

Portable Generator Service Manual

WH3250 Series
WH4500 Series
WH5500 Series
WH6000 Series
WH6500E
WH7000 Series
WH7500E Series



Westinghouse

INNOVATION YOU CAN BE SURE OF

**California
Proposition 65 Warning**

The engine exhaust from this product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

**California
Proposition 65 Warning**

Certain components in this product and its related accessories contain chemicals known to the state of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.

DISCLAIMERS:

All information, illustrations and specifications in this manual are based on the latest information available at the time of publishing. The illustrations used in this manual are intended as representative reference views only. Moreover, because of our continuous product improvement policy, we may modify information, illustrations and/or specifications to explain and/or exemplify a product, service or maintenance improvement. We reserve the right to make any change at any time without notice. Some images may vary depending upon which model is shown.

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SAFETY DEFINITIONS

The words DANGER, WARNING, CAUTION and NOTICE are used throughout this manual to highlight important information. Be certain that the meanings of these alerts are known to all who work on or near the equipment.



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



DANGER

Indicates a hazardous situation which, if not avoided, *will* result in death or serious injury.



WARNING

Indicates a hazardous situation which, if not avoided, *could* result in death or serious injury.



CAUTION

Indicates a hazardous situation which, if not avoided, *could* result in minor or moderate injury.

NOTICE

Indicates a situation which can cause damage to the generator, personal property and/or the environment, or cause the equipment to operate improperly.

NOTE: *Indicates a procedure, practice or condition that should be followed in order for the generator to function in the manner intended.*

SAFETY SYMBOL DEFINITIONS

Symbol	Description
	Safety Alert Symbol
	Asphyxiation Hazard
	Burn Hazard
	Burst/Pressure Hazard
	Don't leave tools in the area
	Electrical Shock Hazard
	Explosion Hazard
	Fire Hazard
	Lifting Hazard
	Pinch-Point Hazard
	Read Manufacturer's Instructions
	Read Safety Messages Before Proceeding
	Wear Personal Protective Equipment (PPE)

SAFETY

GENERAL SAFETY RULES

DANGER



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



Never operate the generator in an enclosed area. Engine exhaust contains carbon monoxide. Only operate the generator outside and away from windows, doors and vents.

WARNING



Voltage produced by the generator could result in death or serious injury.

- Never operate the generator in rain or a floodplain unless proper precautions are taken to avoid being subject to rain or a flood.
- Never use worn or damaged extension cords.
- Always have a licensed electrician connect the generator to the utility circuit.
- Never touch an operating generator if the generator is wet or if you have wet hands.
- Never operate the generator in highly conductive areas such as around metal decking or steel works.
- Always use grounded extension cords. Always use three-wire or double-insulated power tools.
- Never touch live terminals or bare wires while the generator is operating.
- Be sure the generator is properly grounded before operating.

WARNING



Gasoline and gasoline vapors are extremely flammable and explosive under certain conditions.



- Always refuel the generator outdoors, in a well-ventilated area.
- Never remove the fuel cap with the engine running.
- Never refuel the generator while the engine is running. Always turn engine off and allow the generator to cool before refueling.
- Only fill fuel tank with gasoline.
- Keep sparks, open flames or other form of ignition (such as match, cigarette, static electric source) away when refueling.
- Never overfill the fuel tank. Leave room for fuel to expand. Overfilling the fuel tank can result in a sudden overflow of gasoline and result in spilled gasoline coming in contact with HOT surfaces. Spilled fuel can ignite. If fuel is spilled on the generator, wipe up any spills immediately. Dispose of rag properly. Allow area of spilled fuel to dry before operating the generator.
- Wear eye protection while refueling.
- Never use gasoline as a cleaning agent.
- Store any containers containing gasoline in a well-ventilated area, away from any combustibles or source of ignition.
- Check for fuel leaks after refueling. Never operate the engine if a fuel leak is discovered.

⚠ WARNING



Never operate the generator if powered items overheat, electrical output drops, there is sparking, flames or smoke coming from the generator, or if the receptacles are damaged.



Always remove any tools or other service equipment used during maintenance from the generator before operating.



The muffler becomes very hot during operation and remains hot after stopping the engine.

- Never touch hot surfaces and avoid hot exhaust gases.
- Let engine cool before storing the generator indoors.



Battery gases are explosive.

Never allow open flames, lit cigarettes, sparks or spark-producing equipment near the battery.



Battery electrolyte fluid is comprised of sulfuric acid, which can cause severe burns.

Never allow battery electrolyte fluid to contact eyes, skin or clothing. If contact or spillage of electrolyte occurs, immediately flush the area with water.



- Never use this product to power life support devices or life support appliances.
- Never use this product to power medical devices or medical appliances.
- Inform your electricity provider immediately if you or anyone in your household depends on electrical equipment to live.
- Inform your electrical provider immediately if a loss of power would cause you or anyone in your household to experience a medical emergency.

⚠ WARNING



California Proposition 65

The engine exhaust from this product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

NOTICE

Never modify the generator.

Never operate the generator if it vibrates at high levels, if engine speed changes greatly or if the engine misfires often.

Always disconnect tools or appliances from the generator before starting.

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WESTPRO POWER SYSTEMS “THREE YEAR” LIMITED WARRANTY

Effective July 1, 2011

WESTPRO’S RESPONSIBILITY

Westpro Power Systems, LLC (“WESTPRO”) warrants to the original purchaser that its Westinghouse line of generators will be free from defects in material and workmanship. Under normal use and maintenance from the date of purchase, WESTPRO agrees to repair or replace at WESTPRO’s discretion, any defective product free of charge at any authorized WESTPRO Authorized Service Dealer within the below listed applications, time periods, limitations, and exclusions. THIS LIMITED WARRANTY IS EXTENDED TO THE ORIGINAL PURCHASER ONLY AND IS NOT TRANSFERABLE TO SUBSEQUENT OWNERS EXCEPT FOR EMISSION RELATED PARTS. This warranty is separate from the Emission Control Warranty Statement supplied with your new product. Please consult the Emission Control Warranty Statement for details regarding emission related parts. For a list of WESTPRO Authorized Service Dealers refer to www.westpropower.com or call 1-855-944-3571.

OWNER’S RESPONSIBILITY

To ensure trouble free warranty coverage it is important that you register your WESTPRO Westinghouse generator. You may register on-line at www.westpropower.com, by automated phone at 1-855-944-3571, or by filling out and returning to WESTPRO the warranty registration card supplied with your generator. Registering your product confirms your warranty coverage and provides a direct link between you and WESTPRO if we find it necessary to contact you.

Your receipt for purchase including date, model and serial number must be maintained and presented to a WESTPRO Authorized Service Dealer for warranty service. Proof of purchase rests solely with you, the original purchaser.

You must demonstrate reasonable care and use, and follow preventive maintenance, storage, fuel and oil usage as prescribed in the operator’s manual for your WESTPRO Westinghouse unit. Should a product difficulty occur, you must, at your expense, deliver or ship your WESTPRO Westinghouse unit to a WESTPRO Authorized Service Dealer for warranty repairs (which must occur within the applicable warranty period), and arrange for pick-up or return of your unit after the repairs have been made. For the WESTPRO Authorized Service Dealer nearest to you, call WESTPRO’s automated phone at 1-855-944-3571 or you may locate a WESTPRO Authorized Service Dealer at www.westpropower.com. Should you require assistance or have questions concerning WESTPRO’s Warranty Statement, you can contact us through the web at www.westpropower.com or call 1-855-944-3571.

PRODUCT WARRANTY APPLICATIONS AND PRODUCT WARRANTY PERIODS

CONSUMER APPLICATION

For the purpose of this limited warranty “Consumer Application” means usage by the original purchaser for the purpose of personal residential household or recreational use.

Parts and labor will be covered at 100% for a period of one (1) year from the date of purchase.

Parts only will be covered at 100% for a period of three (3) years from the date of purchase.

If proof of purchase is not available to establish the purchase date nor is the equipment registered as suggested herein, the date of manufacturing as recorded by WESTPRO will start the product warranty period.

COMMERCIAL APPLICATION

For the purpose of this limited warranty “Commercial Application” means usage by the original purchaser for the purpose of income producing, business related use. Once a generator has been used for income producing and business related purposes, it shall thereafter be considered a “Commercial Application” and the following warranty will apply.

Parts and labor will be covered at 100% for a period of one (1) year from the date of purchase.

If proof of purchase is not available to establish the purchase date nor is the equipment registered as suggested herein, the date of manufacturing as recorded by WESTPRO will start the product warranty period.

WARRANTY

NON-WARRANTABLE APPLICATIONS

THE WESTPRO WESTINGHOUSE LINE OF GENERATORS IS EXPRESSLY NOT RECOMMENDED FOR NOR WARRANTED FOR THE FOLLOWING APPLICATIONS:

Medical and Life Support Uses – This product is not recommended for and is NOT warranted for the use to power Medical and Life Support equipment or devices.

Prime Power – This warranty does not apply to generators used for Prime Power (primary source of power) in place of utility power where utility power service is present or where utility power service does not normally exist, regardless of whether a Consumer Application or Commercial Application is involved.

EXCLUSIONS

- WESTPRO portable generators that utilize non-WESTPRO replacement parts.
- Costs of normal maintenance and adjustments.
- Failures caused by any contaminated fuels, oils, or lack of proper oil levels.
- Repairs or diagnostics performed by individuals other than WESTPRO authorized dealers not authorized in writing by WESTPRO.
- Failures due to normal wear and tear, accident, misuse, abuse, negligence or improper use. As with all mechanical devices, the WESTPRO engines need periodic part(s) service and replacement to perform as designed. This warranty will not cover repair when normal use has exhausted the life of a part(s) or engine.
- Failures caused by any external cause or act of God, including but not limited to, collision, theft, vandalism, riot, war, fire, freezing, lightning, earth-quake, windstorm, hail, water, flood, tornado, or hurricane.
- Damage related to rodent and/or insect infestation.
- Products that are modified or altered in a manner not authorized in writing by WESTPRO.
- Any incidental, consequential or indirect damages caused by defects in materials or workmanship, or any delay in repair or replacement of the defective part(s).
- Failure due to misapplication.
- Telephone, cellular phone, facsimile, internet access, or other communication expenses.
- Expenses related to “customer instruction” or troubleshooting where no manufacturing defect is found.
- Overnight freight or special shipping costs for replacement part(s).
- Overtime, holiday or emergency labor.
- Starting batteries, fuses, light bulbs and engine fluids.

DISCLAIMER OF IMPLIED WARRANTIES

This limited warranty is in lieu of all other expressed or implied warranties, including any warranty of FITNESS FOR A PARTICULAR PURPOSE OR USE and any implied warranty of MERCHANTABILITY otherwise applicable to WESTPRO’s Westinghouse line of generators. WESTPRO and its affiliated companies shall not be liable for any special, incidental or consequential damage, including lost profits. There are no warranties extended other than as provided herein. This limited warranty may be modified only by WESTPRO. Any implied warranties allowed by law shall be limited in duration to the terms of the express warranty provided herein. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights. You also have other rights from state to state. WESTPRO’S ONLY LIABILITY SHALL BE THE REPAIR OR REPLACEMENT AS STATED ABOVE. IN NO EVENT SHALL WESTPRO BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, EVEN IF SUCH DAMAGES ARE A DIRECT RESULT OF WESTPRO’S NEGLIGENCE. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights from state to state.

This limited warranty is given by Westpro Power Systems, LLC, W237 N2889 Woodgate Rd. Unit B, Pewaukee, WI 53072.



EMISSIONS CONTROL WARRANTY

FEDERAL and/or CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

Westpro Power Systems, LLC, the United States Environmental Protection Agency (EPA), and, for those products certified for sale in the state of California, the California Air Resources Board (CARB) are pleased to explain the emission control system (ECS) warranty on your 2014 small off-road spark-ignited engine and equipment (the outdoor equipment). In California, new outdoor equipment must be designed, built and equipped to meet the state's stringent anti-smog standards (in other states, outdoor equipment must be designed, built, and equipped to meet the U.S. EPA small offroad, spark ignition engine regulations). Westpro Power Systems, LLC must warrant the ECS on your outdoor equipment of the period of time listed below provided there has been no abuse, neglect or improper maintenance of outdoor equipment.

Your ECS may include parts such as the carburetor, fuel-injection system, the ignition system, catalytic converter, fuel tanks, fuel lines, fuel caps, valves, canisters, filters, vapor hoses, clamps, connectors, and other associated emission-related components.

Where a warrantable condition exists, Westpro Power Systems, LLC will repair your outdoor equipment engine at no cost to you including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE:

This emission control system is warranted for two years. If any emission-related part on your outdoor equipment is defective, the part will be repaired or replaced by Westpro Power Systems, LLC.

OWNER'S WARRANTY RESPONSIBILITIES:

As the outdoor equipment owner, you are responsible for performance of the required maintenance listed in your owner's manual. Westpro Power Systems, LLC recommends that you retain all receipts covering maintenance on your outdoor equipment, but Westpro Power Systems, LLC cannot deny warranty solely for the lack of receipts or your failure to ensure the performance of all scheduled maintenance.

As the outdoor equipment owner, you should however be aware that Westpro Power Systems, LLC may deny you warranty coverage if your outdoor equipment or a part has failed due to abuse, neglect, or improper maintenance or unapproved modifications.

You are responsible for presenting your outdoor equipment to a Westpro Power Systems, LLC's Authorized Warranty Service Dealer as soon as the problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact a Westpro Power Systems, LLC Service Representative at 1-855-WHHELP1 (1-855-944-3571) or contact Westpro Power Systems, LLC at the following address: W237 N2889 Woodgate Road, Unit B, Pewaukee, WI 53072 or www.westpropower.com.

EMISSIONS CONTROL WARRANTY

DEFECTS WARRANTY REQUIREMENTS

Westpro Power Systems, LLC warrants to the ultimate purchaser and each subsequent purchaser that the outdoor equipment engine is designed, built and equipped so as to conform with all applicable regulations; and free from defects in materials and workmanship that cause the failure of a warranted part, and is identical in all material respects to that part as described in the application for certification.

The warranty period begins on the date the outdoor equipment is delivered to the ultimate purchaser or first placed into service.

Subject to certain conditions and exclusions as stated below, the warranty on emission-related parts is as follows:

1. Any warranted part that is not scheduled for replacement as required maintenance in the written instructions supplied is warranted for the warranty period stated above. If the part fails during the period of warranty coverage, the part will be repaired or replaced by Westpro Power Systems, LLC according to subsection (4) below. Any such part repaired or replaced under warranty will be warranted for the remainder of the period.
2. Any warranted part that is scheduled only for regular inspection in the written instructions supplied is warranted for the warranty period stated above. Any such part repaired or replaced under warranty will be warranted for the remaining warranty period.
3. Any warranted part that is scheduled for replacement as required maintenance in the written instructions supplied is warranted for the period of time before the first scheduled replacement date for that part. If the part fails before the first scheduled replacement, the part will be repaired or replaced by Westpro Power Systems, LLC according to subsection (4) below. Any such part repaired or replaced under warranty will be warranted for the remainder of the period prior to the first scheduled replacement point for the part.
4. Repair or replacement of any warranted part under the warranty provisions herein must be performed at a warranty station at no charge to the owner.
5. Notwithstanding the provisions herein, warranty services or repairs will be provided at all of our distribution centers that are franchised to service the subject engines or equipment.
6. The outdoor equipment owner will not be charged for diagnostic labor that is directly associated with diagnosis of a defective, emission-related warranted part, provided that such diagnostic work is performed at a warranty station.
7. Westpro Power Systems, LLC is liable for damages to other engine or equipment components proximately caused by a failure under warranty of any warranted part.
8. Throughout the outdoor engine and equipment warranty period stated above, Westpro Power Systems, LLC will maintain a supply of warranted parts sufficient to meet the expected demand for such parts.
9. Any replacement part may be used in the performance of any warranty maintenance or repairs and must be provided without charge to the owner. Such use will not reduce the warranty obligations of Westpro Power Systems, LLC.
10. Add-on or modified parts that are not exempted by the Air Resources Board may not be used. The use of any non-exempted add-on or modified parts by the ultimate purchaser will be grounds for disallowing a warranty claim. Westpro Power Systems, LLC will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

EMISSIONS CONTROL WARRANTY

WARRANTED PARTS:

The repair or replacement of any warranted part otherwise eligible for warranty coverage may be excluded from such warranty coverage if Westpro Power Systems, LLC demonstrates that the outdoor equipment has been abused, neglected, or improperly maintained, and that such abuse, neglect, or improper maintenance was the direct cause of the need for repair or replacement of the part. That notwithstanding, any adjustment of a component that has a factory installed, and properly operating, adjustment limiting device is still eligible for warranty coverage. Further, the coverage under this warranty extends only to parts that were present on the outdoor equipment purchased.

The following emission warranty parts are covered (if applicable):

(1) Fuel Metering System

- Cold start enrichment system (soft choke)
- Carburetor and internal parts (or fuel injection system)
- Fuel pump
- Fuel tank

(2) Air Induction System

- Air cleaner
- Intake manifold

(3) Ignition System

- Spark plug(s)
- Magneto ignition system

(4) Exhaust System

- Catalytic converter
- SAI (Reed valve)

(5) Miscellaneous Items Used in Above System

- Vacuum, temperature, position, time sensitive valves and switches
- Connectors and assemblies

(6) Evaporative Control

- Fuel hose
- Fuel hose clamps
- Tethered fuel cap
- Carbon canister
- Vapor lines

QUESTIONS:

If you have any questions regarding your emissions warranty rights and responsibilities you should contact Westpro Power Systems, LLC at:

Phone: (855) 944-3571, toll free
Email: service@westinghousepowerproducts.com
Address: Service Department
Westpro Power Systems, LLC
W237 N2889 Woodgate Road, Unit B
Pewaukee, WI 53072



EMISSIONS CONTROL WARRANTY

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SPECIFICATIONS

Table 3-1: Westpro Portable Generator Specifications

GENERATOR	WH3250 Series	WH4500 Series	WH5500 Series	WH6000 Series	WH6500E Series	WH7000/E Series	WH7500E Series
POWER							
Rated [watts] (+/-10% under load)	3250	4500	5500	6000	6500	7000	7500
Maximum [watts] (+/-10% under load)	3750	5600	6750	7500	8000	8500	9000
Frequency [Hz] (+/-5% under load)	60						
Voltage [volts] (+/-5% under load)	120 / 240						
OPERATING TEMPERATURE							
Maximum [F / C]	104° / 40°						
Minimum [F / C]	14° / -10°						
ENGINE							
Speed [RPM]	3600						
Type	OHV 4-cycle						
Displacement [cc]	208	292	357	357	357	420	420
Valve Lash [in. / mm]	IN: 0.005±0.001 / 0.125±0.025 EX: 0.007±0.001 / 0.175±0.025						
Fuel††	87 octane or higher unleaded, E10 Ethanol						
Fuel Tank Capacity [gal / L]	6.6 / 25						
Engine Oil	SAE 10W-30*						
Engine Oil Capacity [qt / L]	1.2 / 1.1						
Spark Plug	RN9YC†						
Spark Plug Gap [in. / mm]	0.028-0.031 / 0.7-0.8						
Air Filter	160006						
Battery (Electric Start Models Only)	-	-	-	-	100024	100024	100024

* See Engine Oil Recommendations on page 7-3 for other engine oil types outside general temperature use.

