



OPERATION, SERVICE, AND REPAIR MANUAL

FOR TSURUMI TPG4-SERIES
PORTABLE GENERATORS

TPG MODELS

TPG4-3000HDX
TPG4-4500HDX
TPG4-6000HDX
TPG4-7000HDX
TPG4-7000HDXE

Contact your dealer or visit our web site for details: <http://www.tsurumipump.com/>

LIMITED WARRANTY

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TSURUMI's sole obligation under this warranty is to repair or replace at TSURUMI's option, with new or remanufactured parts, any part(s) that fail or are found to be defective during the warranty period. No allowance will be made for shipping charges, damages, labor, or other charges due to failure, repair or replacement.

This warranty does not apply to any TSURUMI product that has been disassembled without prior approval of TSURUMI nor does it apply to any product that has been subjected to misuse, neglect, alteration, misapplication, accident or act of God.

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This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Tsurumi Manufacturing Co., Ltd.

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1-0 INTRODUCTION

1-1 GENERAL

We thank you for purchasing a Tsurumi Portable Generator. We are sure that the generator you have selected will meet all your portable electric power needs.

This manual applies to the Tsurumi Generators listed below. Specifications for the generators are provided in the SPECIFICATIONS section. Key features of the generator are shown in the DESCRIPTION section.

TPG4-3000HDX
TPG4-4500HDX

TPG4-6000HDX
TPG4-7000HDX

TPG4-7000HDXE

This manual provides instructions for operation, service, and repair of your Tsurumi generator. We strongly recommend that those who operate the portable generator become familiar with the generator's features and controls, and read the operating instructions before using the generator.

The manual also provides instructions to service, inspection, and repair the generator. This manual also provides replacement parts information.

Repair and service information for the Honda engine is provided in the Honda Owner's Manual for Models GX160, GX240, GX340, and GX390. A copy of the Owner's Manual has been provided in the generator's literature package shipped with the generator. Parts information for the Honda Engine is available in Honda's Parts Catalogs.

When there are differences between generator models, separate instructions are provided. The separate instructions are provided to make sure the correct procedures are used on the affected generators.

All information in the Tsurumi manual is based upon the latest production configuration of the generator at the time of approval for printing.

If you have a problem with your generator that cannot be resolved using the Operation, Repair, and Service Manual, or if you have questions about the operation, service, repair, or maintenance of your generator, contact your local Tsurumi generator dealer.

1-2 PRECAUTIONS AND PLACARDS

Pay special attention to precautionary notes preceded by the words **WARNING**, **CAUTION**, or **NOTE**.

WARNINGS indicate that there is a strong possibility of personal injury or loss of life if the procedures in the manual are not followed, and/or if materials are not applied properly. These materials include cleaning agents, lubricants, and adhesives.

CAUTIONS indicate that there is a possibility of equipment damage if instructions are not followed.

NOTES are used in procedures to provide additional or supplemental information to make the procedure easier to perform and to do so efficiently.

WARNING: THIS GENERATOR IS DESIGNED TO GIVE SAFE AND DEPENDABLE SERVICE WHEN OPERATED ACCORDING TO THE INSTRUCTIONS IN THE TECHNICAL MANUALS PROVIDED WITH THE GENERATOR.

WARNING: DO NOT OPERATE THE GENERATOR BEFORE YOU HAVE READ AND UNDERSTAND THE INSTRUCTIONS AND THE ENGINE MANUFACTURER'S MANUAL. FAILURE TO DO SO COULD RESULT IN PERSONAL INJURY OR EQUIPMENT DAMAGE.

1-3 Placards

Placards, shown in Figure 1-1 through Figure 1-8 are attached to the portable generator to warn operating and maintenance personnel of potential hazards, to provide maintenance information, and to provide generator ratings and capabilities. The large label below is located on the front panel of the portable generator. The label presents operational Warnings and Cautions for generator users.

1-4 SAFETY PRECAUTIONS

WARNING: IN ORDER TO ASSURE SAFE AND EFFICIENT OPERATION OF THE GENERATOR, OPERATOR'S SHOULD READ AND COMPLY WITH THE FOLLOWING SAFETY PRECAUTIONS.

- **Do not operate the generator near gasoline or gaseous fuels because of the potential danger from explosion or fire.** Do not fill the fuel tank with fuel while the engine is running. Do not smoke or use open flame near the fuel tank. Be careful not to spill fuel during refueling. If fuel is spilled, wipe it off and let it dry before starting the engine.
- **Do not place flammable materials near the generator.** Be careful not to place fuel, matches, gunpowder, oily cloths, straw, trash, or any other combustibles near the generator.
- **Do not operate the generator inside a room, cave, tunnel, or other insufficiently ventilated area.** Always operate the generator in a well-ventilated area. The engine may become overheated, and the poisonous carbon monoxide gas contained in the exhaust gases will endanger human lives.
- **Keep the generator at least 1 meter (3 feet) away from any structure or building during use.** When a generator is located close to a building or nearby equipment, heat and exhaust from the engine will cause the surrounding temperature to rise. This will degrade the engines cooling efficiency, causing overheating.
- **Do not enclose the generator nor cover it with a box.** The generator has a built-in, forced-air cooling system, and may become overheated if it is enclosed.
- **Operate the generator on a level surface.** It is not necessary to prepare a special foundation for the generator. However, the generator will vibrate on an irregular surface. Therefore, choose a level place without surface irregularities.
- **Shutoff the generator when moving the generator to another work site.** If the generator is tilted or moved during operation, fuel may spill and/or the generator may tip over, causing a hazardous situation. Proper lubrication cannot be expected if the generator is operated on a steep incline or slope. In such a case, the piston may seize; it may seize even if the oil is above the upper level.
- **Do not operate in rain or with wet hands.** The operator may suffer severe electric shock, if the generator is wet due to rain or snow. If wet, dry before starting. Do not pour water directly over the generator, nor wash it with water.
- **Do not connect the generator to a commercial power line.** Connection to a commercial power line may result in short circuit and damage the generator. When connecting to domestic circuits, install only approved transfer switches and make sure power and control circuitry meet local electrical code requirements.
- **Do not smoke or use other smoking materials (pipes, cigars, etc.) while handling the battery.** The battery emits flammable hydrogen gas, which can explode if exposed to electrical arcing or open flame. Keep the work area well ventilated and keep the battery away from open flames/sparks.

TSURUMI PORTABLE GENERATOR	
MODEL	TPG4-3000HDX
MAX. OUTPUT	2.6kVA
RATED OUTPUT	2.2kVA
VOLTAGE	120V
FREQUENCY	60Hz
SERIAL NO.	*****
MADE IN JAPAN	

Figure 1-1: Typical Data Plate

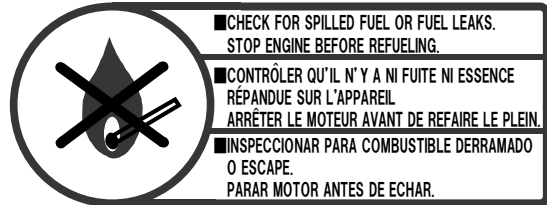


Figure 1-4: Fuel Handling Warning

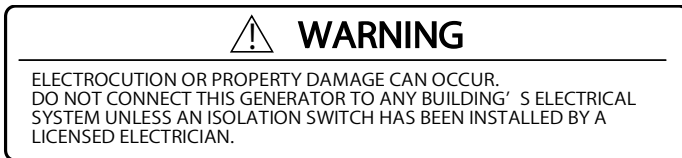


Figure 1-2: Electrical Warning

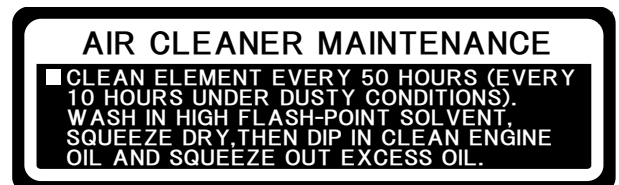


Figure 1-5: Air Cleaner Maintenance Warning

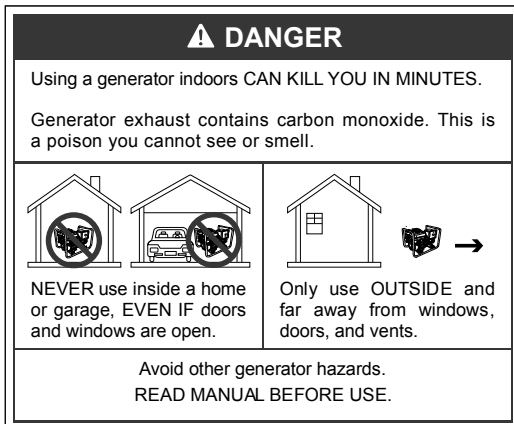


Figure 1-3: Carbon Monoxide Warning



Figure 1-6: Gasoline/Carbon Monoxide Warning



Figure 1-7: Hot Exhaust Placard

⚠ WARNING	DO NOT USE INDOORS. EXHAUST GAS CONTAINS POISONOUS CARBON MONOXIDE.	⚠ WARNING	USING THE GENERATOR IN RAIN, SNOW OR NEAR WATER CAN LEAD TO DEATH FROM ELECTRIC SHOCK. KEEP GENERATOR DRY.
⚠ ATTENTION	NE PAS UTILISER DANS UN ENDROIT FERMÉ À CAUSE DU RISQUE D'EMPOISONNEMENT DU GAZ.	⚠ WARNING	ELECTROCUTION OR PROPERTY DAMAGE CAN OCCUR. DO NOT CONNECT THIS GENERATOR TO ANY BUILDING'S ELECTRICAL SYSTEM UNLESS AN ISOLATION SWITCH HAS BEEN INSTALLED BY A LICENSED ELECTRICIAN. READ OWNER'S MANUAL CAREFULLY.
⚠ ATENCION	NO LO USE EN LUGARES CERRADOS PORQUE EL MONOXIDE DE CARBONO ES VENENOSO.	⚠ CAUTION	EXCEEDING GENERATOR'S WATTAGE/AMPERAGE CAPACITY CAN DAMAGE GENERATOR AND/OR ELECTRICAL DEVICES CONNECTED TO IT. • START GENERATOR AND LET ENGINE STABILIZE BEFORE CONNECTING ELECTRICAL LOADS. • NO SENSITIVE EQUIPMENT LIKE COMPUTERS, STEREOS, TVS, ETC.

Figure 1-8: Multiple Warning/Caution Placard



Figure 1-9: Label,U.S.EPA non-load emission regulation

1-5 KEY FEATURES

- **Honda Powered** - - proven reliability - - quiet operation - - efficient fuel consumption
- **Automatic Idle Control** - - reduces fuel consumption, noise, and engine wear (this feature is not available on Model TPG4-3000HDX).
- **Large, Silent Muffler (with USDA qualified spark arrestor)** to significantly reduce noise. The spark arrestor is designed to screen out hot sparks.
- **Large Air Filter** - - for superior emission control.
- **Large Capacity Fuel Tank with Fuel Gauge** - - for extended run time.
- **Rubber Vibration Pads** - - isolates generator/engine vibration from the frame for maximum protection and noise reduction.
- **Ground Fault Circuit Interrupter (GFCI)** - - leakage prevention mechanism outlets - -protects operator from shock.

- **Voltage Selector (Full Power) Switch** - - allows voltage selection; either full-rated output from 120V receptacle or half-rated output from 120V receptacle and full-rated output from 240V receptacles
(this feature is not available on Model TPG4-3000HDX).
- **Circuit Breaker** - - protects generator from overload damage -- can be reset with the flip of a switch
(no fuse to replace).
- **100% Copper Windings** - - for long life.
- **U.S.EPA non-load emission regulation-** -This equipment meets U.S. EPA EVAP STANDARD.

Table 1-1 Portable Generator Specifications

		TPG4-3000HDX	TPG4-4500HDX	TPG4-6000HDX	TPG4-7000HDX	TPG4-7000HDXE
Generator	Max./Rated Output	2600/2200	4500/3600	5500/4800	6800/6000	6800/6000
	Max./Rated Current	21.7/18.3	37.5/30.0	45.8/40.0	56.7/50.0	56.7/50.0
	(120V,240V)		18.7/15.0	22.9/20	28.3/25.0	28.3/25.0
	Voltage	120(60Hz)	120/240(60Hz)	120/240(60Hz)	120/240(60Hz)	120/240(60Hz)
	AC Outlet Receptacles	1-NEMA 5-20R Duplex (20A,120V,W/GFCI)	2-NEMA 5-20R Duplex(20A,120V) , 1-NEMA L5-30R(30A,120V, Twist Lock) , 1NEMA L14-30R(30A,120/240V, Twist Lock) GFCI UNIT (LEAKAGE PREVENTION MECHANISM ALL OUTLETS)			
Engine	Engine Models	HONDA	HONDA	HONDA	HONDA	HONDA
		GX160	GX240	GX340	GX390	GX390
	Engine speed	3600 rpm	3600 rpm	3600 rpm	3600 rpm	3600 rpm
	Max.HP	5.5(3600RPM)	8.0(3600RPM)	11.0(3600RPM)	13.0(3600RPM)	13.0(3600RPM)
	Displacement (cc (cu in))	163(10)	242(15)	337(21)	389(24)	389(24)
	Fuel Tank Capacity(Liter) (US gal (L))	4.2 (16)	6.6 (25)	6.6 (25)	6.6 (25)	6.6 (25)
	Running Time (Full Load)	12.1 hrs	11.4 hrs	8.5 hrs	7.9 hrs	7.9 hrs
Running Time (1/2 Load)	16.8 hrs	16.4 hrs	12.2 hrs	11.8 hrs	11.8 hrs	
Starting System	Recoil	Recoil	Recoil	Recoil	Recoil&Electric	
Shipping Size [L x W x H](inch)	25.0×19.8×22.0	28.3×24.2×23.6	28.3×24.2×23.6	28.3×24.2×23.6	28.3×24.2×23.6	
Shipping Weight (pounds)	112	169	187	196	211	

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2-0 DESCRIPTION AND OPERATION

2-1 PHYSICAL DESCRIPTION

(1) **Description of the TPG4 Portable Generator**

- (a) The key features of the portable generator are shown in Figure 2-1. An exploded view of a typical generator is provided in Figure 2-2.
- (b) The generator consists of a tubular frame onto which is installed the generator, engine, front panel, control box, and fuel tank.

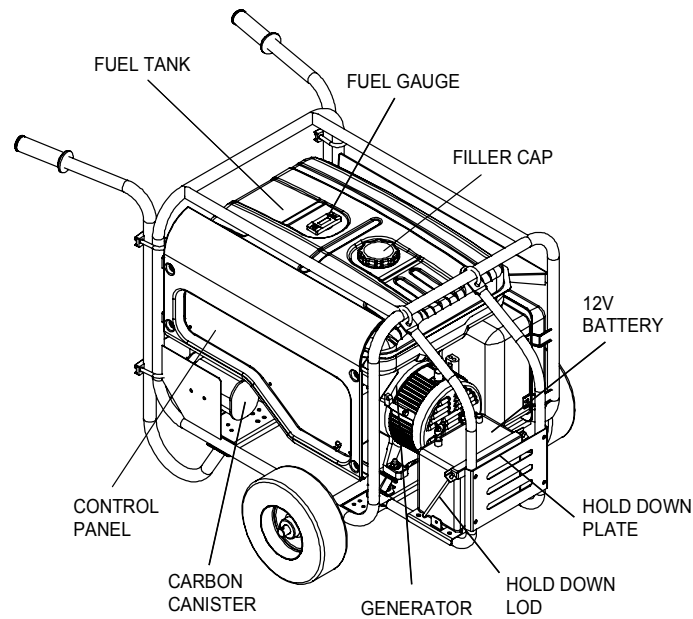
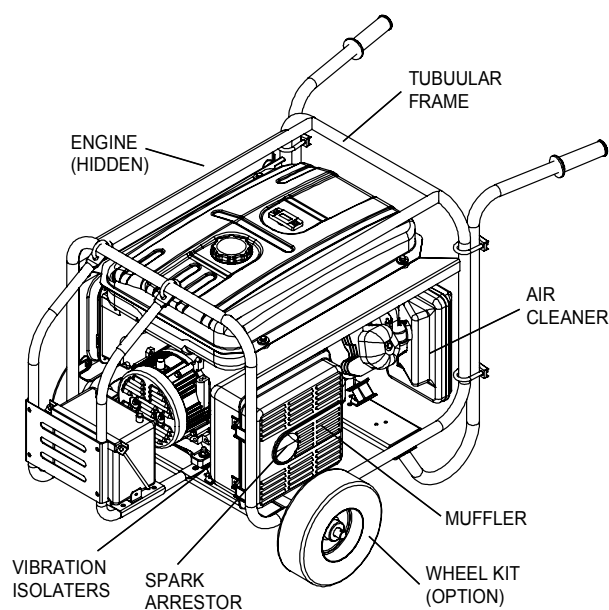


Figure 2-1: Key Features of Generator (Model TPG4-7000HDXE Shown)



- (c) The generator and engine are installed on crossover plates that form the base of the tubular frame. Vibration isolators support the generator and engine unit. The isolators are fitted with threaded studs that secure the generator and engine unit to the frame.

(2) Description of Generator

- (a) The generator consists of a front bracket, intermediate N-bracket, stator assembly and cover, rotor, rear bracket and bracket cover.
- (b) The rear bracket of the generator attaches to the engine and this unit forms the generator-to-engine interface.
- (c) The front bracket has a series of slots that allow entry of cooling air into the generator. A fan on the rotor circulates air through the generator.
- (d) The rear bracket has mounting lugs that are the generator-to-frame attachment points. The rear bracket provides support for a ball bearing at the back end of the generator rotor.
- (e) The rotor consists of a shaft, a stack of steel laminations, and copper wire windings. Components mounted on the rotor include a surge absorbing diode, a bridge diode, two permanent magnets, and a cooling air fan.
- (f) The windings and the laminated steel core form the field coil. The permanent magnets are used to induce voltage in the main coil of the stator. The diode and the surge absorber are located under the rotor windings at the bearing end of the rotor shaft.
- (g) The rotor is attached to the engine crankshaft with a through bolt (tie-bolt). The engine crankshaft is tapered and mates with a tapered bore in the rotor shaft. The clamping force applied to the through bolt ties the rotor shaft to the engine crankshaft.

(3) Description of the Engine

NOTE: Refer to the Honda Owner's Manual for Models GX160, GX240, GX340, and GX390 for additional coverage of the engine.

- (a) The TPG4-7000HDXE portable generator has an electric starter and a recoil starter. All other models of portable generators are equipped with a recoil starter.
- (b) The engine is equipped with an air filter to remove airborne contaminants from the engine inlet air.
- (c) The engine is fitted with a muffler that provides quiet operation and controls the flow of engine exhaust gases. The muffler is attached to the rear generator cover using a muffler mounting bracket.
- (d) The muffler for Models TPG4-4500HDX, TPG4-6000HDX, TPG4-7000HDX and TPG4-7000HDXE expels exhaust gases through a port in the side of the muffler. The muffler for Model TPG4-3000HDX has a smaller muffler that expels gases through a curved tube on the bottom of the muffler.

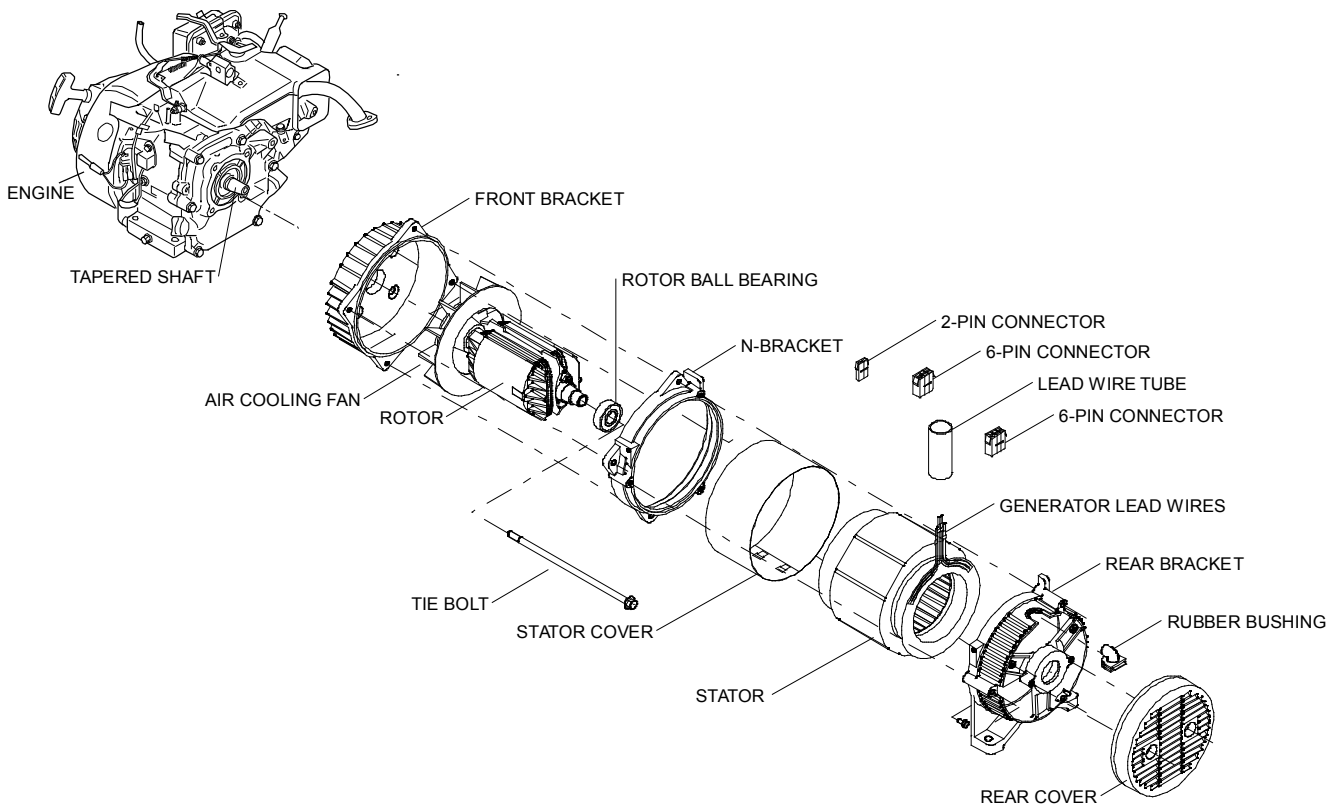


Figure 2-2: Exploded View of TPG4 Generator Components

- (h) The muffler is fitted with a spark arrestor to screen-out sparks ejected in the exhaust gases. The spark arrestor for Models TPG4-4500HDX, TPG4-6000HDX, TPG4-7000HDX and TPG4-7000HDXE is installed in the exhaust port of the muffler. The spark arrestor for Model TPG4-3000HDX is installed in the inlet side of the muffler.
- (i) The engine is fitted with oil filler plugs that are used to check engine oil level. Engine oil is added through the same filler plug ports. The engine oil drain plug is installed in the engine casing adjacent to the oil filler plug.
- (j) The engine has a carburetor choke control for starting the engine during cold weather operation. (Models TPG4-4500HDX, TPG4-6000HDX, TPG4-7000HDX and TPG4-7000HDXE have a ring-type choke control; Model TPG4-3000HDX has a choke lever.)

NOTE: Refer to the Honda Owner's Manual for Models GX160, GX240, GX340, and GX390 for additional coverage of the engine.

(4)

Description of the Fuel Tank

- (a) The fuel tank is located at the top of the portable generator. Fuel flows by gravity from the tank through a tank-mounted fuel shutoff valve and to the carburetor inlet.
- (b) A fuel gauge and tank filler cap are provided on the top of the tank. A screen is provided under the filler cap to prevent entry of contaminants.
- (c) The tank is attached to the frame by four cushioned mounts.
- (d) A fuel shutoff valve is mounted on the underside of the tank. The valve is opened to provide fuel to the carburetor. The valve is closed when the generator is not in use or when transporting the generator
- (e) The fuel shutoff valve has a sediment bowl to capture contaminants that may have passed through the fuel tank filler screen.
- (f) EPA Carbon Canister-When the engine runs the vapors are gather from the tank into the engine, at this point the vapors are burned. Once the engine is shut off ,the vapors continue to be produced.
The vapors are absorbed into the canister and are burned off once the engine is restarted.

(5) Description of the Front Panel

NOTE: Refer to Figures 3-1 through 3-3 for illustrations of the generator front panels. Familiarize yourself with the layout of the front panel for your generator before operating the generator.

- (a) The operating controls, switches, lights, electrical receptacles, and circuit breakers for the generator are mounted on the front panel.
- (b) The engine, starter, and control wiring exit through holes in the back of the control box.
- (c) The generator leads and control wiring are connected inside the control box. A flexible rubber sleeve provides protection for the generator wiring.

2-3 FUNCTIONAL DESCRIPTION

- (1) Generation of No-Load Voltage (refer to Figure 2-3)
 - (a) When the generator rotor begins to rotate, the permanent magnet in the rotor generates 3 to 6 volts alternating current in the main coil and in the condenser coil windings.
 - (b) The low voltage generated in the condenser coil also generates minute current flow (a) through the condenser coil. At the same time, low-level magnetic flux intensifies at the rotor's magnetic pole. As the magnetic force intensifies, voltage increases in the main coil and in the condenser coil. As current (a) increases, magnetic flux also increases at the rotor's magnetic pole, and continues to increase as generator speed increases.
 - (c) As AC current flows through the condenser coil, the density of the magnetic flux in the rotor changes. The change in magnetic flux density induces AC voltage in the field coil, and the diode rectifier in the field coil circuit rectifies the AC voltage into DC voltage. The resultant DC current flows (b) through the field coil and magnetizes the rotor core to generate output voltage in the main coil.

- (d) When the generator speed reaches 3000 to 3300 rpm (60 Hz generators), the current in the condenser coil increases rapidly. This acts to stabilize the output voltage of each coil. When the generator speed reaches its rated speed, the generator output will be at its rated value.
- (2) Voltage Fluctuations Under Load (refer to Figure 2-6)
- (a) When output current (c) flows through the main coil to the appliance being used, a magnetic flux is produced and serves to increase current (a) in the condenser coil. As a result, the current flowing in the field coil increases and the generator output voltage is prevented from decreasing.

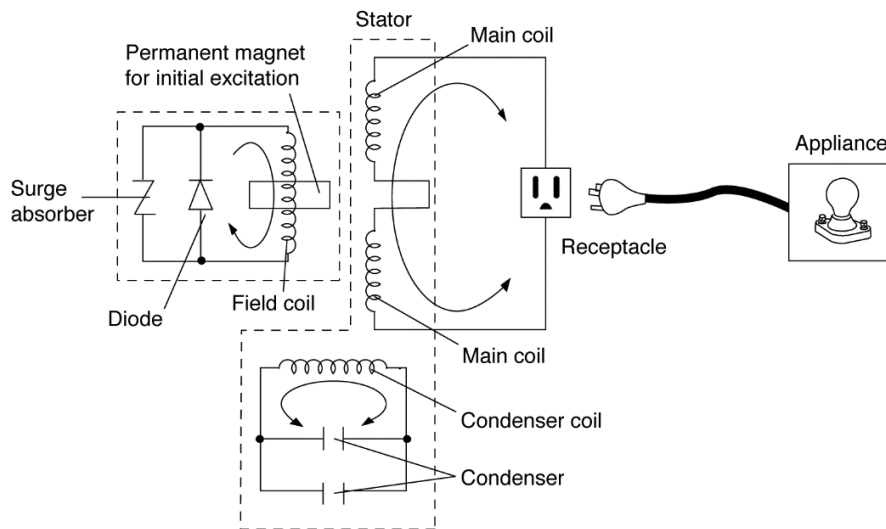


Figure 2-3: Generation of No-Load Voltage

- (3) Voltage selector Switch (Dual Voltage Type) (refer to Figure 2-4)
- (a) The voltage selector switch provides both 120V and 240V dual voltages at full rated power. The full rated power will be available from one 120V receptacle and one 240V receptacle.
- (b) Two main coils are wound over core of the stator. Each main coil outputs half the rated power at the lower voltage 120V. These main coils are wound so they are in the same phase. The full power switch reconnects these main coils in parallel or in series.
- (c) Refer to the circuit diagram in Figure 4. When the full power switch is set for single lower voltage indication 120V, the switch position will be as indicated by the lower coils line in the diagram.

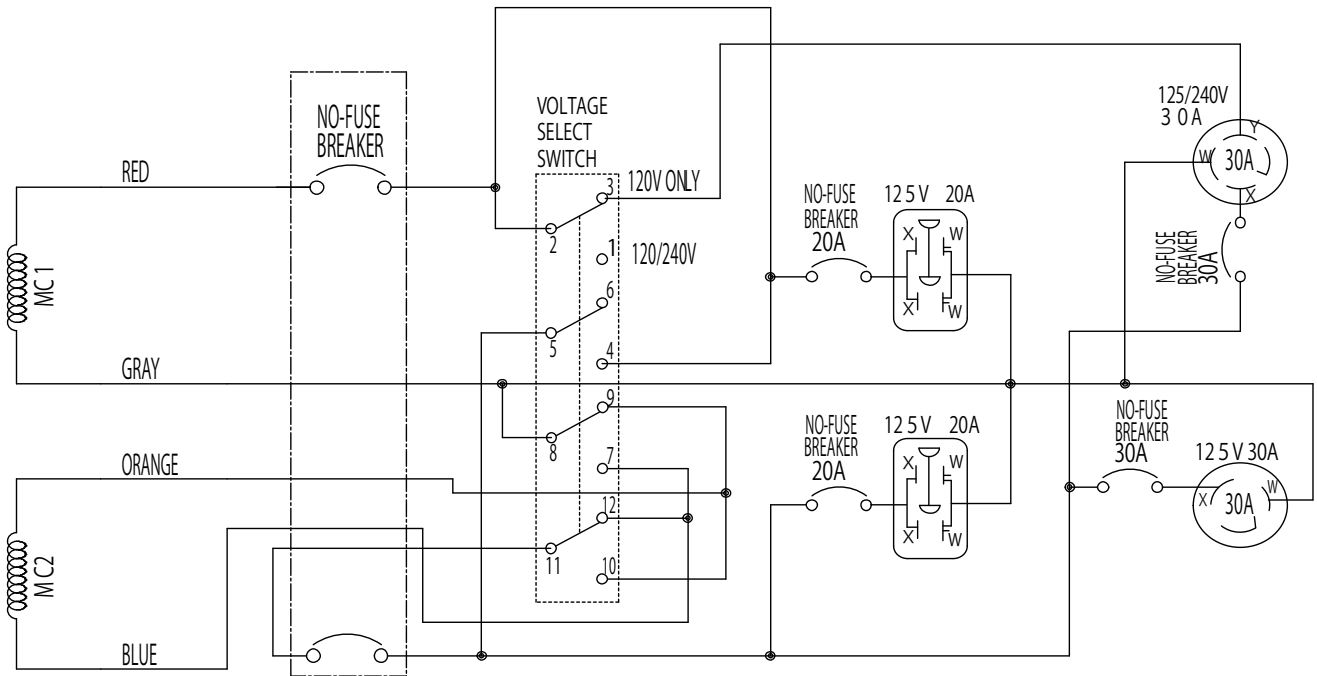


Figure 2-4: Voltage selector Switch Circuit Diagram

- (d) Refer to Figure 2-5 for a simplified diagram of the circuit. The two main coils are shown in parallel. In this case, the higher voltage (240V) at Receptacle (Rec.3) is not available. Rec. 2 for the lower voltage is available up to the rated power (up to 30A if the rated current is over 30A), and Rec. 1 is available up to 15A. When the Voltage selector switch is set for double voltage indication (120 V or 120V/240V), the switch position is indicated by the upper dotted line in Figure 2-4.
- (e) Refer to Figure 2-6 for a simplified diagram of the circuit. The two main coils are shown connected in series. In this example, power is simultaneously available from the receptacles for both voltages. Higher voltage receptacle, Rec. 3, has power available up to rated power, however, Rec. 1 and Rec. 2 for the lower voltage can output only up to the rated power of each receptacle.
- (f) Table 2-1 summarizes in tabular form the power available, or not available, depending upon the position of the full power switch.

