



SERVICE MANUAL

BATTERY POWER BLOWER

ECHO: DPB-2600

(Serial number : U71335000001 - U71335999999)

Reference No. 25-001-EN
ISSUED : 202402

Introduction

This manual contains description for the maintenance and repair on this product.

Technical improvement of this product can cause changes to the maintenance, repair and spare parts. All specifications, illustrations and directions in this manual are based on the latest product information available at the time of publication.

Specifications are subject to change without notice.

Safety Alert Symbols

Safety messages in this manual are identified by the words "WARNING", "CAUTION", and "NOTICE."

The meanings are as follows.

WARNING

- The safety alert symbol accompanied by the word "WARNING" calls attention to an act or condition which CAN lead to serious personal injury or death if not avoided.

NOTICE

- The enclosed message provides information necessary for the protection of the unit.

CAUTION

- The safety alert symbol accompanied by the word "CAUTION" calls attention to an act or condition which might lead to minor or moderate personal injury if not avoided.

Trademarks

TORX is a registered trademark of Acument Intellectual Properties, LLC.

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1. Basic Information

1-1 Product Specifications

Item		Unit	Details	
Dimensions*1	Length	mm (in)	344 (13.5)	
	Width	mm (in)	173 (6.8)	
	Height	mm (in)	327 (12.9)	
Weight*1		kg (lb)	2.0 (4.4)	
Motor	Type	-	Brushless DC motor	
	Rotation direction	-	Clockwise as viewed from the output end	
	Rated current	A	21.8	
	Rated voltage	V	50.4	
	Rated output	kW	0.9	
	Speed control	-	Variable	
Battery	Standard battery	-	LBP-560-100 / LBP-560-200	LBP-50-150 / LBP-50-250
	Type	-	Lithium-ion	
	Rated voltage	V	50.4	
	Capacity	Ah / Wh	LBP-560-100: 1.82 / 92 LBP-560-200: 3.66 / 185	LBP-50-150: 2.25 / 113 LBP-50-250: 4.50 / 226
	Charging time	min.	LBP-560-100: 22(80%) 33(100%) LBP-560-200: 45(80%) 64(100%)	LBP-50-150: 30(80%) 47(100%) LBP-50-250: 60(80%) 89(100%)
	Run time on a single charge*2	min.	LBP-560-100: Up to 7 LBP-560-200: Up to 14	LBP-50-150: Up to 8 LBP-50-250: Up to 20
Battery charger	Standard charger	-	LCJQ-560C	
	Input voltage	-	AC220-240	
Throttle	Type	-	Trigger with cruise control	
Blower	Type	-	Centrifugal	
	Max. air volume	m3/min (cfm)	STD: 11.6 (410)	
			Boost: 13.3(469)	
	Max. air velocity	m/s (mph)	STD: 69.7 (156)	
Boost: 79.5(178)				
Discharge ID	mm (in)	65.5 (2.6)		

*1 Without blower pipes and battery

*2 Depending on battery size, charge level and operating conditions.

1-2 Torque Limits

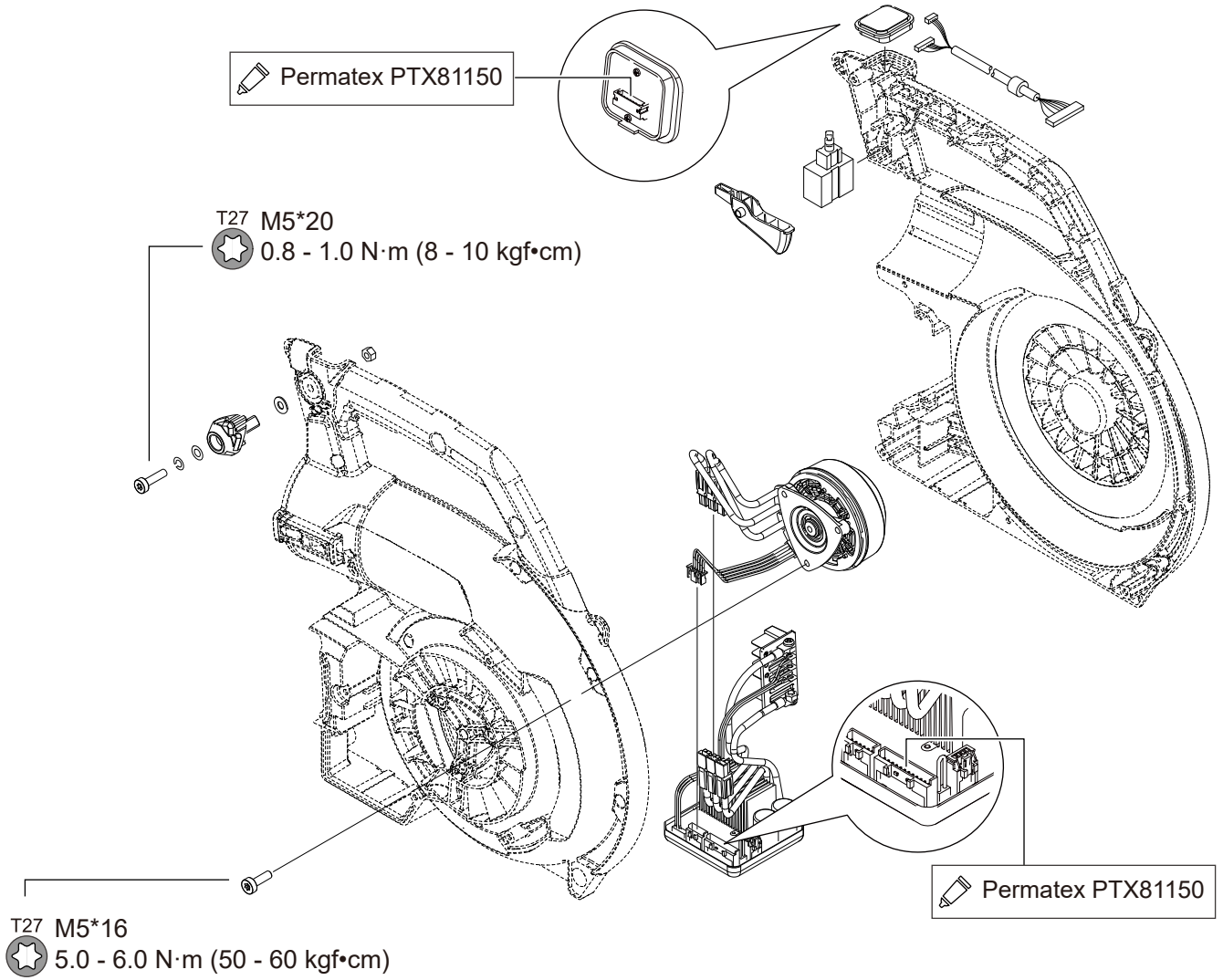


Figure : Torque Limits (1)

Remark

TAP : Tapping

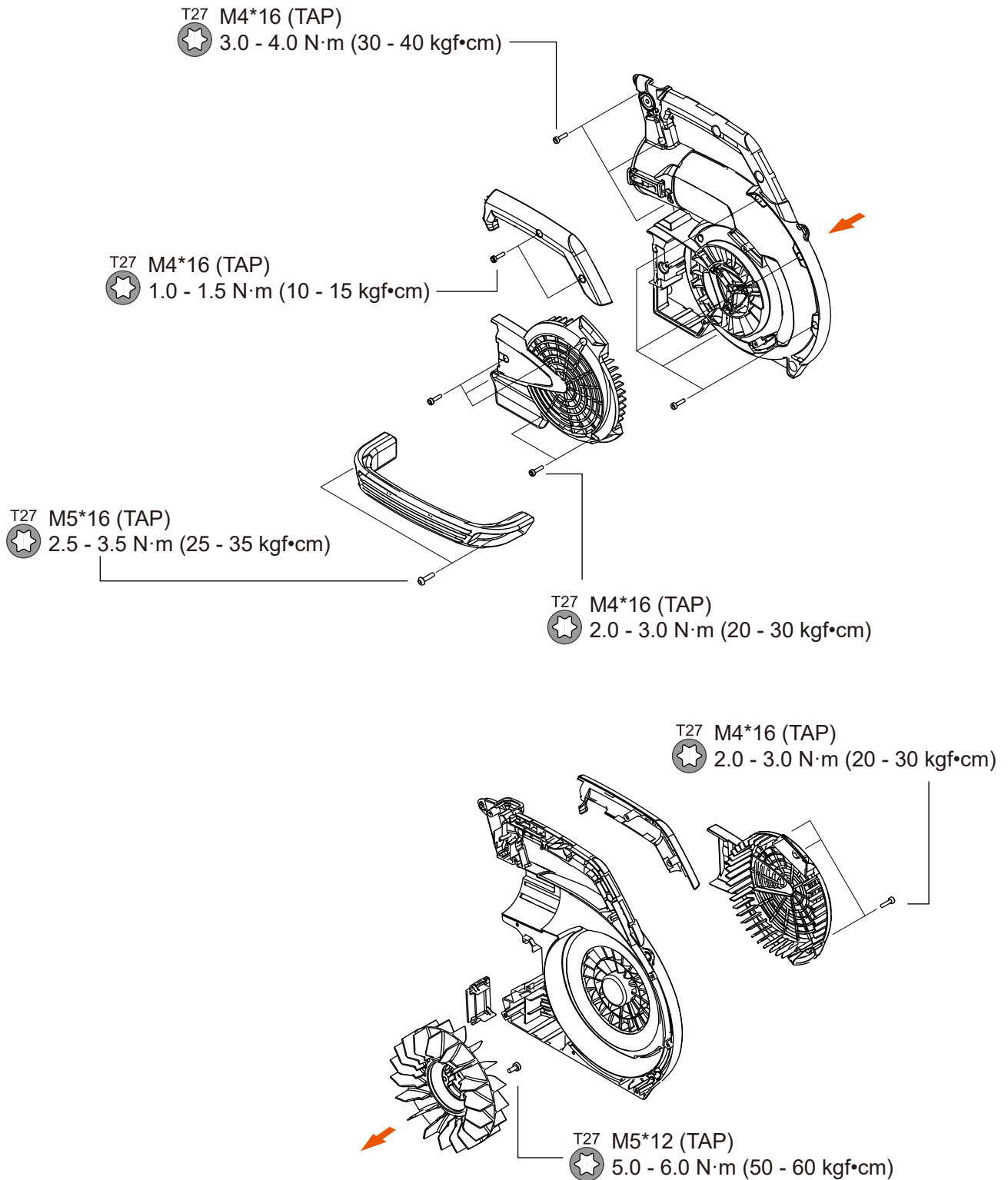


Figure : Torque Limits (2)

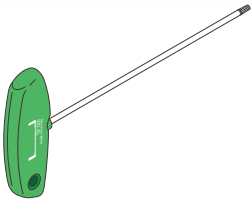
Remark

TAP : Tapping

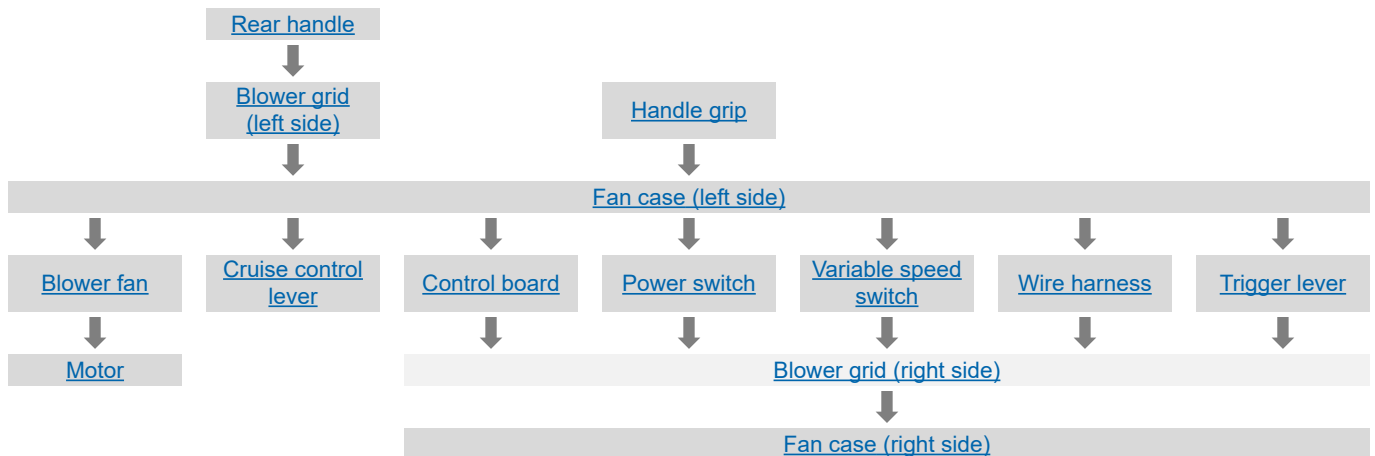
Related Topics

➔ [1-3 Required Tools and Special Maintenance Materials \(p.5\)](#)

1-3 Required Tools and Special Maintenance Materials

<p>1</p> 				
	Part Number	Part Name	Use	
1	X602-000340	Torx wrench (T27)	To loosen/tighten Torx bolts	

