

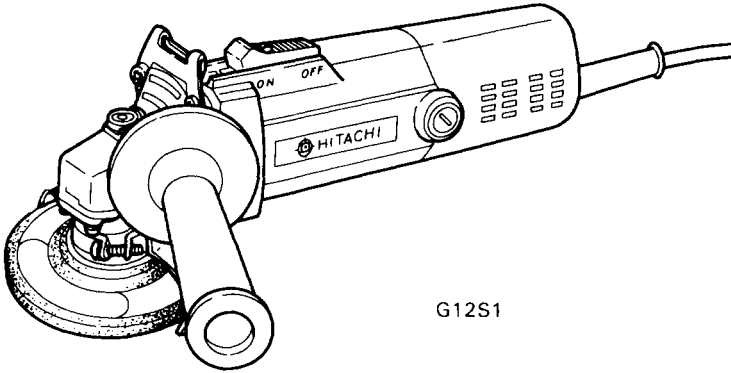


HITACHI

DISC GRINDER

MODEL G10SD1•G12S1

INSTRUCTION MANUAL



G12S1

Note

Before using this Electric Power Tool, carefully read through this INSTRUCTION MANUAL to ensure efficient, safe operation. It is recommended that this MANUAL be kept readily available as an important reference when using this power tool.



DOUBLE INSULATION

We sincerely thank you for selecting a HITACHI ELECTRIC POWER TOOL. To operate this electric power tool safely and efficiently, please read this INSTRUCTION MANUAL carefully to get a good understanding of the precautions in operation, the capacity of the electric power tool, uses and the like.

IMPORTANT INFORMATION : SAFETY RULES FOR POWER TOOLS

WARNING : When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following.

READ ALL INSTRUCTIONS

1. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite injuries.
2. **CONSIDER WORK AREA ENVIRONMENT.**
 - Don't expose power tools to rain.
 - Don't use power tools in damp or wet locations.
 - Keep work area well lit.
 - Don't use tool in presence of flammable liquids or gases.
 - Power tools produce sparks during operation. They also spark when switching ON/OFF. Never use power tools in dangerous sites containing lacquer, paint, benzine, thinner, gasoline, gases, adhesive agents, and other materials which are combustible or explosive.
3. **GUARD AGAINST ELECTRIC SHOCK.** Prevent body contact with grounded surfaces. For example; pipes, radiators, ranges, refrigerator enclosures.
4. **KEEP CHILDREN AWAY.** Do not let visitors contact tool or extension cord. All visitors should be kept away from work area.
5. **STORE IDLE TOOLS.** When not in use, tools should be stored in dry, and high or locked-up place—out of reach of children.
6. **DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it was intended.
7. **USE RIGHT TOOL.** Don't force small tool or attachment to do the job of a heavy-duty tool. Don't use tool for purpose not intended—for example—don't use circular saw for cutting tree limbs or logs.
8. **DRESS PROPERLY.** Do not wear loose clothing or jewelry. They can be caught in moving parts.
 - Rubber gloves and non-skid footwear are recommended when working outdoors.
 - Wear protective hair covering to contain long hair.
9. **USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty.
 - All persons in the area where power tools are being operated should also wear safety eye protectors and face or dust masks.
10. **DON'T ABUSE CORD.** Never carry tool by cord or yank it to disconnect

from receptacle.

Keep cord from heat, oil and sharp edges.

11. **SECURE WORK.** Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
12. **DON'T OVERREACH.** Keep proper footing and balance at all times.
13. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories.
Inspect tool cords periodically and if damaged, have repaired by authorized service facility.
Inspect extension cords periodically and replace if damaged.
Keep handles dry, clean, and free from oil and grease.
14. **DISCONNECT TOOLS.** When not in use, before servicing, and when changing accessories, such as blades, bits, cutters.
15. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
16. **AVOID UNINTENTIONAL STARTING.** Don't carry plugged-in tool with finger on switch. Be sure switch is off when plugging in.
17. **OUTDOOR USE EXTENSION CORDS.** When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
18. **STAY ALERT.** Watch what you are doing. Use common sense. Do not operate tool when you are tired.
19. **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation.
A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this instruction manual.
Have defective switches replaced by authorized service center.
Do not use tool if switch does not turn it on and off.
20. **AVOID USING A POWER TOOL FOR APPLICATIONS OTHER THAN THOSE SPECIFIED.**
Never use a power tool for applications other than those specified in the instruction manual.
21. **ENSURE SAFE OPERATION THROUGH CORRECT HANDLING.**
Secure safe operation through correct handling by observing the instructions described herein.

