Manual for HTG-680 SP

Grinding Machine

-------- Version 1.1

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1. Introduction

1.1 Summary

XINGYI Machines are used for processing the floor surface. The scope of use of the machine depends on the choice of tools. In addition to the use and general functions, this manual describes information on the use, repair, and maintenance of the grinder. Contact your local dealer for further information.

1.2 Liability

We make every effort to make this manual as complete and accurate as possible, and we are not responsible for any errors or loss of information. XINGYI reserves the right to change the instructions in this manual without prior notice.

1.3 Warranty

This warranty only covers manufacturing defects. XINGYI bears no responsibility for damage that arises or occurs during transportation, unpacking or use. In no instance and under no circumstances shall the manufacturer be held responsible for damage and defects caused by incorrect use, corrosion or use outside the prescribed specifications. The manufacturer is not responsible for indirect damage or costs under any circumstances. For complete information on the manufacturer's warranty period, see XINGYI MACHINE USA's current warranty terms. Local distributors may have special warranty terms specified in their terms of sale, delivery and warranty. If there is any uncertainty regarding warranty terms, please contact your dealer.

2. Safety

This manual indicates the important information / rules that must be observed when using XINGYI's machine.

2.1 Operation Safety

Users of machines from XINGYI have the ultimate responsibility for ensuring that everybody who works with or in the vicinity of the equipment follows all applicable safety rules. Safety measures must meet the requirements that apply to this type of equipment. Apart from the standard rules that apply in the workplace, the recommendations in this manual shall also be observed.

All work must be done by trained personnel. Users of machines from XINGYI must have read through the dedicated manual for the machine. Incorrect use of the equipment could result in situations that could cause harm to the operator, the surroundings, or the machine.

Machines from XINGYI may only be used in the way recommended by XINGYI. Machines

from XINGYI may only be used for commercial purposes.

Anyone using the machine shall know about:

- its functions
- location of emergency stops
- the safety rules for the work

The operator shall ensure that:

- No unauthorized person is stationed within the work area when the machine is started up

The workplace shall:

- be suitable for the purpose.
- be secured from loose objects that can be thrown out by the machine.
- be free from protruding bolts etc. on the surface to be processed.

Individuals in the workplace shall always use the recommended personal protective equipment and wear suitable clothing:

- safety goggles
- protective gloves
- steel toe safety shoes
- hearing protection
- Do not wear loose-fitting clothing or anything that can catch, such as scarves, bracelets, rings, etc.

General precautions:

- Check the machine is connected to a grounded power supply.
- Work on live parts shall only be performed by qualified personnel.
- Suitable fire extinguishers should be clearly marked and close to hand.
- Maintenance of the equipment must not be performed during operation.

2.2 Electrical Safety

- Work on live parts shall only be performed by qualified personnel.
- The cables and connectors shall meet the machine’s specifications.
- The machine is equipped with an overload protector. Once the overload protector has tripped, power off and then power in to restart it.
- Check the cords before powering in. Any broken cords may cause a serious accident.
- The wires should be away from the high temperature surfaces.
- Keep the motor, electrical box, inverter away from water.

3. General Information

3.1 Unpacking

Check the packaging and equipment carefully on delivery of any possible transport damage. If there is any sign of damage, report packaging damage to the carrier in the first place, and contact the dealer and report the damage by photos, report form or any other necessary evidence as well. Check whether the delivery meets the order. If you have any questions, please contact the dealer.

3.2 Transport

Always make sure that the machine is securely anchored to its surroundings and that the grinding head is lowered on to the surface. Tighten the securing straps, or other equipment used for anchoring during transport over non-moving parts, e.g. the machine's chassis. Make sure the wheels are engaged/locked during transport (see page 8).

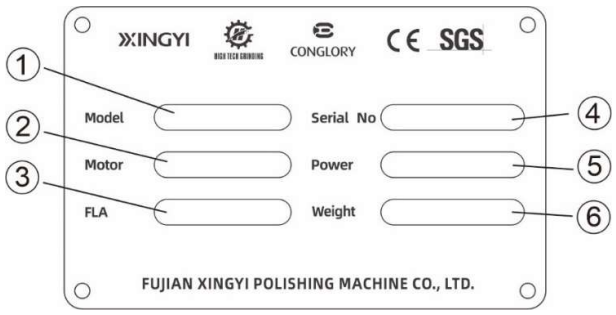
3.3 Lifting

The machine can also be lifted using the lifting eyes provided or using other approved lifting equipment. In which case, make sure that the weights are locked in the forward position and that the handle is in its back position. When lifting the machine, lifting straps must be used.