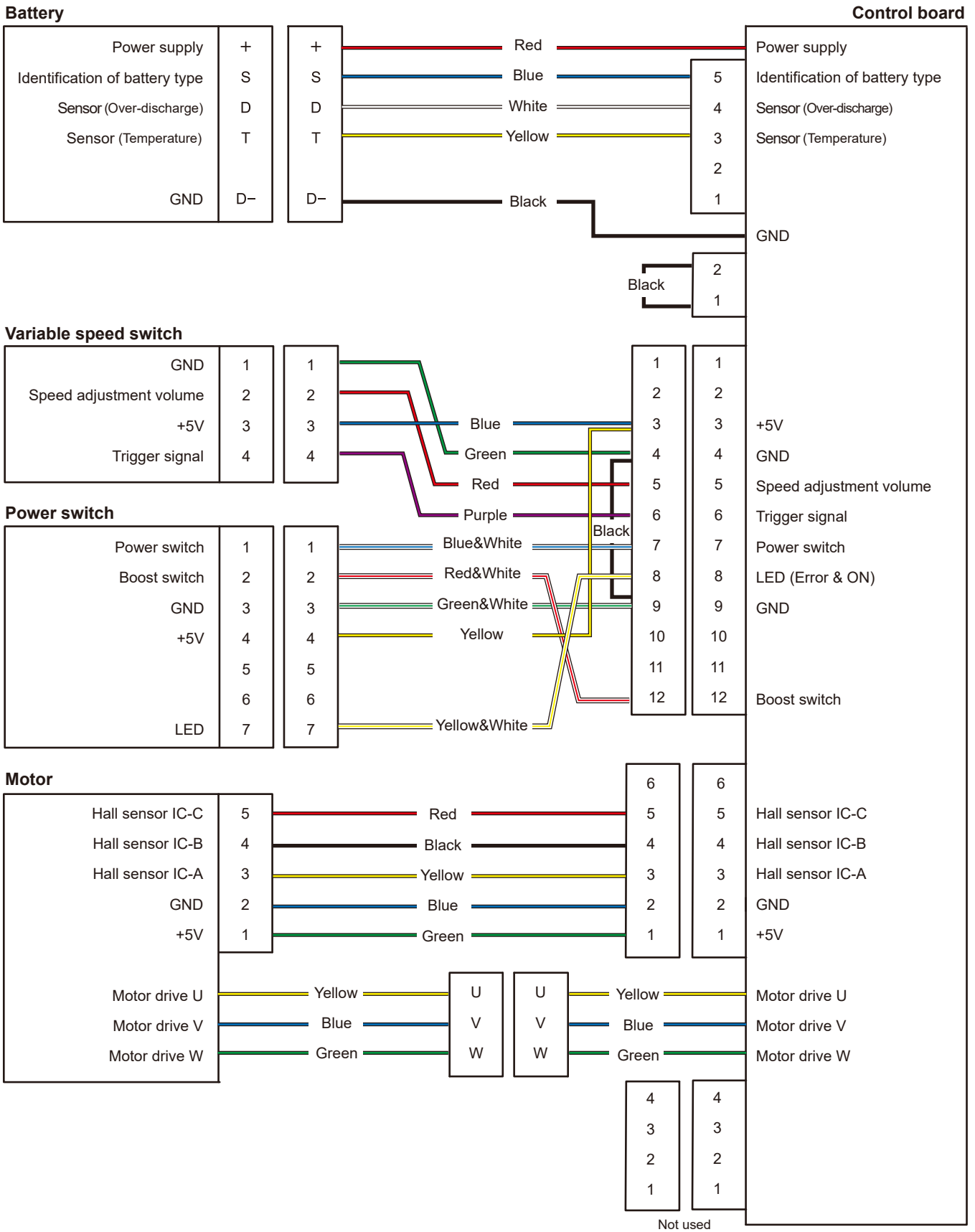
1-4 Disassembly Chart



Related Topics

- [6-2 Remove the Fan Case \(p.41\)](#)
- [6-4 Remove/Attach the Blower Fan \(p.42\)](#)
- [4-2 Remove the Motor Assembly \(p.32\)](#)
- [5-2 Remove/Attach the Trigger Parts \(p.36\)](#)
- [4-4 Remove the Control Board Assembly \(p.32\)](#)
- [5-3 Remove the Power Switch \(p.36\)](#)
- [5-5 Remove/Attach the Variable Speed Switch \(p.38\)](#)
- [5-6 Remove/Attach the Wire Harness \(p.38\)](#)

1-5 Wiring Diagram



2. Troubleshooting

2-1 Flow of Troubleshooting

Problems with the unit may have several causes.

Perform troubleshooting according to the flow below in order to identify the cause of the problem.

(1) Checking the power indicator

The flashing of the power indicator enables you to identify possible error causes.

(2) Diagnosis with the maintenance mode

The unit has a maintenance mode that can be used for diagnosis.

You can operate the unit to check the error number indicating the most recent error.

(3) Troubleshooting flow

If you cannot solve the problem with the maintenance mode, perform troubleshooting via the flow indicated below.

Start troubleshooting from flow **STEP 0**.

STEP 0 Error diagnosis

STEP 1 Checking the battery and the charger

STEP 2 Checking the unit when battery failure occurs

STEP 3 Checking the power supply circuit

STEP 4 Checking low voltage and over-discharge

STEP 5 Checking each sensor of the battery

STEP 6 Checking the overload

STEP 7 Checking other failures

2-2 Power Indicator Error Display

The flashing of the power indicator **A** enables you to identify possible error causes.

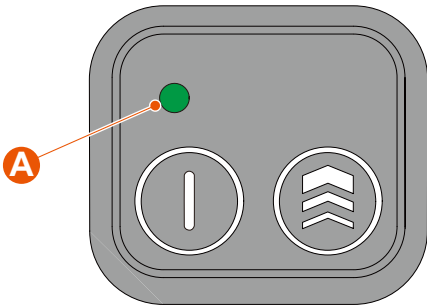


Figure : Power switch

Slow flashing (1 time/second)

- Low battery voltage
- Battery voltage too low to charge
- The battery sensor has a bad connection, or is disconnected.
- The capacitor is damaged.

Fast flashing (4 times/second)

- The battery voltage is too high.
- The battery is too hot or too cold.
- The unit is too hot or too cold.
- No electric current flows to the motor.
- The motor speed does not reach the set speed because a load is applied when the motor is started.
- The hall sensor is defective, or disconnected.
- The variable speed switch is defective, or disconnected.
- The board is defective.

2-3 Diagnosis with Maintenance Mode



Remark

Y : Yes

N : No

*1 The power indicator alternates between slow flashes indicating the error number and fast flashes indicating a pause.

Related Topics

- [2-4 List of Maintenance Mode Error Numbers and Remedies \(p.11\)](#)
- [2-8 Troubleshooting "STEP 3" \(Check the Power Supply Circuit\) \(p.16\)](#)

2-4 List of Maintenance Mode Error Numbers and Remedies

You can identify the error number by counting the number of slow power indicator flashes in the maintenance mode.

The error number indicates the most recent error. Maintenance mode retains the last error number after the error is resolved. Error numbers are not deleted unless another error occurs.

The causes and remedies of each error number are indicated below.

Error number	Possible cause	Remedy
2 to 4	The capacitor is damaged.	Replace the control board assembly.
5 to 8	The battery voltage is too high.	Check the battery voltage.
9	The battery is too hot.	Wait for the battery to cool down. Check the battery temperature sensor.
11	The unit is too hot.	Wait for the unit to cool down.
12	The unit is too cold.	Wait for the unit to warm up.
17	Program protection function	Turn off the power switch and then turn the power switch on again.
19 to 21		
22	The motor is ready to run, but no electric current flows to the motor.	Check the motor connectors.
23	The motor speed does not reach the set speed because a load is applied when the motor is started.	Turn off the power switch and then remove the load.
24 to 25	The hall sensor is defective.	Inspect the motor assembly.
26	The hall sensor is defective, or disconnected.	Inspect the motor assembly.
27	The variable speed switch is defective, or disconnected.	Inspect the variable speed switch.
28 to 29	Program protection function	Turn off the power switch and then turn the power switch on again.

Related Topics

- [4-4 Remove the Control Board Assembly \(p.32\)](#)
- [4-5 Attach the Control Board Assembly \(p.33\)](#)
- [3-6 Inspect the Battery Voltage \(p.28\)](#)
- [3-8 Inspect the Battery Temperature Sensor \(p.29\)](#)
- [7-1 Inspect the Motor Assembly \(p.44\)](#)
- [7-4 Inspect the Variable Speed Switch \(p.46\)](#)

2-5 Troubleshooting "STEP 0" (Error Diagnosis)



Remark

Y : Yes

N : No

Related Topics

- [2-6 Troubleshooting "STEP 1" \(Check the Battery and Charger\) \(p.13\)](#)
- [2-7 Troubleshooting "STEP 2" \(Check the Unit When Battery Failure Occurs\) \(p.15\)](#)
- [2-8 Troubleshooting "STEP 3" \(Check the Power Supply Circuit\) \(p.16\)](#)
- [2-9 Troubleshooting "STEP 4" \(Check Low Voltage and Over-Discharge\) \(p.18\)](#)
- [2-10 Troubleshooting "STEP 5" \(Check Each Sensor of Battery\) \(p.20\)](#)
- [2-11 Troubleshooting "STEP 6" \(Check the Overload\) \(p.22\)](#)
- [2-12 Troubleshooting "STEP 7" \(Check Other Failures\) \(p.24\)](#)

2-6 Troubleshooting "STEP 1" (Check the Battery and Charger)

NOTICE

- If the unit is defective, it may also damage the new battery when the battery is replaced with a new one. Before replacing the battery, perform flow **STEP 2** to check the unit for problems other than the battery.



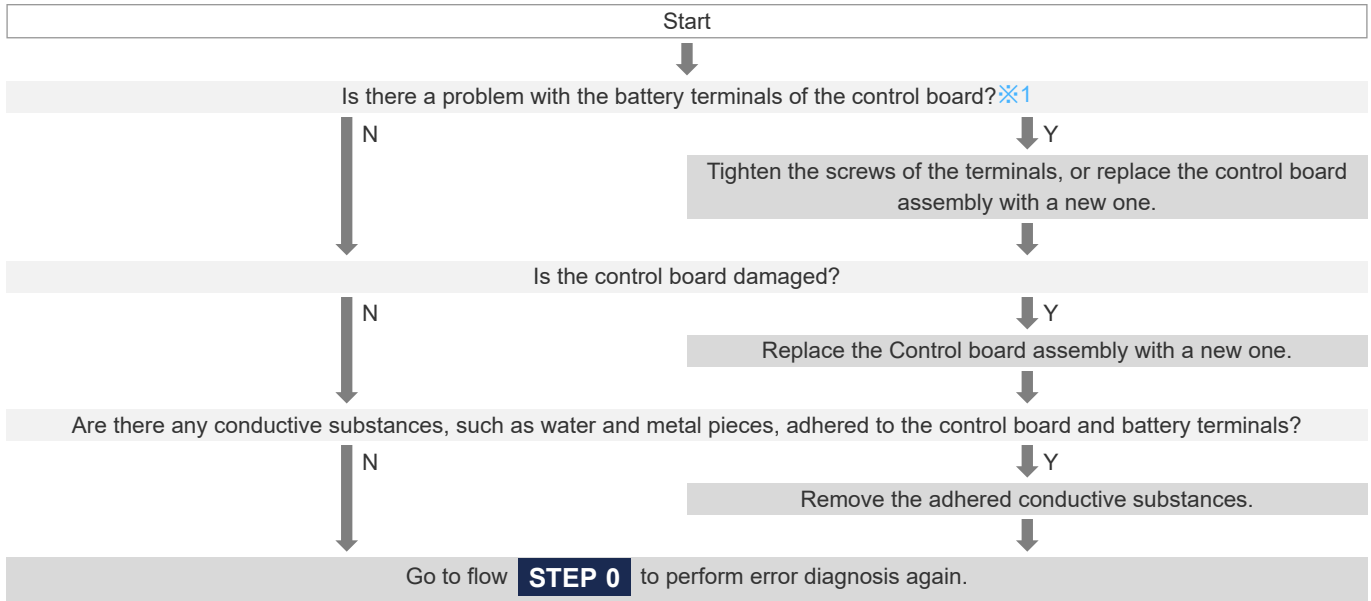
Remark

Y : Yes
 N : No

Related Topics

- [2-5 Troubleshooting "STEP 0" \(Error Diagnosis\) \(p.12\)](#)
- [2-7 Troubleshooting "STEP 2" \(Check the Unit When Battery Failure Occurs\) \(p.15\)](#)

2-7 Troubleshooting "STEP 2" (Check the Unit When Battery Failure Occurs)



Remark

Y : Yes
N : No

- ※1 Inspect the battery terminals of the control board for the following problems.
- There is a short-circuit between the positive [+] terminal and the negative [-] terminal.
 - The screws of the battery terminals are loose or disconnected.
 - No electric current can flow in the positive [+] and negative [-] terminal wires.

