



Termite XT



VIPER XT



raptor XT

OPERATOR'S MANUAL



IMPORTANT: Read before using your new machine

WerkMaster Grinders and Sanders Inc.
6932 Greenwood Street, Burnaby, BC V5A 1X8
tel: 604.629.8700 | toll free: 1.866.373.WERK | fax: 604.444.4231
www.werkmaster.com | email: support@werkmaster.com

LIABILITY LIMITATIONS

The remedies of the user set forth under provisions of warranty outlined at the end of this manual are the exclusive and total liability of WerkMaster Grinders & Sanders Inc. with the respect to their sale or the equipment and service furnished hereunder, in connection with the performance or breach thereof, or from the sale, delivery, installation, repair or technical direction covered by or furnished under the sale, whether based on contract, warranty, negligence, indemnity, strict liability, or otherwise shall not exceed the purchase price of the unit of equipment upon which such liability is based.

WerkMaster will not in any event be liable to the user, any successors in interest or any beneficiary or assignee relating to this sale for any consequential, incidental, indirect, special or punitive damages arising out of this sale or any breach thereof, or any defects on, or failure of, or malfunction of the equipment under this sale based upon loss of use, lost profits or revenue, interest, lost goodwill, work stoppage, impairment of other goods, loss by reason of shutdown or non-operation, increased expenses of operation of the equipment, cost of purchase or replacement power of claims of users or customers of the user for service interruption whether or not such loss or damage is based on contract, warranty, negligence, indemnity, strict liability, or otherwise.

WerkMaster reserves the right to modify, alter and improve any part or parts without incurring any obligation to replace any part or parts previously sold without such modified, altered or improved part or parts.

No person is authorized to give any other warranty or to assume any additional obligation on WerkMaster's behalf unless made in writing and signed by an officer of WerkMaster.

USE ONLY GENUINE WERKMASTER PARTS AND ACCESSORIES FOR YOUR OWN SAFETY, THE SAFETY OF OTHERS AND THE LIFE OF YOUR MACHINE.

CONTENTS

Introduction	1
Machine Descriptions	1
Specifications	2
Safety Precautions	3
Personal Protective Equipment.....	3
Physical and Mental Fitness	3
Safe Operating Distance	3
Power	3
Safe Operating Condition	3
Modifications.....	4
Power and Connectivity	4
General Connections.....	4
Single-Phase to Three-Phase Adapter Cord	5
Pigtails.....	5
Stove and Dryer Adapter Plugs	5
Quick 220 Adapter Plugs.....	5
Power Cord Minimum Requirements	5
Generator Minimum Requirements.....	5
Introduction to the Controls	6
Machine Controls.....	6
VFD Controls	6
Machine Operation	6
Changing Tools.....	6
Adjusting the Dust Skirt.....	7
Adjusting the Handle	7
Initial Start Sequence.....	8
Selecting the Starting Speed.....	8
Starting the Machine	8
Adjusting the Speed	8
Stopping the Machine.....	9
Viewing the Total Run Time.....	9
Installing and Removing the Pad Driver.....	9
Rotation Pattern of Tooling Plates.....	10
Vacuum or Water Feature Port	12
Maintenance	11
Troubleshooting	12
Appendix – Lenze VFD Troubleshooting and Diagnostics	14
Exploded View and Parts List	18
Termite XT.....	18
Viper XT.....	21
Raptor XT	24
Glossary	27
Warranty Information	28
Operation and Safety Guides	30
Termite XT.....	30
Viper XT.....	31
Raptor XT	32

INTRODUCTION

Congratulations on your purchase of a WerkMaster machine. WerkMaster machines allow professional surface prep, polishing, grinding, edging, buffing and restoration of virtually any surface material, including concrete, terrazzo, stone, and hardwood. This manual is provided to assist you in the operation and maintenance of your WerkMaster.

MACHINE DESCRIPTIONS

WerkMaster machines include the Scarab, Termite XT, Viper XT, Raptor XT, TITAN XT, and COLOSSOS XT models. To see the complete family of WerkMaster machines visit our website at www.werkmaster.com.



Termite XT

- Perfect choice for contractors, facility services, equipment rental and DIYers looking for versatility, speed, quality and exceptional results
- 7 Machines in 1 – grinds, sands, strips, polishes, buffs, burnishes, and edges
- Run on the floor like a conventional grinder, remove the handle and use on countertops or stairs
- Run wet or dry on concrete, stone, terrazzo and vinyl flooring
- Sand, screen, edge, and buff hardwood
- Edge to within 1/8" (3 mm) of the wall, backsplash, or riser
- Features Octi-Disc Technology with 8 counter rotating heads and the versatility of using the ULTRA-FLEX Plug 'N Go tooling system or standard 3" (76 mm) tools
- Comes with an adjustable, foldable handle for convenient use and easy transport
- Dual action wet/dry vacuum port allows for dry, dust-free pick up and can be used with optional water feature
- **Plug into any 110 outlet**



Viper XT

- Designed to meet the need of contractors, facility services, equipment rental and DIYers
- 7 Machines in 1 – grinds, sands, strips, polishes, buffs, burnishes, and edges
- Remove thinset, epoxy, glue, paint and mastic, etc
- Run wet or dry on concrete, stone, terrazzo and vinyl flooring
- Premium hardwood sander, screener and edger
- Edge to within 1/8" (3 mm) of the wall
- Features WerkMaster Octi-Disc Technology with 8 counter rotating heads and the versatility of using our 5" (127mm) ULTRA-FLEX Plug 'N Go tooling system
- Ideal for garage floor restoration and for residential and small commercial applications
- Variable frequency drive lets you run at speeds from 450 RPM to 1800 RPM
- Dual action wet/dry vacuum port allows for dry, dust-free pick up and can be used with optional water feature
- **Run 220V single-phase or 110V with Quick 220 Adapter**



Raptor XT

- Most aggressive, powerful surface prep and polish machine in its class, designed to meet the needs of today's general and facility maintenance contractors and equipment rentals
- 7 Machines in 1 – grinds, sands, strips, polishes, buffs, burnishes, and edges
- Use for garage floor prep and polish, as an edger on large commercial and industrial jobs, or for retail and small commercial polishing and surface prep projects
- Remove thinset, epoxy, glue, paint and mastic on concrete, stone, terrazzo and vinyl flooring; works on spalled and rained out concrete
- Run wet or dry on concrete, stone, terrazzo and vinyl flooring
- Premium hardwood sander, screener and edger
- Edge to within 1/8" (3 mm) of the wall
- Has an adjustable, foldable handle for easy transport
- Features WerkMaster Octi-Disc™ technology with 8 counter rotating heads and the versatility of using our 5" (127mm) ULTRA-FLEX Plug 'N Go tooling system
- Features auto sensing dual voltage variable frequency drive that lets you run at speeds from 450 to 1800 RPM
- **Run on 110V with Quick 220 Adapter, single-phase 220V or three-phase 230V**

SPECIFICATIONS

MODEL	TERMITE XT	VIPER XT	RAPTOR XT
Dimensions (l x w in) (l x w cm)	14 x 14 35 x 35	17 x 17 43 x 43	17 x 17 43 x 43
Weight (lbs/kg)	118 / 54	210 / 95	270 / 123
Horsepower (HP) Phase	1 1~	3 1~	5 1~ / 3~
Frequency (Hz)	50 / 60	50 / 60	50 / 60
Voltage (V)	110	200-230 110* Quick 220	200-230 110* Quick 220
Breaker Size	15	20	20

SAFETY PRECAUTIONS

WARNING

Read this manual and all the safety precautions before attempting to operate WerkMaster machines. Failure to follow the safety precautions may result in severe personal injury or death.

Personal Protective Equipment

- Wear eye and ear protection at all times when operating WerkMaster machines. Use only ANSI/OSHA-approved safety glasses to help prevent eye injury.
- Wear appropriate clothing and footwear when operating WerkMaster machines. Do not wear loose clothing or jewelry that may become entangled in moving parts.
- Crystalline silica from bricks and concrete and other masonry products may cause health problems. Risk of exposure varies depending on how often you do this type of work. To reduce your risk, work in a well-ventilated area, use a dust control system such as an industrial-style vacuum, and wear approved personal safety equipment, such as a dust or particle respirator designed to filter out microscopic particles.

Physical and Mental Fitness

- **NEVER** operate WerkMaster machines under the influence of drugs or alcohol, when taking medications that impair the senses or reactions, or when excessively tired or under stress.
- Only operate and maintain WerkMaster machines if you are trained in their use and are in good physical condition and mental health. You must be physically able to handle their bulk, weight and power.

Safe Operating Distance

- WerkMaster machines are designed to be operated by one person at a time. Maintain a safe operating distance to other personnel. Keep bystanders a safe distance away during operation by blocking off the work area in all directions with roping, safety netting, or other material. Failure to do so may result in someone being injured by flying debris or being exposed to harmful dust and noise.
- Maintain a safe operating distance from flammable materials. Sparks from the cutting action of WerkMaster machines may ignite flammable materials or vapors.

Power

- Unplug the WerkMaster's power cord when not in use and before servicing or changing tooling plates.
- Turn the WerkMaster **off** before disconnecting power.
- **DO NOT** disconnect power by pulling the cord. To disconnect power, grasp the plug, not the cord. To remove twist-lock plugs, push in and turn clockwise to engage, and turn counter-clockwise and pull to remove.
- **DO NOT** turn on the WerkMaster while it is tilted back. Any tooling fastened to the WerkMaster may eject and become a lethal projectile.

Safe Operating Conditions

- Be sure all safety decals on the machine may be clearly read and understood. Replace damaged or missing decals immediately.
- Maintain WerkMaster machines in safe operating condition with all guards in place and secure, all mechanical fasteners tight, all controls in working order, and the grinder configured for the job application, whether concrete, natural stone, wood or other surfaces.

- To prevent damage to your machine or severe personal injury, avoid protruding slab inserts, nails, screws, Hilti anchors, rebar, embedded bolts or any other debris, pipe extensions, machinery bases, or any objects that transmit sudden shock to the grinding assembly.
- Inspect the discs carefully before installing. **DO NOT** use any discs that exhibit signs of damage, as severe personal injury or damage to the equipment could result.
- **NEVER** leave WerkMaster machines running unattended.

