

# ***VIRGINIA ABRASIVES***

Electric Floor Grinding Machine

Model FG-11

Operator's Manual



# SAFETY INSTRUCTIONS

## Before using a new grinder



**WARNING:** Cutting, grinding, sawing, drilling, sanding, or polishing construction materials and surfaces generates dust and particulates which may be harmful if inhaled. Proper respiratory protection and adequate ventilation should be maintained at all times while engaging in these activities.

- Read the operator's manual carefully and make sure you understand the instructions and proper applications prior to operating the machine.
- Your FG-11 floor grinder is designed for concrete floor grinding, flattening concrete floors, surface removal of coatings, glue, and adhesive residues.
- This machine can cause serious personal injury. Read safety instructions carefully. Become thoroughly familiar with the proper use of the FG-11. Only thoroughly trained personnel should operate this equipment.

### Always use good judgement

It is not possible to cover every circumstance that you may face. Always exercise care and use your good judgement. Avoid all situations which you consider to be beyond your capability. If you still feel uncertain about operating procedures after reading these instruction, you should consult an expert before continuing.

Do not hesitate to contact your dealer if you have any questions about the use of the machine. Virginia Abrasives is willing to provide you with advice to use your machine both efficiently and safely.

Maintain your machine frequently. Check the machine and make proper adjustments and repairs. All information and data in the Operator's Manual were applicable at the time the Operator's Manual was printed. Contact the manufacturer for updates.



**Warning!** Under no circumstances should you modify the original design of the machine without approval from the manufacturer. Always use original spare parts. Unauthorized modifications and/or accessories may lead to severe injury or death to the user or others.

**Warning!** Use of products which cut, grind, drill, sand, or shape material can generate dust and vapors which may contain harmful chemicals. Know the nature of the material being worked on and wear appropriate dust mask or respirator protection.

## Personal protective equipment



**WARNING!** You must use approved personal protective equipment whenever you use the machine. Personal protective equipment cannot eliminate the risk of injury but it will reduce the degree of injury if an accident does happen. Ask your dealer for help in choosing the right equipment.

- Hearing Protection
- Protective goggles or safety glasses



- NIOSH approved dust mask or respirator



- Heavy-duty, firm grip gloves



- Tight-fitting heavy-duty and comfortable clothing that permits full freedom of movement.



- Boots with steel toe shoes and non-slip sole.



- Always have a first aid kit nearby.

# Safety Instructions

## General safety precautions

- Do not use the machine without first reading and understanding the contents of this Operator's Manual.



**WARNING!** *This section describes basic safety directions for using the machine. This information is never a substitute for professional skills and experience. If you get into a situation where you feel unsafe, stop and seek expert advice. Contact your dealer, service agent or an experienced user. Do not attempt any task that you feel unsure of!*

## Work area safety

- Do not use the machine in inclement weather, such as dense fog, rain, strong wind, intense cold, etc.
- Keep the work area clean and well lit. The machine should not be used in areas where potential for fire or explosions exist.

## Electrical Safety



**WARNING!** *There is always a risk of shocks from electrically powered machines. Avoid unfavorable weather conditions and body contact with lightning conductors and metal objects. Always follow the instructions in the Operator's Manual to avoid damage.*

- Never pull the machine by the cord and never pull out the plug by pulling the cord.
- Keep all cables away from water, oil and sharp edges. Make sure the cable is not pinched. Damaged electrical insulation can create a shock hazard.
- Check to ensure the cords are in good condition. Use a heavy duty electrical cord 12 gauge or greater.
- Never use the machine if any cord is damaged. Damaged electrical cords should be destroyed or repaired by an authorized electrical repair shop.
- The machine should be connected to a grounded outlet socket.

- Ensure that the main voltage corresponds with that stated one electrical rating on the machine. Be on your guard for electrical shocks.

To avoid overheating, do not use an extension cord. Use only a 12-gauge (minimum) cord.