関連項目

- [7-2 Inspect the Control board assembly \(p.44\)](#)
- [4-4 Remove the Control Board Assembly \(p.32\)](#)
- [4-5 Attach the Control Board Assembly \(p.33\)](#)
- [2-5 Troubleshooting "STEP 0" \(Error Diagnosis\) \(p.12\)](#)

2-8 Troubleshooting "STEP 3" (Check the Power Supply Circuit)

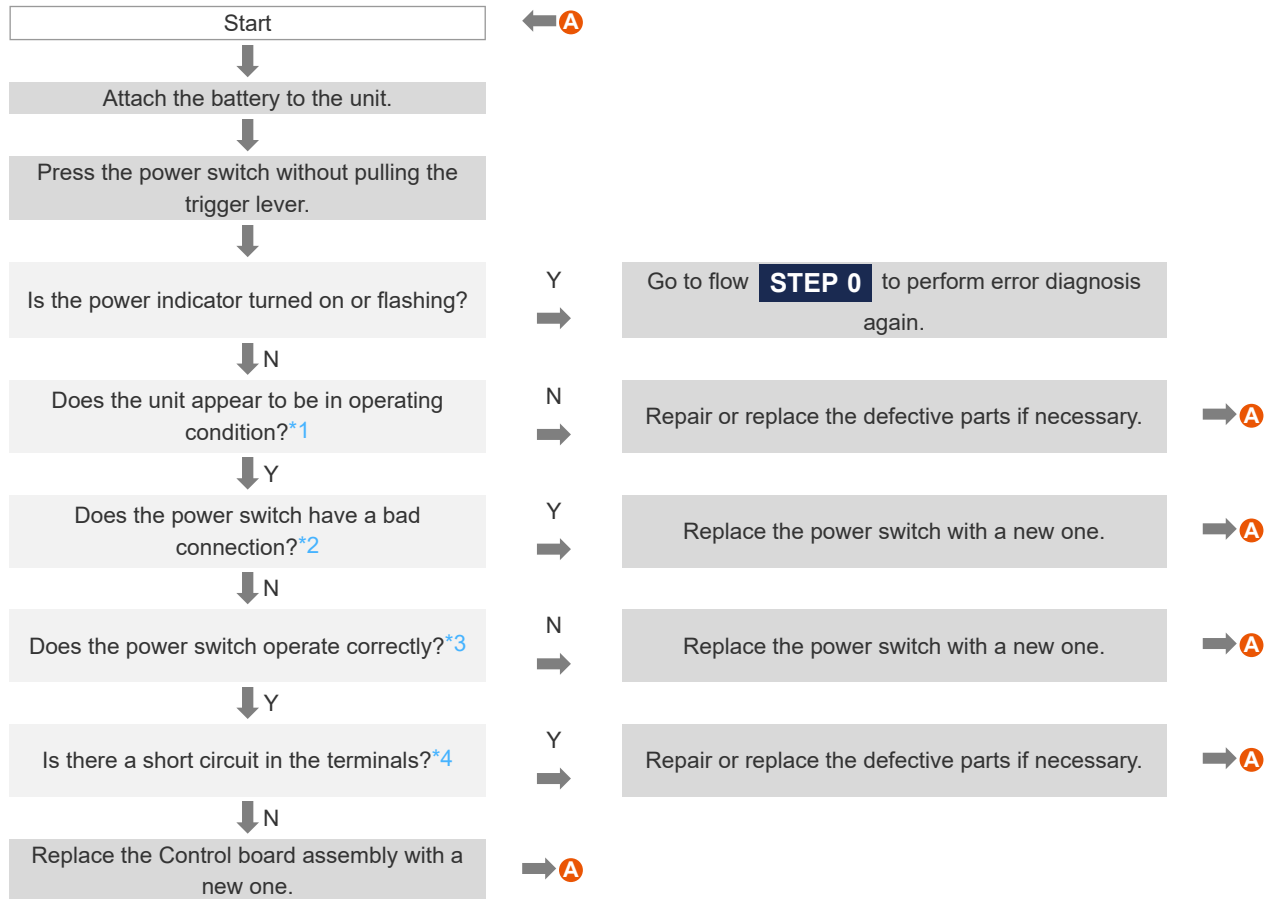
⚠ WARNING

- Perform troubleshooting in safe, clear surroundings. The unit may run unexpectedly.

NOTICE

- If the unit is defective, it may also damage the new battery when the battery is replaced with a new one.

Before replacing the battery, perform flow **STEP 2** to check the unit for problems other than the battery.



Remark

Y : Yes
 N : No

*1 Inspect the unit for the following:

- Each connector is connected securely.
- Each wire is connected to each connector securely.
- All the wires are intact.

*2 Inspect the following.

- When the power switch button is pressed : An electric current flows between terminals [1] and [3].
- When the power switch button is released : No electric current flows between terminals [1] and [3].
- When the boost button is pressed : An electric current flows between terminals [2] and [3].
- When the boost button is released : No electric current flows between terminals [2] and [3].

*3 Apply an electric current between terminals [4] and [7] of the power switch. The power indicator should turn on.

- *4 Inspect the following terminals for a short circuit.
- Between terminals [3] and [4] of the power switch
 - Between terminals [1] and [3] of the variable speed switch
 - Between terminals [1] and [2] of the motor assembly 5-pole terminal block.

Related Topics

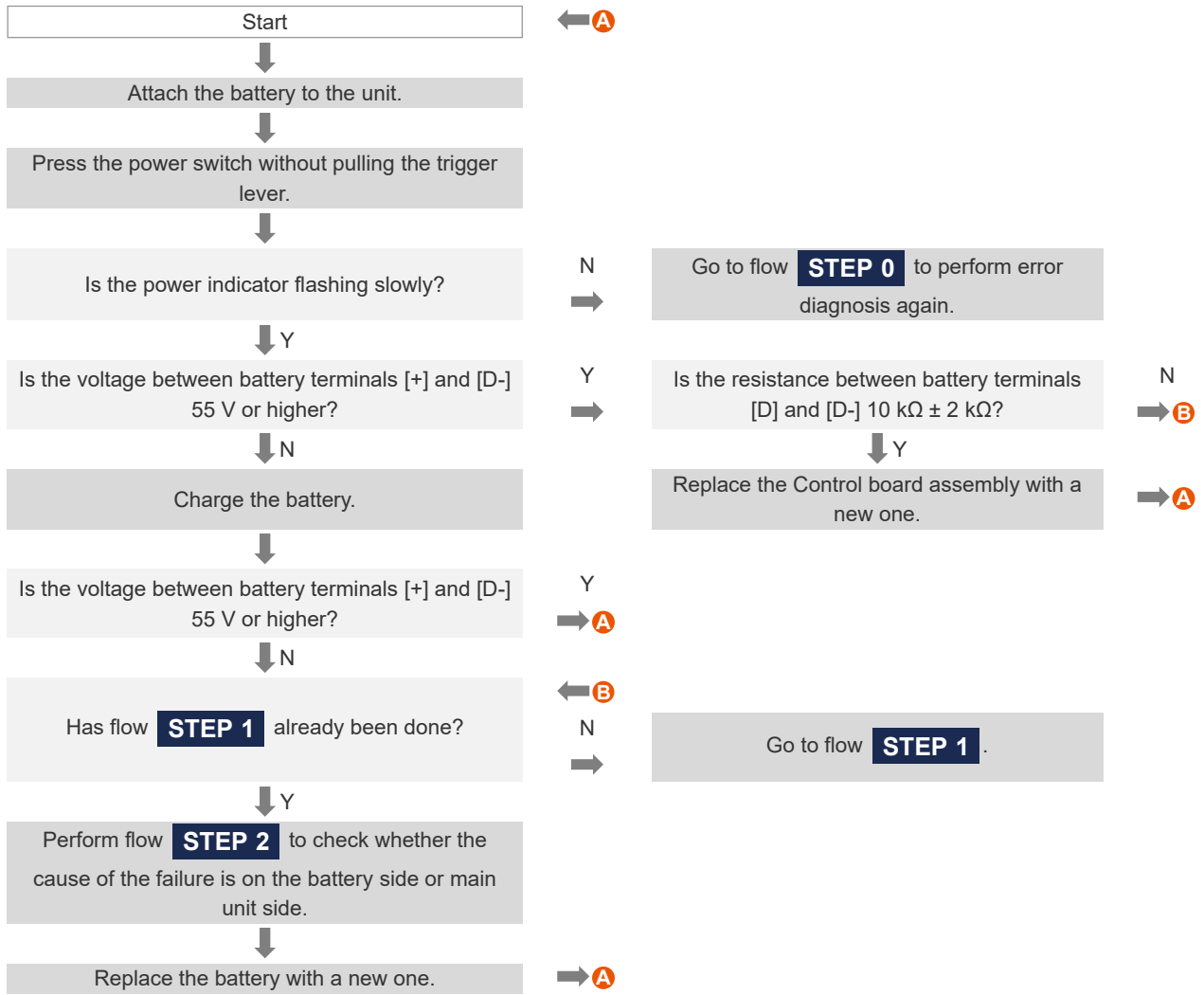
- [3-8 Inspect the Battery Temperature Sensor \(p.29\)](#)
- [7-3 Inspect the Power Switch \(p.45\)](#)
- [7-4 Inspect the Variable Speed Switch \(p.46\)](#)
- [7-1 Inspect the Motor Assembly \(p.44\)](#)
- [5-3 Remove the Power Switch \(p.36\)](#)
- [5-4 Attach the Power Switch \(p.37\)](#)
- [4-4 Remove the Control Board Assembly \(p.32\)](#)
- [4-5 Attach the Control Board Assembly \(p.33\)](#)
- [2-5 Troubleshooting "STEP 0" \(Error Diagnosis\) \(p.12\)](#)
- [2-7 Troubleshooting "STEP 2" \(Check the Unit When Battery Failure Occurs\) \(p.15\)](#)

2-9 Troubleshooting "STEP 4" (Check Low Voltage and Over-Discharge)

NOTICE

- If the unit is defective, it may also damage the new battery when the battery is replaced with a new one.

Before replacing the battery, perform flow **STEP 2** to check the unit for problems other than the battery.



Remark

Y : Yes
 N : No

Related Topics

- [3-6 Inspect the Battery Voltage \(p.28\)](#)
- [3-7 Inspect for Damage from Over-Discharging \(p.29\)](#)
- [4-4 Remove the Control Board Assembly \(p.32\)](#)
- [4-5 Attach the Control Board Assembly \(p.33\)](#)
- [2-5 Troubleshooting "STEP 0" \(Error Diagnosis\) \(p.12\)](#)
- [2-6 Troubleshooting "STEP 1" \(Check the Battery and Charger\) \(p.13\)](#)
- [2-7 Troubleshooting "STEP 2" \(Check the Unit When Battery Failure Occurs\) \(p.15\)](#)

2-10 Troubleshooting "STEP 5" (Check Each Sensor of Battery)

⚠ WARNING

- Perform troubleshooting in safe, clear surroundings. The unit may run unexpectedly.

NOTICE

- If the unit is defective, it may also damage the new battery when the battery is replaced with a new one.

Before replacing the battery, perform flow **STEP 2** to check the unit for problems other than the battery.



Remark

Y : Yes
N : No

*1 The resistance between battery terminals [T] and [C-] and between battery terminals [T] and [D-] should be from 2.1 kΩ or 78.0 kΩ.

*2 Inspect the unit for the following:

- Each connector is connected securely.
- Each wire is connected to each connector securely.
- All the wires are intact.
- There are no short circuits.
- No conductive substances, such as water and metal pieces, are adhered to the control board (PCB-Printed Circuit Board).

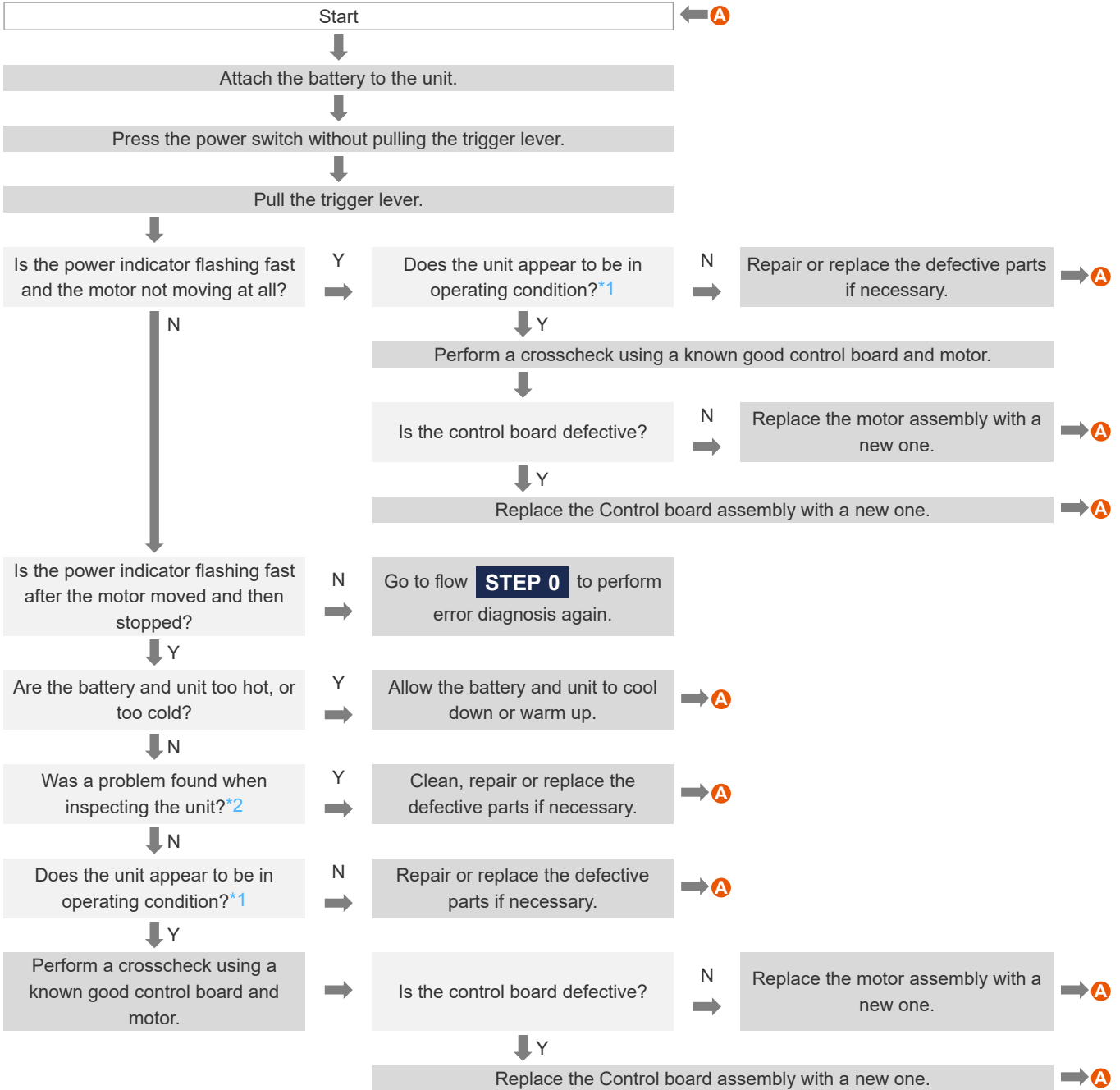
Related Topics

- [3-8 Inspect the Battery Temperature Sensor \(p.29\)](#)
- [3-6 Inspect the Battery Voltage \(p.28\)](#)
- [4-4 Remove the Control Board Assembly \(p.32\)](#)
- [4-5 Attach the Control Board Assembly \(p.33\)](#)
- [4-2 Remove the Motor Assembly \(p.32\)](#)
- [4-3 Attach the Motor Assembly \(p.32\)](#)
- [2-5 Troubleshooting "STEP 0" \(Error Diagnosis\) \(p.12\)](#)
- [2-7 Troubleshooting "STEP 2" \(Check the Unit When Battery Failure Occurs\) \(p.15\)](#)

2-11 Troubleshooting "STEP 6" (Check the Overload)

⚠ WARNING

- Perform troubleshooting in safe, clear surroundings. The unit may run unexpectedly.