Modifications • **DO NOT** modify WerkMaster machines. **Modifications will void the warranty** and may result in injury to persons and damage to the machine.

POWER AND CONNECTIVITY

WerkMaster machines are outfitted with a Lenze variable-frequency drive (VFD) that allows the desired grinding speed to be selected. Along with controlling the speed of the machine, the Lenze VFD features include the following:

- Undervoltage protection (damages most single-phase motors)
- Overcurrent protection (prevents nuisance breaker tripping)
- 60 Hz and 50 Hz capability (international)
- Wide voltage range (200–230V +/- 15% for 230V models; 380–460V +/- 15% for 460V models)
- Soft start (smaller generator requirements)
- Monitor pad speed display
- Auto disable if ON when plugged in.



DANGER

NEVER open the VFD panel while plugged in or immediately after unplugging the power cord. Severe injury or death may result.

General Connections WerkMaster machines come with a variety of different plug configurations. The following table lists the plugs that are typically used.

MODEL	TERMITE XT	VIPER XT	RAPTOR XT
Voltage	120	250	250
Breaker Size	15	20	30
Phase Configuration	1 phase	1 phase	3 phase
Cord End	110	3 pole 2 wire twist lock	4 pole 3 wire twist lock

Single-Phase to Three-Phase Adapter Cord

WerkMaster machines come in a variety of voltage and phase configurations. The Raptor XT is typically configured to operate on 208–230V three-phase power. It is capable of operating on single-phase 208–230V power with the use of the adapter cord (included), as well as 110V using a Quick 220 Adapter.

Pigtails

Pigtails are plug ends with unfinished bare wire on one end for hooking up to panels. Pigtails are used when connectivity is unknown, when connecting to the power grid of an unfinished building that has no power receptacles, or when operating certain generators. Many pigtails are available or can be made up by an electrician.

Stove and Dryer Adapter Plugs

When using the Raptor XT in a residential environment, source power may be hard to find. The use of stove and dryer adapter cords make single-phase source power easier to connect to. The dryer adapter cord is outfitted with a 30A 250V single-phase twist-lock cord end. The stove adapter cord is outfitted with a 40A 250V single-phase twist lock cord end. The single-phase to three-phase adapter is used to connect the dryer/stove adapter cord to the Raptor XT only.

Quick 220 Adapter

When using the Viper XT or Raptor XT in a residential environment, source power may be hard to find. Plug two 110V cords from the Quick 220 into the 110V wall outlet on two (2) separate circuits. Plug the WerkMaster machine into the Quick 220 adapter.

NOTE: A 20 Amp to 30 Amp single-phase to three-phase adapter (optional) would be required.

Power Cord Minimum Requirements

The following table lists the minimum requirements for power cords.

MODEL	DISTANCE	MINIMUM REQUIREMENT
Termite XT	Up to 150 ft	Single-phase minimum gauge of 12/3
Viper XT	Up to 300 ft	Single-phase minimum gauge of 10/3
Raptor XT	Up to 300 ft	Single-phase minimum gauge of 10/3 Three-phase minimum gauge of 10/4

Generator Minimum Requirements

The following table lists the minimum requirements for generators.

MODEL	MINIMUM REQUIREMENT (KW)
Termite XT	N/A
Viper XT	5
Raptor XT	7.5



Exercise extreme caution at all times when working with electrical power. WerkMaster strongly recommends that only certified electricians be permitted to work with electrical power sources within customers’ facility or on their job site.

INTRODUCTION TO THE CONTROLS

CAUTION

If the machine is in the START mode (lever depressed) and plugged in, the VFD will automatically prevent the machine from running; unplug machine, wait 5 seconds. Ensure activation lever is not depressed; plug the cord in.

Machine Controls **Termite XT:** When using the handle, the Start control is lever activated. Use the ON/OFF buttons when the handle is removed.

Viper XT/Raptor XT: No need to use the keypad; the Start control is handle activated.

VFD Controls **Termite XT:** The VFD controls are not in use when in Handle Attached mode.

Viper XT/Raptor XT: The VFD controls are locked out to avoid accidentally changing necessary parameters.

MACHINE OPERATION

WARNING

ALWAYS turn off and disconnect power from the machine when performing any operations to the bottom of the machine. The machine and the tooling may be hot after using.

Changing Tools



Fig 1

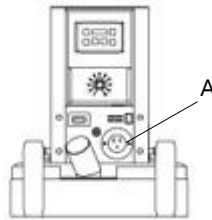


Fig 2

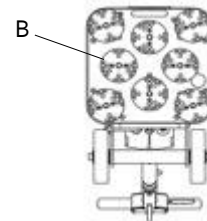


Fig 3

To change tooling on the Termite XT:

1. Unplug the power cord from the twist lock inlet (A). Ensure the handle is in its full upright position (Fig 1). Tilt the machine back (Fig 3). Choose the appropriate tooling holder attachment – magnetic Plug 'N Go plate (B) for Metal Bond tools or Foam/Velcro Adapter plate for polishing resins. Insert the 2 shear pins into the rubber grommets. Attach the corresponding tooling to the plate.
2. Return the machine to the upright position.



Fig 1

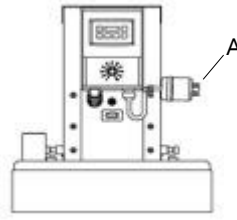


Fig 2

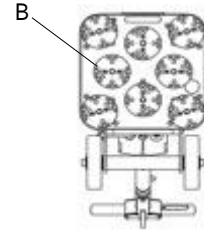


Fig 3

To change tooling on the Viper XT and the Raptor XT:

1. Unplug the power cord from the twist lock inlet (A). Ensure the handle is in its full upright position (Fig 1). Tilt the machine back (Fig 3). Choose the appropriate tooling holder attachment – magnetic Plug 'N Go plate (B) for Metal Bond tools or Foam/Velcro Adapter plate for polishing resins. Insert the 2 shear pins into the rubber grommets. Attach the corresponding tooling to the plate.
2. Return the machine to the upright position.

Adjusting the Dust Skirt

The skirt serves as a seal for the bottom of the machine to act as a vacuum chamber helping the dust stay contained under the machine. If the skirt is too far from the ground, the dust containment is reduced.

To adjust the skirt:

1. Pull one end of the skirt off of the machine until you reach the middle of the skirt.
2. Position the skirt until it is barely touching the ground and repeat with the other end.

CAUTION

Avoid positioning the skirt too low as it will drag against the ground, wearing the skirt out prematurely and possibly preventing smooth machine movement.

Adjusting the Handle

To adjust the handle, pull the pin. Adjust the handle to a comfortable operating position. Re-insert the pull pin.

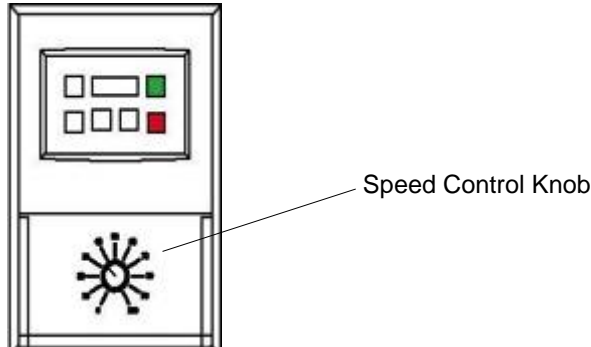
WARNING

Failure to check the pull pin is fully reinserted could result in damage to the machine or personal injury as the handle could release unexpectedly when the machine is being operated or tilted back.

Initial Start Sequence When the machine is first plugged in, a start-up screen will appear showing the model of the VFD and the software version that it has been released with.

After the machine runs through its initial start-up sequence, the screen will show the VFD status and pad driver speed in revolutions per minute (RPM).

Selecting the Start Speed Before starting the machine, turn the speed control knob to the lowest setting. During operation, adjust speed to desired level.



Once the machine reaches the desired speed, the speed will remain constant as long as the load applied remains below 100%. If the machine is running at speed and the load begins to exceed 100%, the machine will display CL (current limit) and reduce its speed as a protective measure to try and alleviate the outstanding load. This happens under demanding conditions and is normal.

WARNING

DO NOT lift the machine off the ground while starting it. Doing so could cause the diamonds to release from the machine, resulting in damage to the floor or personal injury.

Starting the Machine To start the machine:

1. Apply downward pressure on the handle to alleviate some pressure off the diamonds; gently squeeze the activation lever.
2. Once the machine starts, gently release the downward pressure and start grinding.

Adjusting the Speed The speed of the machine can be adjusted when the machine is running or stopped. To adjust the speed, rotate the speed control knob on the VFD counterclockwise to slow it down, or clockwise to speed it up. Always start the machine at the lowest speed and adjust as necessary.

Stopping the Machine

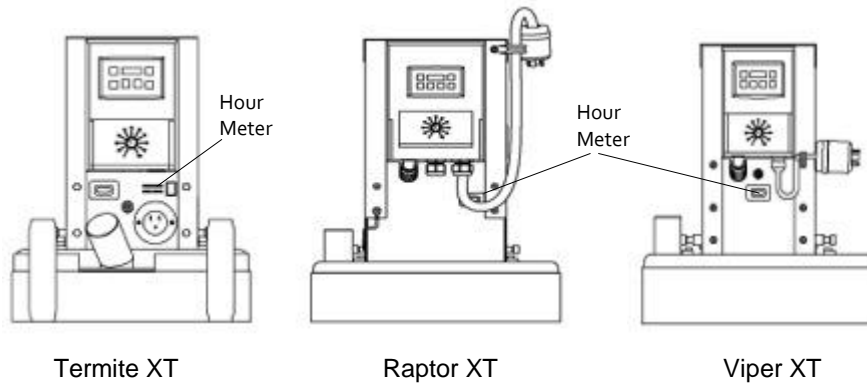
1. Release the activation lever.

When you unplug the machine, the screen will stay lit for a few seconds as the VFD drains the power from its internal capacitors. This is normal.



NEVER open the VFD panel while plugged in or immediately after unplugging the power cord. Severe injury or death may result.