Ensure the cord remains out of the grinding area to avoid damage

## Personal Safety



**WARNING!** *Over exposure to vibration can lead to circulatory damage or nerve damage in people who have impaired circulation. Contact your doctor if you experience symptoms of overexposure to vibration. Such symptoms include numbness, loss of feeling, tingling, pricking, pain, loss of strength, changes in skin color condition. These symptoms normally appear in the fingers, hands, or wrist. These symptoms may be increased in cold temperatures.*

- Wear personal protective equipment. See instructions under the heading "Personal protective equipment".
- Never use the machine if you are tired, or under the influence of drugs, alcohol, or if you are taking medication that could cause impairment.
- All operators shall be trained in the use of the machine. The owner is responsible for ensuring that the operators receive training.
- People and animals can distract you causing you to lose control of the machine. Always remain focused on the task.
- Clothing, long hair, and jewelry can get caught in moving parts.
- Never leave the machine unsupervised with the motor running.
- Make sure that there is always another person close at hand when you use the machine, so that you can call for help should an accident occur.
- Always ensure you have a safe and stable working position

# SAFETY INSTRUCTIONS

## Use and Care

- Only use the machine for the purpose for which it was intended.
- Keep all parts in good working order and ensure that all parts are properly secured.
- Never use a machine that has been damaged. Inspect, maintain and service as instructed in the owners described in this manual. Maintenance and service measures must be carried out by trained and qualified specialist. See instructions under Maintenance.
- Do not modify safety equipment. Check regularly that they function as they should. The machine must not be run without all safeguards in place and properly operating.
- Never use a machine that has been modified in any way from its original specification.
- Machinery should only be started when grinding heads are resting on the ground unless carrying out a testing procedure as outlined in this manual.
- The machine should not be started without the flexible dust shroud attached. For proper dust control, it is important to maintain a close proximity between the dust shroud and the floor when operating in dry grinding applications.
- During dry grinding, the machine must be connected to an industrial grade vacuum.
- When changing the grinding discs, ensure power supply to the units is off by engaging the STOP BUTTON and unplugging the FG-11 from the power source.
- After each grinding/polishing operation, always remove the diamond tools.
- Make sure that the dust shroud is intact and clean and that it seals tightly against the floor. Damaged or worn dust shroud should be replaced.
- The grinding disc continues to rotate after the stop button has been depressed. Maintain grinding action until the motor has come to a complete stop. Make sure

the grinding head has stopped rotating before raising the machine.

- When removing glue, asphalt, paint etc. always raise the machine from the surface after use to prevent it from sticking to the floor due to the heat. Make sure the grinding head has stopped rotating before raising the machine.
- Diamond tools may be hot after use. Allow the machine to cool off before removing the diamond segments. Always use protective gloves.
- Always use the machine-mounted lifting handles when lifting.
- Always carry the machine by the carrying handle and the handle.

## Transport and Storage

- Do not expose the FG-11 to rain or snow.
- Store the equipment in a secured area out of reach of children and unauthorized persons.
- The machine should always be stored in a dry place when not in use.

# OPERATING DIMENSIONS



Model	FG11
Length	900mm
Width	690mm
Height	770mm
Weight	143 lbs./65kg

Note: All dimensions and weight are all for **reference only** and subject to change at any time.

## **HOW TO ORDER REPAIR PARTS**

- To ensure produce safety and reliability, always use the original equipment replacement parts when making repairs.
- When ordering parts, please specify the MODEL and SERIAL NUMBER of the machine as given on the NAME PLATE.
- Provide the part number, description and quantity as listed on the parts list.
- Please note: Due to improvements and changes in the equipment the illustrations shown may be different from the actual machine.

# Diamond Tooling Selection

## Diamond

Diamond abrasives usually consist of 2 components,

- Diamond power (also known as diamond crystals or grit)
- A bonding agent

The following are general rules regarding diamond segments in grinding applications.

### A. Diamond grit size

Changing the size of the diamond grit to a smaller particle/grit size will affect the performance of the diamond tool in the following ways.

- Create a finer scratch pattern
- Increase life of diamond tool

The opposite will occur when changing to a larger particle/grit size

### B. Bond

Increasing hardness of bond will:

- Create a finer scratch pattern
- Increase life of diamond tool
- Decrease production rate

The opposite will occur when making the bond softer.

