Serial Number is attached to each unit. Please have this information available when contacting Wacker Neuson.

Note: *The illustrations shown in this chapter represent typical installations. The factory-installed options on your machine may look different.*

4.1 Block Heater

The engine block heater option includes a block heater (a) with a cord (b). The function of the block heater is to heat the engine coolant/engine block to improve cold-weather engine starting. Plug the cord into a 120V power supply.



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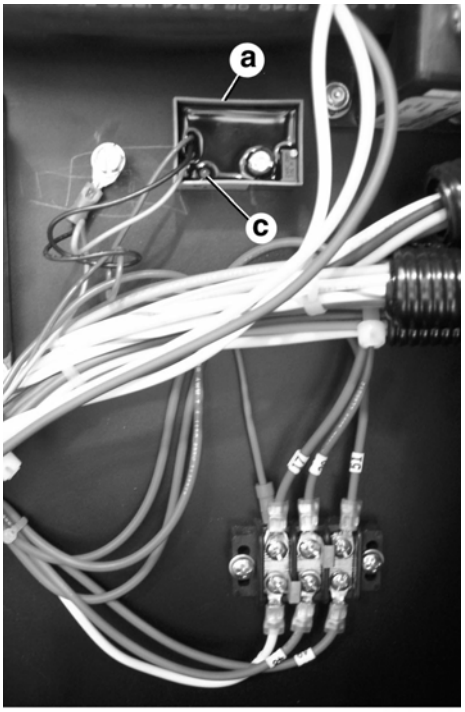
4.2 LCD Strip Heater

The LCD strip heater option includes a thermostat module (a) and a clear heater strip that is bonded to the LCD **(b)** of the ECM.



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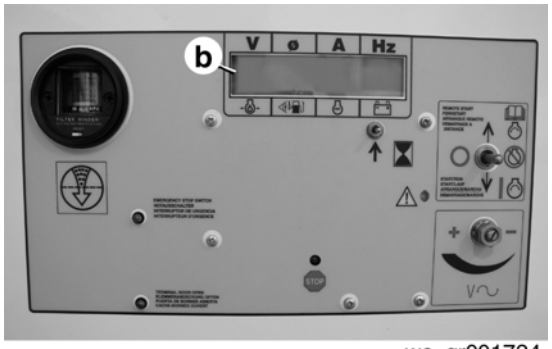

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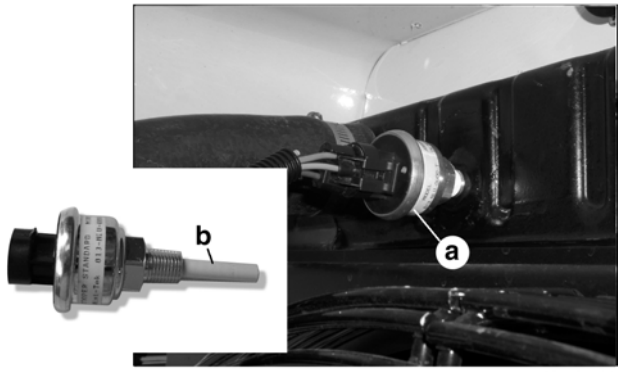
The purpose of the strip heater is to prevent the LCD from being damaged by extremely cold temperatures. The resistance of the coiled element of the heater is sensed by the thermostat. The resistance of the element changes with temperature. At approximately -30°C (-22°F), the resistance value triggers the thermostat to send power to the element. The LED **(c)** of the thermostat module flashes during operation.

It is important to note that the LCD strip heater is always on and thus draws power (a very small amount) from the battery even when the unit is not running. If the battery should fail, the heater will also fail. Be sure to keep the battery charged when the generator is not in use.

4.3 Low Coolant Shutdown

The low-coolant shutdown system consists of an electronic sensor that monitors coolant level. The sensor **(a)** is mounted to the radiator and wired into the ECM. The sensor probe **(b)** is submerged in radiator coolant.



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If the probe senses no coolant, it sends a signal to the ECM. The ECM program includes a 10-second timer to protect from nuisance shutdowns. If after the ten seconds coolant levels are still sensed as being low, the ECM shuts down the engine. The ECM will then display the “FAULT LOW WATER LEVEL”. Allow the engine to cool before adding additional coolant.