† See Spark Plug Service on page 7-7 for other recommended spark plug replacements.

†† See FUEL on page 7-2 for more information on engine fuels.

SPECIFICATIONS

BOLT AND FASTENER TORQUE INFORMATION

Table 3-2: Torque Values

Component-Specific Fastener	Fastener Size	Torque Values	
		ft-lb	N-m
Alternator End Cover Bolts	M5 x 0.75 x 12	3	4
Alternator Housing Bolts	M10 x 1.25 x 80	35	48
Axle Bracket Bolts	M8 x 1.0 x 16	18	25
Brush Assembly Bolt	M5 x 0.75 x 16	2	2
Carbon Canister Bracket Bolts	M6 x 1.0 x 10	2	2
Connecting Rod Bolts	M8 x 1.25	11	15
Control Panel Bolts	M6 x 1.0 x 15	3	4
Cooling Fan Flange Nut	M18 x 1.5	77	105
Crankcase Cover Bolts	M8 x 1.25 x 40	21	28
Cylinder Head Bolts	M10 x 1.25 x 80	35	48
Exhaust Pipe Bolts	M8 x 32	13	18
Fuel Shutoff Valve Hex Fitting	M10 x 1.25	17	24
Fuel Tank Mounting Bolts	M6 x 1.0 x 25	7	10
Ignition Coil Bolts	M6 x 1.0 x 25	7	10
Muffler Cover Bolts	M6 x 1.0 x 14	3	4
Muffler Rear Mounting Bracket Bolts	M8 x 1.0 x 16	13	18
Muffler Side Guard Bolts	M6 x 1.0 x 14	3	4
Oil Drain Screw	M12 x 1.5	24	32
Pivot Adjusting Nuts	M6 x 0.75	9	12
Pivot Bolts	M8 x 1.25	22	30
Rotor Bolt	–	35	48
Spark Arrestor Clamp Screw	M4 x 0.75 x 16	1	1
Spark Arrestor Screw	M3.5 x 0.75 x 10	1	1
Spark Plug	13/16"	21	28
Starter Solenoid Terminal Nut	M6 x 1.0	4	6
Support Leg to Frame Bolts	M8 x 1.0 x 16	18	25
Leg to Rubber Stopper Bolts	M8 x 1.0 x 25	18	25
Handle Pivot Bracket Bolts	M6 x 1.0 x 40	7	10