3.4 Movement

When moving on sloping surfaces, e.g. loading ramps, the battery system should have a minimum of 40% charge. Be sure the wheel locking pins are engaged. The maximum slope should not exceed 20%. The weights should be in the forward position. Otherwise, there is a risk that the machine tips backwards. Ensure there is no one below the machine during movement on sloping surfaces.

3.5 Machine Name Plate



1. Model name	2. Rated power	3. Full load amps
4. Serial number	5. Ratedvoltage/phase/ frequency	6. Net Weight

3.6 Storage

The grinding machine should be stored in a heated, dry place at normal temperature when not in use. It may be damaged by condensation and cold.

4. Machine Description

HTG-680 SP is a 3-head planetary floor grinder, used to grind (rough grind, fine grind and polish) concrete, natural stone and terrazzo floors or other materials specified in this manual or recommend by XINGYI. This machine is expected to be used in commercial applications such as hotels, schools, hospitals, factories, offices and warehouses and retail environments.

It is equipped with a transport wheel kit and battery system for mobilizing the machine on a job site. The battery powers the self-propelled mechanism that eliminates the need for manual pushing to reduce operator fatigue, and enhances productivity and helps maintain consistent performance throughout extended use.

A water tank equipped can be used for wet grinding or mist spaying. The handle can be set in different positions.

To prevent crystalline silica exposure, posing a threat to the health of the operator and other workers, when dry grinding, make sure that a dust collection system of the proper CFM is connected to the grinder (The recommended dust collector for this machine is the Xingyi IVC-45L).

4.1 Standard Delivery

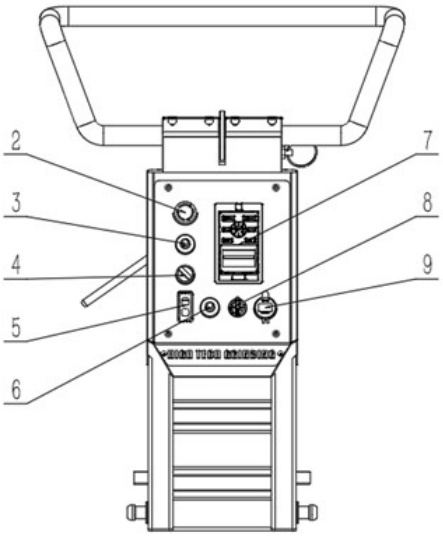
The machine will come with the following items. If anything is lost, please contact your dealer.

- dust skirt, 1
- female power connector, 1 (male connector on the machine)
- battery charger for the transport battery system, 1
- keys for the main electrical box, 2
- 3” Velcro tooling adaptors, 18 (on the grinding head)
- lifting strap, 1
- tool bag, 1

4.2 General Diagram

1. Handlebar
2. Handlebar adjusting pin
3. Main handle
4. Main handle adjustment lever
5. Operating panel
6. Transport wheel kit
7. Weight kit
8. Air spring for weight
9. Rubber drive wheel
10. Water tank
11. Power connector (male)
12. Motor
13. LED Spotlight
14. Grinding heads
15. Battery charger
16. Power connector (female)
17. Dust shroud
18. Tool bag

4.3 Operating panel



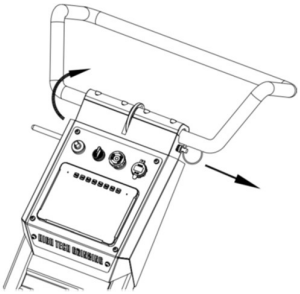
2. emergency stop switch
3. potentiometer for motor speed
4. motor forward / reverse switch
5. rocker, forward/reverse/neutral
6. potentiometer for travel speed
7. inverter display panel
8. light switch
9. USB charging port

4.4 Display Panel

The display screen provides the operator with information about the machine, including voltage, rpm, amps, error code if any, etc.