Remark

Y : Yes
 N : No

- *1 Inspect the unit for the following:
- Each connector is connected securely.
 - Each wire is connected to each connector securely.
 - All the wires are intact.
 - There are no short circuits.
- *2 Inspect the unit for the following problems:
- Fan clogged with grass or other objects
 - Non-recommended blower pipe used
 - Blower pipe bent or damaged

Related Topics

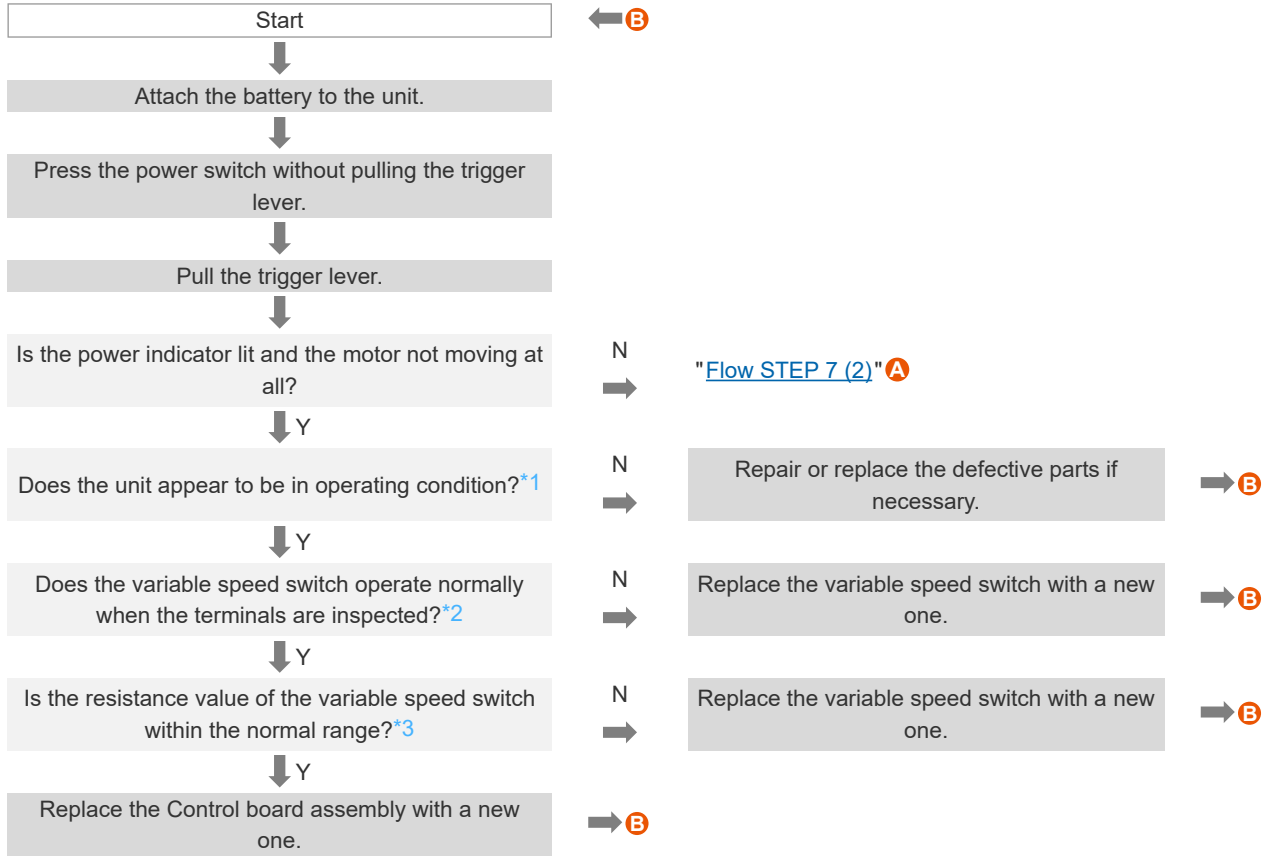
- [4-4 Remove the Control Board Assembly \(p.32\)](#)
- [4-5 Attach the Control Board Assembly \(p.33\)](#)
- [4-2 Remove the Motor Assembly \(p.32\)](#)
- [4-3 Attach the Motor Assembly \(p.32\)](#)
- [2-5 Troubleshooting "STEP 0" \(Error Diagnosis\) \(p.12\)](#)

2-12 Troubleshooting "STEP 7" (Check Other Failures)

⚠ WARNING

- Perform troubleshooting in safe, clear surroundings. The unit may run unexpectedly.

Flow STEP 7 (1)



Remark

Y : Yes
 N : No

*1 Inspect the unit for the following:

- Each connector is connected securely.
- Each wire is connected to each connector securely.
- All the wires are intact.
- There are no short circuits.

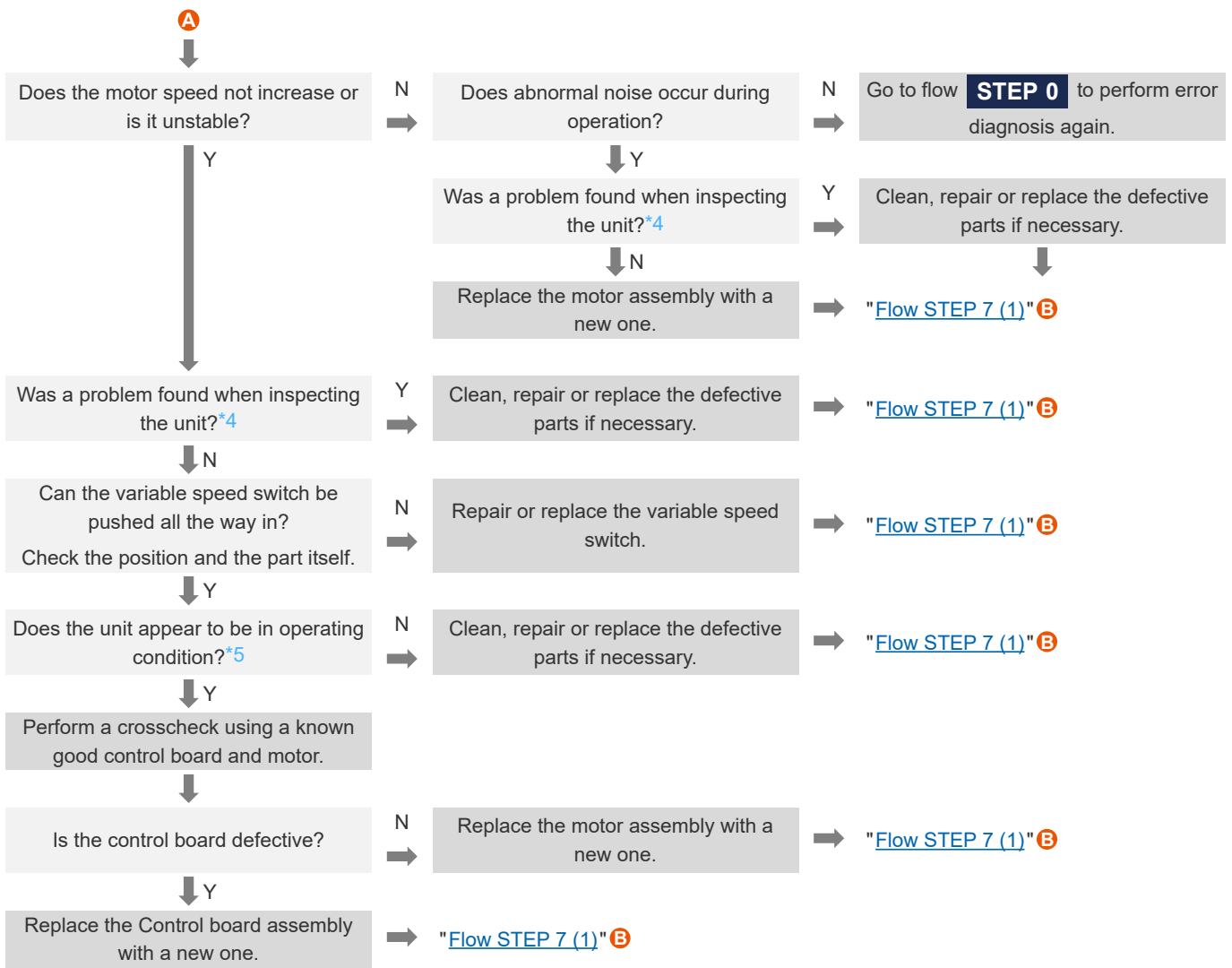
*2 Inspect the terminals of the variable speed switch for the following operation.

- When the switch is pressed : An electric current flows between terminals [1] and [4].
- When the switch is not pressed : No electric current flows between terminals [1] and [4].

*3 Inspect whether the resistance value between terminals [1] and [2] of the variable speed switch is within the following range.

- When the switch is pressed : 100 Ω or lower
- When the switch is not pressed : Between 70 kΩ and 130 kΩ

Flow STEP 7 (2)



Remark

Y : Yes
N : No

*4 Inspect the unit for the following problems:

- Fan clogged with grass or other objects
- Non-recommended blower pipe used
- Blower pipe bent or damaged

*5 Inspect the unit for the following:

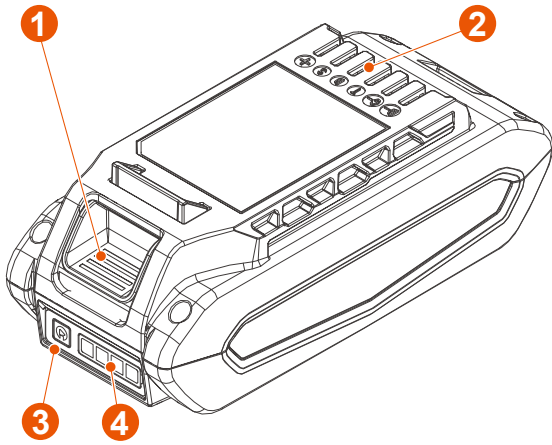
- Each connector is connected securely.
- Each wire is connected to each connector securely.
- All the wires are intact.
- There are no short circuits.

Related Topics

- [5-5 Remove/Attach the Variable Speed Switch \(p.38\)](#)
- [7-4 Inspect the Variable Speed Switch \(p.46\)](#)
- [4-4 Remove the Control Board Assembly \(p.32\)](#)
- [4-5 Attach the Control Board Assembly \(p.33\)](#)
- [4-2 Remove the Motor Assembly \(p.32\)](#)
- [4-3 Attach the Motor Assembly \(p.32\)](#)
- [2-5 Troubleshooting "STEP 0" \(Error Diagnosis\) \(p.12\)](#)

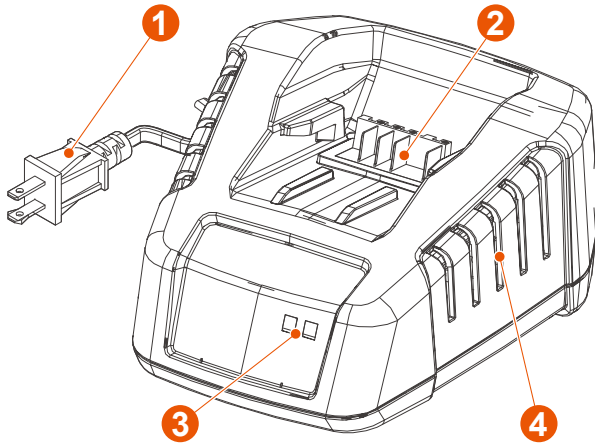
3. Inspect the Battery and Charger

3-1 Battery Components



- 1 Battery pack latch
- 2 Battery terminal
- 3 Battery charge status button
- 4 LED charge level indicators

3-2 Charger Components



- 1 Power cord
- 2 Battery terminal
- 3 Charging status indicator
- 4 Ventilation holes

3-3 Cautions for Using Battery and Charger

CAUTION

- Do not open or modify the battery. Do not use a battery that is damaged or modified.

Damaged or modified batteries may result in electric shock, fire, explosion or injury.

NOTICE

- Charge the battery in an environment where ambient temperature is within 5°C to 40°C (41°F to 104°F).
- The battery capacity may decrease due to repeated charging and discharging.

When the battery has been charged 500 times, its capacity will have decreased to about 60%, but this is not a problem. If capacity is significantly reduced, replace the battery.

3-4 LED Charge Level Indicator

To light up the LED charge level indicator, press the battery charge status button of the battery. The LED charge level indicator lights up according to the remaining battery charge.

- ▶ : 80% to 100%
- ▶ : 55% to 80%
- ▶ : 25% to 55%
- ▶ : 0% to 25%
- ▶ : 0%

Related Topics

- [3-1 Battery Components \(p.27\)](#)

3-5 Charging Status Indicator

The charging status indicator shows the current battery status. The charging status indicator lights up or flashes when the battery is inserted into the charger.



(Flashing in green)

The battery is being charged.



(Green light is on)

The battery is fully charged. Remove the battery from the charger.



(Flashing in red)

The battery or the charger is defective or there is a bad connection between the battery and the charger.



(Red light is on)

The battery is too hot or too cold.

Related Topics

➤ [3-2 Charger Components \(p.27\)](#)

3-6 Inspect the Battery Voltage

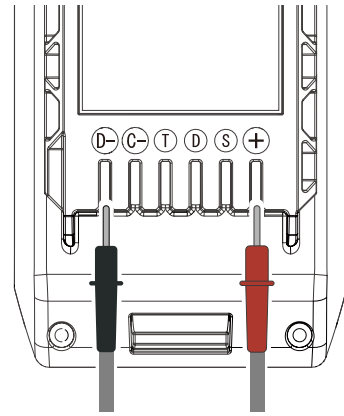
Prerequisites

- The ambient temperature should be in the range of 0 to 40°C (32°F to 104°F).
For correct measurement, check the ambient temperature in advance.
- Tools required:
 - Multimeter

Procedure

1. **Charge the battery.**
2. **Measure the voltage between battery terminals [D-] and [+] with a multimeter.**

The voltage should be from 55 V to 59 V.