WIRING DIAGRAMS

WH3250 Series

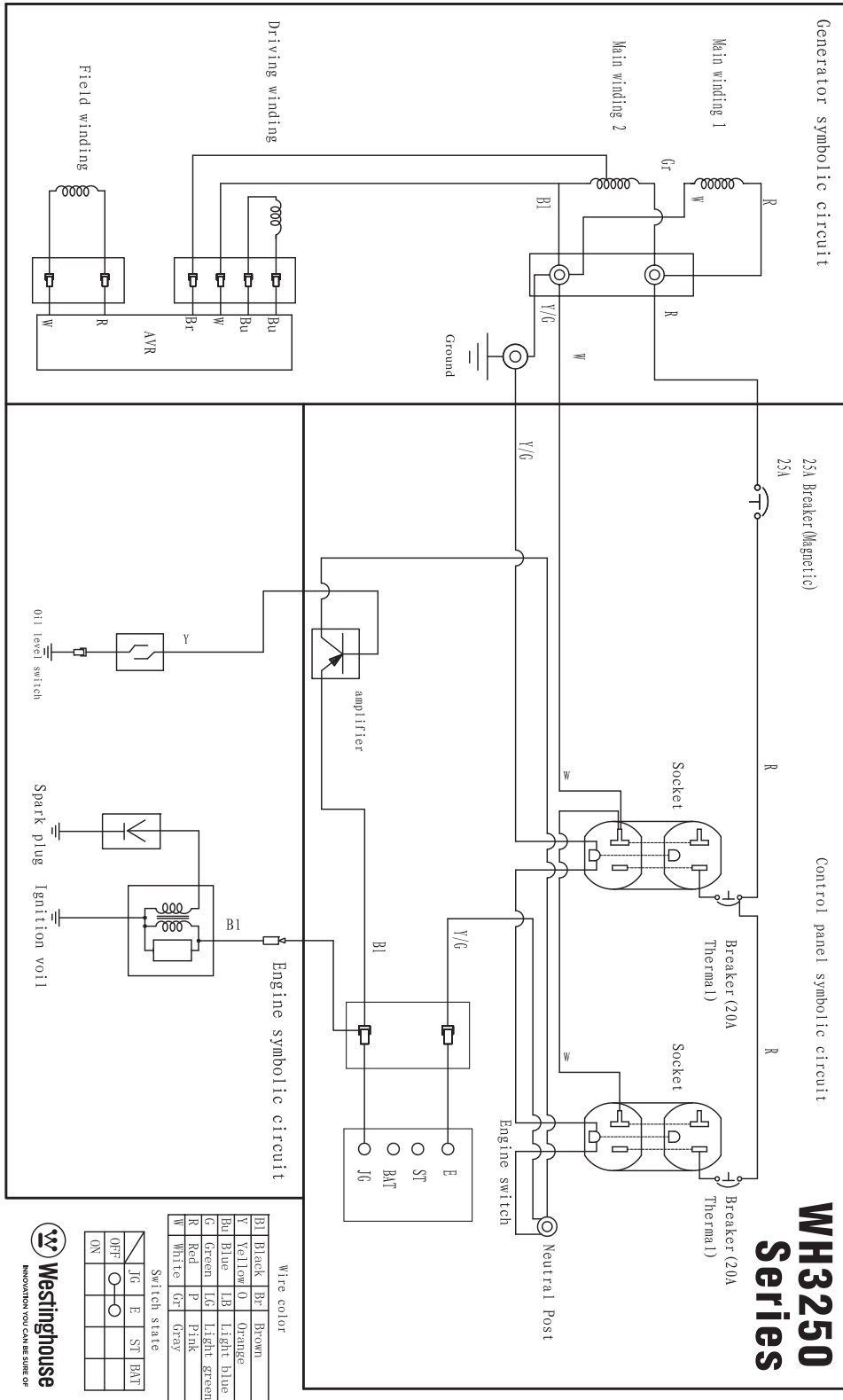


Figure 3-1 – WH3250 Series Wiring Diagram

SPECIFICATIONS

WH4500 Series, WH5500 Series

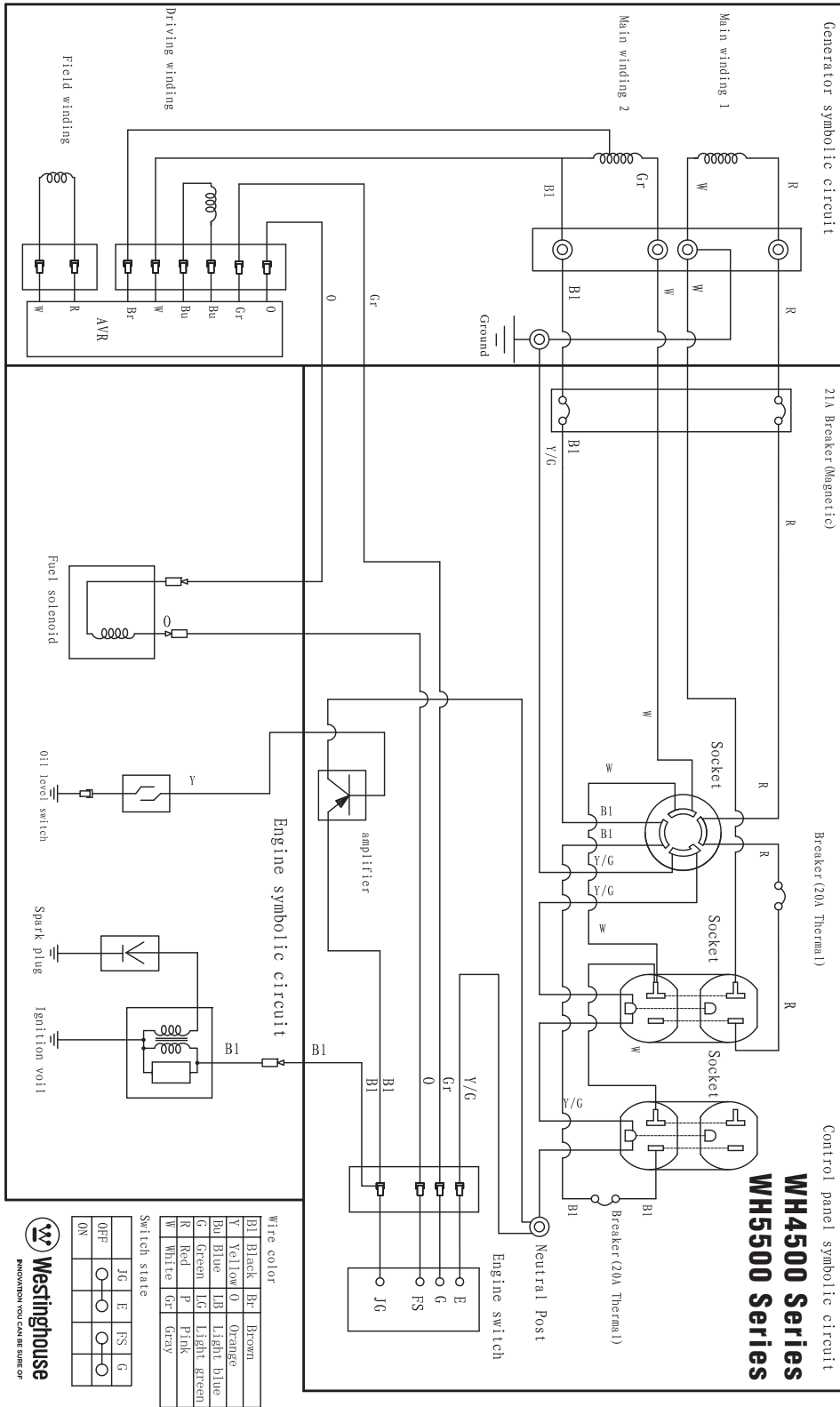


Figure 3-2 – WH4500 Series, WH5500 Series Wiring Diagram

WH6000 Series

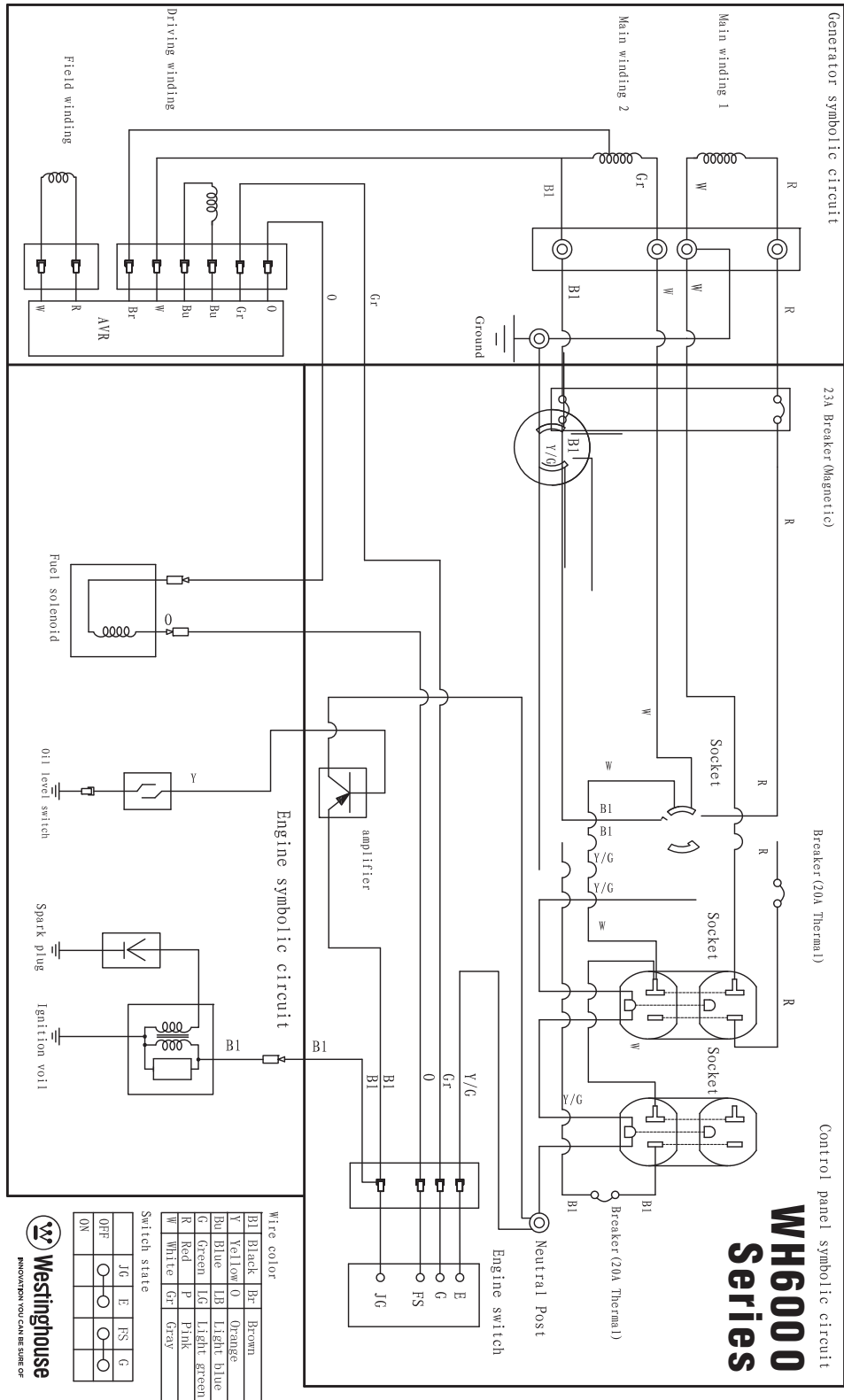


Figure 3-3 – WH6000 Series Wiring Diagram

SPECIFICATIONS

WH6500E Series

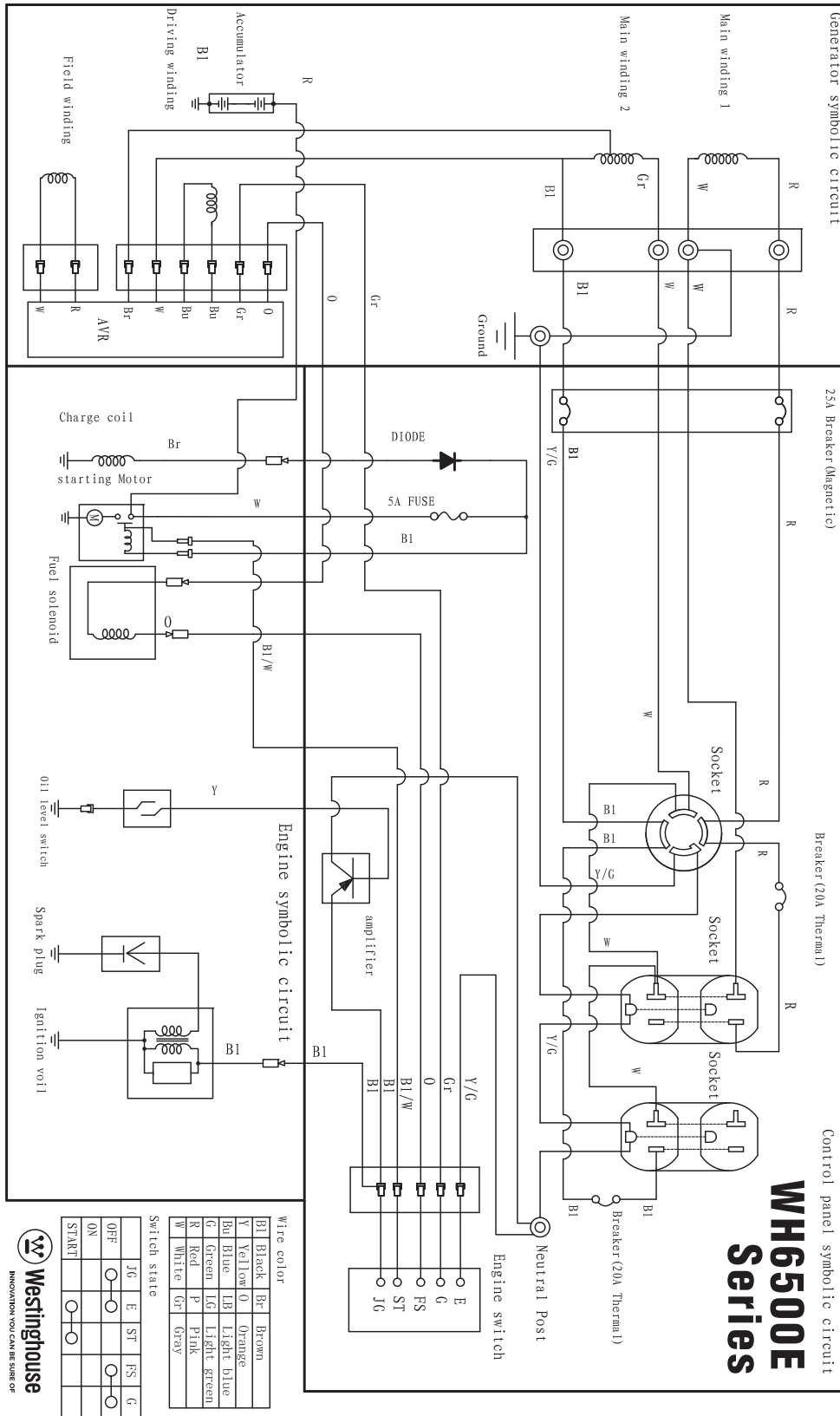


Figure 3-4 – WH6500E Series Wiring Diagram



WH7000E Series

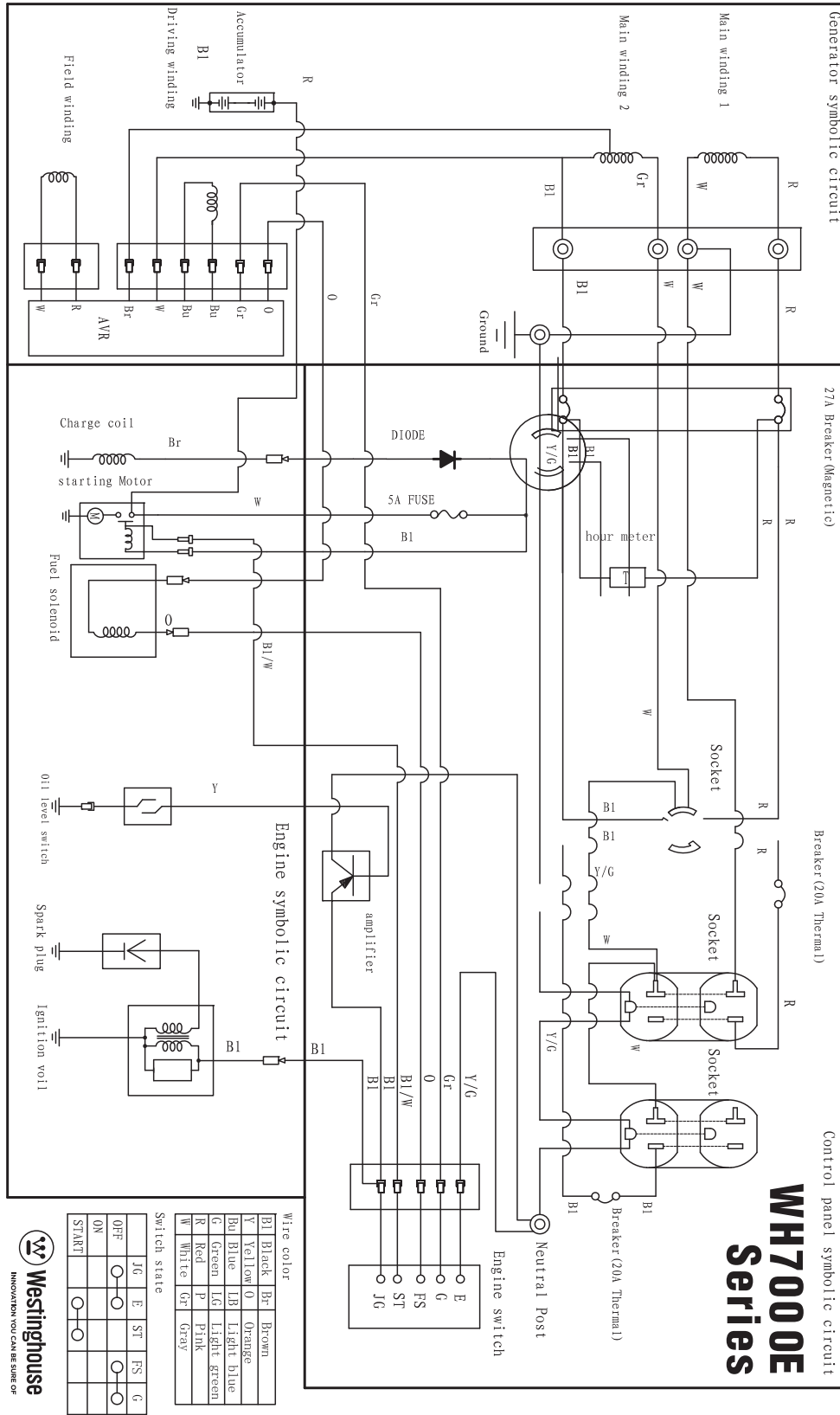


Figure 3-5 – WH7000E Series Wiring Diagram

SPECIFICATIONS

WH7500E Series

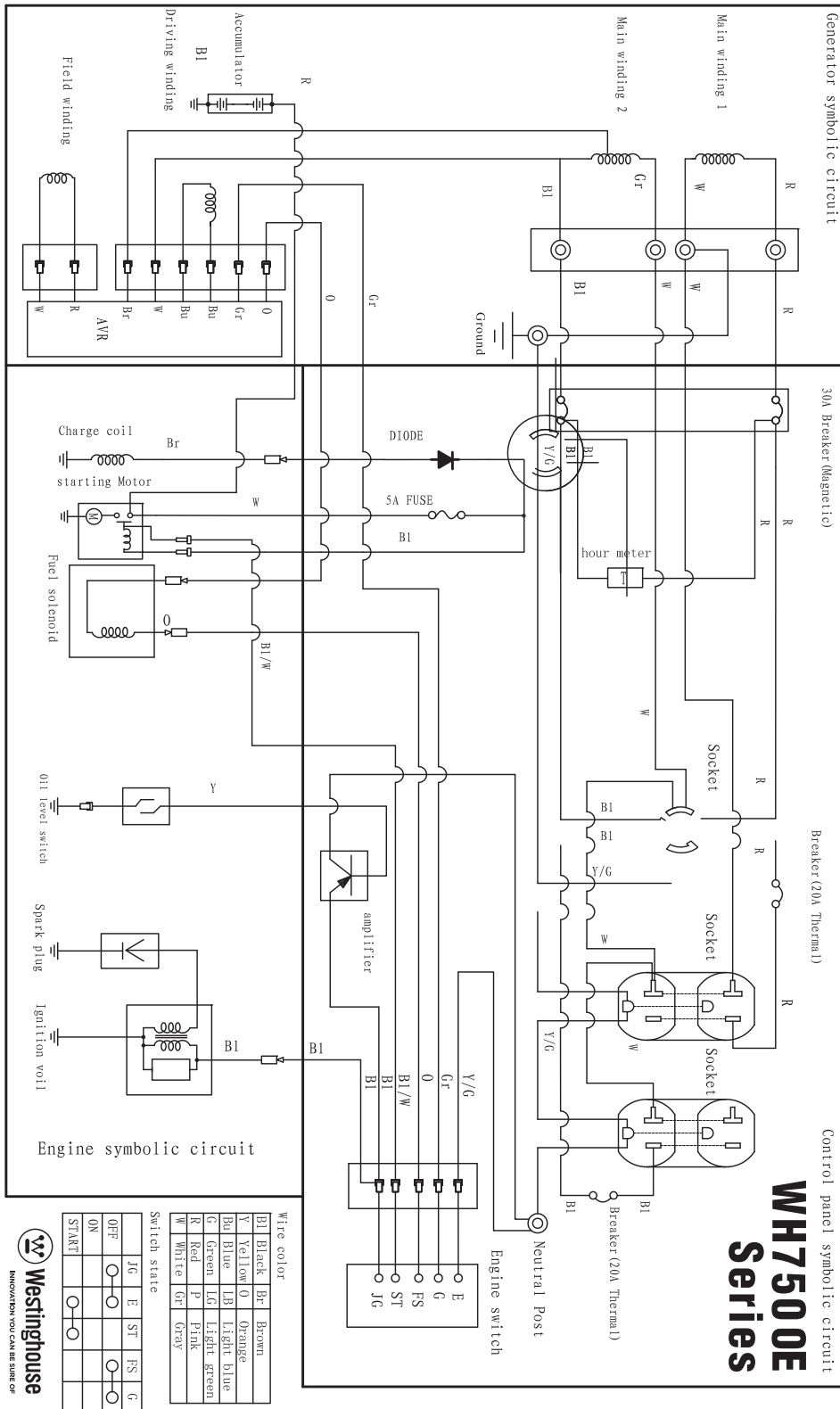


Figure 3-6 – WH7500E Series Wiring Diagram

GENERAL GENERATOR COMPONENTS



Figure 4-1

- 1 - **Engine Control Switch:** Turns the engine on and off.
- 2 - **Fuel Cap:** Close until clicking sound is heard.
- 3 - **Control Panel:** Contains the circuit breakers and outlets.
- 4 - **Muffler and Spark Arrester:** Avoid contact until engine is cooled down. Spark arrester prevents sparks from exiting the muffler. It must be removed for servicing.
- 5 - **Battery:** For electric start models only.
- 6 - **Oil Fill Plug/Dipstick:** Must be removed to add and check oil.
- 7 - **Oil Drain Plug:** Must be removed to drain engine oil.

COMPONENTS



Figure 4-2

- 1 - Fuel Gauge:** Indicates fuel level.
- 2 - Fuel Shutoff Valve:** Controls the flow of fuel to the engine.
- 3 - Recoil Handle:** Must pull to start engine for manual start units.
- 4 - Air Cleaner Cover:** Must remove to service the air cleaner.
- 5 - Choke Lever:** Must be put in the **ON** position to start the engine and returned to the **OFF** position once the engine is running.
- 6 - Carbon Canister:** Model numbers followed by a "C" will be equipped with a carbon canister. See *Removing Fine Inside Air Filter* on page 7-6 for more information.
- 7 - Spark Plug Boot (Wire):** Must be removed when servicing the engine or the spark plug.

CONTROL PANEL FEATURES



Figure 4-3 – Control Panel Features

1. **Engine Control Switch (RUN/STOP for Manual Start Units):**
 - **RUN** - In the **RUN** position, the switch allows the generator to be started (for manual start models).
 - **STOP** - In the **STOP** position, the switch stops the engine.
2. **Hour Meter:** Displays the total hours run and the current run hours.
3. **Main Circuit Breaker:** The main circuit breaker controls total output of all outlets to protect the generator.
4. **120/240-Volt, 30-Amp Twist Lock Outlet (NEMA 14-30R):** Outlet can supply either 120V or 240V output.
5. **120-Volt, 20-Amp Duplex Outlets (NEMA 5-20R):** Each outlet is capable of carrying a maximum of 20 amps on a single receptacle or a combination of both receptacles.
6. **20-Amp Circuit Breakers:** Each circuit breaker limits the current that can be delivered through the 120-volt duplex outlets to 20 amps.
7. **Ground Terminal:** The ground terminal is used to ground the generator.
8. **Engine Control Switch (START/RUN/STOP for Electric Start Units):**
 - **START** - When the switch is momentarily depressed and held in the **START** position, the electric start motor engages and starts the engine. Once the engine starts, release the switch. (The switch will automatically go to the **RUN** position.)
 - **RUN** - Once started, the switch will remain in the **RUN** position.
 - **STOP** - To stop the engine, move the switch to the **STOP** position.

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PREPARING FOR SERVICE

WARNING



ANYONE using or servicing this generator must read, understand and follow all safety and operation instructions provided in this manual. Failure to closely follow these instructions can result in circumstances leading to serious injury or death, and property damage.

REQUIRED TOOLS

A complete set of standard and metric shop tools is required to service the generator. Also needed are:

- Hammer
- Torque wrench
- Volt-ohm meter
- Frequency meter
- Resistive load – such as a load bank, heaters, light bulbs, etc.
- Alternator removal tool
- Wooden block (for rotor support)

TRANSPORTING GENERATOR

WARNING



Hot engine or exhaust system can cause serious burns or fires. Let generator cool completely before transporting.



When moving or transporting the generator:

- Move the engine control switch to the **STOP** position.
- Turn the fuel shutoff valve to the **OFF** position.
- Keep the generator level to prevent fuel spillage.

NOTICE

Never drop, strike or place heavy objects on generator when transporting.

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SERVICE REPAIR TIME ANALYSIS

SERVICE REPAIR TIME ANALYSIS AND FLAT RATE SCHEDULE

Operation	WH3250 Series WH4500 Series (min.)	WH5500 Series WH6000 Series (min.)	WH7000 Series (min.)	Electric Start Models (min.)
ELECTRICAL				
Alternator Complete	120	120	120	120
Battery	–	–	–	30
Brush Assembly	45	45	45	45
Charging Coil Assembly	45	45	45	45
Control Panel Assembly	60	60	60	60
Flash the Field	45	45	45	45
Ignition Coil	50	50	50	50
Meters / Circuit Breakers	45	45	45	45
Oil Shutdown Switch	40	40	40	40
Oil Alert Sender	40	40	40	40
Receptacles / Ports	50	50	50	50
Recoil Starter Assembly	30	30	30	30
Spark Plug	30	30	30	30
Electric Starter	–	–	–	45
Starter Solenoid	–	–	–	35
Voltage Regulator	60	60	60	60
ENGINE				
Air Filter	30	30	30	30
Air Filter Assembly	40	40	40	40
Carburetor	50	50	50	50
Choke	45	45	45	45
Cylinder Head Cover	45	45	45	45
Cylinder Head Gasket	40	40	40	40
Engine Complete	180	180	180	210
Governor Assembly	50	50	50	50
Head Cover Gasket	40	40	40	40

SERVICE REPAIR TIME ANALYSIS

Operation	WH3250 Series WH4500 Series (min.)	WH5500 Series WH6000 Series (min.)	WH7000 Series (min.)	Electric Start Models (min.)
FUEL & EXHAUST				
Carbon Canister (with bracket) (CARB Emission Equipment)	45	45	45	45
Carbon Canister Tube (CARB Emission Equipment)	30	30	30	30
Exhaust Pipe (CARB Emission Equipment)	40	40	40	40
Fuel Gauge	30	30	30	30
Vapor Line (CARB Emission Equipment)	30	30	30	30
Fuel Tank	60	60	60	60
Fuel Shutoff Valve	40	40	40	40
Muffler	50	50	50	60
Muffler Gasket	50	50	50	60
Secondary Air Intake Valve (with gasket) (CARB Emission Equipment)	50	50	50	50
MISC				
Frame	120	120	120	120
Handle Assembly	30	30	30	30
Leg Assembly	30	30	30	30
Wheel Assembly	30	30	30	30

NOTE: *Repair times represent generally accepted intervals for conducting a repair. Service centers are always advised to provide feedback during the warranty claim process if additional time may be needed due to unforeseen circumstances.*

MAINTENANCE



Before performing maintenance on the generator, review *Safety* on page 1-1 and the following safety messages.

WARNING



Avoid accidentally starting the generator during maintenance by removing the spark plug boot from the spark plug. For electric start generators, also disconnect the battery wires from the battery (disconnect the black negative (-) wire first) and place the wires away from the battery posts to avoid arcing.



Allow hot components to cool to the touch prior to performing any maintenance procedure.



Internal pressure can build in the engine crankcase while the engine is running. Removing the oil fill plug/dipstick while the engine is hot can cause extremely hot oil to spray out of the crankcase and can severely burn skin. Allow engine oil to cool for several minutes before removing the oil fill plug/dipstick.



Always perform maintenance in a well-ventilated area. Gasoline fuel and fuel vapors are extremely flammable and can ignite under certain conditions.

CAUTION



Avoid skin contact with engine oil or gasoline. Prolonged skin contact with engine oil or gasoline can be harmful. Frequent and prolonged contact with engine oil may cause skin cancer. Take protective measures and wear protective clothing and equipment. Wash all exposed skin with soap and water.

Maintenance Schedule

WARNING



Failure to perform periodic maintenance or failure to follow maintenance procedures can cause the generator to malfunction and could result in death or serious injury.

NOTICE

Periodic maintenance intervals vary depending on generator operating conditions. Operating the generator under severe conditions, such as sustained high-load, high-temperature, or unusually wet or dusty environments, will require more frequent periodic maintenance. The intervals listed in the maintenance schedule should be treated only as a general guideline.

Following the maintenance schedule is important to keep the generator in good operating condition. The following is a summary of maintenance items by periodic maintenance intervals.

Table 7-1: Maintenance Schedule

Maintenance Item	Before Every Use	After First 20 Hours or First Month of Use	After 50 Hours of Use or Every 3 Months	After 100 Hours of Use or Every 6 Months	After 300 Hours of Use or Every Year
Engine Oil	Check Level	Change	Change	–	–
Cooling Features	Check/Clean	–	–	–	–
Air Filter	Check	–	Clean ¹	–	Replace
Spark Plug	–	–	–	Check/Clean	Replace
Spark Arrestor	–	–	–	Check/Clean	–
Fuel Sediment Bowl	–	–	–	–	Clean
Cylinder Cooling Fins	–	–	–	–	Clean
Valve Lash	–	–	–	–	Check/Adjust
Fuel Line	–	–	–	–	Check/Replace
Idle Speed	–	–	–	–	Check/Adjust

¹ Service more frequently if operating in dry and dusty conditions.

MAINTENANCE

FUEL

DANGER



Fuel and fuel vapors are extremely flammable and explosive under certain conditions.



- Only refuel the generator outdoors, in a well-ventilated area.
- Never fill the fuel tank while the engine is running. Turn the generator off and allow it to cool before filling the fuel tank.
- Never smoke or allow flames or sparks near generator or where gasoline is stored.
- Never overfill fuel tank. After refueling, tighten the fuel cap securely.
- Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, the area must be dry before starting the engine.
- Avoid repeated or prolonged contact with skin or breathing of vapor.

General Fuel Information

Refuel carefully to avoid spilling fuel. Do not fill above the top of the fuel strainer. Use unleaded gasoline with a pump octane rating of 87 or higher.

Never use stale or contaminated gasoline. Avoid getting dirt or water in the fuel tank. Always keep the fuel strainer in place while refueling.

Oxygenated Fuels

At certain times of the year, some U.S. locations may have only oxygenated fuel available. Oxygenated fuel is blended with alcohol or ether additives to increase octane quality, enhance combustion and reduce exhaust emissions. Some areas of the U.S. use oxygenated fuels to help meet clean air standards.

Before using an oxygenated fuel, ensure pump octane rating is 87 or higher.

Some states (and provinces in Canada) require this information to be posted on the fuel pump. If you notice undesirable operating symptoms, switch to a conventional unleaded gasoline.