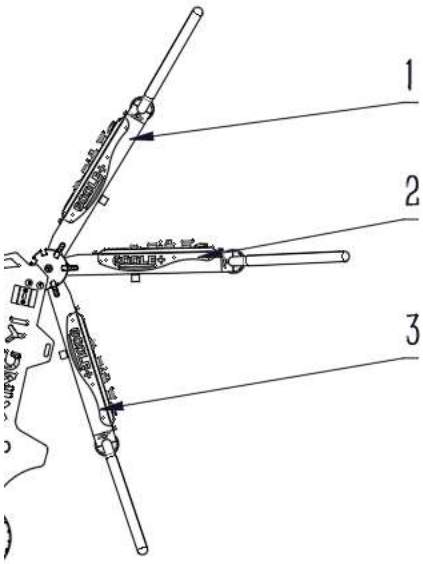
4.5 Handlebar Adjustment

The handlebar adjusting pin can be positioned at different positions to accommodate the specific user. Hold the handlebar with one hand, pull out the adjusting pin with the other hand, then release the adjusting bolt when it is rotated to proper position. Be sure that the pin has locked into a secure position.



4.6 Handle Adjustment

Use the handle position lever to adjust the position of the handle. Hold the handle tightly with one hand to support the handle, pull the lever lock back to release the handle, rotate the handle to a position that suits you best and release the lever to lock. Be sure that the handle has locked into a notch.



- Position 1 is for tilting the machine back.

- Position 2 is the operating position.

- Position 3 is the transport-position.

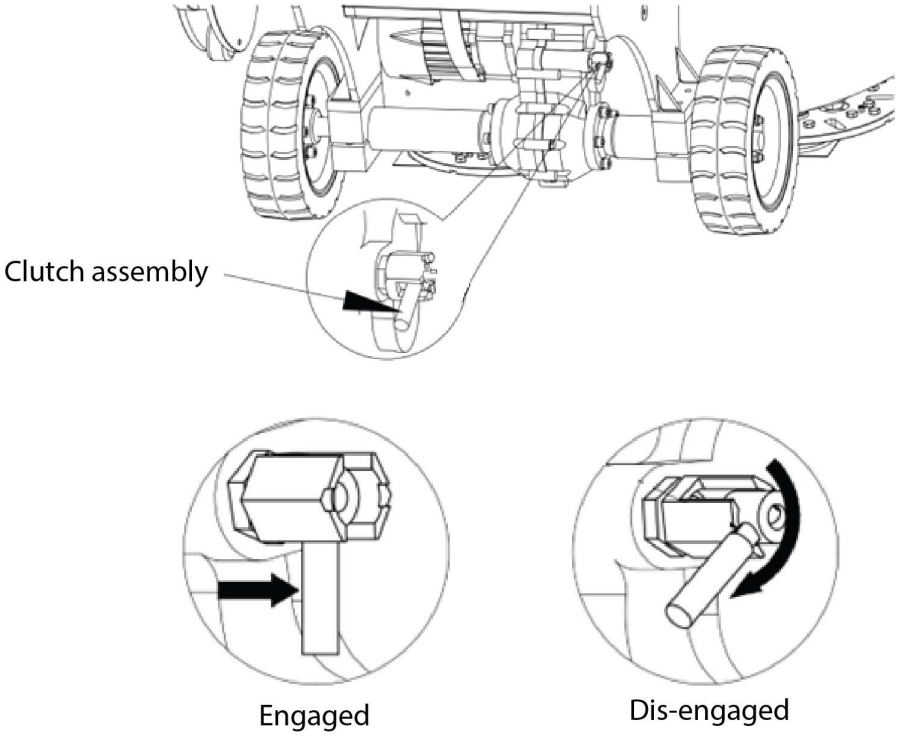
4.7 Self-Propelled Operation

This machine is equipped with a self-propelled drive system that eliminates the need for manual pushing to reduce operator fatigue and enhances productivity and helps maintain consistent performance throughout extended use.