3. **If the voltage is not within the normal range (55 V to 59 V), replace the battery or charger with a new one, depending on the voltage.**

NOTICE

- If the unit is defective, it may also damage the new battery when the battery is replaced with a new one.

Before replacing the battery, perform flow

STEP 2

to check the unit for problems other than the battery.

Lower than 55 V

The battery is defective. Replace the battery with a new one.

59.1 V or higher

The battery has been overcharged due to malfunction of the charger and battery. Replace both the battery and the charger with new ones.

CAUTION

- Do not use an overcharged battery. It may cause explosion or fire.

Related Topics

- [2-7 Troubleshooting "STEP 2" \(Check the Unit When Battery Failure Occurs\) \(p.15\)](#)
- [3-1 Battery Components \(p.27\)](#)
- [3-2 Charger Components \(p.27\)](#)

3-7 Inspect for Damage from Over-Discharging

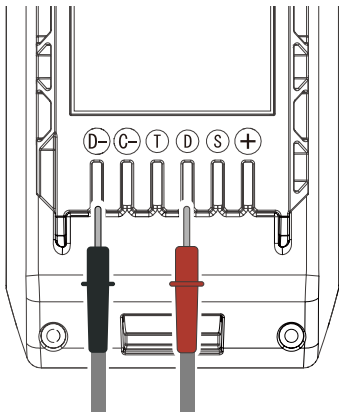
Prerequisites

- The ambient temperature should be in the range of 0 to 40°C (32°F to 104°F).
For correct measurement, check the ambient temperature in advance.
- Tools required:
 - Multimeter

Procedure

1. Charge the battery.
2. Measure the resistance between battery terminals [D-] and [D] with a multimeter.

The resistance should be within the $10\text{k}\Omega \pm 2\text{k}\Omega$. Usually, it is about 10 k Ω .



3. If the resistance is outside the $10\text{k}\Omega \pm 2\text{k}\Omega$, replace the battery with a new one.

If the resistance is greater than 0.95 M Ω , the battery is over-discharged.

NOTICE

- If the unit is defective, it may also damage the new battery when the battery is replaced with a new one.

Before replacing the battery, perform flow

STEP 2 to check the unit for problems other than the battery.

CAUTION

- Do not use an over-discharged battery. It may cause explosion or fire.

Related Topics

- [2-7 Troubleshooting "STEP 2" \(Check the Unit When Battery Failure Occurs\) \(p.15\)](#)
- [3-1 Battery Components \(p.27\)](#)
- [3-2 Charger Components \(p.27\)](#)

3-8 Inspect the Battery Temperature Sensor

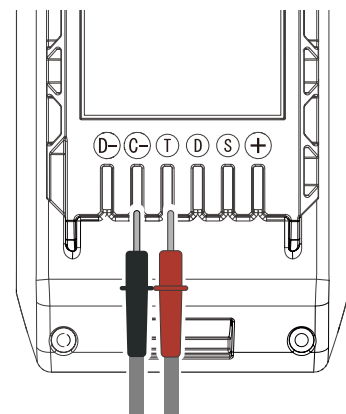
Prerequisites

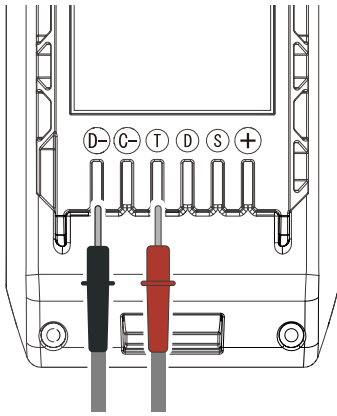
- The ambient temperature should be in the range of 0 to 40°C (32°F to 104°F).
For correct measurement, check the ambient temperature in advance.
- Tools required:
 - Multimeter

Procedure

1. Measure the resistance between battery terminals [C-] and [T] and between battery terminals [D-] and [T] with a multimeter.

Both resistance should be within the 2.1 k Ω to 78.0 k Ω .





2. If the resistance is outside the 2.1 k Ω to 78.0 k Ω , replace the battery with a new one.

The temperature sensor is damaged.

NOTICE

- If the unit is defective, it may also damage the new battery when the battery is replaced with a new one.

Before replacing the battery, perform flow

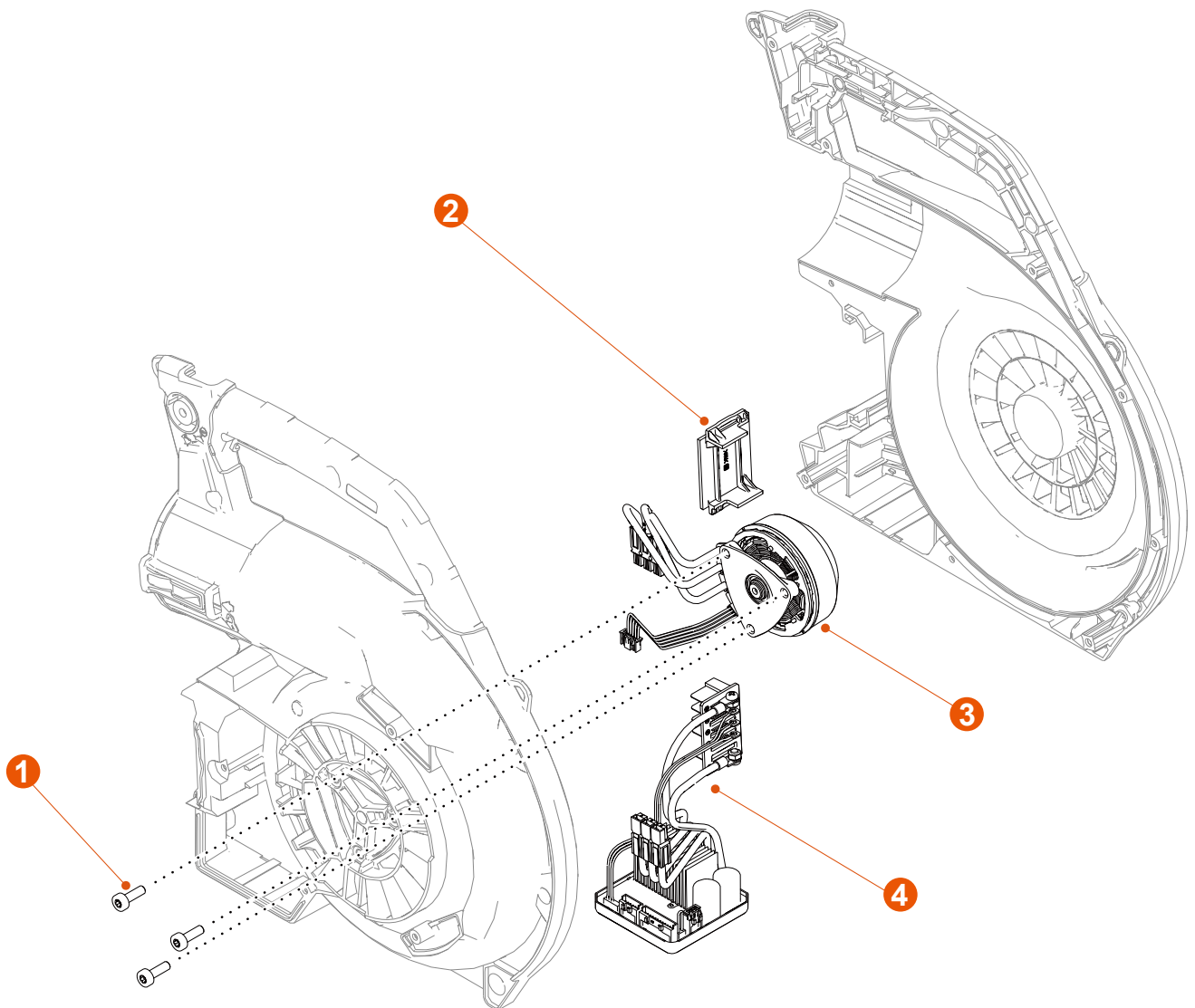
STEP 2 to check the unit for problems other than the battery.

Related Topics

- [2-7 Troubleshooting "STEP 2" \(Check the Unit When Battery Failure Occurs\) \(p.15\)](#)
- [3-1 Battery Components \(p.27\)](#)

4. Disassemble/Assemble the Motor and Control Board Assembly

4-1 Motor and Control Board Assembly Components



- 1** Torx bolt (M5)
- 2** Case lid
- 3** Motor assembly
- 4** Control board assembly

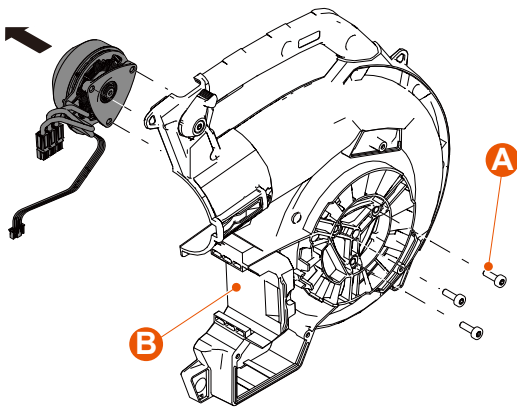
4-2 Remove the Motor Assembly

Prerequisites

- Remove the blower fan.
- Tools required:
 - [Torx wrench \(T27\)](#)

Procedure

1. Remove the 3 Torx bolts **A** from the fan case **B**.
2. Remove the motor assembly from the fan case **B**.



Related Topics

- [4-3 Attach the Motor Assembly \(p.32\)](#)
- [6-4 Remove/Attach the Blower Fan \(p.42\)](#)
- [4-1 Motor and Control Board Assembly Components \(p.31\)](#)

4-3 Attach the Motor Assembly

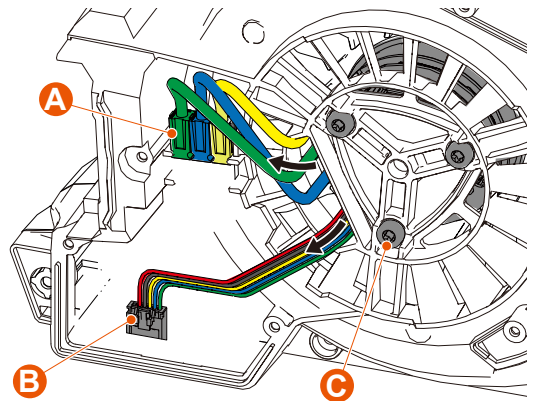
Prerequisites

- Tools required:
 - [Torx wrench \(T27\)](#)

Procedure

1. Pass the 3-pin connector **A** and the 5-pin connector **B** of the motor assembly through the hole of the fan case as shown.

2. Attach the motor assembly with the 3 Torx bolts **C**.



3. Attach the blower fan.

Related Topics

- [4-2 Remove the Motor Assembly \(p.32\)](#)
- [4-1 Motor and Control Board Assembly Components \(p.31\)](#)

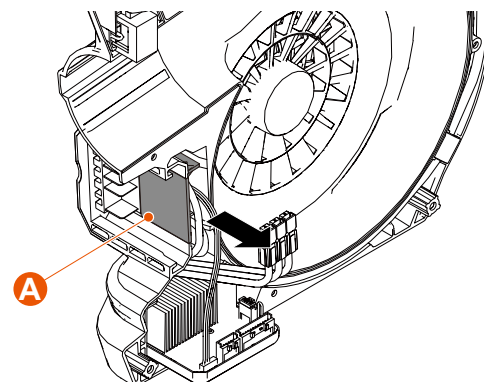
4-4 Remove the Control Board Assembly

Prerequisites

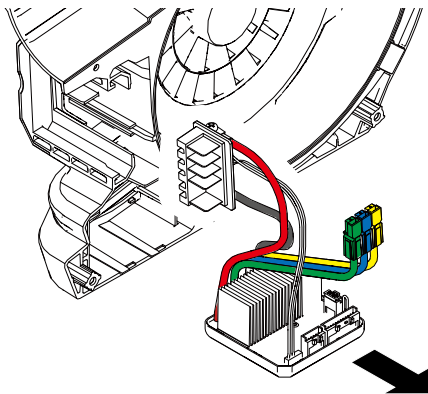
- Remove the fan case.

Procedure

1. Remove the case rid **A** from the fan case.



2. Remove the control board from the fan case.



Related Topics

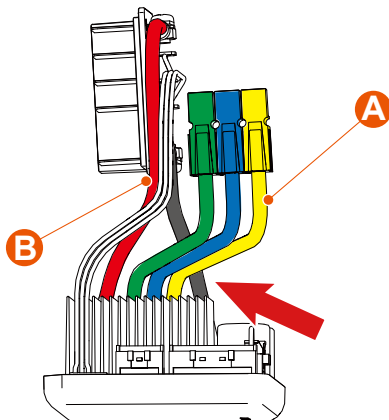
- [4-5 Attach the Control Board Assembly \(p.33\)](#)
- [6-2 Remove the Fan Case \(p.41\)](#)
- [4-1 Motor and Control Board Assembly Components \(p.31\)](#)

4-5 Attach the Control Board Assembly

Prerequisites

NOTICE

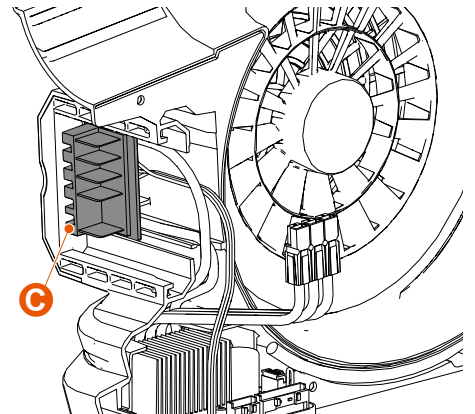
Before attaching the control board assembly, make sure that the 3-pin wire (green,blue and yellow) **A** passes over the battery terminal wires (black and red) **B** as shown.