NOTICE

Oxygenated fuels can damage paint and plastic. Be careful not to spill fuel when filling the fuel tank. Damage caused by spilled fuel is not covered under warranty.

Oxygenated Fuel Types

Ethanol (Ethyl or Grain Alcohol)

Do not use gasoline containing more than 10% ethanol by volume, as this may cause starting or performance problems. Gasoline containing ethanol may be marketed under the name "Gasohol." Not all pumps are required to display ethanol content.

Methanol (Methyl or Wood Alcohol)

Gasoline containing methanol must contain cosolvents and corrosion inhibitors to protect the fuel system. Gasoline containing more than 5% methanol by volume may cause starting and/or performance problems and may damage metal, rubber and plastic parts of the fuel system.

MTBE (Methyl Tertiary Butyl Ether)

Gasoline containing up to 15% MTBE by volume can be used.

NOTICE

Running the engine with persistent engine knock or pinging can cause engine damage. Warranty does not cover parts damaged by misuse.

Adding Gasoline to the Fuel Tank

WARNING



Never refuel the generator while the engine is running.



Always turn off the engine and allow the generator to cool before refueling.

Filling the Fuel Tank – Follow the steps below to fill the fuel tank:

1. Shut off the generator.
2. Allow the generator to cool down so all surface areas of the muffler and engine are cool to the touch.
3. Move the generator to a flat surface.
4. Clean area around the fuel cap.
5. Remove the fuel cap by rotating counterclockwise.
6. Slowly add gasoline into the fuel tank. Be very careful not to overfill the tank. The gasoline level should NOT be higher than the bottom of the filler neck (see Figure 7-1). Overfilling the fuel tank may damage the carbon canister, if equipped.
7. Install the fuel cap by rotating clockwise until you hear a click, indicating the cap is completely installed.

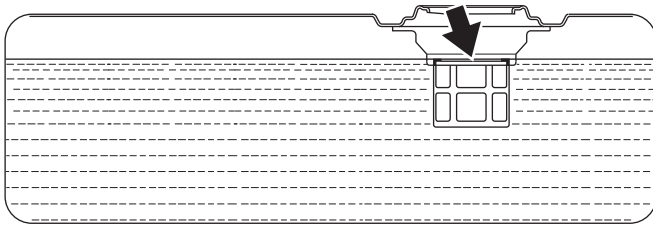


Figure 7-1 – Maximum Gasoline Fill Level

ENGINE OIL

Engine Oil Specification

NOTICE

Engine oil is a major factor affecting engine performance and service life. Never use non-detergent or 2-stroke engine oils.

It is very important to maintain proper level of engine oil to keep engine in good running condition. Check engine oil level prior to each use. Refill engine oil if oil level is too low.

Use engine oils specified below:

Use 4-stroke oil, or equivalent high-detergent, premium-quality motor oil certified to meet or exceed U.S. automobile manufacturer's requirements for API Performance Class SL, SJ or better. Synthetic oil is an acceptable substitute for conventional oil.

SAE 10W-30 is recommended for general temperature use. See Figure 7-2 for information on other viscosities that may be used. Other viscosities shown in the chart may be used when the average temperature in your area is within the indicated range.

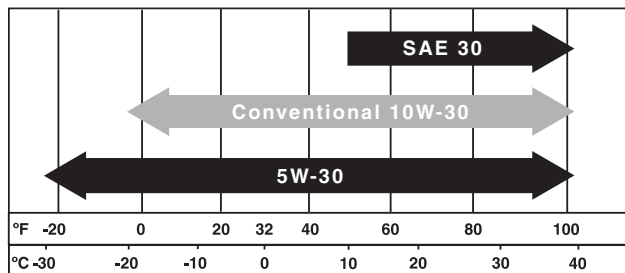


Figure 7-2 – Recommended Oil

Low Oil Protection

The generator engine is protected from low lubrication failure by an oil shutdown switch. This switch prevents the ignition system from operating until sufficient oil is added to the crankcase.

When the engine shuts down due to low oil level:

- The engine control switch will remain in the **RUN** position.
- The ignition system will be inoperable.
- The engine will not start until the required amount of engine oil is added to the engine.

Checking Engine Oil

NOTICE

Always maintain proper engine oil level. Failure to maintain proper engine oil level could result in severe damage to the engine and/or shorten the life of the engine.

Always use the specified engine oil. Failure to use the specified engine oil can cause accelerated wear and/or shorten the life of the engine.

Check engine oil level before every use.

1. Always operate or maintain the generator on a flat surface.
2. Stop engine if running.
3. Let engine sit and cool for several minutes (allow crankcase pressure to equalize).
4. With a damp rag, clean around the oil fill plug/dipstick.
5. Remove oil fill plug/dipstick (see Figure 7-3).

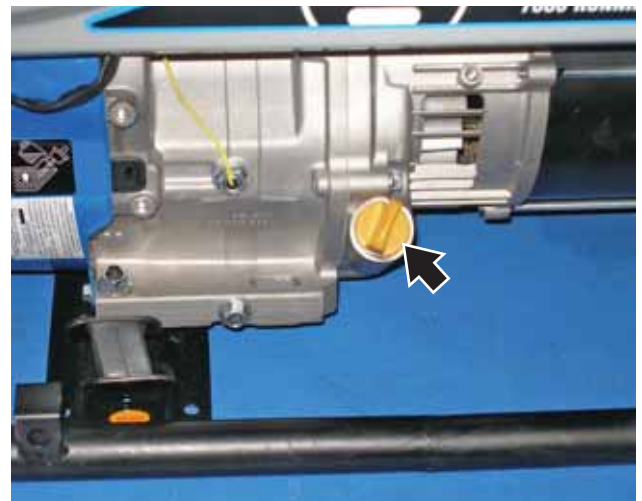


Figure 7-3 – Oil Fill Plug/Dipstick

MAINTENANCE

6. Check oil level:

When checking the engine oil, remove the oil fill plug/dipstick and wipe it clean. Thread the oil fill plug/dipstick all the way back in, and then remove and check the oil level on the oil fill plug/dipstick.

- Acceptable Oil Level – Oil is visible on the cross-hatches between the H and L lines on the oil fill plug/dipstick (see Figure 7-4).
- Low Oil – Oil is below the L line on the oil fill plug/dipstick.

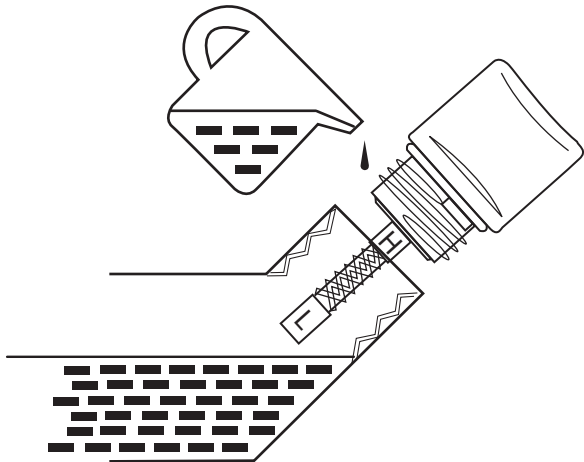


Figure 7-4 – Checking Oil Level

Adding Engine Oil

1. Always operate or maintain the generator on a flat surface.
2. Stop engine if running.
3. Let engine sit and cool for several minutes (allow crankcase pressure to equalize).
4. Thoroughly clean around the oil fill plug/dipstick.
5. Remove oil fill plug/dipstick and wipe clean.
6. Select the proper engine oil as specified in Figure 7-2.
7. Using the supplied funnel and tube, slowly add engine oil to the engine. Stop frequently to check the level to avoid overfilling (see Figure 7-5).



Figure 7-5 – Adding Engine Oil

8. Continue to add oil until the oil is at the correct level. See *Checking Engine Oil* on page 7-3.

Changing Engine Oil

1. Stop the engine.
2. Let engine sit and cool for several minutes (allow crankcase pressure to equalize).
3. Place oil pan (or suitable container) under the oil drain plug.
4. With a damp rag, thoroughly clean around the oil drain plug.
5. Remove the oil drain plug (see Figure 7-6). Once removed, place the oil drain plug on a clean surface.

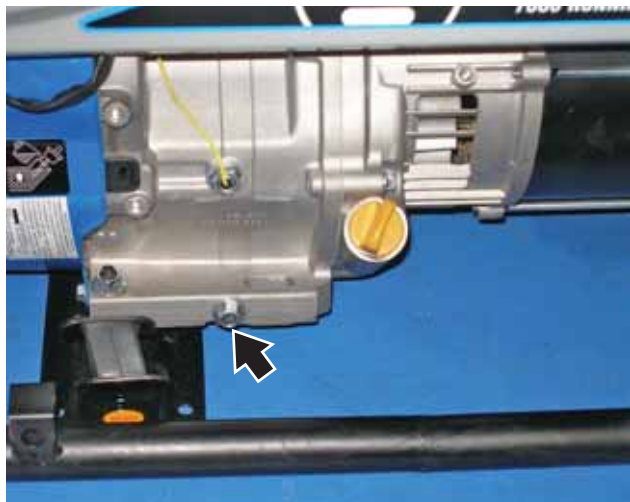


Figure 7-6 – Oil Drain Plug

6. Remove the oil drain plug so the oil can drain more easily from the oil drain port.
7. Allow oil to completely drain.
8. Replace oil drain plug.

- Fill crankcase with oil following the steps outlined in *Adding Engine Oil* on page 7-4.

NOTICE

Never dispose of used engine oil by dumping the oil into a sewer, on the ground, or into groundwater or waterways. Always be environmentally responsible. Follow the guidelines of the EPA or other governmental agencies for proper disposal of hazardous materials. Consult local authorities or reclamation facility.

- Dispose of used engine oil properly.

AIR FILTER MAINTENANCE

WARNING



Never use gasoline or other flammable solvents to clean the air filter. Use only household detergent soap to clean the air filter.

Cleaning the Air Filter

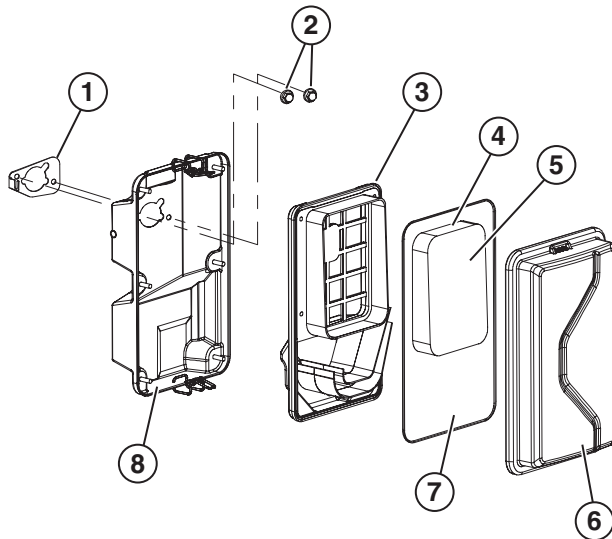


Figure 7-7 – Air Cleaner Assembly

- | | |
|-----------------------------|---------------------------------|
| 1 - Gasket | 5 - Black Coarse Outside Filter |
| 2 - Nuts | 6 - Air Filter Cover |
| 3 - Air Filter Baffle | 7 - Air Filter Gasket |
| 4 - Gray Fine Inside Filter | 8 - Air Filter Housing |

The air filter must be cleaned after every 50 hours of use or 3 months (frequency should be increased if generator is operated in a dusty environment).

- Turn off the generator and let it cool for several minutes if running.

- Move the generator to a flat, level surface.
- Unclip the clips on the top and bottom of the air filter cover (see *Figure 7-8*) and remove the air filter cover.



Figure 7-8 – Removing Air Filter Cover

- Remove the black coarse outside air filter (see *Figure 7-9*).



Figure 7-9 – Removing Coarse Outside Air Filter

MAINTENANCE

- Remove the gray fine inside air filter (see Figure 7-10).



Figure 7-10 – Removing Fine Inside Air Filter

- Wash the foam air filter elements by submerging the elements in a solution of household detergent soap and warm water. Slowly squeeze the foam to thoroughly clean.

NOTICE

NEVER twist or tear the foam air filter element during cleaning or drying. Only apply slow but firm squeezing action.

- Rinse in clean water by submerging the air filter elements in fresh water and applying a slow squeezing action.

NOTICE

Never dispose of soap cleaning solution used to clean the air filter by dumping the solution into a sewer, on the ground, or into groundwater or waterways. Always be environmentally responsible. Follow the guidelines of the EPA or other governmental agencies for proper disposal of hazardous materials. Consult local authorities or reclamation facility.

- Dispose of used soap cleaning solution properly.

- Dry the air filter elements by again applying a slow firm squeezing action.
- Once the air filters are dry, coat the air filters with clean engine oil (see Figure 7-11).

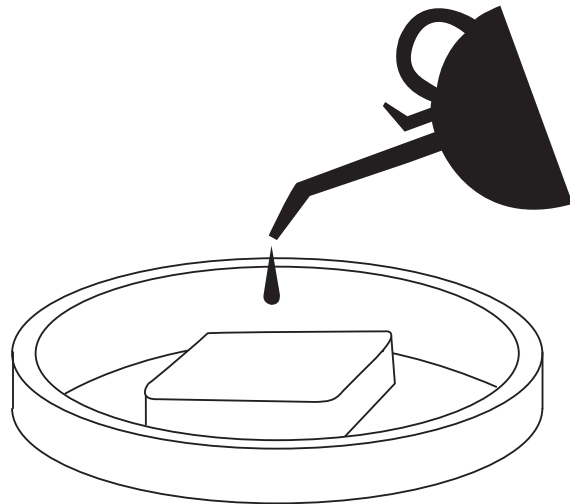


Figure 7-11

- Squeeze the filters to remove any excess oil (see Figure 7-12).

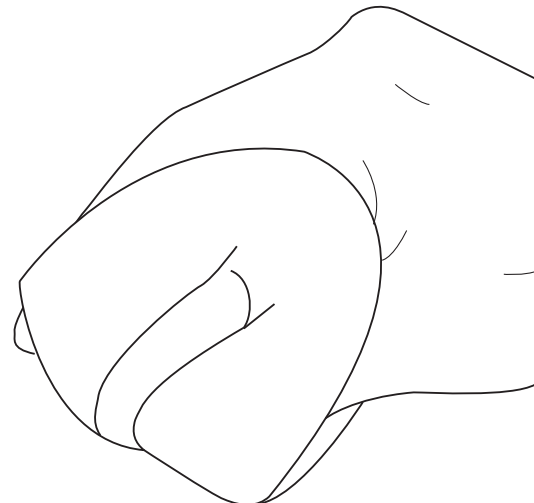


Figure 7-12

- Install the gray fine inside air filter into the air filter housing first.
- Install the black coarse outside air filter on top of the fine filter.

14. Install the air filter cover by clipping the clips on the top and bottom of the air filter assembly (see Figure 7-13).



Figure 7-13 – Installation of Air Filter Cover

CLEANING THE FUEL SEDIMENT BOWL

The sediment bowl traps any dirt or water from the fuel tank and prevents it from entering the carburetor.

1. Stop the engine and allow it to completely cool.
2. Place generator on a flat, level surface.
3. Turn the fuel shutoff valve to the **OFF** position.
4. Hold the upper fitting of the fuel shutoff valve with a wrench, and remove the sediment bowl (see Figure 7-14).

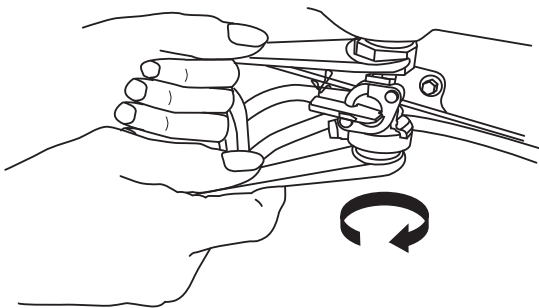


Figure 7-14

5. Clean the sediment bowl, O-ring and screen (see Figure 7-15).

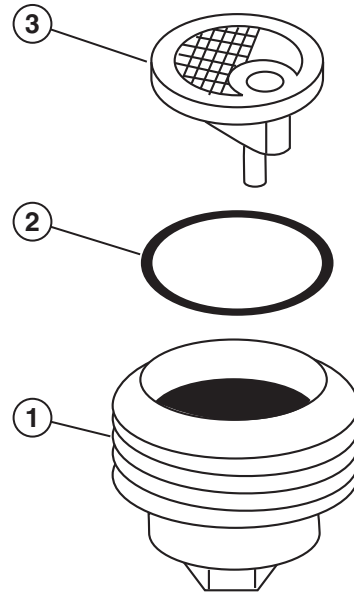


Figure 7-15

- 1 - Sediment Bowl 3 - Screen
2 - O-Ring

6. Wipe the pieces clean with clean, dry cloth.
7. Install the screen, O-ring and sediment bowl.
8. Turn the fuel shutoff valve to the **ON** position and check for any fuel leaks.

SPARK PLUG SERVICE

The spark plug must be checked and cleaned after every 100 hours of use or 6 months, and must be replaced after 300 hours of use or every year.

1. Stop the generator and let it cool for several minutes if running.
2. Move the generator to a flat, level surface.
3. Remove the spark plug boot by firmly pulling the plastic spark plug boot handle directly away from the engine (see Figure 7-16).

NOTICE

Never apply any side load or move the spark plug laterally when removing the spark plug. Applying a side load or moving the spark plug laterally may crack and damage the spark plug boot.



Figure 7-16 – Removal of Spark Plug Boot

4. Clean area around the spark plug.
5. Using the 13/16" spark plug socket wrench provided, remove the spark plug from the cylinder head (see Figure 7-17).



Figure 7-17 – Removing Spark Plug

6. Place a clean rag over the opening created by the removal of the spark plug to make sure no dirt can get into the combustion chamber.

7. Inspect the spark plug for:
 - Cracked or chipped insulator
 - Excessive wear
 - Incorrect spark plug gap (outside the acceptable limit of 0.028 – 0.031 in. [0.70 – 0.80 mm]) (see Figure 7-18).

If the spark plug fails any one of the conditions listed above, replace the plug with a Champion RN9YC plug or equivalent.

NOTICE

Only use the recommended spark plug (Champion RN9YC or equivalent). Using a non-recommended spark plug could result in damage to the engine.