## Determining the hardness of concrete

The greater the compressive strength rating, the harder the concrete and therefore, the more difficult it will be to grind.

However, other factors besides compressive strength ratings determine how hard the floor will be, and therefore, will determine the correct diamond selection. Since grinding normally only deals with the surface of concrete (top 5mm or ¼ inch), often the way the concrete floor has been finished or the condition of the surface will have a greater bearing on what type of diamond to select, rather than the compressive strength rating of the concrete.

## Surface factors to consider when making a diamond selection

Generally, if concrete surface is very smooth (heavily troweled) the concrete will behave as if it has a high compressive strength and therefore, require a soft bond segment

If the concrete surface is coarse/aggressive (rain-damage, shot blast, scarified, exposed aggregate broom finished) the concrete will behave as if it has low compressive strength and will require a hard bond segment. Surface coatings and contaminants (epoxy, coatings, thin-set, adhesives, leveling compound) will often have a longer bearing on the diamond to select for the application.

## FOR USE WITH DIAMOND TRAPEZOIDS



**PCD - POLYCRYSTALLINE DIAMOND:** Aggressive removal of heavy coatings, resin, mastics, paint, urethane and thinset.

*Grit: Very Coarse*

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**PCD + Diamond:** Moderate removal of hard coatings. Leaves moderate scratch marks and surface texture. Diamond prevents PCD from gouging.

*Grit: Coarse*

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**Diamond Trapezoids:** Coatings and concrete removal. Light leveling and smoothing of concrete surface. Leaves smooth surface with no gouges.

*Grit: Coarse / Medium & Medium / Fine*

# Operating Instructions

## Connect the vacuum cleaner

Make sure that the filters in the vacuum cleaner are intact and clean. Monitor proper dust collection during operation.



## Attach the skirt

Adjust the rubber skirt to be in close proximity to the floor to ensure efficient dust collection (lightly touching the floor or nearly touching the floor).





## Transport

The handle of the FG-11 can be folded for transport. Loosen bolts on each side of the handle then carefully fold handle forward. Placing padding between the motor and the electric box is recommended to prevent damage. Snug bolts while handle is in folded position to ensure bolts are not lost in transport.



## Select the correct grit size diamonds for your application

Please refer to the following guide for to the basic application of Virginia Abrasives' diamond tooling.

APPLICATIONS	GRIT SIZE
Flatten concrete floor, Ceramic tile adhesive, Epoxy paint removal, Rain damaged concrete, Grinding to expose aggregate in concrete	30/40 Bond determined by concrete
Surface grinding of concrete floors	60/80, 80/100 Bond determined by the concrete

## Starting and Stopping



Wear personal protective equipment. See instructions under the heading “Personal Protective Equipment”.

## Perform Pre-Start Check

- Visually inspect the equipment for wear or damage.
- Be sure all guards are in place and function properly. Do not operate unless all guards are in place and secure.
- Perform all daily maintenance.
- Inspect accessories to be sure the correct accessory is installed properly on the machine, and the mounting arrangement is appropriate for the intended use.
- Inspect the work area to determine the presence and location of deck inserts, pipes, columns, and objects protruding from the slab surface so that they may be avoided during the grinding operation. Remove or grind down deck inserts and or other foreign materials to below the surface of the slab using a right-angle grinder.
- Referencing the bubble level, adjust the tilt of the FG-11 to a level position



- Plug the grinder into the power supply.

## Starting

- Press the start button and keep it pressed a few seconds to start the machine (electric motor model)



- Tilt the machine slightly to lift the diamond tooling off the floor surface and start the machine.
- Allow the machine to achieve full working speed (approximately 20 seconds). Lower the machine to the surface and do a short touch pass on the concrete. The “touch pass” will show if the tooling is flat to the floor surface. The grinding pattern on the floor should show a complete circle abraded. If the pattern is less than a full circle, further level adjustment is required.
- Reduce the pressure between grinding disc and floor by pushing down on the handle without raising the grinder off the ground.
- You are ready to grind.
- Use a “side-to-side” grinding motion as the FG-11 is worked forward. Using a front to back motion may stall the motor and cause overheating or cause the breaker to trip.