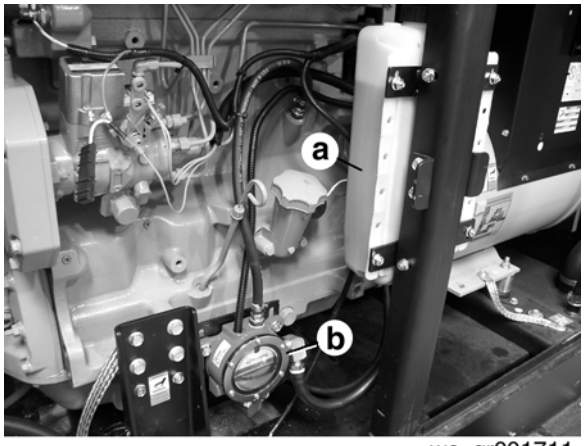
WARNING
Burn hazard. Pressurized coolant is very hot and can cause serious burns.
- ▶ Do not remove the radiator cap while the engine is hot.

If it is necessary to open the radiator, only do so with the engine off, and only when coolant is cool enough to touch with bare hands. Slowly loosen the radiator cap to relieve pressure first, before removing it completely.

Note: *The sensor may be disabled by unplugging the wire harness. This action will not shut down the machine.*

4.4 Lube Level Maintainer

The lube level maintainer system protects the engine from low oil levels by providing an additional 6-quart oil reservoir. Oil from the reservoir is gravity-fed from the oil reservoir **(a)** through the control valve **(b)** and into the engine oil pan as needed.



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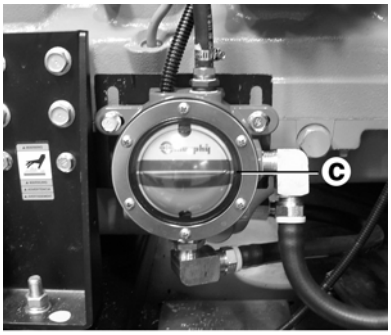

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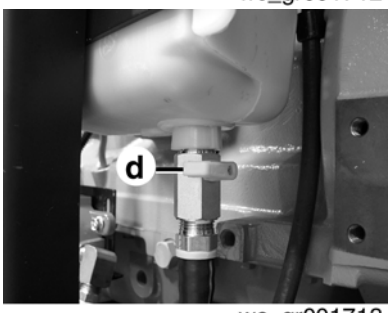

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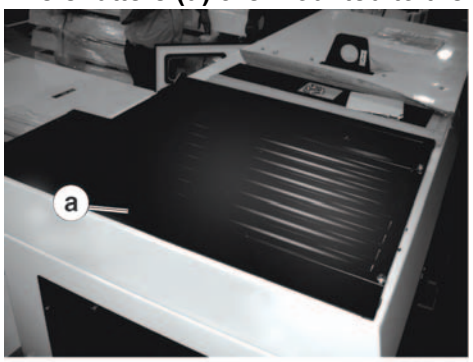
The valve includes a sightglass **(c)** through which the oil level can be seen. This oil level is the same as that measured by the engine dipstick. A float inside the valve detects low oil levels and opens the valve to supply the needed oil. The system is wired to the ECM and includes a low oil shutdown in case the oil in the reservoir is depleted. If the engine shuts down due to low oil, the ECM will display “FAULT LOW OIL LEVEL”. Fill the engine and the additional oil reservoir with oil before placing the generator back into service.

NOTICE: To prevent overfilling the engine with oil, place the shutoff valve **(d)** in the closed position when moving or towing the generator. Once the generator is in position, open the valve.

4.5 Temperature-Activated Shutters

The shutters **(a)** are mounted to the top of the generator enclosure.



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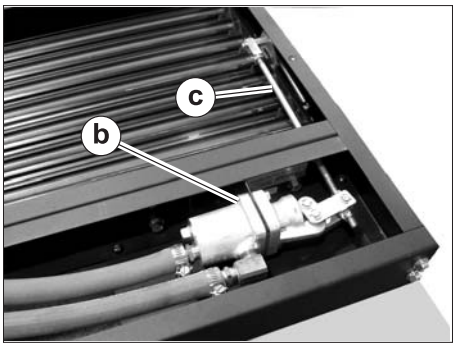

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The shutters are designed to keep the engine compartment warm, thus increasing engine temperature during cold weather operation. The shutters are activated through a wax-pellet actuator **(b)** that is connected to the generator's cooling system. As radiator coolant warms, the wax-pellet actuator engages a linkage **(c)** that opens the shutters. As the coolant cools, the shutters close.