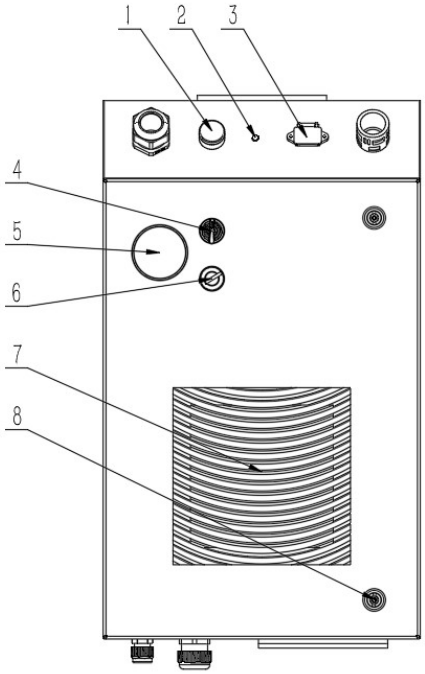
The direction switch, forward, reverse, and neutral allows the operator to control the direction of the machine. The operator still needs to steer the machine left and right or during turns. The travel speed potentiometer controls the travel speed which helps maintain consistent performance throughout extended use.

Above the axel there is a clutch switch that can engage or disengage the self-propelled system.

To disengage the clutch simply pull the knob out of the slot and turn 90 degrees. The wheels can move, and the machine is able to operate manually. To engage the clutch for self-propelled operation, turn the knob 90 degrees and return to the slot. See the images below.


Clutch assembly
Engaged
Dis-engaged

4.8 Electrical Cabinet



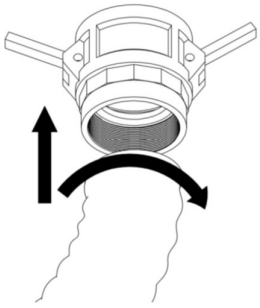
1. Operation indicator light	5. Battery level indicator
2. Fault light	6. DC power switch
3. Battery charging port	7. Fan filter
4. Water pump switch	8. Electric cabinet lock

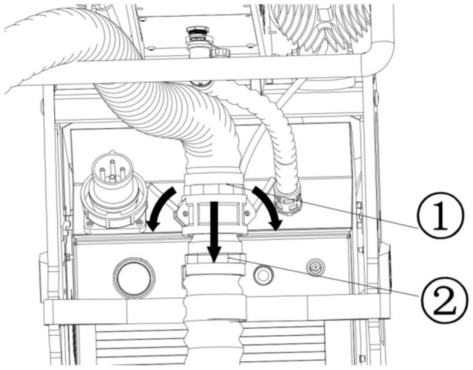
4.9 Battery Charging

When the battery indicator shows less than 20% the battery charger should be plugged in. Never try to transport the machine if the battery level is below 20%. The battery will start to charge if the machine is powered on, and the motor is running. Charging the battery once a month is great for preserving your battery for long periods of time if you're not using your machine.

4.10 Vacuum Quick Connector

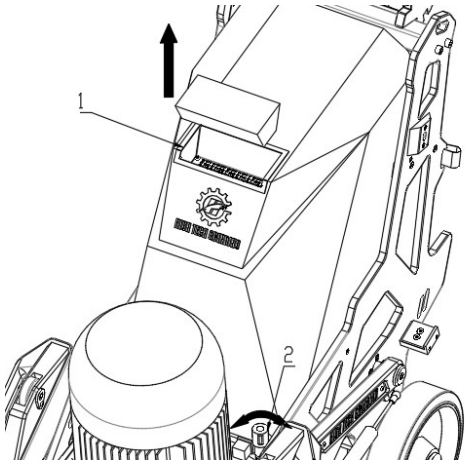
The fast connector consists of 2 parts, the part ① is connected to the vacuum tube (3”), the part② is connected to the grinder. This allows for fast connection of the vacuum to the grinder.





4.11 Water Tank

The capacity of the water tank is 35L/10 Gal. There is a water inlet on the top of the water tank (1) with a mesh screen. During wet grinding, turn on the water valve (2) located above the grinding head to inject water into the grinding head.