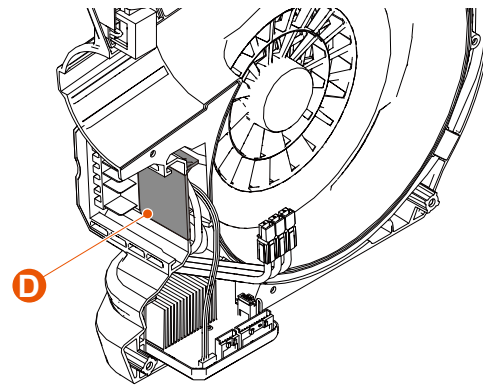
- Materials required:
 - Battery terminal grease (Permatex PTX81150 or equivalent)

Procedure

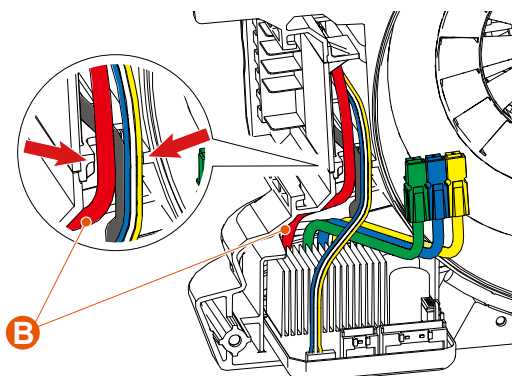
1. Attach the battery terminal **C** of the control board assembly in the fan case as shown.



2. Attach the case lid **D** in the fan case.



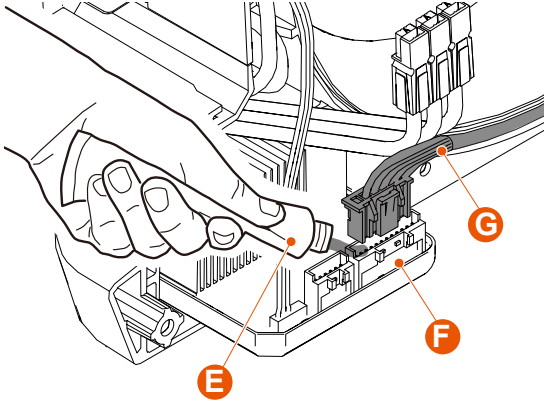
3. Attach the control board assembly in the fan case as shown.



NOTICE

Make sure that the battery terminal wires (black and red) **B** are seated in the guides of the fan case.

4. Apply the battery terminal grease **E** (Permatex OTX81150 or equivalent) in the connector **F** of the control board.
5. Connect the wire harness **G** to the connector **F** of the control board.

**NOTICE**

Wipe off the battery terminal grease **E** that has been spilled.

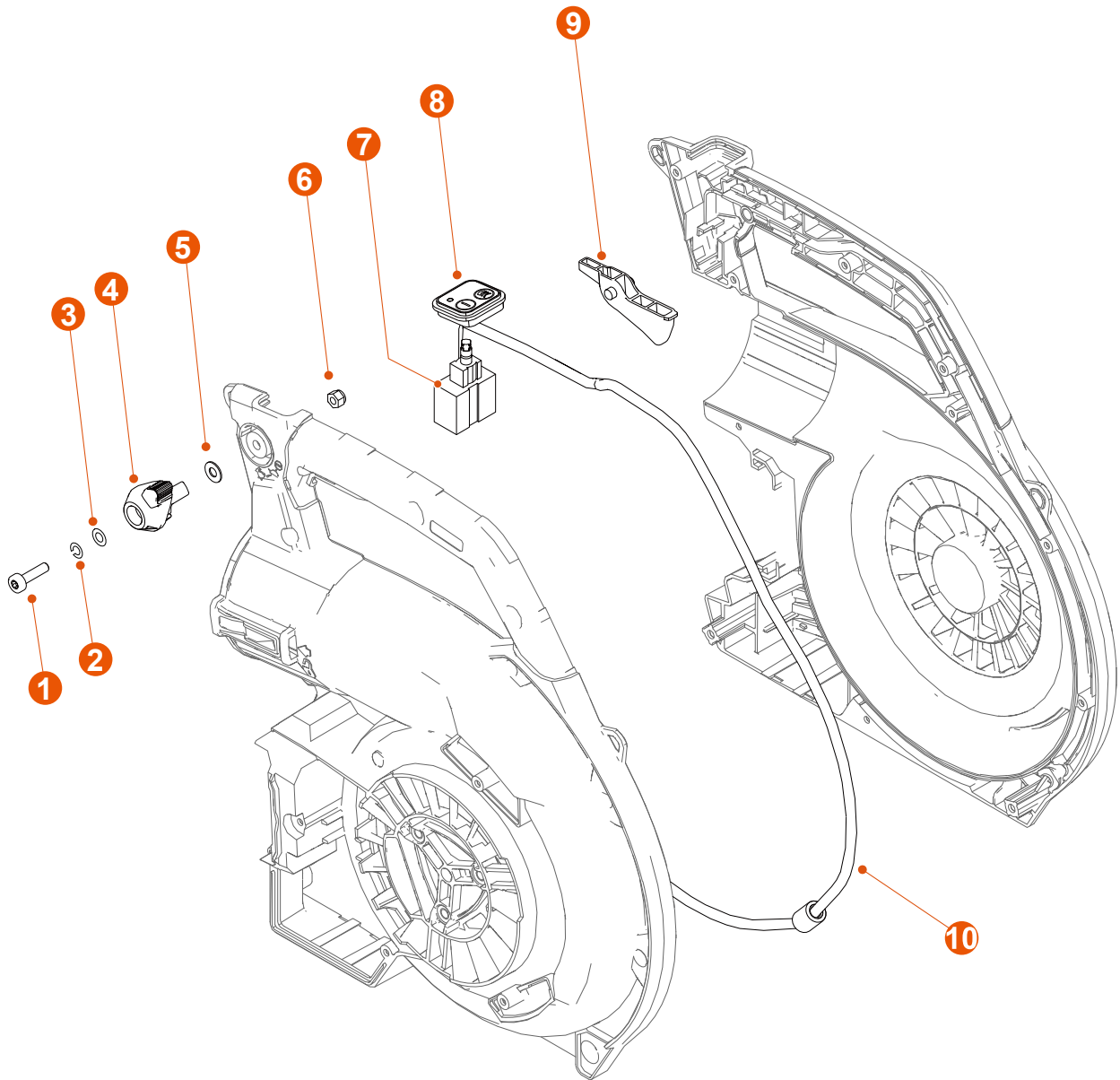
6. Attach the fan case.

Related Topics

- [4-4 Remove the Control Board Assembly \(p.32\)](#)
- [4-1 Motor and Control Board Assembly Components \(p.31\)](#)

5. Disassemble/Assemble the Switch and Trigger

5-1 Switch and Trigger Components



- 1 Torx bolt (M5)
- 2 Spring washer
- 3 Washer
- 4 Cruise control lever
- 5 Washer

- 6 Lock nut
- 7 Variable speed switch
- 8 Power switch
- 9 Trigger lever
- 10 Wire harness

5-2 Remove/Attach the Trigger Parts

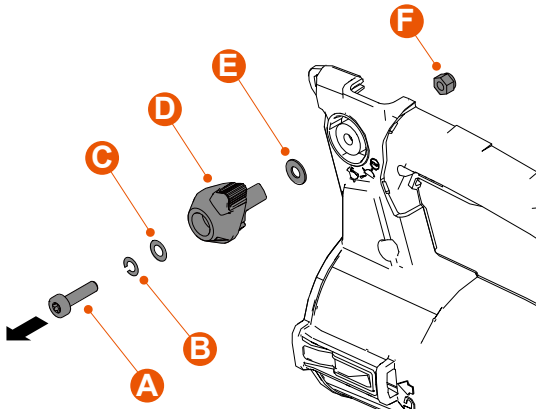
When reinstalling the removed parts, do so in the reverse order from that indicated below.

Prerequisites

- Remove the fan case.
- Tools required:
 - [Torx wrench \(T27\)](#)

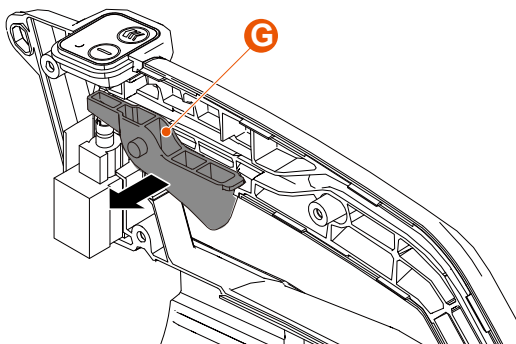
Procedure

1. Remove the following parts.



- Torx bolt (M5) **A**
- Spring washer **B**
- Washer **C**
- Cruise control lever **D**
- Washer **E**
- Lock nut **F**

2. Remove the trigger lever **G** from the fan case.



3. Inspect the removed parts.

If any deformation, damage, or wear is found, replace the parts with new ones.

Related Topics

- [6-2 Remove the Fan Case \(p.41\)](#)
- [5-1 Switch and Trigger Components \(p.35\)](#)

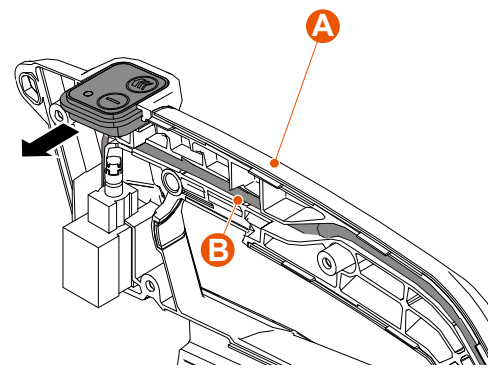
5-3 Remove the Power Switch

Prerequisites

- Remove the following parts.
 - (1) Fan case
 - (2) Trigger lever

Procedure

1. Remove the power switch from the fan case **A**.
2. Disconnect the power switch from the wire harness **B**.



Related Topics

- [5-4 Attach the Power Switch \(p.37\)](#)
- [6-2 Remove the Fan Case \(p.41\)](#)
- [5-2 Remove/Attach the Trigger Parts \(p.36\)](#)
- [5-1 Switch and Trigger Components \(p.35\)](#)

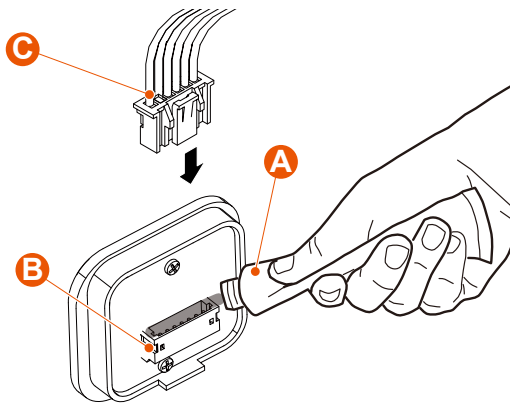
5-4 Attach the Power Switch

Prerequisites

- Materials required:
 - Battery terminal grease (Permatex PTX81150 or equivalent)

Procedure

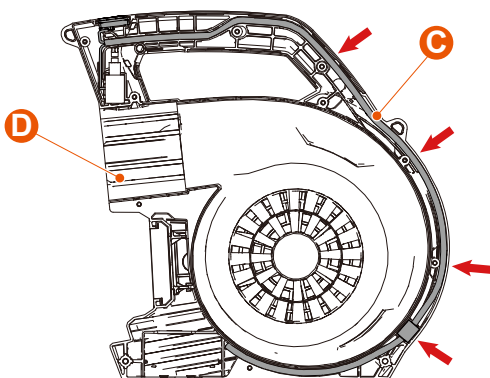
1. Apply battery terminal grease **A** into the connector **B** of the power switch.
2. Connect the wire harness **C** to the power switch.



NOTICE

Wipe off the battery terminal grease **A** that has been spilled.

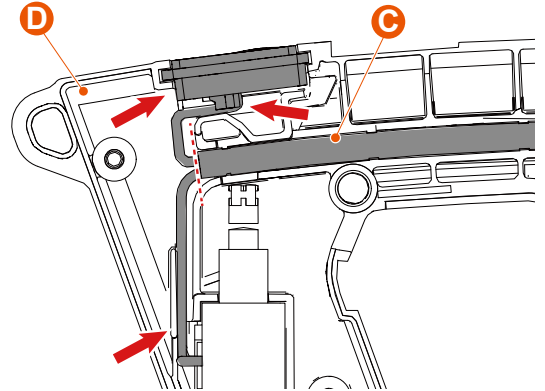
3. Install the power switch with the wire harness **C** in the fan case **D** as shown.



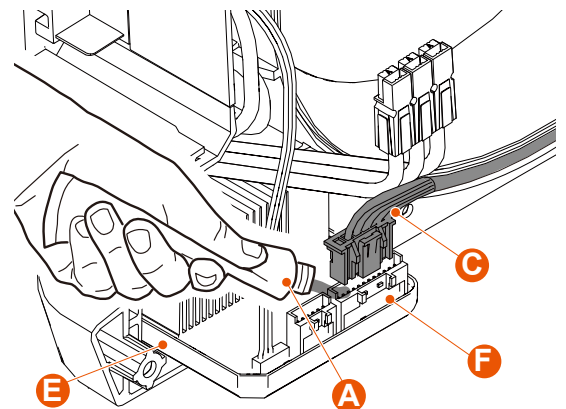
NOTICE

Make sure that each part is as follows.

- The power switch and wire harness **C** are seated in the ribs of the fan case **D** correctly.
- The end of the wire harness **C** is aligned with the ribs of the fan case **D**.



4. Apply battery terminal grease **A** into the connector **E** of the control board **F**.
5. Connect the wire harness **C** to the connector **E**.



NOTICE

Wipe off the battery terminal grease **A** that has been spilled.