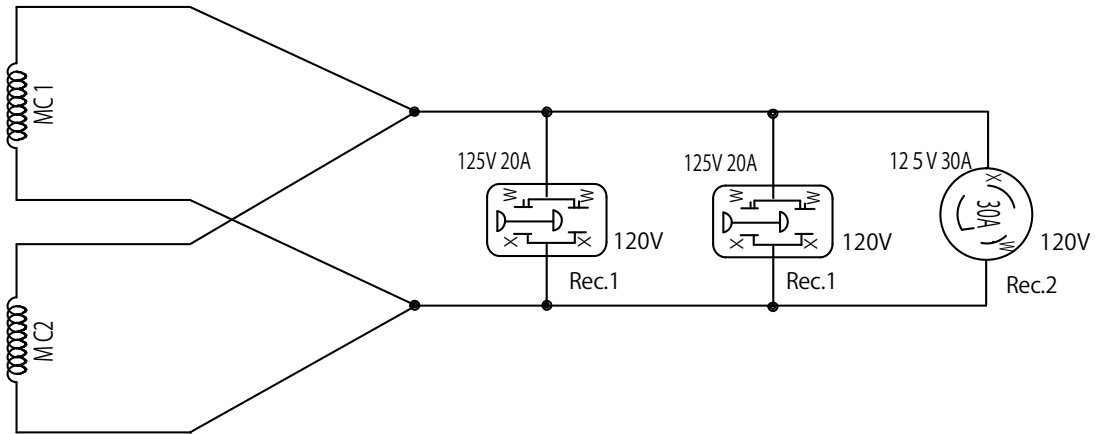


Figure 2-5: VOLTAGE SELECTOR Switch Set for Single-Voltage Output

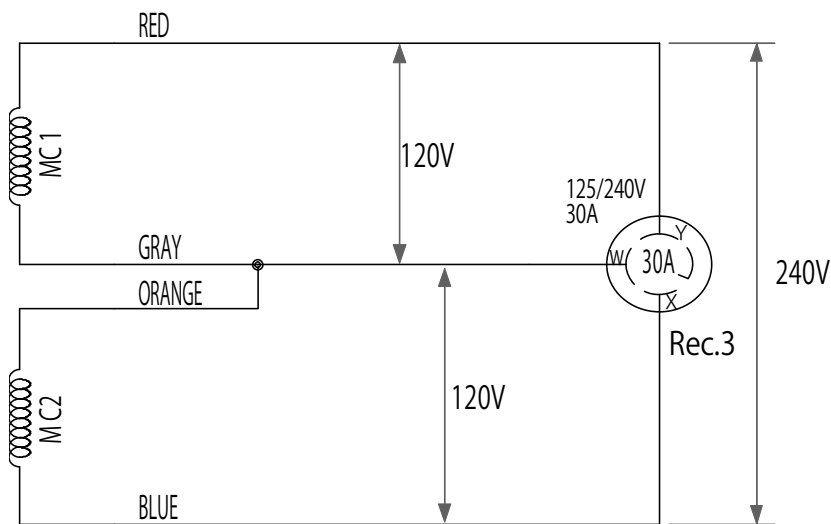


Figure 2-6: Voltage Selector Full Power Switch Set for Dual-Voltage Output

Table 2-1: Full Power Switch – Switch Setting Versus Output Available

Switch Position	120 Voltage Receptacle	240 Voltage Receptacles
120V	Rated Output	No Output
120V / 240V	Half of Rated Output	Rated Output

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3-0 OPERATING INSTRUCTIONS

3-1 Operating Controls

- (1) The main operating controls for the generator are, with a few exceptions, mounted on the front panel of the generator.
- (2) The controls consist of an ENGINE switch, an IDLE CONTROL switch, a VOLTAGE SELECTOR switch, GFCI switch a PILOT lamp, CIRCUIT BREAKER(s), a ground (or earth) terminal, and electrical receptacles. The specific controls used in each models are shown in Figures 3-1 through 3-3.

NOTE: The IDLE CONTROL feature is not available on Model TPG4-3000HDX, which uses a hand operated throttle lever.

- (3) The Model TPG4-7000H-DXE generator is equipped with an electric starter motor. The ENGINE switch in this model is a key-operated, STOP/RUN/START switch. The spring-loaded switch is turned to the right to start the engine, and to the left to shut off the engine.
- (4) The IDLE CONTROL switch allows the generator speed to drop to idle speed if there is no electrical load demand on the generator. When an electrical load is sensed, the idle function increases the speed of the generator up to operating speed level. When there is no load, the engine speed returns to idle.
- (5) The VOLTAGE SELECTOR switch allows the generator to provide full rated power for the loading appliances and/or tools. When the VOLTAGE SELECTOR switch is set to 120/240V, power will be provided to only one 120 VAC receptacle and one 240 VAC receptacle.
- (6) The PILOT lamp provides an indication to the operator that the generator is generating electricity.
- (7) Circuit breakers are provided to protect the generator in the event of a short circuit. The circuit breakers will trip when the circuit load exceeds the breaker's rated value.
- (8) The ground post is used to provide a positive ground for the generator. The post has a wing-nut to quickly connect a ground wire to the generator.
- (9) There are three types of receptacles: 20A 120 VAC receptacles (two on most models), one twist-type, 30A 120VAC receptacle, and one 30A 120 VAC / 240VAC, combination receptacle.
- (10) The ground fault sensing module monitors the ground circuit, and upon a ground fault, will cut power to the load by tripping the circuit breaker.

3-2 DC Circuit Controls

- (1) The circuitry for DC circuit consists of a 5 Amp fuse, an overload protector, and a STARTER RESET switch. (Model TPG4-7000HDXE only.)
- (2) In the event of an overload, the overload protector will trip the reset switch located immediately below the engine key starter switch.

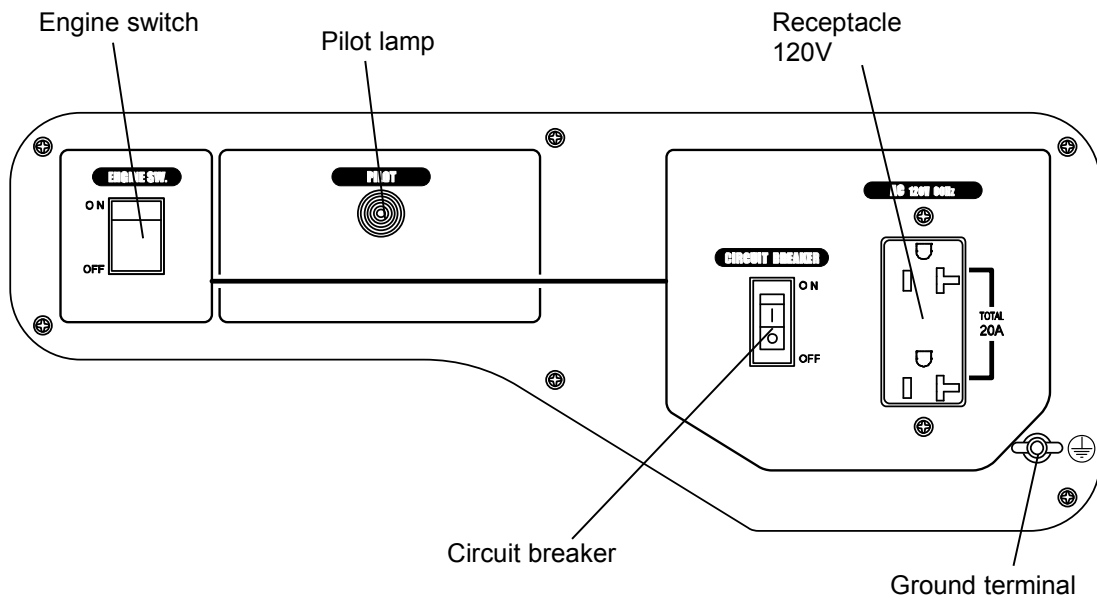


Figure 3-1: Model TPG4-3000HDX

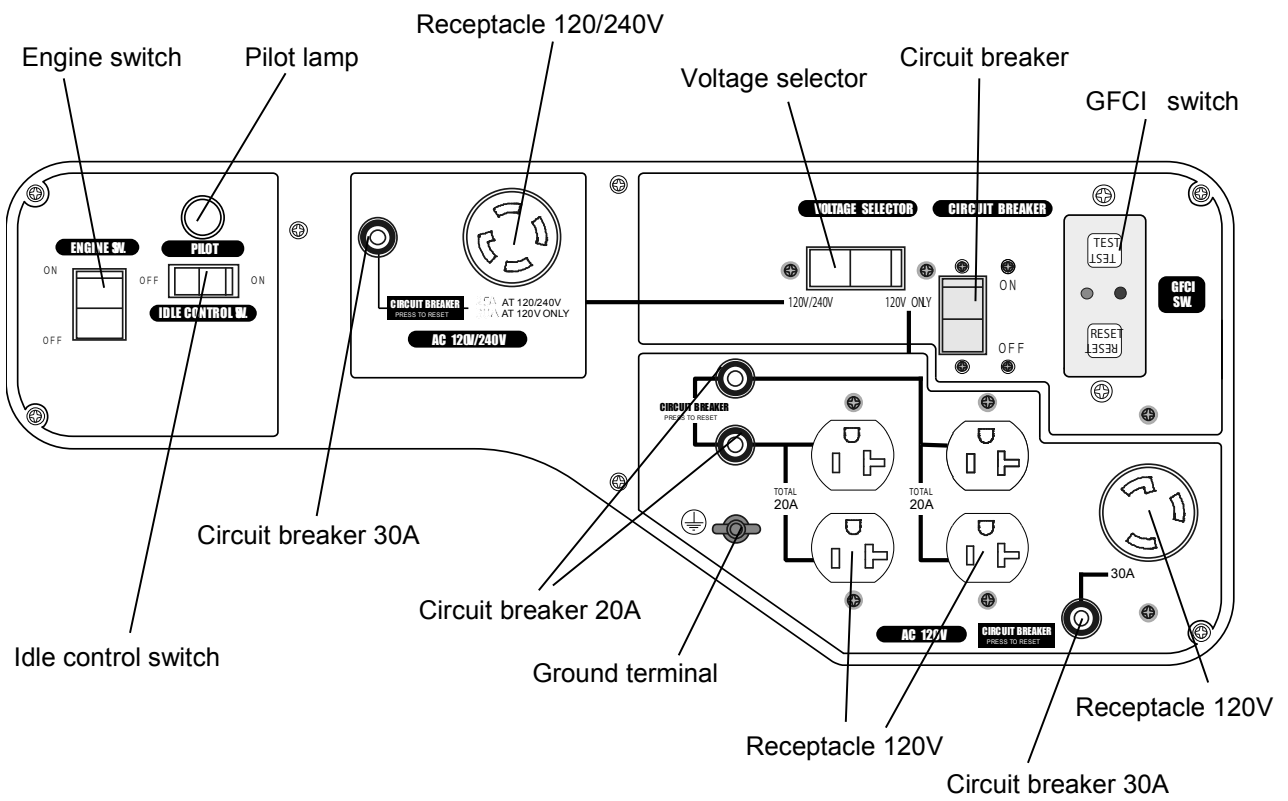


Figure 3-2: Models TPG4-4500HDX, TPG4-6000HDX, and TPG4-7000HDX

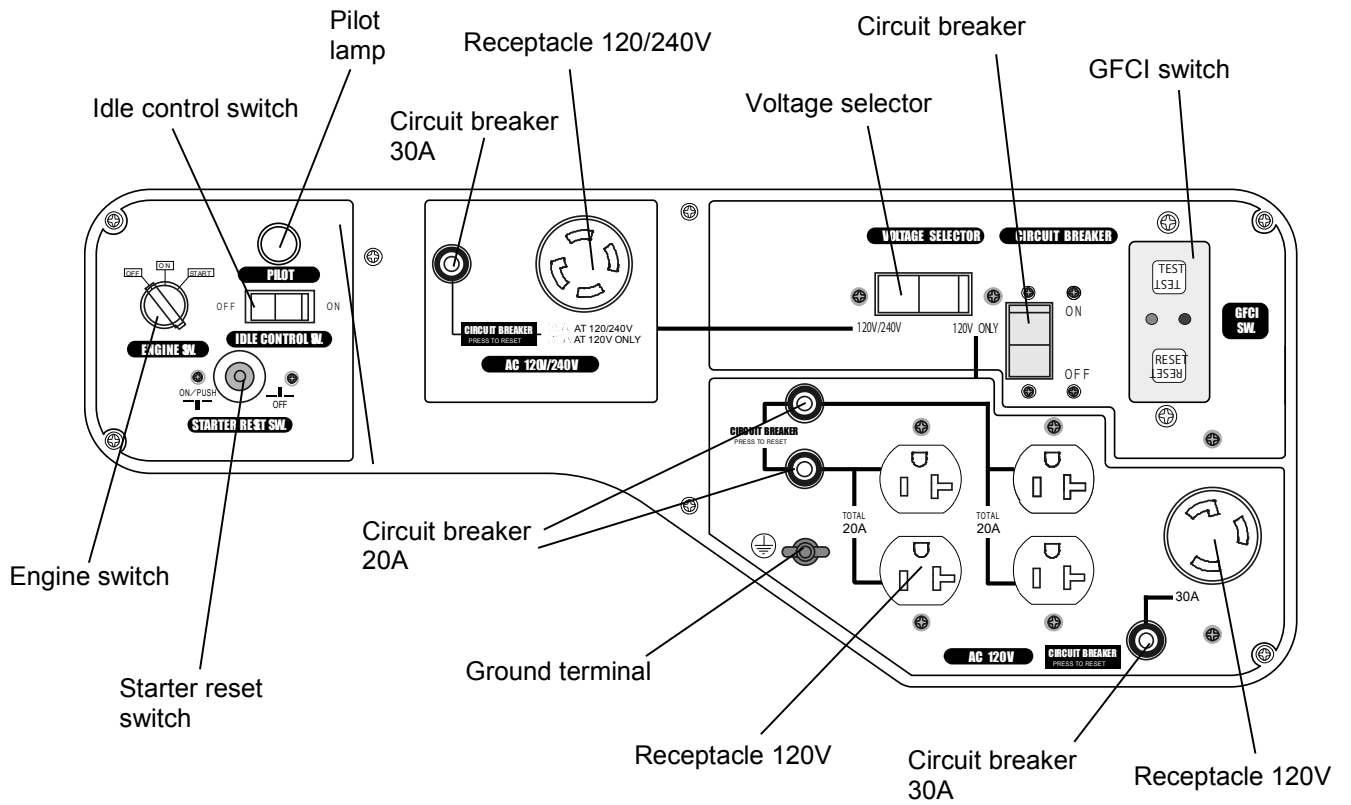


Figure 3-3: Model TPG4-7000HDXE

3-3 Grounding Provisions

WARNING: TO PREVENT ELECTRICAL SHOCK FROM FAULTY APPLIANCES, THE PORTABLE GENERATOR SHOULD BE GROUNDED. CONNECT A LENGTH OF HEAVY WIRE BETWEEN THE GENERATOR'S GROUND TERMINAL AND EXTERNAL GROUND SOURCE.

WARNING: CONNECTIONS FOR STANDBY POWER TO A BUILDING'S ELECTRICAL SYSTEM MUST BE MADE BY A QUALIFIED ELECTRICIAN AND MUST COMPLY WITH ALL APPLICABLE LAWS AND ELECTRICAL CODES. IMPROPER CONNECTIONS CAN ALLOW ELECTRICAL CURRENT FROM THE GENERATOR TO BACKFEED INTO THE UTILITY LINES. SUCH BACKFEED MAY ELECTROCUTE UTILITY COMPANY WORKERS OR OTHERS WHO CONTACT THE LINES DURING A POWER OUTAGE, AND WHEN UTILITY POWER IS RESTORED, THE GENERATOR MAY EXPLODE, BURN, OR CAUSE FIRES IN THE BUILDING'S ELECTRICAL SYSTEM.

A. Electrical Connection Hazards

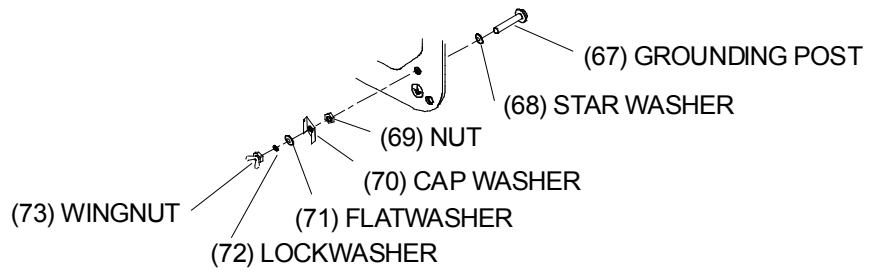
- (1) If you plan to use the portable generator as a backup for the facility's power supply, make sure the connections are made in compliance with applicable laws and electrical codes.
- (1) Connection to a building's electrical system must be made by a qualified electrician.
- (2) Improper connections can allow electrical current from the generator to backfeed into the utility lines which may electrocute utility company workers or others who contact the lines during a power outage. When utility power is restored, the generator may explode, burn, or cause fires in the building's electrical system.

B. Grounding Post Components

- (1) The portable generator is fitted with a grounding post on the right side of the control panel. The parts that make up the grounding post are shown in the Replacement Parts section. The grounding post components and their installation sequence are shown in more detail in Figure 3-4.
- (2) If the grounding post has been disassembled, reassemble as follows:
 - (a) Install star washer (68) on ground post(67). Insert ground post (67) in backside of panel (46).
 - (b) Install nut (69) on ground post (67) and tighten.
 - (c) Install cap washer (70) with sides facing out.
 - (d) Install flat washer (71), lock washer (72), and wing nut (73).

C. Typical Connection of Ground Wire

- (3) Form a loop in ground wire and slip wire between flat washer (71) and cap washer (70). Tighten wing nut (73).
- (4) Drive ground rod in ground (or attach to known facility ground). Insert free end of ground wire in clamping screw on rod (or other clamping device) and tighten.



PARTS BREAKDOWN

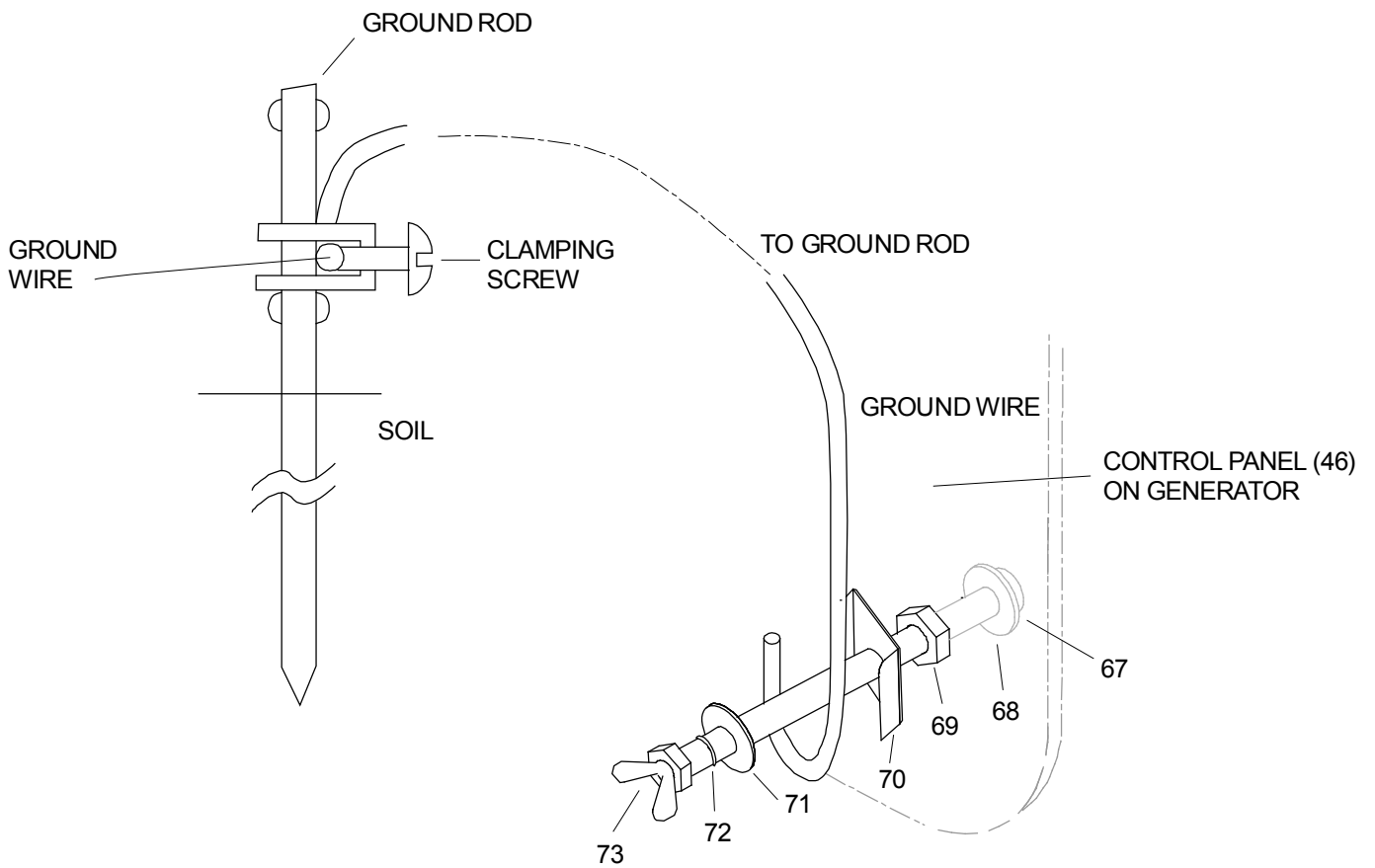


Figure 3-4: Grounding Provisions

3-4 Check Engine Oil Grade

CAUTION: ENGINE OIL IS A MAJOR FACTOR AFFECTING PERFORMANCE AND SERVICE LIFE. NON-DETERGENT OILS AND TWO-STROKE OILS ARE NOT RECOMMENDED BECAUSE THEY HAVE INADEQUATE LUBRICATING CHARACTERISTICS

CAUTION: CHECK THE OIL LEVEL WITH THE ENGINE ON A LEVEL SURFACE AND THE ENGINE STOPPED.

- (1) Use Honda 4-stroke oil, or use an equivalent high detergent, premium quality motor oil certified to meet or exceed U.S. automobile manufacturer's requirements for Service Classification SG, SF. Motor oils classified SG, SF will show this designation on the container.
- (2) SAE 10W30 is recommended for general, all-temperature use.
- (3) Other viscosity grades shown in Figure 3-5 may be used when the average temperature in your area is within the indicated range.

4

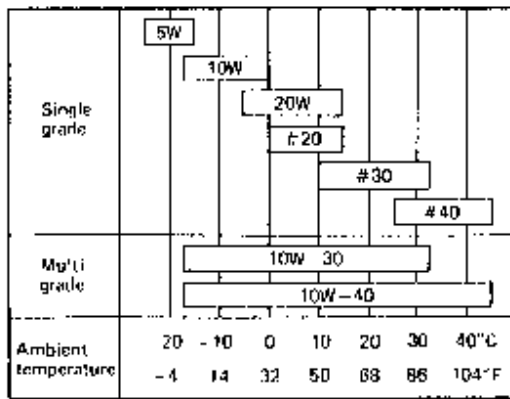


Figure 3-5: Oil Viscosity Grade-to-Temperature Recommendations

3-5 Check Engine Oil Level

- (1) When checking oil, observe the following (see Figure 3-6):
 - (e) Make sure the engine is in a level position.
 - (f) Remove the oil filler cap / dipstick and wipe it clean.
 - (g) Insert the filler cap / dipstick into the oil filler neck, but do not screw it in.
 - (h) Remove the filler cap/dipstick and check the oil level.
 - (i) If the level is low, fill to the top of the oil filler neck with the recommended oil.
 - (j) Reinstall the oil filler cap / dipstick.

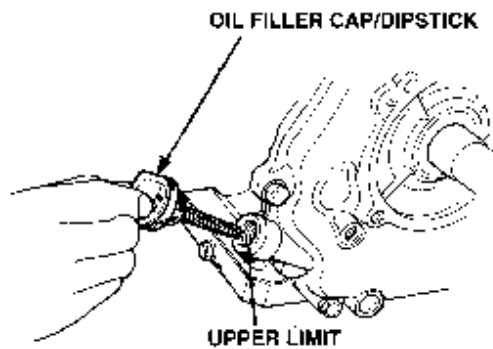


Figure 3-6: Checking Oil Level

3-6 Check Engine Fuel

WARNING:

- **MAKE SURE YOU REVIEW EACH WARNING IN ORDER TO PREVENT FIRE HAZARD.**
- **DO NOT REFILL TANK WHILE ENGINE IS RUNNING OR HOT.**
- **CLOSE FUEL SHUT OFF VALVE BEFORE REFUELING WITH FUEL.**
- **BE CAREFUL NOT TO GET DUST, DIRT, WATER OR OTHER FOREIGN OBJECTS INTO FUEL.**
- **WIPE OFF SPILLED FUEL THOROUGHLY BEFORE STARTING ENGINE.**
- **KEEP AWAY FROM OPEN FLAMES.**
- **DO NOT USE SMOKING MATERIALS WHEN FILLING THE FUEL TANK.**
- **DO NOT REFUEL WHILE SMOKING OR NEAR OPEN FLAMES OR OTHER SUCH POTENTIAL FIRE HAZARDS. OTHERWISE FIRE ACCIDENT MAY OCCUR.**
- **AVOID REPEATED OR PROLONGED CONTACT WITH SKIN OR BREATHING OF VAPOR.**
- **KEEP OUT OF REACH OF CHILDREN.**

- (1) Check fuel level at fuel level gauge (see Figure 3-7).
- (2) If fuel level is low, refill with unleaded automotive gasoline.

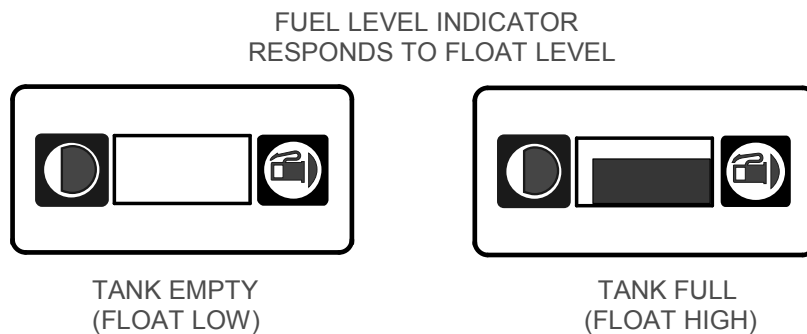


Figure 3-7: Fuel Gauge Indications

Fuel tank capacity	TPG4-3000HDX (4.2 gal.)
	TPG4-4500HDX (6.6 gal.)
	TPG4-6000HDX (6.6 gal.)
	TPG4-7000HDX (6.6 gal.)
	TPG4-7000HDXE (6.6 gal.)

3-7 Pre-Start Checks

WARNING: MAKE SURE YOU REVIEW EACH WARNING IN ORDER TO PREVENT FIRE HAZARD.

WARNING: KEEP AREA CLEAR OF FLAMMABLES OR OTHER HAZARDOUS MATERIALS.

- (1) Check the following items before starting the engine.
 - (a) Fuel leakage from fuel hoses, shutoff valve, auto-throttle unit, engine, and fitting.
 - (b) Loose bolts and nuts.
 - (c) Components for damage or breakage.
- (2) Check generator surroundings.
 - (a) Keep generator at least 3 feet (1 meter) away from buildings or other structures.
 - (b) Operate generator in a dry, well-ventilated area.
 - (c) Keep exhaust pipe clear of foreign objects.
 - (d) Keep generator away from open flame.
 - (e) Keep generator on a stable and level surface.
 - (f) Do not block generator air vents with paper or other material.

3-8 Grounding the Generator

WARNING: IMPROPER CONNECTIONS CAN ALLOW ELECTRICAL CURRENT FROM THE GENERATOR TO BACKFEED INTO THE UTILITY LINES WHICH MAY ELECTROCUTE UTILITY COMPANY WORKERS OR OTHERS WHO CONTACT THE LINES DURING A POWER OUTAGE. WHEN UTILITY POWER IS RESTORED, THE GENERATOR MAY EXPLODE, BURN, OR CAUSE FIRES IN THE BUILDING'S ELECTRICAL SYSTEM.

WARNING: A POTENTIAL ELECTROCUTION HAZARD EXISTS IF THE GENERATOR IS NOT GROUNDED. A GENERATOR GROUNDING POST IS PROVIDED ON THE CONTROL PANEL OF THE GENERATOR (REFER TO 3-4 FOR GROUNDING PROVISIONS.)

- (1) If you plan to use the portable generator as a backup for the facility's power supply during power outages, make sure the connections are made in compliance with applicable laws and electrical codes.
- (5) Connection to a building's electrical system must be made by a qualified electrician.
- (6) Refer to the **Removal/Installation** section for grounding post installation procedures and connection of generator ground wire.

3-9 Starting & Stopping the Engine

- (1) MANUAL START: (Models TPG4-3000HDX, TPG4-4500HDX, TPG4-6000HDX, and TPG7-7000HDX.
 - (a) Before starting the engine, set AC circuit breakers to OFF (the generator may be hard to start if a load is connected).
 - (b) Refer to the Honda engine owner's manual for location of fuel valve. Turn the fuel valve to the ON position.
 - (c) The automatic choke will be closed if the engine is cold. If you want to operate the choke manually, move the choke lever to the CLOSED position.

NOTE: The choke may not be needed if the engine is warm or the air temperature is high.

- (d) Move the throttle lever slightly to the left.
- (e) Set the switch to the ON position.
- (f) Pull the starter grip lightly until resistance is felt, then pull briskly.

NOTE: Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the engine.

- (2) ELECTRIC START (Model TPG4-7000HDXE)

NOTE: The engine on the Model TPG4-7000HDXE generator is primarily started using the electric starter, but may be started using the recoil starter.

NOTE: The model TPG4-7000HDXE generator has a 12-volt DC starting system.

Use a 12-volt, garden tractor-type battery as a replacement battery.

- (a) Connect battery cables to battery.
- (b) Turn ENGINE SWITCH to the START position and hold for 5 seconds, or until the engine starts.
- (c) Verify that the starter reset pushbutton switch is not extended. If extended, push in to reset. If reset switch resets (stays in), proceed to next step. If not, correct the reason for the trip before attempting to start the engine.
- (d) To start the engine using the starter, turn key switch to START.
- (e) Turn key fully right to START position. Hold in START position until engine starts.

NOTE: Operating the starter motor for more than 5 seconds can damage the motor. If the engine fails to start, release the switch and wait 10 seconds before operating the starter again.

NOTE: If the speed of the starter motor drops after a period of time, it is an indication that the battery should be recharged.

- (f) Release key (the key is spring-loaded to the RUN position).

- (g) As the engine warms up, gradually open the choke ring.
 - (h) Set auto throttle switch to ON. The engine idle function is enabled and will remain at idle until a load is sensed and increases speed in response to the load.
- (7) (ALL MODELS): When starting the engine using recoil starter, proceed as follows:
- (a) Turn the engine switch to the ON position.
 - (b) Pull the starter grip lightly until resistance is felt, then pull briskly.

NOTE: When using the recoil starter, do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.

- (c) As the engine warms up (two to three minutes), gradually move the choke lever or choke ring to the OPEN position.
 - (d) Position the throttle lever to the desired engine speed or set the auto throttle switch to ON.
- (8) Emergency Stopping of the Engine
- (a) To stop the engine in an emergency, set the ENGINE SWITCH to the OFF position.
 - (b) For normal use, turn the AC circuit breaker to the OFF position
 - (c) Disconnect battery cables.
 - (d) Turn the engine switch to the OFF position.
 - (e) Turn the fuel valve lever to the OFF POSITION.