4.6 Lockable Battery Disconnect

A lockable ON/OFF switch is available which disconnects the battery. A padlock (not included) securely locks the switch in the OFF position. If equipped, the battery disconnect switch is mounted to the upper skid beneath the access door on either the right or left side of the machine.

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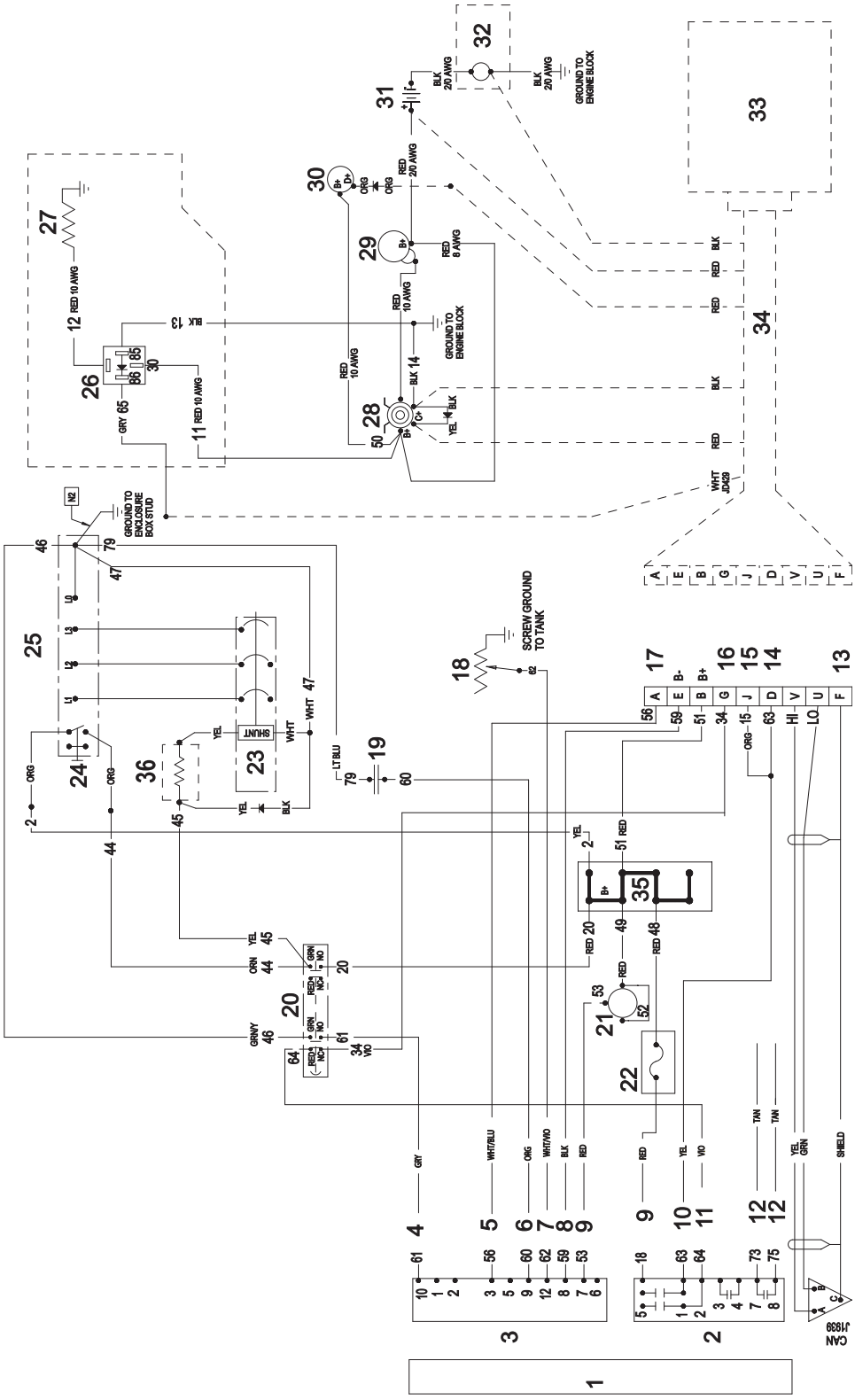
NOTICE: Do not use the battery disconnect switch while the engine is running. Damage to electrical components may occur.