Viewing the Total Run Time



Installing and Removing the Pad Driver

To install and remove the pad driver on the bottom of the machine, you will need a 9/16" (14 mm) socket wrench, a soft face mallet, and some medium-strength thread locker (blue Loctite 243 or equivalent).

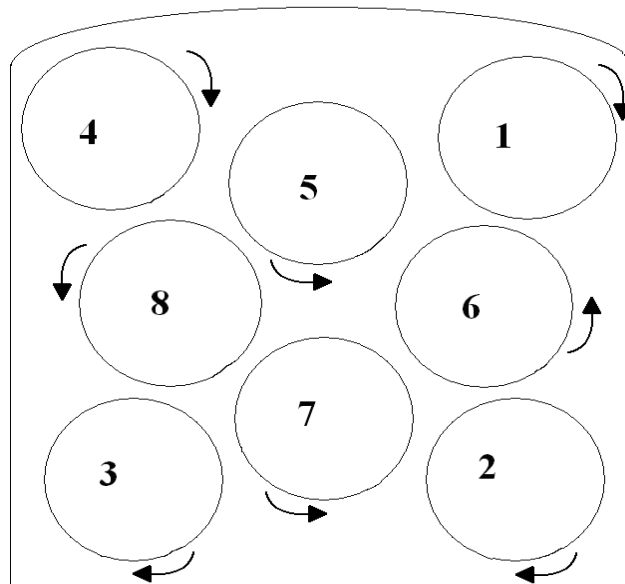
To remove the pad driver:

- Slip the 9/16" (14 mm) socket wrench over the pad driver bolt and strike the wrench with the soft face mallet in a counter-clockwise direction.
- When installing a new pad driver or re-installing an existing one, apply a generous amount of thread locker compound to the bolt and threaded drive shaft. Insert bolt through the hole in the pad driver. Reapply thread locking compound every time a pad driver is removed.
- Line up the bolt to the threaded end of the shaft and start the first couple of threads.
- Once the bolt is engaged, make sure that the drive shaft is properly seated within the pad driver slot before tightening the bolt all the way.



Failure to seat the pad driver could result in the pad driver slot being stripped out, the threads in the shaft being stripped, the machine leaving heavy tool marks, and the tooling overheating.

Rotation Pattern of Tooling Plates



Legend:
Discs 1, 2, 3, 4 rotate clockwise
Discs 5, 6, 7, 8 rotate counterclockwise

Bottom of WerkMaster with numbered tooling plates and clockwise and counterclockwise labeling.

VACUUM OR WATER FEATURE PORT

- Vacuum**
1. Only run vacuum when dry grinding.
 2. Use a 2" vacuum hose reducer (not included) between the vacuum port to fit a standard 2" vacuum hose.
 3. Always refer to vacuum manual.

- Water Feature**
1. Insert water feature plug into the vacuum port.
 2. Ensure the blue flow control valve is in the OFF position.
 3. Attach a 3/4" male (standard garden hose) to a 3/4" female end of water feature. Secure tightly with a new washer to prevent leaks.
 4. Turn on water supply. Adjust the blue flow control valve as wet grinding process requires.
 5. Always refer to the variable speed grinder/polisher manual prior to using the water feature.



Use extreme caution when working with electricity and water. Severe injury or death may occur if caution is not used.

MAINTENANCE

WARNING

Disconnect power before performing any maintenance, cleaning, or repair to your machine.

- Daily**
- Wipe down the machine after every job.
 - Gently remove dirt and debris from the pad driver.
 - Check grommets and replace if necessary.
 - Vacuum, wash and thoroughly dry the underside of the machine.
 - Inspect the plug ends for signs of carbon deposits and arcing.
 - Check all fasteners and tighten if necessary.
- Weekly**
- Inspect the handle wires for damage.
 - Blow off the VFD heat sink with compressed air.
 - Re-install the pad drivers using blue thread locking compound.
 - Using a soft scrub pad, remove any excess dirt build-up from the bottom plate and back side of the pad drivers.

CAUTION

After wet operation, wash bottom of the machine thoroughly, failure to do so may result in damaged bearing seals.

Do not use any sharp object or abrasive pad to clean the bearing shields. This can compromise the bearing seal.

- Monthly**
- Check all strain reliefs and make sure they are tight. (Strain reliefs are the plastic nuts that secure the wires that come out of the handle and VFD.)
 - Remove the pad drivers and inspect the threads to make sure there are no signs of cross-threading or stripping. Remove excess thread locking compound from bolts using a wire brush or by washing the bolts in a solvent.
 - Clean and lubricate wheels.
 - Using an extremely light abrasive pad, remove any topical rust from the shafts.

TROUBLESHOOTING

ISSUE	TEST	SOLUTIONS
Machine will not turn on.	Check all power connections. Make sure the source power meets the machine's minimum power requirements (see <i>Power Cord Minimum Requirements p. 5</i>).	<ul style="list-style-type: none"> • Plug in the machine. • Check to see if any breakers or fuses are tripped or blown. • Check to see the handle activation lever is not depressed. • Have a qualified electrician test the source power to see if it meets the machine's minimum power requirements.
Machine turns on but will not start.	Check the VFD display for error codes (see <i>Appendix p. 14</i>).	<ul style="list-style-type: none"> • If no error code is displayed, check if the handle wire is plugged into the machine. • If the VFD error code is "voltage range," have a qualified electrician test the source power and make the necessary adjustments to the wiring to supply the machine with its required input power.
Machine runs for a short time and then shuts down.	Check the circuit breaker to see if it is tripped or the fuse if it is blown.	<ul style="list-style-type: none"> • Check to make sure that the power source has the appropriately sized breaker or fuse to meet the machine's minimum power requirements. • Make sure the generator meets the machine's minimum power requirements. • Have an electrician perform a voltage test while the machine is under load to see if the voltage drops below the machine's minimum power requirements.
Pad drivers are not turning or only one pad driver is turning.	Disconnect the power and tilt the machine back. Spin one pad by hand.	<ul style="list-style-type: none"> • If the pad turns independently, replace the secondary belt. Go to www.werkmaster.com/support. • If all pad drivers turn but the motor fan does not turn, replace the primary belt. Contact technical support: 866.373.9375.
Not all discs are grinding the floor.	Disconnect the power and tilt the machine back. Visually inspect each pad driver height against the adjacent pad driver.	<ul style="list-style-type: none"> • Make sure all pad drivers are seated properly on the shafts. • Make sure grinding / polishing / sanding media is seated properly on the pad drivers. • Make sure grinding / polishing / sanding media is worn evenly and change out any media if uneven.
Excessive noise or vibration is felt or heard while running the machine.	Disconnect the power and tilt the machine back. Spin one pad by hand. Listen for a clicking sound or grit-like feeling.	<ul style="list-style-type: none"> • Check that all tooling is in the correct pin holes on the pad drivers. • Replace the bearings. Contact technical support: 866-373-9375 for instructions.
Tooling becomes dislodged from the machine while operating.	Disconnect the power and tilt the machine back. Remove and inspect all tooling. This includes the pins, tooling plates, and pad drivers.	<ul style="list-style-type: none"> • If the pin holes are excessively damaged, replace the pad drivers. • If the grommets/bumpers on the pad drivers are damaged, replace the damaged parts. • If the pins on the diamonds or tooling plates are damaged or missing, replace the pins.
The machine handle malfunctions.	Check the handle plug to see if it has come loose.	<ul style="list-style-type: none"> • Secure the handle plug. If the handle controls are still malfunctioning, contact customer service for instructions.

ISSUE	TEST	SOLUTIONS
VFD makes popping noise and starts to smoke. ***Disconnect power immediately!***	Wait for 1–2 hours, then remove the VFD cover and check electronic components for discoloration, scorching, or swelling.	<ul style="list-style-type: none"> • Contact a dealer or technical support: 866.373.9375.
VFD screen displays error message or unusual screen display.	Look up the message in the Appendix.	<ul style="list-style-type: none"> • Contact technical support: 866.373.9375.

APPENDIX – LENZE VFD TROUBLESHOOTING AND DIAGNOSTICS

Status Warning Messages

	Status / Warning	Cause	Remedy
br	DC-injection brake active	DC-injection brake activated <ul style="list-style-type: none"> • activation of digital input • automatically (P110=2,4...6) • automatically (P111=1,3) 	Deactivate DC-injection brake <ul style="list-style-type: none"> • deactivate digital input • automatically after time has expired
bf	Drive ID warning	The Drive ID (P502) stored on the EPM does not match the drive model.	<ul style="list-style-type: none"> • Verify motor data and perform Auto Calibration. • Set drive mode (P300) to 0 or 1 • Reset the drive (P199 to 3 or 4) and reprogram.
CAL	Motor Auto-calibration active	Refer to P300, P399	Motor Auto-calibration is being performed
cE	An EPM that contains valid data from a previous software version has been installed	An attempt was made to change parameter settings	Parameter settings can only be changed after the EPM data is converted to the current version (P199=5)
CL	Current Limit reached	Motor overload	<ul style="list-style-type: none"> • Increase P171 • Verify drive/motor are proper size for application
deC	Decel Override	The drive has stopped decelerating to avoid tripping into HF fault, due to excessive motor regen (2 sec max).	If drive trips into HF fault: <ul style="list-style-type: none"> • Increase • Install Dynamic Braking option
Err	Error	Invalid data was entered, or an invalid command was attempted	
FCL	Fast Current Limit	Overload	Verify drive/motor are proper size for application
fst	Flying Restart Attempt after Fault	P110 = 5,6	
GE	OEM Settings Operation warning	An attempt was made to change parameter settings while the drive is operating in OEM	In OEM Settings mode (P199 = 1), making changes to parameters is not permitted.
GF	OEM Defaults data warning	An attempt was made to use (or reset to) the OEM default settings (P199 = 1 or 2) using an EPM without valid OEM data.	Install an EPM containing valid OEM Defaults data
LC	Fault Lockout	The drive attempted 5 restarts after a fault but all attempts were unsuccessful (P110=3...6)	<ul style="list-style-type: none"> • Drive requires manual reset • Check Fault History (P500) and correct fault condition
PdeC	PID Deceleration Status	PID setpoint has finished its ramp but the drive is still decelerating to a stop.	
PID	PID Mode Active	Drive has been put into PID Mode.	Refer to P200
SLP	Sleep Mode is active	Refer to P240...P242	
SP	Start Pending	The drive has tripped into a fault and will automatically restart (P110=3...6)	To disable Auto-Restart, set P110 = 0...2
spd	PID Mode disabled.	Drive has been taken out of PID Mode. Refer to P200.	
stoP	Output frequency = 0 Hz (outputs U, V, W inhibited)	Stop has been commanded from the keypad, terminal strip, or network	Apply Start command (Start Control source depends on P100)

(1) The drive can only be restarted if the error message has been reset.