3-10 Using The Generator

WARNING: TO PREVENT ELECTRICAL SHOCK FROM FAULTY APPLIANCES, THE GENERATOR SHOULD BE GROUNDED. CONNECT A LENGTH OF HEAVY WIRE BETWEEN THE GENERATOR'S GROUND TERMINAL AND EXTERNAL GROUND SOURCE.

WARNING: CONNECTIONS FOR STANDBY POWER TO A BUILDING'S ELECTRICAL SYSTEM MUST BE MADE BY A QUALIFIED ELECTRICIAN AND MUST COMPLY WITH ALL APPLICABLE LAWS AND ELECTRICAL CODES. IMPROPER CONNECTIONS CAN ALLOW ELECTRICAL CURRENT FROM THE GENERATOR TO BACK-FEED INTO THE UTILITY LINES. SUCH BACK-FEED MAY ELECTROCUTE UTILITY COMPANY WORKERS OR OTHERS WHO CONTACT THE LINES DURING A POWER OUTAGE, AND WHEN UTILITY POWER IS RESTORED, THE GENERATOR MAY EXPLODE, BURN, OR CAUSE FIRES IN THE BUILDING'S ELECTRICAL SYSTEM (REFER TO 3-4).

3-11 AC Application

- (1) Check the pilot lamp for proper voltage.

NOTE: The generator is thoroughly tested and adjusted in the factory. If the generator does not produce the specific voltage, consult your nearest Tsurumi Generator dealer

- (2) Set switches on the electrical appliances to OFF before connecting to the generator.
- (3) Insert the plug of the electrical appliance into the appropriate receptacle.

NOTE: Check the amperage of the receptacles used referring to Table 3-2, and be sure not to attempt to operate an appliance that exceeds the specified receptacle amperage.

- (4) Be sure that the total wattage of all appliances does not exceed the rated output of the generator.

WARNING: TO CONNECT AND LOCK A PLUG IN A TWIST LOCK RECEPTACLE, INSERT THE PLUG INTO RECEPTACLE AND TURN CLOCKWISE.

WARNING: BE SURE TO GROUND THE GENERATOR IF THE CONNECTED ELECTRICAL EQUIPMENT IS GROUNDED

NOTE: Whenever a circuit breaker trips off during operation, the generator is overloaded or the appliance is defective.

NOTE: When a circuit breaker trips, stop the generator immediately. Check the appliance and/or generator for an overload or defect and repair as necessary..

CAUTION: The receptacle are protected by a GFCI (Ground Fault Circuit Interrupter). This model shuts off the output current to the receptacles when a ground fault occurs in the generator or the appliance. Fault condition is cleared by pressing reset on the GFCI switch.

Select the voltage using the Voltage selector switch in accordance with the electrical appliance. Refer to Table 3-1.

Operate the generator in the same way as step (1) through step (3) of single voltage type.

Table 3-1: Available Receptacles With Full Power Switch On

VOLTAGE SELECTOR	120V Receptacle	120/240V Receptacle
120V	Rated Output is Available	Unavailable
120V / 240V	Half of Rated Output is Available	Rated Output is Available

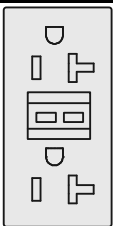
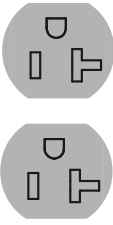
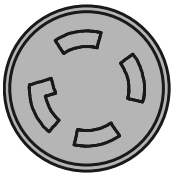
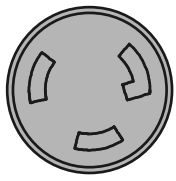
WARNING: TO TAKE OUT POWER FROM TWIST LOCK RECEPTACLE, INSERT THE PLUG INTO RECEPTACLE AND TURN CLOCKWISE

WARNING: BE SURE TO GROUND THE GENERATOR IF THE CONNECTED ELECTRICAL EQUIPMENT IS GROUNDED.

NOTE: When the circuit breaker turns off during operation, the generator is overloaded or the appliance is defective or GFCI has been tripped.

NOTE: Stop the generator immediately, check the appliance and/or generator for overloading or defect and repair as necessary.

**Table 3-2
Receptacle Types and Amperage**

Style	Ampere	Receptacle	AC Plug	Description
	Up to 20A	NEMA 5-20R	NEMA 5-20P	20A, Duplex Receptacle, Duplex, GFCI (Ground Fault Circuit Interrupter) For TPG4-3000HDX
	Up to 20A	NEMA 5-20R	NEMA 5-20P	20A, Duplex Receptacle
	Up to 30A	NEMA L14-30R	NEMA L14-30P	30A, 3-pole Locking Receptacle
	Up to 30A	NEMA L5-30R	NEMA L5-30P	30A, 2-pole Locking Receptacle

3-12 Stopping the Generator

- (1) Set the ENGINE SWITCH to OFF or unplug from the cord receptacle of the generator.
- (2) Set the engine switch to the OFF position.
- (3) Turn fuel valve on fuel tank to CLOSE.

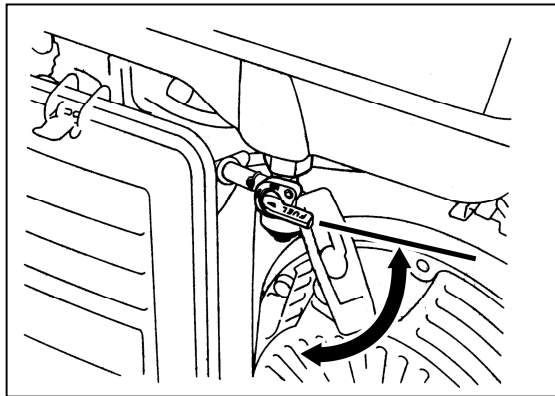


Figure 3-8: Fuel Valve

3-13 Oil Alert

- (1) The oil alert detects the fall in oil level in the crankcase and automatically stops the engine when the oil level falls down below the predetermined level.
- (5) When the engine has stopped automatically, check the oil level. Refill engine oil to the upper level and restart the engine.
- (6) If the engine does not start by usual starting procedures, check the oil level.

3-14 Idle Control (Models TPG4-4500HDX, TPG4-6000HDX, TPG4-7000HDX and TPG4-7000HDXE)

- (1) The idle control feature automatically reduces engine speed when there is no load on the generator and automatically increases engine speed up to rated speed when load is applied.
- (7) The idle control feature provides fuel economy and lower noise levels at no-load operation.

3-15 How to use Idle Control

- (1) Start the engine with IDLE CONTROL switch sets to OFF.
- (8) Warm up the engine without a load for a few minutes.
- (9) Set IDLE CONTROL switch to the ON position.

3-16 Checking Idle Function

- (1) When the idle function does not operate normally, check the following:

NOTE: Most induction loads, such as an electric motor, require wattage three to five times larger than their rating at starting. This starting wattage should not exceed the rated output of the generator.

- (a) Make sure that the generator is not overloaded.
- (b) Set the IDLE CONTROL switch to off when the idle control does not work normally under the rated output.

3-17 Ground Fault Circuit Interrupter (GFCI)

WARNING: USING THE GENERATOR IN RAIN, SNOW OR NEAR WATER CAN LEAD TO DEATH FROM ELECTRIC SHOCK.
KEEP THE GENERATOR DRY.

All receptacles on the generator are protected by a ground fault circuit interrupter (GFCI) for protection against the shock hazard of ground fault current.

The GFCI has TEST and RESET buttons and is connected to the circuit breaker.

For example of ground fault current is the current which would flow through a person who is using an appliance with faulty insulation and, at the same time, is in contact with an electrical ground such as a plumbing fixture, wet floor, or earth.

The ground fault circuit interrupter will not protect against short circuits or overloads. The circuit breaker in the control panel which supplies power to the circuit provides that protection (refer to circuit breaker).

Observe the following precautions to ensure proper GFCI operation and to reduce shock hazards:

- Use grounded 3-conductor extension cords, tools, and appliances, or double-insulated tools and appliances.
- Inspect cords and plugs, and replace if damaged.
- Do not use cord lengths greater than 164 feet (50 meters), and do not use multiple tools and appliances with built-in noise filters.
Such use may activate the GFCI and trip the circuit breaker.

Inspection: (Models TPG4-4500HDX, TPG4-6000HDX, TPG4-7000HDX and TPG4-7000HDXE)

NOTE: ALWAYS CHECK GFCI OPERATION BEFORE USING THE GENERATOR.

WARNING: YOU RISK ELECTRIC SHOCK IF YOU OPERATE THIS GENERATOR WITH A FAULTY GFCI (GROUND FAULT CIRCUIT INTERRUPTER).

TEST GFCI BEFORE USE,
if the GFCI FAILS TESTING, DO NOT USE YOUR GENERATOR. CONTACT YOUR
TSURUMI DEALER.

Inspection (see Figure 3-9 , 3-10)

- (1) Unplug all tools and appliances from the generator.
- (2) Start the engine.
- (3) Turn the circuit breaker to the ON position.
The GFCI green LED lamp lights up.
- (4) Turn the Idle Control switches to the OFF position.
- (5) Press the GFCI TEST button.
Circuit breaker to be automatically OFF position.
The GFCI red LED lamp lights up.

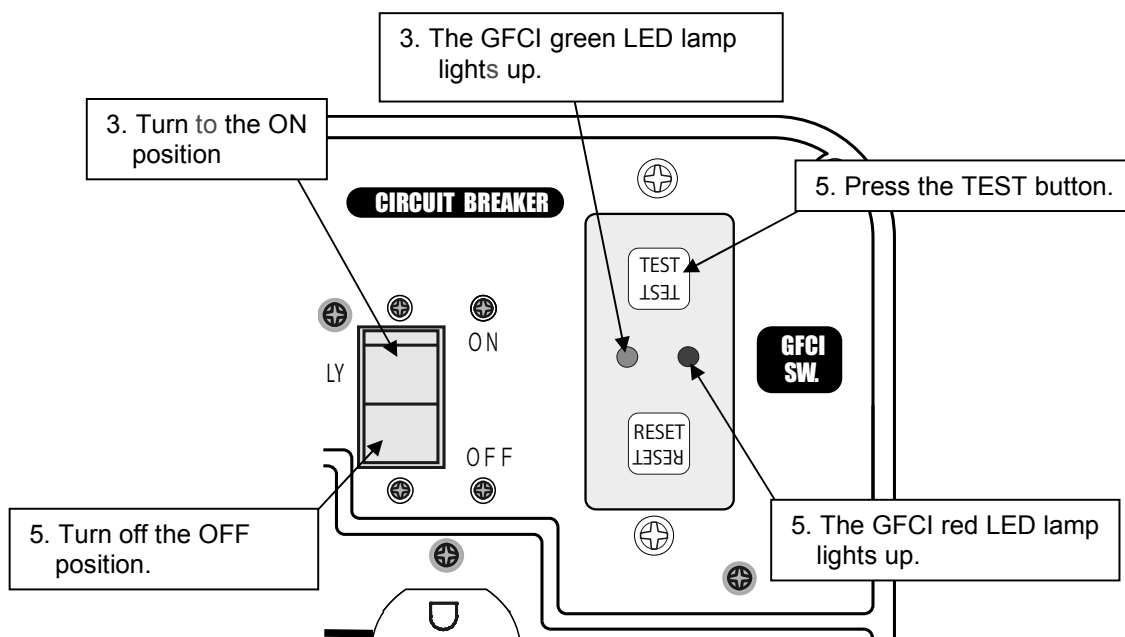


Figure 3-9 : GFCI Inspection #1

- (6) Press the GFCI RESET button.
The GFCI green LED lamp lights up.
- (7) Turn the circuit breaker ON position

With the GFCI green LED illuminated in and engine running, toggle the circuit breaker to the OFF then ON position. The circuit breaker should remain in the ON position.

The circuit breaker will not remain in the ON position if the GFCI red LED illuminated.

If the GFCI and circuit breaker do not function as described, take the generator to an authorized TSURUMI generator dealer for repair.

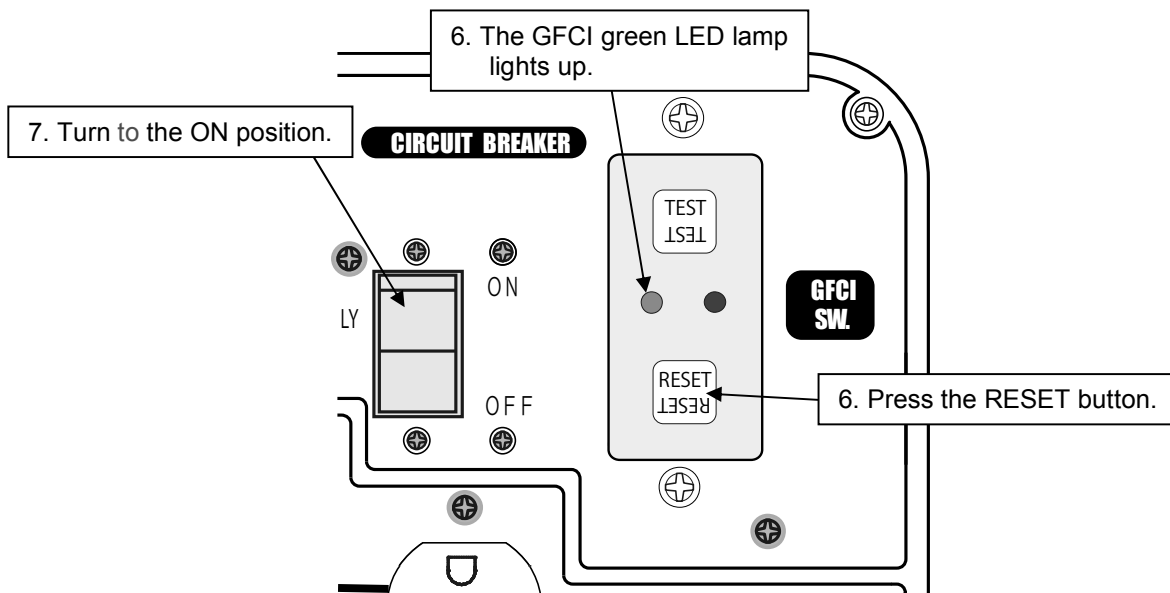


Figure 3-10 : GFCI Inspection #2

During generator use, if the GFCI RESET LED lamp illuminates and the circuit breaker trips, this usually indicates a faulty power tool, appliance, or cord.

If that occurs, perform test steps 1 through 6 to verify that the GFCI and circuit breaker are in proper working order. If the GFCI and circuit breaker test correctly, then you will know that the fault is in the power tool, appliance, or cord. Repair or replace the faulty power tool, appliance, or cord before further use.

3-18 Wattage Information

- (1) When starting some appliances, a "surge" of energy occurs. Depending upon the nature of the electrical load, the amount of electrical power needed to start the appliance may exceed the amount needed to maintain its use. See Table 3-3 for appliances you may use with this generator.
- (10) Electrical appliances and tools normally come with a label indicating voltage, cycles/Hz, amperage (amps) and electrical power needed to run the appliance or tool. Check with your nearest dealer with questions regarding power surge of certain appliances or power tools.
- (11) Electrical loads such as incandescent lamps and hot plates require the same wattage to start as needed to maintain use.
- (12) Loads such as fluorescent and mercury lamps require 1.2 to 2.0 times the indicated wattage to start. Electric motors require a large starting current. Power requirements depend on the type of motor and its use. Once enough "surge" is attained to start the motor, the appliance will require only 50% to 30% of the wattage to continue running.

CAUTION: CHECK MOTOR STARTING CURRENT AND POWER FACTOR CAREFULLY.

- (13) Most electrical tools require 1.2 to 3.0 times their wattage for running. For example, the 5,000 watts generated could power an 1800-watt to a 4000-watt electric drill.
- (14) Loads such as submersible pumps and air compressors require a very large force to start. They need 3 to 5 times the wattage needed to maintain the tool in order to start. For example, a 5,000 watt generator would only be able to drive a 1,000 watt to 1,700 watt pump.

NOTE: The wattage chart (Table 3-3) is a guide only. Refer to your specific appliance for correct wattage.

- (15) To determine the total wattage required for operating a particular electrical appliance or tool, multiply the voltage figure of the appliance / tool by the tool's amperage (amps). The voltage and amperage (amps) information can usually be found on a data plate or label, which is normally attached to electric appliances and tools.

Table 3-3: Wattage Chart

Applicable Wattage (W)	Applicable Wattage (w)				
	TPG4-3000HDX	TPG4-4500HDX	TPG4-6000HDX	TPG4-7000HDX	TPG4-7000HDXE
	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz
Incandescent Lamp, Heater	2000	3300	4500	5300	5300
Fluorescent Lamp, Mercury Lamp	1200	1900	2800	3100	3100
Electric Tool	1200	1900	2800	3100	3100
Pump, Compressor	500	700	1000	1500	1500

4-0 MAINTENANCE

4-1 General

- (1) To maintain the generator in peak operating condition, observe and implement the maintenance and adjustment schedule in Table 4-1. Inspect and/or service the generator as scheduled in Table 4-1.
- (2) An initial oil change should be performed after the first twenty (20) hours of use. Thereafter, change oil every 100 hours.
- (3) Before changing the oil, check for a suitable way to dispose of the used oil. Do not pour it down sewer drains, onto garden soil or into open streams. Refer to your local zoning and environmental regulations for disposal and handling requirements.

WARNING: SHUT OFF THE ENGINE BEFORE PERFORMING ANY MAINTENANCE. IF OPERATION OF THE ENGINE IS REQUIRED, MAKE SURE THE AREA IS WELL VENTILATED; THE ENGINE EXHAUST CONTAINS POISONOUS CARBON MONOXIDE GAS.

CAUTION: REFER TO THE HONDA ENGINE OWNER'S MANUAL FOR OTHER MAINTENANCE REQUIREMENTS.

Table 4-1: Maintenance Schedule

FREQUENCY	RECOMMEDED MAINTENANCE ACTION
Daily	<ul style="list-style-type: none"> • Check oil level. • Check all components according to the pre-operational checks in the OPERATING INSTRUCTIONS.
50 Hours	<ul style="list-style-type: none"> • Wash cleaner element. • Check spark plug and clean if necessary.
100 Hours	<ul style="list-style-type: none"> • Change engine oil.
200 Hours	<ul style="list-style-type: none"> • Adjust spark plug gap. • Clean fuel strainer.
500 Hours (12 Months)	<ul style="list-style-type: none"> • Replace spark plug and cleaner element. • Clean and adjust carburetor, valve clearance, and valve seat along with cylinder head.
1,000 Hours (24 Months)	<ul style="list-style-type: none"> • Inspect control panel parts. • Check rotor and stator.(see 5-1, TROUBLESHOOTING). • Replace engine vibration isolators (see 8-1, REPLACEMENT PARTS for part number of the isolator used on your generator. • Overhaul engine. • Change fuel lines.

4-2 Changing Engine Oil

- (1) Drain the oil while the engine is still warm to assure rapid and complete draining.
- (2) Remove the oil filler dipstick/cap and drain plug.
- (3) Allow oil to drain from the engine (Figure 4-1).
- (4) Refill with the recommended oil (Figure 3-6). Check the oil level. Install the oil filler dipstick / cap (Figure 4-2).
- (5) Install the drain plug and tighten securely.

NOTE: Engine oil capacity: 1.1 liters (1.16 U.S. Quart)

- (6) Refill with the recommended oil (Figure 3-4). Check the oil level. Install the oil filler dipstick / cap (Figure 4-2).

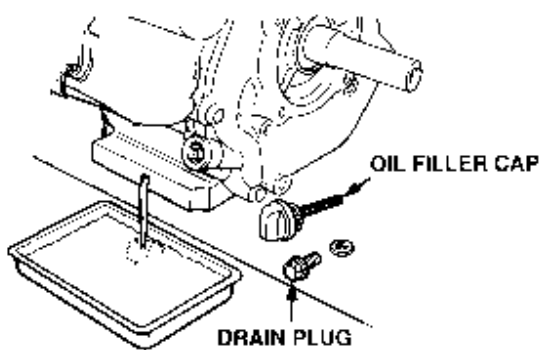


Figure 4-1: Draining Engine Oil

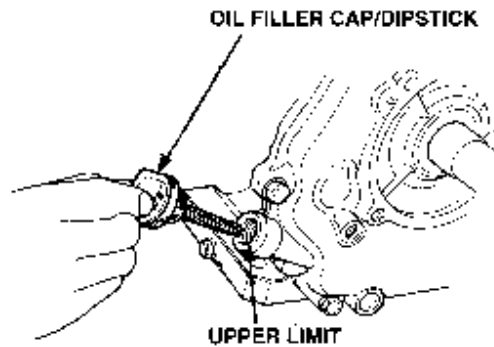


Figure 4-2: Checking Oil Level

4-3 Air Cleaner Service

WARNING: NEVER USE GASOLINE OR LOW FLASH POINT SOLVENTS FOR CLEANING THE AIR CLEANER ELEMENT. A FIRE OR EXPLOSION COULD RESULT.

- (1) A dirty air cleaner will restrict airflow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly. Service more frequently when operating the engine in extremely dusty areas.'

NOTE: Never run the engine without the air cleaner. Rapid engine wear will result from contaminants, such as dust and dirt, being drawn through the carburetor into the engine.

4-4 Sediment Cup Cleaning

WARNING GASOLINE IS EXTREMELY FLAMMABLE AND IS EXPLOSIVE UNDER CERTAIN CONDITIONS. DO NOT SMOKE OR ALLOW FLAMES OR SPARKS IN THE AREA.

WARNING: AFTER INSTALLING THE SEDIMENT CUP, CHECK FOR LEAKS, AND MAKE SURE THE AREA IS FREE OF RESIDUAL FUEL SPILLS OR SEEPAGE BEFORE STARTING THE ENGINE.

- (1) Turn the fuel valve to OFF.
- (2) Remove (turn clockwise) the sediment cup and O-ring. Wash both parts in nonflammable or high flash point solvent.
- (3) Wipe the sediment cup and O-ring dry, then reinstall.
- (4) Set the fuel shutoff valve (Figure 4-3) to ON. Check for leaks.

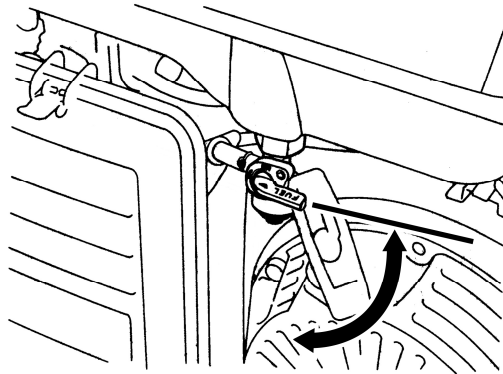


Figure 4-3: Fuel Shutoff Valve

4-5 Cleaning and Adjusting Spark Plug

- (1) Recommended spark plugs: BPR6ES(NGK)
W20EPR-U (NIPPONDENSO)
- (2) To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.
- (3) Remove the spark plug cap.
- (4) Clean any dirt from around the spark plug base.
- (5) Use the proper size spark plug wrench to remove the spark plug.

WARNING: THE MUFFLER BECOMES VERY HOT DURING OPERATION AND REMAINS HOT FOR A WHILE AFTER STOPPING THE ENGINE. BE CAREFUL NOT TO TOUCH THE MUFFLER WHILE IT IS HOT.

- (6) Visually inspect the spark plug. Discard spark plug if the insulator is cracked or chipped. Clean the spark plug with a wire brush if it is to be reused.
- (7) Measure the plug gap with a feeler gauge. Adjust the gap as necessary by bending the side electrode (Figure 4-4).

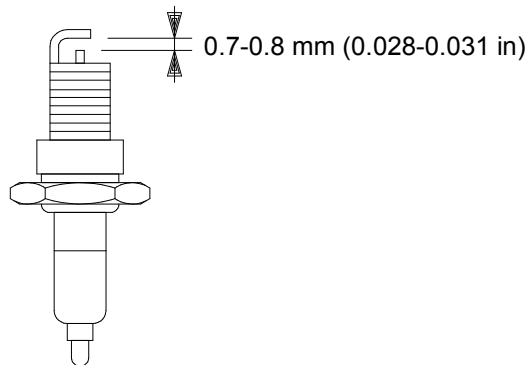


Figure 4-4: Spark Plug Gap

- (8) The gap should be 0.7 to 0.8 mm (0.028 to 0.031 inch) as shown.

5-0 TROUBLESHOOTING

5-1 General

- (1) The procedures that follow, together with the troubleshooting tables, can be used as a guide to isolate generator faults. Refer to these procedures when the engine fails to start after several attempts, or when electricity is not available at the receptacles.
- (2) Before testing generator components, determine if the failure is located in the generator head or in the control panel. If after following these procedures, your generator fails to start or generate electricity, contact the nearest Tsurumi generator dealer.

5-2 Isolating Fault to the Generator or to the Control Panel

- (1) This unit uses permanent magnets built into the rotor for initial excitation. Do not "flash the fields" to try to re-excite the field.
- (2) Isolate the defect by disconnecting the red, gray, orange and blue wires from the stator (do not disconnect the two yellow wires). Then measure the AC voltage of each AC coil.
- (3) Check for 120 vac ($\pm 5\%$) from the red-gray wires and then check for 120 vac ($\pm 5\%$) from the orange-blue wires.
- (4) If the voltage is correct, the failure is in the control panel. If the voltage is too low from either coil, the defect lies in the rotor, stator, or condensers.

5-3 Measuring Insulation Resistance

- (1) No AC output – Measuring Insulation Resistance
- (2) Use a megger tester to test each component for proper insulation. An insulation resistance of 1 M Ω or greater is normal. The insulation resistance from the factory is at least 10 M Ω .
- (3) Insulation Resistance - Stator
 - (a) Measure the insulation resistance between BLUE lead and the core.(AC coil)
 - (b) Measure the insulation resistance between RED lead and the core.(AC coil)
 - (c) Measure the insulation resistance between YELLOW lead and the core.
 - (d) Measure the insulation resistance between BROWN lead and the core.(DC coil)
- (4) Insulation Resistance - Rotor
 - (a) Measure the insulation across one of the soldered terminals of the rotor and the core.
 - (b) Parts with insulation resistance of less than 1M Ω have faulty insulation, and may cause electric leakage and electric shock. Replace the faulty part.

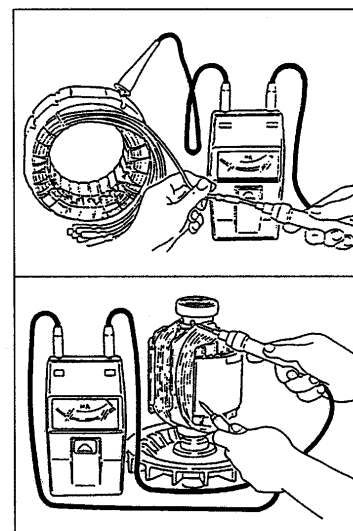


Figure 5-1: Measuring Resistance

5-4 Electrical Limits Reference Chart

- (1) The Electrical Limits Reference Chart, Table 5-1, provides a ready reference to electrical component limits.

Table 5-1: Electrical Limits Reference Chart

Model	Rotor		Stator				Condenser
	Field Coil	Insulation (1)(2)	AC Winding Red/White	AC Winding Red/White	Condenser Winding Yellow/Yellow	Insulation (2)(3)	Capacitance
TPG4-3000HDX	1.70	> 1 MΩ	0.58	0.58	1.56	> 1 MΩ	14μF
TPG4-4500HDX	1.75	> 1 MΩ	0.29	0.29	0.74	> 1 MΩ	36μF
TPG4-6000HDX	1.58	> 1 MΩ	0.22	0.22	0.57	> 1 MΩ	36μF
TPG4-7000HDX	1.14	> 1 MΩ	0.21	0.21	0.57	> 1 MΩ	36μF
TPG4-7000HDXE	1.76	> 1 MΩ	0.18	0.18	0.46	> 1 MΩ	36μF

- (1) Measure insulation across one of the solder terminals and the core of the rotor.
- (2) Measure between stator leads as follows: BLUE lead and core; WHITE lead and core; YELLOW lead and core: and BROWN lead and core.

WARNING: DO NOT USE ANY PART WITH INSULATION RESISTANCE OF LESS THAN 1 MΩ. LOW INSULATION RESISTANCE IS AN INDICATION THAT THE PART IS FAULTY INSULATION AND MAY CAUSE ELECTRICAL LEAKAGE AND POTENTIALLY FATAL ELECTRICAL SHOCK. REPLACE ALL FAULTY PARTS.

5-5 Troubleshooting Charts

- (1) This section provides the instructions for generator troubleshooting and fault isolation. The troubleshooting procedures are presented in Table 5-2. The table lists typical faults, presents probable cause, and provides the remedy for the majority of generator operational faults.

Table 5-2: Fault Isolation Procedures

FAULT	PROBABLE CAUSE	REMEDY
No AC output.	Condenser failed.	<ol style="list-style-type: none"> 1. Check condenser <p>NOTE: If you do not have measuring equipment, install a known-good condenser. Start the generator and check ac output. If the generator ac output is normal, the fault was in the original condenser.</p> <ol style="list-style-type: none"> 2. Short the condenser leads across each other to discharge the condenser. <p>NOTE: To make sure you get a good reading, discharge the condenser before checking capacitance.</p> <ol style="list-style-type: none"> 3. Check capacitance of condensers (refer to Table 5-1 for capacitance values for each generator model). Replace condensers that do not meet normal capacitance.
	Stator fault.	<ol style="list-style-type: none"> 1. Check Stator Fig 6-7 2. Remove bolts (34) from front panel (32). Pull the front panel (32) away from frame (44) (to provide clearance for removal of control box). 3. Remove four screws (33) from front panel (32) (to separate the control box [45] from the front panel). 4. Locate the stator leads. Separate the leads at the in-line connector. 5. Use an adhesive label or tag to identify the leads (use the label or tag to make sure you have the proper connection). 6. Measure resistance between the in-line connector on the stator leads (refer to Table 5-1 for resistance values for each generator model). 7. Replace stator if it does not meet resistance values in Table 5-1.

FAULT	PROBABLE CAUSE	REMEDY
No AC output.	Stator fault continued.	8. Check insulation resistance between the stator core and each stator leads. Check using a megger tester. Replace the stator if it fails the megger test.
	Rotor fault.	1. Check rotor. 2. Remove generator rear cover and stator (refer to COMPONENT REPLACEMENT for procedures). 3. Using a multimeter, measure field coil resistance. Measure resistance at the soldered terminals of the rotor and the core. NOTE: Because a diode is soldered to the coil ends at the terminals, resistance may be measured only when the multimeter probes touch the terminals in one combination of polarity. Therefore, if no resistance reading appears, try checking in reverse polarity. 4. Using a megger tester, check insulation resistance between the soldered terminal and the stator core. 5. Replace rotor if it does not meet the resistance values in Table 5-1.
AC voltage too high or too low.	Engine speed too high or too low.	1. Check engine speed. 2. Operate the generator with no load applied on the generator. 3. If the speed is too high or too low, adjust throttle adjustment screw to set engine speed as specified in Table 1-1.
	Total wattage applied by appliances, lights, power tools, etc., exceeds generator's rated load.	1. Calculate generator load. 2. Calculate total wattage being applied to the generator (rated load of each connected power-consuming device times the power factor of the device). 3. Disconnect power-consuming device(s) as required to reduce total wattage to the level shown on the generator data placard.

