

MODELS

E 43

E 60

E 71

Hitachi

Power Tools

GENERATOR

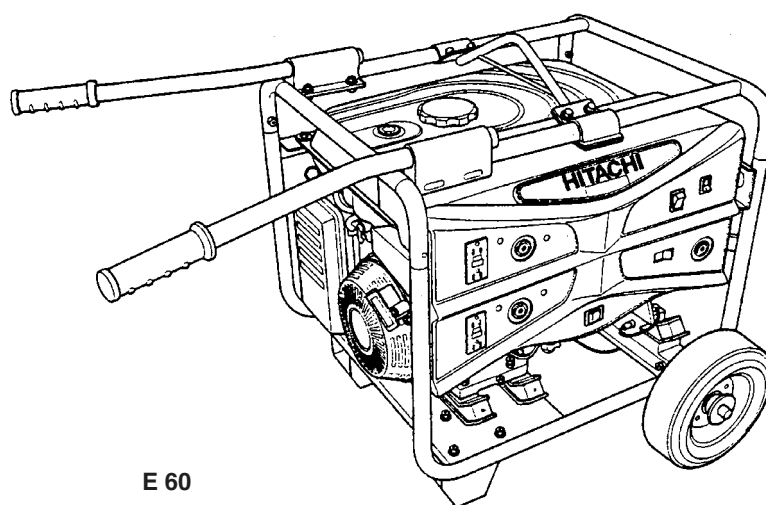
E 43

E 60

E 71

**TECHNICAL DATA
AND
SERVICE MANUAL**

E



E 60

LIST Nos. E 43: E027
E 60: E028
E 71: E029

August 2005



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1. PRODUCT NAME

Hitachi Generator, Models E 43, E 60 and E 71

2. MARKETING OBJECTIVE

A series of generators, Models E 43, E 60 and E 71 will be put on the North American market in order to introduce our new engine tools on overseas markets. The maximum output of these generators is shown in the following table.

Model	Max. output
E 43	4300 VA
E 60	6000 VA
E 71	7100 VA

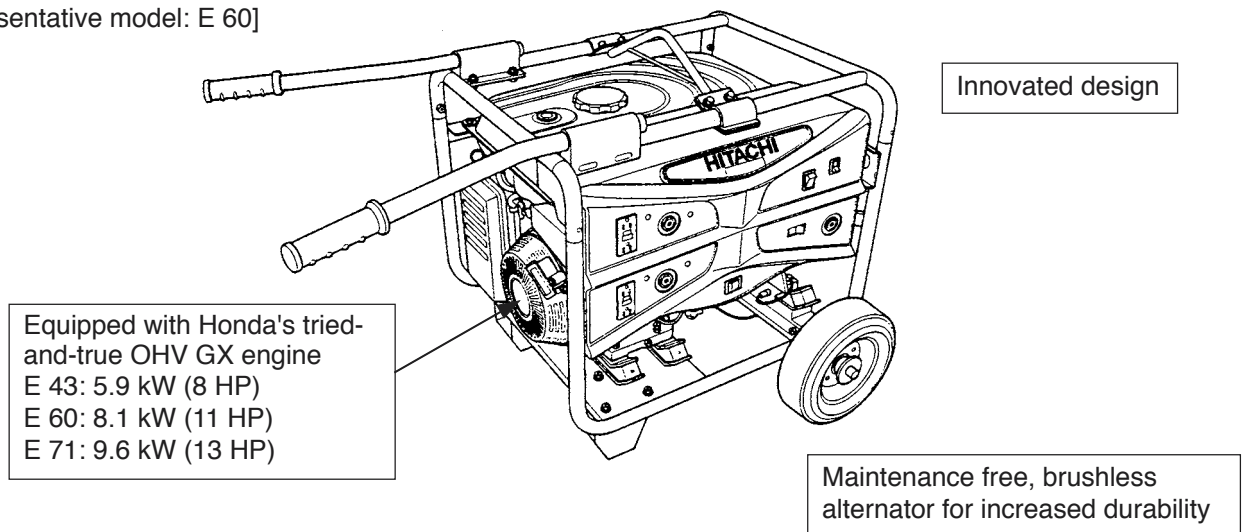
All of these Models E 43, E 60 and E 71 comply with EPA (U.S. Environmental Protection Agency) and CARB (the California Air Resources Board) emissions regulations. Please promote the sales of these Models E 43, E 60 and E 71.

3. APPLICATIONS

Power source of electric appliances and tools

4. SELLING POINTS

[Representative model: E 60]



4-1. Selling Points Descriptions

(1) Innovated design

Each of the Models E 43, E 60 and E 71 is of a powerful and innovated design.

(2) Equipped with Honda's tried-and-true OHV GX engine

Each of the Models E 43, E 60 and E 71 is equipped with Honda's tried-and-true OHV GX engine that is well reputed in the North American market.

Model E 43: The maximum output of the engine is 5.9 kW (8 HP)/3600 min⁻¹.

Model E 60: The maximum output of the engine is 8.1 kW (11 HP)/3600 min⁻¹.

Model E 71: The maximum output of the engine is 9.6 kW (13 HP)/3600 min⁻¹.

(3) Maintenance free, brushless alternator for increased durability

5. SPECIFICATIONS

Model		E43	E 60	E 71
Generator				
Rated AC voltage	V	120/240		
Rated AC current	Amp	31.7/15.9	41.7/20.8	50.0/25.0
Rated AC output	VA	3800	5000	6000
Max. output	VA	4300	6000	7100
Phase		Single		
Frequency	Hz	60		
Engine				
Model		GX240	GX340	GX390
Max. output	bhp (kW)/3600r/min.	8 (5.9)	11 (8.1)	13 (9.6)
Fuel tank capacity	Gallons (Liters)	5 (18.9)		
Recommended fuel		Unleaded gasoline(86 octane or higher)		
Oil capacity	Quarts (Liters)	1.16 (1.1)		
Recommended oil		SAE 10W-30 API SJ or SL		
Spark plug		BPR6ES (NGK) or W20EPR-U (DENSO)		
General				
Starting system		Recoil		
Oil alert system		Provided		
Auto idle system		Provided		
Dimensions [Including accessory]	in. (mm) L x W x H	42.3 x 29.4 x 29.0 (1075 x 746 x 737) 26.0 x 21.7 x 20.7 (660 x 550 x 525)		
Dry weight [Including accessory]	lb (kg)	157 (71) (198 (90))	181 (82) (223 (101))	201 (91) (243 (110))

6. CAPACITY OF GENERATOR

6-1. Selection of Proper Generator

Select the proper generator as follows according to the power consumption, output and the like of the AC electrical equipment to be used.

(1) When the power consumption of the electrical equipment is known

When the power consumption of the electrical equipment is known, calculate the necessary output of the generator (VA) according to the formula shown in the table below. When the sum of the calculated "necessary output of the generator (VA)" is equal to or less than the rated AC output of the generator, the generator can be used continuously.

Electrical equipment	Power factor	Necessary output of the generator (VA)
Bulbs, electric heaters, etc.	1.0	$\frac{\text{Power consumption of the electrical equipment (W)}}{\text{Power factor}}$
Electric power tools (Commutator motors)	0.8 to 0.95	
General-purpose motors (Induction motors)	0.4 to 0.75	

Because a general electrical equipment is not indicated with the power factor, "0.8" is used in the case of an electric power tool and "0.5" in the case of a general-purpose motor for the above rough calculation.

Generator	Rated AC output
E 43	3800 VA
E 60	5000 VA
E 71	6000 VA

Power consumption of an electric circular saw, planer, disk grinder or the like may be higher depending on the load. In order to deliver the full performance, it is necessary to estimate 1.5 to 2 times greater power consumption.

(2) When the motor output of the electrical equipment is known

Some electrical equipment is not indicated with the current and the power consumption but the motor output. In such cases, the generator can be used when the sum of the "necessary output of the generator (VA)" obtained from the following formula is less than the rated AC output of the generator (VA).

$$\text{Necessary output of the generator (VA)} = \frac{\text{Motor output of the electrical equipment (W)}}{\text{Efficiency} \times \text{Power factor}}$$

Generally, the following values are used though efficiency varies depending on the types of motors.

Electrical equipment	Power factor
Electric power tools (Commutator motors)	0.6
General-purpose motors (Induction motors)	0.9

6-2. Starting Current

The current required from starting the above electrical equipment to operating in steady state is larger than the current or the power required during "operation" of the electrical equipment. This is called "starting current".

There is no problem if no load is applied to an electric power tool equipped with a commutator motor from the start. However, there may be a case that an electric power tool equipped with an induction motor (especially the starting current of a split-phase induction motor is about three times larger than the current during operation) cannot be started.

7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Models E 43, E 60 and E 71 Generators by all of our customers, it is very important that at the time of sale the salesperson carefully ensures that the buyer seriously recognizes the importance of the contents of the Handling Instructions, and fully understands the meaning of the precautions listed on the Caution Plates attached to each unit.

7-1. Handling Instructions

Although every effort is made in each step of design, manufacture and inspection to provide protection against safety hazards, the dangers inherent in the use of any generator cannot be completely eliminated. Accordingly, specific precautions and suggestions for the use of the generator are listed in the Handling Instructions to enhance the safe and efficient use of the tool by the customer. Salesperson must be thoroughly familiar with the contents of the Handling Instructions to be able to offer appropriate guidance to the customer during sales promotion.

7-2. Thorough Instruction to the Customers

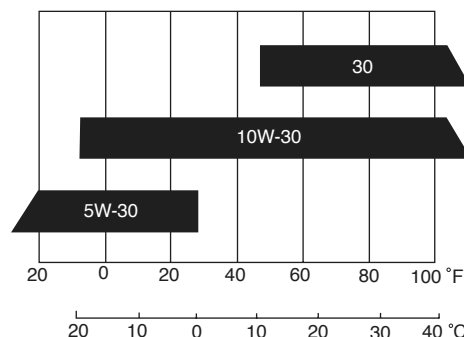
(1) HITACHI electronic controlled products should not be used with portable generators.

Irregular generator power could cause these products to fail. Regarding other manufacturer's products, please contact the manufacturer to see if it is safe to use the electronic controlled products with portable generators.

(2) There is no oil in the engine crankcase when the generator is shipped. You must add oil before starting the engine. Check the oil level before each use with the generator on a level surface and the engine stopped.

Engine oil is a major factor affecting engine performance and service life. Non-detergent and 2-stroke oils will damage the engine and are not recommended. Use 4-stroke motor oil that meets or exceeds the requirements for API service classification SJ or SL.

Always check the API SERVICE label on the oil container to be sure it includes the letters SJ or SL. SAE 10W-30 is recommended for general, all-temperature use. Other viscosities shown in the right graph may be used when the average temperature in your area is within the indicated range.



(3) Each generator has AC receptacles as shown in the table below.

Output plug	Voltage	Current	E 43	E 60	E 71
GFCI (Ground-fault circuit interrupter) Duplex receptacles	120 V	20 A	2	2	2
Twist-locking receptacles	120 V	30 A	1	2	2
	120/240 V	20 A	1	None	None
	120/240 V	30 A	None	1	1

Note that each of the above current values means the maximum current for one receptacle.

- (4) When using an extension cord between the generator and an electrical equipment, it is necessary to observe the specifications about the cord thickness (nominal cross sectional area of the core) and the length indicated on the electrical equipment. If a long and thin extension cord is used, the voltage will be reduced remarkably and the electrical equipment will be overheated or put out of action. To minimize voltage reduction, it is necessary to use a short extension cord whose core is as thick as possible.
- (5) Before operation, perform inspection according to the Handling Instructions.

8. MAINTENANCE

Periodical maintenance is required for efficient use of the Models E 43, E 60 and E 71 by the customers. Advise the customers to thoroughly read and understand the maintenance instructions specified in the Handling Instructions ("MAINTENANCE").

9. TROUBLESHOOTING GUIDE

9-1. Diagnosis and Corrective Action

- Reinstall each part after the proper corrective action.
- Stop the engine first then replace or check the parts.
- Contact Honda Service Center for any trouble or repair of the engine.

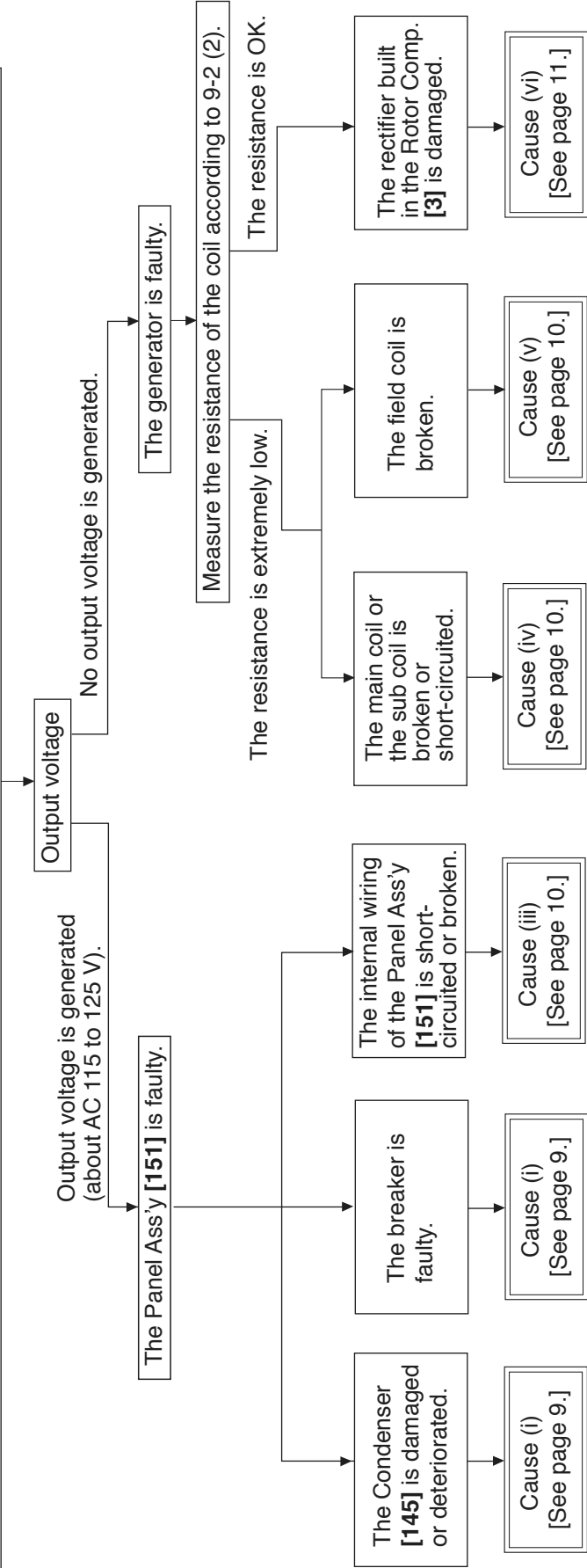
Trouble	Cause	Corrective action	Procedure
The engine does not start.	There is no fuel.	Replenish with fuel.	—
	Air is mixed in fuel.	Deaerate fuel.	① Open the fuel cock. ② Remove the drain bolt from the carburetor and drain fuel into a container for deaeration.
	The strainer is clogged.	Disassemble the strainer and clean the components.	① Open the cup at the bottom of the strainer. ② Clean the filter.
	The air cleaner is clogged.	Clean the air cleaner element.	① Remove the air cleaner cover. ② Clean the element with oil or the like and dry it. ③ Soak the element in the engine oil and wring oil well from the element.
	The engine oil is highly viscous.	Check and change the engine oil.	① Remove the drain bolt. ② Drain the engine oil. ③ Pour proper-viscosity engine oil.
	The ignition plug is loose.	Tighten the ignition plug.	① Remove the plug cap. ② Tighten the ignition plug with the exclusive plug wrench.
	The electrodes of the ignition plug are faulty.	Clean the ignition plug. Adjust the clearance between the electrodes and replace the ignition plug if abnormal. □	① Remove the ignition plug. ② Clean the electrodes with a wire brush or the like. ③ Check that the clearance between the electrodes is within the range from 0.028 to 0.031 inch (from 0.7 to 0.8 mm). Replace the ignition plug if there is any abnormality.
	The carburetor is clogged.	Contact Honda Service Center.	—
	The throttle valve is closed due to improper adjustment of the governor.	Contact Honda Service Center.	—
	The oil level sensor is operated.	A) Replenish with the engine oil if short.	① Remove the oil cap. ② Add a proper amount of engine oil.
		B) Check and replace the oil level sensor. ... Contact Honda Service Center.	—
	The oil level sensor is operated.	A) Replenish with the engine oil if short.	① Remove the oil cap. ② Add a proper amount of engine oil.