4.12 Weight Kit Adjustment

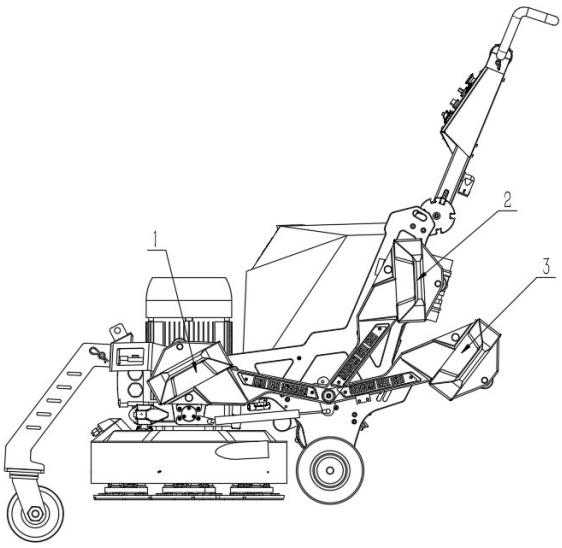
The machine is equipped with two weights to make it easy to move the machine's center of gravity. Each weight is provided with a locking pin, and a front limiting stop and a rear limiting stop on the frame of each side as well as a neutral position weight block.

Position 1----Pull the pin outwards and take hold of the weight and move the weight all the way forward until reaching the front stop.

Position 2----Lift the weight up until the pin locks into the neutral position weight block.

Position 3----Pull the pin outwards and take hold of the weight and move the weight all the way backward until reach the rear limiting stop.

In order for the grinding pressure to be maximized, the weights shall be placed in position 1 and to be minimized in position 3. If the machine feels heavy to operate, it may be due to the placing of the weights. Raise the weights to position 2, position 3 to relieve the grinding head. Ensure that the weights are in the same position on both sides to prevent the risk of uneven grinding.



4.13 Transport Wheel

It is more convenient and labor-saving to install the transport wheel to move the grinder. Tip the machine down and install the transport wheel and then straighten the machine up to move. Tip the machine down and remove or place the transport wheel on the supporter in the up position when grinding.

4.14 LED Lights

HTG-680 SP is equipped with 2 LED spotlights bar in the front and a light bar in the back. The switch for the lights is located on the operating panel. Simply flip the switch to the on position to turn on the LED light. The LED lights will illuminate the floor in front of and behind the grinder where the operator stands. This feature allows the operator to inspect the condition of the floor while the machine is working.

5. Transportation

The machine can be transported either manually, or by using the onboard battery system along with the transport wheel. Battery transport can be done without connecting the machine to a power supply.

5.1 Manual Transport with Transport Wheel

1. Tip the machine back and install the transport wheel.
2. Disengage the clutch pin above the axle to unlock the wheels.
3. The machine can be pushed manually.

5.2 Battery Transport

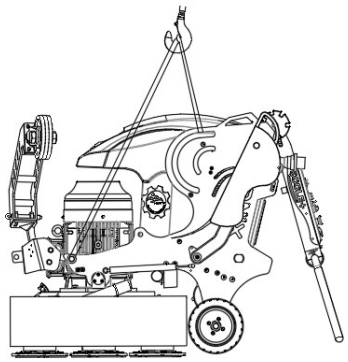
1. Tip the machine back and install the transport wheel.

2. Engage the clutch pin on the axel to lock the wheels.
3. Turn the DC power switch on the machine electrical cabinet to engage the onboard systems.
4. Turn the travel speed potentiometer on the handle panel to a low setting.
5. Turn the emergency stop to the up position to release.
6. Flip the rocker to the forward position and adjust the travel speed as needed, then transport to the destination by forward, backward or stop/neutral.
7. Press the emergency stop button down to stop all movement.

Note: Be sure not to run on a slope exceeding 20°. Be sure that the area around the machine is free and clear of any debris or tools before moving. Be sure that no personnel are in the immediate area when moving the machine.

5.3 Lifting the Machine

The image below shows the correct configuration for lifting the machine using a crane or forklift. Always use the designated pick points on the frame. Use the lifting straps that come with the machine, or straps that are sufficient for the weight of the machine. Be sure that the area is clear before lifting, be sure there are no people under the machine during lifting.



Lifting position

6. Operation

The following section describes how to change tools and how to operate the machine in manual or self-propelled mode.
The machine may be operated either way depending on the job site requirements and the operator's skill level. Only experienced operators should use self-propelled mode to run the machine.

6.1 Handle Setting

Place in the right working height using the various settings. Ensure that the handle lock locks properly in the position wanted when adjusting the handle.

6.2 Weight Setting

Place the weights in the right position for current work. If the machine is heavy to operate, it may be due to the placing of the weights. Fold the weights up or back to unload the grinding head.