FAULT	PROBABLE CAUSE	REMEDY
AC voltage is normal at no-load, but load cannot be applied (continued).	Engine speed too low (continued).	<ol style="list-style-type: none"> 4. Check engine speed. 5. Operate the generator at no load. 6. If the speed is too low, adjust to the normal engine speed specified in Table 1-1. 7. Restart the generator and apply load. If load still can not be applied, check stator, rotor, and condensers (refer to "No AC Output" troubleshooting steps above).
	Faulty power-consuming device.	Check for faulty appliance, power tool, or other power-consuming devices.
	Engine overheated.	Check for and clear away debris covering engine and generator cooling air inlets and outlets.
	Failed generator insulation.	<ol style="list-style-type: none"> 1. Check Insulation. 2. Stop engine. Measure the insulation resistance between the "live" terminal of a receptacle and the ground post on the front panel. 3. If the insulation resistance is less than 1MΩ, disassemble the generator to obtain the stator and rotor. 4. Disassemble to gain access to the components in the control box. 5. Check the insulation resistance of the stator, the rotor, and the "live" electrical components in the control box. (Any component whose insulation resistance is less than 1MΩ is faulty and may cause electrical leakage.) 6. Replace any component having insulation resistance of less than 1MΩ.
Engine speed does not increase when load applied	Solenoid damaged.	Check bend angle of solenoid bracket. Correct as required.
	Wattage of connected appliance or electric tool exceeds rating.	<ol style="list-style-type: none"> 1. Check rating of connected appliance or electric tool exceeds rating. Use appliance or tool having compatible rating. 2. Check the slow set RPM. Normal idling speeds are as follows:

FAULT	PROBABLE CAUSE	REMEDY
Engine speed does not increase when load applied (continued)	Wattage of connected appliance or electric tool exceeds rating. (continued).	<p>TPG4-3000HDX 3550 to 3650 RPM TPG4-4500HDX 3550 to 3650 RPM TPG4-6000HDX 3550 to 3650 RPM TPG4-7000HDX 3550 to 3650 RPM TPG4-7000HDXE 3550 to 3650 RPM</p> <p>NOTE: The engine speeds are for a cold engine. If the engine speed adjustment screw is out of its adjustment range, move the solenoid backward.</p> <p>3. Check the wiring through the coil on the idle control unit.</p> <p>SINGLE VOLTAGE TYPE: Make sure that an output wire from the main coil is passing through the coil on the idle control unit.</p> <p>DUAL VOLTAGE TYPE: Check to make sure that the two output wires from the main coils pass through the coil on the idle control unit in the same direction.</p> <p>4. Check the idle control unit. Check resistance between the five leads.</p> <p>5. Observe the terminal identification diagram below:</p> <p>6. Refer to Table 5-1 for resistance values.</p> <p>NOTE: The resistance readings in Table 5-1 will vary depending upon the type of circuit tester being used. Table 5-1 is an example of the resistance readings measured by an ordinary analog circuit tester with a 1.5-volt battery power source. It is advisable to check the resistance readings using your standard circuit tester and adjust the values accordingly.</p>
Engine speed does not decrease when load removed	Solenoid bracket damaged or distorted.	Check bend angle of solenoid bracket. Correct as required.
	Wire leads damaged.	Check to make sure two solenoid leads are securely connected.
	Check wiring to idle control unit.	Check to make sure wire leads to idle control unit are securely connected.
	Solenoid failed.	Check resistance between two solenoid leads (refer to Table 5-1) for resistance limits. If resistance is higher or lower than limits, replace solenoid.

Table 8: Idle Control Unit – Circuit Parameters

Circuit Tester Power Source		Apply Black (Negative) Probe of the Circuit Tester				
		1	2	3	4	5
Apply Red (Positive) Probe of Circuit Tester	1	---	∞	250 k Ω	250 k Ω	250 k Ω
	2	∞	---	∞	∞	∞
	3	250 k Ω	∞	---	250 k Ω	75 k Ω
	4	250 k Ω	∞	250 k Ω	---	75 k Ω
	5	8.5 k Ω	∞	7.8 k Ω	7.8 k Ω	---

Table 9: Diode Rectifier Checking

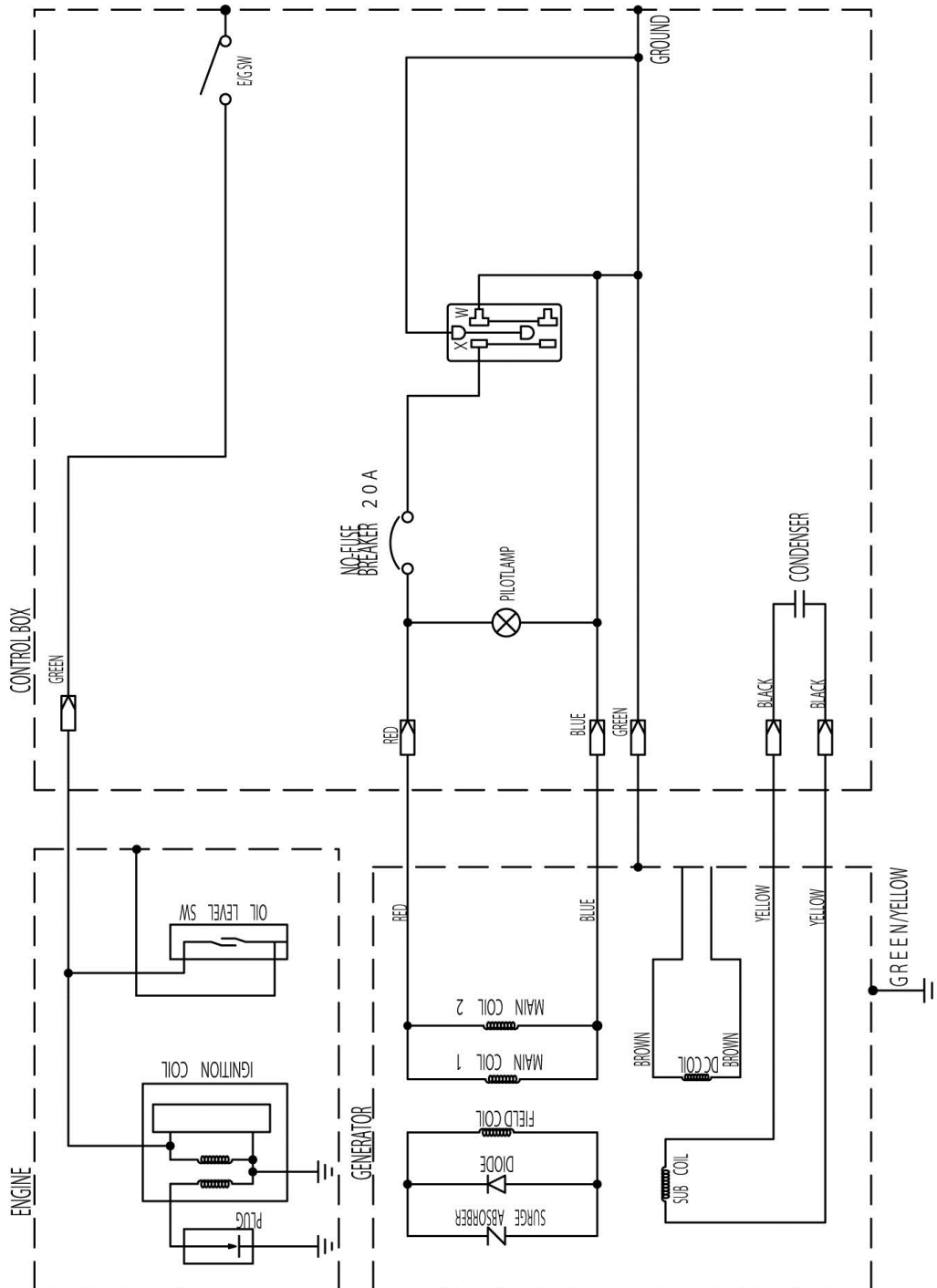
Using Analog Circuit Tester		Apply Black (Negative) Probe of the Circuit Tester			
		Brown	Brown	Orange	Brown/White
Apply Red (Positive) Probe of Circuit Tester	Brown	---	No Continuity	No Continuity	Continuity
	Brown	No Continuity	---	No Continuity	Continuity
	Orange	Continuity	Continuity	---	Continuity
	Brown/White	No Continuity	No Continuity	No Continuity	---
Using Digital Circuit Tester		Apply Red (Positive) Probe of the Circuit Tester			
		Brown	Brown	Orange	Brown/White
Apply Black (Negative) Probe of Circuit Tester	Brown	---	No Continuity	No Continuity	Continuity
	Brown	No Continuity	---	No Continuity	Continuity
	Orange	Continuity	Continuity	---	Continuity
	Brown/White	No Continuity	No Continuity	No Continuity	---

Note 1: Because of the difference of measuring methods between the analog circuit tester and the digital circuit tester, polarity of the tester needles should be reversed.

Note 2: "Continuity" means forward direction characteristics of the diode, and is different from short circuit condition in which a pointer of the tester goes out or its normal scale, it shows resistance to some extent. When results of the checking indicates failure even in one section, replace with a new diode.

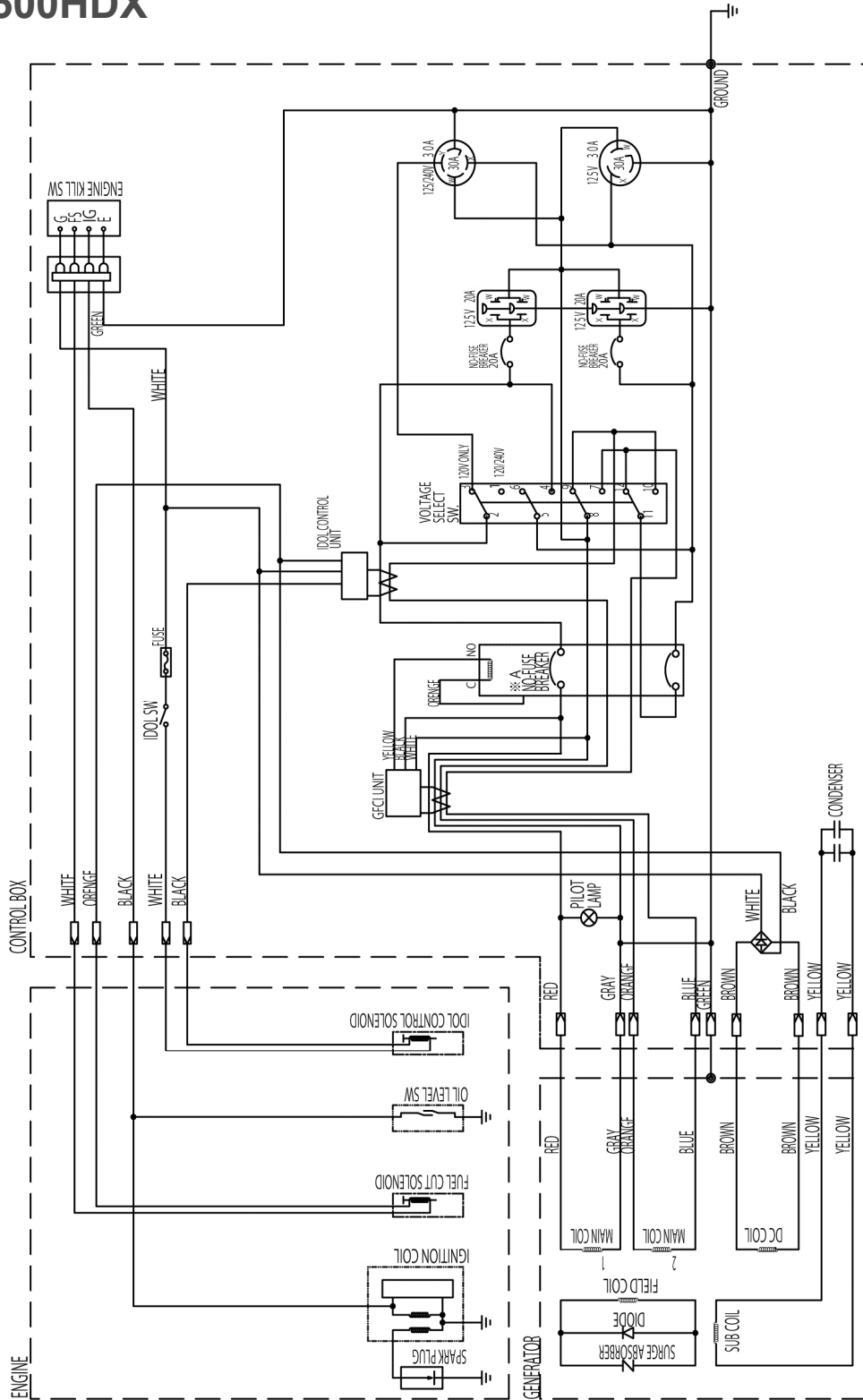
Note 3: Simpson brand analog testers have the same characteristics as a digital tester.

5-6 Wiring Diagrams TPG4-3000HDX



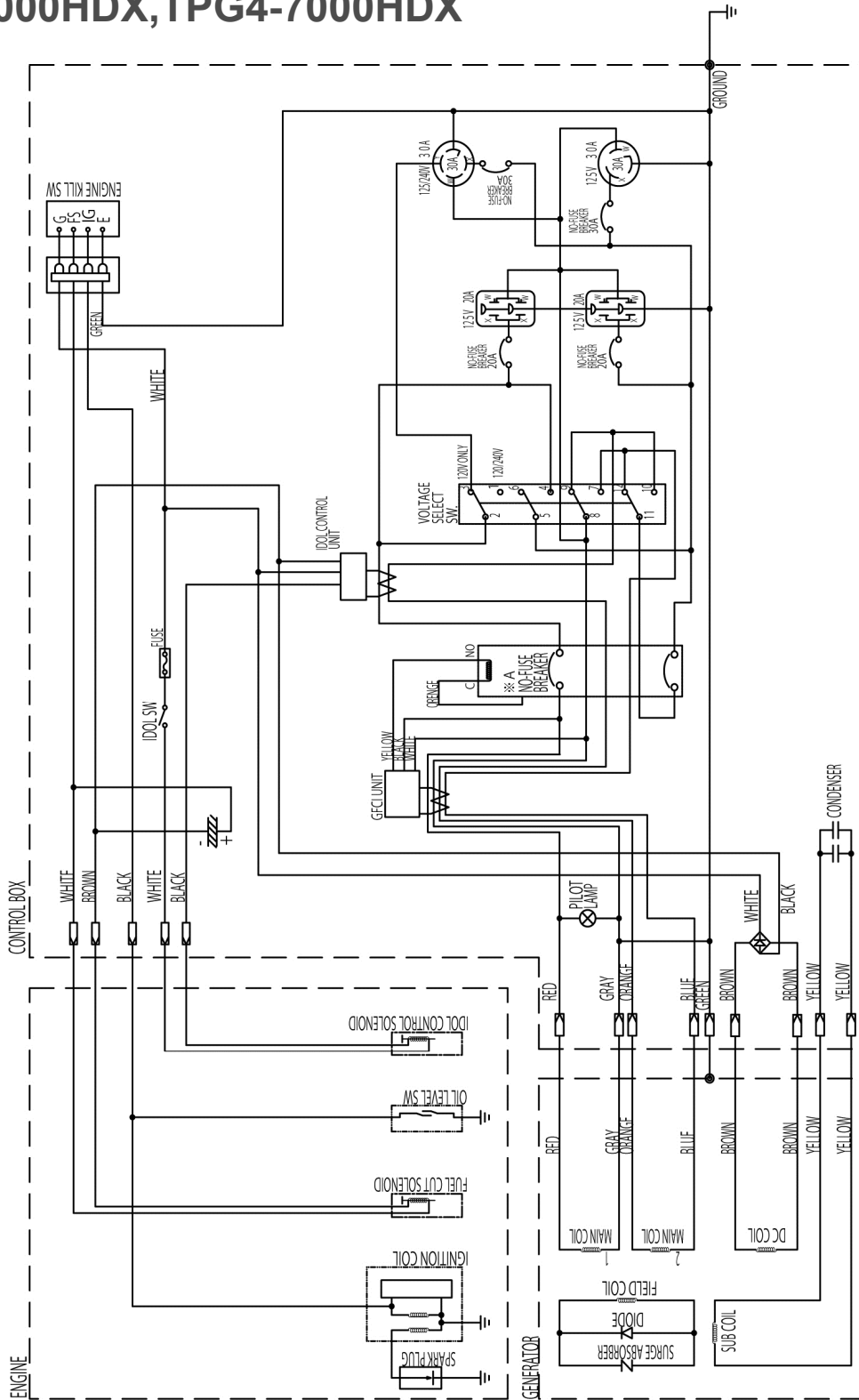
Wiring Diagram – Model TPG4-3000HDX

TPG4-4500HDX



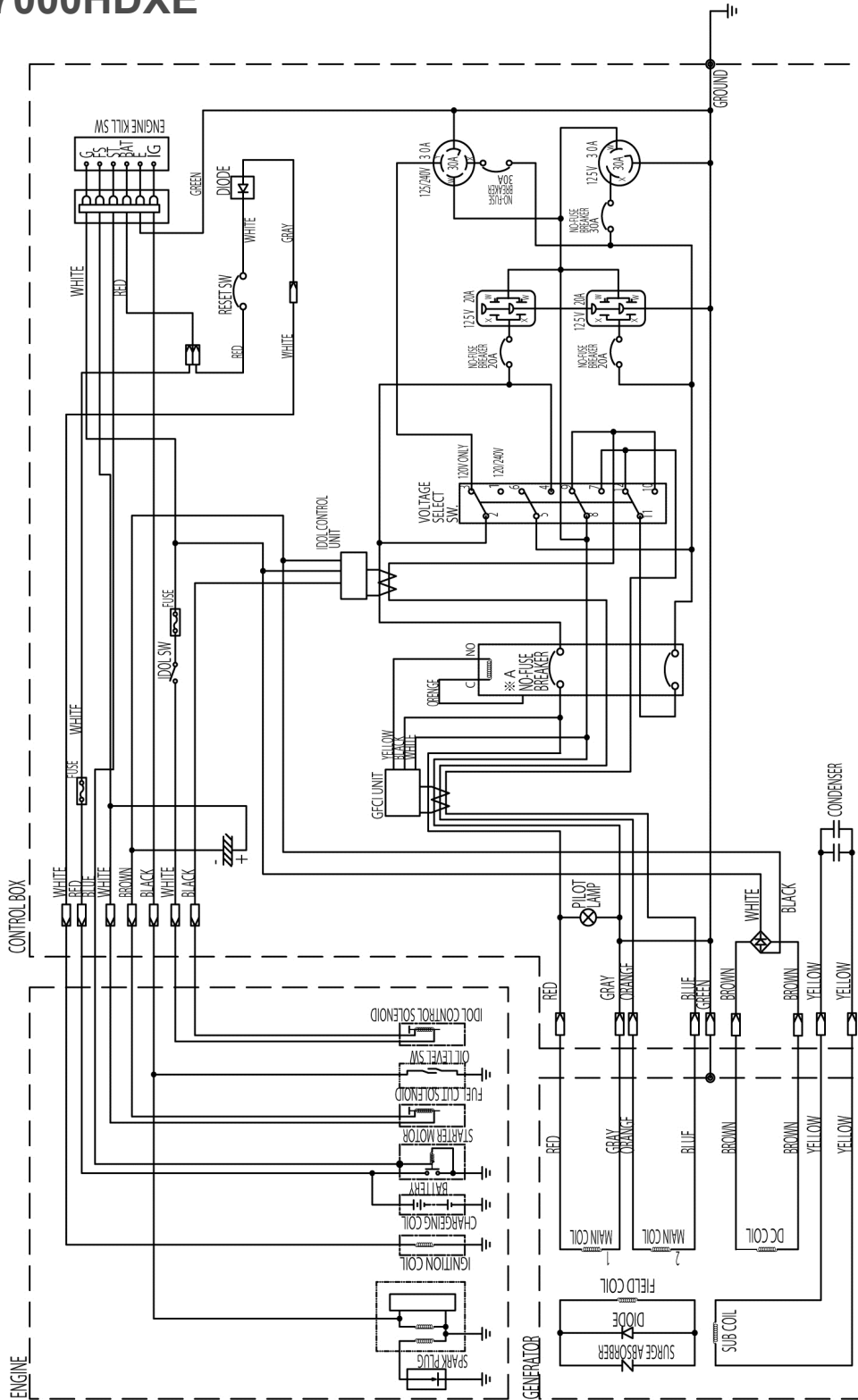
Wiring Diagram – Model TPG4-4500HDX

TPG4-6000HDX, TPG4-7000HDX



Wiring Diagram – Models TPG4-6000HDX and TPG4-7000HDX

TPG4-7000HDXE



Wiring Diagram – Model TPG4-7000HDXE

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6-0 REMOVAL / INSTALLATION

6-0 General

- A. Repair of the generator is limited to the replacement of failed components. This section provides the procedures for removal of failed components and installation of replacement components.
- B. Exploded views and other illustrations are provided to supplement the replacement procedures. The item numbers used in the component replacement procedures are identical to item numbers in the Replacement Parts section. Refer to the Replacement Parts section for part numbers of replacement parts.
- C. Table 6-1 provides torque values for the fasteners used on the generator. Torque values are expressed in lbf.in and in kgf.in. Tighten the fasteners to torque value shown to provide the required clamping force.

Table 6-1A: Fastener Torque Values for lbf.in

Material	Cast Iron	Structure Steel	Stainless Steel	Cast Iron	Structure Steel	Stainless Steel	Cast Iron	Structure Steel	Stainless Steel
	Nominal	Max.	Min.	Nominal	Max.	Min.	Nominal	Max.	Min.
M5	19	23	16	26	31	21	32	38	26
M6	32	38	26	44	53	36	55	65	44
M8	79	95	63	109	130	87	134	160	108
M10	156	187	125	216	259	174	265	318	212
M12	273	328	219	377	451	302	462	554	370
M14	435	522	348	600	720	480	735	882	589
M16	679	814	543	937	1123	750	1147	1377	918
M18	934	1121	747	1289	1547	1031	1578	1893	1263
M20	13251	1589	1080	1827	2193	1462	2238	2685	1791
M22	1802	2162	1442	2052	2982	1989	3045	3653	2436
M24	2290	2747	1832	3160	3791	2528	3870	4643	3096
M27	3350	4019	2680	4623	5547	3699	5661	6793	4529
M30	4549	5459	3640	6277	7533	5022	7688	9225	6151

NOTES:

- 1) The figures above must be applied to fitting of components made of metal.
- 2) The tightening coefficient shall be 1.5.

Table 6-1B: Fastener Torque Values for kgf.cm

Material	Cast Iron			Structure Steel			Stainless Steel		
	Nominal	Max.	Min.	Nominal	Max.	Min.	Nominal	Max.	Min.
M5	22	26	18	30	36	24	37	44	30
M6	37	44	30	51	61	41	63	75	51
M8	91	109	73	125	150	100	154	184	124
M10	180	216	144	249	298	200	305	366	244
M12	315	378	252	434	520	348	532	638	426
M14	501	601	401	691	829	553	847	1016	678
M16	782	938	626	1079	1294	864	1322	1586	1058
M18	1076	1291	861	1485	1782	1188	1818	2181	1455
M20	1526	1831	1221	2105	2526	1684	2578	3093	2063
M22	2076	2491	1661	2364	3436	2292	3508	4209	2807
M24	2638	3165	2111	3640	4368	2912	4458	5349	3567
M27	3859	4630	3088	5326	6391	4261	6522	7826	5218
M30	5241	6289	4193	7232	8678	5786	8857	10628	7086

NOTES:

- 1) The figures above must be applied to fitting of components made of metal.
- 2) The tightening coefficient shall be 1.5.

6-1 Replacement of Battery (Model TPG4-7000HDXE Only)

WARNING: DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG BEFORE WORKING ON THE GENERATOR TO PREVENT INADVERTENT ENGINE START.

WARNING: MAKE SURE THAT YOU DISCONNECT OR REMOVE THE BATTERY WHEN YOU DO MAINTENANCE. EXPLOSIVE HYDROGEN GAS MAY BE PRESENT AROUND THE BATTERY.

WARNING: SPARKS FROM STATIC ELECTRICITY OR FROM HAND TOOLS CONTACTING BATTERY TERMINALS CAN CAUSE HYDROGEN GAS TO IGNITE, CAUSING INJURY AND BURNS TO NEARBY PERSONNEL.

NOTE: Do not disassemble the battery enclosure unit unless disassembly is required to gain access to other affected components.

NOTE: Refer to exploded view in **Replacement Parts** section for parts information. The item numbers in the following procedure are identical to those in the **Replacement Parts** exploded views.

NOTE: The model TPG4-7000HDXE generator has a 12-volt DC starting system. Use a 12-volt, garden tractor-type battery as a replacement battery.

- A. Refer to Figure 6-1. Remove two nuts (103) from bolts (104). Remove plate (102) and two bolts (104) from battery plate (108).
- B. Remove cables (85 and 86) from battery terminals.
- C. Remove battery from battery enclosure.
- A. Put replacement battery in battery enclosure with battery terminal side of the battery facing the generator.
- B. Place plate (108) on battery, being careful not to contact the battery terminals.
- C. Insert L-shaped ends of bolts (104) in holes in plate (108) in base of battery enclosure.

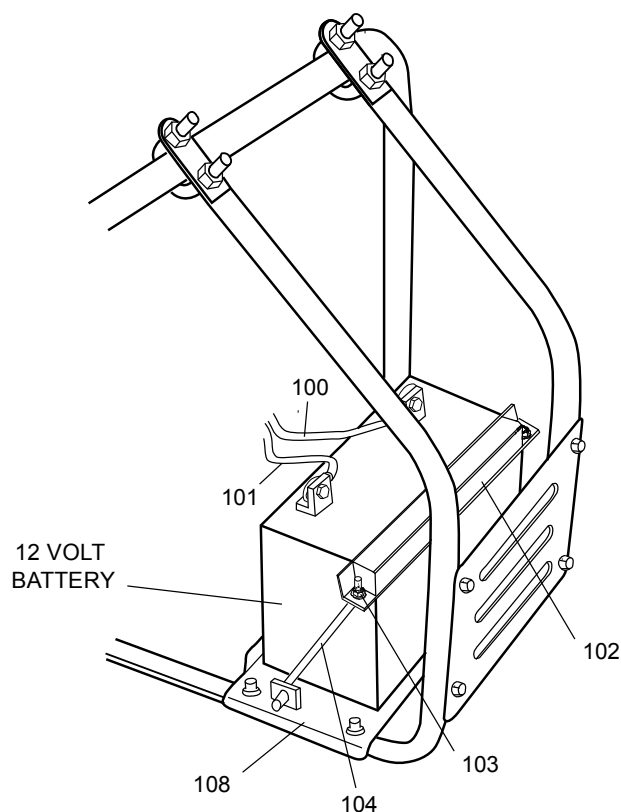


Figure 6-1: Replacing Battery

- D. Put threaded ends of bolts (104) in holes in plate (108). Install nuts (103) on bolts to secure battery.
- E. Connect cables (85 and 86) to terminals on the battery.
- F. Start and operate generator to verify that the battery is properly connected.

6-2 Removal / Installation of Battery Enclosure (Model TPG4-7000HDXE Only)

WARNING: MAKE SURE THAT YOU DISCONNECT OR REMOVE THE BATTERY WHEN YOU DO MAINTENANCE. EXPLOSIVE HYDROGEN GAS MAY BE PRESENT AROUND THE BATTERY.

WARNING: SPARKS FROM STATIC ELECTRICITY OR FROM HAND TOOLS CONTACTING BATTERY TERMINALS CAN CAUSE THE HYDROGEN GAS TO IGNITE, CAUSING INJURY AND BURNS TO NEARBY PERSONNEL.

NOTE: Do not remove the battery enclosure unless required to gain access to other components. If removal of the battery support is required, remove according to the following procedures.

NOTE: Refer to exploded view in **Replacement Parts** section for parts information. The item numbers in the following procedure are identical to those in the **Replacement Parts** exploded views.

- A. Remove battery (refer to Replacement of Battery section).
- B. Refer to Figure 6-2, **Replacement Parts** section. Remove bolts (112) and nuts (113) from frame (44).
- C. Remove nuts (115) and U-bolts (114) from frames (111). Remove entire battery enclosure unit and set aside for installation later.

NOTE: Do not disassemble the battery enclosure unit any further unless disassembly is required to replace damaged battery enclosure components. If necessary, follow procedures beginning with step D.

- D. Remove bolts (106), nuts (107) and plate (105)
- E. Remove bolts (109), nuts (110) and plate (108).
- F. Perform required repair and/or maintenance, then proceed as follows.
 - (1) Align screw holes in plate (108) with holes in frames (111). Install and tighten four bolts (109) and four nuts (110).
 - (2) Align screw holes in plate (105) with holes in frames (111). Install and tighten four bolts (106) and nuts (107)
 - (3) Align screw holes in frames (111) with holes in generator frame (44). Install and tighten two screws (112) and nuts (113).
 - (4) Position frames (111) on generator frame (44). Install two U-bolts (114) and secure using nuts (115).

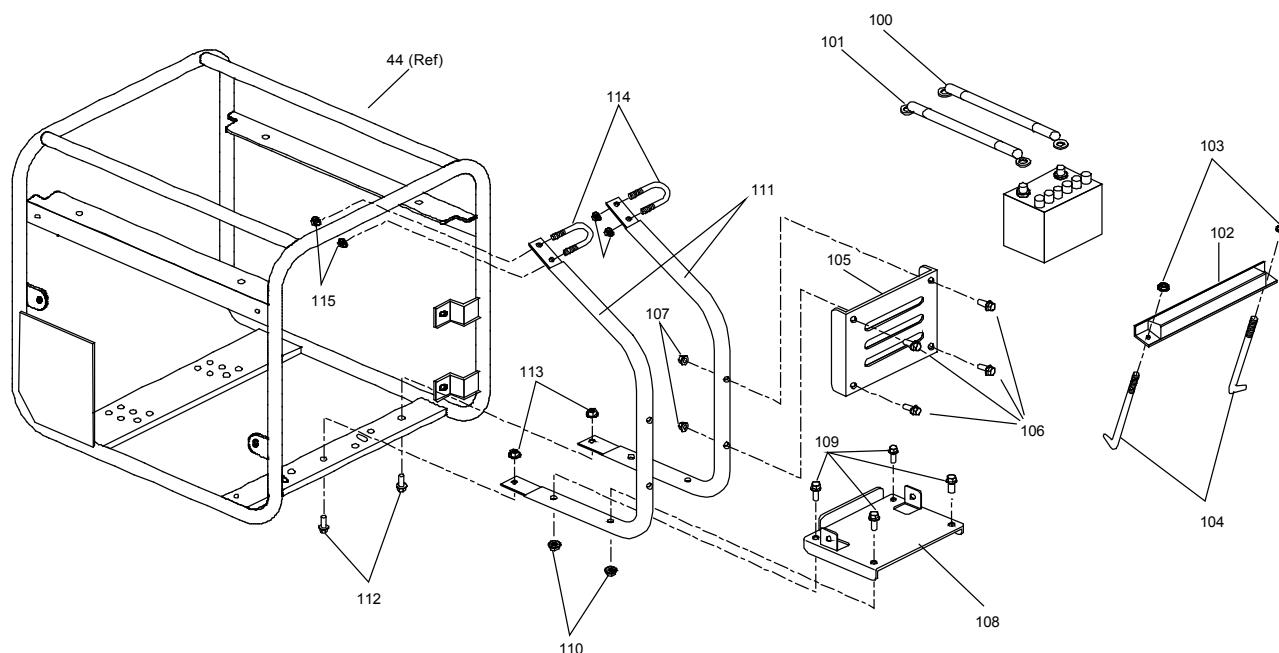


Figure 6-2: Battery Enclosure Components

6-3 Replacement of Muffler (Models TPG4-4500HDX, TPG4-6000HDX, TPG4-7000HDX, and TPG4-7000HDXE)

- A. Refer to Figure 6-3. Remove screws (H-9) and remove outer shield (H-8). Do not remove spark arrestor (H-11) unless damaged. If damaged, remove screw (H-12) and spark arrestor (H-11).
- B. Remove two screws (H-2) and exhaust gasket (H-3) from engine exhaust connection.
- C. Remove screws (H-13 and H-14). Remove muffler (H-10) together with inner shield (H-6).
- D. Separate inner shield (H-6) from muffler (H-10)TPG4
- E. Insert support brackets of replacement muffler (H-10) through seals (H-7) on inner shield (H-6).
- F. Install bolt (H-13) through hole in lower muffler support bracket and into threaded hole in generator bracket (9). Do not tighten bolt at this time.
- G. Install bolt (H-14) in lower lug of generator bracket (3) on muffler (H-10). Do not tighten bolt at this time.
- H. Install new exhaust flange gasket (H-3). Align gasket (H-3) with holes for exhaust flange screw (H-2). Make sure gasket (H-3) remains aligned. Install two screws (H-2) to connect exhaust flange to the muffler.
- I. Tighten all fasteners in an alternating pattern. Apply torque to the values shown in Table 6-1.