Trouble	Cause	Corrective action	Procedure
The engine starts but stops soon.	The oil level sensor is operated.	B) Check and replace the oil level sensor. ... Contact Honda Service Center.	—
The number of revolutions does not increase. Rated number of revolutions of the engine (no-load): 3,400 to 3,800 r/min (reference)	Air is mixed in fuel.	Deaerate fuel.	① Open the fuel cock. ② Remove the drain bolt from the carburetor and drain fuel into a container for deaeration.
	The strainer is clogged.	Disassemble the strainer and clean the components.	① Open the cup at the bottom of the strainer. ② Clean the filter.
	The air cleaner is clogged.	Clean the air cleaner element.	① Remove the air cleaner cover. ② Clean the element with oil or the like and dry it. ③ Soak the element in the engine oil and wring oil well from the element.
	The governor is adjusted improperly.	Contact Honda Service Center.	—
	The carburetor is faulty.	Contact Honda Service Center.	—
The number of revolutions is abnormal. (increase/decrease/large variation) Rated number of revolutions of the engine (no-load): 3,400 to 3,800 r/min (reference)	Too much load is applied.	Check the connected electrical equipment.	—
	The governor is adjusted improperly.	Contact Honda Service Center.	—
	The carburetor is faulty.	Contact Honda Service Center.	—
	The ignition plug is stained or the clearance is improper.	Clean the ignition plug. Check the clearance and replace the ignition plug if abnormal.	① Remove the ignition plug. ② Clean the electrodes with a wire brush or the like or replace the ignition plug. ③ Check that the clearance between the electrodes is within the range from 0.028 to 0.031 inch (from 0.7 to 0.8 mm). Replace the ignition plug if there is any abnormality.
	Load varies greatly.	Check the operating conditions of the connected electrical equipment.	—
No voltage is generated from the power receptacle.	The Breaker [124] is turned off.	Check the Breaker [124].	① Disconnect the plug. ② Turn on the Breaker [124].
	The Thermal Protectors [117] [119] are turned off.	Check the Thermal Protectors [117] [119].	① Disconnect the plug. ② Leave the Thermal Protectors [117] [119] for a while to cool them. ③ Press the button.

Trouble	Cause	Corrective action	Procedure
No voltage is generated from the power receptacle.	The Power Receptacle [115] is operated.	Check the GFCI.	<ol style="list-style-type: none"> ① Disconnect the plug. ② Press the reset button of the Power Receptacle (GFCI) [115]. ③ Check if there is any abnormality (leakage) in the connected electrical equipment. If there is abnormality, do not use the electrical equipment.
	The voltage 240 V is not outputted.	Turn the Select Switch [125] to "240 V".	<ol style="list-style-type: none"> ① Disconnect all the plugs from the Power Receptacles [115] [118] [127]. ② Turn off the Breaker [124]. ③ Turn the Select Switch [125] to "240 V".

If the trouble is caused by any cause other than the above, diagnose and take the necessary measures according to the following flow chart.

- ① Remove the Tapping Screw D5 x 10 [6] and the End Cover [7].
- ② Remove the two couplers of the Wire Harness [162] (white/blue and yellow/brown) that connects the Stator [12] with the Panel Ass'y [151].
Do not remove the coupler of the Wire Harness [162] (black/black).
- ③ Start the engine and check if output voltage is generated from the two couplers of the Wire Harness [162] (white/blue and yellow/brown) at the Stator [12] side or not with a tester.



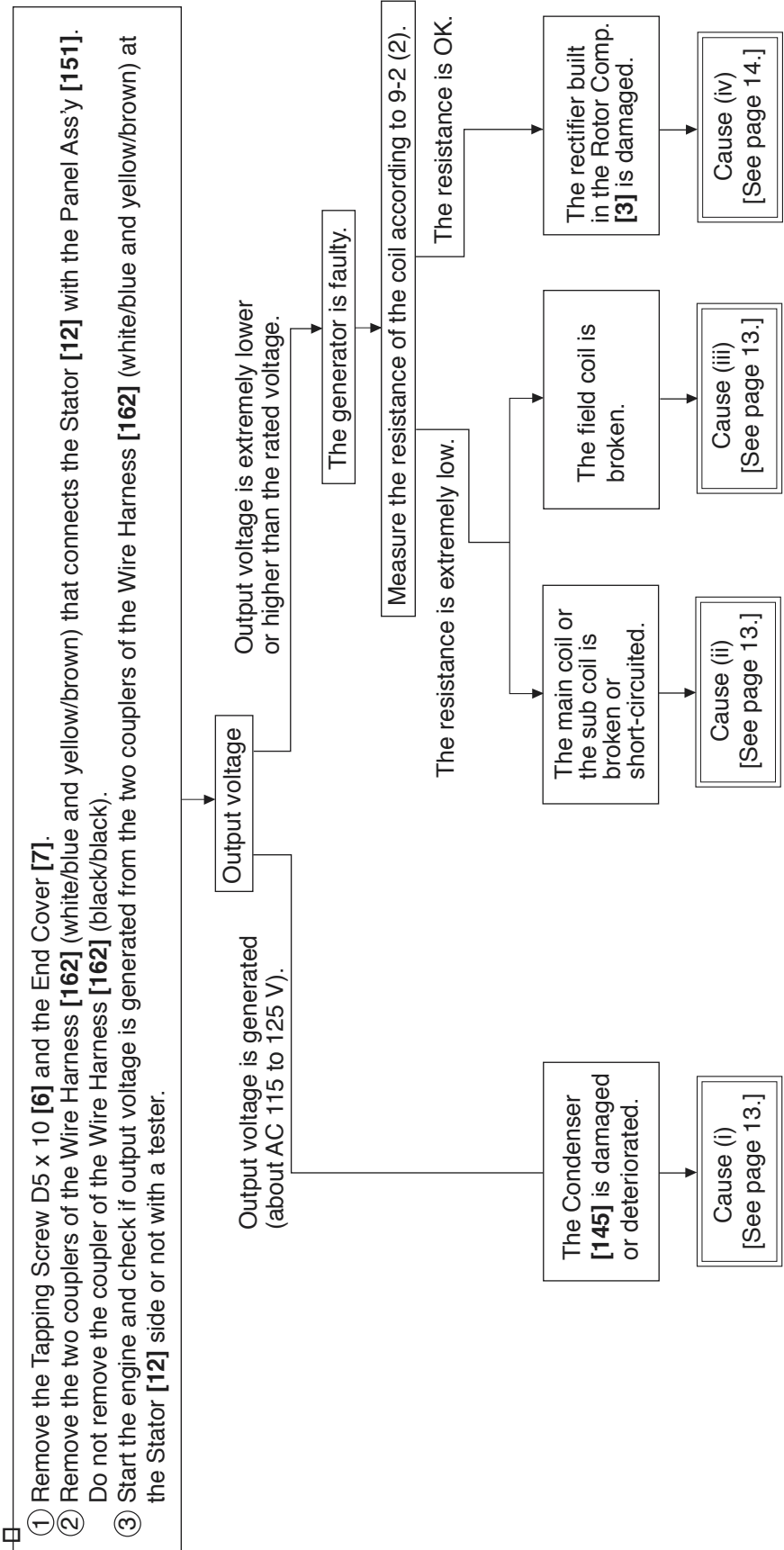
Cause	Corrective action	Procedure
(i) The Condenser [145] is damaged or deteriorated.	Replace the Condenser [145].	<ol style="list-style-type: none"> ① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Assy [151] and remove the Screw (W/Washer) M5 x 12 [13]. ② Remove the Hex. Bolt M6 x 24 [77] from the side of the Panel Assy [151]. ③ Pull the Panel Assy [151] and remove the couplers of the Wire Harness [94] and the Wire Harness [161] from the Engine [71] behind the Box Assy [141]. ④ Push the Wire Harness [162] in the Box Assy [141]. ⑤ Remove the Hex. Bolt M6 x 12 [147] and open the Box Assy [141] a little. ⑥ Push the claw of the coupler (above step ③) fitted in the Box Assy [141] to remove it from the Box Assy [141]. ⑦ Open the Box Assy [141] and remove the Condenser [145] from the Wire Harness [162]. ⑧ Replace the Condenser [145] fitted in the Box Assy [141].
(ii) The Breaker [124] is faulty (Breaker [124] and Thermal Protectors [117] [119]).	Replace the Breaker [124] and the Thermal Protectors [117] [119].	<ol style="list-style-type: none"> ① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Assy [151] and remove the Screw (W/Washer) M5 x 12 [13]. ② Remove the Hex. Bolt M6 x 24 [77] from the side of the Panel Assy [151]. ③ Pull the Panel Assy [151] and remove the couplers of the Wire Harness [94] and the Wire Harness [161] from the Engine [71] behind the Box Assy [141]. ④ Push the Wire Harness [162] in the Box Assy [141]. ⑤ Remove the Hex. Bolt M6 x 12 [147] and open the Box Assy [141] a little. ⑥ Push the claws of the couplers (above step ③) fitted in the Box Assy [141] to remove the couplers from the Box Assy [141]. ⑦ Remove the Grommet [144] and put the couplers (above step ⑥) in the Box Assy [141]. ⑧ Open the Box Assy [141] and remove the Condenser [145] from the Wire Harness [162]. ⑨ Pull out the Wire Harness [162] from the Box Assy [141] and remove the Box Assy [141]. <p>Removal of the Breaker [124]</p> <ol style="list-style-type: none"> ⑩ Remove the Hex. Nut [116] from the Breaker [124]. ⑪ Disconnect the terminal and replace the Breaker [124]. <p>Removal of the Thermal Protector [117] for GFCI</p> <ol style="list-style-type: none"> ① Disconnect the faston terminal. ② Release the claw locked in the Panel (1) [114] surface and replace the Thermal Protector [117]. <p>Removal of the Thermal Protector [119] for twist-lock receptacles</p> <ol style="list-style-type: none"> ① Disconnect the round terminal (screw). ② Release the claw locked in the Panel (1) [114] surface and replace the Thermal Protector [119].

Cause	Corrective action	Procedure
(iii) The internal wiring of the Panel Ass'y [151] is short-circuited or broken. □	Repair or replace the Panel Comp. [111], Cord Comp. <Model E 43: [163] to [171]> <Models E 60 and E 71: [163] to [172]>, and Wire Harness [162].	<p>Perform the above steps from ① to ⑩.</p> <p>⑪ Disconnect the terminals related to the faulty Cord Comp. <Model E 43: [163] to [171]> <Models E 60 and E 71: [163] to [172]> and Wire Harness [162].</p> <p>⑫ Replace the Cord Comp. <Model E 43: [163] to [171]> <Models E 60 and E 71: [163] to [172]> and Wire Harness [162].</p>
(iv) The main coil or the sub coil is broken or short-circuited.	Replace the Stator [12].	<p>① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Ass'y [151] and remove the Screw (W/Washer) M5 x 12 [13].</p> <p>② Remove the Hex. Bolt M8 x 14 [9].</p> <p>③ Remove the Through Bolt M6 x 120 [10] (Model E 43), M6 x 155 [10] (Model E 60) or M6 x 155 [10] (Model E 71).</p> <p>④ Remove the Hex. Bolt M10 x 30 [75].</p> <p>⑤ Remove the Rear Cover [11].</p> <p>⑥ Replace the Stator [12].</p>
(v) The field coil is broken.	Replace the Rotor Comp. [3].	<p>① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Ass'y [151] and remove the Screw (W/Washer) M5 x 12 [13].</p> <p>② Remove the Hex. Bolt M8 x 14 [9].</p> <p>③ Remove the Through Bolt M6 x 120 [10] (Model E 43), M6 x 155 [10] (Model E 60) or M6 x 155 [10] (Model E 71).</p> <p>④ Remove the Hex. Bolt M10 x 30 [75].</p> <p>⑤ Remove the Rear Cover [11].</p> <p>⑥ Replace the Stator [12].</p> <p>⑦ Remove the Bolt M10 x 215 [2] (Model E 43), M10 x 215 [2] (Model E 60) or M10 x 260 [2] (Model E 71) without removing the Rotor Comp. [3] from the Engine [71].</p> <p>⑧ Tighten the rotor puller bolt (jig) as a substitute for the Bolt M10 [2].</p> <p>⑨ When the rotor puller bolt (jig) is tightened, the tip of the jig contacts the crankshaft of the Engine [71] and a force is exerted to push out the Rotor Comp. [3] from the Engine [71].</p> <p>⑩ Replace the Rotor Comp. [3]. □</p> <p>CAUTION: Do not drop or scratch the Rotor Comp. [3]. Otherwise, the Rotor Comp. [3] may pop out when it is released from the crankshaft of the Engine [71].</p>

Cause	Corrective action	Procedure
(vi) The rectifier built in the Rotor Comp. [3] is damaged.	Replace the Rotor Comp. [3].	<ol style="list-style-type: none"> ① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Assy [151] and remove the Screw (W/Washer) M5 x 12 [13]. ② Remove the Hex. Bolt M8 x 14 [9]. ③ Remove the Through Bolt M6 x 120 [10] (Model E 43), M6 x 155 [10] (Model E 60) or M6 x 155 [10] (Model E 71). ④ Remove the Hex. Bolt M10 x 30 [75]. ⑤ Remove the Rear Cover [11]. ⑥ Replace the Stator [12]. ⑦ Remove the Bolt M10 x 215 [2] (Model E 43), M10 x 215 [2] (Model E 60) or M10 x 260 [2] (Model E 71) without removing the Rotor Comp. [3] from the Engine [71]. ⑧ Tighten the rotor puller bolt (jig) as a substitute for the Bolt M10 [2]. ⑨ When the rotor puller bolt (jig) is tightened, the tip of the jig contacts the crankshaft of the Engine [71] and a force is exerted to push out the Rotor Comp. [3] from the Engine [71]. ⑩ Replace the Rotor Comp. [3]. □ <p>CAUTION: Do not drop or scratch the Rotor Comp. [3]. Otherwise, the Rotor Comp. [3] may pop out when it is released from the crankshaft of the Engine [71].</p>

Trouble	Cause	Corrective action	Procedure
It does not reach the rated voltage.	The number of revolutions of the Engine [71] is low.	A) Check the connected electrical equipment.	—
	Rated number of revolutions of the engine (no-load): 3,400 to 3,800 r/min (reference)	B) Contact Honda Service Center.	—

If the trouble is caused by any cause other than the above, diagnose and take the necessary measures according to the following flow chart.