Notes:

5 Schematics

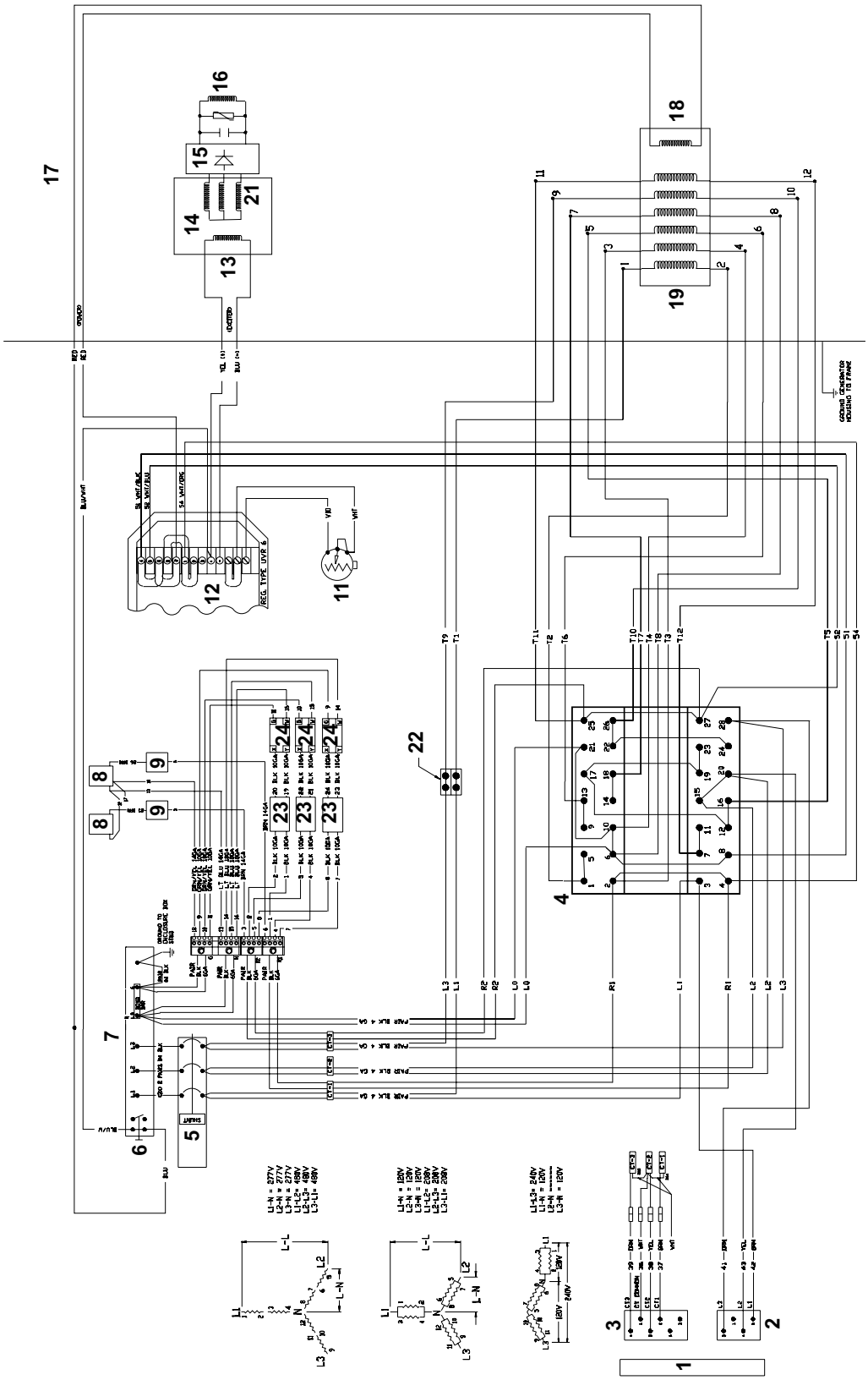
5.1 DC Schematic (G 150 / G 180 / G 240)