Drive Configuration Messages When the Mode button is pressed and held, the drive's display will provide a 4-digit code that indicates how the drive is configured. If the drive is in a Stop state when this is done, the display will also indicate which control source commanded the drive to Stop (the two displays will alternate every second).

Configuration			
Format = x.y.zz	x = Control Source: L = Local Keypad t = Terminal Strip r = Remote Keypad n = Network	y = Mode: S = Speed mode P = PID mode t = Torque mode C = Sequencer mode	zz = Reference: CP = Keypad P q EU = 0-10 VDC (TB-5) E1 = 4-20 mA (TB-25) JG = Jog nt = Network OP = MOP P1...P7 = Preset 1...7 o1...16 = Sequencer Segment
Example: L.S.CP = Local Keypad Start control, Speed mode, Keypad speed reference t.p.EU = Terminal Strip Start control, PID mode, 0-10 VDC setpoint reference t.C.12 = Terminal Strip Start control, Sequencer Operation (Speed mode), Segment #12 n.t.p2 = Network Start control, Vector Torque mode, Preset Torque #2 reference n.S.o3 = Network Start control, Speed mode, Speed reference from Sequencer segment #03			
Stop Source			
Format = x.StP	L.stp = Stop command came from Local Keypad t.stp = Stop command came from Terminal Strip r.stp = Stop command came from Remote Keypad n.stp = Stop command came from Network		

Fault Messages The messages below show how they will appear on the display when the drive trips. When looking at the Fault History (P500) the F_ will not appear in the fault message.

Fault	Cause	Remedy
f.AF High Temperature fault	Drive is too hot inside	<ul style="list-style-type: none"> Reduce drive load Improve cooling
f.AL Assertion Level fault	<ul style="list-style-type: none"> Assertion Level switch is changed during operation P120 is changed during operation P100 or P121...P124 are set to a value other than 0 and P120 does not match the Assertion Level 	<ul style="list-style-type: none"> Make sure the Assertion Level switch and P120 are both set for the type of input devices being used, prior to setting P100 or P121...P124. Refer to 3.2.3 and P120.
f.bf Personality fault	Drive Hardware	<ul style="list-style-type: none"> Cycle Power
f.CF Control fault	An EPM has been installed that is either blank or corrupted	<ul style="list-style-type: none"> Power down and install EPM with valid data
f.cF Incompatible EPM fault	An EPM has been installed that contains data from an incompatible parameter version	<ul style="list-style-type: none"> Reset the drive back to defaults (P199=3,4) and then re-program If problem persists, contact factory technical support
f.cFT Forced Translation fault	An EPM from an old drive put in new drive causes drive to trip F_cFT fault.	Press [M] (mode button) twice to reset

Fault Messages

	Fault	Cause	Remedy
f.dbF	Dynamic Braking fault	Dynamic braking resistors are overheating	<ul style="list-style-type: none"> • Increase active decel time (P105, P126, P127). • Check mains voltage and P107
f.EF	External fault	<ul style="list-style-type: none"> • P121...P124 = 21 and that digital input has been opened. • P121...P124 = 22 and that digital 	<ul style="list-style-type: none"> • Correct the external fault condition • Make sure digital input is set properly for NC
f.F1	EPM fault	EPM missing or defective	Power down and replace EPM
f.F2	Internal faults		Contact factory technical support
f.Fnr	Control Configuration Fault	The drive is setup for REMOTE KEYPAD control (P100=2 or 5) but is not setup to communicate with a remote keypad	Set P400 = 1, or P600 = 1
		The drive is setup for NETWORK ONLY control (P100=3) but is not setup for network communications	Set P400 or P600 to a valid network communications protocol selection
f.FoL	TB25 (4-20 mA signal) Threshold fault	4-20 mA signal (at TB-25) drops below the value set in P164.	<ul style="list-style-type: none"> • Check signal/signal wire • Refer to parameters P163 and P164.
f.GF	OEM Defaults data fault	Drive is powered up with P199=1 and OEM settings in the EPM are not valid.	Install an EPM containing valid OEM Defaults data or change P199 to 0.
f.HF	High DC Bus Voltage fault	Mains voltage is too high	Check mains voltage and P107
		Decel time is too short, or too much regen from motor	Increase active decel time (P105, P126, P127) or install Dynamic Braking option
f.1L	Digital Input Configuration fault (P121... P124)	More than one digital input set for the same function	Each setting can only be used once (except settings 0 and 3)
		Only one digital input configured for MOP	One input must be set to MOP Up, another must be set to MOP Down
		PID mode is entered with set point reference and feedback source set to	Change PID setpoint reference (P121...P124) or feedback source (P201).
		One of the digital inputs (P121...P124) is set to 10 and another is set to 11...14.	Reconfigure digital inputs
		One of the digital inputs (P121...P124) is set to 11 or 12 and another is set to 13 or 14.	
		PID enabled in Vector Torque mode (P200)	PID cannot be used in Vector Torque mode
f.JF	Remote keypad fault	Remote keypad disconnected	Check remote keypad connections
f.LF	Low DC Bus Voltage	Mains voltage too low	Check mains voltage
f.n1d	No Motor ID fault	An attempt was made to start the drive in Vector or Enhanced V/Hz mode prior to performing the Motor Auto-calibration	Refer to parameters P300...P399 for Drive Mode setup and calibration.
f.ntF	Module communication fault	Communication failure between drive and Network Module.	Check module connections
f.nF1 ... f.nF9	Network Faults	Refer to the module documentation for Causes and Remedies.	

Fault Messages

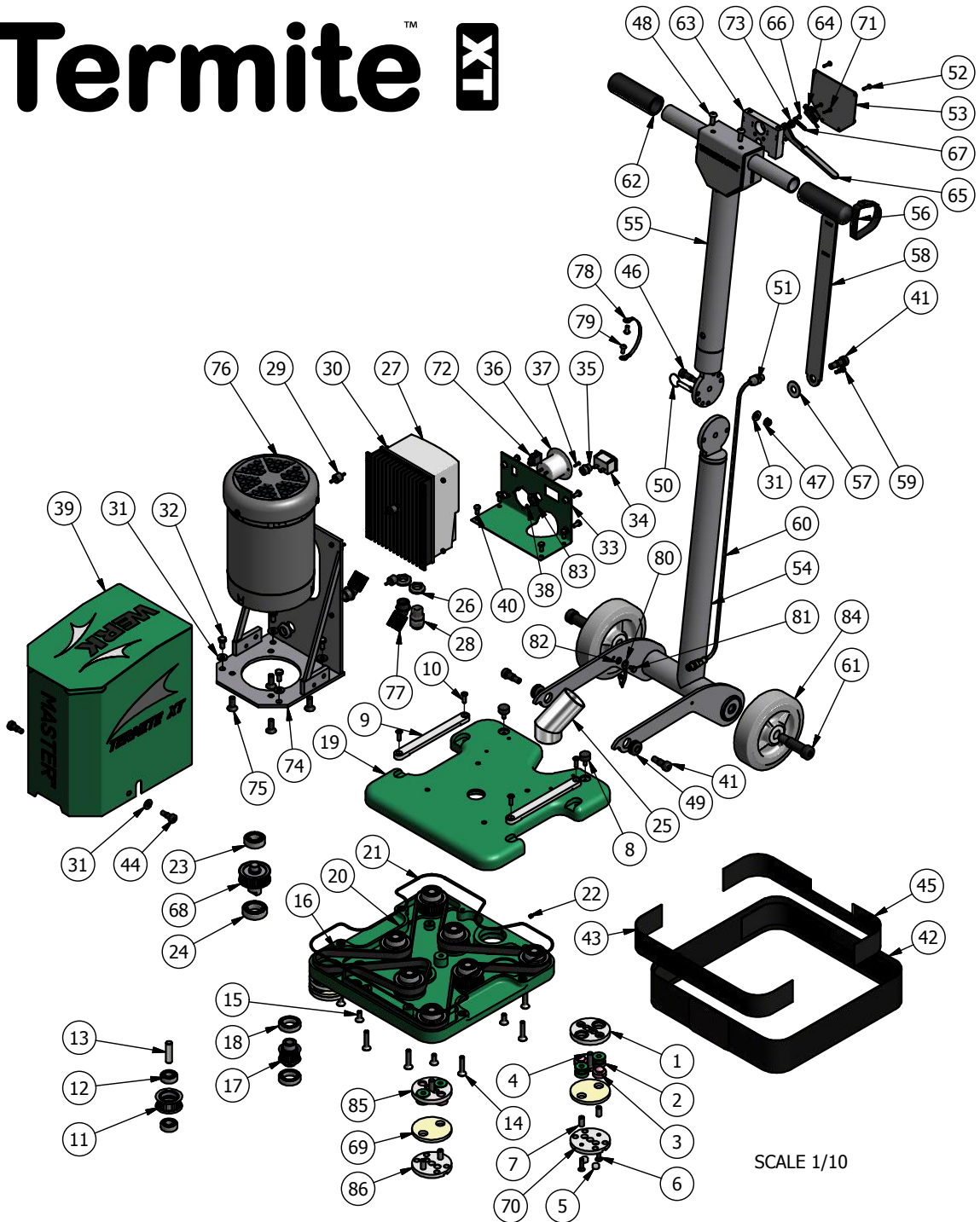
Fault		Cause	Remedy
f.OF	Output fault: Transistor fault	Output short circuit	Check motor/motor cable
		Acceleration time too short	Increase P104, P125
		Severe motor overload, due to: • Mechanical problem • Drive/motor too small for application	<ul style="list-style-type: none"> • Check machine / system • Verify drive/motor are proper size for application
		Boost values too high	Decrease P168, P169
		Excessive capacitive charging current of the motor cable	<ul style="list-style-type: none"> • Use shorter motor cables with lower charging current • Use low capacitance motor cables
		Failed output transistor	Contact factory technical support
f.OF1	Output fault: Ground fault	Grounded motor phase	Check motor and motor cable
		Excessive capacitive charging current of the motor cable	Use shorter motor cables with lower charging current
f.PF	Motor Overload fault	Excessive motor load for too long	<ul style="list-style-type: none"> • Verify proper setting of P108 • Verify drive and motor are proper size for application
f.rF	Flying Restart fault	Controller was unable to synchronize with the motor during restart attempt; (P110 = 5 or 6)	Check motor / load
f.SF	Single-Phase fault	A mains phase has been lost	Check mains voltage
f.UF	Start fault	Start command was present when power was applied (P110 = 0 or 2).	<ul style="list-style-type: none"> • Must wait at least 2 seconds after power-up to apply Start command • Consider alternate starting method (P110).
f.FAU	TB5 (0-10V signal) Threshold	0-10V signal (at TB5) drops below the value set in P158.	<ul style="list-style-type: none"> • Check signal/signal wire • Refer to parameters P157 and P158

(1) The drive can only be restarted if the error message has been reset.