Cause	Corrective action	Procedure
(i) The Condenser [145] is damaged or deteriorated.	Replace the Condenser [145].	<ol style="list-style-type: none"> ① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Assy [151] and remove the Screw (W/Washer) M5 x 12 [13]. ② Remove the Hex. Bolt M6 x 24 [77] from the side of the Panel Assy [151]. ③ Pull the Panel Assy [151] and remove the couplers of the Wire Harness [94] and the Wire Harness [161] from the Engine [71] behind the Box Assy [141]. ④ Push the Wire Harness [162] in the Box Assy [141]. ⑤ Remove the Hex. Bolt M6 x 12 [147] and open the Box Assy [141] a little. ⑥ Push the claws of the couplers (above step ③) fitted in the Box Assy [141] to remove it from the Box Assy [141]. ⑦ Open the Box Assy [141] and remove the Condenser [145] from the Wire Harness [162]. ⑧ Replace the Condenser [145] fitted in the Box Assy [141].
(ii) The main coil or the sub coil is broken or short-circuited.	Replace the Stator [12].	<ol style="list-style-type: none"> ① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Assy [151] and remove the Screw (W/Washer) M5 x 12 [13]. ② Remove the Hex. Bolt M8 x 14 [9]. ③ Remove the Through Bolt M6 x 120 [10] (Model E 43), M6 x 155 [10] (Model E 60) or M6 x 155 [10] (Model E 71). ④ Remove the Hex. Bolt M10 x 30 [75]. ⑤ Remove the Rear Cover [11]. ⑥ Replace the Stator [12].
(iii) The field coil is broken.	Replace the Rotor Comp. [3].	<ol style="list-style-type: none"> ① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Assy [151] and remove the Screw (W/Washer) M5 x 12 [13]. ② Remove the Hex. Bolt M8 x 14 [9]. ③ Remove the Through Bolt M6 x 120 [10] (Model E 43), M6 x 155 [10] (Model E 60) or M6 x 155 [10] (Model E 71). ④ Remove the Hex. Bolt M10 x 30 [75]. ⑤ Remove the Rear Cover [11]. ⑥ Replace the Stator [12]. ⑦ Remove the Bolt M10 x 215 [2] (Model E 43), M10 x 215 [2] (Model E 60) or M10 x 260 [2] (Model E 71) without removing the Rotor Comp. [3] from the Engine [71]. ⑧ Tighten the rotor puller bolt (jig) as a substitute for the Bolt M10 [2].

Cause	Corrective action	Procedure
(iii) The field coil is broken.	Replace the Rotor Comp. [3].	<p>⑨ When the rotor puller bolt (jig) is tightened, the tip of the jig contacts the crankshaft of the Engine [71] and a force is exerted to push out the Rotor Comp. [3] from the Engine [71].</p> <p>⑩ Remove the Rotor Comp. [3].</p> <p>CAUTION: Do not drop or scratch the Rotor Comp. [3]. Otherwise, the Rotor Comp. [3] may pop out when it is released from the crankshaft of the Engine [71].</p>
(iv) The rectifier built in the Rotor Comp. [3] is damaged.	Replace the Rotor Comp. [3].	<p>① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Ass'y [151] and remove the Screw (W/Washer) M5 x 12 [13].</p> <p>② Remove the Hex. Bolt M8 x 14 [9].</p> <p>③ Remove the Through Bolt M6 x 120 [10] (Model E 43), M6 x 155 [10] (Model E 60) or M6 x 155 [10] (Model E 71).</p> <p>④ Remove the Hex. Bolt M10 x 30 [75].</p> <p>⑤ Remove the Rear Cover [11].</p> <p>⑥ Replace the Stator [12].</p> <p>⑦ Remove the Bolt M10 x 215 [2] (Model E 43), M10 x 215 [2] (Model E 60) or M10 x 260 [2] (Model E 71) without removing the Rotor Comp. [3] from the Engine [71].</p> <p>⑧ Tighten the rotor puller bolt (jig) as a substitute for the Bolt M10 [2].</p> <p>⑨ When the rotor puller bolt (jig) is tightened, the tip of the jig contacts the crankshaft of the Engine [71] and a force is exerted to push out the Rotor Comp. [3] from the Engine [71].</p> <p>⑩ Remove the Rotor Comp. [3].</p> <p>CAUTION: Do not drop or scratch the Rotor Comp. [3]. Otherwise, the Rotor Comp. [3] may pop out when it is released from the crankshaft of the Engine [71].</p>

Trouble	Cause	Corrective action	Procedure
The voltage drops significantly if any electrical equipment is connected.	The Condenser [145] is faulty.	Replace the Condenser [145].	<ol style="list-style-type: none"> ① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Ass'y [151] and remove the Screw (W/Washer) M5 x 12 [13]. ② Remove the Hex. Bolt M6 x 24 [77] from the side of the Panel Ass'y [151]. ③ Pull the Panel Ass'y [151] and remove the couplers of the Wire Harness [94] and the Wire Harness [161] from the Engine [71] behind the Box Ass'y [141]. ④ Push the Wire Harness [162] in the Box Ass'y [141]. ⑤ Remove the Hex. Bolt M6 x 12 [147] and open the Box Ass'y [141] a little. ⑥ Push the claws of the couplers (above step ③) fitted in the Box Ass'y [141] to remove the couplers from the Box Ass'y [141]. ⑦ Open the Box Ass'y [141] and remove the Condenser [145] from the Wire Harness [162]. ⑧ Replace the Condenser [145] fitted in the Box Ass'y [141].
	The main coil or the sub coil is broken or short-circuited.	Replace the Stator [12].	<ol style="list-style-type: none"> ① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Ass'y [151] and remove the Screw (W/Washer) M5 x 12 [13]. ② Remove the Hex. Bolt M8 x 14 [9]. ③ Remove the Through Bolt M6 x 120 [10] (Model E 43), M6 x 155 [10] (Model E 60) or M6 x 155 [10] (Model E 71). ④ Remove the Hex. Bolt M10 x 30 [75]. ⑤ Remove the Rear Cover [11]. ⑥ Replace the Stator [12].
	The field coil is broken.	Replace the Rotor Comp. [3].	<ol style="list-style-type: none"> ① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Ass'y [151] and remove the Screw (W/Washer) M5 x 12 [13]. ② Remove the Hex. Bolt M8 x 14 [9]. ③ Remove the Through Bolt M6 x 120 [10] (Model E 43), M6 x 155 [10] (Model E 60) or M6 x 155 [10] (Model E 71). ④ Remove the Hex. Bolt M10 x 30 [75]. ⑤ Remove the Rear Cover [11]. ⑥ Replace the Stator [12]. ⑦ Remove the Bolt M10 x 215 [2] (Model E 43), M10 x 215 [2] (Model E 60) or M10 x 260 [2] (Model E 71) without removing the Rotor Comp. [3] from the Engine [71]. ⑧ Tighten the rotor puller bolt (jig) as a substitute for the Bolt M10 [2].

Trouble	Cause	Corrective action	Procedure
The voltage drops significantly if any electrical equipment is connected.	The field coil is broken.	Replace the Rotor Comp. [3].	<p>⑨ When the rotor puller bolt (jig) is tightened, the tip of the jig contacts the crankshaft of the Engine [71] and a force is exerted to push out the Rotor Comp. [3] from the Engine [71].</p> <p>⑩ Replace the Rotor Comp. [3].</p> <p>CAUTION: Do not drop or scratch the Rotor Comp. [3]. Otherwise, the Rotor Comp. [3] may pop out when it is released from the crankshaft of the Engine [71].</p>
	The rectifier built in the Rotor Comp. [3] is damaged.	Replace the Rotor Comp. [3].	<p>① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Assy [151] and remove the Screw (W/Washer) M5 x 12 [13].</p> <p>② Remove the Hex. Bolt M8 x 14 [9].</p> <p>③ Remove the Through Bolt M6 x 120 [10] (Model E 43), M6 x 155 [10] (Model E 60) or M6 x 155 [10] (Model E 71).</p> <p>④ Remove the Hex. Bolt M10 x 30 [75].</p> <p>⑤ Remove the Rear Cover [11].</p> <p>⑥ Replace the Stator [12].</p> <p>⑦ Remove the Bolt M10 x 215 [2] (Model E 43), M10 x 215 [2] (Model E 60) or M10 x 260 [2] (Model E 71) without removing the Rotor Comp. [3] from the Engine [71].</p> <p>⑧ Tighten the rotor puller bolt (jig) as a substitute for the Bolt M10 [2].</p> <p>⑨ When the rotor puller bolt (jig) is tightened, the tip of the jig contacts the crankshaft of the Engine [71] and a force is exerted to push out the Rotor Comp. [3] from the Engine [71].</p> <p>⑩ Replace the Rotor Comp. [3].</p> <p>CAUTION: Do not drop or scratch the Rotor Comp. [3]. Otherwise, the Rotor Comp. [3] may pop out when it is released from the crankshaft of the Engine [71].</p>
	The connected electrical equipment is overloaded.	Check the connected electrical equipment.	<p>_____</p>

Trouble	Cause	Corrective action	Procedure
The Breaker [124] turns off frequently.	The Breaker [124] and the Thermal Protectors [117] [119] are faulty.	Replace the Breaker [124] and the Thermal Protectors [117] [119].	<ol style="list-style-type: none"> ① Remove the three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Ass'y [151] and remove the Screw (W/Washer) M5 x 12 [13]. ② Remove the Hex. Bolt M6 x 24 [77] from the side of the Panel Ass'y [151]. ③ Pull the Panel Ass'y [151] and remove the couplers of the Wire Harness [94] and the Wire Harness [161] from the Engine [71] behind the Box Ass'y [141]. ④ Push the Wire Harness [162] in the Box Ass'y [141]. ⑤ Remove the Hex. Bolt M6 x 12 [147] and open the Box Ass'y [141] a little. ⑥ Push the claws of the couplers (above step ③) fitted in the Box Ass'y [141] to remove the couplers from the Box Ass'y [141]. ⑦ Remove the Grommet [144] and put the couplers (above step ⑥) in the Box Ass'y [141]. ⑧ Open the Box Ass'y [141] and remove the Condenser [145] from the Wire Harness [162]. ⑨ Pull out the Wire Harness [162] from the Box Ass'y [141] and remove the Box Ass'y [141]. <p>Removal of the Breaker [124]</p> <ol style="list-style-type: none"> ⑩ Remove the Hex. Nut [116] from the Breaker [124]. ⑪ Disconnect the terminal and replace the Breaker [124]. <p>Removal of the Thermal Protector [117] for GFCI</p> <ol style="list-style-type: none"> ⑬ Disconnect the faston terminal. ⑭ Release the claw locked in the Panel (1) [114] surface and replace the Thermal Protector [117]. <p>Removal of the Thermal Protector [119] for twist-lock receptacles</p> <ol style="list-style-type: none"> ⑬ Disconnect the round terminal (screw). ⑭ Release the claw locked in the Panel (1) [114] surface and replace the Thermal Protector [119].
	The connected electrical equipment is overloaded.	Check the connected electrical equipment.	—
	The starting current of the motor in the connected electrical equipment is high.	Check the connected electrical equipment.	—

9-2. Checking Continuity

(1) Receptacles

Procedure: Turn on the Breaker **[124]** and the Thermal Protectors **[117]** **[119]**. Check the entire power receptacle except the grounding terminal for continuity.

Note that the values in parentheses are provided for reference purposes only. For detail, refer to the checking items specified in the next article.