5.2 DC Schematic Components

Ref.	Description	Ref.	Description
1	Electronic control board	19	Remote start
2	Engine outputs	20	Emergency stop switch
3	Engine sensor inputs	21	Toggle switch
4	Emergency stop	22	10A fuse
5	Cold crank delay	23	Main breaker
6	Remote start	24	Lug door safety switch
7	Fuel level	25	Mechanical lugs
8	Battery -	26	Relay (if equipped)
9	Battery +	27	Intake heater (if equipped)
10	Crank	28	Starter relay
11	Run / fuel	29	Starter
12	Remote annunciator	30	Alternator
13	21 position connector	31	12V battery
14	Start relay	32	Battery disconnect switch
15	Alternator / charge	33	John Deere engine ECU
16	B+ switched	34	Engine harness
17	Crank delay	35	Terminal block
18	Fuel level	36	Resistor (if equipped)

5.3 AC Schematic (G 150 / G 180)



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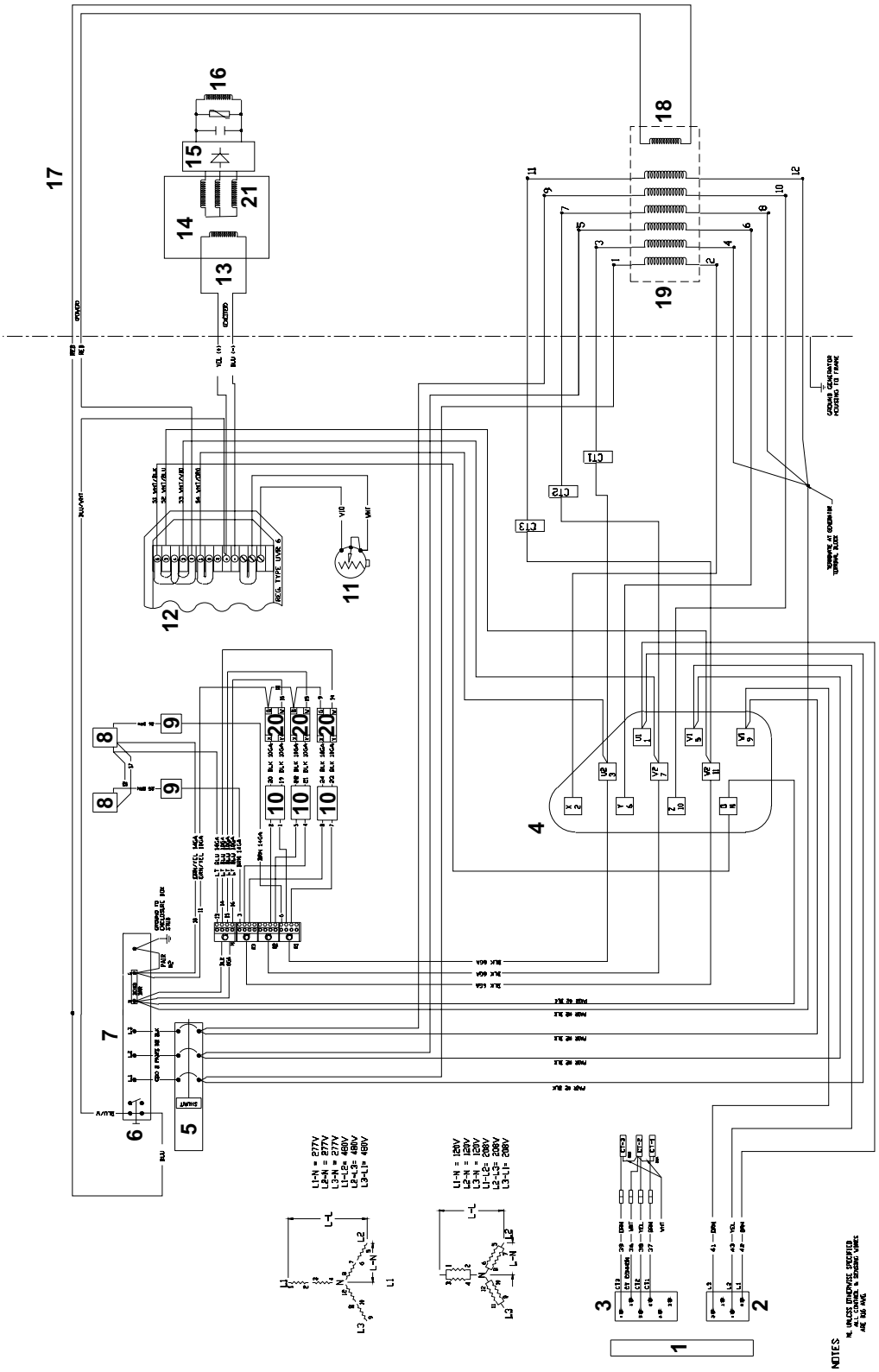
5.4 AC Schematic Components (G 150 / G 180)