Do not employ accessories other than those specified herein; otherwise, a hazardous condition may be created.

Never allow a power tool to be used by persons not familiar with correct handling (such as children) or by those who cannot handle the tool correctly.

22. **CONFIRM THAT NO ITEMS SUCH AS AN ELECTRIC CABLE OR CONDUIT ARE BURIED INSIDE.** In places where live wiring may be hidden behind a wall, floor, ceiling, etc. do not hold or contact any metal parts of the tool. In such cases, metal parts could become electrically live and present a serious shock hazard.
23. **KEEP THE RIGHT PARTS IN THE RIGHT POSITIONS.**

Do not remove covers and screws which have been factory-mounted. They perform important respective roles. Keep them in the right positions.
24. **SHOULD THE PLASTIC HOUSING OR HANDLE OF A POWER TOOL BE CRACKED OR DEFORMED, DO NOT USE IT.**

Since cracked or deformed parts may lead to an operator receiving an electric shock, do not use such a power tool. Immediately have it repaired.
25. **SECURELY MOUNT ACCESSORIES AND BLADES TO THE TOOL MAIN BODY.** Extra care must be taken when using tools on elevated location (such as a roof ladder, scaffold, or the like) to prevent injury to someone on a lower level in the event the tool and/or accessory should drop.
26. **ALWAYS KEEP THE MOTOR AIR VENT FULLY OPENED.**

A constantly open motor air vent is necessary to allow air to come in and out for cooling the motor. Do not allow it to become clogged up, even if dust is blown through it.
27. **OPERATE POWER TOOLS AT THE RATED VOLTAGE.**

Operate power tools at voltages specified on their nameplates.
28. **NEVER TOUCH THE MOVING PARTS.**

Never touch the moving parts such as blades, bits, cutters and others.
29. **STOP OPERATION IMMEDIATELY IF ANY ABNORMALITY IS DETECTED.**

Should a power tool be detected as out of order or should other abnormalities be observed during operation, stop using the tool immediately.
30. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.**

Don't leave tool until it comes to a complete stop.
31. **CAREFULLY HANDLE POWER TOOLS.**

Should a power tool be dropped or struck against hard materials inadvertently, it may be deformed, cracked, or damaged.
32. **DO NOT WIPE PLASTIC PARTS WITH SOLVENT.**

Solvents such as gasoline, thinner, benzine, carbon tetrachloride, and

alcohol may damage and crack plastic parts. Do not wipe them with such solvents. Wipe plastic parts with a soft cloth lightly dampened with soapy water.

33. **WHEN REPLACING A COMPONENT PART, ADOPT THE SAME TYPE.**
When replacing a component part with a new one, adopt the same type of new part. Also, never attempt to repair a power tool yourself.
34. Use only grinding wheels having a maximum operating speed at least high as "No Load RPM" marked on the tool's nameplate.

35. **SAVE THESE INSTRUCTIONS.**


SERVICE AND REPAIRS

All quality tools will eventually require servicing or replacement of parts due to wear from normal use. These operations should **ONLY** be performed by an **AUTHORIZED HITACHI POWER TOOL REPAIR SHOP.**

REPLACEMENT PARTS

When servicing use only identical replacement parts.

DOUBLE INSULATION SYSTEM ENHANCES SAFE OPERATION

To enhance safe operation of this electric power tool, HITACHI has adopted a double insulation system. The term "double insulation" used here denotes an insulation system with two insulations physically separated and arranged between the electrically conductive material connected to the power supply and the outer frame subject to contact by the operator. Thus, the power tool is termed double insulated and both the "  " mark and "Double insulation", or either one is indicated on the nameplate. While no external grounding is required with this system, normal safety precautions as outlined in this manual must still be followed.