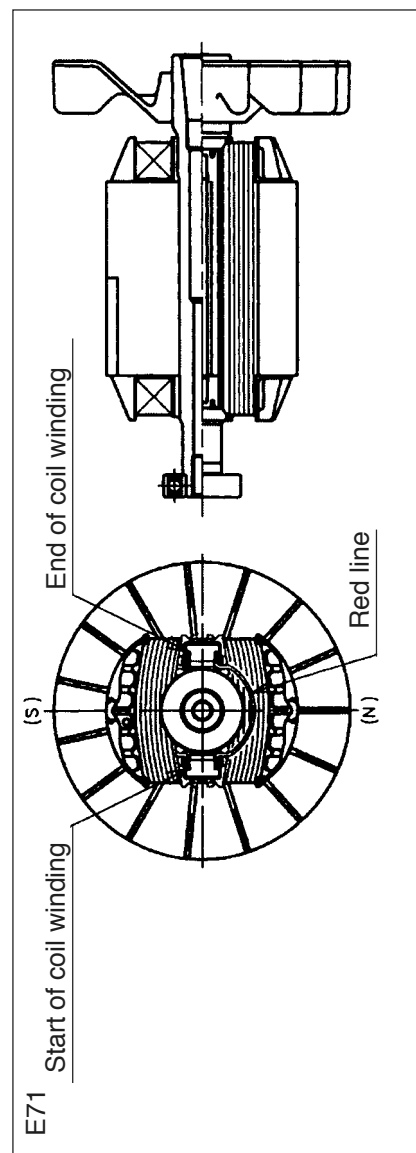
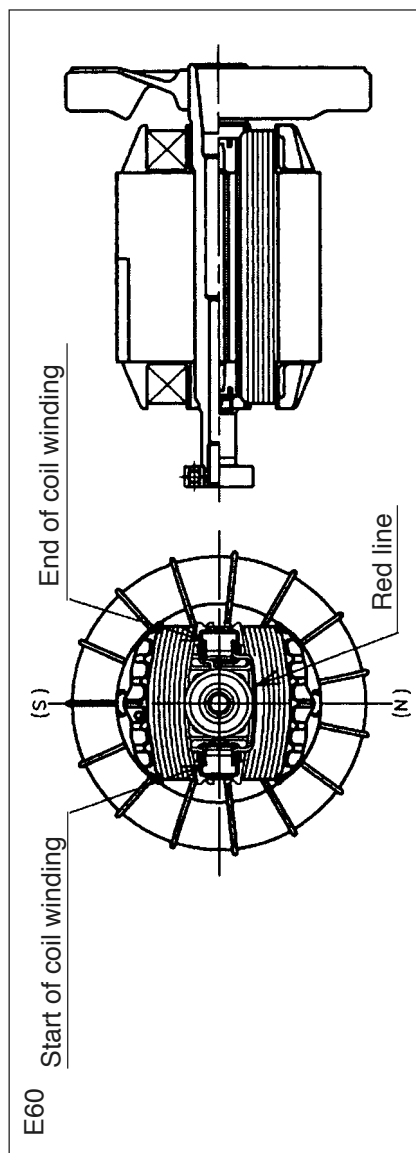
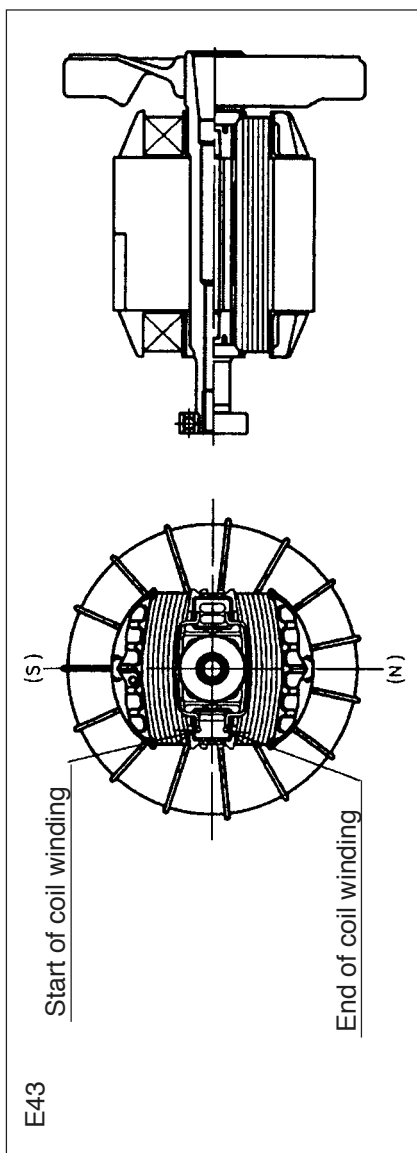
Power receptacle	Select Switch [125]	E43	E60	E71
For GFCI (Ground-Fault Circuit Interrupter) [115] (2 pcs.)	120 V side	There is continuity (0.2 Ω).	There is continuity (0.15 Ω).	There is continuity (0.1 Ω).
	240 V side	There is continuity (0.2 Ω).	There is continuity (0.15 Ω).	There is continuity (0.1 Ω).
For 120 V, 3-pole [118] (Model E 43: 1 pc. Models E 60 and E 71: 2 pcs.)	120 V side	There is continuity (0.2 Ω).	There is continuity (0.15 Ω).	There is continuity (0.1 Ω).
	240 V side	There is continuity (0.2 Ω).	There is continuity (0.15 Ω).	There is continuity (0.1 Ω).
For 120 V/240 V [127]	120 V side	There is no continuity.		
	240 V side	There is continuity (0.4 Ω).	There is continuity (0.3 Ω).	There is continuity (0.2 Ω).

(2) Resistance of the generator coils

Procedure: Remove the Tapping Screw D5 x 10 **[6]**, End Cover **[7]** and three couplers of the Wire Harness **[162]** (white/blue, yellow/brown, and black/black) that connects the Stator **[12]** with the Panel Assy **[151]**. Measure the resistance at the coupler of the wire harness (stator side) when the generator is cold (before operation). Following are the resistance values measured at 20 °C.

Coil	E43	E60	E71
Feed coil	5.4 Ω	6.1 Ω	6.0 Ω
Main coil (white/blue)	0.40 Ω	0.27 Ω	0.16 Ω
Main coil (brown/yellow)	0.40 Ω	0.27 Ω	0.16 Ω
Sub coil (black/black)	1.08 Ω	1.09 Ω	0.49 Ω

For the feed coil, measure the resistance between the start and the end of coil winding as shown below.



(3) Simple check of the Condenser [145]

Procedure: Remove the Tapping Screw D5 x 10 [6], End Cover [7] and three couplers of the Wire Harness [162] (white/blue, yellow/brown, and black/black) that connects the Stator [12] with the Panel Ass'y [151]. Carry out a measurement at the coupler of the wire harness (panel ass'y side).
After disassembly of the panel ass'y, only the Condenser [145] can be checked in the same manner. Touch the positive pole and the negative pole of the test lead of the analog tester (k Ω range) alternately between the terminals of the coupler (between the terminals of the Condenser [145] after disassembly).

Normal: The needle jumps from 0 Ω to ∞.

Abnormal: The needle remains at 0 Ω or open.

(Reference) Capacity of the condenser

	E43	E60	E71
Capacity of the condenser [μF]	40 (20 x 2 pcs.)	40 (20 x 2 pcs.)	60 (20 x 3 pcs.)

9-3. Tightening Torque

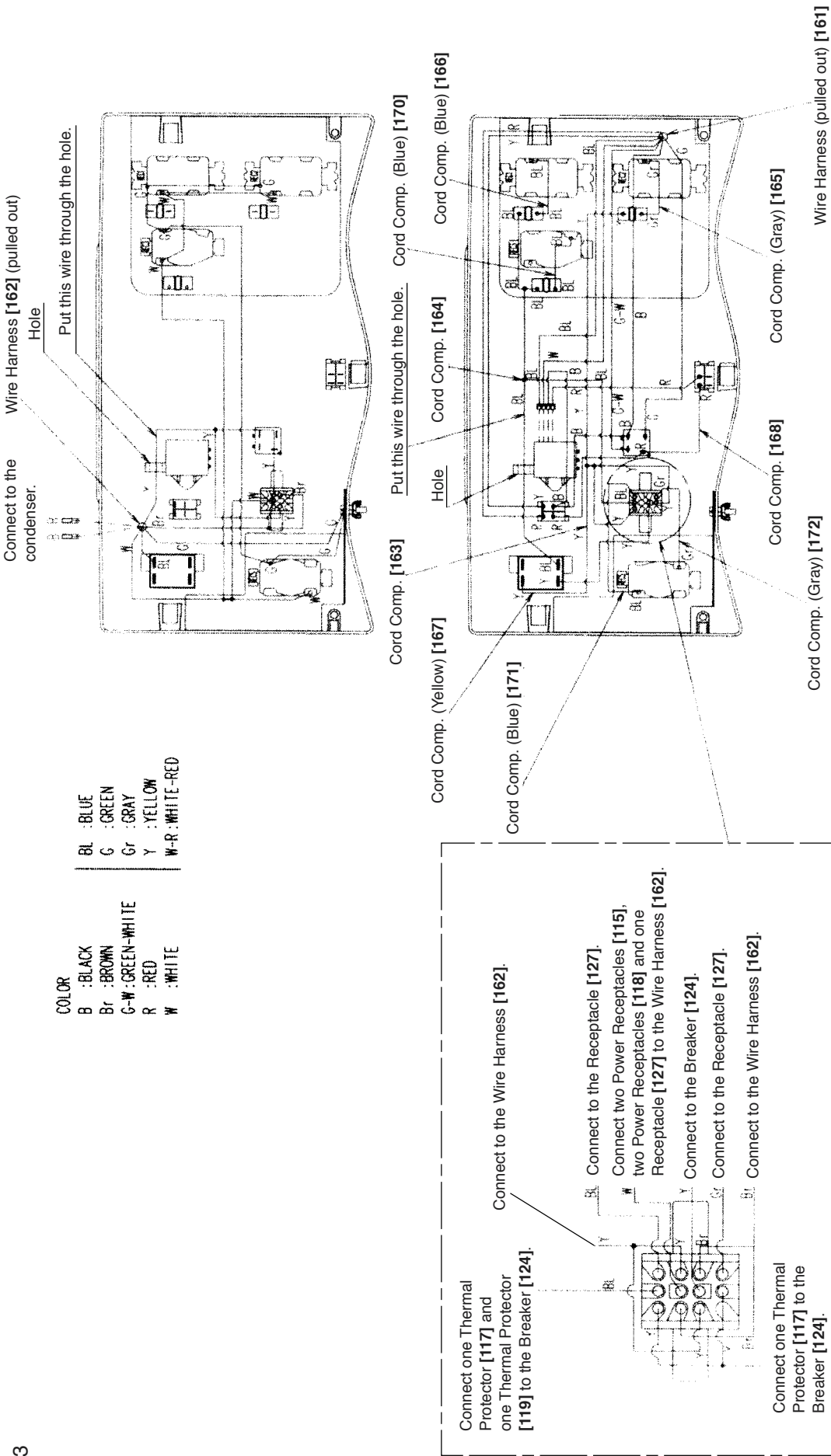
Unit: N·m {kgf·cm}

Screw dia.	Tightening torque	Generator	Location	Fasteners		Quantity	Remark
M10	25 to 34 {255 to 347}	Generator	Rotor Comp. [3]	E43	Bolt M10 x 215 [2]	1	
				E60	Bolt M10 x 215 [2]	1	
				E71	Bolt M10 x 260 [2]	1	
		Frame, Accessories	Isorator [74]	Hex. Bolt M10 x 40 [83]/ Hex. Nut M10 [73]		E43 E60, E71	2/4 4/8
Isolator [74]	Hex. Bolt M10 x 30 [75]/ Hex. Nut M10 [73]			2/4			
	M8			Generator	Muffler Stay [8]	Hex. Bolt M8 x 14 [9]	2
Front Cover [5]		Hex. Bolt M8 x 18 [4]	4				
Frame, Accessories		Frame (A) [81], Frame (B) [67]	Hex. Bolt M8 x 18 [68]	4			
		Engine (Front muffler cover) [–]	Hex. Bolt M8 x 20 [–]	2			
		Hook Comp. [66], Hook Stay [64]	Hex. Bolt M8 x 18 [63]	4			
		Stand [84]	Hex. Bolt M8 x 14 [82]	6			
		Shaft Comp. [92]	Hex. Bolt M8 x 14 [82]	4			
		Handle (B) Comp. [62], Handle Stay Clamp [65]	Hex. Bolt M8 x 18 [63]	2			
Handle (A) Comp. [61], Handle Stay Clamp [65]	Hex. Bolt M8 x 18 [63]	2					

Screw dia.	Tightening torque	Location		Fasteners		Quantity	Remark
				E43	Through Bolt M6 x 120 [10]		
M6	7 to 9 {71 to 92}	Generator	Rear Cover [11]	E60	Through Bolt M6 x 155 [10]	4	
				E71	Through Bolt M6 x 155 [10]	4	
				Hex. Bolt M6 x 24 [32]		2	
		Tank Frame, Accessories	Tank Stay [70]	Hex. Bolt M6 x 12 [76]		2	
			Cord Comp. [72] external grounding terminal	Hex. Bolt M6 x 12 [76]		1	
			Front Muffler Cover [88]	Hex. Bolt M6 x 10 [–]		8	
		Frame, Accessories/ Panel	Engine (Air cleaner stay) [–]	Hex. Nut M6 [–]		1	
			Panel Ass'y [151], Frame (A) [81]	Hex. Bolt M6 x 24 [77]		4	
		Panel	Idle Control [120]	Hex. Nut [121]		1	
M5	1.5 to 2.5 {15 to 26}	Box	Box. Ass'y [141], Panel Comp. [111]	Hex. Bolt M6 x 12 [147]		5	
		Generator	End Cover [7]	Tapping Screw M5 x 10 [6]		2	
			Rear Cover [11]	Screw (W/Washer) M5 x 12 [13] (Grounding terminal in the generator)		1	
		Panel	Power Receptacle (GFCI) [115] terminal	Wire harness connecting terminal M5 [–]		3	
			Power Receptacle (Twist-lock 120 V) [118] terminal	Wire harness connecting terminal M5 [–]		3	
			Power receptacle (Twist-lock 120 V/240 V) [127] terminal	Wire harness connecting terminal M5 [–]		4	
		Panel	Rectifier [122]	Hex. Nut [123]		1	
		Frame, Accessories	Engine (Air cleaner cover) [–]	Hex. Nut [–]		6	
M4	1.0 to 2.2 {10 to 22}	Panel	Power receptacle (GFCI) [115], Power Receptacle (Twist-lock 120 V) [118], Breaker [124], Select Switch [125], Power Receptacle (Twist-lock 120 V/240 V) [127]	Hex. Nut [116]		E43 13	
						E60/ 15 E71	
			Thermal Protector [119]	Wire harness connecting terminal M4 [–]		4	Secure the protector terminal.