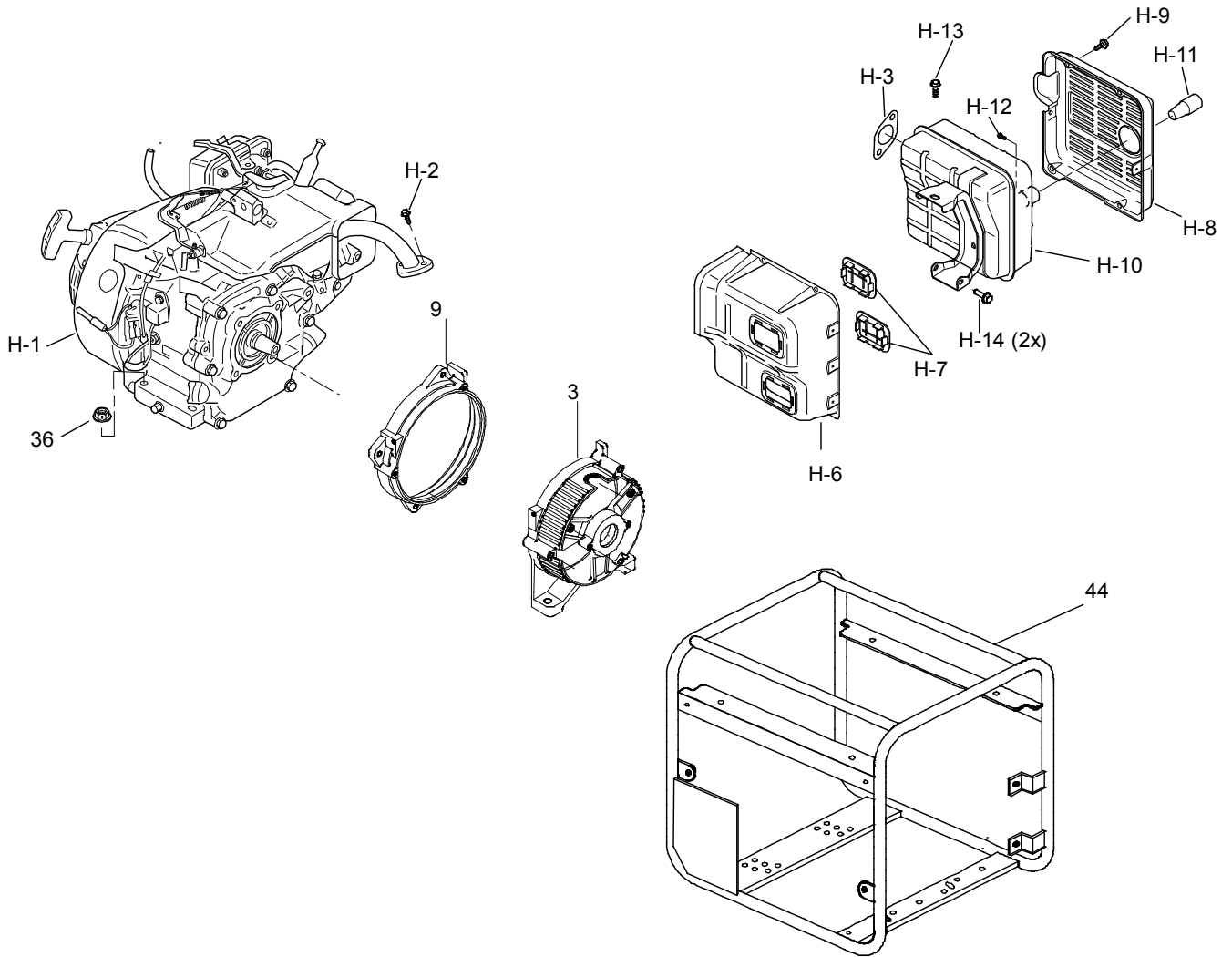


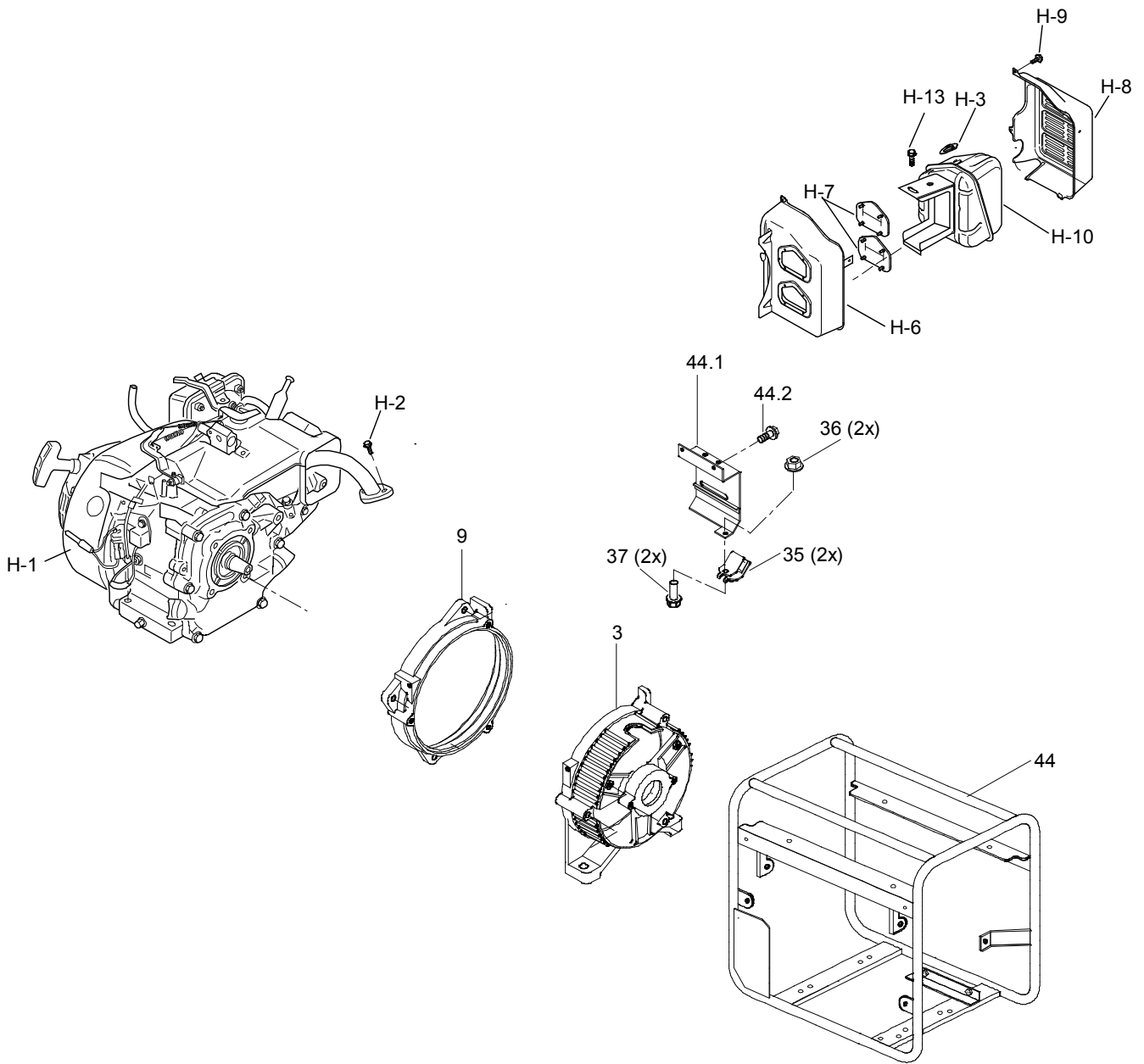
Figure 6-3: Replacement of Muffler
(Models TPG4-4500HDX, TPG4-6000HDX, TPG4-7000HDX, and TPG4-7000HDXE)

6-4 Replacement of Muffler(Model TPG4-3000HDX Only)

- A. Refer to Figure 6-4. Remove screws (H-9) and outer muffler shield (H-8) to expose the muffler.
1. Disconnect muffler (H-10) from engine exhaust connection.
 2. Remove screw (H-13). Remove muffler (H-10) together with inner shield (H-6) from slot in bracket (44.1).
 3. Do not remove bracket (44.1) unless damaged. If damaged, remove screws (44.2) and bracket (44.1).

NOTE: There are two attachment points on the muffler. The lower support has a lip that fits into a slot in bracket (44.1) on the side of the generator. The upper support has a screw hole for securing the muffler to the generator bracket (9).

4. Separate inner shield (H-6) from muffler (H-10)
5. Insert support brackets of replacement muffler (H-10) through seals (H-7) on inner shield (H-6).
6. If removed, install bolt (H-13) through hole in lower muffler support bracket and into threaded hole in generator bracket (9). Do not tighten bolt at this time.
7. After removing screw (H-13), lift the muffler so the lip clears the slot in generator bracket. Then move the muffler away from the generator bracket.
8. Install inner shield (H-6) and replacement muffler (H-10).
9. Install new exhaust flange gasket (H-3) and connect exhaust flange to the muffler.
10. Align upper screw hole in top of the muffler support with the screw hole in tab of generator bracket (9). Install screw (H-13).
11. Tighten fasteners to the torque values shown in Table 6-1.



**Figure 6-4: Replacement of Muffler
(Model TPG4-3000HDX Only)**

6-5 Replacement of Fuel Tank

WARNING: DO NOT DRAIN FUEL WHILE SMOKING OR WHILE IN CLOSE PROXIMITY TO OPEN FLAME. ENGINE FUEL (GASOLINE) IS HIGHLY FLAMMABLE AND IF ACCIDENTALLY IGNITED CAN CAUSE SEVERE BURNS AND DEATH.

WARNING: MAKE SURE THAT YOU DISCONNECT OR REMOVE THE BATTERY BEFORE DRAINING FUEL OR ANYTIME MAINTENANCE WILL INVOLVE HANDLING ENGINE FUEL. ENGINE FUEL IS EXTREMELY FLAMMABLE AND CAN CAUSE SEVERE OR FATAL BURNS IF IGNITED.

WARNING: MAKE SURE THAT YOU DISCONNECT OR REMOVE THE BATTERY WHEN YOU DO MAINTENANCE. EXPLOSIVE HYDROGEN GAS MAY BE PRESENT AROUND THE BATTERY, AND CAN BE IGNITED BY STATIC ELECTRICITY OR BY CONTACT WITH THE BATTERY TERMINALS.

WARNING: BE SURE TO FOLLOW LOCAL GASOLINE HANDLING, TRANSPORT, AND FUEL DISPOSAL REGULATIONS.

6-6 Draining the Fuel Tank

- A. It is not necessary to drain the engine fuel tank for the majority of routine maintenance tasks. However, the tank should be drained anytime the generator will be stored or when the fuel tank must be removed for maintenance.
1. If the engine can be started, start the engine and close the fuel tank shut off valve (19) (refer to Figure 6-5.) Let the engine operate until it is starved of fuel and stops. By doing so, residual fuel in the fuel lines and carburetor will be reduced to a minimum. Disconnect the fuel hose from the fuel tank shut off valve (19) (refer to Figure 6-6).

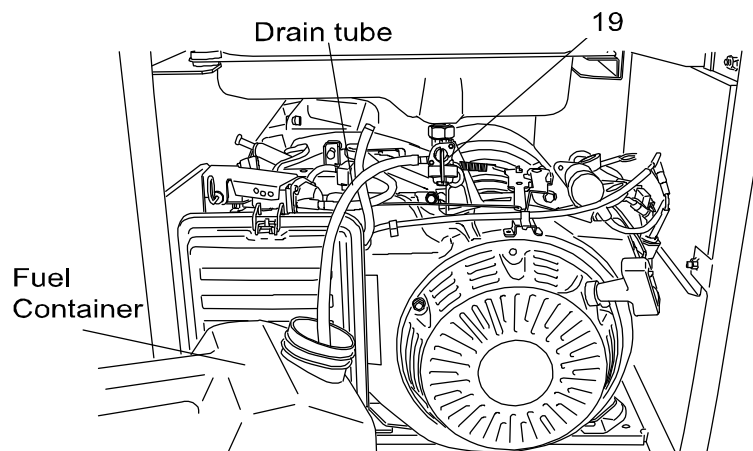


Figure 6-5: Draining the Fuel Tank

2. Connect a drain hose to the fuel tank shutoff valve and place the free end of the tube in an approved gasoline container. The container should have a capacity of 6.6 gallons minimum (see Figure 6-6).
3. Open the fuel shut off valve (19) and allow the fuel to drain from the tank.
4. Tighten the cap on the fuel container.

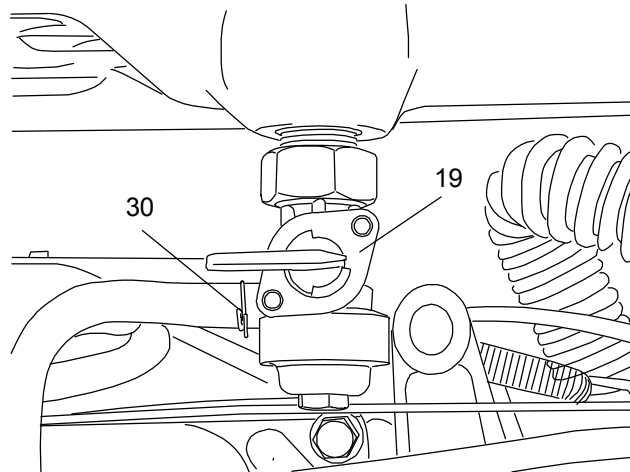


Figure 6-6: Fuel Shut off Valve (Shown in CLOSED Position)

WARNING: DO NOT DRAIN FUEL WHILE SMOKING OR WHILE IN CLOSE PROXIMITY TO OPEN FLAME. ENGINE FUEL (GASOLINE) IS HIGHLY FLAMMABLE AND IF ACCIDENTALLY IGNITED CAN CAUSE SEVERE BURNS AND DEATH.

WARNING: MAKE SURE THAT YOU DISCONNECT OR REMOVE THE BATTERY BEFORE DRAINING FUEL OR WHENEVER MAINTENANCE WILL INVOLVE HANDLING ENGINE FUEL. ENGINE FUEL IS EXTREMELY FLAMMABLE AND CAN CAUSE SEVERE OR FATAL BURNS IF IGNITED.

WARNING: MAKE SURE THAT YOU DISCONNECT OR REMOVE THE BATTERY WHEN YOU DO MAINTENANCE. EXPLOSIVE HYDROGEN GAS MAY BE PRESENT AROUND THE BATTERY.

WARNING: SPARKS FROM STATIC ELECTRICITY OR FROM HAND TOOLS CONTACTING BATTERY TERMINALS CAN CAUSE THE HYDROGEN GAS TO EXPLODE, CAUSING INJURY AND BURNS TO NEARBY PERSONNEL.

NOTE: Refer to exploded view in Replacement Parts section for parts information. The item numbers in the following procedure are identical to those in the Replacement Parts exploded views.

6-7 Removal of Fuel Tank (Models TPG4-4500HDX, TPG4-6000HDX, TPG4-7000HDX, TPG4-7000HDXE)

- A. Drain fuel from fuel tank (refer to **Draining of the Fuel Tank**).
1. Remove four screws (33) and four screws (34). Carefully open panel (46) taking care not to damage wiring.
 2. Disconnect two large connectors (17) and one small connector (16). Disconnect remaining electrical wires. Take note of wire terminations (color, striping, pin, socket, etc) and tag wires.

NOTE: Generator wiring is gathered and covered by tube (7). The wiring is further contained by grommet (75). Do not dismantle the wiring unless replacing stator (8) or repairing wiring.

3. Push connectors and wiring through holes in back of control box (45).
4. Remove four screws (33) and control case (32).
5. Remove two screws (63) securing control box (45). Remove control box (45).
6. Disconnect fuel tube (27) from fuel shut off valve (19) by releasing clamp (29 or 30).
7. Releasing the Clamp (96) of tank (18), and remove the canister tube (91).
8. Remove four bolts (23) and four washers (24). Remove fuel tank from frame (44).

NOTE: If the tank is being replaced, remove collars (26) and cushions (25) and install on replacement tank. If tank is not being replaced, leave the bushings and cushions installed.

6-8 Replacement of the Fuel Gauge

- A. Drain fuel from fuel tank (refer to **Draining of the Fuel Tank**).
1. Remove fuel tank (refer to **Removal of Fuel Tank**).
 2. Remove filler cap (21) and screen (22) from tank (18).
 3. Using TBD TOOL, remove fuel gauge (20).
 4. Install replacement fuel gauge.
 5. Install screen (22) and cap (21).
 6. Install fuel tank (18) in frame (44) (refer to **Installation of Fuel Tank**).

6-9 Installation of Fuel Tank

- A. If removed, install fuel shut off valve (19) in tank (18).
1. If removed, install collars (26) and cushions (25).
 2. Install tank (18) in frame (44) and secure with four bolts (23) and four washers (24).
 3. Connect fuel tube (27) to shut off valve outlet. Secure with clamps (29 and 30).
 4. Connect canister tube (92) to tank. Secure with clamps (96)

6-10 Removal/Installation of Generator/Engine Unit

WARNING: THE COMBINED WEIGHT OF THE ASSEMBLED ENGINE AND GENERATOR IS IN EXCESS OF 125 POUNDS. USE OF AN OVERHEAD LIFTING DEVICE IS RECOMMENDED.

WARNING: INJURY TO MAINTENANCE PERSONNEL MAY RESULT FROM ATTEMPTING TO LIFT THE HEAVY ENGINE AND GENERATOR ASSEMBLY FROM THE FRAME WITHOUT THE AID OF A LIFTING DEVICE.

NOTE: Refer to exploded view in **Replacement Parts** section for parts information. The item numbers in the following procedure are identical to those in the **Replacement Parts** exploded views.

NOTE: Tsurumi recommends that the heavy generator/engine unit be removed from the frame before removing generator components.

NOTE: The engine and generator wires have in-line plug and socket connectors that can be disconnected to take electrical measurements or to allow component replacement. Tag both ends of the wires as they are disconnected. Write the wire color and/or other characteristics (such as color of stripe) on the tag to assure the wires are properly reconnected.

6-11 Removal of Generator / Engine Unit

- A. In order to prepare for the removal of the generator and engine as a unit, the fuel tank will first need to be drained. Then, the front panel (46) and control box (45) must be removed before tank (18) itself can be removed. (Refer to the procedures in Draining of the Fuel Tank and Replacement of the Fuel Tank.)
1. The generator leads are contained within tube (7) and are sealed by a rubber bushing (5). The wiring is then routed through Grommet, Panel Lead(#2)(75). A groove at the control box end of the Grommet, Panel Lead(#2) (75) holds the tube in place in the control box wall.
 2. The engine and generator connectors (16 and 17) are housed within control box (45). To access and separate the connectors, collapse Grommet, Panel Lead(#2)(75) enough to disengage the groove from the hole in the control box back wall.
 3. Remove two screw, Self-Tapping (74) and remove control box (45).
 4. Remove flanged nuts (36) from the vibration anti-vibration mounts (35). The generator/engine unit may now be lifted off bolts (37).
 5. Remove air cleaner support (H-4). (See discussion below for description of the physical differences between the support used on Model TPG4-3000HDX and the support used on all other models).
 - (1) The support used on Model TPG4-3000HDX is basically a flat strap with a bend at the air cleaner attachment point. This support is secured at one end by screw (H-5) and by flanged nut (36) at the other end.
 - (2) The support used on all other models is an S-shaped strap with bends at the air cleaner attachment point and at the opposite end. This support is secured at one end by a screw (H-5) and by flanged nut (36) at the other end.
 6. Lift the generator/engine unit from the frame (44) using an overhead-lifting device.

CAUTION: BE SURE TO PROTECT THE ENGINE FROM DAMAGE. PUT CUSHIONING MATERIAL BETWEEN THE ENGINE AND THE WORKBENCH. USE WOODEN BLOCKS TO SUPPORT THE GENERATOR / ENGINE UNIT DURING REMOVAL AND INSTALLATION OF GENERATOR COMPONENTS.

- B. Set generator/engine unit on the workbench. Position the unit with the generator end facing up; use support blocks to steady the assembly.

6-12 Installation of Generator/Engine Unit

- A. If you are replacing the stator (8), refer to **Replacement of Generator Stator**.
1. If you are replacing the rotor (12), refer to **Replacement of Rotor**.
 2. If you are replacing the rotor bearing (13), refer to **Replacement of Rotor Bearing**.
 3. If you are replacing the engine (H-1), refer to **Replacement of Engine**.
 4. Tighten fasteners to the torque values shown in Table 6-1.
 5. If anti-vibration mounts (35) are being replaced, proceed as follows:
 6. Insert one screw (37) in each of four anti-vibration mounts (35). Install screws (37) so threaded end of screws (37) face upward.
 7. If bonding wire (40) was removed, install screw (41) through hole in the underside of frame (44) Secure wire with toothed washer (42) and nut (43).
 8. Install anti-vibration mounts (with bolts) on frame (44). Install mounts with threaded stud in large hole and keying tab in the smaller hole in the frame.

NOTE: The anti-vibration mounts on Model TPG4-3000HDX are installed at approximately 45-degees. The anti-vibration mounts on all other models are installed parallel with the frame member to which it is attached.

9. Install generator/engine unit on anti-vibration mounts (35) and secure to frame (44) with flanged nuts (38).
10. Install assembled generator/engine unit over bolts (37) in anti-vibration mounts (35).
11. Install terminal ring of bonding wire (40) on threaded end of bolt (38). Install flanged nuts (36) on the anti-vibration mounts (35).
12. Install fuel tank (refer to Installation of Fuel Tank).
13. Install control box (refer to Installation of Control Box).
14. Connect engine wiring in panel (46) according to the tags attached to the wires during disassembly.

NOTE: Replace tube (7) if it was damaged or discarded during repair or replacement of stator (8). After replacement tube (7) is installed, install grommet, Panel Lead(#2) (75) over tube (7). Install grommet, Panel Lead(#2)(75) in the hole in control box (45).

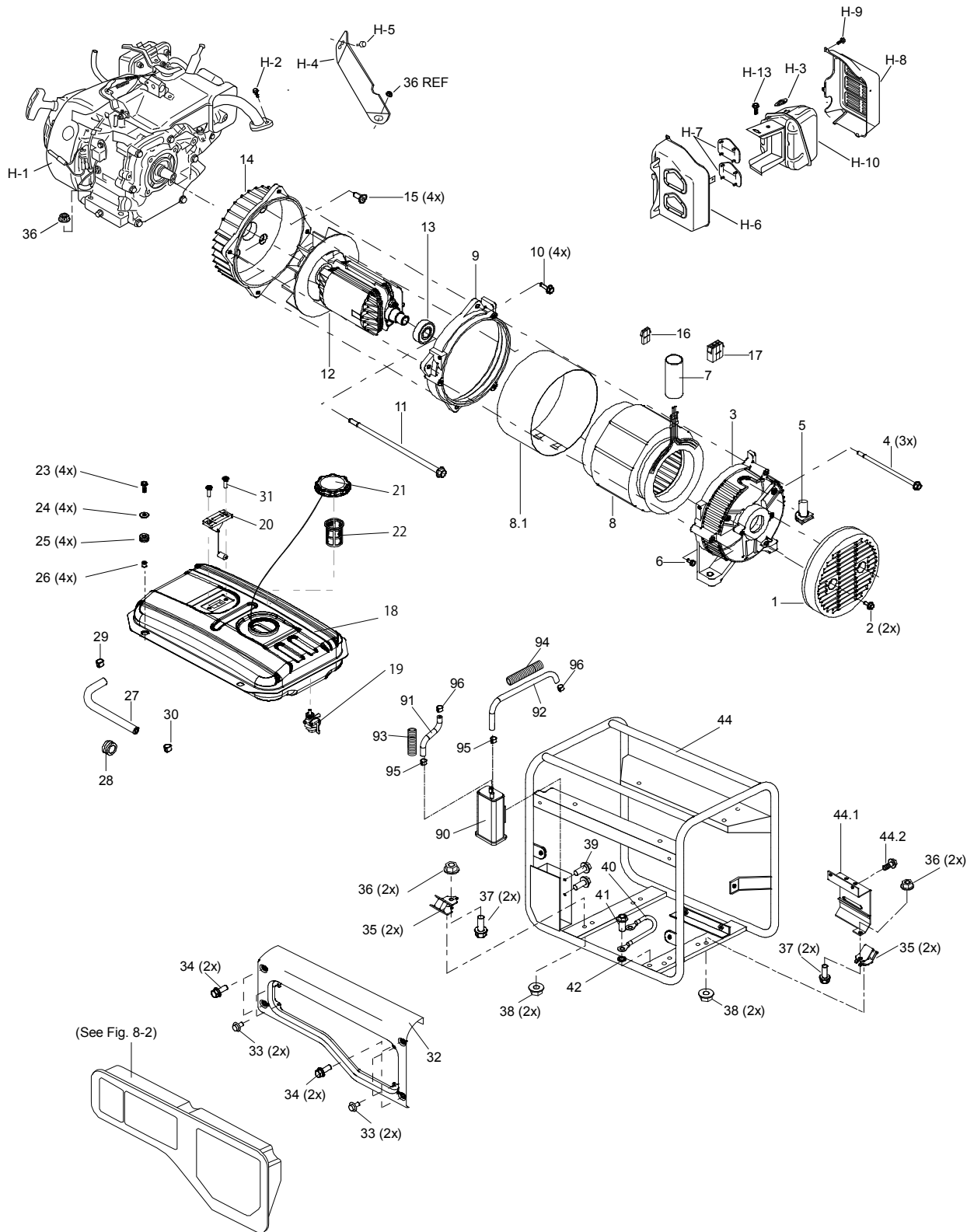


Figure 6-7: Removal of Engine and Generator as a Unit

15. Insert engine wiring through small hole in back of control box (45). Connect wiring as required. (Refer to the wiring diagrams in **Troubleshooting**.)
16. Install front panel and control box (see **Removal/Installation of Front Panel and Control Box**). Install fuel tank (see Replacement of Fuel Tank), and engine muffler (see Replacement of Engine Muffler).

6-13 Replacement of Generator Stator

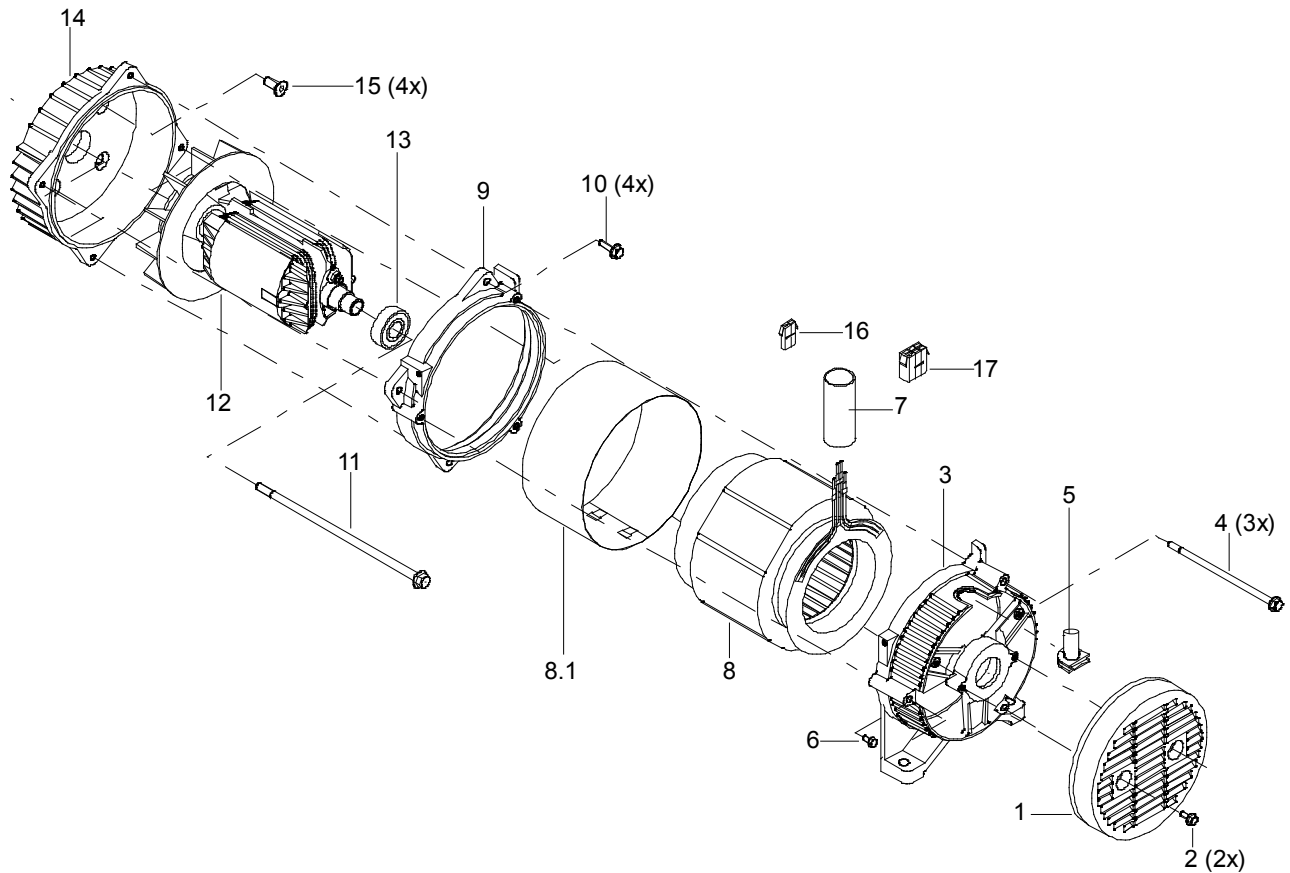
NOTE: Refer to exploded view in **Replacement Parts** section for parts information. The item numbers in the following procedure are identical to those in the **Replacement Parts** exploded views.

- A. Drain and remove fuel tank (18) (refer to **Replacement of Fuel Tank** for removal instructions).
 1. Remove the muffler (H-10) and shields (H-6 and H-8) to gain access to generator (refer to **Replacement of Muffler** for removal instructions).
 2. Remove screws (2) and cover (1). Pull bushing (5) from slot in rear bracket (3).
 3. Disconnect ground wire by removing screw (6).
 4. Remove tube (7) from the rear cover (7). Pull the wires out of the access opening in the rear cover. Tag and disconnect the wires.
 5. Remove bolts (4). Use a plastic, rubber, or other soft-faced hammer to loosen the rear cover (3). Alternately tap upward on the generator mounting lugs until the rear cover can be removed by hand.
 6. With the rear cover loosened, carefully position the rear cover so you have access to ground screw (6).
 7. Remove the stator cover (8.1).

WARNING: TO AVOID BEING INJURED, BE PREPARED TO LIFT THE HEAVY STATOR (APPROXIMATELY 37 POUNDS).

NOTE: It is suggested that you have second person assist with stator removal. While you tap upward with the hammer, the other person should lift the stator from the front cover.

8. Use a plastic, rubber, or other soft-faced hammer to loosen the stator. Tap upward on the side of the laminations. Tap upward and alternate tapping the near side and far side of the stator until loosened enough to remove by hand.
9. Move the removed stator away from the work area.
10. Position the replacement stator (8) with the wires. Put stator (8) over rotor (12) and against the front cover (14).
11. Install stator cover (8.1) evenly over the stator.



TPG4 Fig 6-8

Figure 6-8: Replacement of Stator

12. Align the bore in rear cover (14) with the rotor bearing (13). Position the rear cover (1) with the hole for grommet (75) aligned with the stator wires.
13. Route the stator wires through grommet, Panel Lead(#2) (75) and into access hole in the control box (45).
14. Slip tube (7) over the wires. Put tube (7) in the wire access hole making sure the groove in the tube is seated in the lip of the wire access hole.
15. Install bolts (4). Tighten bolts (4) in small increments and in an alternating pattern. Tighten the bolts so the stator cover is pulled down evenly against the relief at the edge of the front cover (14) and rear cover (1). Make sure the thin stator cover is seated all 360 degrees in the relief on both covers.
16. Tighten fasteners to the torque values shown in Table 6-1.