Contact www.lenze.com for a copy of the Operator's Manual.

EXPLODED VIEW AND PARTS LIST – TERMITE XT

Termite™

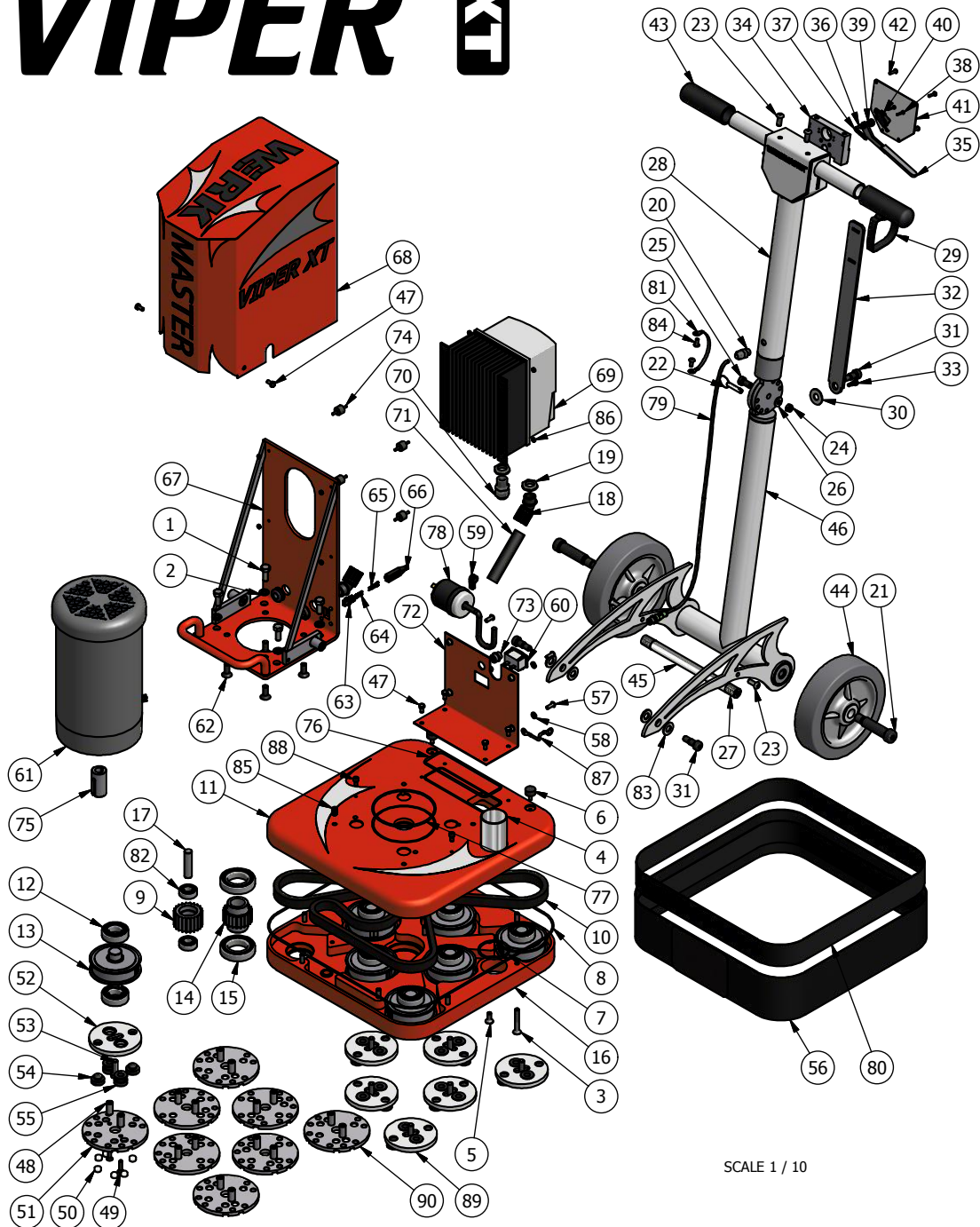


ITEM	QTY	PART NUMBER	DESCRIPTION	TERMITE XT
1	8	008-0259-01	Pad Driver	
2	16	008-0192-00	Shear Pin Grommet	
3	16	008-0152-00	Bumper	
4	8	590-0126-00	Fastener	
5	16	580-0072-00	Magnet	
6	16	590-0019-00	Fastener	
7	16	008-0040-00	Shear Pins	
8	2	540-0179-00	Threaded Bumper	
9	2	100-0531-00	Drive Train Lifting Handle	
10	4	590-0197-00	Fastener	
11	1	500-0240-00	Idler Sprocket	
12	2	500-0229-00	Bearing	
13	1	100-0514-01	Drive Train	
14	9	590-0209-00	Fastener	
15	4	590-0193-00	Fastener	
16	1	520-0039-00	Belt	
17	1	500-0251-00	Sprocket	
18	2	500-0245-00	Bearing	
19	1	100-0528-02	Drive Train, Upper Shell	
20	1	100-0529-02	Drive Train, Lower Shell	
21	1	580-0118-00	Main Gasket	
22	1	590-0211-00	Fastener	
23	8	500-0012-00	Bearing	
24	8	500-0006-00	Bearing	
25	1	110-0082-00	Vacuum Tube Assembly	
26	3	540-0071-00	Strain Relief	
27	1	540-0253-00	VFD	
28	1	540-0070-00	Strain Relief	
29	4	540-0173-00	Vibration Dampener	
30	8	590-0189-00	Fastener	
31	7	590-0148-00	Flat Washer	
32	4	590-0243-00	Fastener	
33	1	100-0620-01	Shroud, Back Plate	
34	1	540-0255-00	Hour Meter	
35	1	540-0184-00	Mating Receptacle	
36	1	540-0261-00	Power Plug	
37	2	590-0248-00	Fastener	
38	2	590-0253-00	Fastener	
39	1	120-0028-02	Shroud Assembly	
40	8	590-0171-00	Fastener	
41	3	590-0192-00	Fastener	
42	1	008-0331-00	Dust Skirt Assembly	
43	1	008-0324-00	Velcro Loop	
44	2	590-0255-00	Fastener	
45	1	008-0325-00	Velcro Loop	
46	1	590-0199-00	Fastener	
47	1	590-0196-00	Fastener	
48	2	590-0194-00	Fastener	
49	2	540-0178-00	Rubber Grommet	
50	1	580-0070-00	Quick Release Pin	
51	1	540-0175-00	Strain Relief	
52	4	590-0257-00	Fastener	
53	1	100-0544-00	Handle Junction Box	
54	1	130-0064-02	RPA Assembly	
55	1	130-0063-01	RPA Assembly	
56	1	580-0121-00	Cinching Strap	
57	1	590-0250-00	Washer	
58	1	100-0621-00	Vacuum Hose Hold Bar	
59	1	590-0254-00	Fastener	
60	1	540-0185-00	Straight Cord	

ITEM	QTY	PART NUMBER	DESCRIPTION	TERMITE XT
61	2	590-0251-00	Fastener	
62	2	580-0127-00	Handle Grip	
63	1	100-0545-02	Handle Junction Box	
64	1	540-0234-00	Switches	
65	1	130-0067-00	Lever Assembly	
66	1	590-0113-00	Fastener	
67	1	580-0112-00	Extension Spring	
68	8	500-0230-00	Sprocket	
69	8	008-0318-00	Compression Foam	
70	8	008-0277-00	Plate, Plug 'N Go	
71	2	590-0256-00	Fastener	
72	1	540-0269-00	Rocker Switch	
73	1	590-0212-00	Fastener	
74	1	120-0039-01	Motor Mounting Plate Assembly	
75	4	590-0038-00	Fastener	
76	1	530-0046-00	Motor	
77	2	540-0245-00	Strain Relief	
78	1	540-0305-00	Grounding Wire Assembly	
79	2	590-0114-00	Fastener	
80	1	540-0301-00	Grounding Wire Assembly	
81	1	590-0278-00	Fastener	
82	1	590-0147-00	Flat Washer	
83	1	590-0201-00	Fastener	
84	2	580-0091-00	Wheel	
85	8	008-0280-00	Pad Driver Assembly	
86	8	008-0265-00	Plate Assembly, Plug 'N Go	