9-4. Wiring Diagram

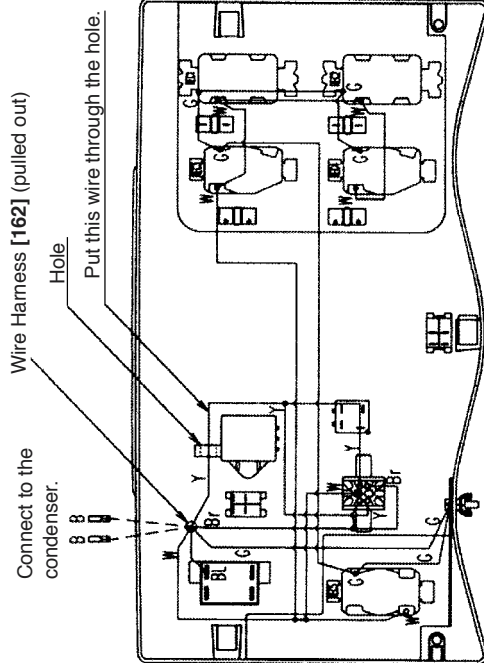
E43



E60, E71

COLOR

B	: BLACK	BL	: BLUE
Br	: BROWN	G	: GREEN
G-W	: GREEN-WHITE	Gr	: GRAY
R	: RED	Y	: YELLOW
W	: WHITE	W-R	: WHITE-RED

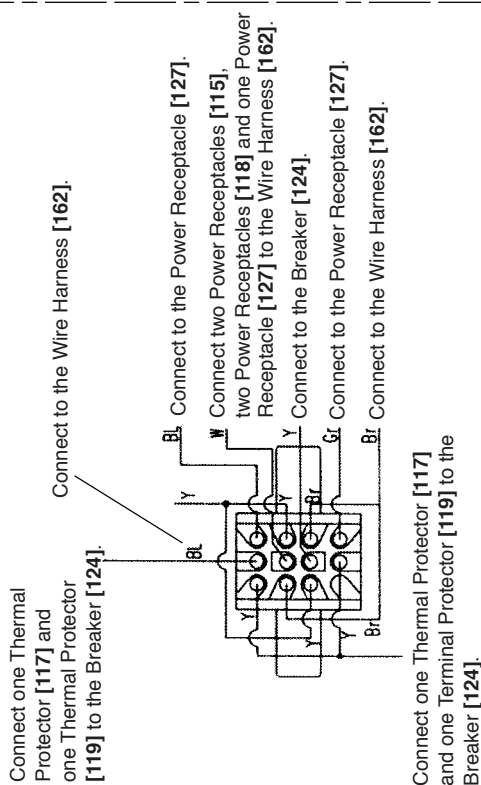
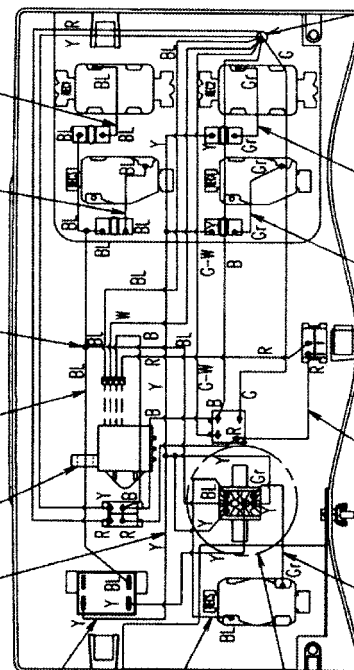


Cord Comp. [163] Put this wire through the hole.

Cord Comp. (Yellow) [167]

Cord Comp. [164]

Cord Comp. (Blue) [170]

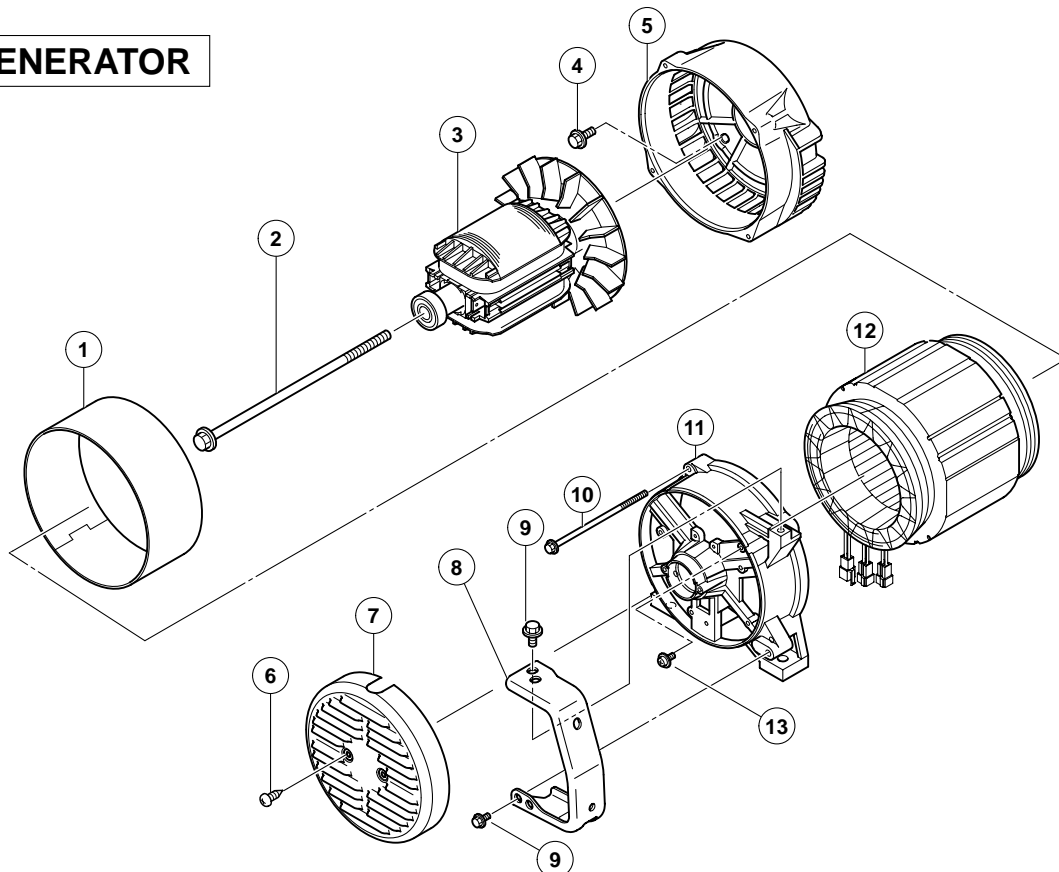


ENGINE TOOL PARTS LIST

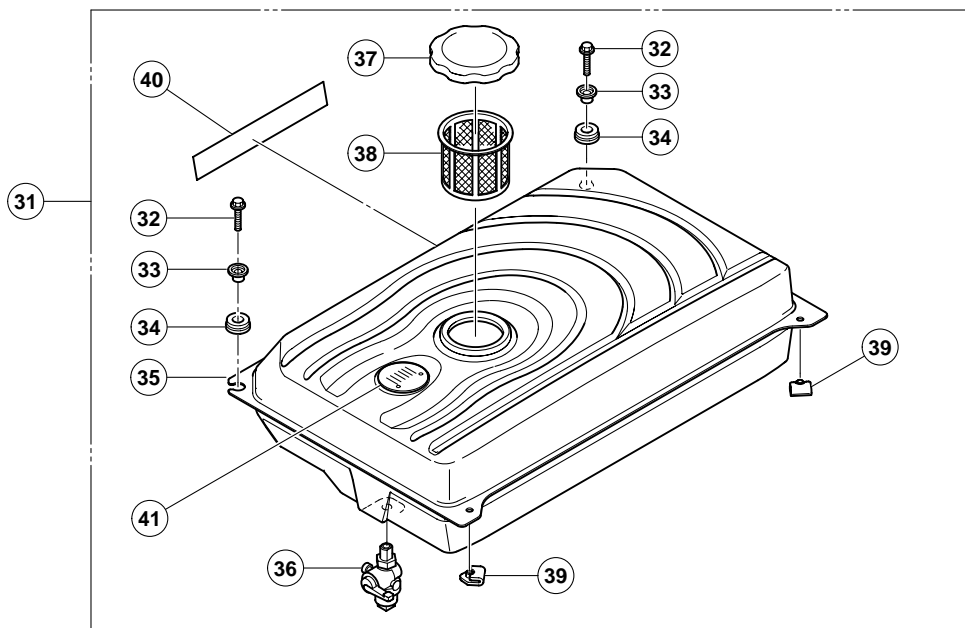
GENERATOR Model E 43

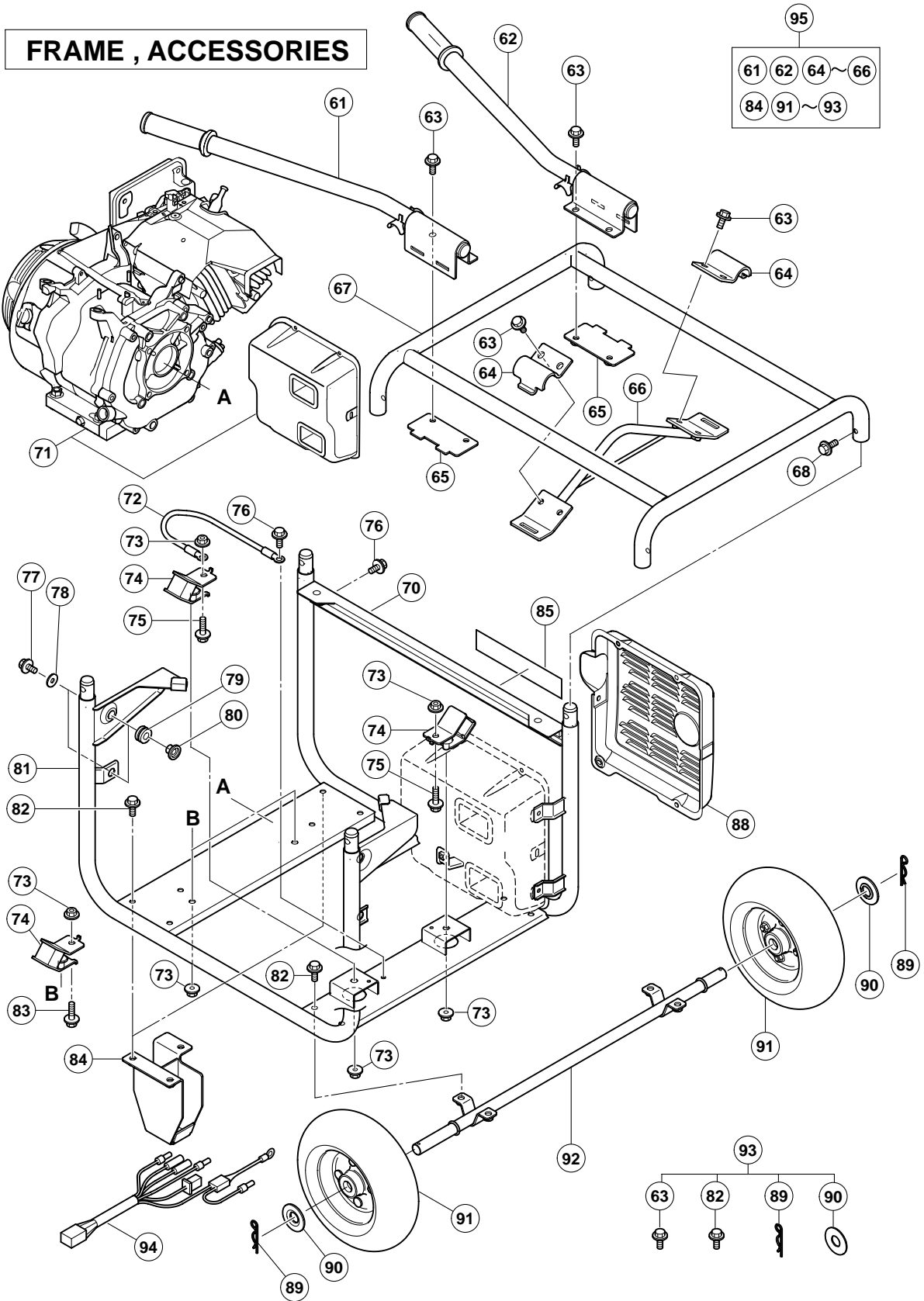
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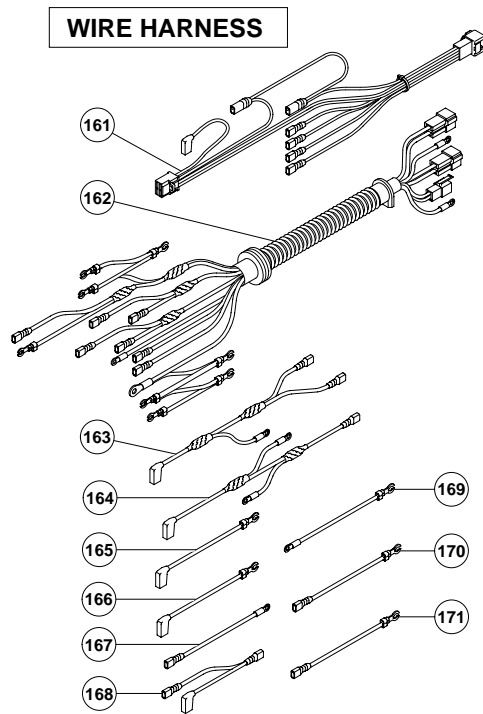
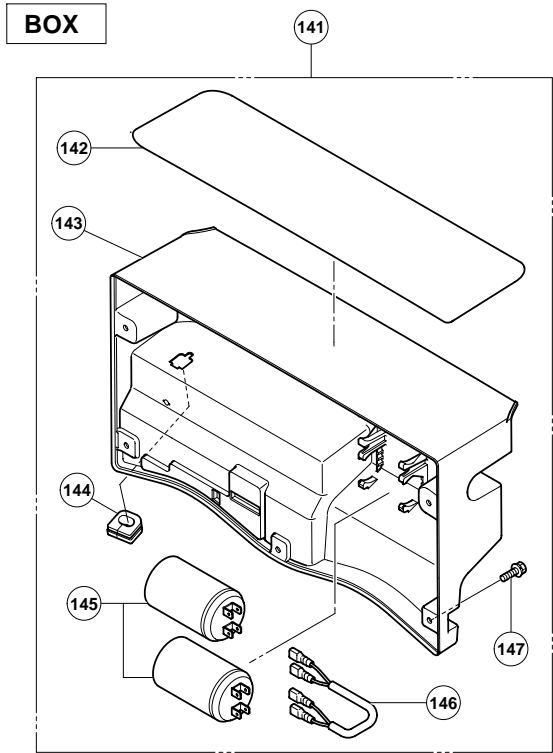
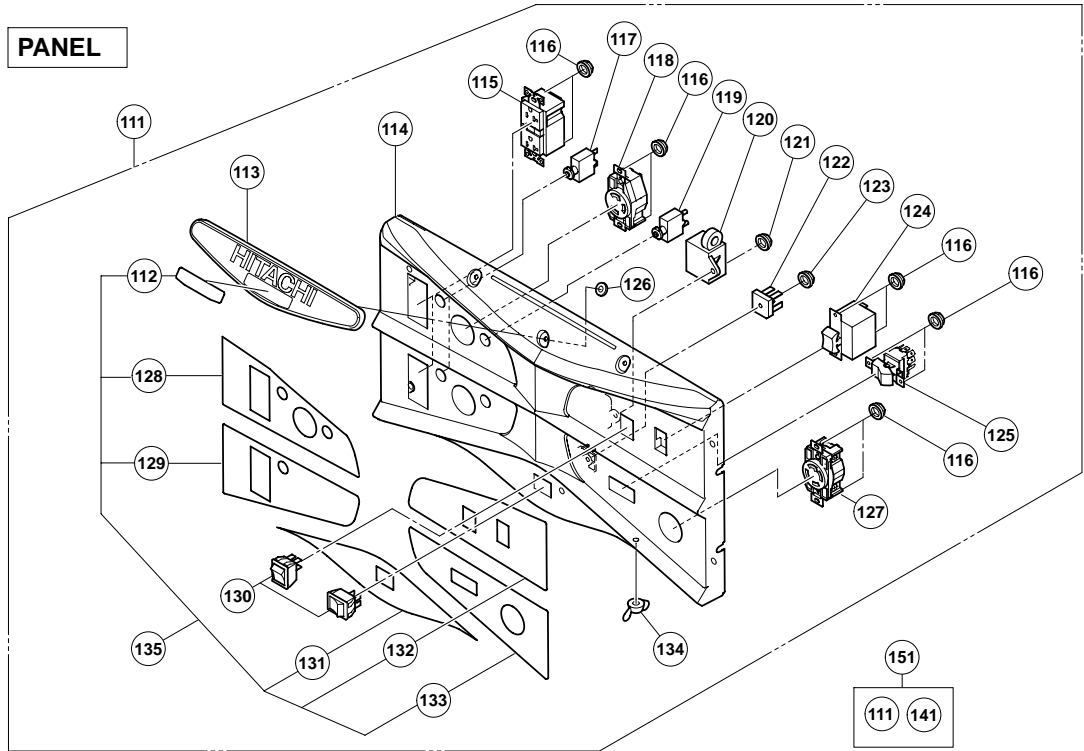
GENERATOR