6.3 Access to Grinding Tools

WARNING

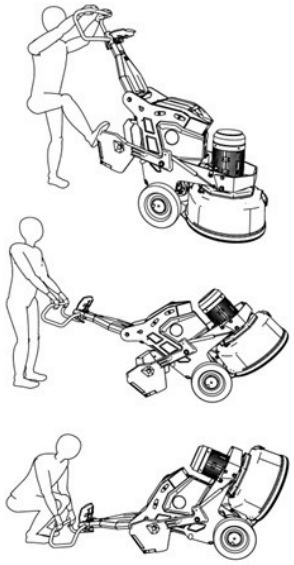
Risk of crushing.

Risk for personal injury and mechanical damage.

Disconnect the power prior to cleaning, maintenance, change of tools and repair.

Raise the handle to the high position in accordance with the Handle Adjustment (page 7). Lower the weights back and place a foot on one of the weights. See Weight Kit Adjustment (page 10). Carefully, tip the machine backwards, until the weights reach the floor.

Ensure that the machine lies supported on the handle.

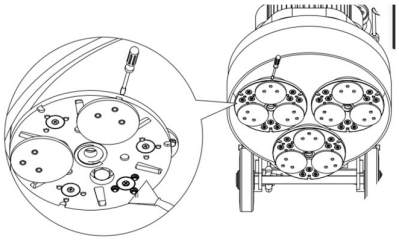


6.4 Fitting Grinding Tools

The machine uses 9 or 18 grinding tools.

Insert the flat-blade screwdriver into the slot to remove the Velcro adapter. Align the 3 holes on the tool with the 3 pins on the plate and the tool will be attached immediately by magnet which is embedded in the tool plate.

The tool plate holds the tools in place for the grinding application.



6.5 Manual Operation

Place the machine where you intend to start grinding operations.

Remove the transport wheel or place it in the upright position so the heads can touch the ground.

Install the tooling on the grinding heads as needed for the operation.

Connect the vacuum hose using the quick connector (unless wet grinding. If wet grinding be sure that the water tank has been filled).

Dis-engage the clutch pin to allow the machine to move freely. Rocking the machine would help to disengage the pin.

Make sure the emergency stop switch is pressed down (stop position). Plug in the power supply to the machine. Be sure it is the correct voltage for your machine (240V or 480V). Turn on the DC power switch to engage the onboard systems. Release the emergency switch to the up position. Flip the motor direction switch to any direction (clockwise or counterclockwise). Turn up the motor speed knob and the machine will begin grinding. Adjust the motor speed as needed for the tooling, and the RPM is read on the display panel.

Push the machine manually to move over the surface. Average speed for grinding should not exceed 8-10 feet per minute. Turn on the LED light if needed. To stop the machine, press down the emergency stop switch.

6.6 Self-Propelled Operation

Place the machine where you intend to start grinding operations.

Install the tooling on the grinding heads as needed for the operation. Remove the transport wheel or place it in the upright position so the heads can touch the ground.

Connect the vacuum hose using the quick connector (unless wet grinding. If wet grinding be sure that the water tank has been filled).

Engage the clutch pin to lock the wheels and get ready for self-propelled mode. Rocking the machine would help to engage the pin. Be sure that the pin clicks into the locked position.

Make sure the emergency stop switch is pressed down (stop position). Plug in the power supply to the machine. Be sure it is the correct voltage for your machine (240V or 480V). Turn on the DC power switch to engage the onboard battery system. Rotate the emergency switch to the up position. Flip the motor direction switch to any direction (clockwise or counterclockwise). Turn up the motor speed knob and the machine will begin grinding. Adjust the motor speed as needed for the tooling, and the RPM is read on the display panel.

Flip the rocker to the forward position and the grinder will begin moving. Adjust the travel speed as needed, travel speed should not exceed 8-10 feet per minute.

The machine still needs to be steered manually by the operator during grinding operation. During a turn it is useful to flip the rocker switch into the reverse position to help with the turn. Return the switch to the forward position as complete the turn. Turn on the LED light if needed. To stop the machine, press down the emergency stop switch.

7. Machine Maintenance

We recommend that the grinding machine be checked regularly to extend the service life. Always be sure that the machine is unplugged from power when performing maintenance or repairs.