EXPLODED VIEW AND PARTS LIST – VIPER XT

VIPER[™] XT



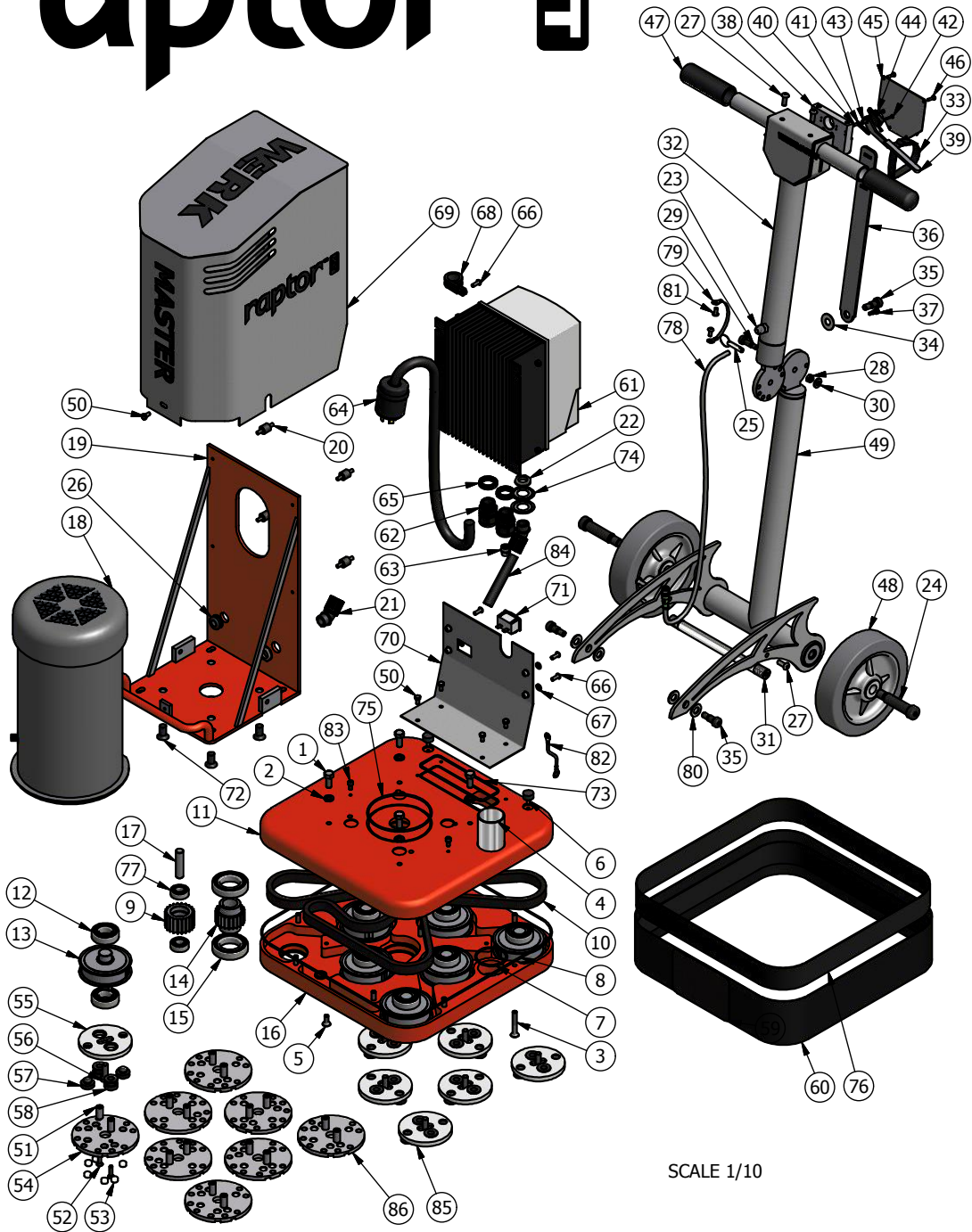
SCALE 1 / 10

ITEM	QTY	PART NUMBER	DESCRIPTION	VIPER XT
1	4	590-0125-00	Fastener	
2	4	590-0142-00	Lock Washer	
3	9	590-0180-00	Fastener	
4	1	100-0509-00	Drive Train Vacuum Tube	
5	4	590-0193-00	Fastener	
6	2	540-0179-00	Threaded Bumper	
7	1	580-0116-00	Vacuum Gasket	
8	1	580-0115-00	Main Gasket	
9	1	500-0260-00	Idler Sprocket	
10	1	520-0035-00	Belt	
11	1	100-0708-01	Drive Train, Upper Shell	
12	16	500-0222-00	Bearing	
13	8	500-0259-00	Sprocket	
14	1	500-0258-00	Sprocket	
15	2	500-0261-00	Bearing	
16	1	100-0709-01	Drive Train, Lower Shell	
17	1	580-0071-00	Pin	
18	2	540-0245-00	Strain Relief	
19	3	540-0071-00	Strain Relief	
20	1	540-0175-00	Strain Relief	
21	2	590-0188-00	Fastener	
22	1	580-0070-00	Quick Release Pin	
23	4	590-0194-00	Fastener	
24	1	590-0196-00	Fastener	
25	1	590-0199-00	Fastener	
26	1	590-0148-00	Flat Washer	
27	2	540-0201-00	Tubing	
28	1	130-0063-01	RPA Assembly	
29	1	580-0121-00	Cinching Strap	
30	1	590-0250-00	Washer	
31	3	590-0192-00	Fastener	
32	1	100-0621-00	Vacuum Hose Hold Bar	
33	1	590-0254-00	Fastener	
34	1	100-0545-02	Handle Junction Box	
35	1	130-0067-00	Lever Assembly	
36	1	590-0113-00	Fastener	
37	1	580-0112-00	Extension Spring	
38	2	590-0256-00	Fastener	
39	1	590-0212-00	Fastener	
40	1	540-0234-00	Switches	
41	1	100-0544-00	Handle Junction Box	
42	4	590-0257-00	Fastener	
43	2	580-0127-00	Handle Grip	
44	2	580-0067-01	Wheel	
45	1	100-0700-00	RPA Spanner Shaft	
46	1	130-0106-01	RPA Assembly	
47	6	590-0171-00	Fastener	
48	16	008-0141-03	Shear Pin	
49	16	590-0019-00	Fastener	
50	48	580-0072-00	Magnet	
51	8	008-0348-01	Plate, Plug 'N Go	
52	8	008-0365-00	Pad Driver	
53	8	590-0126-00	Fastener	
54	16	008-0208-00	Bumper	
55	16	008-0206-00	Shear Pin Grommet	
56	1	008-0264-01	Dust Skirt	
57	4	590-0190-00	Fastener	
58	3	590-0140-00	Fastener	
59	1	540-0248-00	Cable Retainer	
60	1	540-0255-00	Hour Meter	

ITEM	QTY	PART NUMBER	DESCRIPTION	VPER XT
61	1	530-0041-00	Motor	
62	4	590-0038-00	Fastener	
63	1	540-0257-00	Panel Mount	
64	2	540-0260-00	Contact Connector	
65	2	540-0259-00	Contact Pin	
66	1	540-0258-00	Cable	
67	1	120-0044-01	Motor Assembly	
68	1	120-0048-01	Shroud Assembly	
69	1	540-0254-00	VFD	
70	1	540-0070-00	Strain Relief	
71	1	540-0265-00	Conduit	
72	1	100-0722-01	Shroud	
73	1	540-0184-00	Mating receptacle	
74	4	540-0173-00	Vibration Dampener	
75	1	100-0719-00	Sleeve	
76	1	580-0194-00	Gasket	
77	1	580-0195-00	Gasket	
78	1	540-0052-00	Plug	
79	1	540-0185-00	Straight Cord	
80	1	008-0322-00	Velcro Loop	
81	1	540-0305-00	Grounding Wire Assembly	
82	2	500-0228-00	Bearing	
83	4	590-0276-00	Flat Washer	
84	2	590-0114-00	Fastener	
85	1	590-0277-00	Screw	
86	8	590-0189-00	Fastener	
87	1	540-0301-00	Grounding Wire Assembly	
88	2	590-0154-00	Fastener	
89	8	008-0366-00	Pad Driver Assembly	
90	8	008-0349-01	Plate Assembly	

EXPLODED VIEW AND PARTS LIST – RAPTOR XT

raptor™

SCALE 1/10

ITEM	QTY	PART NUMBER	DESCRIPTION	RAPTOR XT
1	4	590-0125-00	Fastener	
2	4	590-0142-00	Lock Washer	
3	9	590-0180-00	Fastener	
4	1	100-0509-00	Vacuum Tube	
5	4	590-0193-00	Fastener	
6	2	540-0179-00	Bumper	
7	1	580-0116-00	Vacuum Gasket	
8	1	580-0115-00	Main Gasket	
9	1	500-0260-00	Idler Sprocket	
10	1	520-0035-00	Belt	
11	1	100-0708-01	Drive Train, Upper Shell	
12	16	500-0222-00	Bearing	
13	8	500-0259-00	Sprocket	
14	1	500-0258-00	Sprocket	
15	2	500-0261-00	Bearing	
16	1	100-0709-01	Drive Train, Lower Shell	
17	1	580-0071-00	Pin	
18	1	530-0024-00	Motor	
19	1	120-0045-01	Motor Mounting Plate Assembly	
20	4	540-0290-00	Vibration Dampener	
21	2	540-0245-00	Strain Relief	
22	2	540-0071-00	Strain Relief	
23	1	540-0175-00	Strain Relief	
24	2	590-0188-00	Fastener	
25	1	580-0070-00	Quick Release Pin	
26	1	540-0178-00	Rubber Grommet	
27	4	590-0194-00	Fastener	
28	1	590-0196-00	Fastener	
29	1	590-0199-00	Fastener	
30	1	590-0148-00	Flat Washer	
31	2	540-0201-00	Tubing	
32	1	130-0063-01	RPA Assembly, Upper	
33	1	580-0121-00	Cinching Strap	
34	1	590-0250-00	Washer	
35	3	590-0192-00	Fastener	
36	1	100-0621-00	Vacuum Hose Hold Bar	
37	1	590-0254-00	Fastener	
38	1	100-0545-02	Handle Junction Box	
39	1	130-0067-00	Lever Assembly	
40	1	590-0113-00	Fastener	
41	1	580-0112-00	Extension Spring	
42	2	590-0256-00	Fastener	
43	1	590-0212-00	Fastener	
44	1	540-0234-00	Switch	
45	1	100-0544-00	Handle Junction Box, Access Plate	
46	4	590-0257-00	Fastener	
47	2	580-0127-00	Handle Grip	
48	2	580-0067-01	Wheel	
49	1	130-0106-01	RPA Assembly Lower	
50	5	590-0171-00	Fastener	
51	16	008-0141-03	Shear Pin	
52	16	590-0019-00	Fastener	
53	48	580-0072-00	Magnet	
54	8	008-0348-01	Plate, Plug 'N Go	
55	8	008-0365-00	Pad Driver	
56	8	590-0126-00	Fastener	
57	16	008-0208-00	Bumper	
58	16	008-0206-00	Shear Pin Grommet	
59	1	008-0332-00	Velcro Loop	
60	1	008-0264-01	Dust Skirt	