TANK







PARTS

E 43

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
		GENERATOR			
1	683-785	BAND	1		
2	683-784	BOLT M10X215	1		
3	683-780	ROTOR COMP.	1		
4	683-680	HEX. BOLT M8X18	4		
5	683-779	FRONT COVER	1		
6	683-685	TAPPING SCREW D5X10	2		
7	683-686	END COVER	1		
8	683-684	MUFFLER STAY	1		
9	683-681	HEX. BOLT M8X14	2		
10	683-783	THROUGH BOLT M6X120	4		
11	683-782	REAR COVER	1		
12	683-781	STATOR	1		
13	683-687	SCREW (W/WASHER) M5X12	1		
		TANK			
31	683-724	TANK COMP.	1	INCLUD. 32-41	
32	683-732	HEX. BOLT M6X24	2		
33	683-730	COLLAR	2		
34	683-731	GROMMET	2		
35	683-725	TANK	1		
36	683-727	FUEL VALVE	1		
37	683-726	TANK CAP	1		
38	683-728	FUEL FILTER	1		
39	683-729	GROMMET	2		
40		MARK PLATE (H)	1		
41	683-800	TANK GAUGE	1		
		FRAME, ACCESSORIES			
61	683-754	HANDLE (A) COMP.	1		
62	683-753	HANDLE (B) COMP.	1		
63	683-758	HEX. BOLT M8X18	8		
64	683-750	HOOK STAY	2		
65	683-755	HANDLE STAY CLAMP	2		
66	683-749	HOOK COMP.	1		
67	683-744	FRAME (B)	1		
68	683-743	HEX. BOLT M8X18	4		
70	683-740	TANK STAY	1		
71	683-795	ENGINE	1		
72	683-737	CORD COMP.	1		
73	683-736	HEX. NUT M10	8		
74	683-735	ISOLATOR	4		
75	683-738	HEX. BOLT M10X30	2		
76	683-711	HEX. BOLT M6X12	3		
77	683-732	HEX. BOLT M6X24	4		
78	683-742	WASHER	4		
79	683-731	GROMMET	4		
80	683-730	COLLAR	4		
81	683-794	FRAME (A)	1		
82	683-757	HEX. BOLT M8X14	10		
83	683-739	HEX. BOLT M10X40	2		
84	683-748	STAND	2		
85		MARK PLATE (HS)	1		

PARTS

E 43

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
88	683-746	FRONT MUFFLER COVER	1		
89	683-759	RETAINER PIN	2		
90	683-760	WASHER	2		
91	683-751	WHEEL	2		
92	683-752	SHAFT COMP.	1		
93	683-756	ACCESSORIES KIT (1)	1	INCLUD. 63, 82, 89, 90	
94	683-733	WIRE HARNESS	1		
95	683-761	ACCESSORIES KIT	1	INCLUD. 61, 62, 64-66, 84, 91-93	
		PANEL			
111	683-786	PANEL COMP.	1	INCLUD. 113-127, 130, 134, 135	
112		MARK PLATE (M)	1		
113	683-704	LOGO PLATE	1		
114	683-789	PANEL (1)	1		
115	683-692	POWER RECEPTACLE	2		
116	683-702	HEX. NUT	12		
117	683-695	THERMAL PROTECTOR	2		
118	683-693	POWER RECEPTACLE	1		
119	683-696	THERMAL PROTECTOR	1		
120	683-689	IDLE CONTROL	1		
121	683-700	HEX. NUT	1		
122	683-703	RECTIFIER	1		
123	683-701	HEX. NUT	1		
124	683-787	BREAKER	1		
125	683-691	SELECT SWITCH	1		
126	683-705	PUSHING NUT	3		
127	683-788	RECEPTACLE	1		
128		MARK PLATE (LU)	1		
129		MARK PLATE (LD)	1		
130	683-697	SWITCH	2		
131		MARK PLATE (CE)	1		
132		MARK PLATE (RU)	1		
133		MARK PLATE (RD)	1		
134	683-698	WING NUT	1		
135	683-797	MARK PLATE SET	1	INCLUD. 112, 128, 129, 131-133	
		BOX			
141	683-790	BOX ASS'Y	1	INCLUD. 142-147	
142		NAME PLATE (WN)	1		
143	683-791	BOX (1)	1		
144	683-710	GROMMET	1		
145	683-707	CONDENSER	2		
146	683-708	CORD COMP.	1		
147	683-711	HEX. BOLT M6X12	5		
151	683-796	PANEL ASS'Y	1	INCLUD. 111, 141	
		WIRE HARNESS			
161	683-722	WIRE HARNESS	1		
162	683-793	WIRE HARNESS	1		
163	683-792	CORD COMP.	1		
164	683-714	CORD COMP.	1		
165	683-720	CORD COMP. (GRAY)	1		
166	683-721	CORD COMP. (BLUE)	1		
167	683-719	CORD COMP. (YELLOW)	1		

PARTS

E 43

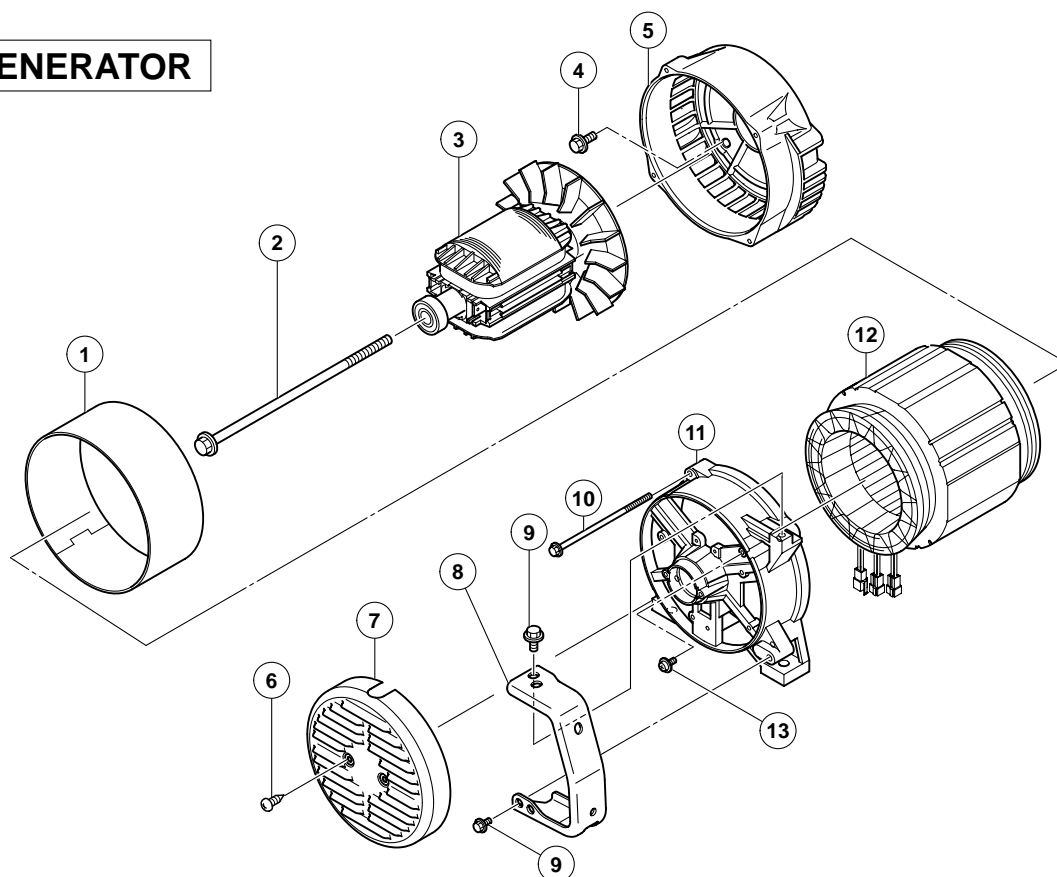
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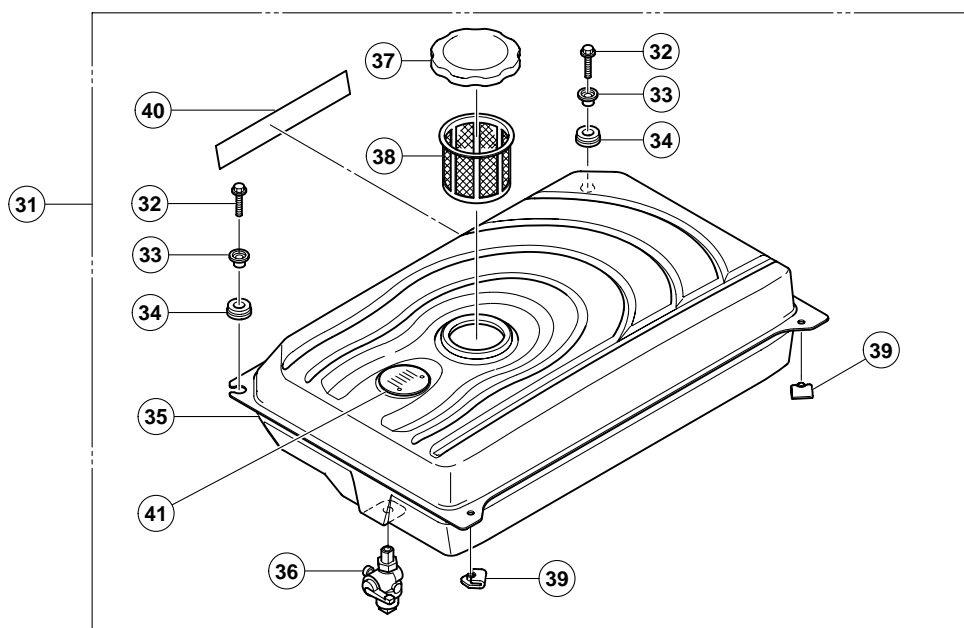
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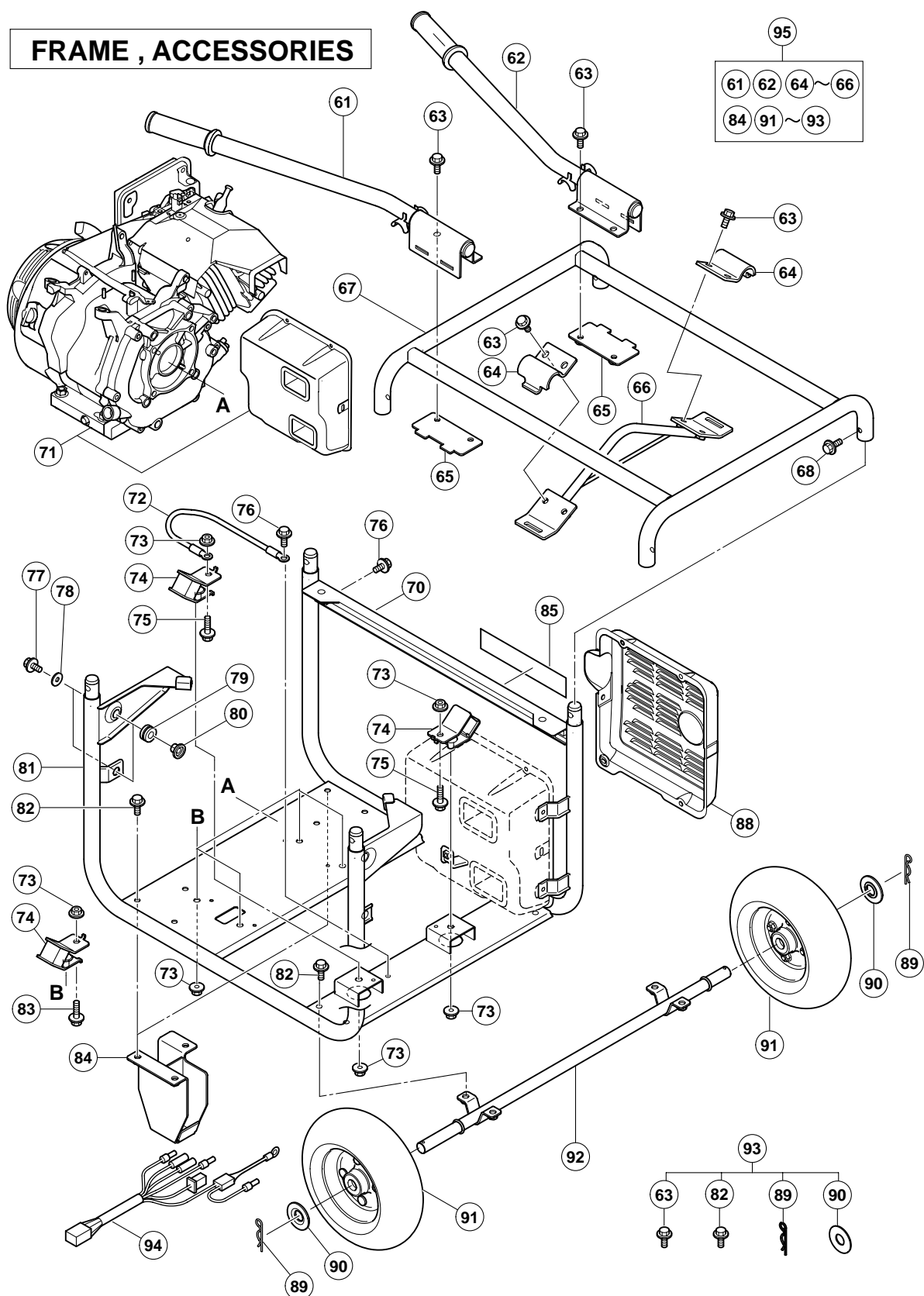
GENERATOR