Ref.	Description	Ref.	Description
1	Electronic control board	13	Stator
2	Plug 4—line voltage inputs	14	Exciter
3	Plug 3—current transformer inputs	15	Rectifier
4	Phase switch	16	Rotor main field
5	Main breaker	17	Generator (alternator)
6	Lug safety limit switch	18	Stator aux winding
7	Mechanical lugs	19	Stator main windings
8	GFI receptacle, 120V	21	Rotor
9	Circuit breaker, 120V 20A	22	Terminate at strip on generator
11	Potentiometer, 150K	23	Circuit breaker, 240V 50A
12	Voltage regulator	24	Receptacle, 240V 50A

5.5 AC Schematic (G 240)



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5.6 AC Schematic Components (G 240)

Ref.	Description	Ref.	Description
1	Electronic control board	12	Voltage regulator
2	Plug 4—line voltage inputs	13	Stator
3	Plug 3—current transformer inputs	14	Exciter
4	Voltage selector	15	Rectifier
5	Main breaker	16	Rotor main field
6	Lug safety limit switch	17	Generator (alternator)
7	Mechanical lugs	18	Stator aux winding
8	GFI receptacle, 120V	19	Stator main windings
9	Circuit breaker, 120V 20A	20	Receptacle, 240V 50A
10	Circuit breaker, 240V 50A	21	Rotor
11	Potentiometer, 150K		

6 Technical Data

6.1 Engine

Engine Power Rating
Gross standby power rating per ISO 8528-1 and SAE J1995. Actual power output may vary due to conditions of specific use.

Item No.		**G 150** 0620306 0620307 0620308	**G 180** 0620303 0620304 0620305	**G 240** 0620300 0620301 0620302
Engine				
Engine make		John Deere 6.8L		
Engine model		6068HF285		6068HF485
Number of cylinders		6		
Displacement	cm³ (in³)	6800 (415)		
Operating speed	rpm	1800		
Rated standby power @ 1800 rpm	kW (Hp)	147 (197)	177 (237)	235 (315)
Coolant capacity	l (qts.)	11.9 (13)		
Oil capacity	l (qts.)	32.5 (34.3)		
Battery	Volts/ CCA	12 / 1000		
Fuel type	type	Clean, filtered #1 or #2 diesel**		
Fuel tank capacity	l (gal.)	1136 (300)		1514 (400)
Fuel consumption @ prime load	l (gal.)/hr.	33.3 (8.8)	40.9 (10.8)	51.1 (13.5)
Running time @ continuous load	Hours	34.1	27.8	29.6