ITEM	QTY	PART NUMBER	DESCRIPTION	RAPTOR XT
61	1	540-0289-00	VFD	
62	2	540-0072-00	Strain Relief	
63	1	540-0184-00	Mating Receptacle	
64	1	540-0060-00	Plug	
65	2	540-0073-00	Strain Relief	
66	5	590-0190-00	Fastener	
67	4	590-0140-00	Fastener	
68	1	540-0268-00	Cable Retainer	
69	1	120-0042-00	Motor Shroud Assembly	
70	1	100-0715-01	Shroud, Back Plate	
71	1	540-0255-00	Hour Meter	
72	4	590-0008-00	Fastener	
73	1	580-0194-00	Check Window Gasket	
74	2	590-0046-00	Washer	
75	1	580-0195-00	Gasket	
76	1	008-0322-00	Velcro Loop	
77	2	500-0228-00	Bearing	
78	1	540-0185-00	Cord	
79	1	540-0305-00	Grounding Wire Assembly	
80	4	590-0276-00	Flat Washer	
81	2	590-0114-00	Fastener	
82	1	540-0301-00	Grounding Wire Assembly	
83	2	590-0154-00	Fastener	
84	1	540-0294-00	Conduit	
85	8	008-0366-00	Pad Driver Assembly	
86	8	008-0349-01	Plate Assembly, Plug 'N Go	

GLOSSARY

- Line Voltage** This is the voltage of a power source when it has no load applied to it. It can also be called “nominal voltage” as the voltage expressed is usually a guideline voltage.
- Load Voltage** This is the voltage of a power source when a load has been applied to it. As a load is applied to the power source, the resistance of the line is easier to examine. When a voltage-measuring device such as a multimeter is used during operation of the machine, you can clearly see that the voltage drops as soon as a load is applied and rises back when the load is taken off.
- Pigtail** Pigtails are plug ends with unfinished bare wire on one end used for hooking up to panels. Pigtails are used when the source power is unknown, when connecting to the power grid of an unfinished building that has no power receptacles, and when running certain generators. Many pigtails are available or can be made up by an electrician.
- RPA** Rear pivoting assembly.
- VCT** Vinyl composition tile.
- VFD** A variable-frequency drive (VFD) is a system for controlling the rotational speed of an alternating current electric motor by controlling the frequency of the electrical power supplied to the motor. A variable frequency drive is a specific type of adjustable-speed drive. Variable-frequency drives are also known as adjustable-frequency drives (AFD), variable-speed drives (VSD), AC drives, microdrives, or inverter drives. Because the voltage is varied along with frequency, these are sometimes also called variable voltage variable frequency (VVVF) drives.

WARRANTY INFORMATION

WerkMaster Grinders & Sanders Inc., herein referred to as WerkMaster, warrants that each new machine, manufactured by WerkMaster to be free from defects in material and workmanship in normal use and service for a period of three years (3) from date of shipment to the original Purchaser or Distributor.

Terms & Conditions

WerkMaster will, at its option, repair or replace, at the WerkMaster factory or at a point designated by WerkMaster, any part which shall appear to the satisfaction of WerkMaster inspection to have been defective in material or workmanship. WerkMaster reserves the right to modify, alter and improve any part or parts without incurring any obligation to replace any part or parts previously sold without such modified, altered or improved part or parts.

This warranty is in lieu of and excludes all other warranties, expressed, implied, statutory, or otherwise created under applicable law including, but not limited to the warranty of merchantability and the warranty of fitness for a particular purpose. In no event shall the Seller or the Manufacturer of the product be liable for special, incidental, or consequential damages, including loss of profits, whether or not caused by or resulting from the negligence of Seller and/or the Manufacturer of the product unless specifically provided herein.

In addition, this warranty shall not apply to any products or portions thereof which, at WerkMaster's discretion, have been subjected to abuse, misuse, improper installation, maintenance, or operation, electrical failure or abnormal conditions, and to products which have been tampered with, altered, modified, repaired, reworked by anyone not approved by the Seller, or used in any manner inconsistent with the provisions of the above or any instructions or specifications provided with or for the product.

Except for conditions or warranties which may not be excluded by law, the Seller makes no warranty of its own on any item warranted by WerkMaster, and makes no warranty on other items unless it delivers to the Purchaser a separate written warranty document specifically warranting the item. The Seller has no authority to make any representation or promise on behalf of WerkMaster or to modify the terms or limitations of this warranty in any way.

Delivery, Damages, Shortages

Seller shall use reasonable efforts to attempt to cause the Products to be delivered as provided for in these Terms & Conditions. Delivery to the initial common carrier shall constitute the delivery to the Purchaser. Seller's responsibility, in so far as transportation risks are concerned, ceases upon the delivery of the Products in good condition to such carrier at the F.O.B. point and all the Products shall be shipped at the Purchaser's risk. Seller shall not be responsible or liable for any loss of income and/or profits, or incidental, special, consequential damages resulting from Seller's delayed performance in shipment and delivery.

Return of Defective Products

Defective or failed material shall be held at the Purchaser's premises until authorization has been granted by Seller to return or dispose of Products. Products that are to be returned for final inspection must be returned Freight Prepaid in the most economical way. Credit will be issued for material found to be defective upon Seller's inspection based on prices at time of purchase.

Rev 09/2013 swm

WARRANTY continued

FORCE MAJEURE

Seller's obligation hereunder are subject to, and Seller shall not be held responsible for, any delay or failure to make delivery of all or any part of the Product due to labor difficulties, fires, casualties, accidents, acts of the elements, acts of God, transportation difficulties, delays by a common carrier, inability to obtain Product, materials or components or qualified labor sufficient to timely perform part of or all of the obligations contained in these terms and conditions, governmental regulations or actions, strikes, damage to or destruction in whole or part of manufacturing plant, riots, terrorist attacks or incidents, civil commotions, warlike conditions, flood, tidal waves, typhoon, hurricane, earthquake, lightning, explosion or any other causes, contingencies or circumstances within CANADA not subject to the Seller's control which prevent or hinder the manufacture or delivery of the Products or make the fulfillment of these terms and conditions impracticable. In the event of the occurrence of any of the foregoing, at the option of Seller, Seller shall be excused from the performance under these Terms and Conditions, or the performance of the Seller shall be correspondingly extended. This document sets forth the terms and conditions pursuant to which the purchaser ("Purchaser") will purchase and WerkMaster ("Seller") will sell the products, accessories, attachments (collectively "the Products") ordered by the Purchaser. These terms and conditions shall govern and apply to the sale of Seller's Products to Purchaser, regardless of any terms and conditions appearing on any purchase order or other forms submitted by Purchaser to Seller, or the inconsistency of any terms therein and herein.

To get the best protection from your WerkMaster Warranty be sure to register your product(s) online at www.werkmaster.com/warranty.

WerkMaster Grinders and Sanders Inc.

6932 Greenwood Street, Burnaby, BC V5A 1X8

tel: 604.629.8700 | toll free: 1.866.373.WERK | fax: 604.444.4231

www.werkmaster.com | email: info@werkmaster.com

WARNING

Tool Application: Grinding and/or polishing concrete surfaces with or without using the handle.

SAFETY TOPICS:

Read the Operator's Manual or the Operation and Safety Guide and all safety precautions before attempting to operate WerkMaster machines. Failure to follow the safety precautions could result in severe personal injury or death.

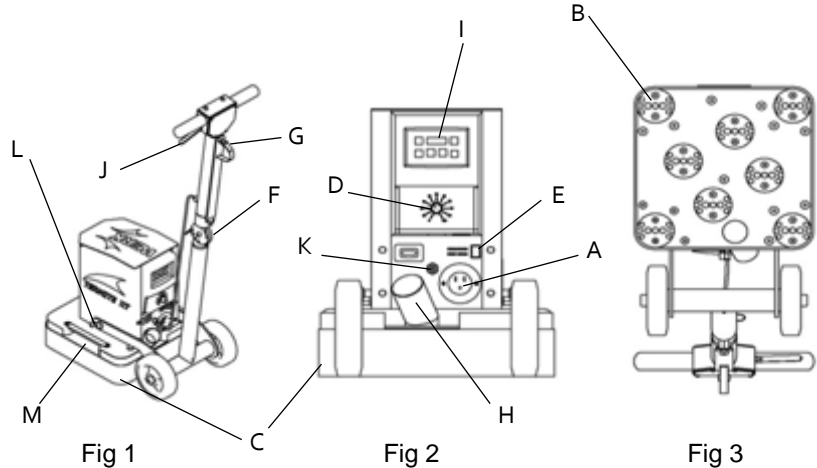
SAFETY CHECKLIST:

WARNING: ALWAYS turn off the equipment and unplug the power cord when changing discs/tooling, before servicing, and when not in use.

1. Before connecting the equipment to a power source make sure that it is the correct voltage.
2. Ensure all cords on the equipment are securely fastened and in good repair.
3. Ensure all extension cords and power outlets are rated for the intended use, are in good repair, and are properly grounded (3 prong configuration).
4. Never operate the equipment under the influence of drugs or alcohol or when extremely fatigued.
5. If the equipment doesn't start or stops unexpectedly, first check power source and all electrical connections then go to www.werkmaster.com, or call Technical Support: 866.373.9375.

WARNING: Never turn on the equipment while it is tilted back. Discs/tooling attached to the bottom could eject and become a lethal projectile.

Wear appropriate personal safety equipment such as hearing and eye protection and a dust mask or respirator.