6-14 Replacement of Rotor Bearing

NOTE: Refer to exploded view in **Replacement Parts** section for parts information. The item numbers in the following procedure are identical to those in the **Replacement Parts** exploded views.

- A. Remove the generator rear cover (1). (Refer to **Replacement of Stator** for removal instructions.)

NOTE: Make sure the diameter of the bearing puller threaded rod is larger than the threaded bore in the center of the rotor shaft.

1. Install a three-jaw gear or bearing puller on the rotor shaft. Make sure all three jaws are under the outer race of the bearing (refer to Figure 6-9).
2. Rotate the threaded rod of the bearing puller and remove the bearing (13) from the rotor shaft (12).
3. Pre-heat an oven to $350^{\circ} \pm 25^{\circ}$ Fahrenheit. Place the replacement bearing (13) in the oven for 30 minutes.

WARNING: TO AVOID BEING BURNED BY THE HEATED BEARING, WEAR THERMAL-INSULATED GLOVES.

4. Wear insulated gloves and remove bearing from the oven. Immediately place the bearing on the rotor shaft. Make sure the bearing is seated against the shoulder of the shaft.
5. Let the bearing cool to room temperature.
6. Check the bearing for free rotation.
7. Install the rear cover (1). (Refer to **Replacement of Stator** for rotor installation instructions.)

6-15 Replacement of Rotor

8. The generator stator (6, Figure 6-0) must be removed before the rotor (12) can be removed. Refer to **Replacement of Stator** for stator removal instructions.

NOTE: The rotor (12, Figure 6-9) at this point is free to rotate and must be kept from rotating to enable removal of the through bolt (11).

9. Restrain the rotor to keep it from rotating.
10. Put a box-end wrench on the hex of the through bolt (11).
11. Using a plastic, rubber, or other soft-faced hammer, strike the side of the wrench using sharp blows to loosen the through bolt (11).
12. When the through bolt (11) is loosened, it can easily be removed.

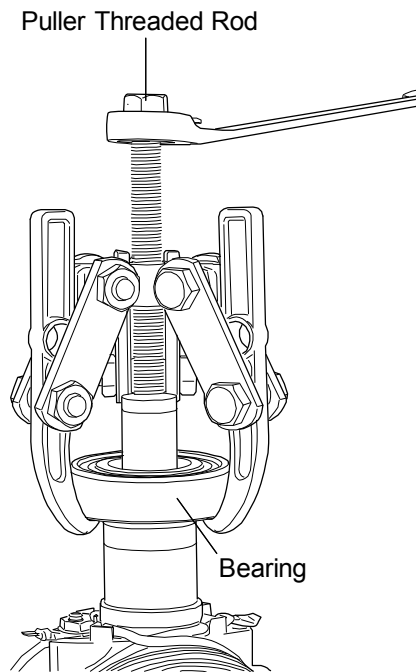


Figure 6-9: Bearing Puller in Use

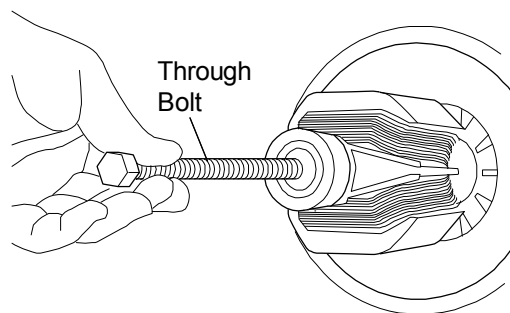
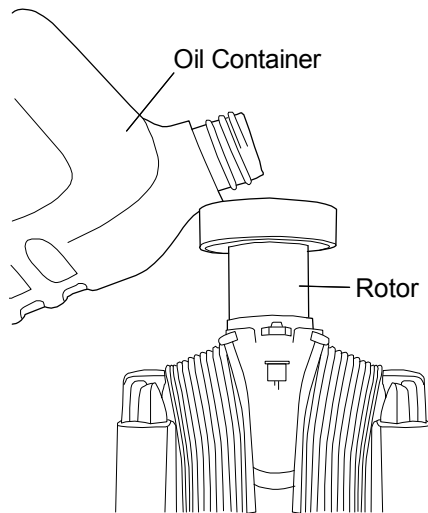


Figure 6-10: Removal of Through Bolt

NOTE: In the steps that follow, motor oil is used to generate hydraulic pressure. Hydraulic pressure is used to separate the tight-fitting engine and generator shafts.

13. Refer to Figure 6-10. With the generator in the vertical position, pour a small amount of motor oil in the bore in the center of the rotor shaft. (The oil level should be flush with the end of the rotor shaft.)

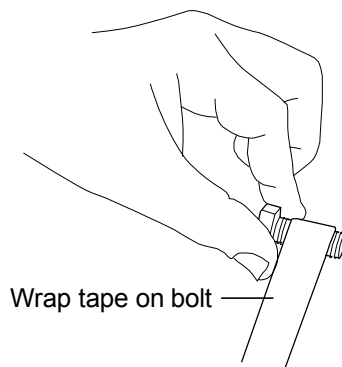


TPG4 FIG 6-11

Figure 6-11: Pouring Oil in Rotor Shaft

14. Refer to Figure 6-12. Wrap electrical tape around the threads of a bolt to form a seal; do not put tape on the first two threads of the bolt.

NOTE: Use an M8 x 215 bolt for all models.

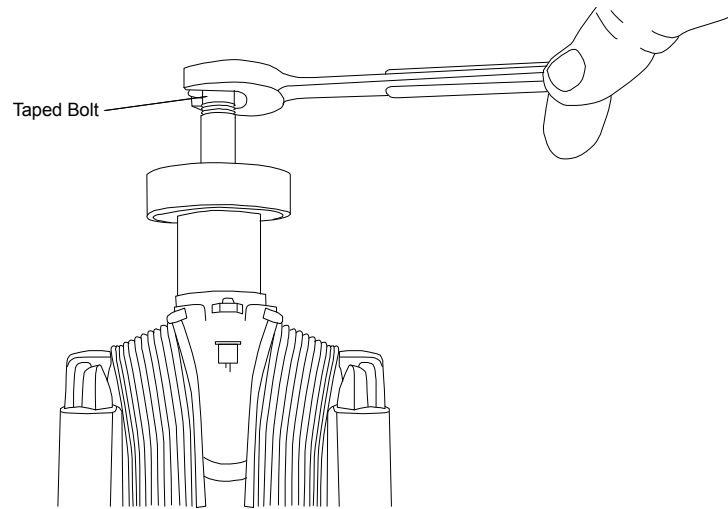


TPG4 FIG 6-12

Figure 6-12: Wrapping Bolt with Tape

NOTE: Have shop towels available to wipe up spilled oil.

15. Install the bolt in the center of the rotor shaft refer (to Figure 6-13). Turn the bolt into the shaft; the force required to turn the bolt will increase as the pressure increases.



TPG4 FIG 6-13

Figure 6-13: Tightening of Through Bolt (for Separation of Engine and Generator)

CAUTION: TSURUMI RECOMMENDS THAT YOU REMOVE FLATHEAD SCREWS (15) USING AN ALLEN-TYPE HEX WRENCH MOUNTED IN A SOCKET WRENCH ADAPTER. BEFORE REMOVING SCREWS (15), TAP THE HEX ADAPTER WITH A HAMMER TO MAKE SURE THE HEX IS FULLY SEATED. FAILURE TO DO SO MAY RESULT IN ROUNDING OF THE SOCKET FLATS IN SCREWS (15) AND THE NEED TO REMOVE USING DESTRUCTIVE REMOVAL METHODS.

16. When the shafts separate, place the rotor on a shop towel and let the oil drain from the shaft. Wipe up oil that drained into the front cover.
17. The front cover may remain installed unless it is damaged or the engine is being replaced. To remove the front cover, remove four bolt and washer assemblies (13).
18. If the front cover (14) was removed, position front cover with cooling air slots on the bottom of the generator. Secure with four bolts (15). Tighten to the torque values shown in Table 6-1.
19. Complete assembly of the generator as follows:
 - (1) Install rotor (12). (Refer to **Replacement of Rotor** for rotor installation procedures).
 - (2) If bearing (13) was removed, install according to the bearing installation procedure in **Replacement of Rotor Bearing**.
 - (3) Install the stator (8), stator cover (8.1), and rear cover (1). (Refer to **Replacement of Generator Stator** for installation procedures.)

6-16 Replacement of Rotor

- A. The generator stator (Figure 6-8) must be removed before the rotor (12) can be removed. Refer to **Replacement of Stator** for stator removal instructions.

NOTE: The rotor (12, Figure 6-9) at this point is free to rotate and must be kept from rotating to enable removal of the through bolt (11).

1. Restrain the rotor to keep it from rotating.
2. Put a box-end wrench on the hex of the through bolt (11).
3. Using a plastic, rubber, or other soft-faced hammer, strike the side of the wrench using sharp blows to loosen the through bolt (11).

6-17 Front Panel and Control Box

- A. Gain Access to Components

- (1) To ease the replacement of components, drain and remove the fuel tank (18), remove the front panel (46) and control box (45) from the frame (44).
- (2) Refer to Figure 6-7. Remove four screws (33) and two screws (74) to separate control box (45) from front panel (46).
- (3) Disconnect generator tube (7) from rear cover (1).
- (4) Tag and disconnect generator wires. Pull generator wires free from the control box (45).

CAUTION: CAREFULLY REMOVE THE FRONT PANEL FROM THE FRAME TO AVOID DAMAGE TO WIRING AND/OR ELECTRICAL OR ELECTRONIC COMPONENTS.

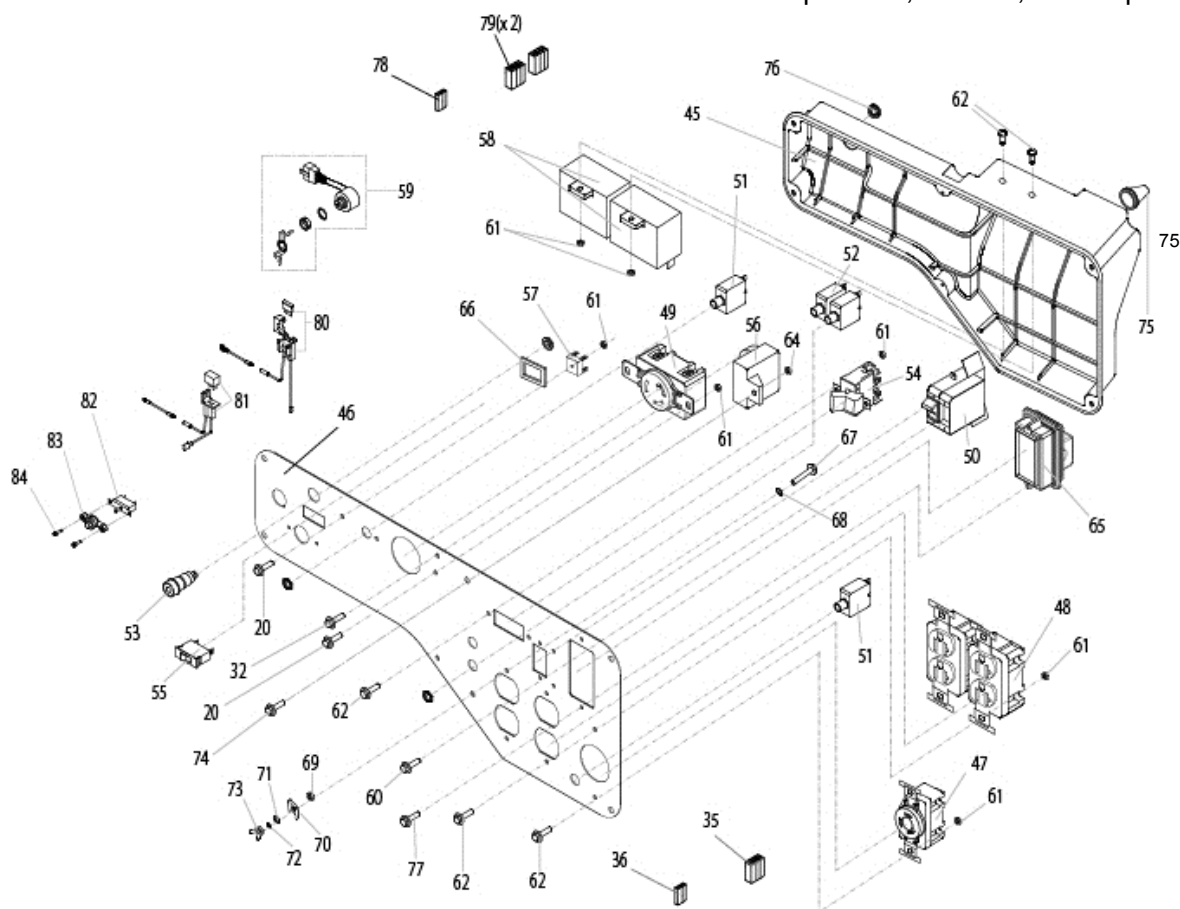
CAUTION: USE CARE TO AVOID DAMAGE BY THE WIRE LOOP THAT PASSES THROUGH THE COIL ON THE IDLE CONTROL UNIT.

- (5) Remove four frame bolts (33) at the corners of the front panel (46). Separate the front panel (46) from the frame (44).
- (6) Replace panel-mounted or control box-mounted components as applicable.
- (7) After replacing the panel-mounted component, connect generator and engine wires using the tags as a guide. Install control box (45) on front panel (46) and secure with screws (34).

1. Reset Pushbutton (TPG4-7000HDXE Only)

- (1) Refer to Figure 6-14. Remove front panel (46) and control box (45) (refer to Removal/Installation of Front Panel and Control Box).
- (2) Disconnect wiring.

- (3) Remove screws (84) and pushbutton (82).
- (4) Install replacement pushbutton (82) and secure with screws (84).
- (5) Connect wiring.
- (6) Install front panel (46) and control box (45) (refer to **Removal/Installation of Front Panel and Control Box**).



**Figure 6-14: Front Panel and Control Box Components
(Model TPG4-7000HDXE Shown)**

2. DC Fuse (TPG4-7000HDXE)

- (1) Refer to Figure 6-14. Remove front panel (46) and control box (45) (refer to **Removal/Installation of Front Panel and Control Box**).
- (2) Remove fuse from its fuse holder.
- (3) Align notch in panel with the key on the switch. Install replacement switch (59) in back side of front panel (46).
- (4) Install fiber washer and ring nut. Tighten ring nut.
- (5) Connect switch with mating connector.

3. Engine Switch (Models TPG4-3000HDX, TPG4-4500HDX and TPG4-6000HDX)

- (1) Refer to Figure 6-14. Remove front panel (46) and control box (45) (refer to **Removal/Installation of Front Panel and Control Box**).
- (2) Disconnect wiring.
- (3) Connect wiring and install replacement switch (59) in back of front panel (46).

- (4) Install front panel (46) and control box (45) (refer to **Removal/Installation of Front Panel and Control Box**).

4. Pilot Lamp (ALL MODELS)

- (1) Refer to Figure 6-14. Remove front panel (46) and control box (45) (refer to **Removal/Installation of Front Panel and Control Box**).
- (2) Disconnect wire from pilot lamp (53). Squeeze inward on tab to release the pilot lamp (53) from the panel (46).
- (3) Install replacement pilot lamp (53) from front of panel. Install pilot light (53) until the tab snaps into place.
- (4) Connect the wire to the pilot lamp (53).
- (5) Install front panel (46) and control older.
- (6) Install replacement fuse (H-TBD) in its fuse holder.
- (7) Install front panel (46) and control box (45) (refer to **Removal/Installation of Front Panel and Control Box**).

5. Engine Start (Key) Switch (TPG4-7000HDXE)

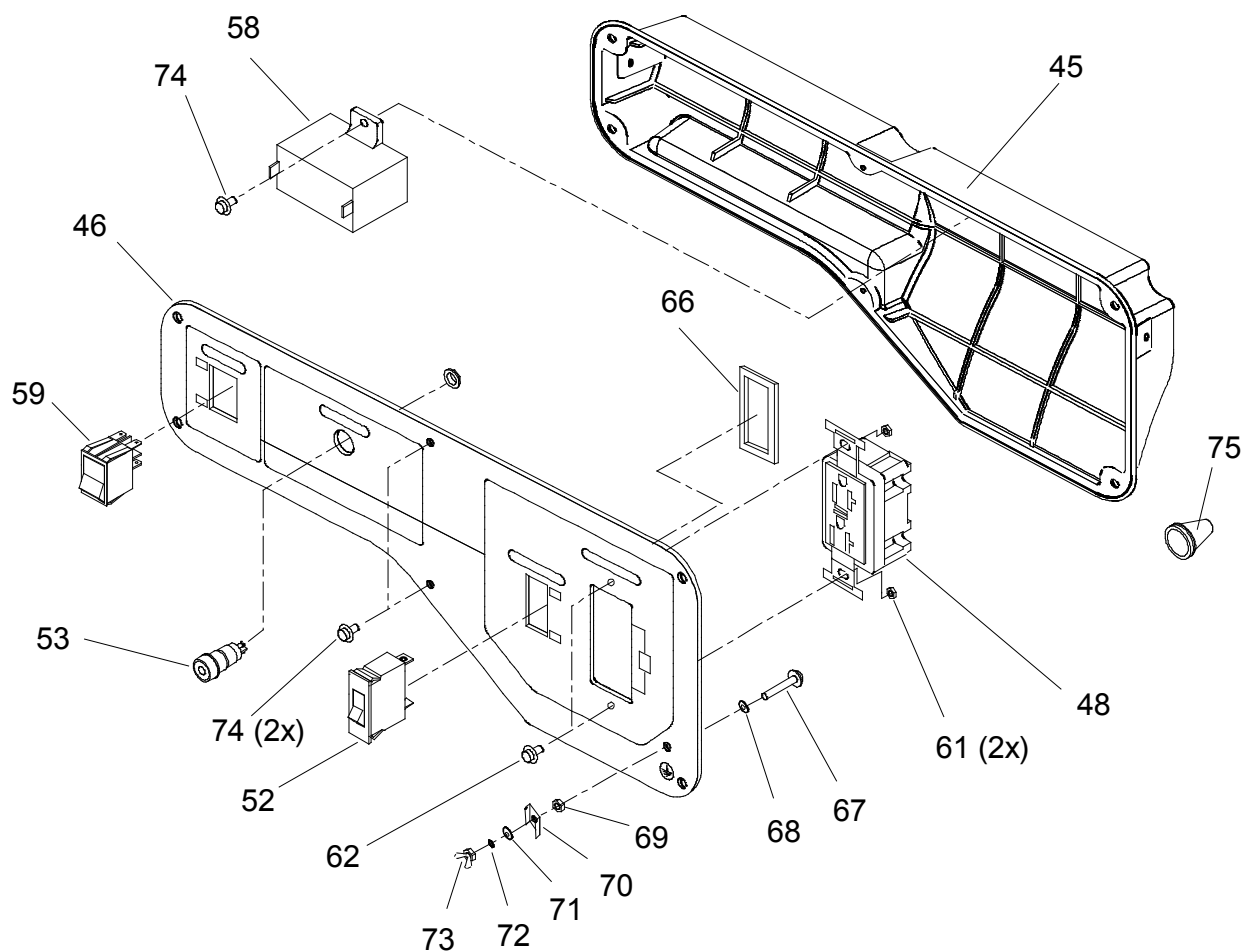
- (1) Refer to Figure 6-14. Pull switch (59) from backside of front panel (46).
- (2) Separate switch from its connector box (45) (refer to **Removal/Installation of Front Panel and Control Box**).

6. Circuit Breaker (50)

- (1) Refer to Figure 36. Remove front panel (46) and control box (45) (refer to **Removal/Installation of Front Panel and Control Box**).
- (2) Remove two screws and washers.
- (3) Disconnect wiring.
- (4) Connect wiring and install replacement circuit breaker (50) in back of front panel (46). Secure with two screws.

7. Circuit Breaker (50, 51 or 52)

- (1) For circuit breaker (50, 51 or 52), remove four screws and washers.
- (2) Disconnect wiring.
- (3) Connect wiring and install replacement circuit breaker (50, 51 or 52) in back of front panel (46). Secure with four screws and washers.



**Figure 6-15: Front Panel and Control Box Components
(Model TPG4-3000HDX Shown)**

(4) Install front panel (46) and control box (45) (refer to **Removal/Installation of Front Panel and Control Box**).

8. Idle Control Switch

(Models TPG4-4500HDX, TPG4-6000HDX, and TPG4-7000HDXE)

(1) Refer to Figure 6-15. Remove front panel (46) and control box (45) (refer to **Removal/Installation of Front Panel and Control Box**).

(2) Remove Idle Control switch (55).

(3) Disconnect wiring.

- (4) Connect wiring and install replacement switch (55) in back of front panel (46).
- (5) Install front panel (46) and control box (45) (refer to **Removal/Installation of Front Panel and Control Box**).

9. Voltage selector Switch

(Models TPG4-4500HDX, TPG4-6000HDX, and TPG4-7000HDXE)

- (1) Refer to Figure 6-15. Remove front panel (46) and control box (45) (refer to Removal/Installation of Front Panel and Control Box).
- (2) Remove two screws (62) and nuts (61) from switch (54).
- (3) Disconnect wiring.
- (4) Connect wiring and install replacement switch (54) in back of front panel (46) and secure with two screws (62) and nuts (61) assemblies .
- (5) Install front panel (46) and control box (45) (refer to Removal/Installation of Front Panel and Control Box).

10. Twist Lock Receptacles

- (1) Refer to Figure 6-15. Install front panel (46) and control box (45) (refer to Removal/Installation of Front Panel and Control Box).
- (2) For receptacle (49), remove two screws (62) and nuts (61).
- (3) Disconnect wiring.
- (4) Connect wiring and install replacement receptacle (49) in back of front panel (46) and secure with two screws (62) and nuts (61) assemblies.
- (5) For receptacle (49), remove two screws (62) and nuts (61) assemblies (62).
- (6) Disconnect wiring.
- (7) Connect wiring and install replacement receptacle (49) in back of front panel (46) and secure with two screws (62) and nuts (61).
- (8) Install front panel (46) and control box (45) (refer to **Removal/Installation of Front Panel and Control Box**).

11. GFCI Receptacle (Models TPG4-3000HDX)

- (1) Refer to Figure 6-15. Remove front panel (46) and control box (45) (refer to Removal/Installation of Front Panel and Control Box).
- (2) Remove two screw(62) and nuts (61) and receptacle (47).
- (3) Disconnect wiring and remove receptacle(47).

- (4) Connect wiring to replacement receptacle(47).
- (5) Install two screws (62) through screw holes in front panel (46).
- (6) Install receptacle (47). Secure with the two screw assemblies (62) and two nuts (61).
- (7) Install front panel (46) and control box (45) (refer to Removal/Installation of Front Panel and Control Box).

7-0 STORAGE INSTRUCTIONS

7-1 General

WARNING: TO AVOID SEVERE BURNS OR FIRE HAZARDS, LET THE ENGINE COOL BEFORE TRANSPORTING OR BEFORE STORING THE PORTABLE GENERATOR INDOORS.

WARNING: WHEN TRANSPORTING THE PORTABLE GENERATOR, TURN THE FUEL SHUTOFF VALVE TO THE OFF POSITION AND KEEP THE ENGINE LEVEL DURING TRANSPORT TO PREVENT FUEL SPILLAGE. IF PRESENT, FUEL VAPOR OR SPILLED FUEL MAY IGNITE.

- A. The following procedures should be followed before storing your portable generator for periods of 6 months or longer.
- (1). Carefully drain fuel from the fuel tank; gasoline left in the fuel tank will eventually deteriorate making engine starting difficult.
 - (2). Remove the carburetor float chamber and also drain the carburetor.
 - (3). Change engine oil.
 - (4). Check for loose bolts and screws, tighten if necessary.
 - (5). Clean generator thoroughly with oiled cloth. Spray with preservative if available. **NEVER USE WATER TO CLEAN GENERATOR!**
 - (6). Pull starter handle until resistance is felt, leaving handle in that position.
 - (7). Store generator in a well-ventilated, low humidity area.

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8-0 REPLACEMENT PARTS ---

8-1 Introduction

- (1) This section provides exploded view illustrations that show the replacement parts for Tsurumi Portable Generators, Models TPG4-3000HDX, TPG4-4500HDX, TPG4-6000HDX, TPG4-7000HDX, and TPG4-7000HDXE. Also provided are parts listings that provide part number, description, and quantity.
- (2) The item numbers shown on the illustrations correspond with the item numbers in the facing parts listing.

8-2 Ordering Parts

- (1) Order replacement parts from:

Tsurumi (America), Inc.

1625 Fullerton Court

Glendale Heights, IL 60139

Tel: 1-888-878-7864

FAX: 1-630-793-0146

E-mail: info@tsurumiamerica.com

Web site: <http://www.tsurumipump.com/>

8-3 Honda Parts

- (1) Honda Motor Company supplies parts that generally provide the interface between the Honda engine and the Tsurumi generator. When required, replacement Honda parts may be ordered from the Honda Motor Company parts catalog.
- (2) Reference numbers used to identify Honda parts are prefixed with the letter H (such as H-20)

Figure 8-1: Generator (Exploded View) - Model TPG4-3000HDX

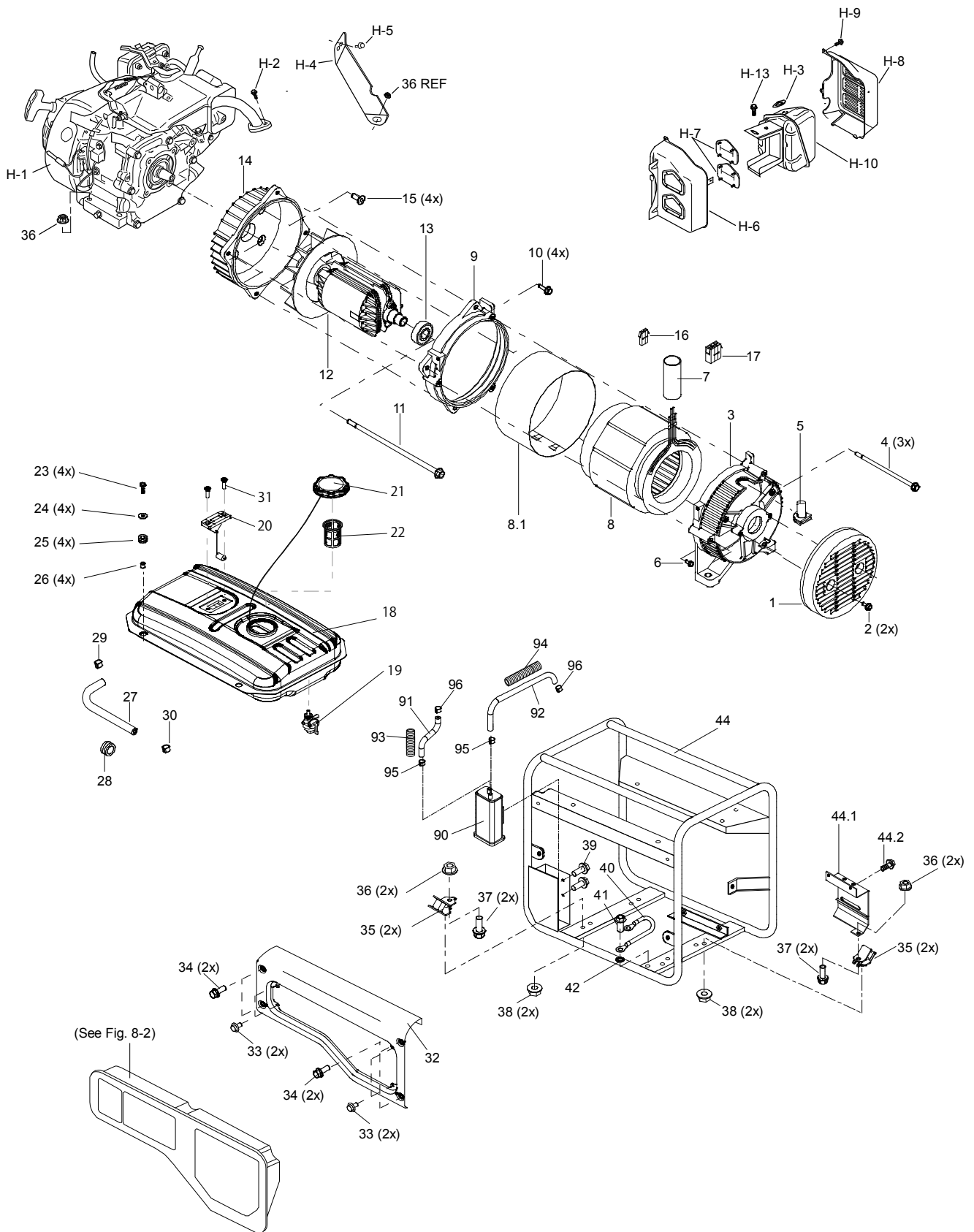


Figure 8-1: Generator (Parts List) - Model TPG4-3000HDX

Ref. No.	Part Number	Description	Qty
1	15111471000	Cover, Bracket	1
2	15550210000	Bolt, Hex (with Flange) (M5 x 0.8-12)	2
3	15311461000	Bracket	1
4	15550158000	Bolt, Hex (with Flange) (M6 x 140)	3
5	15350549000	Bushing, Rubber	1
6	19S00905007	Screw, Cross Head, Recessed (M5-7)	1
7	15350107000	Tube, Lead Wire	1
8	15250378000	Stator Assembly	1
8.1	No Number	Cover, Stator (provided with Stator Assembly)	1
9	15111462000	N-Bracket	1
10	19B30906020	Bolt, Hex (with Flange) (M6 x 1.25-20)	4
11	15550160000	Bolt, Hex (with Flange) (M8x1.25-235)	1
12	15200426000	Rotor Assembly	1
13	15250328000	Bearing, Ball	1
14	15111460000	Bracket	1
15	19B50908020	Bolt, Flat Head (with Socket) (M8x1.0-20)	4
16	15400160000	Connector (2 P)	1
17	15400156000	Connector (6 P)	2
18	15301131010	Tank, Fuel (Blue)	1
19	15150514000	Valve, Fuel Shutoff	1
20	15350504000	Gauge Assembly, Fuel	1
21	15301046000	Cap, Fuel Filler	1
22	15350343000	Filter, Fuel	1
23	19B30906025	Bolt, Hex (with Flange) (M6 x 1.0-25)	4
24	19W00906025	Washer, Tank, Cushion (M6 x 25, 1.0 Thick)	4
25	15321880100	Cushion, Tank Rubber	4
26	15321670270	Collar, Tank Cushion	4
27	15350693000	Tube, Fuel	1
28	90854-ZB2-0000	Rubber, Fuel Tube (Honda Part Number)	1
29	95002-02080	Rubber, Fuel Tube (Honda Part Number)	1
30	15301192000	Clamp, Tube	1
31	15550293001	Screw (M5 x 12)	2

Ref. No.	Part Number	Description	Qty
32	15601797000	Case, Control (Blue)	1
33	15550438000	Screw, Cross Head, Recessed (M6-15)	4
34	19SS6906016	Bolt (M6-16)	4
35	203200010	Rubber, Anti-Vibration	4
36	203200010	Nut, Hex (With Flange) (M8 x 1.25)	4
37	19B30908045	Bolt, Hex (M8 x 45)	4
38	203200010	Nut, Hex (With Flange) (M8 x 1.25)	4
39	15550446000	Bolt (M6 x 14)	2
40	15501121000	Wire, Bonding	1
41	19B30906012	Bolt, Hex (With Flange) (M6 x 12)	1
42	19W50906000	Lock Washer, Tooth	1
43	19N10906000	Nut, Hex (With Flange)	1
44	15302002000	Frame	1
90	15950137000	Carbon Canister	1
91	15350677000	Tube , Canister	1
92	15350679000	Tube , Canister	1
93	15350701000	Tube , Corrugate	1
94	15350700000	Tube , Corrugate	1
95	15302060000	Clamp , φ10.0	2
96	15302062000	Clamp , φ13.0	2

Ref. No.	Part Number	Description	Qty
H-1	GX160UT2 VES6	Engine (Honda)	1
H-2	-----	Bolt, Exhaust Flange	2
H-3	-----	Gasket, Exhaust Flange	1
H-4	-----	Bracket	1
H-5	-----	Screw, Bracket	1
H-6	-----	Shield, Inner	1
H-7	-----	Seal	1
H-8	-----	Shield (Outer)	1
H-9	-----	Bolt, Flanged (Muffler Shield)	1
H-10	-----	Muffler	1
H-13	-----	Bolt	2

NOTE: Items prefixed with letter H are Honda Engine parts. Refer to Honda Parts Catalog for part numbers.