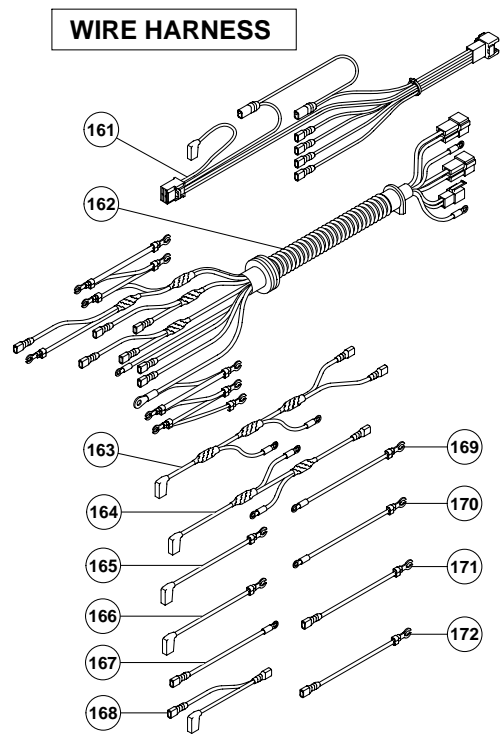
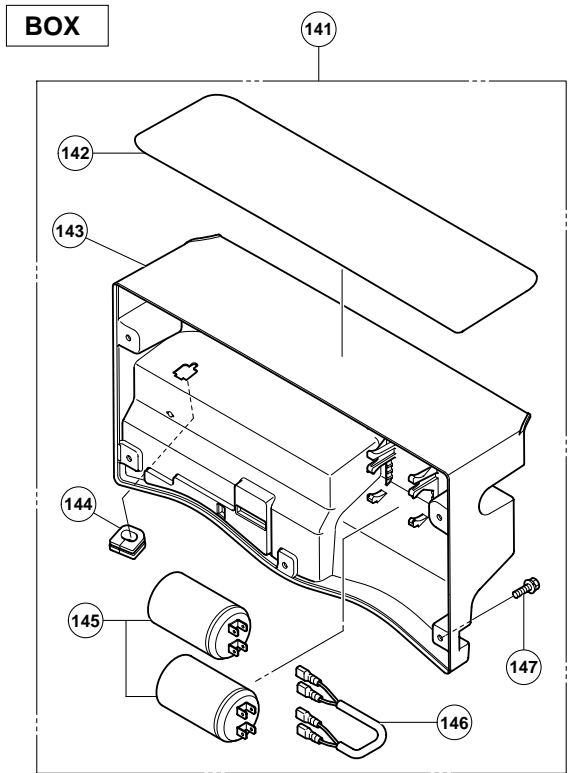
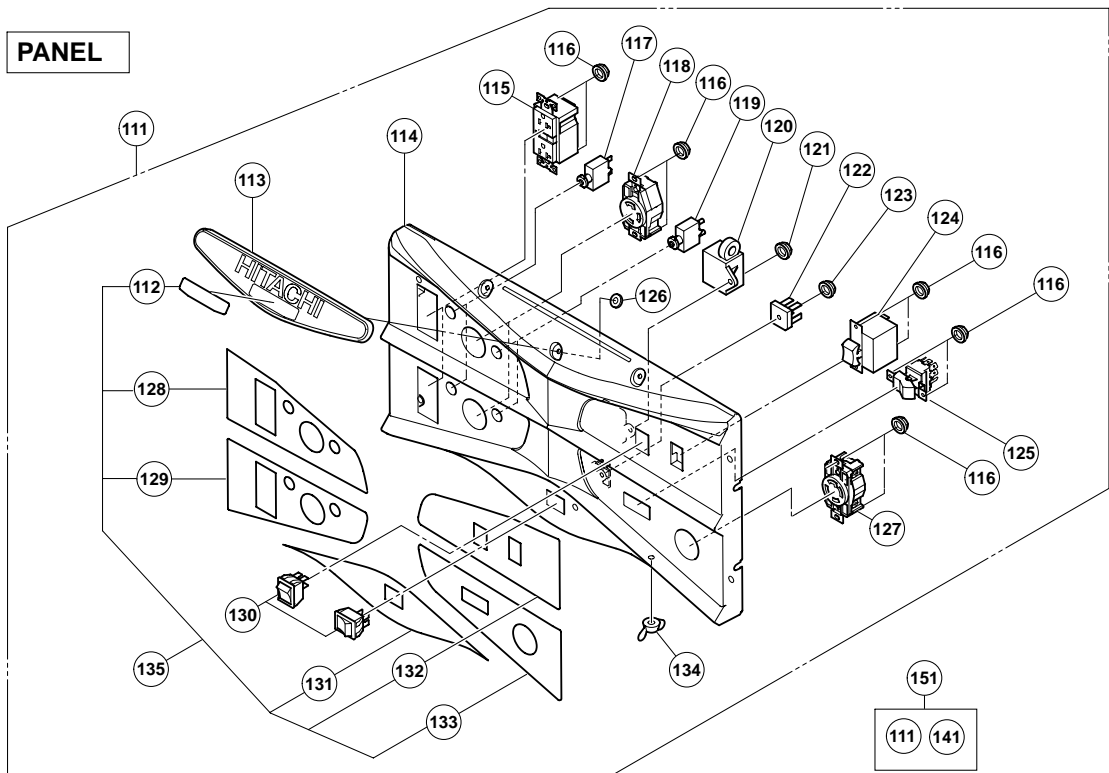


TANK



FRAME , ACCESSORIES





PARTS

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ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
		GENERATOR			
1	683-683	BAND	1		
2	683-682	BOLT M10X215	1		
3	683-676	ROTOR COMP.	1		
4	683-680	HEX. BOLT M8X18	4		
5	683-675	FRONT COVER	1		
6	683-685	TAPPING SCREW D5X10	2		
7	683-686	END COVER	1		
8	683-684	MUFFLER STAY	1		
9	683-681	HEX. BOLT M8X14	2		
10	683-679	THROUGH BOLT M6X155	4		
11	683-678	REAR COVER	1		
12	683-677	STATOR	1		
13	683-687	SCREW (W/WASHER) M5X12	1		
		TANK			
31	683-724	TANK COMP.	1	INCLUD. 32-41	
32	683-732	HEX. BOLT M6X24	2		
33	683-730	COLLAR	2		
34	683-731	GROMMET	2		
35	683-725	TANK	1		
36	683-727	FUEL VALVE	1		
37	683-726	TANK CAP	1		
38	683-728	FUEL FILTER	1		
39	683-729	GROMMET	2		
40		MARK PLATE (H)	1		
41	683-800	TANK GAUGE	1		
		FRAME, ACCESSORIES			
61	683-754	HANDLE (A) COMP.	1		
62	683-753	HANDLE (B) COMP.	1		
63	683-758	HEX. BOLT M8X18	8		
64	683-750	HOOK STAY	2		
65	683-755	HANDLE STAY CLAMP	2		
66	683-749	HOOK COMP.	1		
67	683-744	FRAME (B)	1		
68	683-743	HEX. BOLT M8X18	4		
70	683-740	TANK STAY	1		
71	683-745	ENGINE	1		
72	683-737	CORD COMP.	1		
73	683-736	HEX. NUT M10	12		
74	683-735	ISOLATOR	6		
75	683-738	HEX. BOLT M10X30	2		
76	683-711	HEX. BOLT M6X12	3		
77	683-732	HEX. BOLT M6X24	4		
78	683-742	WASHER	4		
79	683-731	GROMMET	4		
80	683-730	COLLAR	4		
81	683-741	FRAME (A)	1		
82	683-757	HEX. BOLT M8X14	10		
83	683-739	HEX. BOLT M10X40	4		
84	683-748	STAND	2		
85		MARK PLATE (HS)	1		

PARTS

E 60

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
88	683-746	FRONT MUFFLER COVER	1		
89	683-759	RETAINER PIN	2		
90	683-760	WASHER	2		
91	683-751	WHEEL	2		
92	683-752	SHAFT COMP.	1		
93	683-756	ACCESSORIES KIT (1)	1	INCLUD. 63, 82, 89, 90	
94	683-733	WIRE HARNESS	1		
95	683-761	ACCESSORIES KIT	1	INCLUD. 61, 62, 64-66, 84, 91-93	
		PANEL			
111	683-688	PANEL COMP.	1	INCLUD. 113-127, 130, 134, 135	
112		MARK PLATE (M)	1		
113	683-704	LOGO PLATE	1		
114	683-699	PANEL (1)	1		
115	683-692	POWER RECEPTACLE	2		
116	683-702	HEX. NUT	14		
117	683-695	THERMAL PROTECTOR	2		
118	683-693	POWER RECEPTACLE	2		
119	683-696	THERMAL PROTECTOR	2		
120	683-689	IDLE CONTROL	1		
121	683-700	HEX. NUT	1		
122	683-703	RECTIFIER	1		
123	683-701	HEX. NUT	1		
124	683-690	BREAKER	1		
125	683-691	SELECT SWITCH	1		
126	683-705	PUSHING NUT	3		
127	683-694	POWER RECEPTACLE	1		
128		MARK PLATE (LU)	1		
129		MARK PLATE (LD)	1		
130	683-697	SWITCH	2		
131		MARK PLATE (CE)	1		
132		MARK PLATE (RU)	1		
133		MARK PLATE (RD)	1		
134	683-698	WING NUT	1		
135	683-799	MARK PLATE SET	1	INCLUD. 112, 128, 129, 131-133	
		BOX			
141	683-706	BOX COMP.	1	INCLUD. 142-147	
142		NAME PLATE (WN)	1		
143	683-709	BOX (1)	1		
144	683-710	GROMMET	1		
145	683-707	CONDENSER	2		
146	683-708	CORD COMP.	1		
147	683-711	HEX. BOLT M6X12	5		
151	683-747	PANEL ASS'Y	1	INCLUD. 111, 141	
		WIRE HARNESS			
161	683-722	WIRE HARNESS	1		
162	683-723	WIRE HARNESS	1		
163	683-715	CORD COMP.	1		
164	683-714	CORD COMP.	1		
165	683-720	CORD COMP. (GRAY)	1		
166	683-721	CORD COMP. (BLUE)	1		
167	683-719	CORD COMP. (YELLOW)	1		

PARTS

E 60

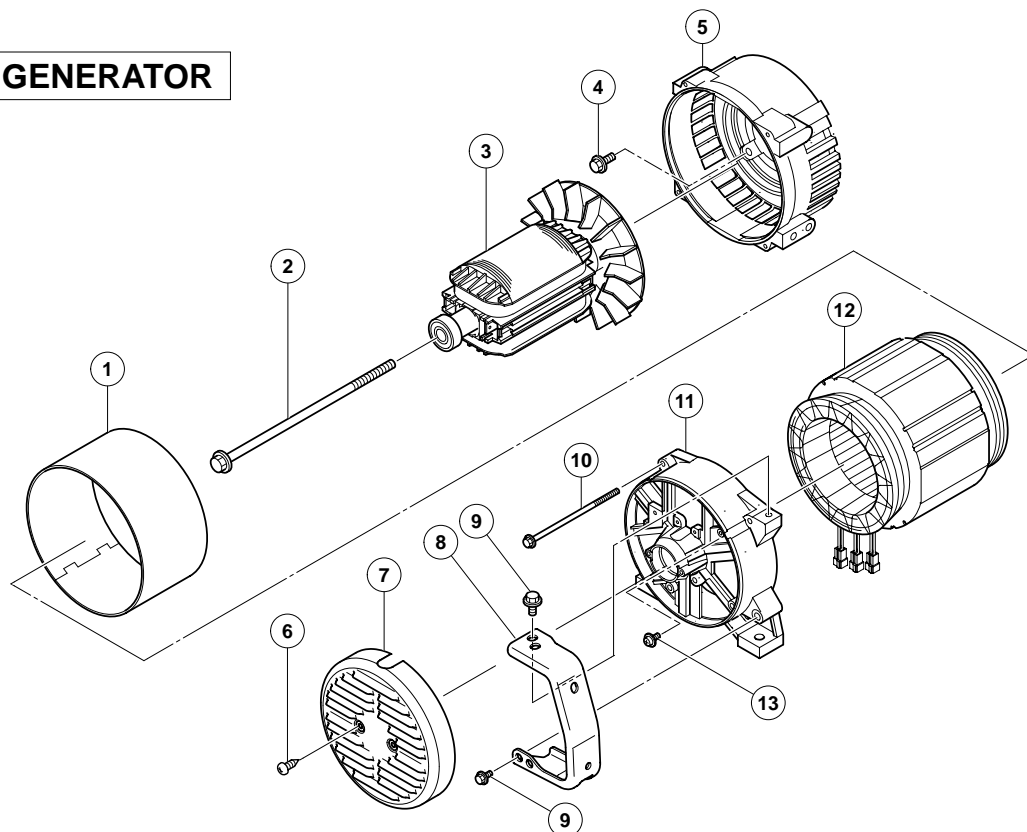
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ENGINE TOOL PARTS LIST