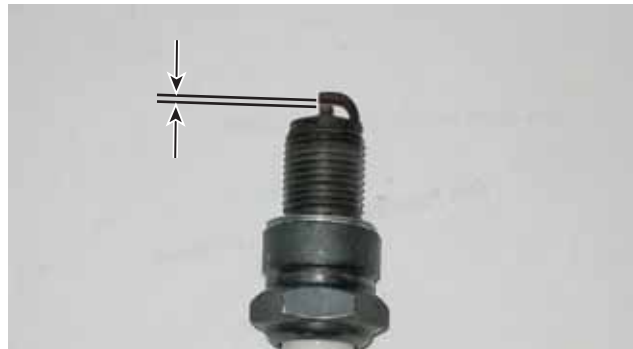


Figure 7-18 – Spark Plug Gap Requirements

8. Install the spark plug by carefully following the steps outlined below:
 - a - Carefully insert the spark plug back into the cylinder head. Hand-thread the spark plug until it bottoms out.
 - b - Using the 13/16" spark plug socket wrench provided, turn the spark plug to ensure it is fully seated.
 - c - Replace the spark plug boot, making sure the boot fully engages the spark plug's tip.

Recommended Spark Plug Replacement:

AutoLite	63
Champion	RN9YC
Bosch	WR7DS
Torch	F6RTC

CLEANING THE SPARK ARRESTOR

Check and clean the spark arrestor after every 100 hours of use or 6 months.

1. Stop the generator and let it cool for several minutes if running.
2. Move the generator to a flat, level surface.
3. Using a flathead screwdriver, loosen the spark arrestor band clamp (see Figure 7-19).

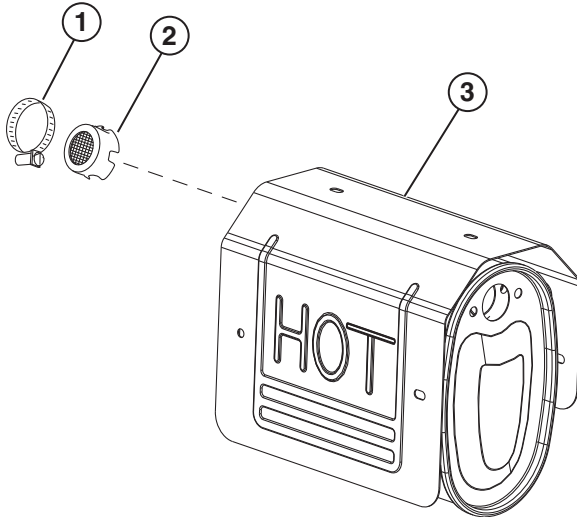


Figure 7-19 – Spark Arrestor Assembly

- | | |
|-------------------------------|-------------|
| 1 - Spark Arrestor Band Clamp | 3 - Muffler |
| 2 - Spark Arrestor Screen | |

4. Slide the spark arrestor band clamp off the spark arrestor screen.
5. Pull the spark arrestor screen off the muffler exhaust pipe.
6. Using a wire brush, remove any dirt and debris that may have collected on the spark arrestor screen.
7. If the spark arrestor screen shows signs of wear (rips, tears or large openings in the screen), replace the spark arrestor screen.
8. Install the spark arrestor components in the following order:
 - a - Place spark arrestor screen over the muffler exhaust pipe. Push on the screen until it fully bottoms out.
 - b - Place the spark arrestor band clamp over the screen and tighten with a flathead screwdriver.

CHECKING AND ADJUSTING VALVE LASH

⚠ CAUTION



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

1. Loosen the clamp and disconnect the breather hose from the rocker arm cover (see Figure 7-20).

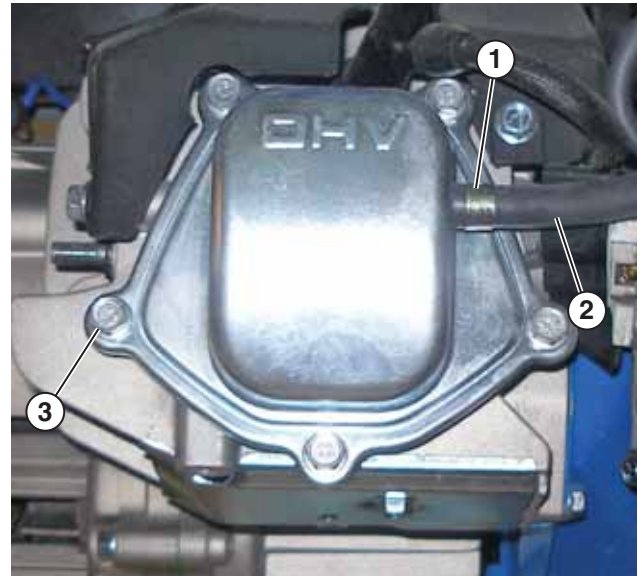


Figure 7-20

- | | |
|-------------------|-----------|
| 1 - Clamp | 3 - Bolts |
| 2 - Breather Hose | |

2. Remove the bolts (see Figure 7-20) and rocker arm cover and carefully remove the gasket. If the gasket is torn or damaged, it must be replaced.
3. Remove the spark plug so the engine can be rotated more easily.
4. Rotate the engine to top dead center (TDC) of the compression stroke. Looking through the spark plug hole, the piston should be at the top.
5. Both the rocker arms should be loose at TDC on the compression stroke. If they are not, rotate the engine 360°.

MAINTENANCE

6. Insert a feeler gauge between the rocker arm and the push rod and check for clearance (see Figure 7-21). See Table 7-2 for valve lash specifications.

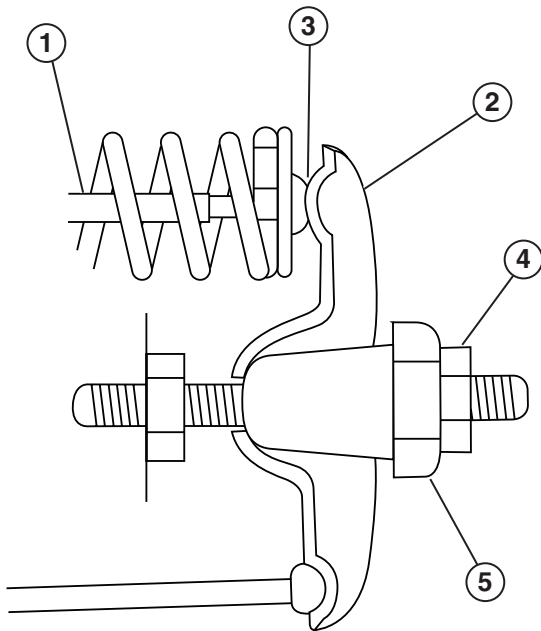


Figure 7-21

- | | |
|-----------------------|-------------------|
| 1 - Push Rod | 4 - Jam Nut |
| 2 - Rocker Arm | 5 - Adjusting Nut |
| 3 - Feeler Gauge Area | |

Table 7-2: Standard Valve Lash

Intake	Exhaust
0.005 ± 0.001 in. (0.125 ± 0.025 mm)	0.007 ± 0.001 in. (0.175 ± 0.025 mm)

7. If an adjustment is required, hold the adjusting nut and loosen the jam nut.
8. Turn the adjusting nut to obtain the correct valve lash. When the valve lash is correct, hold the adjusting nut and tighten the jam nut to 106 in-lb (12 N·m).
9. Recheck the valve lash after tightening the jam nut.
10. Perform this procedure for both the intake and exhaust valves.
11. Install the rocker arm cover, gasket and spark plug.

GOVERNOR ADJUSTMENT

1. Start the engine and run the engine at full throttle with no load.
2. Attach a frequency meter to the engine. The frequency should be 62.5 ± 0.5 Hz.
3. Turn the limiting screw on the governor stop to adjust the frequency.
4. If the frequency is out of range, see *Governor Range Adjustment* on page 7-10.
5. If frequency still cannot be adjusted, see *Engine Diagnostics* on page 8-5.

Governor Range Adjustment

1. Remove the control panel for access to the governor linkage.
2. Loosen the nut on the governor arm pinch bolt. Rotate the governor arm shaft counterclockwise until the throttle shaft is at the full throttle position. Hold it in this position.

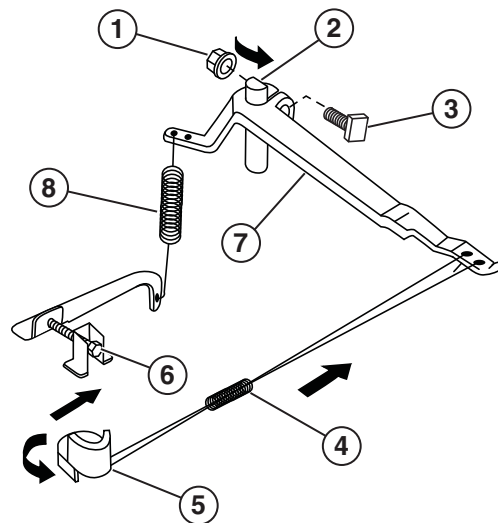


Figure 7-22

- | | |
|-----------------------------|---------------------|
| 1 - Nut | 5 - Throttle |
| 2 - Governor Arm Shaft | 6 - Limiting Screw |
| 3 - Governor Arm Pinch Bolt | 7 - Governor Arm |
| 4 - Anti-Surge Spring | 8 - Governor Spring |

3. Tighten the nut on the governor arm pinch bolt while holding in position.
4. Move the governor arm and throttle to make sure they move smoothly and there is no binding.
5. Install the control panel.

BATTERY SERVICE

To ensure the battery remains charged, the generator should be started every 2 to 3 months and run for a minimum of 15 minutes. If the generator is stored more than a year without running, a battery charger may be needed to recharge the battery. For battery replacement, see *Table 3-1 on page 3-1*.

Battery Replacement

1. Remove the spark plug wire from spark plug (see *Figure 7-23*).



Figure 7-23

2. Loosen and remove the nuts on the battery hold-down plate and remove the plate from the support rods (see *Figure 7-24*).

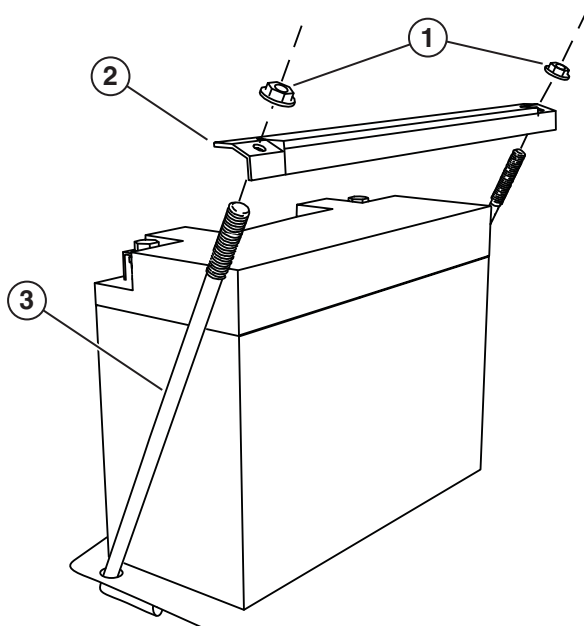


Figure 7-24

- 1 - Nuts
- 2 - Battery Hold-Down Plate
- 3 - Support Rods

3. Tip the battery forward slightly to access battery cables.
4. Disconnect the black negative (-) battery cable from the battery first.
5. Disconnect the red positive (+) battery cable second and remove the battery.

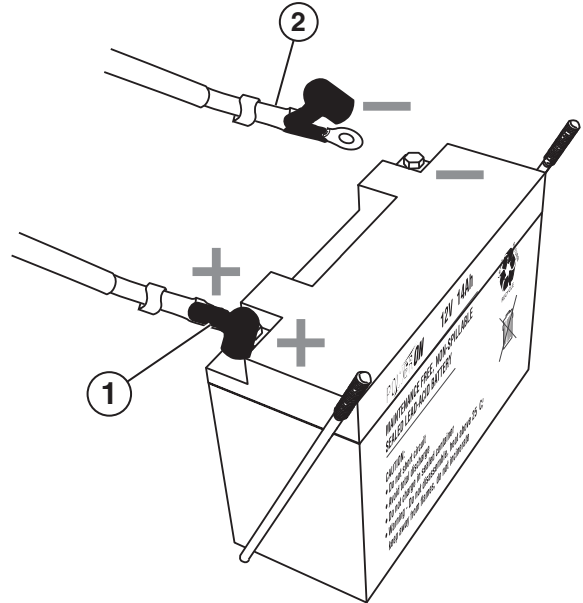


Figure 7-25

- 1 - Red Positive (+) Battery Cable
- 2 - Black Negative (-) Battery Cable

NOTICE

Dispose of the used battery properly according to the guidelines established by your local or state government.

6. Install the new battery into the generator frame.
7. Connect the red positive (+) battery cable to the battery first.
8. Connect the black negative (-) battery cable to the battery second.
9. Install the battery hold-down plate using the nuts removed in step 2.
10. Install the spark plug wire onto spark plug.

The battery is the same as a motorcycle/utility battery.

Type	14L-A2
Model	CYLA214SXTA
Volts	12
Amp	14
Dimensions (L x H x W)	5.9 x 4.33 x 3.43 in. (15.0 x 11.0 x 8.7 cm)

MAINTENANCE

CLEANING THE GENERATOR

Inspect the generator regularly and clean as required.

Clean All Engine Air Inlet and Outlet Ports – Make sure all engine air inlet and outlet ports are clean of any dirt and debris to ensure the engine does not run hot (see Figure 7-26).



Figure 7-26 – Engine Air Inlet and Outlet Ports

Clean All Engine Cooling Fins – Use a damp rag and a brush to loosen and remove all dirt on or around the engine's cooling fins (see Figure 7-27).



Figure 7-27 – Engine Cooling Fins

Clean All Alternator Cooling Air Inlets and Exhaust Ports – Make sure the cooling air inlets and exhaust ports of the alternator are free of any debris and obstructions. Use a vacuum cleaner to remove dirt and debris stuck in the cooling air inlets and exhaust ports (see Figure 7-28 and Figure 7-29).

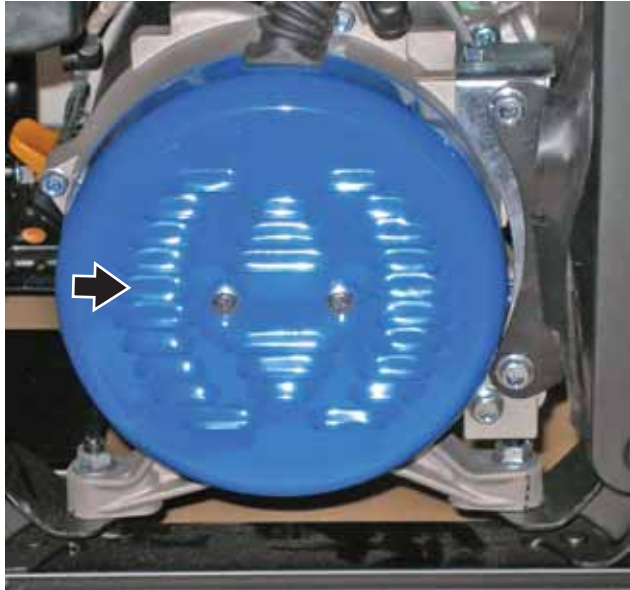


Figure 7-28 – Alternator Cooling Air Inlet and Outlet Port

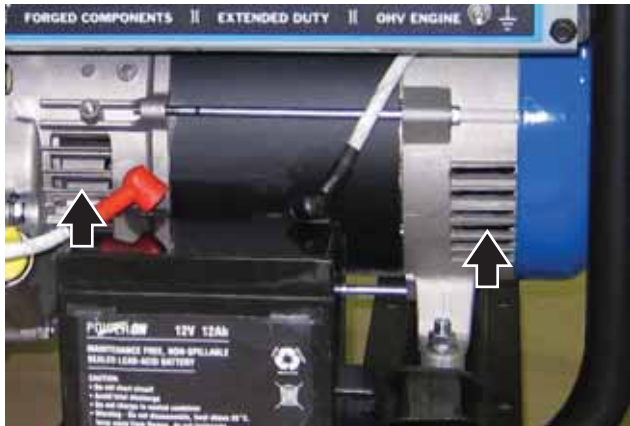


Figure 7-29 – Alternator Cooling Air Inlet and Outlet Port

General Cleaning of the Generator – Use a damp rag to clean all remaining surfaces.

STORAGE

WARNING



Never store a generator with fuel in the tank indoors or in a poorly ventilated area where the fumes can come in contact with an ignition source such as a: 1) pilot light of a stove, water heater, clothes dryer or any other gas appliance; or 2) spark from an electric appliance.

NOTICE

Gasoline stored for as little as 60 days can go bad, causing gum, varnish and corrosive buildup in fuel lines, fuel passages and the engine. This corrosive buildup restricts the flow of fuel, preventing an engine from starting after a prolonged storage period.

Proper care should be taken to prepare the generator for any storage.

1. Clean the generator as outlined in *Cleaning the Generator* on page 7-12.
2. Drain all gasoline from the fuel tank as best as possible.
3. With the fuel shutoff valve open, start the engine and allow the generator to run until all the remaining gasoline in the fuel lines and carburetor is consumed and the engine shuts off.
4. Close the fuel shutoff valve.
5. Change the oil (see *Changing Engine Oil* on page 7-4).
6. Remove the spark plug (see *Spark Plug Service* on page 7-7) and place about 1 tablespoon of oil in the spark plug opening. While placing a clean rag over the spark plug opening, slowly pull the recoil handle to allow the engine to turn over several times. This will distribute the oil and protect the cylinder wall from corroding during storage.
7. Replace the spark plug (see *Spark Plug Service* on page 7-7).
8. Move the generator to a clean, dry place for storage.

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WARNING



ANYONE using or servicing this generator must read, understand and follow all safety and operation instructions provided in the product manual. Failure to closely follow these instructions can result in circumstances leading to death, serious injury and property damage.

TROUBLESHOOTING

DANGER

Using a generator indoors **CAN KILL YOU IN MINUTES**. Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.



NEVER use inside a home or garage, **EVEN IF** doors and windows are open.



Only use **OUTSIDE** and far away from windows, doors and vents.

NOTE: For all dealer service inquiries, call (855) 944-3571 or e-mail service@westpro.com.