## Stopping

- Use the stop button to shut down the machine.
- Keep grinding segments in contact with the floor when stopping. This will help bring the machine to a complete stop. Do not lift the grinding head off the floor when stopping as this can create a significant amount of dust in the air.

## MAINTENANCE

### Problems and trouble shooting

#### Machine will not run

- Check the power supply (breaker panel) and the power cables and make sure that they are not damaged.
- Check that the emergency stop button is not pressed by turning it clockwise.

#### Machine is hard to hold onto

- Grinding thick glue, coatings or soft floors will greatly increase the load on grinder and operator accompanied by high current draw. Move the machine more slowly to reduce the load. Work the edges of a clean area.

#### Machine is jumping around

- The rubber disc in the rigid drive coupling may be worn or damaged. Change if necessary.
- Diamonds may not be fitted correctly or have different heights. Check to ensure all diamonds are fitted correctly and are at the same height.

#### Machine stops after short usage

- The machine is overloaded and the thermal overload protection has been deployed. Reduce the load on the machine. The machine will reboot after approximately one minute when the thermal overload has cooled off.

#### Machine stops during start-up

- The electric motor has been overloaded. Allow the machine one or two minutes to reset and try again. Make sure that the diamond tooling is not in contact with the floor during start up.

### Cleaning

Always remove the plug from the electrical outlet before loading tooling, cleaning, maintenance or assembly. Clean all equipment at the end of the work day.

Do not use a high-pressure washer to clean the machine. In order for the machine to always be cooled sufficiently the cooling air openings must be kept clear and clean.

### Rubber shock absorber discs

Check the rubber shock absorbing discs every month. Replace if necessary.

### Electrical Feed



**WARNING! Never use damaged cables. They can cause serious, even fatal, personal injuries.**

Check that the cord and the extension cord are intact and in good condition. Never use the machine if the cord is damaged. Replace the cord or have it repaired at an authorized electrical service shop.

### Dust Shroud

Make sure that the dust shroud is intact, clean and that it is in light contact with the floor. A damaged dust shroud should be replaced.