Tool Operation:

Step	Action
1	Unplug the power cord from the flanged inlet (A). Ensure the handle is in its full upright position (Fig 1). Tilt the equipment back (Fig 3). Choose the appropriate tooling holder attachment – 3" magnetic Plug 'N Go plate (B) for Metal Bond tools or 3" Foam/Velcro Adapter plate for polishing resins. Insert the 2 shear pins into the rubber grommets. Attach the corresponding tooling to the plate.
2	Slowly lift the equipment back to the upright position. Loosen and lower the dust skirt (C) so that it is just above the working surface. Turn the speed control knob (D) to the lowest speed. For operation with the Handle/Wheel assembly go to Step 3; without the Handle/Wheel assembly go to Step 5
3	Turn the switch (E) to the Handle Attached position. Adjust the handle to a comfortable operating position by removing and inserting the pull pin at the swivel joint (F). Slide the vacuum hose and electrical power cord through the strap (G) on the holding arm. Connect the vacuum hose to the vacuum pipe (H). Plug the power cord into the flanged inlet (A).
4	The display/keypad (I) will light up. Grasp the handle bars. To start the equipment gently squeeze the activation lever (J). Adjust the speed (D) as required. To stop the equipment let go of the activation lever. Go to Step 7.
5	Turn the switch (E) to the Handle Removed position. Unscrew the handle cable (K). Remove the 2 bolts (L) using a 6mm (7/32) allen wrench. Separate the handle assembly from the main body (Fig 2). Connect the vacuum hose to the vacuum pipe (H). Plug the power cord into the flanged inlet (A).
6	The display/keypad (I) will light up. Grasp the secondary handle bars (M). To start the equipment press the green RUN key on the display/keypad (I). Adjust the speed (D) as required. To stop the equipment press the red STOP key on the display/keypad (I).
7	When the equipment is in operation it should move smoothly and without chattering. If chattering or excessive vibration occurs, stop the equipment, unplug the power cord, tilt the machine back and check that all the Plug 'N Go/Adapter plates are installed correctly and the tooling is seated properly.
8	Move the equipment continuously in any direction using a circular motion. Be sure to keep the machine moving at all times to prevent unwanted marks. View training video at www.werkmaster.com .

WARNING

Tool Application: Used to grind and/or polish a variety of floor surfaces.

SAFETY TOPICS:

Read the Operator's Manual or the Operation and Safety Guide and all safety precautions before attempting to operate WerkMaster machines. Failure to follow the safety precautions could result in severe personal injury or death.

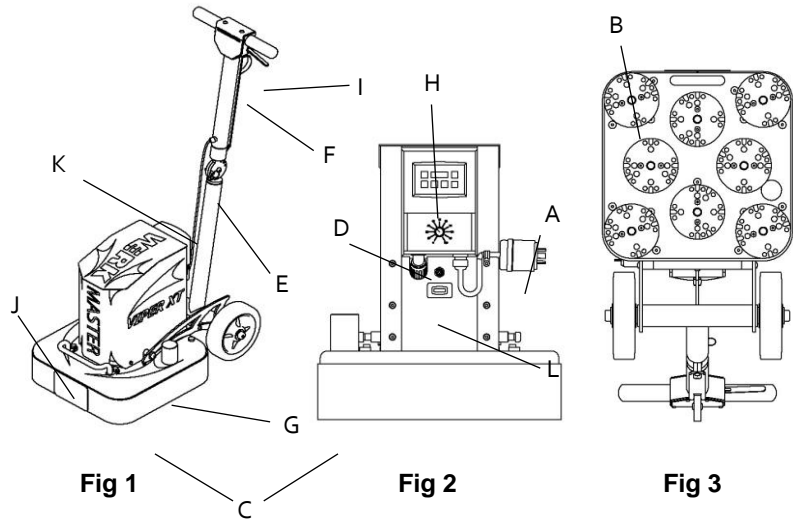
SAFETY CHECKLIST:

WARNING: ALWAYS turn off the equipment and unplug the power cord when changing discs/tooling, before servicing, and when not in use.

1. Before connecting the equipment to a power source make sure that it is the correct voltage.
2. Ensure all cords on the equipment are securely fastened and in good repair.
3. Ensure all extension cords and power outlets are rated for the intended use, are in good repair, and are properly grounded (3 prong configuration).
4. Never operate the equipment under the influence of drugs or alcohol or when extremely fatigued.
5. If the equipment doesn't start or stops unexpectedly, first check power source and all electrical connections then go to www.werkmaster.com, or call Technical Support: 866.373.9375.

WARNING: Never turn on the equipment while it is tilted back. Discs/tooling attached to the bottom could eject and become a lethal projectile.

Wear appropriate personal safety equipment such as hearing and eye protection and a dust mask or respirator.



Tool Operation:

Step	Action
1	Unplug the power cord from the twist lock plug (A). Ensure the handle is in its full upright position (Fig 1). Tilt the equipment back (Fig 3). Choose the appropriate tooling holder attachment – 5" magnetic Plug 'N Go plate (B) for Metal Bond tools or 5" Foam/Velcro Adapter plate for polishing resins. Insert the 2 shear pins into the rubber grommets. Attach the corresponding tooling to the plate.
2	Slowly lift the equipment back to the upright position. Loosen and lower the dust skirts (C) so that it is just above the working surface. Turn the speed control knob (D) to lowest speed. Ensure the 4 pin connector cord (K) is securely fastened to the mating receptacle (L).
3	Adjust the handle to a comfortable operating position by removing and inserting the pull pin at the swivel joint (E). Slide the vacuum hose and electrical power cord through the strap (F) on the holding arm. Connect the vacuum hose to the vacuum pipe (G). Plug the power cord into the twist lock plug (A).
4	The display/keypad (H) will light up (Fig 2). Grasp the handle bars. To start the equipment gently squeeze the activation lever (I). Adjust the speed as required. To stop the equipment let go of the activation lever.
5	When the equipment is in operation it should move smoothly and without chattering. If chattering or excessive vibration occurs, stop the equipment, unplug the power cord, tilt the machine back and verify that all the Plug 'N Go/Adapter plates are installed correctly and the tooling is seated properly.
6	Move the equipment continuously in any direction using a circular motion. Be sure to keep the machine moving at all times to prevent unwanted marks. View training video at www.werkmaster.com .
7	The Lifting Handle (J) is located at the front of the equipment.

Vendor Website: www.werkmaster.com

Technical Support: 866.373.9375

WARNING

Tool Application: Used to grind and/or polish various floor surfaces.



SAFETY TOPICS:

Read the Operator's Manual or the Operation and Safety Guide and all safety precautions before attempting to operate WerkMaster machines. Failure to follow the safety precautions could result in severe personal injury or death.

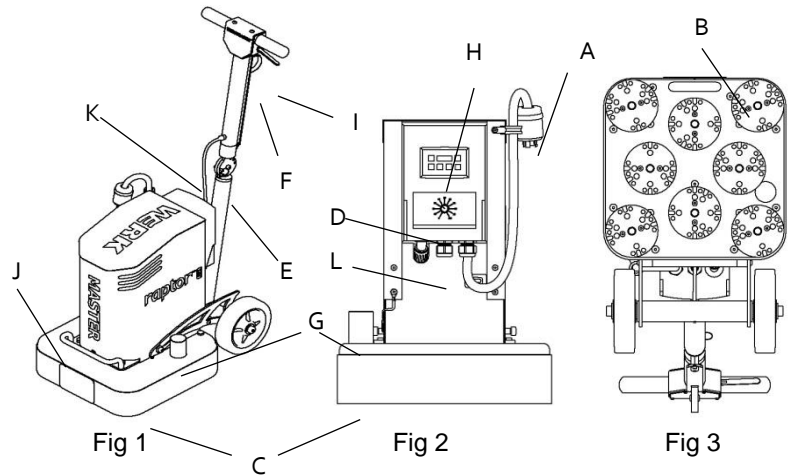
SAFETY CHECKLIST:

WARNING: ALWAYS turn off the equipment and unplug the power cord when changing discs/tooling, before servicing, and when not in use.

1. Before connecting the equipment to a power source make sure that it is the correct voltage.
2. Ensure all cords on the equipment are securely fastened and in good repair.
3. Ensure all extension cords and power outlets are rated for the intended use, are in good repair, and are properly grounded (3 prong configuration).
4. Never operate the equipment under the influence of drugs or alcohol or when extremely fatigued.
5. If the equipment doesn't start or stops unexpectedly, first check power source and all electrical connections then go to www.werkmaster.com, or call Technical Support: 866.373.9375.

WARNING: Never turn on the equipment while it is tilted back. Discs/tooling attached to the bottom could eject and become a lethal projectile.

Wear appropriate personal safety equipment such as hearing and eye protection and a dust mask or respirator.



Tool Operation:

Step	Action
1	Unplug the power cord from the twist lock plug (A). Ensure the handle is in its full upright position (Fig 1). Tilt the equipment back (Fig 3). Choose the appropriate tooling holder attachment – 5” magnetic Plug ‘N Go plate (B) for Metal Bond tools or 5” Foam/Velcro Adapter plate for polishing resins. Insert the 2 shear pins into the rubber grommets. Attach the corresponding tooling to the plate.
2	Slowly lift the equipment back to the upright position. Loosen and lower the dust skirts (C) so that it is just above the working surface. Turn the speed control knob (D) to lowest speed. Ensure the 4 pin connector cord (K) is securely fastened to the mating receptacle (L).
3	Adjust the handle to a comfortable operating position by removing and inserting the pull pin at the swivel joint (E). Slide the vacuum hose and electrical power cord through the strap (F) on the holding arm. Connect the vacuum hose to the vacuum pipe (G). Plug the power cord into the twist lock plug (A).
4	The display/keypad (H) will light up. Grasp the handle bars. To start the equipment gently squeeze the activation lever (I). Adjust the speed (D) as required. To stop the equipment let go of the activation lever.
5	When the equipment is in operation it should move smoothly and without chattering. If chattering or excessive vibration occurs, stop the equipment, unplug the power cord, tilt the machine back and check that all the Plug ‘N Go/Adapter plates are installed correctly and the tooling is seated properly.
6	Move the equipment continuously in any direction using a circular motion. Be sure keep the machine moving at all times to prevent unwanted marks. View training videos at www.werkmaster.com .
7	The Lifting Handle (J) is located at the front of the equipment.