DOUBLE INSULATION

To maintain the effectiveness of the double insulation system, follow the precautions described below:

1. Always contact your dealer or an authorized HITACHI service agent when assembling, disassembling or replacing parts other than accessories or carbon brushes. Improper assembly and/or replacement with wrong parts may result in eliminating the double insulation-feature.
2. Clean the exterior of the tool with a soft cloth moistened with soapy water, and dry thoroughly. Chloric solvent, gasoline, and thinner will cause plastic components to dissolve.

PRECAUTIONS ON USING DISC GRINDER

1. Keep guards in place.
2. Mounting the standard grinding wheel.
3. Have a trial run before grinding commence.
4. Keep away from a revolving grinding wheel.
5. Pay strict attention to sparks.
6. Use the side handle to securely grip the grinder.
7. Follow the procedures of this Instruction Manual on grinding wheel replacement.
8. Do not push in the lock pin while the spindle is running.

NAME OF PARTS

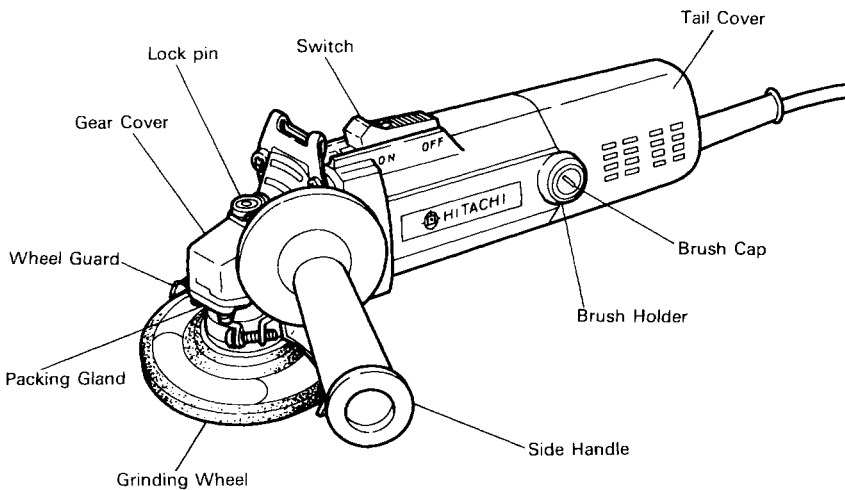


Fig. 1

SPECIFICATIONS

Model	G10SD1	G12S1
Motor	Single-Phase Series Commutator Motor	
Power Source	Single-Phase 115V AC 60Hz	
Current	5A	
No-Load Speed	11,000 rpm	
Wheel Size external diam.	4"	4-1/2"
internal diam.	5/8"	7/8"
Weight	5.1 lbs	5.3 lbs

ACCESSORIES

Caution: Recommended accessories for this Electric Power Tool are mentioned in this manual. The use of any other attachment or accessory might be hazardous.

STANDARD ACCESSORIES

- (1) Grinding Wheel1
4" external diam. ×5/32" thickness×5/8" internal diam. (Code No. 939640Z)
4-1/2" external diam. ×1/4" thickness×7/8" internal diam. (Code No. 937819Z)
- (2) Wrench 1
(Code No. 936522.....G10SD1)
(Code No. 938332Z.....G12S1)
- (3) Side Handle (C)(Code No. 302739)..... 1

APPLICATIONS

- Removal of casting fin and finishing of various type of steel, bronze and aluminum materials and castings.
- Grinding of welded sections or sections cut by means of welding.
- Grinding of synthetic resins, slate, brick, marble, etc.

PRIOR TO OPERATION

1. Power source

Ensure that the power source to be utilized conforms to the power requirements specified on the product nameplate.

2. Power switch

Ensure that the power switch is in the OFF position. If the plug is connected to a power receptacle while the power switch is in the ON position, the power tool will start operating immediately, inviting serious accident.