** The use of #6 diesel fuel is not recommended.

6.2 Generator Data

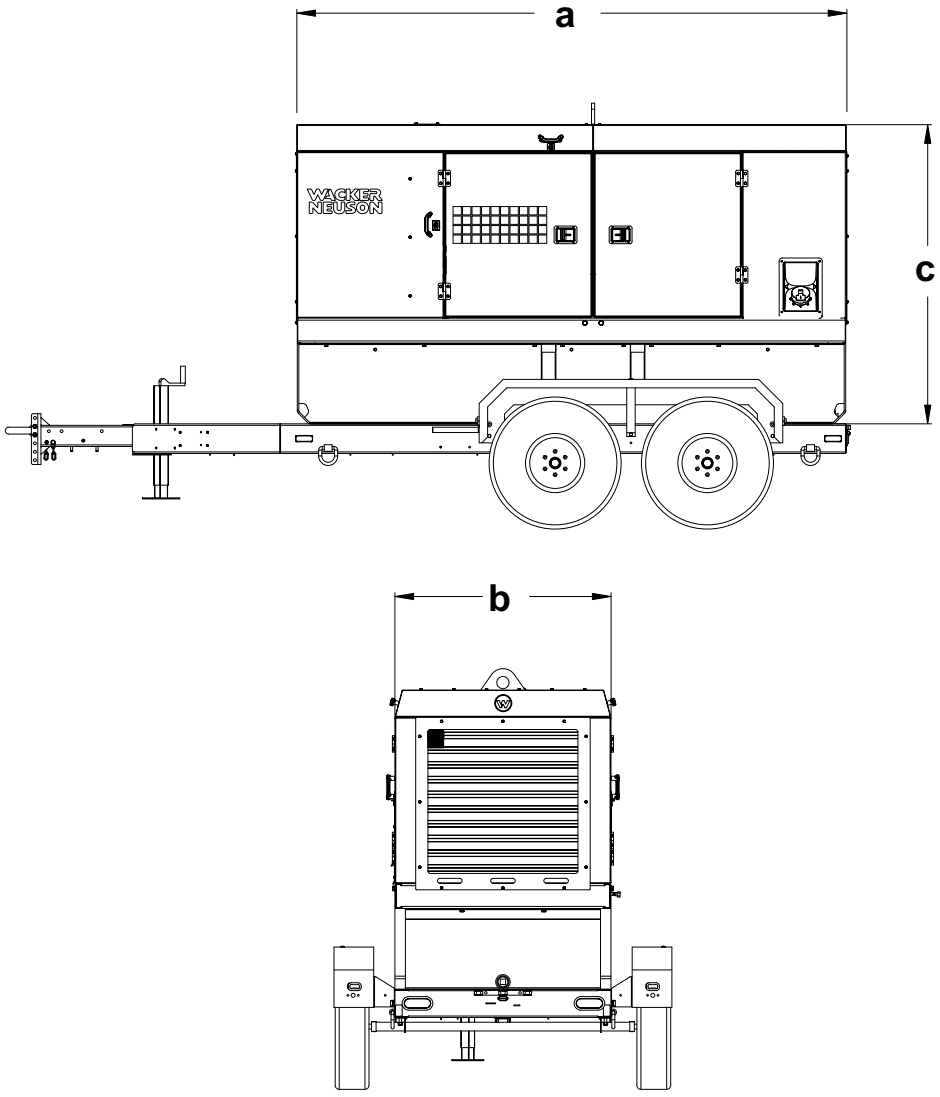
Item No.		G 150 0620306 0620307 0620308	G 180 0620303 0620304 0620305	G 240 0620300 0620301 0620302
Generator				
Make/Type		Mecc Alte		
Model		ECP34-2L/4	ECO38-1SN/4	ECO38-3SN/4
Generator speed	rpm	1800		
Voltage selector		3 position switch		2 position reconnect-able panel
AC voltages available	1Ø (V) 3Ø (V)	120, 127, 139, 240, 254, 277 208, 220, 240, 416, 440, 480		
Frequency		60 Hz		
Power factor	1Ø 3Ø	1.0 0.8		
Voltage regulation		±1.00%		
Insulation class		H		
Sound level at 7 m (23 ft.)	dB(A)	68	70	72
AC receptacles		2 duplex, 3 twist-lock		
1Ø 120 GFI duplex	Amps	2-20A		
1Ø 120/240 V twist lock	Amps	3–50A		
Standby output	kW/kVA	133/166	157/197	210/262
Prime output	kW/kVA	121/151	143/179	191/238
Main breaker	Amps	400	500	700

6.3 Trailer and Skid Data

Item No.		G 150 0620306 0620307 0620308	G 180 0620303 0620304 0620305	G 240 0620300 0620301 0620302
Generator				
Dry weight of skid	kg (lbs.)	2812 (6202)	2817 (6213)	3044 (6714)
Operating weight of skid	kg (lbs.)	3792 (8362)	3797 (8373)	4351 (9594)
Trailer weight without generator	kg (lbs.)	641 (1414)		
GVWR	kg (lbs.)	5455 (12,000)		
Surge brakes	Fluid type	Dot 3		
Tires	size	7.50 x 16E		

6.4 Dimensions

Item Number		G 150		G 180		G 240	
		0620306 0620308	0620307	0620303 0620305	0620304	0620300 0620302	0620301
a	mm (in.)	3353 (132.0)					
b		1321 (52.0)					
c		1727 (68.0)	1816 (71.5)	1727 (68.0)	1816 (71.5)	1829 (72.0)	1918 (75.5)



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