Figure 8-2: Control Box (Exploded View) – Model TPG4-3000HDX

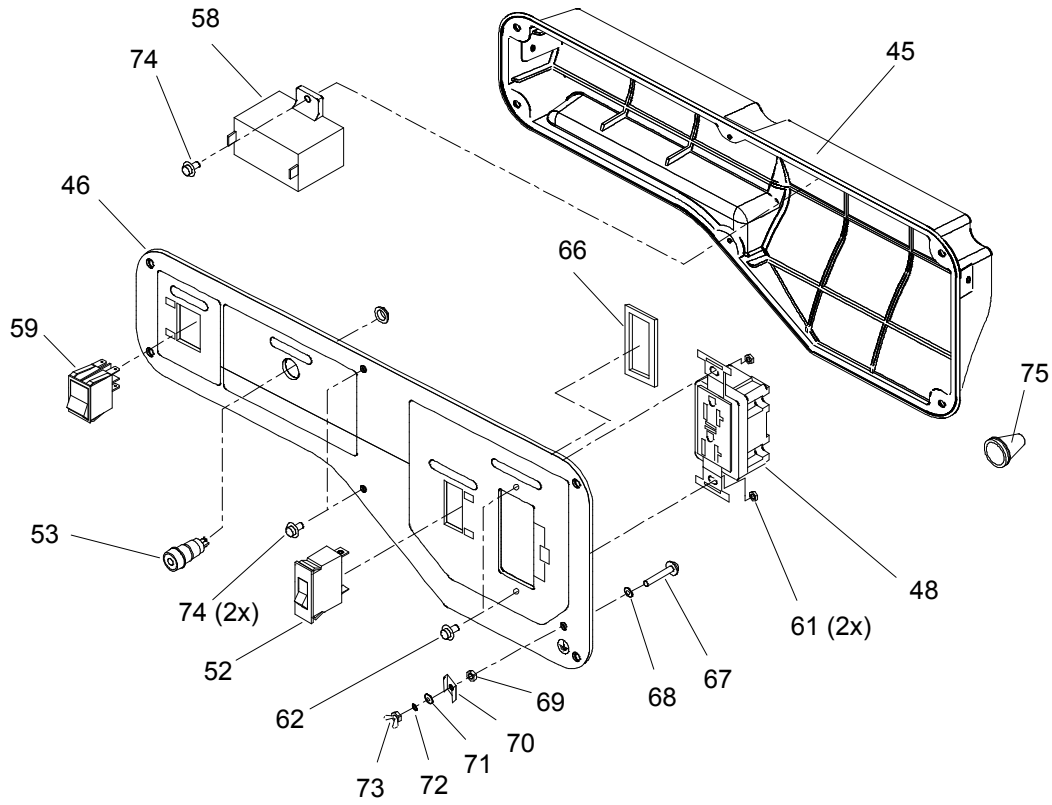


Figure 8-2 - Control Box (Parts List) - Model TPG4-3000HDX

Ref. No.	Part Number	Description	Qty
45	15350690000	Box, Control	1
46	15601696000	Panel, Control	1
48	15400104000	Receptacle (20A, 125V)	2
52	15400137000	Circuit Breaker (20A)	1
53	85111573300	Bracket, Neon	1
58	15400175000	Condenser Assembly (4 μ F)	2
59	15400253000	Switch, Engine	1
61	19N10904000	Nut, Hex (with Flange) (M4)	2
62	19SF49040014	Screw, Cross Head, Recessed (M4x14)	2
66	15301080001	Spacer	1
67	19S00905025	Screw, Cross Head, Recessed	1

Ref. No.	Part Number	Description	Qty
68	15550331000	Washer, Tooth Lock (M5)	1
69	15550329000	Nut, Hex (with Flange) (M5)	1
70	15301979000	Washer, Cap (M5)	1
71	15550333000	Washer, Flat (M5)	1
72	15550331000	Washer, Lock (M5)	1
73	15550335000	Nut, Wing (M5)	1
74	19S21904012	Screw, Self- Tapping M4x12)	2
75	15321880130	Grommet, Panel Lead (#2)	1

Figure 8-3: Generator (Exploded View) - Model TPG4-4500HDX

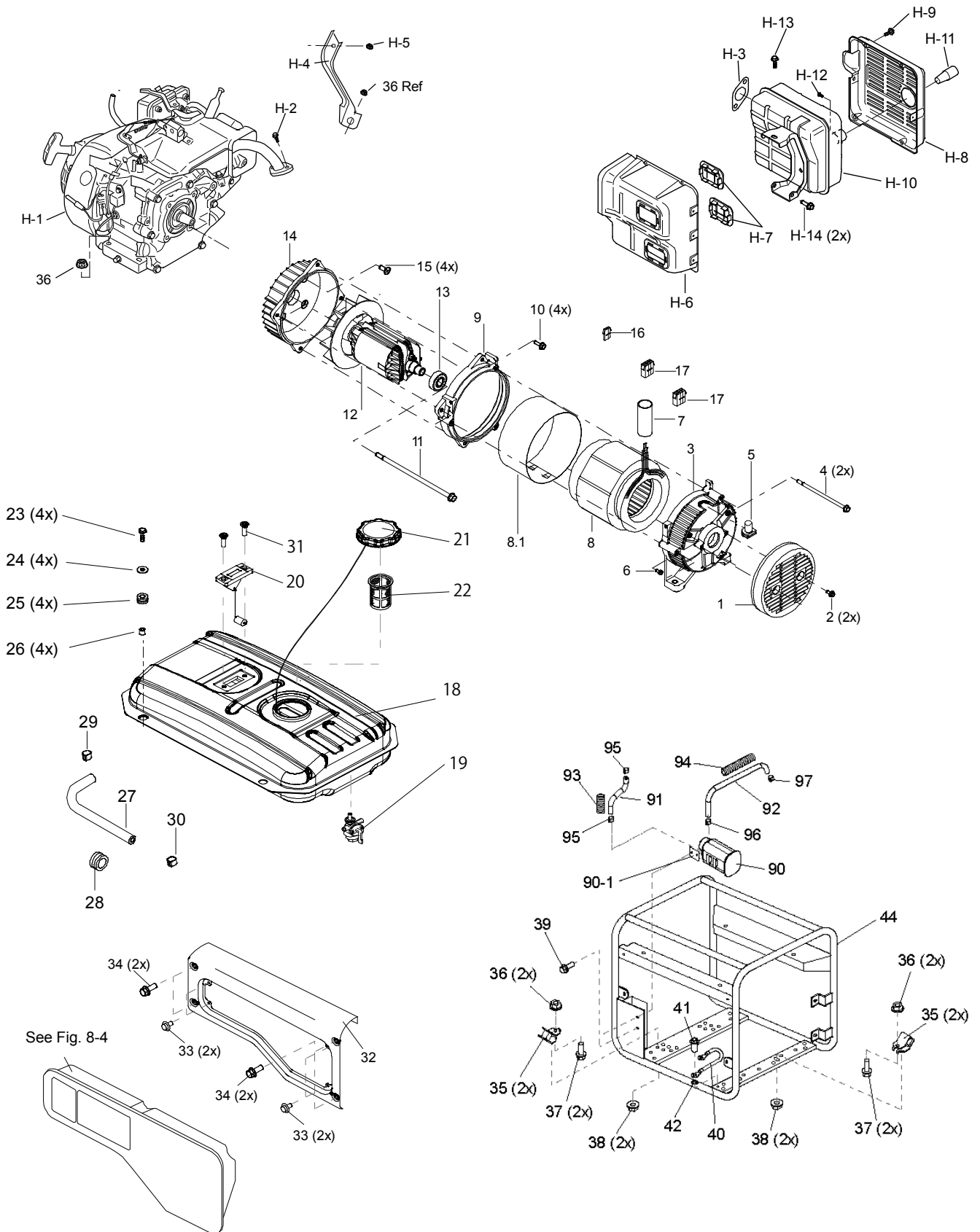


Figure 8-3 – Generator (Parts List)– Model TPG4-4500HDX

Ref. No.	Part Number	Description	Qty
1	15311471000	Cover, Bracket	1
2	15550210000	Bolt, Hex (with Flange) (M5 x 0.8-12)	2
3	15311461000	Bracket	1
4	15550152000	Bolt, Hex (with Flange) (M6 x 1.0-1500)	4
5	15350550000	Bushing, Rubber	1
6	19S00905007	Screw, Cross Head, Recessed (M5-7)	1
7	15350107000	Tube, Lead Wire	1
8	15250380000	Stator Assembly	1
8.1	No Number	Cover, Stator (provided with Stator Assembly)	1
9	15311462000	N-Bracket	1
10	19B30908020	Bolt, Hex (with Flange) (M8 x 1.0 – 20)	4
11	15550154000	Bolt, Hex (with Flange) (M10x1.25-235)	1
12	15200428000	Rotor Assembly	1
13	15311780100	Bearing, Ball	1
14	15311460000	Bracket	1
15	19B50908020	Bolt, Flat Head (with Socket) (M8x1.0-20)	4
16	15400160000	Connector (2 P)	1
17	15400156000	Connector (6 P)	2
18	15301982000	Tank, Fuel (Blue)	1
19	15150135001	Valve, Fuel Shutoff	1
20	15301674001	Gauge Assembly, Fuel	1
21	15302001000	Cap, Fuel Filler	1
22	15350343000	Filter, Fuel	1
23	19B30906025	Bolt, Hex (with Flange) (M6 x 1.0-25)	4
24	19W00906025	Washer, Tank, Cushion (M6 x 25, 1.0 Thick)	4
25	15321880100	Cushion, Tank Rubber	4
26	15321670270	Collar, Tank Cushion	4
27	15350694000	Tube, Fuel	1
28	90854-ZB2-0000	Rubber, Fuel Tube (Honda Part Number)	1
29	95002-02080	Clamp, Tube, B8 (Honda Part Number)	1
30	15301192000	Clamp, Tube	1
31	15550293001	Screw(M5 x 12)	2
32	15601798000	Case, Control (Blue)	1
33	15550438000	Screw, Cross Head, Recessed (M6-15)	4

Ref. No.	Part Number	Description	Qty
34	19SS6906016	Bolt (M6-16)	4
35	200900520	Rubber, Anti-Vibration	4
36	203200020	Nut, Hex (With Flange) (M10 x 1.25)	4
37	203000720	Bolt, Hex (M10 x 45)	4
38	203200010	Nut, Hex (With Flange) (M8 x 1.25)	4
39	19SS6906012	Bolt(M6 x 12)	2
40	15501130000	Wire, Bonding	1
41	19B30906012	Bolt, Hex (With Flange) (M6 x 12)	1
42	19W50906000	Lockwasher, Tooth	1
43	19N10906000	Nut, Hex (With Flange)	1
44	15302009000	Frame	1
90	15950138000	Carbon Canister	1
90-1	15950141000	Stay , Carbon Canister	1
91	15350676000	Tube , Canister	1
92	15350678000	Tube , Canister	1
93	15350702000	Tube , Corrugate	1
94	15350703000	Tube , Corrugate	1
95	15302060000	Clamp , Φ 10.0	2
96	15302061000	Clamp , Φ 12.0	1
97	15302063000	Clamp , Φ 15.0	1

Ref. No.	Part Number	Description	Qty
H-1	GX240UT2 EDT6	Engine (Honda)	1
H-2	-----	Bolt, Exhaust Flange	2
H-3	-----	Gasket, Exhaust Flange	1
H-4	-----	Bracket	1
H-5	-----	Screw, Bracket	1
H-6	-----	Shield, Inner	1
H-7	-----	Seal	1
H-8	-----	Shield (Outer)	1
H-9	-----	Bolt, Flanged (Muffler Shield)	13
H-10	-----	Muffler	1
H-11	-----	Spark Arrestor	1
H-12	-----	Screw, Spark Arrestor	1
H-13	-----	Bolt	1
H-14	-----	Bolt	1

NOTE: Items prefixed with letter H are Honda Engine parts. Refer to Honda Parts Catalog for part numbers.

Figure 8-4 - Control Box (Exploded View) - Model TPG4-4500HDX

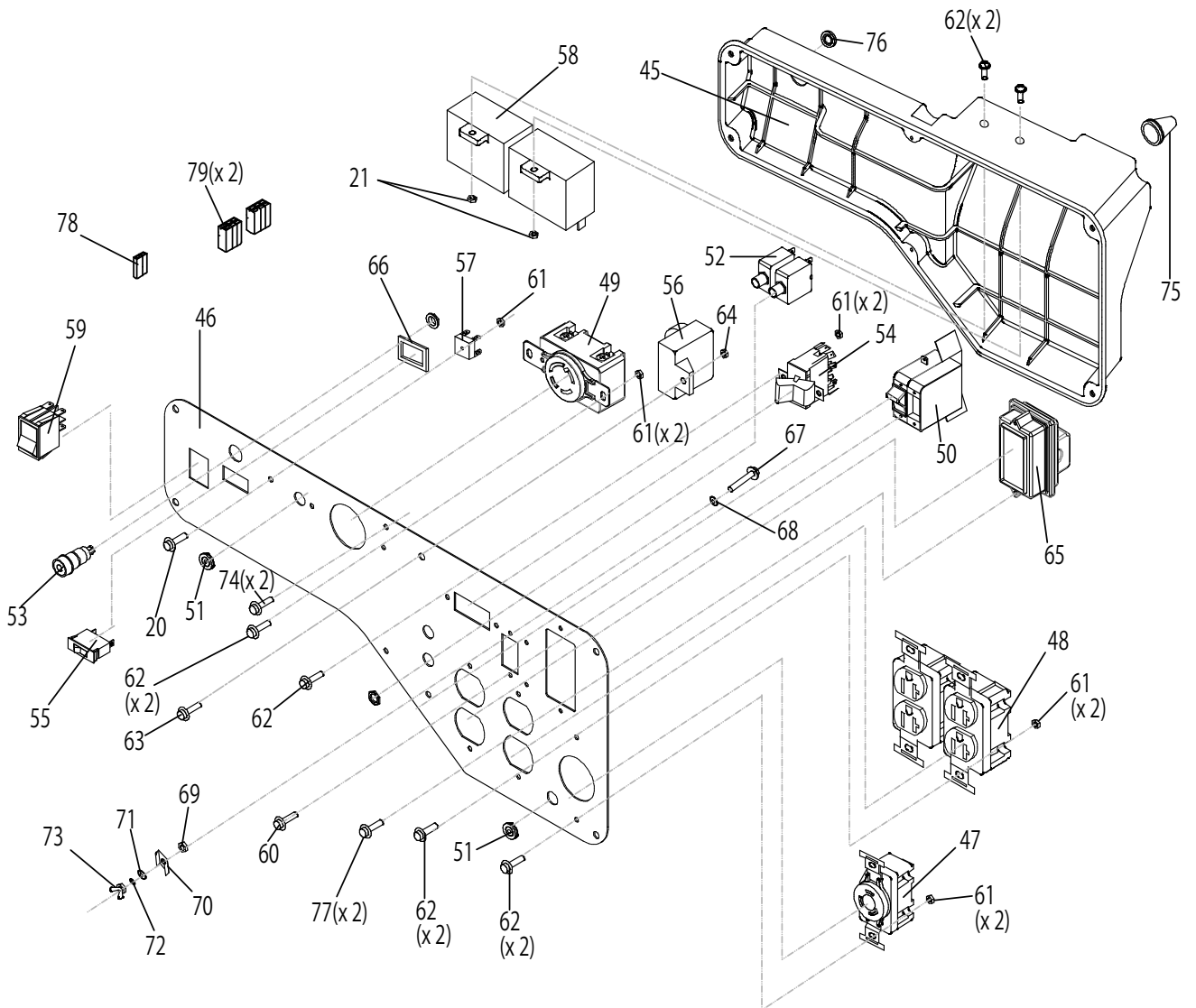


Figure 8-4 - Control Box (Parts List) - Model TPG4-4500HDX

Ref. No.	Part Number	Description	Qty	Ref. No.	Part Number	Description	Qty
45	15350680000	Box, Control	1	64	19N10906000	Nut, Hex (with Flange) (M6)	1
46	15601697000	Panel, Control	1	65	15400559000	UNIT , GFCI	1
47	15400105000	Receptacle (30A, 125V)	1	66	15301082001	Spacer, Switch	1
48	15400003000	Receptacle (20A, 125V)	2	67	15550330000	Screw, Cross Head, Recessed (M5 x 25)	1
49	15400106000	Receptacle (30A, 125V/250V)	1	68	15550331000	Washer, Tooth Lock (M5)	1
50	15400539000	Circuit Breaker (15A)	1	69	15550329000	Nut, Hex (with Flange)(M5)	1
51	15350337000	Grommet	2	70	15301979000	Washer, Cap (M5)	1
52	15400171000	Circuit Breaker (20A)	2	71	15550333000	Washer, Flat (M5)	1
53	85111573300	Bracket, Neon	1	72	15550334000	Washer, Lock (M5)	1
54	15400143000	Switch, Voltage Selector	1	73	15550335000	Nut, Wing (M5)	1
55	15400108000	Switch, Auto Throttle	1	74	19S21904012	Screw, Self- Tapping (M4x12)	2
56	19500700660	Control Unit, Auto Throttle	1	75	15321880130	Grommet, Panel Lead (#2)	1
57	15400240000	Diode, Bridge	1	76	15350472000	Grommet	2
58	15400177000	Condenser Assembly (18 μ F)	2	77	19SF4903012	Screw, Cross Head, Recessed (M3 x 12)	2
59	15400253000	Switch, Engine	1	78	15400161000	Connector 2P	1
60	19SS4903005	Screw, Cross Head, Recessed (M3x5)	4	79	15400157000	Connector 6P	2
61	19N10904000	Nut, Hex (with Flange) (M4)	13				
62	19SF49040014	Screw, Cross Head, Recessed (M4x14)	13				
63	19SF4906015	Screw, Cross Head Recessed (M6x15)	1				

Figure 8-5: Generator (Exploded View) - Model TPG4-6000HDX

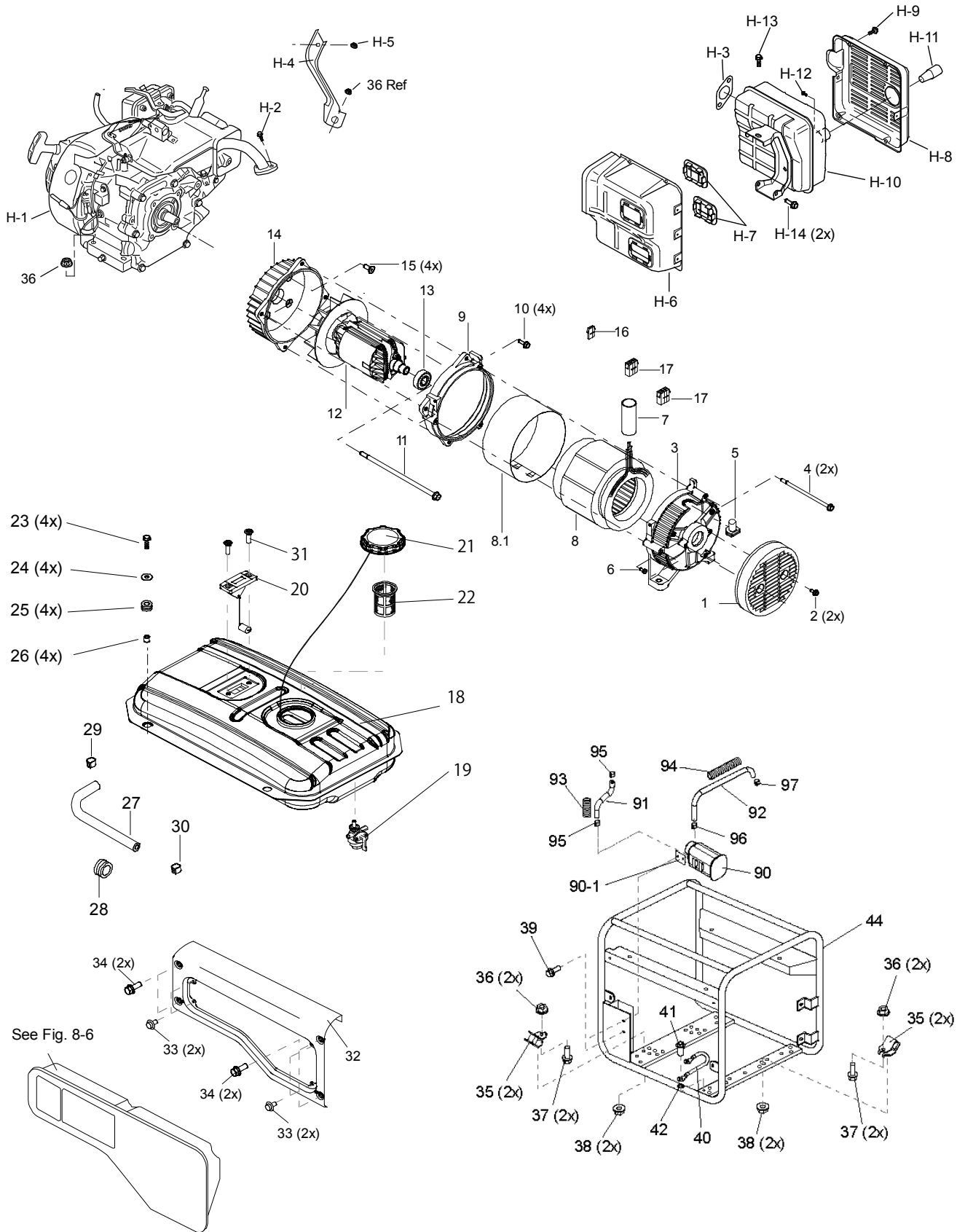


Figure 8-5 – Generator (Parts List)– Model TPG4-6000HDX

Ref. No.	Part Number	Description	Qty
1	15311471000	Cover, Bracket	1
2	15550210000	Bolt, Hex (with Flange) (M5 x 0.8-12)	2
3	15311461000	Bracket	1
4	15550152000	Bolt, Hex (with Flange) (M6 x 1.0-1500)	4
5	15350550000	Bushing, Rubber	1
6	19S00905007	Screw, Cross Head, Recessed (M5-7)	1
7	15350107000	Tube, Lead Wire	1
8	15250382000	Stator Assembly	1
8.1	No Number	Cover, Stator (provided with Stator Assembly)	1
9	15311462000	N-Bracket	1
10	19B30908020	Bolt, Hex (with Flange) (M8 x 1.0 – 20)	4
11	15550154000	Bolt, Hex (with Flange) (M10x1.25-235)	1
12	15200430000	Rotor Assembly	1
13	15311780100	Bearing, Ball	1
14	15311460000	Bracket	1
15	19B50908020	Bolt, Flat Head (with Socket) (M8x1.0-20)	4
16	15400160000	Connector (2 P)	1
17	15400156000	Connector (6 P)	2
18	15301982000	Tank, Fuel (Blue)	1
19	15150135001	Valve, Fuel Shutoff	1
20	15301674001	Gauge Assembly, Fuel	1
21	15302001000	Cap, Fuel Filler	1
22	15350343000	Filter, Fuel	1
23	19B30906025	Bolt, Hex (with Flange) (M6 x 1.0-25)	4
24	19W00906025	Washer, Tank, Cushion (M6 x 25, 1.0 Thick)	4
25	15321880100	Cushion, Tank Rubber	4
26	15321670270	Collar, Tank Cushion	4
27	15350694000	Tube, Fuel	1
28	90854-ZB2-0000	Rubber, Fuel Tube (Honda Part Number)	1
29	95002-02080	Clamp, Tube, B8 (Honda Part Number)	1
30	15301192000	Clamp, Tube	1
31	15550293001	Screw(M5 x 12)	2
32	15601798000	Case, Control (Blue)	1
33	15550438000	Screw, Cross Head, Recessed (M6-15)	4

Ref. No.	Part Number	Description	Qty
34	19SS6906016	Bolt (M6-16)	4
35	200900520	Rubber, Anti-Vibration	4
36	203200020	Nut, Hex (With Flange) (M10 x 1.25)	4
37	203000720	Bolt, Hex (M10 x 45)	4
38	203200010	Nut, Hex (With Flange) (M8 x 1.25)	4
39	19SS6906012	Bolt(M6 x 12)	2
40	15501130000	Wire, Bonding	1
41	19B30906012	Bolt, Hex (With Flange) (M6 x 12)	1
42	19W50906000	Lockwasher, Tooth	1
43	19N10906000	Nut, Hex (With Flange)	1
44	15302009000	Frame	1
90	15950138000	Carbon Canister	1
90-1	15950141000	Stay , Carbon Canister	1
91	15350676000	Tube , Canister	1
92	15350678000	Tube , Canister	1
93	15350702000	Tube , Corrugate	1
94	15350703000	Tube , Corrugate	1
95	15302060000	Clamp , Φ 10.0	2
96	15302061000	Clamp , Φ 12.0	1
97	15302063000	Clamp , Φ 15.0	1

Ref. No.	Part Number	Description	Qty
H-1	GX340RT2 EDT6	Engine (Honda)	1
H-2	-----	Bolt, Exhaust Flange	2
H-3	-----	Gasket, Exhaust Flange	1
H-4	-----	Bracket	1
H-5	-----	Screw, Bracket	1
H-6	-----	Shield, Inner	1
H-7	-----	Seal	1
H-8	-----	Shield (Outer)	1
H-9	-----	Bolt, Flanged (Muffler Shield)	13
H-10	-----	Muffler	1
H-11	-----	Spark Arrestor	1
H-12	-----	Screw, Spark Arrestor	1
H-13	-----	Bolt	1
H-14	-----	Bolt	1

NOTE: Items prefixed with letter H are Honda Engine parts. Refer to Honda Parts Catalog for part numbers.

Figure 8-6 - Control Box (Exploded View) – Model TPG4-6000HDX

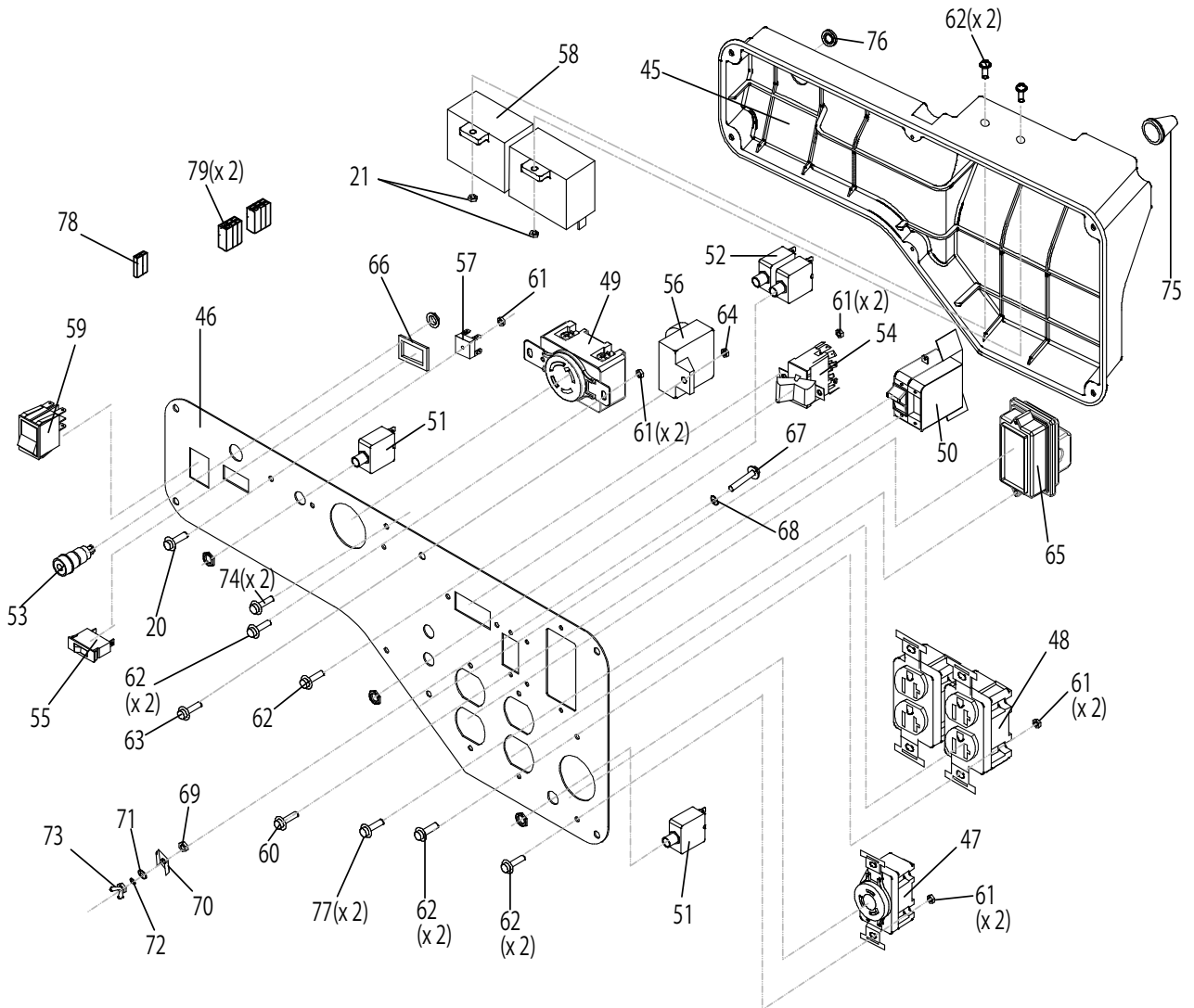


Figure 8-6- Control Box (Parts List) - Model TPG4-6000HDX

Ref. No.	Part Number	Description	Qty	Ref. No.	Part Number	Description	Qty
45	15350680000	Box, Control	1	63	19SF4906015	Screw, Cross Head Recessed (M6x15)	1
46	15601698000	Panel, Control	1	64	19N10906000	Nut, Hex (with Flange) (M6)	1
47	15400105000	Receptacle (30A, 125V)	1	65	15400559000	UNIT , GFCI	1
48	15400003000	Receptacle (20A, 125V)	2	66	15301082001	Spacer, Switch	1
49	15400106000	Receptacle (30A, 125V/250V)	1	67	15550330000	Screw, Cross Head, Recessed (M5 x 25)	1
50	15400540000	Circuit Breaker (20A)	1	68	15550331000	Washer, Tooth Lock (M5)	1
51	15400173000	Circuit Breaker (30A)	2	69	15550329000	Nut, Hex (with Flange)(M5)	1
52	15400171000	Circuit Breaker (20A)	2	70	15301979000	Washer, Cap (M5)	1
53	85111573300	Bracket, Neon	1	71	15550333000	Washer, Flat (M5)	1
54	15400143000	Switch, Voltage Selector	1	72	15550334000	Washer, Lock (M5)	1
55	15400108000	Switch, Auto Throttle	1	73	15550335000	Nut, Wing (M5)	1
56	19500700660	Control Unit, Auto Throttle	1	74	19S21904012	Screw, Self- Tapping (M4x12)	2
57	15400240000	Diode, Bridge	1	75	15321880130	Grommet, Panel Lead (#2)	1
58	15400177000	Condenser Assembly (18 μ F)	2	76	15350472000	Grommet	2
59	15400253000	Switch, Engine	1	77	19SF4903012	Screw, Cross Head, Recessed (M3 x 12)	2
60	19SS4903005	Screw, Cross Head, Recessed (M3x5)	4	78	15400161000	Connector 2P	1
61	19N10904000	Nut, Hex (with Flange) (M4)	13	79	15400157000	Connector 6P	2
62	19SF49040014	Screw, Cross Head, Recessed (M4x14)	13				