6. Attach the fan case and trigger lever.

Related Topics

- [5-3 Remove the Power Switch \(p.36\)](#)
- [5-1 Switch and Trigger Components \(p.35\)](#)

5-5 Remove/Attach the Variable Speed Switch

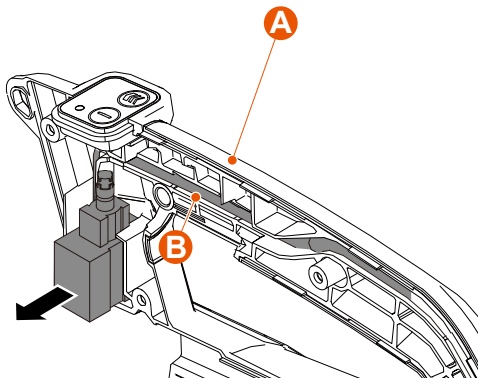
When reinstalling the removed parts, do so in the reverse order from that indicated below.

Prerequisites

- Remove the following parts.
 - Fan case
 - Trigger lever

Procedure

- Remove the variable speed switch from the fan case **A**.
- Disconnect the variable speed switch from the wire harness **B**.



Related Topics

- [6-2 Remove the Fan Case \(p.41\)](#)
- [5-2 Remove/Attach the Trigger Parts \(p.36\)](#)
- [5-1 Switch and Trigger Components \(p.35\)](#)

5-6 Remove/Attach the Wire Harness

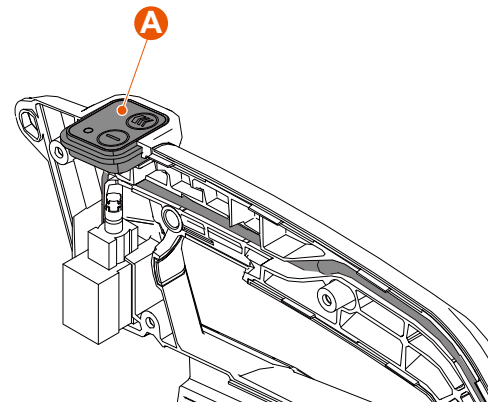
When reinstalling the removed parts, do so in the reverse order from that indicated below.

Prerequisites

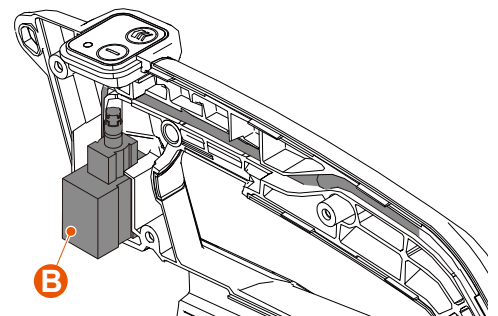
- Remove the following parts.
 - Fan case
 - Trigger lever

Procedure

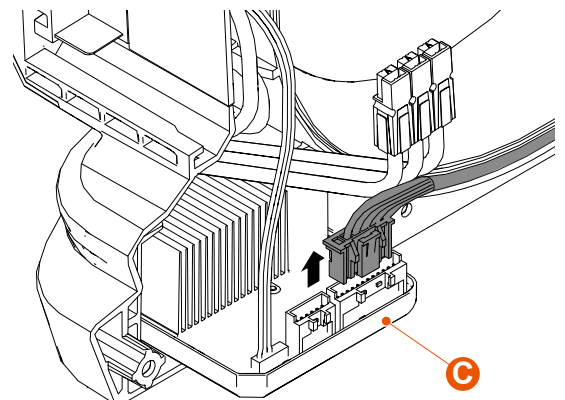
- Disconnect the power switch **A** from the wire harness.



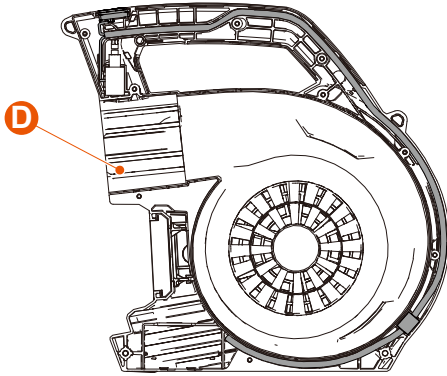
- Disconnect the variable speed switch **B** from the wire harness.



- Disconnect the wire harness from the control board **C**.



4. Remove the wire harness from the fan case **D**.

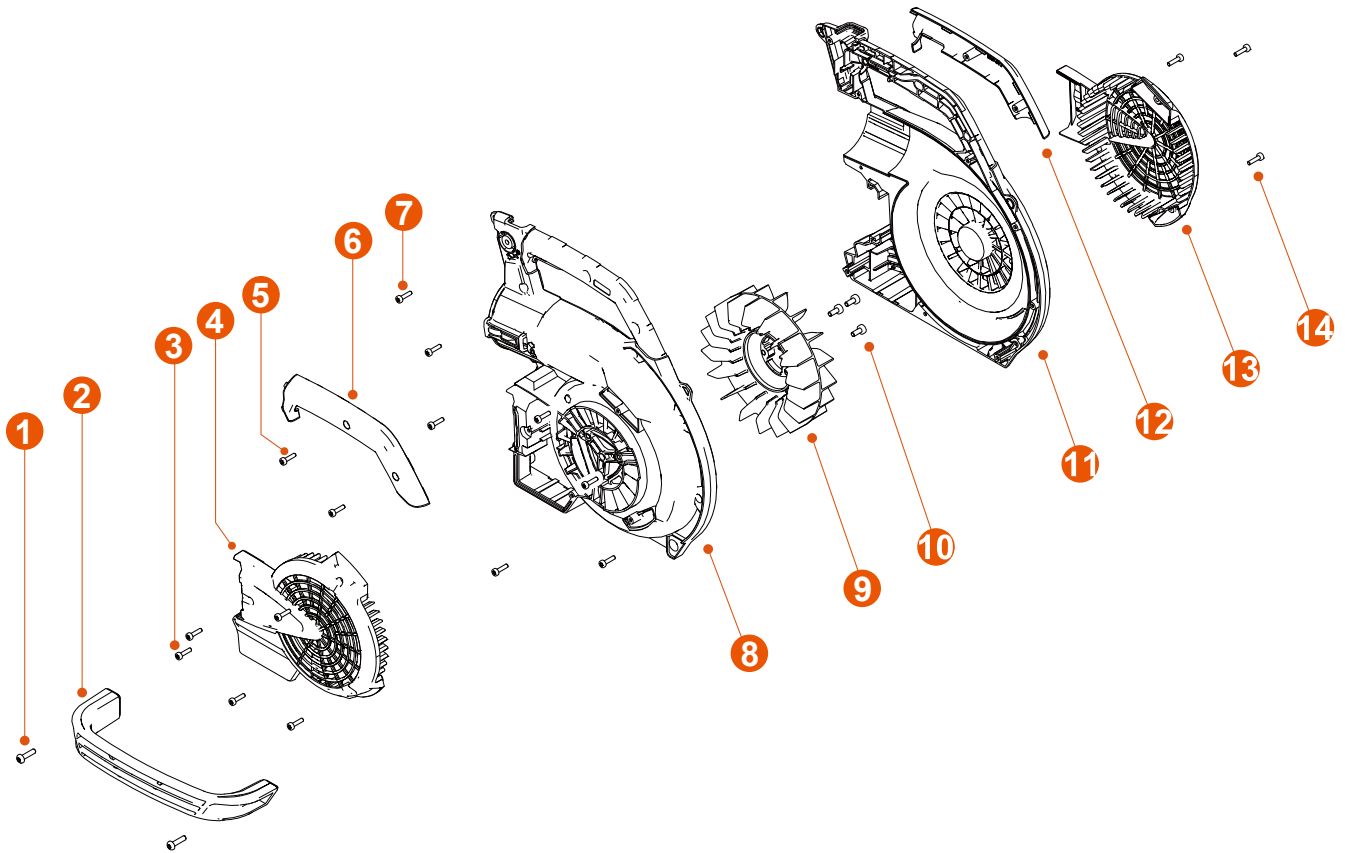


Related Topics

- [6-2 Remove the Fan Case \(p.41\)](#)
- [5-2 Remove/Attach the Trigger Parts \(p.36\)](#)
- [5-1 Switch and Trigger Components \(p.35\)](#)

6. Disassemble/Assemble the Blower System

6-1 Blower System Components



- 1 Torx tapping bolt (M5)
- 2 Rear handle
- 3 Torx tapping bolt (M4)
- 4 Blower grid
- 5 Torx tapping bolt (M4)
- 6 Handle grip
- 7 Torx tapping bolt (M4)

- 8 Fan case
- 9 Blower fan
- 10 Torx bolt (M5)
- 11 Fan case
- 12 Handle grip
- 13 Blower grid
- 14 Torx tapping bolt (M4)

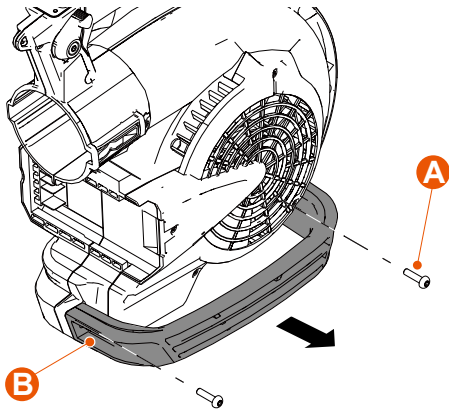
6-2 Remove the Fan Case

Prerequisites

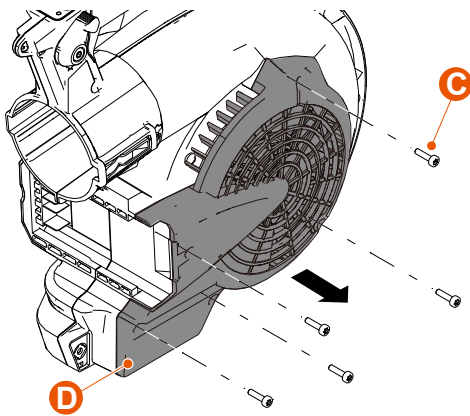
- Tools required:
 - [Torx wrench \(T27\)](#)

Procedure

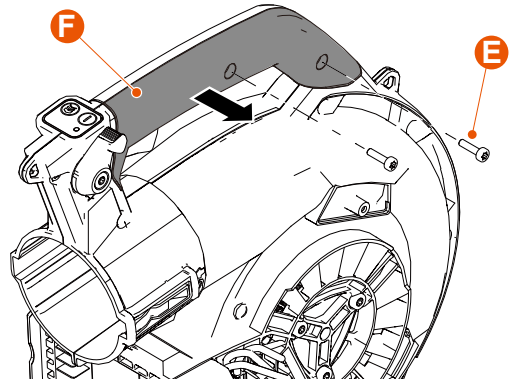
1. Remove the 2 Torx bolts **A** and the rear handle **B**.



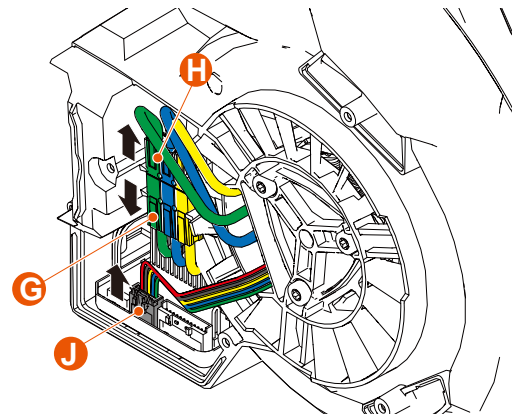
2. Remove the 5 Torx bolts **C** and the blower grid **D**.



3. Remove the 2 Torx bolts **E** and the handle grip **F**.

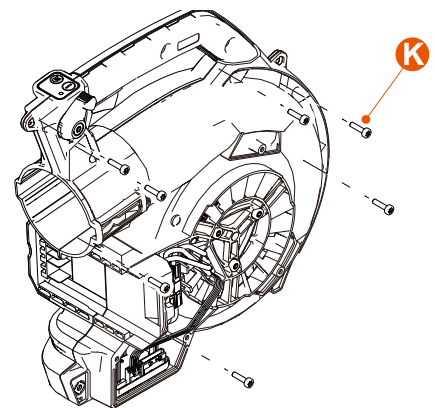


4. Disconnect the 3-pin connector **G** of the control board and the 3-pin connector **H** of the motor.

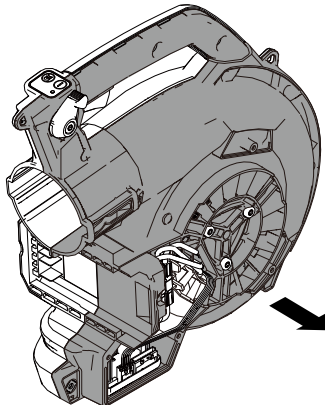


5. Remove the 5-pin connector **J** of the motor from the control board.

6. Remove the 7 Torx bolts **K**.



7. Remove the fan case.



8. Inspect the removed parts.

If any deformation, damage, or wear is found, replace the parts with new ones.