3. Extension cord

When the work area is removed from the power source, use an extension cord of sufficient thickness and rated capacity. The extension cord should be kept as short as practicable.

4. Confirming the power receptacle

If the power receptacle only loosely accepts the plug, the receptacle must be repaired. Contact the nearest electric store for repair service.

If such a faulty receptacle is used, it may cause overheating, resulting in a serious hazard.

5. Confirming condition of the environment

Confirm that the work site is placed under appropriate conditions conforming to prescribed precautions.

When grinding a thin steel plate, depending upon the state of the workbench, a loud noise will be created due to resounding noise from the steel plate being ground. To eliminate unwanted noise in this instance, place a rubber mat beneath the material to be ground.

6. Mounting the wheel guard

Be sure to mount the wheel guard at an angle that will protect the operator's body from injury by a broken wheel piece.

7. Confirming and mounting the grinding wheel

Thoroughly check that a specified grinding wheel free of cracks and splits is mounted. Confirm that the grinding wheel is mounted under the specified condition and is firmly clamped.

For details, refer to the item "Assembling and Disassembling the Grinding Wheel".

8. Always hold the body handle and side handle of the power tool firmly.

Otherwise the counterforce produced may result in inaccurate and even dangerous operation.

9. Apply a trial run

To start grinding work without checking for possible cracks and splits in the grinding wheel is very dangerous. Prior to start of grinding, direct the Grinder in a direction where no one is present, and apply a trial run without fail to confirm that the Grinder displays no abnormalities.

Duration of the trial run is as follows :

When grinding wheel is replaced3 minutes or more

When starting daily work1 minute or more

10. Confirm the grinding wheels

Use the grinding wheels for peripheral speed 15,750ft/min or more.

11. Confirm the lock pin

Confirm that the lock pin is disengaged by pushing lock pin two or three times before switching the power tool on.

PRACTICAL GRINDER APPLICATIONS

1. Since grinding by utilizing only the Grinder's own weight is feasible, the Grinder should never be pressed forcibly against the plane to be ground. Hold the Grinder lightly so that it only slightly contacts the plane to be ground.

Heavy pressure will reduce the revolving speed and such deteriorate the finished surface, and phenomena as overload will lead to burning loss of the motor.

2. Do not utilize the Grinder entire surface when grinding. Use only its peripheral surface by tilting the wheel at an angle of $15^{\circ} \sim 30^{\circ}$, as shown in Fig. 2.

3. When a Grinder equipped with a new grinding wheel is pushed forward (direction A), the wheel edge may occasionally cut into the material to be ground. Always pull it backward (direction B) in this instance. However, once the wheel angle has been adequately abraded, both forward and backward operations are permissible.

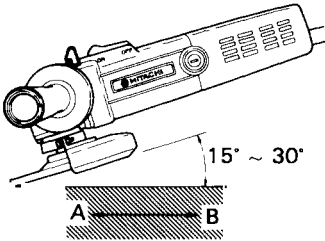


Fig. 2

4. The provided grinding wheel (resinoid wheel) is rated as Class A grain and #36 grain size. Accordingly, its range of applications cover a wide variety, proving to be most suitable for heavy grinding of general steel materials. Since the wheel grain size is rather coarse, creating a fine-surfaced finish is very difficult. In this instance, hold the Grinder lightly as though trying to lift it, and apply-grinding slowly at a constant low speed, whereby a fine finish similar to that accomplished with a fine-grain grinding wheel is obtainable.

5. Precaution after use.

Do not lay the grinder down immediately after use in a place where there are many shavings and much dirt and dust until it has completely stopped revolving.

ASSEMBLING AND DISASSEMBLING THE GRINDING WHEEL

Caution: Be sure to switch power OFF and disconnect the attachment plug from the power receptacle to avoid serious trouble.