Figure 8-7: Generator (Exploded View) - Model TPG4-7000HDX

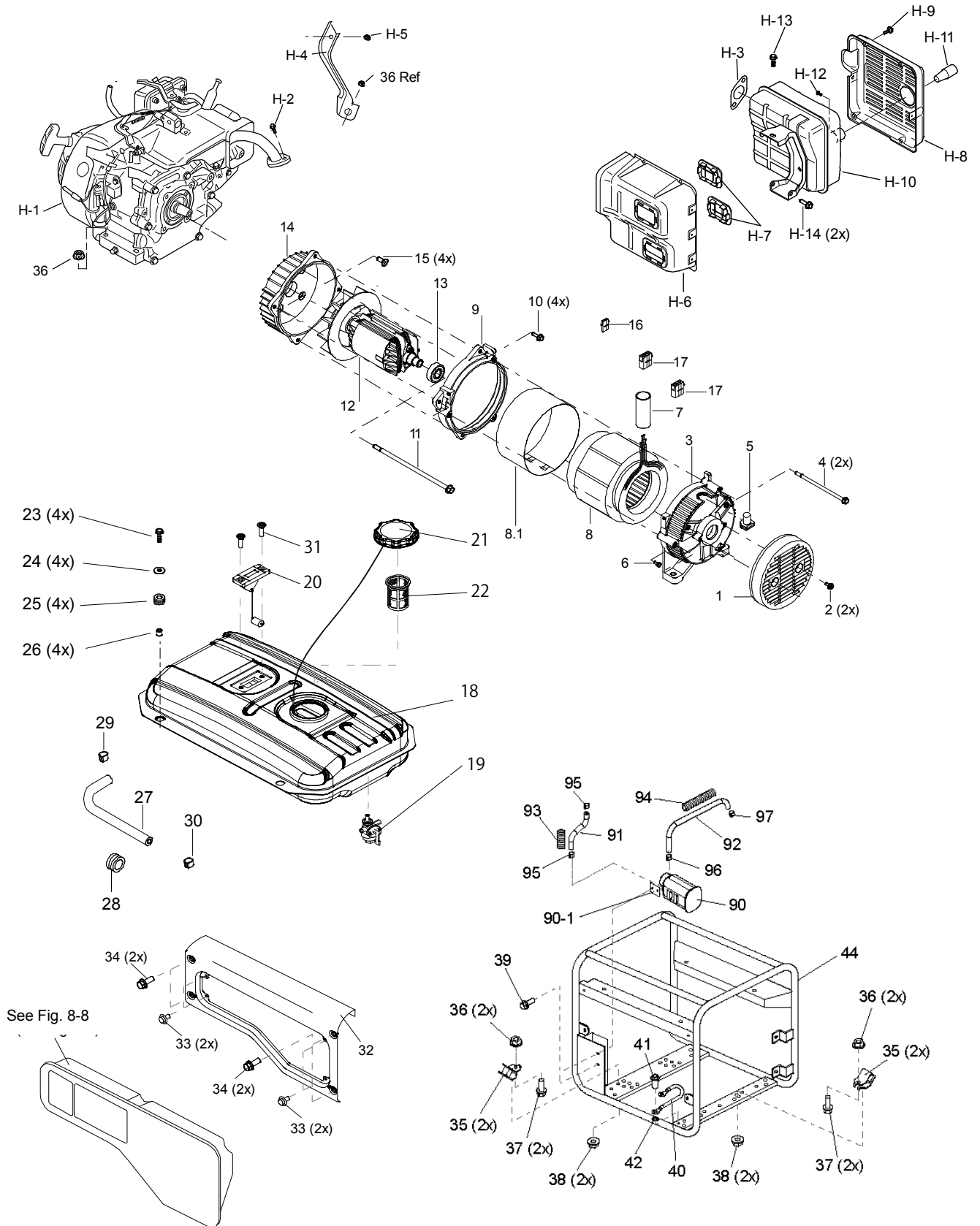


Figure 8-7 – Generator (Parts List) – Model TPG4-7000HDX

Ref. No.	Part Number	Description	Qty
1	15311471000	Cover, Bracket	1
2	15550210000	Bolt, Hex (with Flange) (M5 x 0.8-12)	2
3	15311461000	Bracket	1
4	15550152000	Bolt, Hex (with Flange) (M6 x 1.0-1500)	4
5	15350550000	Bushing, Rubber	1
6	19S00905007	Screw, Cross Head, Recessed (M5-7)	1
7	15350107000	Tube, Lead Wire	1
8	15250384000	Stator Assembly	1
8.1	No Number	Cover, Stator (provided with Stator Assembly)	1
9	15311462000	N-Bracket	1
10	19B30908020	Bolt, Hex (with Flange) (M8 x 1.0 – 20)	4
11	15550154000	Bolt, Hex (with Flange) (M10x1.25-235)	1
12	15200432000	Rotor Assembly	1
13	15311780100	Bearing, Ball	1
14	15311460000	Bracket	1
15	19B50908020	Bolt, Flat Head (with Socket) (M8x1.0-20)	4
16	15400160000	Connector (2 P)	1
17	15400156000	Connector (6 P)	2
18	15301982000	Tank, Fuel (Blue)	1
19	15150135001	Valve, Fuel Shutoff	1
20	15301674001	Gauge Assembly, Fuel	1
21	15302001000	Cap, Fuel Filler	1
22	15350343000	Filter, Fuel	1
23	19B30906025	Bolt, Hex (with Flange) (M6 x 1.0-25)	4
24	19W00906025	Washer, Tank, Cushion (M6 x 25, 1.0 Thick)	4
25	15321880100	Cushion, Tank Rubber	4
26	15321670270	Collar, Tank Cushion	4
27	15350694000	Tube, Fuel	1
28	90854-ZB2-0000	Rubber, Fuel Tube (Honda Part Number)	1
29	95002-02080	Clamp, Tube, B8 (Honda Part Number)	1
30	15301192000	Clamp, Tube	1
31	15550293001	Screw(M5 x 12)	2
32	15601798000	Case, Control (Blue)	1
33	15550438000	Screw, Cross Head, Recessed (M6-15)	4

Ref. No.	Part Number	Description	Qty
34	19SS6906016	Bolt (M6-16)	4
35	200900520	Rubber, Anti-Vibration	4
36	203200020	Nut, Hex (With Flange) (M10 x 1.25)	4
37	203000720	Bolt, Hex (M10 x 45)	4
38	203200010	Nut, Hex (With Flange) (M8 x 1.25)	4
39	19SS6906012	Bolt(M6 x 12)	2
40	15501130000	Wire, Bonding	1
41	19B30906012	Bolt, Hex (With Flange) (M6 x 12)	1
42	19W50906000	Lockwasher, Tooth	1
43	19N10906000	Nut, Hex (With Flange)	1
44	15302009000	Frame	1
90	15950138000	Carbon Canister	1
90-1	15950141000	Stay , Carbon Canister	1
91	15350676000	Tube , Canister	1
92	15350678000	Tube , Canister	1
93	15350702000	Tube , Corrugate	1
94	15350703000	Tube , Corrugate	1
95	15302060000	Clamp , Φ10.0	2
96	15302061000	Clamp , Φ12.0	1
97	15302063000	Clamp , Φ15.0	1

Ref. No.	Part Number	Description	Qty
H-1	GX390RT2 EDT6	Engine (Honda)	1
H-2	-----	Bolt, Exhaust Flange	2
H-3	-----	Gasket, Exhaust Flange	1
H-4	-----	Bracket	1
H-5	-----	Screw, Bracket	1
H-6	-----	Shield, Inner	1
H-7	-----	Seal	1
H-8	-----	Shield (Outer)	1
H-9	-----	Bolt, Flanged (Muffler Shield)	13
H-10	-----	Muffler	1
H-11	-----	Spark Arrestor	1
H-12	-----	Screw, Spark Arrestor	1
H-13	-----	Bolt	1
H-14	-----	Bolt	1

NOTE: Items prefixed with letter H are Honda Engine parts. Refer to Honda Parts Catalog for part numbers.

Figure 8-8 - Control Box (Exploded) – Model TPG4-7000HDX

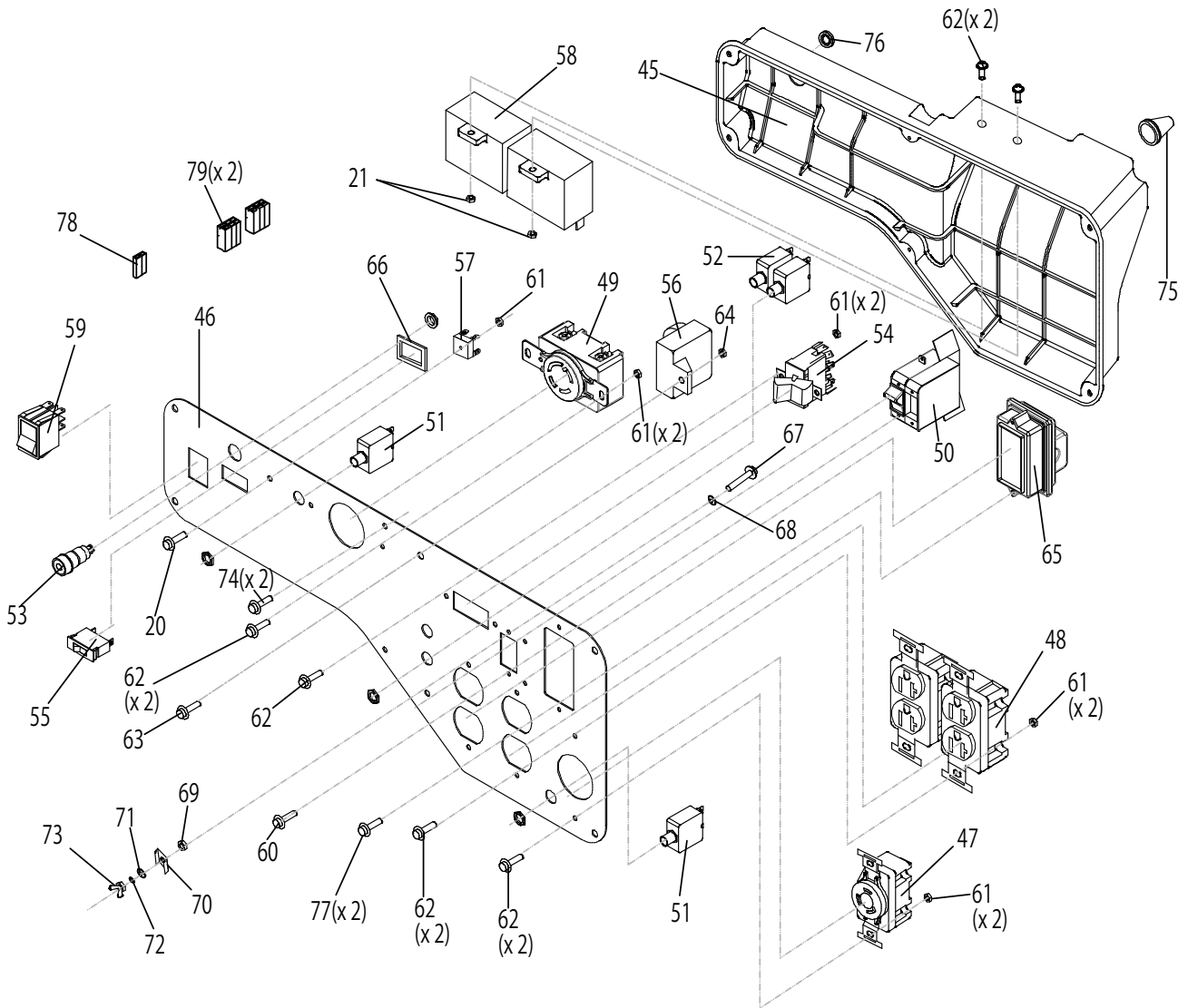


Figure 8-8- Control Box (Parts List) - Model TPG4-7000HDX

Ref. No.	Part Number	Description	Qty	Ref. No.	Part Number	Description	Qty
45	15350680000	Box, Control	1	63	19SF4906015	Screw, Cross Head Recessed (M6x15)	1
46	15601699000	Panel, Control	1	64	19N10906000	Nut, Hex (with Flange) (M6)	1
47	15400105000	Receptacle (30A, 125V)	1	65	15400559000	UNIT , GFCI	1
48	15400003000	Receptacle (20A, 125V)	2	66	15301082001	Spacer, Switch	1
49	15400106000	Receptacle (30A, 125V/250V))	1	67	15550330000	Screw, Cross Head, Recessed (M5 x 25)	1
50	15400541000	Circuit Breaker (25A)	1	68	15550331000	Washer, Tooth Lock (M5)	1
51	15400173000	Circuit Breaker (30A)	2	69	15550329000	Nut, Hex (with Flange)(M5)	1
52	15400171000	Circuit Breaker (20A)	2	70	15301979000	Washer, Cap (M5)	1
53	85111573300	Bracket, Neon	1	71	15550333000	Washer, Flat (M5)	1
54	15400143000	Switch, Voltage Selector	1	72	15550334000	Washer, Lock (M5)	1
55	15400108000	Switch, Auto Throttle	1	73	15550335000	Nut, Wing (M5)	1
56	19500700660	Control Unit, Auto Throttle	1	74	19S21904012	Screw, Self- Tapping (M4x12)	2
57	15400240000	Diode, Bridge	1	75	15321880130	Grommet, Panel Lead (#2)	1
58	15400177000	Condenser Assembly (18 μ F)	2	76	15350472000	Grommet	2
59	15400253000	Switch, Engine	1	77	19SF4903012	Screw, Cross Head, Recessed (M3 x 12)	2
60	19SS4903005	Screw, Cross Head, Recessed (M3x5)	4	78	15400161000	Connector 2P	1
61	19N10904000	Nut, Hex (with Flange) (M4)	13	79	15400157000	Connector 6P	2
62	19SF49040014	Screw, Cross Head, Recessed (M4x14)	13				

Figure 8-9: Generator (Exploded View) - Model TPG4-7000HDXE

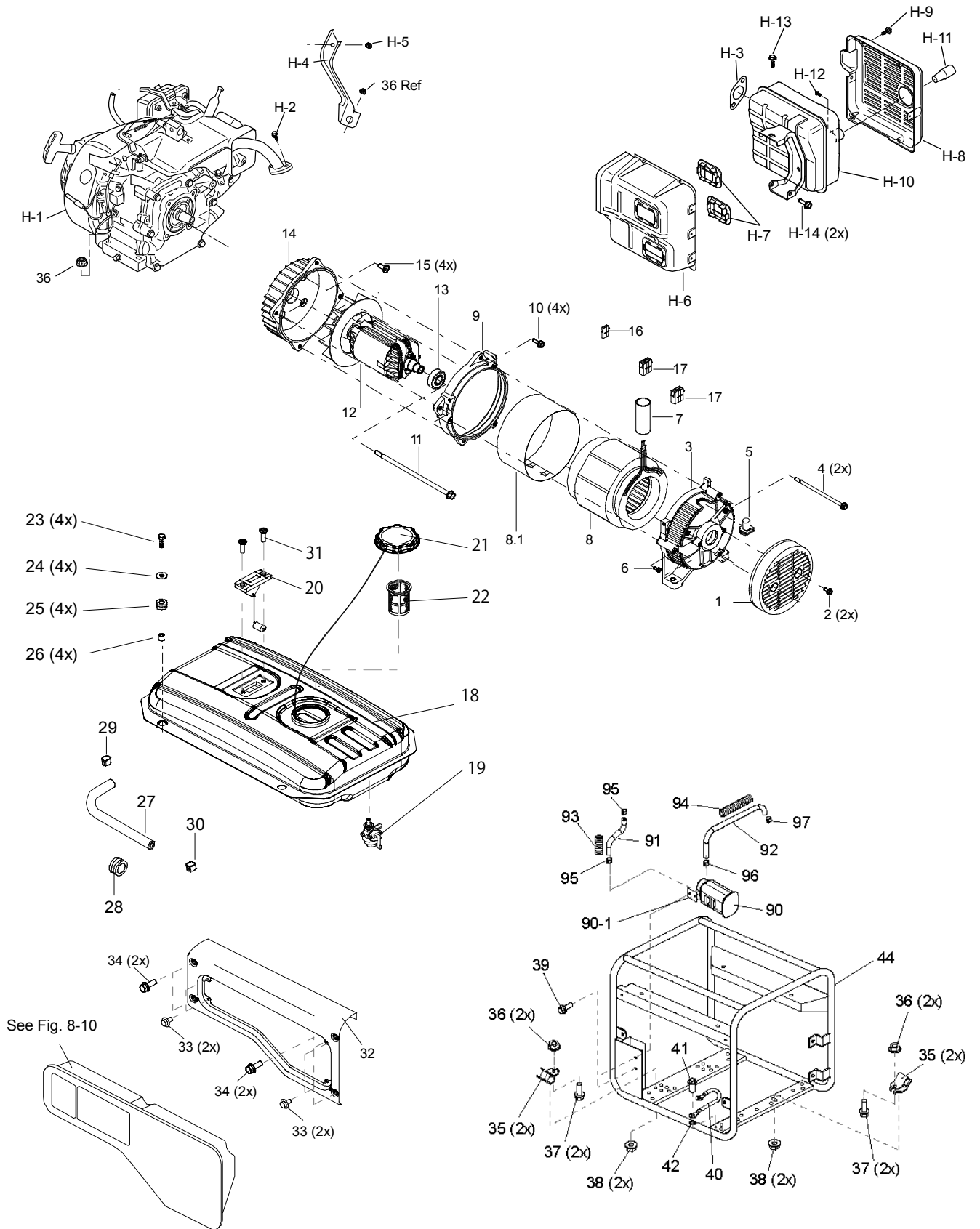


Figure 8-9 – Generator (Parts List) – Model TPG4-7000HDXE

Ref. No.	Part Number	Description	Qty
1	15311471000	Cover, Bracket	1
2	15550210000	Bolt, Hex (with Flange) (M5 x 0.8-12)	2
3	15311461000	Bracket	1
4	15550152000	Bolt, Hex (with Flange) (M6 x 1.0-1500)	4
5	15350550000	Bushing, Rubber	1
6	19S00905007	Screw, Cross Head, Recessed (M5-7)	1
7	15350107000	Tube, Lead Wire	1
8	15250384000	Stator Assembly	1
8.1	No Number	Cover, Stator (provided with Stator Assembly)	1
9	15311462000	N-Bracket	1
10	19B30908020	Bolt, Hex (with Flange) (M8 x 1.0 – 20)	4
11	15550154000	Bolt, Hex (with Flange) (M10x1.25-235)	1
12	15200432000	Rotor Assembly	1
13	15311780100	Bearing, Ball	1
14	15311460000	Bracket	1
15	19B50908020	Bolt, Flat Head (with Socket) (M8x1.0-20)	4
16	15400160000	Connector (2 P)	1
17	15400156000	Connector (6 P)	2
18	15301982000	Tank, Fuel (Blue)	1
19	15150135001	Valve, Fuel Shutoff	1
20	15301674001	Gauge Assembly, Fuel	1
21	15302001000	Cap, Fuel Filler	1
22	15350343000	Filter, Fuel	1
23	19B30906025	Bolt, Hex (with Flange) (M6 x 1.0-25)	4
24	19W00906025	Washer, Tank, Cushion (M6 x 25, 1.0 Thick)	4
25	15321880100	Cushion, Tank Rubber	4
26	15321670270	Collar, Tank Cushion	4
27	15350694000	Tube, Fuel	1
28	90854-ZB2-0000	Rubber, Fuel Tube (Honda Part Number)	1
29	95002-02080	Clamp, Tube, B8 (Honda Part Number)	1
30	15301192000	Clamp, Tube	1
31	15550293001	Screw(M5 x 12)	2
32	15601798000	Case, Control (Blue)	1
33	15550438000	Screw, Cross Head, Recessed (M6-15)	4

Ref. No.	Part Number	Description	Qty
34	19SS6906016	Bolt (M6-16)	4
35	200900520	Rubber, Anti-Vibration	4
36	203200020	Nut, Hex (With Flange) (M10 x 1.25)	4
37	203000720	Bolt, Hex (M10 x 45)	4
38	203200010	Nut, Hex (With Flange) (M8 x 1.25)	4
39	19SS6906012	Bolt(M6 x 12)	2
40	15501130000	Wire, Bonding	1
41	19B30906012	Bolt, Hex (With Flange) (M6 x 12)	1
42	19W50906000	Lockwasher, Tooth	1
43	19N10906000	Nut, Hex (With Flange)	1
44	15302009000	Frame	1
90	15950138000	Carbon Canister	1
90-1	15950141000	Stay , Carbon Canister	1
91	15350676000	Tube , Canister	1
92	15350678000	Tube , Canister	1
93	15350702000	Tube , Corrugate	1
94	15350703000	Tube , Corrugate	1
95	15302060000	Clamp , Φ10.0	2
96	15302061000	Clamp , Φ12.0	1
97	15302063000	Clamp , Φ15.0	1

Ref. No.	Part Number	Description	Qty
H-1	GX390RT2 EDS6	Engine (Honda)	1
H-2	-----	Bolt, Exhaust Flange	2
H-3	-----	Gasket, Exhaust Flange	1
H-4	-----	Bracket	1
H-5	-----	Screw, Bracket	1
H-6	-----	Shield, Inner	1
H-7	-----	Seal	1
H-8	-----	Shield (Outer)	1
H-9	-----	Bolt, Flanged (Muffler Shield)	13
H-10	-----	Muffler	1
H-11	-----	Spark Arrestor	1
H-12	-----	Screw, Spark Arrestor	1
H-13	-----	Bolt	1
H-14	-----	Bolt	1

NOTE: Items prefixed with letter H are Honda Engine parts. Refer to Honda Parts Catalog for part numbers.

Figure 8-10—Control Box (Exploded View)-Model TPG4-7000HDXE

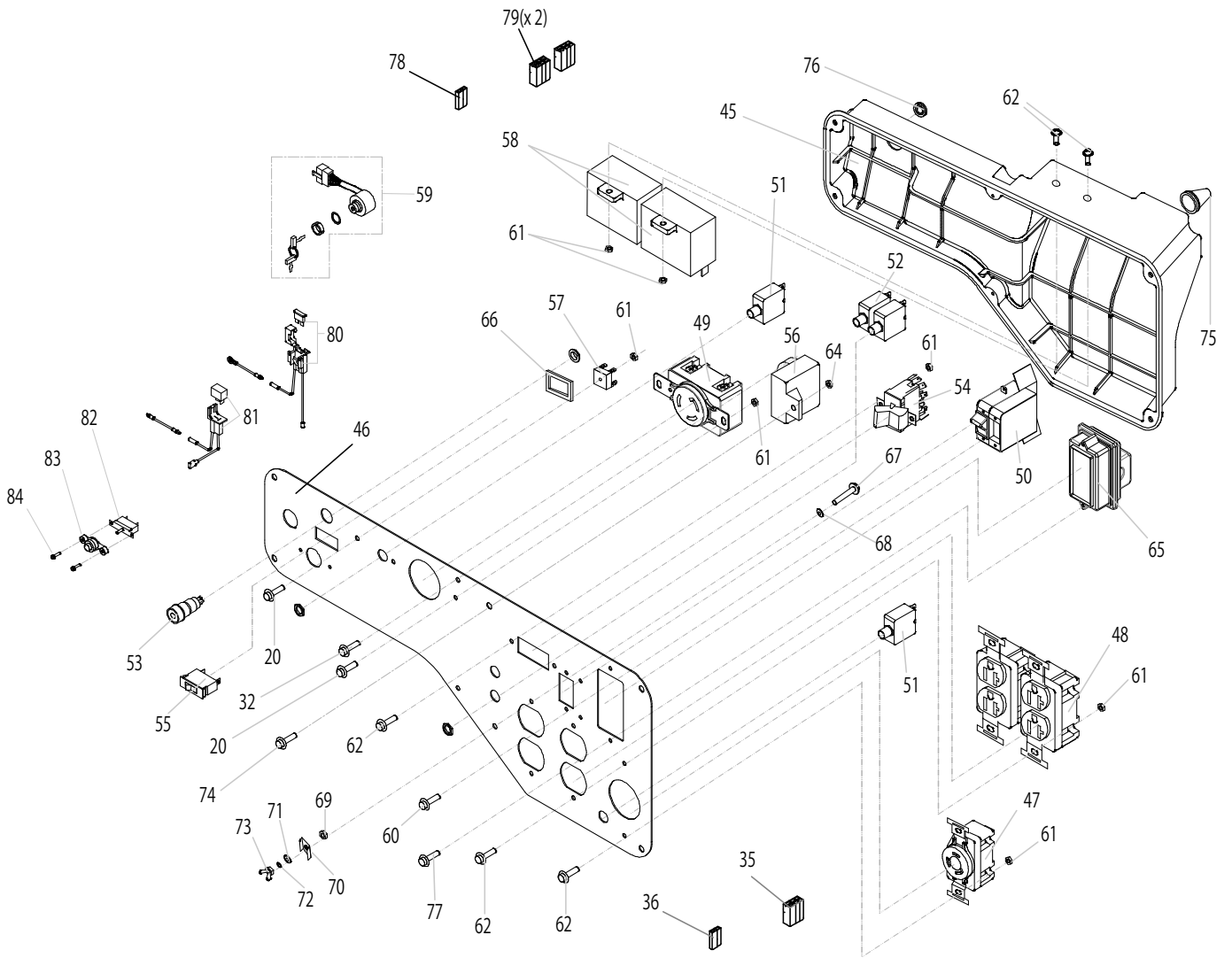
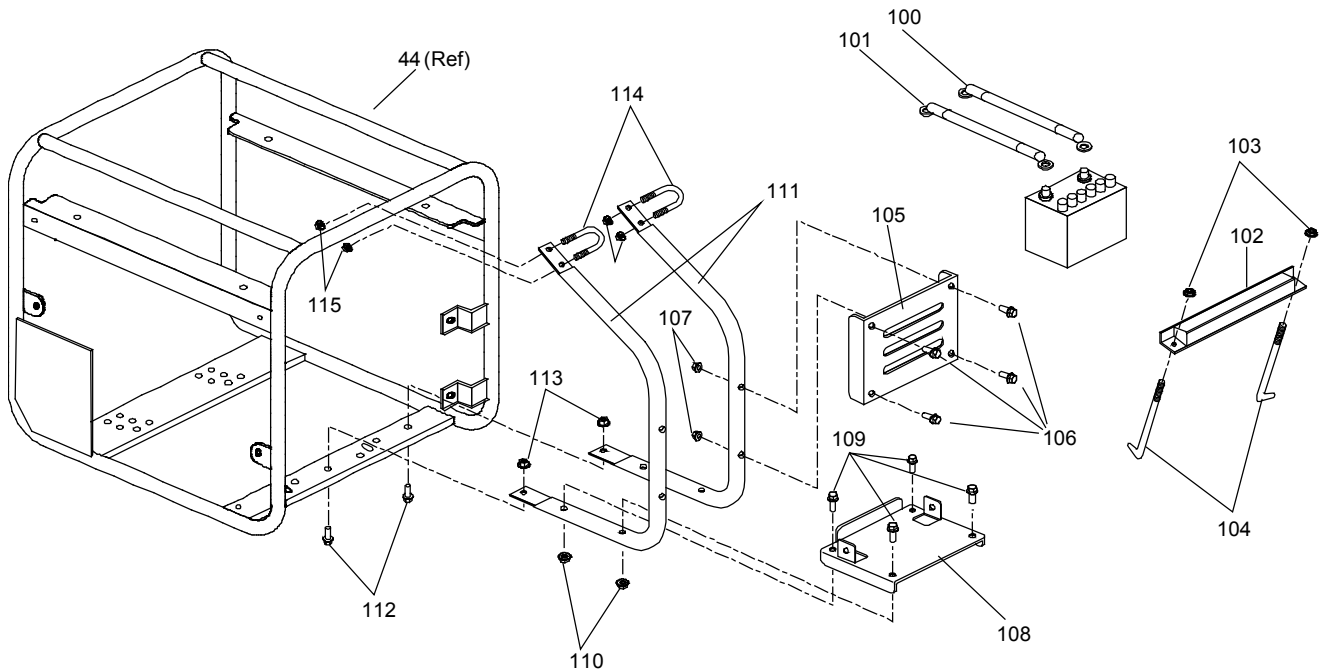


Figure 8-10- Control Box (Parts List) - Model TPG4-7000HDXE

Ref. No.	Part Number	Description	Qty	Ref. No.	Part Number	Description	Qty
45	15350680000	Box, Control	1	67	15550330000	Screw, Cross Head, Recessed (M5 x 25)	1
46	15601699000	Panel, Control	1	68	15550331000	Washer, Tooth Lock (M5)	1
47	15400105000	Receptacle (30A, 125V)	1	69	15550329000	Nut, Hex (with Flange)(M5)	1
48	15400003000	Receptacle (20A, 125V)	2	70	15301979000	Washer, Cap (M5)	1
49	15400106000	Receptacle (30A, 125V/250V))	1	71	15550333000	Washer, Flat (M5)	1
50	15400541000	Circuit Breaker (25A)	1	72	15550334000	Washer, Lock (M5)	1
51	15400173000	Circuit Breaker (30A)	2	73	15550335000	Nut, Wing (M5)	1
52	15400171000	Circuit Breaker (20A)	2	74	19S21904012	Screw, Self- Tapping (M4x12)	2
53	85111573300	Bracket, Neon	1	75	15321880130	Grommet, Panel Lead (#2)	1
54	15400143000	Switch, Voltage Selector	1	76	15350472000	Grommet	1
55	15400108000	Switch, Auto Throttle	1	77	19SF4903012	Screw, Cross Head, Recessed (M3 x 12)	2
56	19500700660	Control Unit, Auto Throttle	1	78	15400161000	Connector 2P	1
57	15400240000	Diode, Bridge	1	79	15400157000	Connector 6P	2
58	15400177000	Condenser Assembly (18 μ F)	2	80		Case , Comp , Fuse (Honda Part)	1
59		Switch, Assembly Combination (Honda Part)	1	81		Caupler Comp , Silicon Rectifire (Honda Part)	1
60	19SS4903005	Screw, Cross Head, Recessed (M3x5)	4	82		Protector , Circuit (1A 125V) (Honda Part)	1
61	19N10904000	Nut, Hex (with Flange) (M4)	13	83		Protector , Lens (Honda Part)	1
62	19SF49040014	Screw, Cross Head, Recessed (M4x14)	13	84	19S00903012	Screw , Closs Head ,Recessed (M3 x 12)	12
63	19SF4906015	Screw, Cross Head Recessed (M6x15)	1				
64	19N10906000	Nut, Hex (with Flange) (M6)	1				
65	15400559000	UNIT , GFCI	1				
66	15301082001	Spacer, Switch	1				

**Figure 8-11 - Battery Enclosure
(Exploded View/Parts List) Model TPG4-7000HDXE**



Ref. No.	Part Number	Description	Qty
100	15361575000	Cable, Ground	1
101	15361574000	Cable, Starter	1
102	15361370300	Plate, Setting	1
103	19N10906000	Nut, Hex (with Flange) (M6)	2
104	15361570310	Bolt, Setting	2
105	15301688000	Plate, Protection	1
106	19B30908035	Bolt, Hex (with Flange) (M8 x 35)	4
107	203200010	Nut, Hex (with Flange) (M8)	4
108	15301687000	Plate, Battery	1
109	19B30908035	Bolt, Hex (with Flange) (M8 x 35)	4
110	203200010	Nut, Hex (with Flange) (M8)	4
111	15302068000	Frame, Battery	2
112	19B30908016	Bolt, Hex (with Flange) (M8 x 16)	2
113	203200010	Nut, Hex (with Flange) (M8)	21
114	15550184000	U-Bolt	2
115	203200010	Nut, Hex (with Flange) (M8)	4

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