TROUBLESHOOTING

ELECTRICAL DIAGNOSTICS

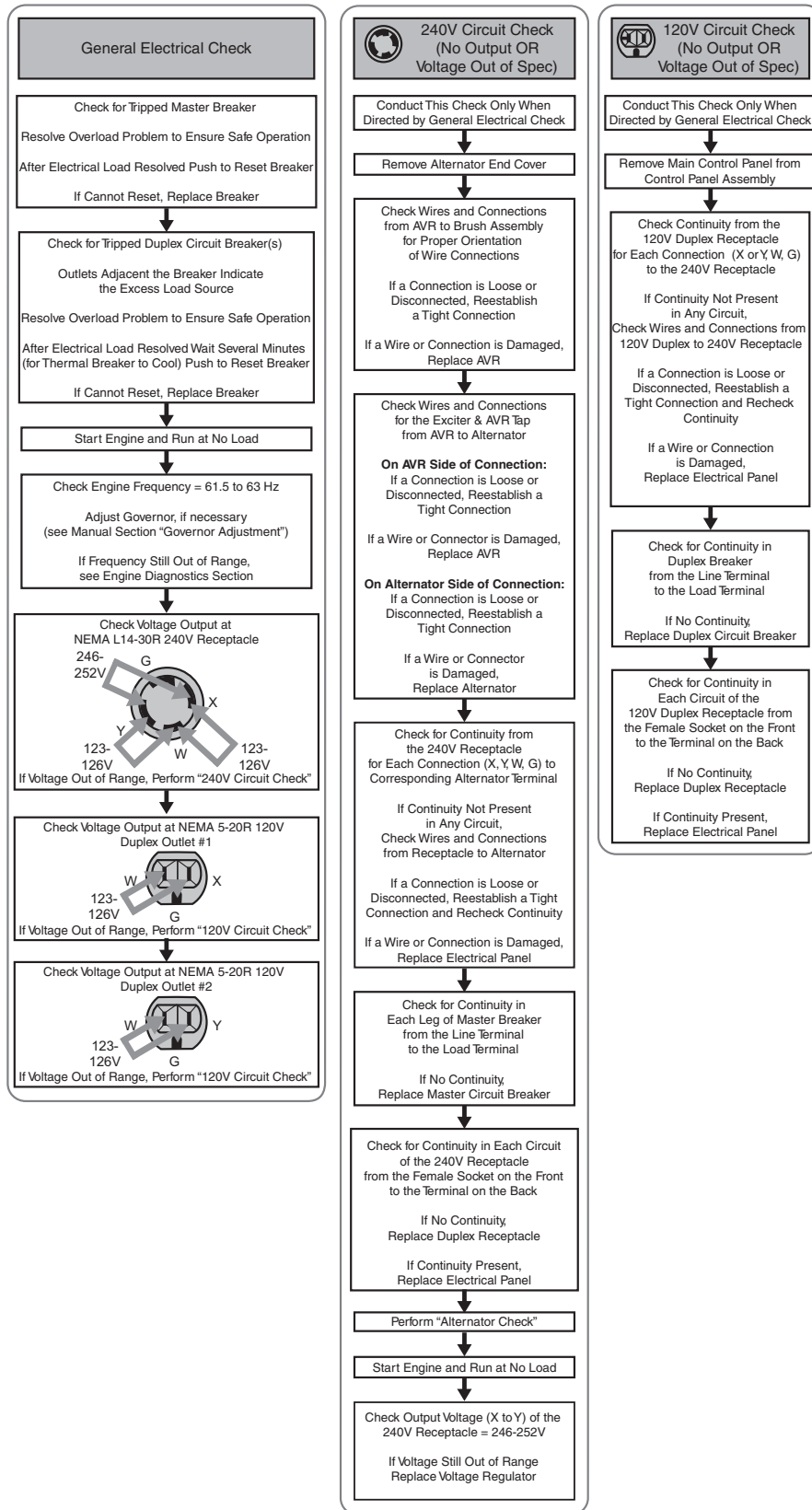


Figure 8-1

Winding	Measure Resistance Between Wires		Resistance Range Specification (Ω)			
			WH3250 Series	WH4500 Series	WH5500 Series WH6000 Series WH7000 Series	Electric Start Models
Stator-X	Brown	White	1.1 - 1.5	0.5 - 0.7	0.2 - 0.35	0.15 - 0.25
Stator-Y	Red	Blue				
AVR Tap	Green Brown†	White Blue†	0.6 - 0.8	20-35% of Stator-X Resistance		
Exciter	Blue Yellow†	Blue Yellow†	2.4 - 2.8	1.8 - 2.5	1.8 - 2.5	1.3 - 1.8
Fuel Cutout	Brown	Brown	N/A	0.1 - 0.7	0.1 - 0.7	0.1 - 0.7
Rotor	Slip Rings or Slip Ring Terminals*		40 - 70	40 - 70	40 - 70	40 - 70

* If Using an Ohmmeter with Kelvin Bridge Clips, Measure Resistance at the Slip Ring Wire Terminals for Best Results
 † WH3250 Series only

If a Winding Resistance is Out of Spec, Replace Alternator



Check for Cross-Shorted Windings in the Stator Assembly

Check for Continuity Between Windings as Specified Below:

Check for Continuity Between Windings		Continuity Specification
Stator-X Red	Stator-Y White	No Continuity
Stator-X Red	AVR Tap Green	No Continuity
Stator-Y White	AVR Tap Green	Continuity
Stator-X Red	Either Exciter Blue	No Continuity
Stator-Y White	Either Exciter Blue	No Continuity
Stator-X Red	Either Fuel Cutout Brown	No Continuity
Stator-Y White	Either Fuel Cutout Brown	No Continuity
Either Exciter Blue	Either Fuel Cutout Brown	No Continuity

If Continuity is Different than Specified Above,
Replace Alternator

Figure 8-2

TROUBLESHOOTING

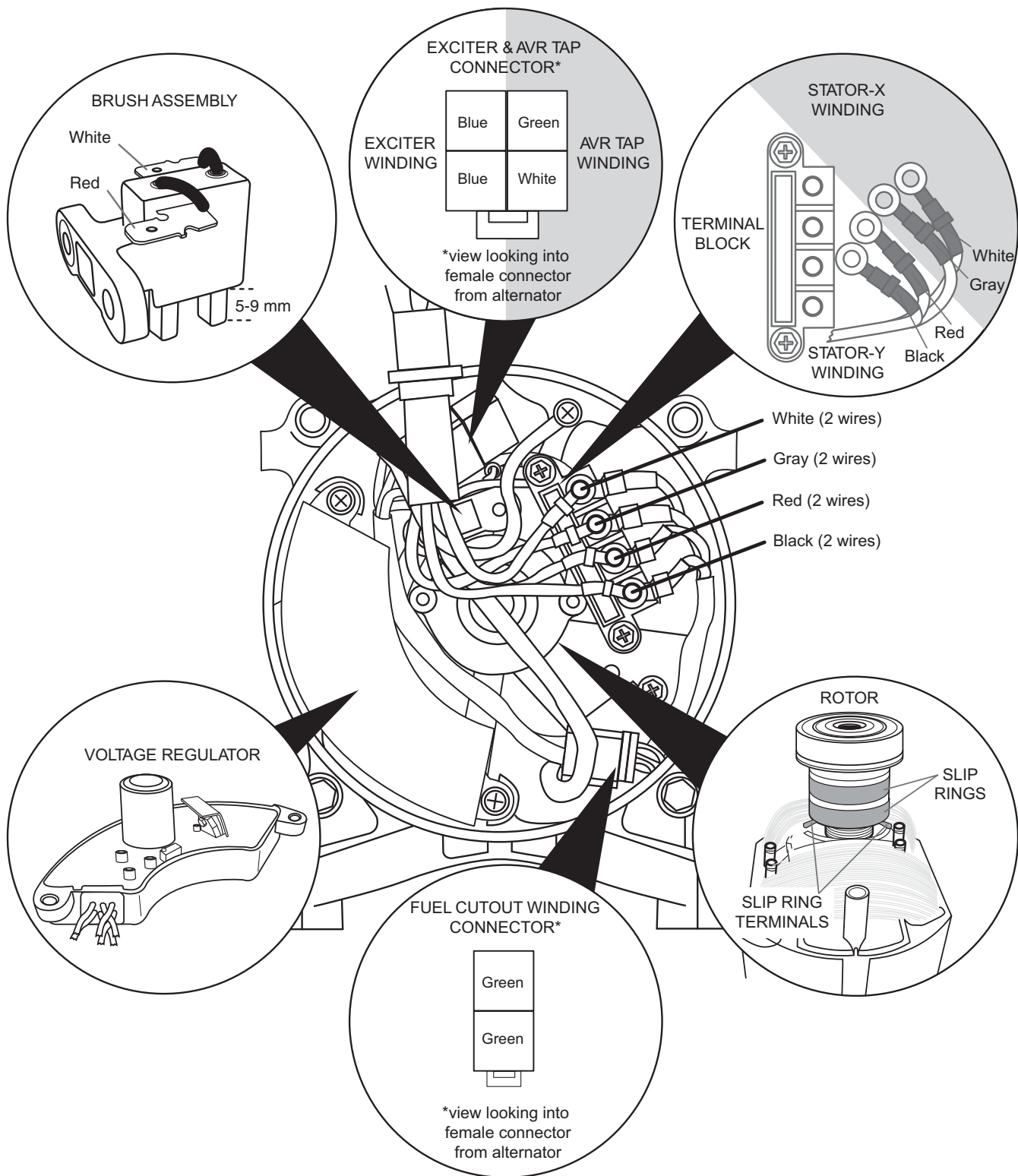


Figure 8-3

ENGINE DIAGNOSTICS

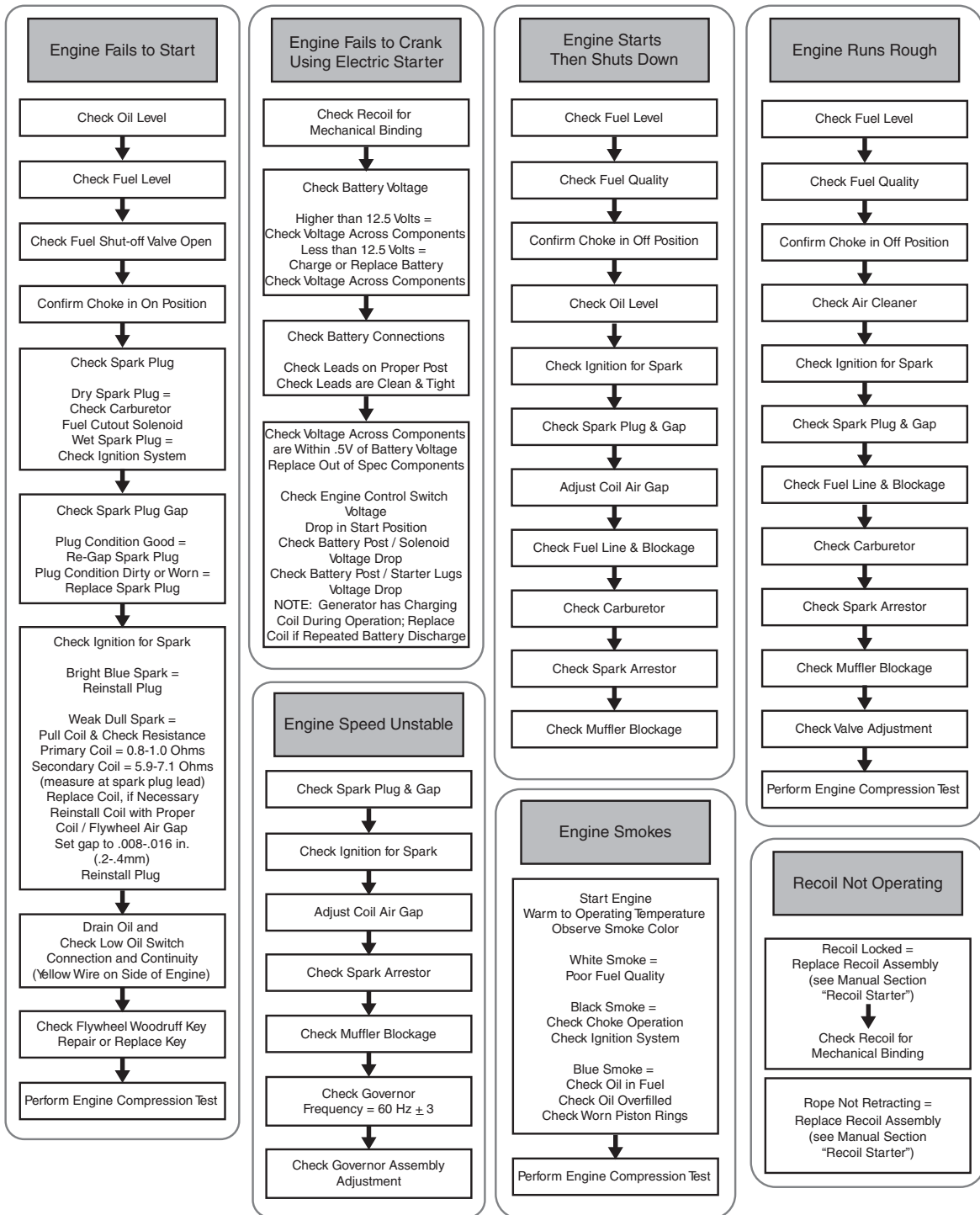


Figure 8-4

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CONTROL PANEL

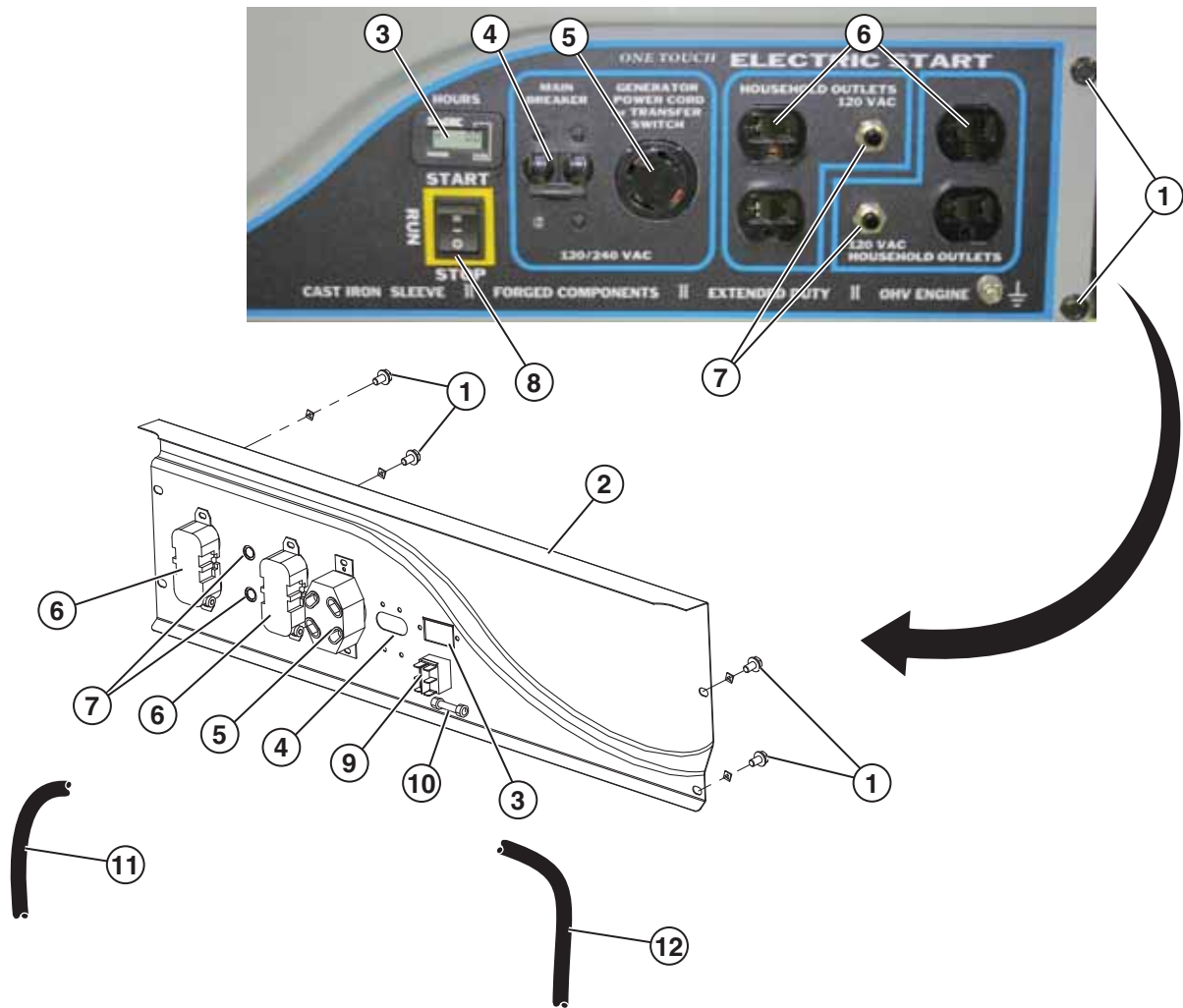


Figure 9-1

- | | |
|---|--|
| <ul style="list-style-type: none"> 1 - Screws: Tighten to 35 in-lb (4 N·m). 2 - Front Control Panel Assembly 3 - Hour Meter – If equipped 4 - Main Circuit Breaker 5 - 120/240 VAC 30-Amp Twist-Lock Outlet 6 - 120 VAC 20-Amp Duplex Outlets 7 - Pushbutton Circuit Breakers | <ul style="list-style-type: none"> 8 - Engine Control Switch
RUN/STOP – Manual Start Models
START/RUN/STOP – Electric Start Models 9 - Diode 10 - Fuse: 5-Amp – Electric Start Models 11 - Wire Harness 12 - Wire Harness – Shutdown |
|---|--|