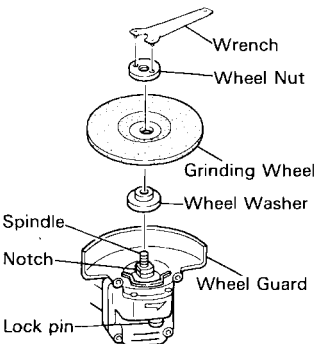


Fig. 3

- (1) Turn the machine upsidedown so that the spindle is facing upward.
- (2) Align the oval-shaped indentation of the wheel washer with the notched part of the spindle, then attach them.
- (3) Fit the protuberance of the grinding wheel onto the wheel washer.
- (4) Screw the wheel nut onto the spindle.
- (5) While pushing the lock pin with one hand, lock the spindle by turning the grinding wheel slowly with the other hand. Tighten the wheel nut by using the supplied wrench as shown in Fig. 3.

Caution: Confirm that the grinding wheel is mounted firmly.

MAINTENANCE AND INSPECTION

Caution: Be sure to switch power OFF and disconnect the plug during maintenance and inspection.

1. Replacing the grinding wheel

Replace the grinding wheel when it has been worn out to about 2-3/8" in external diameter.

2. Inspecting the mounting screws

Regularly inspect all mounting screws and ensure that they are properly tightened. Should any of the screws be loose, retighten them immediately. Failure to do so could result in serious hazard.

3. Inspecting the carbon brushen (Fig. 4)

The motor employs carbon brushes which are consumable parts. Since an excessively worn carbon brush could result in motor trouble, replace a carbon brush with a new one having the same carbon brush No. shown in the figure when it becomes worn to or near the "wear limit". In addition, always keep carbon brushes clean and ensure that they slide freely within the brush holders.

○ Replacing a carbon brush:

Disassemble the brush cap with a minus-head screwdriver. The carbon brush can then be easily removed.

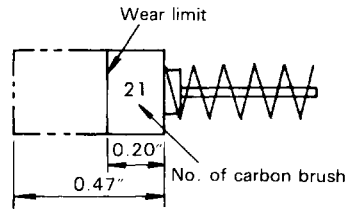


Fig. 4

Note:

Due to HITACHI'S continuing program of research and development, the specifications herein are subject to change without prior notice.

G12S1

Item No.	Part Name
1	Tapping Screw D5×25
2	Guard Plate
3	Pushing Button
4	Gear Cover Ass'y
5	Special Nut M7
6	Pinion
7	Slotted Hd. Screw (Seal Lock) M4×10
8	Bearing Cover
9	Ball Bearing (608VVMC2EPS2L)
10	Inner Cover
11	Armature
12	Hex. Hd. Tapping Screw D4×70
13	Stator Ass'y
14	Brush Terminal
15	Washer (A)
16	Ball Bearing (626VVMC2ERPS2S)
17	Bearing Lock
18	Lock Pin
19	Gear
20	Seal Lock Screw (W/Sp. Washer) M4×10
21	Bearing Cover (B)
22	Ball Bearing (6001VVCMP2S2L)
23	Felt Packing
24	Packing Gland
25	Seal Lock Screw (W/Sp. Washer) M4×12
26	Fringer
27	Woodruff key 2.5×8
28	Spindle
29	Machine Screw M5×20
30	Spring Washer M5
31	Wheel Guard (A) Ass'y
32	Wheel Washer (B) For D5/8" Hole
33	Grinding Wheel 115mm A36Q
34	Wheel Nut 5/8" -11UNC
35	Gear Pinion Ass'y
36	Spring
37	Slide Bar

Item No.	Part Name
38	Flat Hd. Screw M4×12
39	Slide Knob (C)
40	Housing Ass'y
41	Name Plate
42	Rivet D2.5×2.8
43	Bearing Bushing
44	HITACHI Label
45	Brush Cap
46	Carbon Brush
47	Brush Holder
48	Tapping Screw (W/Washer) D4×12
49	Slide Switch
50	Switch Holder
51	Tapping Screw (W/Flange) D4×16
55	Cord Armor
56	Tail Cover
57	Tapping Screw (W/Washer) D4×16
58	Cord
59	Cord Clip
61	Tube (D)
501	Wrench
502	Side Handle (C)

Parts are subject to possible modification without notice due to improvements. The drawing and the list are parts structural drawing and parts list of model G12S1. For model G10SD1 refer to the drawing and the list.

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