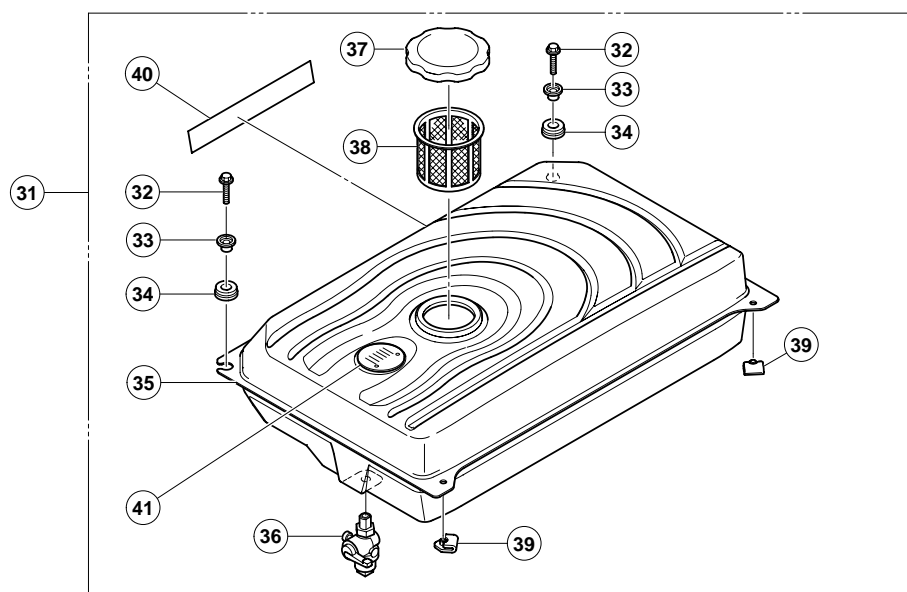
GENERATOR Model E 71

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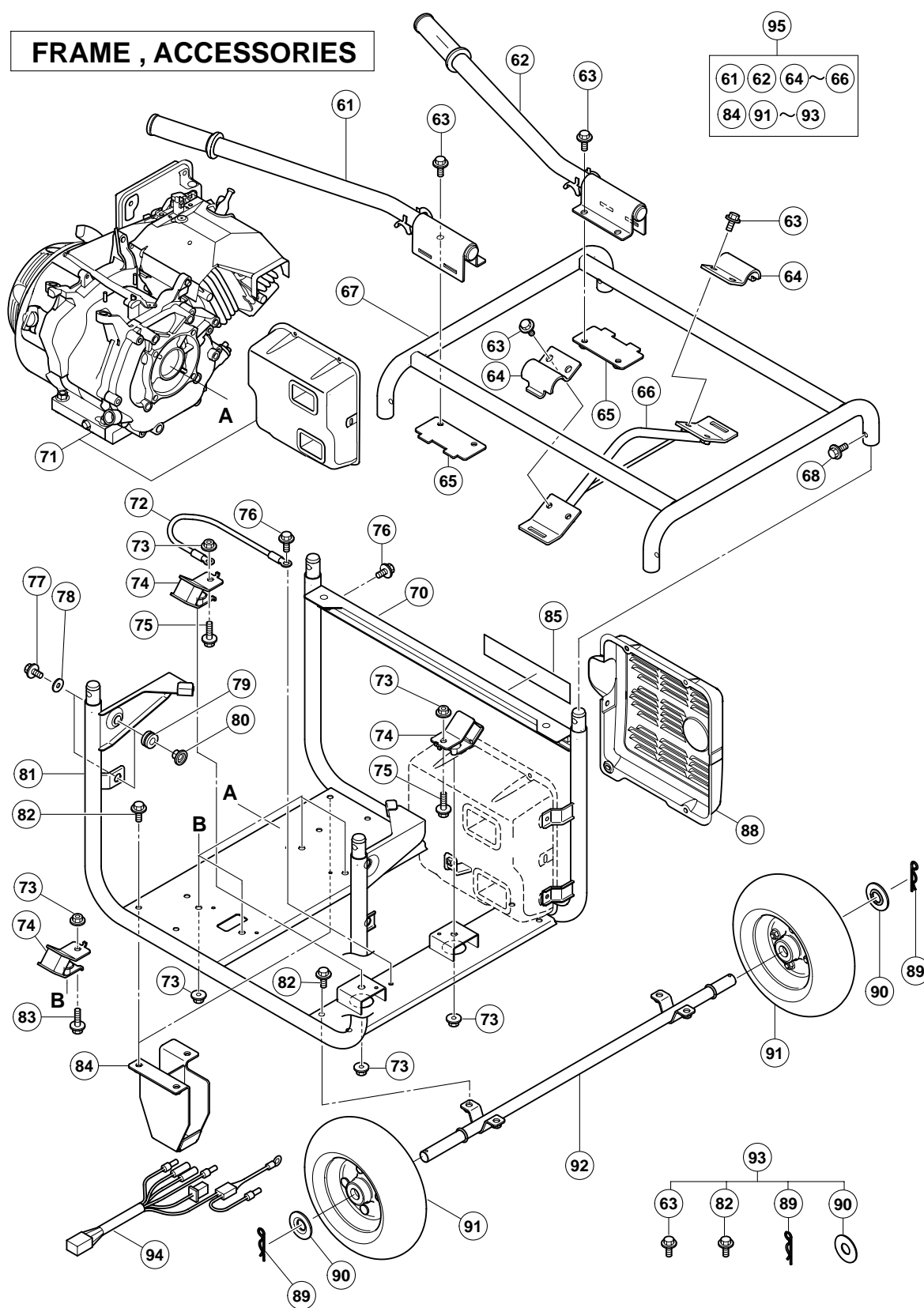
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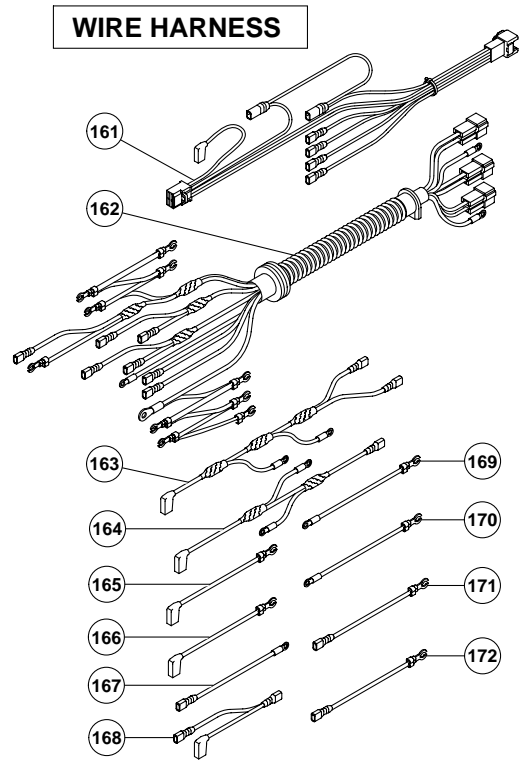
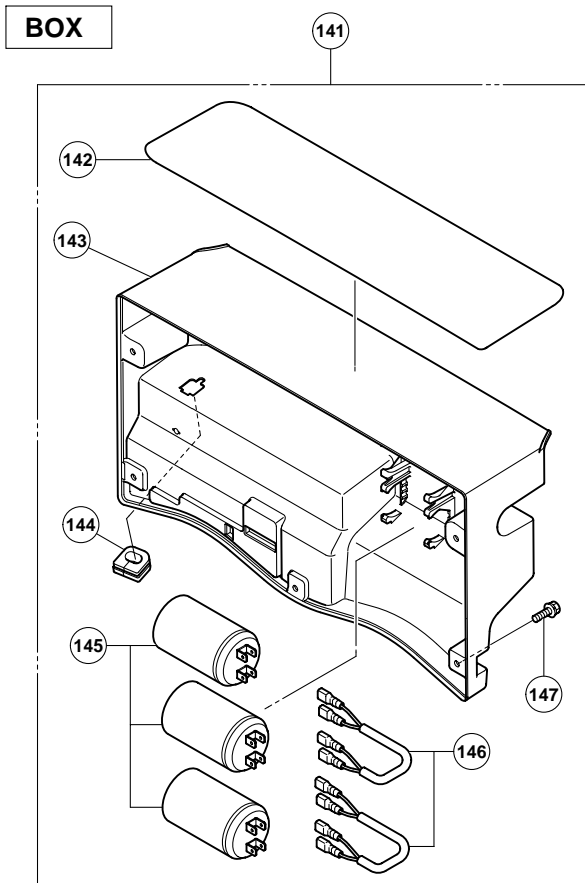
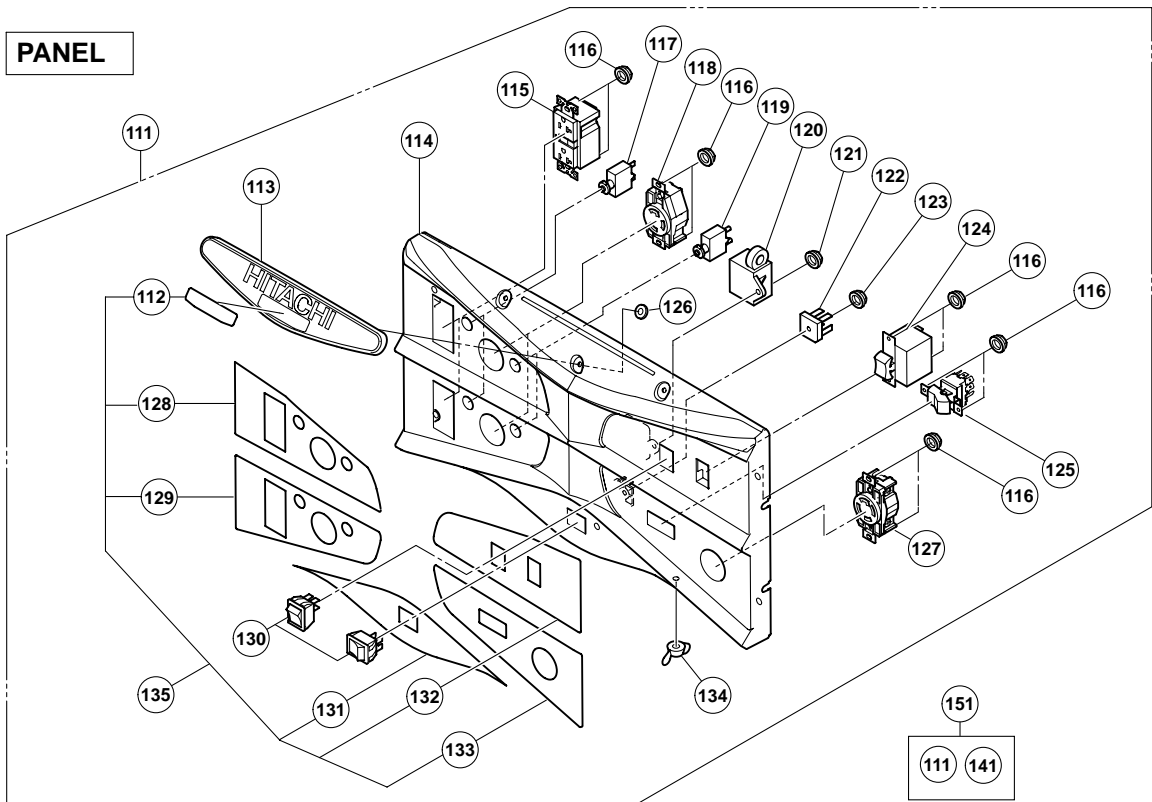


TANK



FRAME , ACCESSORIES





PARTS

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ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
		GENERATOR			
1	683-768	BAND	1		
2	683-767	BOLT M10X260	1		
3	683-763	ROTOR COMP.	1		
4	683-680	HEX. BOLT M8X18	4		
5	683-762	FRONT COVER	1		
6	683-685	TAPPING SCREW D5X10	2		
7	683-769	END COVER	1		
8	683-684	MUFFLER STAY	1		
9	683-681	HEX. BOLT M8X14	2		
10	683-766	THROUGH BOLT M6X155	4		
11	683-765	REAR COVER	1		
12	683-764	STATOR	1		
13	683-687	SCREW (W/WASHER) M5X12	1		
		TANK			
31	683-724	TANK COMP.	1	INCLUD. 32-41	
32	683-732	HEX. BOLT M6X24	2		
33	683-730	COLLAR	2		
34	683-731	GROMMET	2		
35	683-725	TANK	1		
36	683-727	FUEL VALVE	1		
37	683-726	TANK CAP	1		
38	683-728	FUEL FILTER	1		
39	683-729	GROMMET	2		
40		MARK PLATE (H)	1		
41	683-800	TANK GAUGE	1		
		FRAME, ACCESSORIES			
61	683-754	HANDLE (A) COMP.	1		
62	683-753	HANDLE (B) COMP.	1		
63	683-758	HEX. BOLT M8X18	8		
64	683-750	HOOK STAY	2		
65	683-755	HANDLE STAY CLAMP	2		
66	683-749	HOOK COMP.	1		
67	683-744	FRAME (B)	1		
68	683-743	HEX. BOLT M8X18	4		
70	683-740	TANK STAY	1		
71	683-777	ENGINE	1		
72	683-737	CORD COMP.	1		
73	683-736	HEX. NUT M10	12		
74	683-735	ISOLATOR	6		
75	683-738	HEX. BOLT M10X30	2		
76	683-711	HEX. BOLT M6X12	3		
77	683-732	HEX. BOLT M6X24	4		
78	683-742	WASHER	4		
79	683-731	GROMMET	4		
80	683-730	COLLAR	4		
81	683-776	FRAME (A)	1		
82	683-757	HEX. BOLT M8X14	10		
83	683-739	HEX. BOLT M10X40	4		
84	683-748	STAND	2		
85		MARK PLATE (HS)	1		

PARTS

E 71

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
88	683-746	FRONT MUFFLER COVER	1		
89	683-759	RETAINER PIN	2		
90	683-760	WASHER	2		
91	683-751	WHEEL	2		
92	683-752	SHAFT COMP.	1		
93	683-756	ACCESSORIES KIT (1)	1	INCLUD. 63, 82, 89, 90	
94	683-733	WIRE HARNESS	1		
95	683-761	ACCESSORIES KIT	1	INCLUD. 61, 62, 64-66, 84, 91-93	
		PANEL			
111	683-770	PANEL COMP.	1	INCLUD. 113-127, 130, 134, 135	
112		MARK PLATE (M)	1		
113	683-704	LOGO PLATE	1		
114	683-772	PANEL (1)	1		
115	683-692	POWER RECEPTACLE	2		
116	683-702	HEX. NUT	14		
117	683-695	THERMAL PROTECTOR	2		
118	683-693	POWER RECEPTACLE	2		
119	683-696	THERMAL PROTECTOR	2		
120	683-689	IDLE CONTROL	1		
121	683-700	HEX. NUT	1		
122	683-703	RECTIFIER	1		
123	683-701	HEX. NUT	1		
124	683-771	BREAKER	1		
125	683-691	SELECT SWITCH	1		
126	683-705	PUSHING NUT	3		
127	683-694	POWER RECEPTACLE	1		
128		MARK PLATE (LU)	1		
129		MARK PLATE (LD)	1		
130	683-697	SWITCH	2		
131		MARK PLATE (CE)	1		
132		MARK PLATE (RU)	1		
133		MARK PLATE (RD)	1		
134	683-698	WING NUT	1		
135	683-798	MARK PLATE SET	1	INCLUD. 112, 128, 129, 131-133	
		BOX			
141	683-773	BOX ASS'Y	1	INCLUD. 142-147	
142		NAME PLATE (WN)	1		
143	683-774	BOX (1)	1		
144	683-710	GROMMET	1		
145	683-707	CONDENSER	3		
146	683-708	CORD COMP.	2		
147	683-711	HEX. BOLT M6X12	5		
151	683-778	PANEL ASS'Y	1	INCLUD. 111, 141	
		WIRE HARNESS			
161	683-722	WIRE HARNESS	1		
162	683-775	WIRE HARNESS	1		
163	683-715	CORD COMP.	1		
164	683-714	CORD COMP.	1		
165	683-720	CORD COMP. (GRAY)	1		
166	683-721	CORD COMP. (BLUE)	1		
167	683-719	CORD COMP. (YELLOW)	1		

PARTS

E 71

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