SERVICE AND DISASSEMBLY

ALTERNATOR

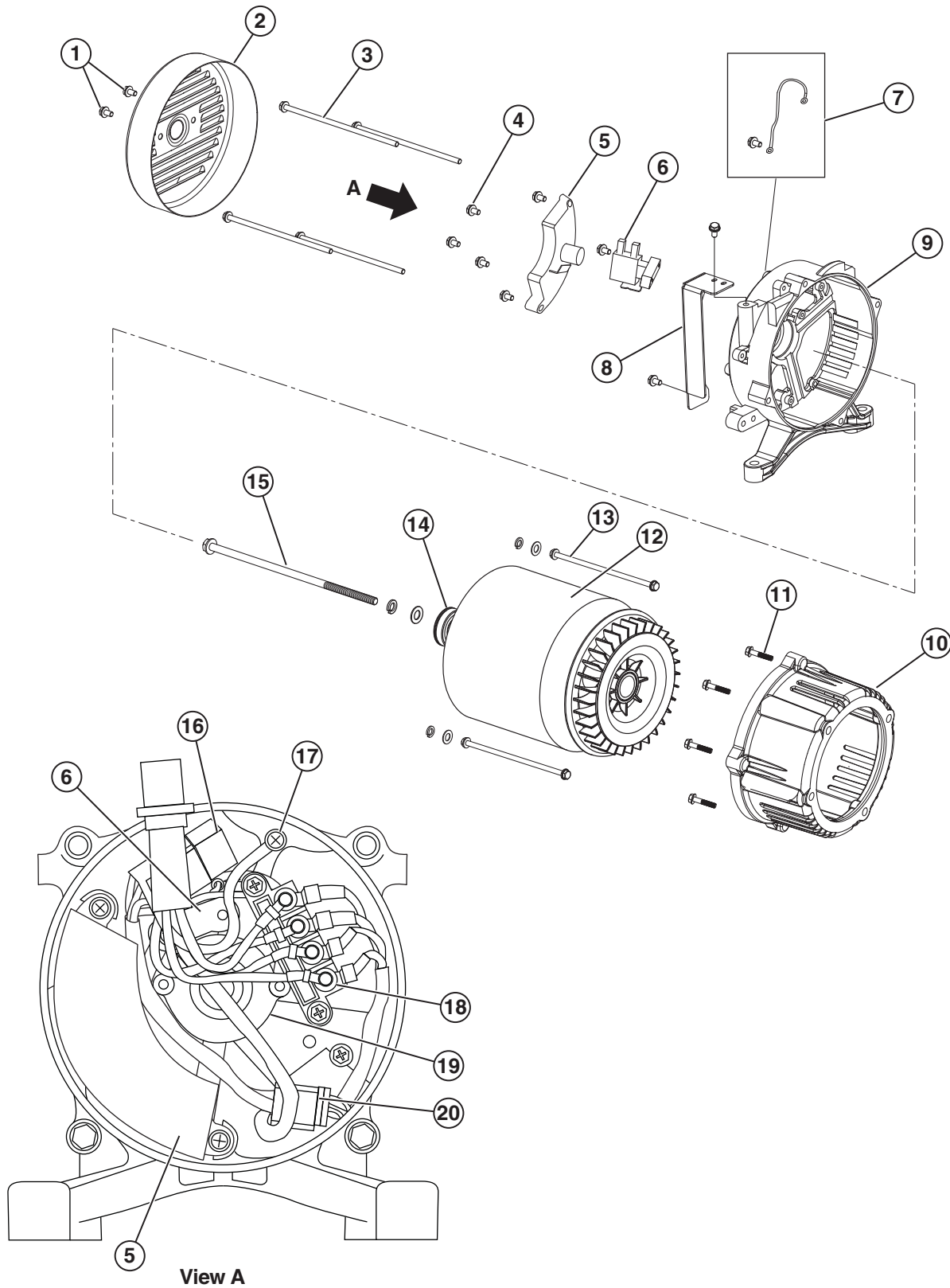


Figure 9-2

SERVICE AND DISASSEMBLY

- 1 - Bolts
- 2 - End Cover
- 3 - Bolt
- 4 - Bolt
- 5 - Voltage Regulator
- 6 - **Brush Assembly:** Before removing rotor and stator, remove the brush assembly. When installing the brush assembly, tighten to 18 in-lb (2 N·m).
- 7 - **Negative (-) Battery Cable (Electric Start Models)**
- 8 - Bracket
- 9 - Rear Bearing Carrier
- 10 - Front Engine Adapter
- 11 - Bolt
- 12 - Stator Assembly
- 13 - Bolt
- 14 - Rotor Assembly
- 15 - Rotor Bolt
- 16 - Exciter Winding Connector
- 17 - Ground Cable
- 18 - Terminal Block
- 19 - Slip Rings
- 20 - Fuel Cutout Connector

NOTICE

Rotor must be properly supported. If rotor is not properly supported, it can be damaged. Place a wooden block and a rag underneath rotor for support.

Use the correct rotor removal tool when removing the rotor. Hold the flywheel and tighten the rotor removal tool to 35 ft-lb (48 N·m).

⚠ CAUTION



Always wear safety glasses or goggles when striking objects with a hammer.

If rotor does not come free from engine crankshaft with rotor removal tool properly tightened, tap the end of the removal tool with a brass hammer to separate rotor from crankshaft.

SERVICE AND DISASSEMBLY

ENGINE AND ALTERNATOR

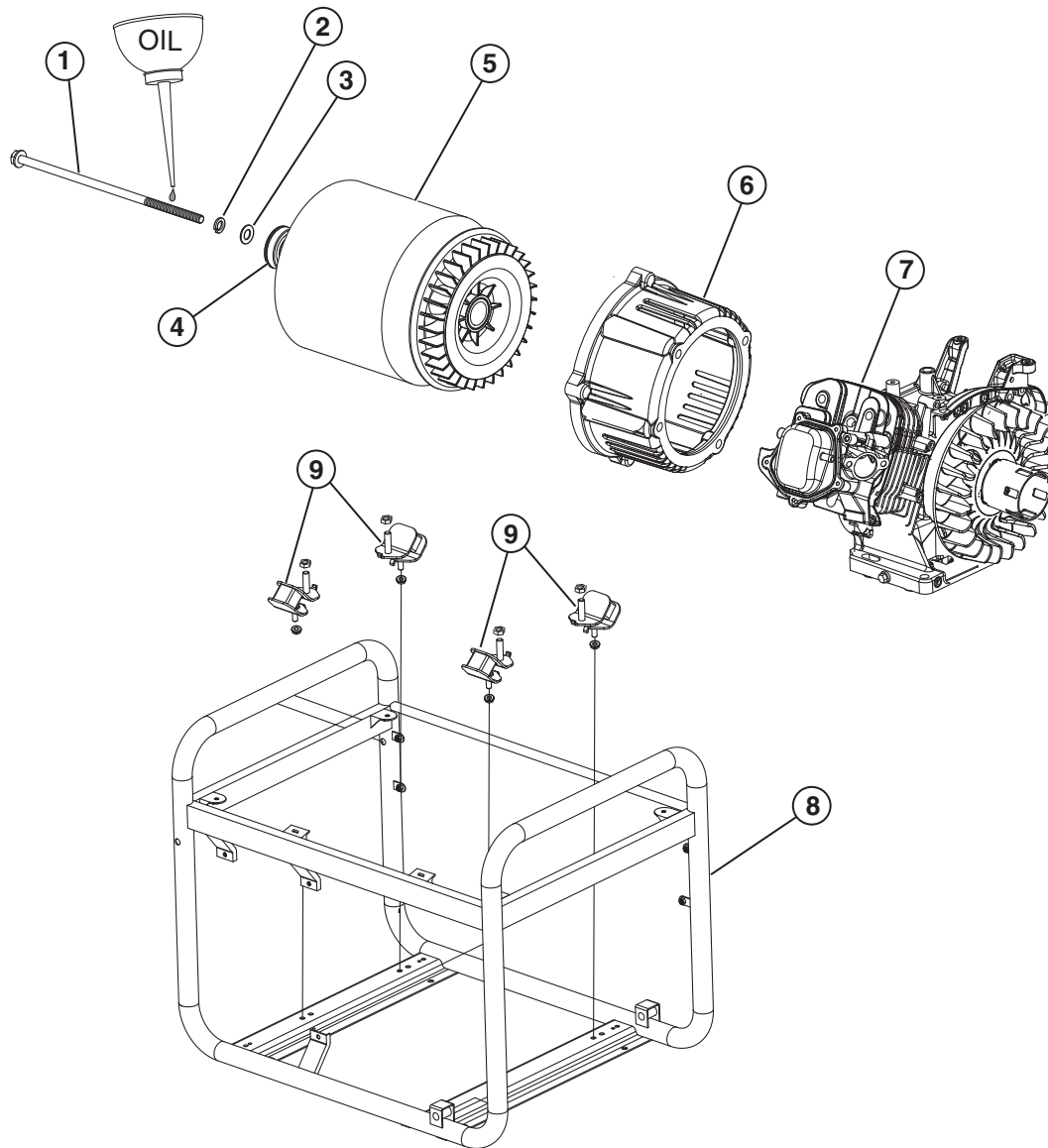


Figure 9-3

- | | |
|--|---------------------------------|
| 1 - Rotor Bolt: Apply oil to threads before installing. | 5 - Stator Assembly |
| 2 - Lock Washer | 6 - Front Engine Adapter |
| 3 - Flat Washer | 7 - Engine Assembly |
| 4 - Rotor Assembly | 8 - Frame Assembly |
| | 9 - Shock Mounts |

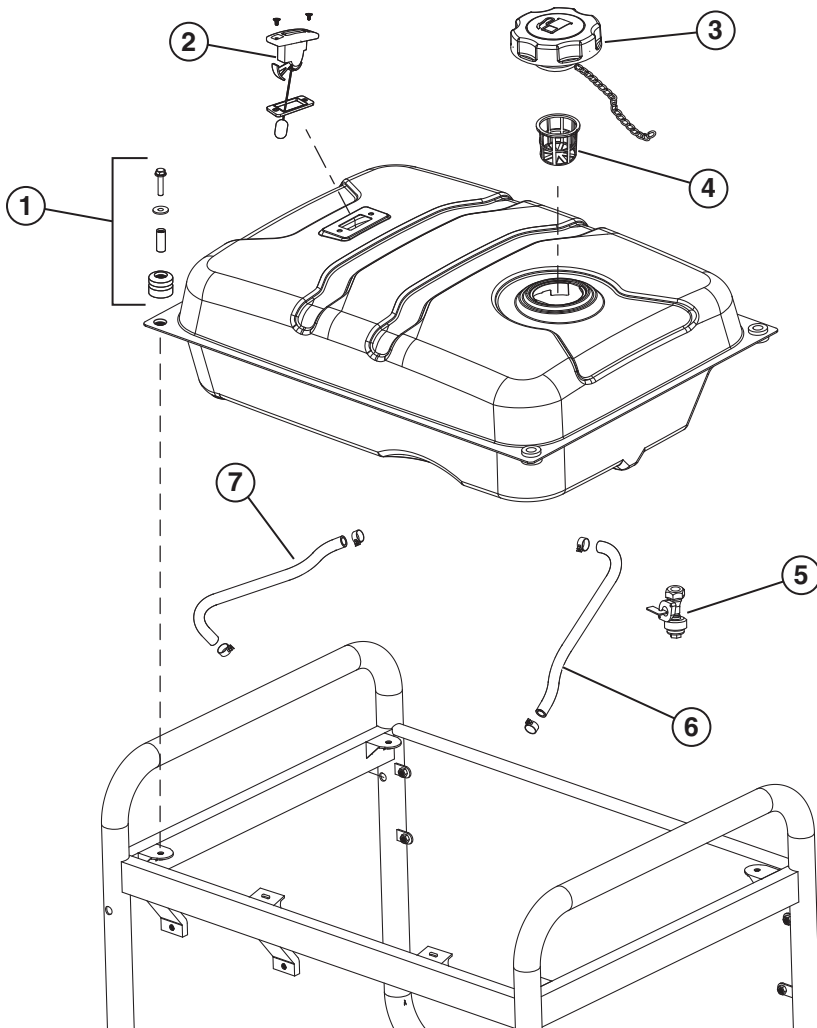
FUEL TANK SYSTEM

⚠ WARNING



Fuel and its vapors are extremely flammable and explosive under certain conditions.

- Only refuel the generator outdoors, in a well-ventilated area.
- Never enclose the generator in any structure.
- Keep generator at least 6 feet (2 m) away from buildings, other equipment and combustible materials during operation.
- Never fill the fuel tank while the engine is running. Turn off the generator and allow it to cool before filling with fuel.
- Never smoke or allow flames or sparks near the generator or where gasoline is stored.
- Never overfill the fuel tank (there should be no fuel in the filler neck). After refueling, tighten the fuel cap securely.
- Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, the area must be dry before starting the engine.
- Avoid repeated or prolonged contact with skin or breathing of vapor.



- 1 - **Fuel Tank Mounting Hardware:** Tighten to 89 in-lb (10 N·m).
- 2 - **Fuel Gauge:** When installing, check float for proper operation.
- 3 - **Fuel Cap:** Check cap gasket and replace if cracked. Ensure chain is attached.
- 4 - **Fuel Strainer:** Check that fuel strainer is clean and undamaged.
- 5 - **Fuel Shutoff Valve and Sediment Bowl:** Clean passages if clogged. When installing, tighten fitting in fuel tank to 17 ft-lb (24 N·m). When cleaning fuel sediment bowl, see *Cleaning the Fuel Sediment Bowl* on page 7-7.
- 6 - **Fuel Line:** Check for cracks or damage. Secure line with hose clamps.
- 7 - **Vapor Line:** Check for cracks or damage. Secure line with hose clamps.

Figure 9-4

SERVICE AND DISASSEMBLY

EXHAUST CONTROL SYSTEM

⚠ WARNING



The muffler becomes very hot during operation and remains hot for some time after stopping the engine.

- Never touch hot surfaces and avoid hot gases.
- Let engine cool before storing the generator indoors.

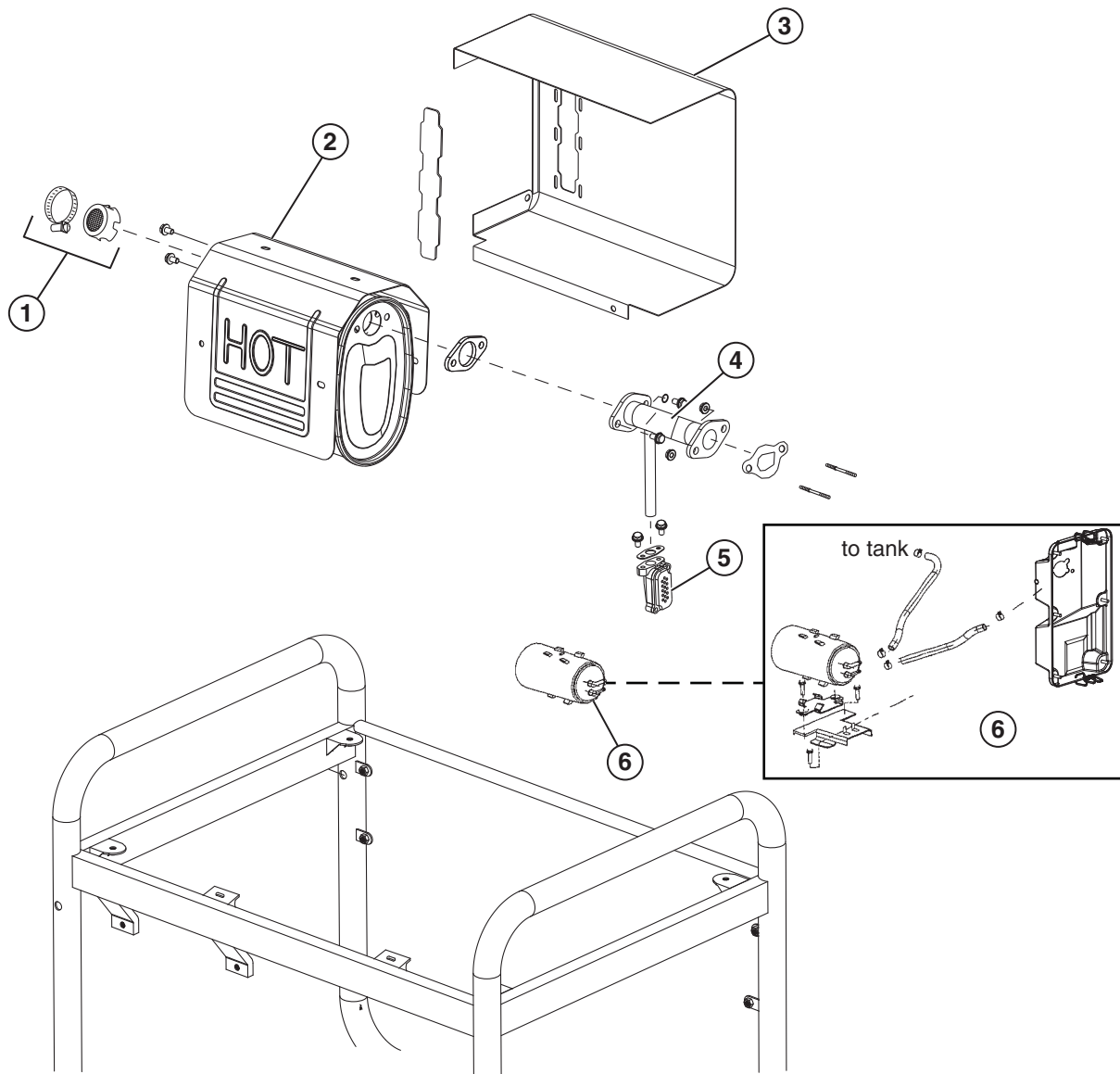


Figure 9-5


- | | |
|--|---|
| 1 - Spark Arrester: Tighten to 8 in-lb (1 N·m). | 4 - Exhaust Pipe: Tighten to 159 in-lb (18 N·m). |
| 2 - Muffler and Heat Shield | 5 - Pulse Air Valve |
| 3 - Muffler Back Plate | 6 - Carbon Canister: If equipped |

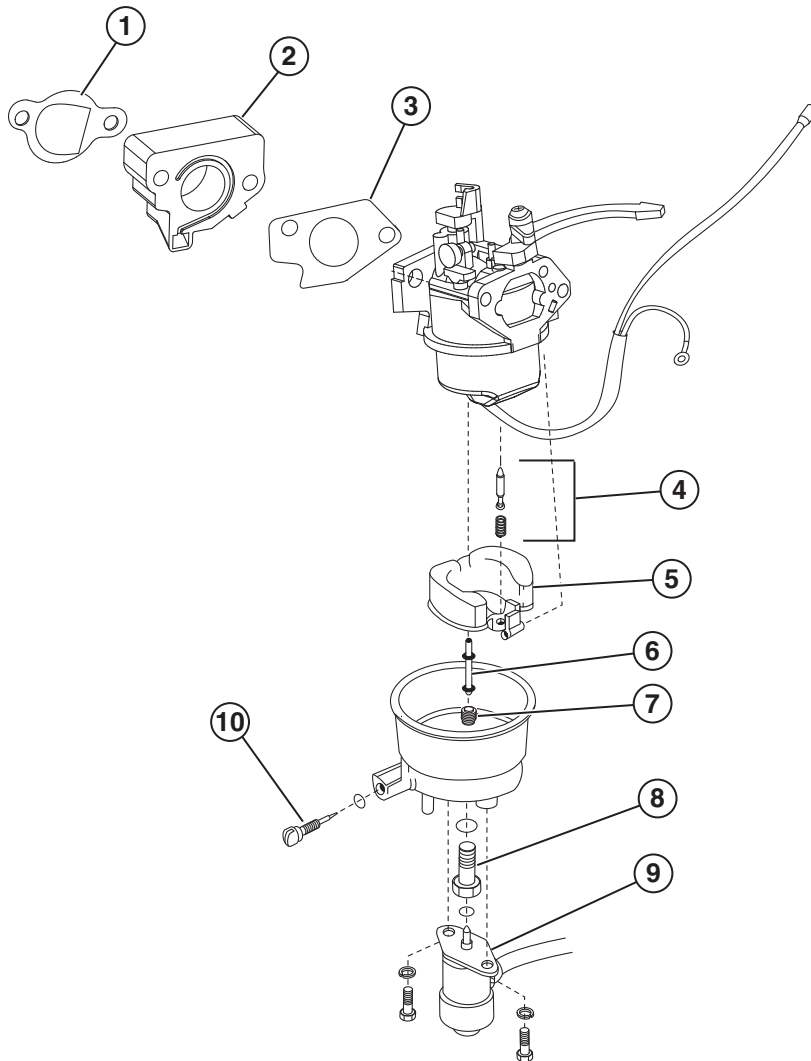
CARBURETOR

⚠ WARNING



Fuel and its vapors are extremely flammable and explosive under certain conditions.