Related Topics

- [6-3 Attach the Fan Case \(p.42\)](#)
- [6-1 Blower System Components \(p.40\)](#)

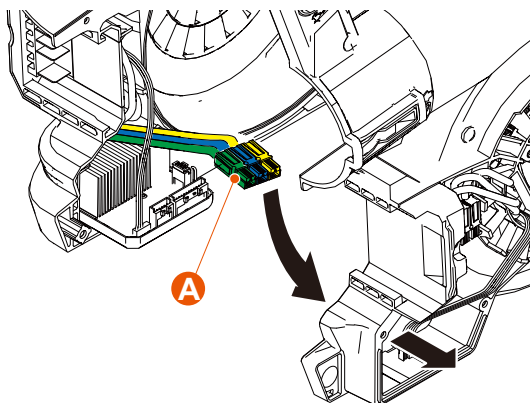
6-3 Attach the Fan Case

Prerequisites

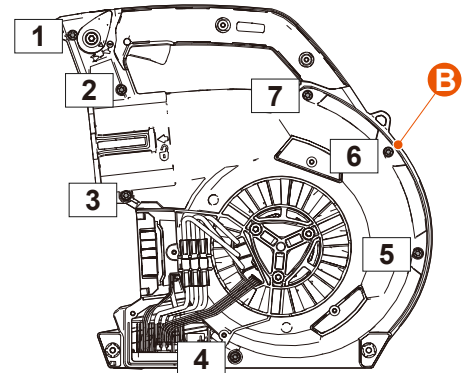
- Tools required:
 - [Torx wrench \(T27\)](#)

Procedure

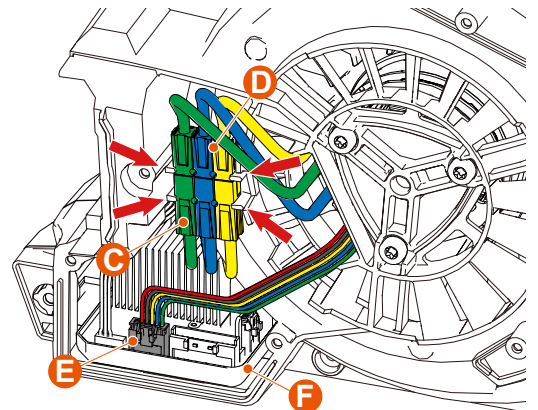
1. Pass the 3-pin connector **A** of the control board through the hole of the fan case as shown.
2. Then, attach the fan case.



3. Tighten the 7 Torx bolts **B** in the order shown.



4. Connect the 3-pin connector **C** of the control board and the 3-pin connector **D** of the motor.
5. Then, put the connectors into the groove of the fan case.
6. Connect the 5-pin connector **E** of the motor to the control board **F**.



7. Attach the removed parts in the reverse order.

Related Topics

- [6-2 Remove the Fan Case \(p.41\)](#)
- [6-1 Blower System Components \(p.40\)](#)

6-4 Remove/Attach the Blower Fan

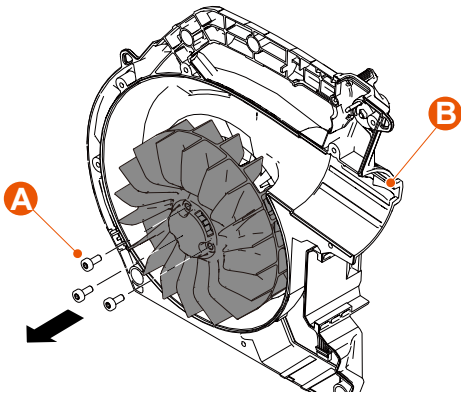
When reinstalling the removed parts, do so in the reverse order from that indicated below.

Prerequisites

- Remove the fan case.
- Tools required:
 - [Torx wrench \(T27\)](#)

Procedure

1. Remove the 3 Torx bolts **A** and the blower fan from the fan case **B**.



2. Inspect the removed parts.

If any deformation, damage, or wear is found, replace the parts with new ones.

Related Topics

- [6-2 Remove the Fan Case \(p.41\)](#)
- [6-1 Blower System Components \(p.40\)](#)

7. Inspect the Various Parts

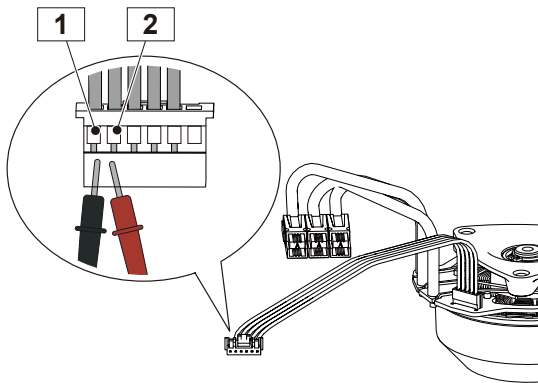
7-1 Inspect the Motor Assembly

Prerequisites

- Disconnect the 5-pole terminal connector of the motor assembly from the control board.
- Tools required:
 - Multimeter

Procedure

1. Confirm that there is no short-circuit between terminals [1] and [2] of the motor assembly 5-pole terminal connector.



Measure the resistance between terminals [1] and [2] with a multimeter.

- If the multimeter registers infinite resistance : There is no continuity.
- If the multimeter registers zero resistance : There is continuity.

If those 2 points are short-circuited (there is continuity), replace the motor assembly with a new one.

2. Inspect the parts of the motor assembly.

If the following are found, replace the motor assembly with a new one.

- Damage to motor terminals
- Burning or disconnection of motor winding
- Non-smooth rotation or damage in the motor ball bearings

Related Topics

- [4-2 Remove the Motor Assembly \(p.32\)](#)
- [4-3 Attach the Motor Assembly \(p.32\)](#)
- [4-1 Motor and Control Board Assembly Components \(p.31\)](#)

7-2 Inspect the Control board assembly

Prerequisites

- Remove the control board assembly.
- Tools required:
 - Multimeter

Procedure

1. Check that there is no short-circuit between the positive terminal screw **A** and the negative terminal screw **B** of the battery terminal.

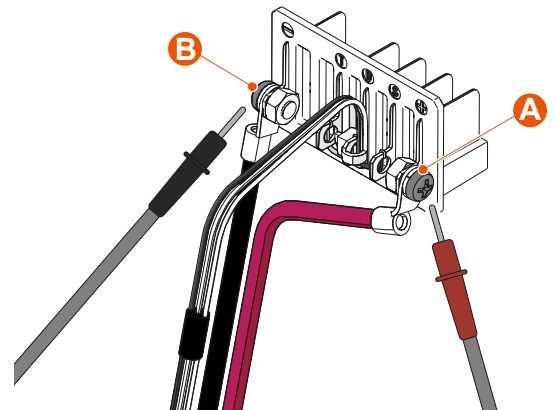


Figure : Battery terminal

Measure the resistance between the positive terminal screw **A** and the negative terminal screw **B** with a multimeter.

- If the multimeter registers infinite resistance : There is no continuity.
- If the multimeter registers zero resistance : There is continuity.

If those 2 points are short-circuited (there is continuity), replace the control board assembly with a new one.

2. Check if any conductive substances, such as water and metal pieces, adhered to the control board assembly.

If conductive substances are adhered to the control board assembly, remove them.

3. Inspect the control board assembly and control board terminals for burning or damage.

If found, replace the control board assembly with a new one.

Related Topics

- [4-4 Remove the Control Board Assembly \(p.32\)](#)
- [4-5 Attach the Control Board Assembly \(p.33\)](#)
- [4-1 Motor and Control Board Assembly Components \(p.31\)](#)

7-3 Inspect the Power Switch

Prerequisites

- Remove the power switch.
- Tools required:
 - Multimeter
- LED tester

Used for inspecting the power indicator (step 3.). If an LED tester is not available, inspect the power switch using coin batteries.

Procedure

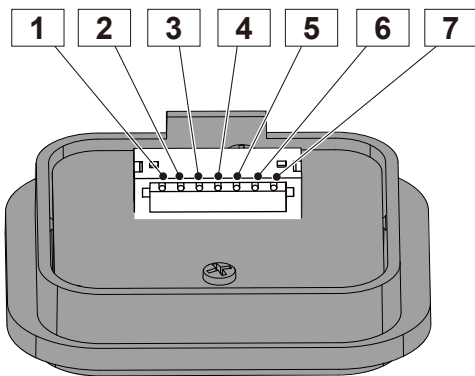


Figure : Power switch (rear)

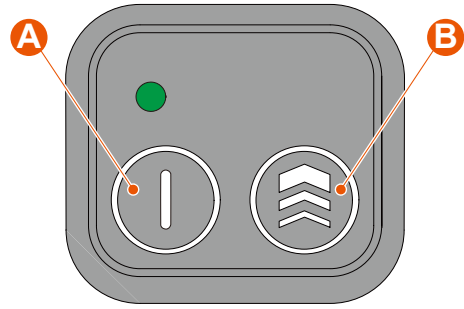


Figure : Power switch (front)

1. Check that there is no short-circuit between terminals [3] and [4] of the power switch.

Measure the resistance between terminals [3] and [4] of the power switch with a multimeter.

- If the multimeter registers infinite resistance : There is no continuity.
- If the multimeter registers zero resistance : There is continuity.

If those 2 points are short-circuited (there is continuity), replace the power switch with a new one.

2. Check that there is no bad connection between the following terminals of the power switch.

Measure the resistance between terminals [1] and [3] of the power switch with a multimeter.

- If the multimeter registers zero resistance when the switch button **A** is pressed : There is continuity.
- If the multimeter registers infinite resistance when the switch button **A** is released : There is no continuity.

If the power switch is not in the state above, replace it with a new one.

Measure the resistance between terminals [2] and [3] of the power switch with a multimeter.

- If the multimeter registers zero resistance when the boost button **B** is pressed : There is continuity.
- If the multimeter registers infinite resistance when the boost button **B** is released : There is no continuity.

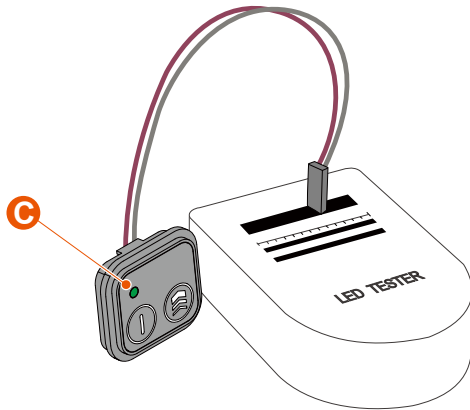
If the power switch is not in the state above, replace it with a new one.

3. Check if the power indicator is intact.

The power indicator can be checked using an LED tester or coin batteries.

If the power indicator does not light up, replace the power switch with a new one.

When using an LED tester

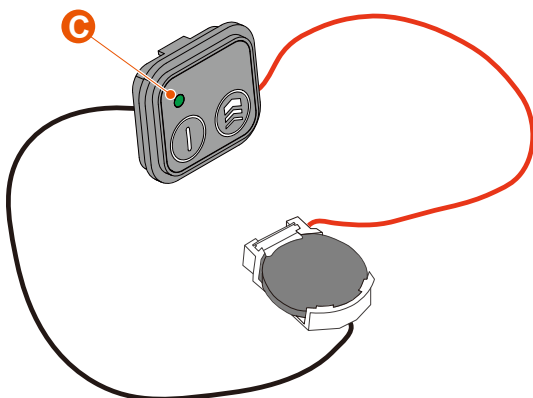


⚠ CAUTION

- When inspecting the power indicator using an LED tester, be sure not to apply electric current higher than 150 mA to the power indicator. It may damage the power indicator.

- Connect the positive (+) wire of an LED tester to terminal [4] of the power switch. Likewise, connect the negative (-) wire to terminal [7].
- Apply an electric current of 10 mA to 50 mA and check if the power indicator **C** lights up.

When using coin batteries



⚠ CAUTION

- When inspecting the power indicator using a coin battery, be sure to use one of the following coin battery types.
CR2032 / ECR2032 / DL2032 / SB-T51
If a battery type other than above is used, the power indicator will be damaged due to overcurrent (150 mA or higher).

- Connect the positive (+) wire from the coin battery to terminal [4] of the power switch. Likewise, connect the negative (-) wire to terminal [7].
- Check if the power indicator **C** lights up.
- If the power indicator **C** does not light up, connect 2 coin batteries in series and check the power indicator again.

⚠ CAUTION

- When connecting 2 coin batteries in series to check the power indicator, take care to ensure that the connection of the coin batteries and power switch has the correct polarity.
If a voltage of 5 V or higher is applied to the power indicator in the opposite direction, the power indicator will be damaged.

Related Topics

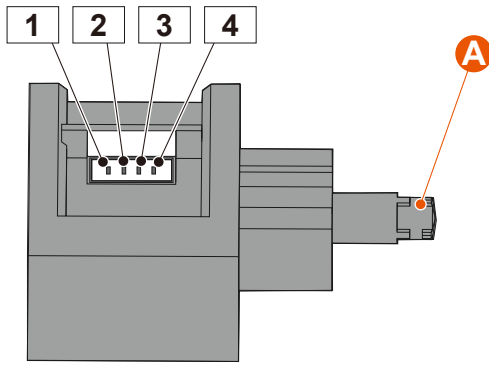
- [5-3 Remove the Power Switch \(p.36\)](#)
- [5-4 Attach the Power Switch \(p.37\)](#)
- [5-1 Switch and Trigger Components \(p.35\)](#)

7-4 Inspect the Variable Speed Switch

Prerequisites

- Remove the variable speed switch.
- Tools required:
 - Multimeter

Procedure



1. Check that there is no short-circuit between terminals [1] and [3] of the variable speed switch.

Measure the resistance between terminals [1] and [3] of the variable speed switch with a multimeter.

- If the resistance is 70 kΩ to 130 kΩ :
Normal
- If the resistance is outside the range of 70 kΩ to 130 kΩ : Short-circuited

If short-circuited, replace the variable speed switch with a new one.

2. Check that there is no bad connection between terminals [1] and [4] of the variable speed switch.

Measure the resistance between terminals [1] and [4] of the variable speed switch with a multimeter.

- If the multimeter registers zero resistance when the switch button **A** is pressed :
There is continuity.
- If the multimeter registers infinite resistance when the switch button **A** is released :
There is no continuity.

If the variable speed switch is not in the state above, replace it with a new one.

3. Check that there is no abnormal change in resistance when measuring the resistance between terminals [1] and [2] of the variable speed switch.

Measure the resistance between terminals [1] and [2] of the variable speed switch with a multimeter.

- When the switch button **A** is pressed :
The resistance should be 100 Ω or lower.
- When the switch button **A** is released :
The resistance should be 70 kΩ to 130 kΩ.

If there is abnormal change in resistance, replace the variable speed switch with a new one.

Related Topics

- [5-5 Remove/Attach the Variable Speed Switch \(p.38\)](#)
- [5-1 Switch and Trigger Components \(p.35\)](#)

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