7.1 Daily Maintenance

Should include keeping the machine free of dust and as clean as possible. Use a vacuum to remove excess dust from the grinding heads and other critical areas of the machine. The grinding heads should be cleaned when changing abrasives, the magnets will collect dust and metal fragments from the tooling. This can cause the tools to not sit properly on the head, loose tools may fly off and or cause irregular scratches in the floor. Check the switches on the handle panel to ensure all the functions are working properly. This can be done with battery power, simply turn on the key switch. Clean the switches as needed using a soft brush or cleaning rag. Do not use water to clean the switches.

7.2 Monthly Maintenance

Check the batteries, they should be charged monthly to ensure proper operation. The batteries are lead-acid based batteries. In cold weather conditions the operation time will be shorter. If the machine has been stored for more than a month, the battery should be charged before plugging in to 3 phase power. During normal grinding operations the battery will trickle when connected to power. Check the electrical compartment for dust, make sure it is clean and dry.

7.3 Gear Box Service

The machine gear box oil should be changed after the first 500 hours of operation, after that gear oil should be changed annually. There is a drain-plug under the gear box, where the grinding plates are attached. The fill location is on top of the gear box cover. HTG-680 SP holds approx. 1.5 gallons / 6L of gear oil. The recommended oil is VG320 or VG460, these are ISO-VG mm^2/s DIN-51519, at 40°C.
Contact your retailer for service options and information or go to https://www.youtube.com/watch?v=8tHoJxnyn2M for the video of changing gear oil.

7.4 Overload Protection

The machine is equipped with an overload protection circuit for the inverter. When the machine becomes overloaded, the machine will shut down automatically to protect the inverter, the error will be displayed on the display panel. When this condition occurs disconnect the power from the machine and wait for the machine to cool down, typically 10-20 minutes, then reconnect the power and restart the machine.

8. Troubleshooting

Problem	Possible Cause	Solution
The Machine won't run	Emergency stop is engaged	Reset the stop switch
	The motor is jammed	Remove the debris
	Power cable damage	Replace the cable / check power supply
	Non-standard operation	Refer to operation manual
The machine makes a low buzz when turned on	Motor may be burned out	Replace the motor
	Phase loss	Have electrician check the power phase
Machine is difficult to control / AMP draw is too high	Not enough tooling under the machine	Use the correct number of tools for the heads
	Power service not sufficient	Check the service amps
Battery cannot charge with 3 phase / battery cannot charge with dedicated charger	3 phase voltage is below the required range	Check the voltage and amps are correct for the machine
	Battery has reached its service life	Replace the battery
	Battery has drained to 0%	Charge for 4 hours with dedicated charger
	Battery charger is damaged	Replace charger
Machine bouncing	Diamond tools may not be installed correctly	Check to be sure tooling is correct
	Diamond may be different heights	Check the tooling is all the same height. Replace as needed
	The grinding plates are not flat	Replace the grinding plate
Machine will not travel	The clutch is not engaged	Check the clutch
	Servo motor control failure	Contact the factory / repair or replace
	Broken keyway between the wheel and driver	Contact the factory / replace the keyway
	Direction switch is damaged or broken	Replace the direction switch
	Battery is drained	Charge the battery

9. Technical Data

HTG-680 SP		
Motor power	11KW / 15HP	
Rated voltage	1P 240V	3P 240V
Rated amps	50 amps	30 amps
Cable size	6 AWG	10 AWG
Input hertz	50HZ / 60HZ	
Inverter power	15KW / 20HP	
Working width	680mm / 27 in	
Grinding disc	3 × 230mm / 9in	
Motor speed	350-1680 RPM	
Head weight /weights forward	310 KG / 683 lb.	
Head weight /weights neutral	252 KG / 556 lb.	
Head weight/weights back	229 KG / 505 lb.	
Dimensions / packed	1,393x700x1091mm/55 x 28 x 43in	
Dimensions /operation	2042 x 700 x 1137mm/80 x 28 x 45in	
Total weight	527 KG / 1162 lb.	
Water tank	15L / 4Gal	
Storage temperature	-20° - 60°C /-4°-140°F	
Operating temperature	-10°-40°C /14°-104°F	
Humidity	Below 95% (no condensation)	

10. Dimensions