- Only refuel the generator outdoors, in a well-ventilated area.
 - Never enclose the generator in any structure.
 - Keep generator at least 6 feet (2 m) away from buildings, other equipment and combustible materials during operation.
- 
- Never fill the fuel tank while the engine is running. Turn the generator off and allow it to cool before filling with fuel.
 - Never smoke or allow flames or sparks near the generator or where gasoline is stored.
 - Never overfill the fuel tank (there should be no fuel in the filler neck). After refueling, tighten the fuel cap securely.
 - Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, the area must be dry before starting the engine.
 - Avoid repeated or prolonged contact with skin or breathing of vapor.



- 1 - **Intake Gasket**
- 2 - **Insulator**
- 3 - **Carburetor Gasket**
- 4 - **Inlet Needle:** Check for wear on the tip and a weak spring.
- 5 - **Float:** Check that float moves free when installed on carburetor body.
- 6 - **Main Nozzle:** Check to make sure passages are clean. Use compressed air if needed.
- 7 - **Main Jet:** Check to make sure passages are clean. Use compressed air if needed.
- 8 - **Float Bowl Bolt:** Check for leakage after installation.
- 9 - **Fuel Cutout Solenoid:** Check for continuity between the two wires. If there is no continuity, replace the solenoid.
- 10 - **Drain Screw:** Remove to drain the float bowl. Check for leaks after it is installed.

Figure 9-6

SERVICE AND DISASSEMBLY

ELECTRIC STARTING SYSTEM (ELECTRIC START MODELS)

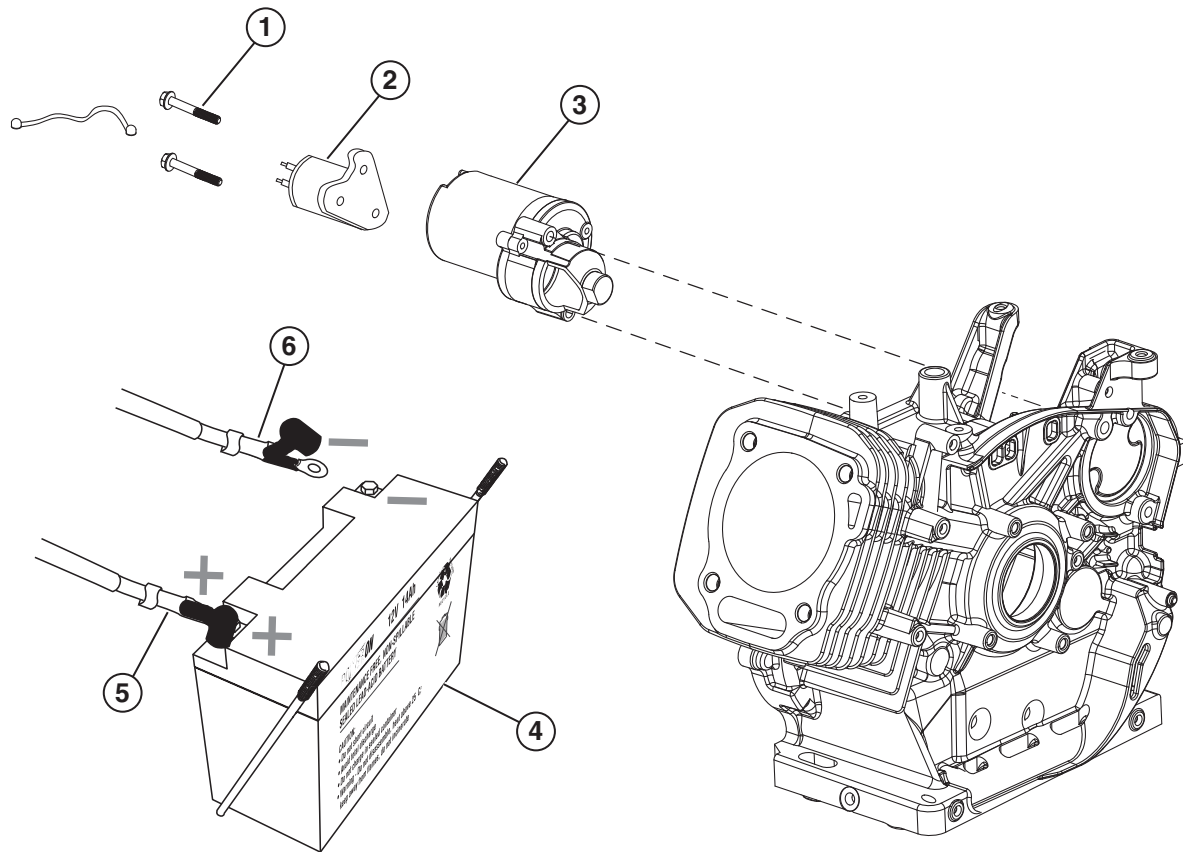


Figure 9-7

- 1 - Starter Mounting Bolts
- 2 - Starter Solenoid: Tighten solenoid terminal nut to 53 in-lb (6 N·m).
- 3 - Electric Starter: Move the engine control switch to the **START** position to operate starter.
- 4 - Battery
- 5 - Red Positive (+) Battery Cable
- 6 - Black Negative (-) Battery Cable

RECOIL STARTER

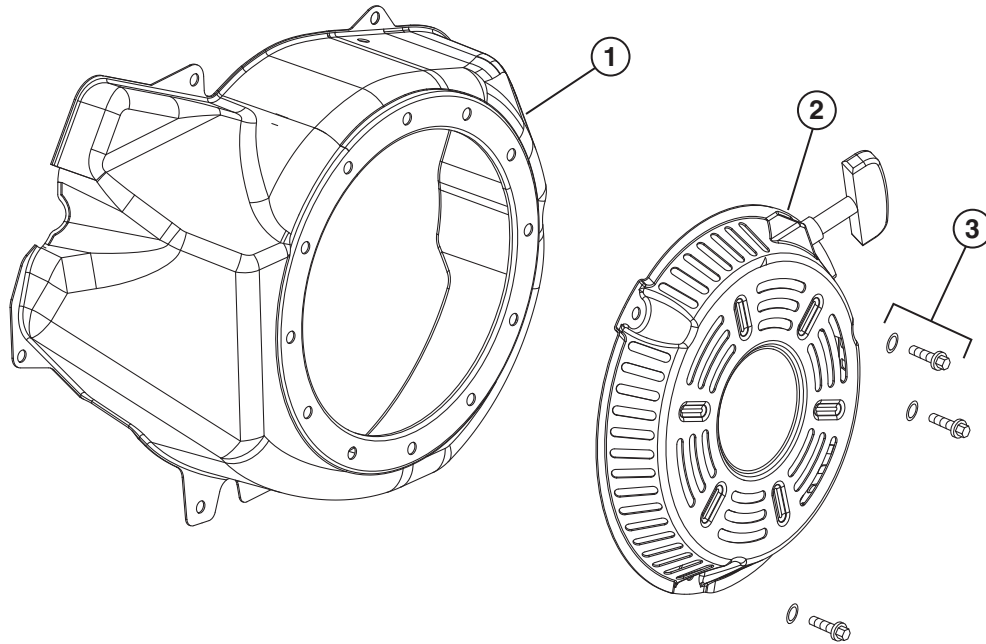


Figure 9-8

NOTE: There are no serviceable components for the recoil starter. Replace the recoil as an assembly.

1 - Blower Housing

2 - Recoil Starter: Install the recoil handle in the position shown.

3 - Bolts: Remove the bolts to replace the starter.

SERVICE AND DISASSEMBLY

FAN COVER

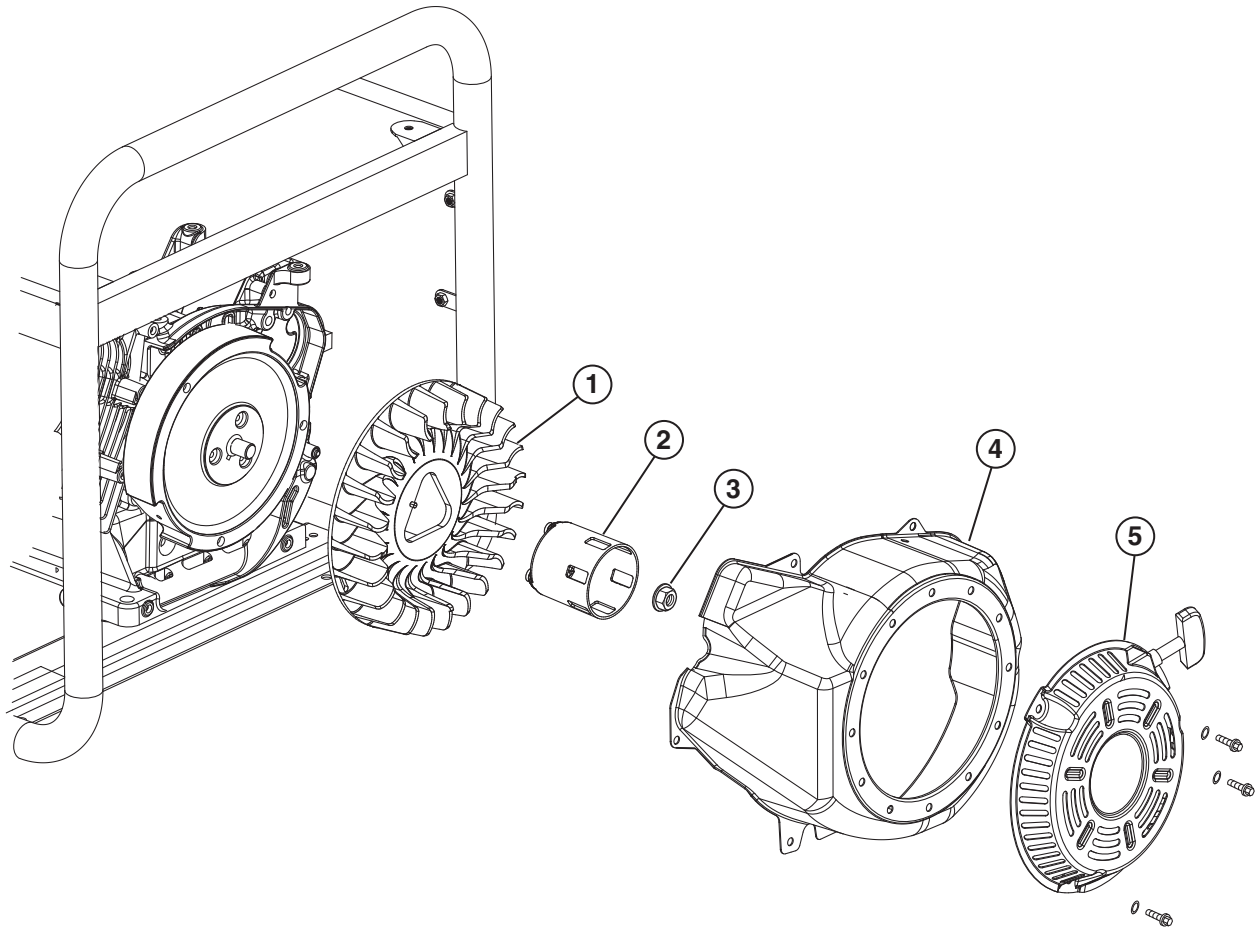


Figure 9-9

- 1 - **Cooling Fan:** Install by aligning the holes on the fan with the holes on the flywheel. Inspect the fan blades for wear or damage. Replace the fan if any fins are damaged.
- 2 - **Starter Cup:** When installing, align the hole in the starter cup with the lug on the cooling fan.
- 3 - **Flywheel Nut:** Hold the flywheel from turning and tighten the nut to 77 ft-lb (105 N·m).
- 4 - **Blower Housing**
- 5 - **Recoil Starter**

WHEEL, LEG AND HANDLE ASSEMBLY

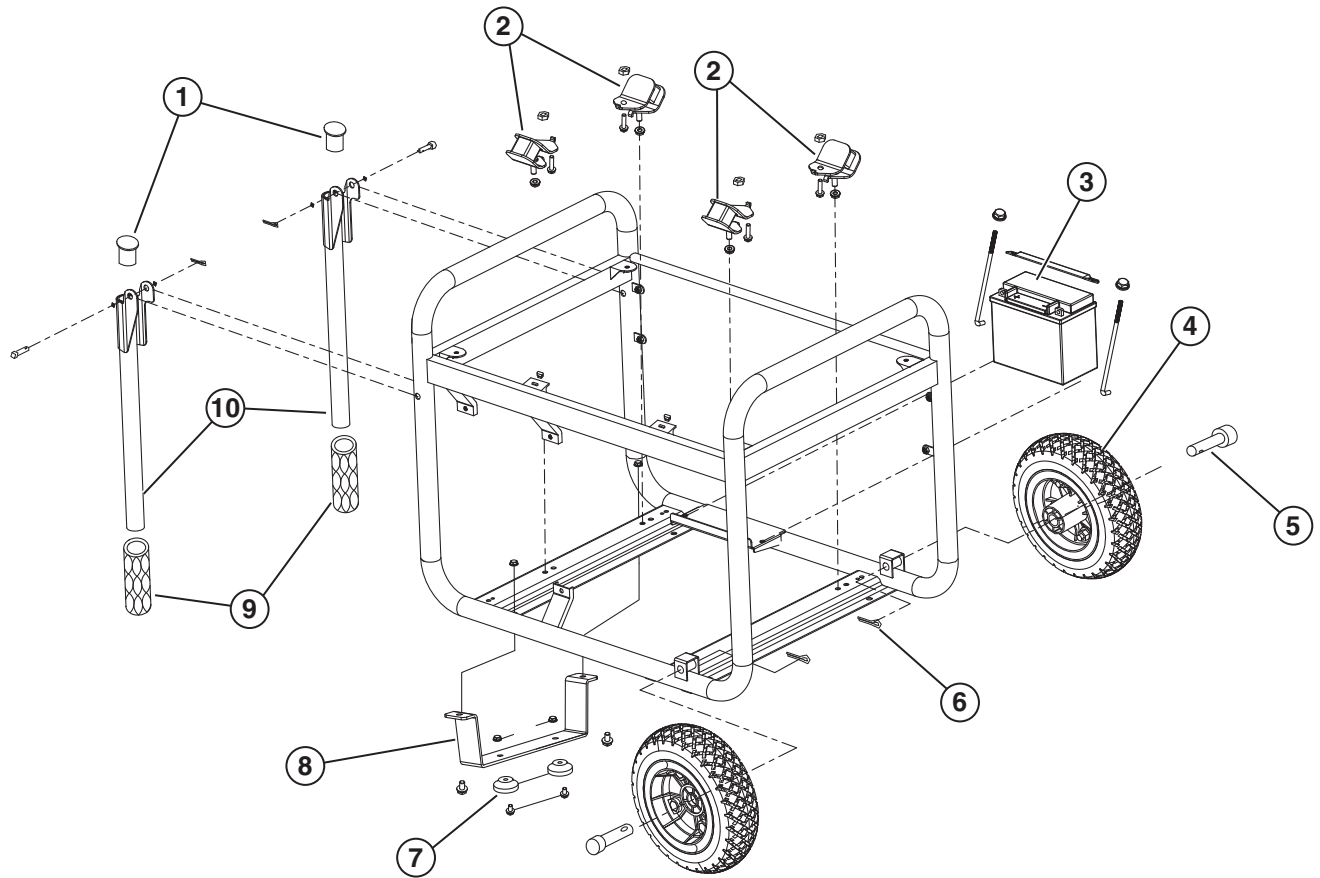


Figure 9-10

- | | |
|-------------------------------------|-------------------|
| 1 - Handle Bumper | 6 - Hairpin Clips |
| 2 - Shock Mount | 7 - Foot Pad |
| 3 - Battery (Electric Start Models) | 8 - Foot |
| 4 - Wheel | 9 - Handle Grips |
| 5 - Axle Pin | 10 - Handles |

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Service Manual

Models: WH3250 Series
WH4500 Series
WH5500 Series
WH6000 Series
WH6500E
WH7000 Series
WH7500E Series

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