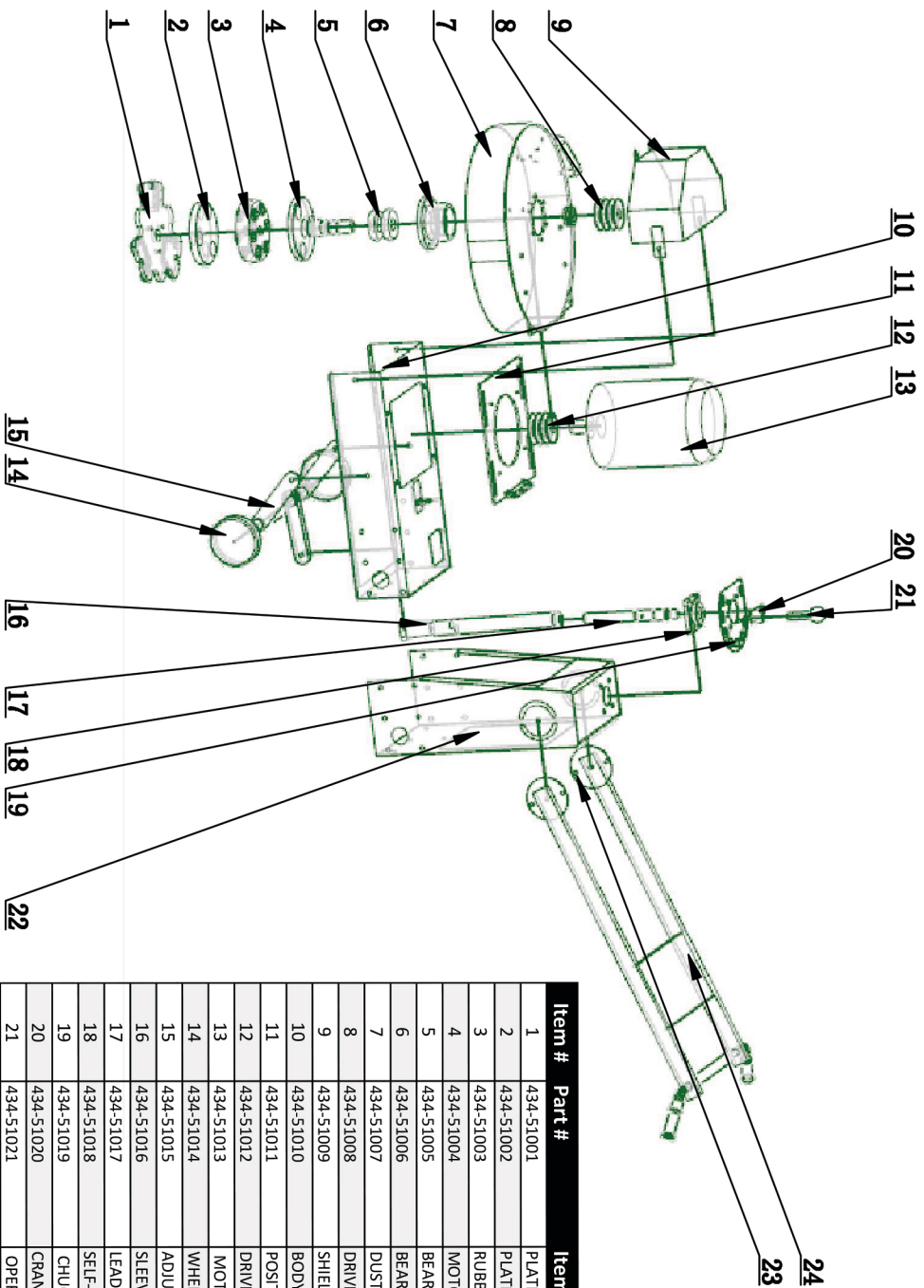
### Service

***IMPORTANT! All types of repairs may only be carried out by authorized repairmen.***

## MAINTENANCE SCHEDULE

	Before operation	Every 4 hours	Daily	Every 50 hours of operation	As required
Visual inspection of entire machine			X		
Check dust shroud – replace as needed			X		
Check for stable handle position			X		
Grease bearings				X	
Inspect drive belt	X				
Inspect diamond tooling	X				
Check condition of belts	X				
Check belt tensioning					X
Clean dust & dirt off machine					X

# FG-11 Grinder Parts Diagram



Item #	Part #	Item Description	Item Quantity
1	434-51001	PLATE	1 Ea
2	434-51002	PLATE CONNECTION	1 Ea
3	434-51003	RUBBER	1 Ea
4	434-51004	MOTOR CONNECTION	1 Ea
5	434-51005	BEARING 6207	1 Ea
6	434-51006	BEARING BLOCK	1 Ea
7	434-51007	DUST COVER	1 Ea
8	434-51008	DRIVEN PULLEY	1 Ea
9	434-51009	SHIELD	1 Ea
10	434-51010	BODY 1	1 Ea
11	434-51011	POSITIONING PLATE	1 Ea
12	434-51012	DRIVING PULLEY	1 Ea
13	434-51013	MOTOR	1 Ea
14	434-51014	WHEEL (180mm)	1 Ea
15	434-51015	ADJUSTMENT LEVER	1 Ea
16	434-51016	SLEEVE	1 Ea
17	434-51017	LEAD SCREW	1 Ea
18	434-51018	SELF-ALIGNING BEARING 6306	1 Ea
19	434-51019	CHUCK	1 Ea
20	434-51020	CRANK	1 Ea
21	434-51021	OPERATING CRANK	1 Ea
22	434-51022	BODY 2	1 Ea
23	434-51023	HANDLE CONNECTION	1 Ea
24	434-51024	HANDLE	1 Ea
	434-51025	BUBBLE LEVEL	1 Ea
	434-51026	CABLE	1 Ea
	434-51027	CAPACITOR(START/RUN)	1 Ea
	434-51028	SWITCH	1 Ea