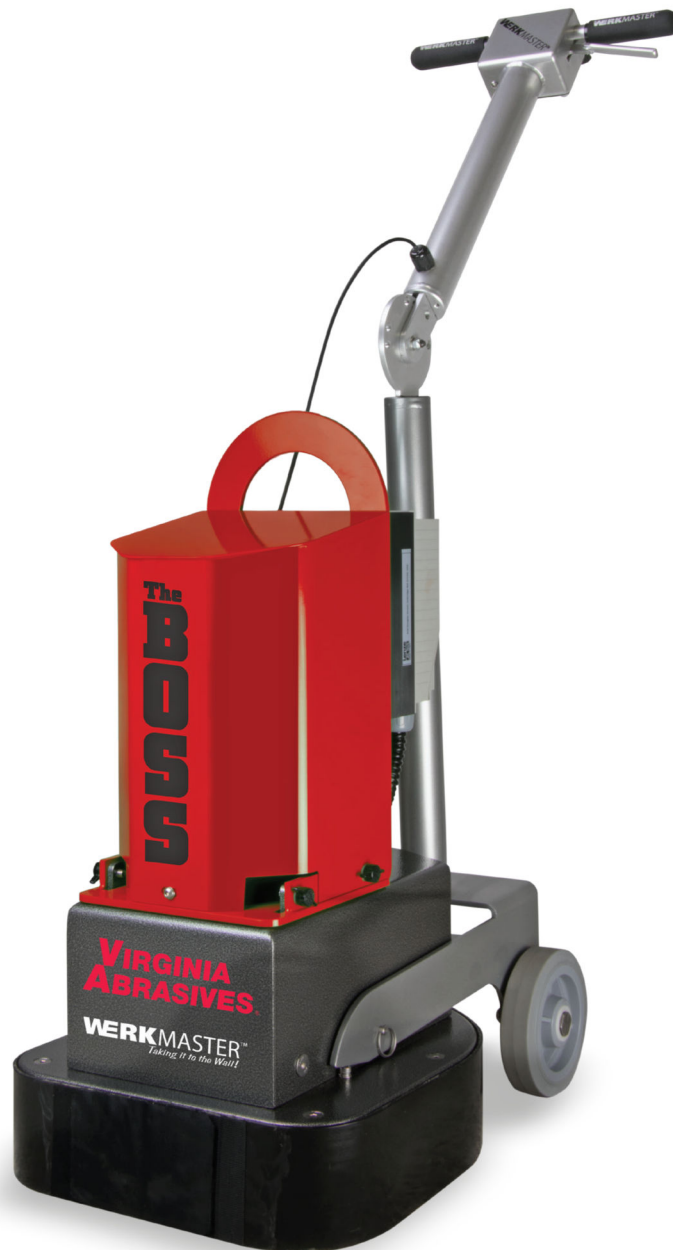


Engineered for Perfection. Built to Last

**VIRGINIA
ABRASIVES®**



Owners Manual/Operation Guide



1.800.446.1805



sales@virginiaabrasives.com



virginiaabrasives.com

INTRODUCTION

Congratulations on your purchase of a Virginia Abrasives machine.

Virginia Abrasives machines allow professional surface prep, polishing, grinding, edging, buffing and restoration of virtually any surface material, including concrete, terrazzo, stone, and hardwood.

LIABILITY LIMITATIONS

Exclusive Remedy: The remedies provided in this manual are the sole and total liability of WerkMaster Grinders & Sanders Inc. and Virginia Abrasives for any issues related to the sale, equipment, or services. Liability is limited to the purchase price of the equipment.

No Consequential Damages: WerkMaster/Virginia Abrasives will not be liable for any indirect, special, or punitive damages, including but not limited to lost profits, lost revenue, or business interruption, arising from the sale, breach, defect, or malfunction of the equipment.

Modifications and Improvements: WerkMaster/Virginia Abrasives reserves the right to modify or improve any part of the equipment without obligation to replace previously sold parts.

Authorized Warranties Only: No person is authorized to provide any additional warranties or assume further obligations on behalf of WerkMaster/Virginia Abrasives unless done so in writing and signed by an authorized officer.

User Responsibilities: As a condition of these warranties, you are responsible for proper use, maintenance, and care of the equipment as outlined in the Owner's Manual. Maintain records of all maintenance and receipts.

Genuine Parts Only: Use only genuine WerkMaster parts and accessories. This warranty is void if the equipment is modified or repaired without WerkMaster's authorization.





MACHINE DESCRIPTION

The BOSS

- Multi-surface floor machine
- Designed to meet the needs of the rental market
- Use to prep concrete to safely removes thinset, VCT glue, carpet glue, epoxy and paint;
- Levels and preps uneven floors
- Use on hardwood and engineered hardwood to safely remove aluminum oxide and other finishes
- Use to refinish wood decks
- Prep wood and other subfloors by removing thinset, VCT glue, carpet glue, epoxy and paint
- Disassembles into three components for easy lifting and transport
- Lightweight and easy to maneuver
- Edges to within 1/8" (3 mm) of the wall
- Features 6 counter rotating heads and the versatility of using either our 5" (127mm) ULTRA-FLEX full plate tools and sandpapers or the WerkMaster Plug 'N Go tooling system
- Variable frequency drive lets you run at speeds from 400 RPM to 700 RPM
- 1.5 HP 110V motor
- Made in USA

Tech Specs	110V The BOSS
Footprint: in (cm)	14 (35.6)
Disc Size: in (cm)	5 (12.7)
Weight: lbs (Kg)	206 (93.4)
Variable Frequency Drive	400-1200 RPM
Horsepower	1.5
Voltage	110V Single Phase
Breaker Size	15 AMP
Vacuum Req	200 CFM
Min. Generator	2.0+ kW



Safety Precautions

Read this entire manual and all safety precautions before operating WerkMaster/Virginia Abrasives machines. Failure to follow these instructions may result in severe injury or death. This product is for commercial use only.

Personal Protective Equipment (PPE)

Eyes & Ears: Always wear ANSI/OSHA-approved eye and ear protection.
Clothing: Wear appropriate work clothing and footwear. Avoid loose clothing or jewelry.

Dust Protection: When working with wood, concrete, or other materials that produce dust, work in a well-ventilated area. Use a dust control system (industrial vacuum) and wear a respirator designed for fine particles.

Physical and Mental Fitness:

Impairment: Never operate machines under the influence of drugs or alcohol, while taking impairing medications, or when fatigued or stressed.

Training & Ability: Only trained and physically capable individuals should operate these machines. You must be able to handle the machine's weight and power.

Safe Operating Distance:

Operator Only: Only one person should operate the machine at a time.

Bystander Safety: Keep bystanders away using barriers like ropes or safety netting.

Prevent injury from flying debris and exposure to dust and noise.

Flammable Materials: Keep a safe distance from flammable materials. Sparks can ignite vapors or materials.

Power Safety:

Unplug: Disconnect power before servicing or changing tooling.

Disconnect Properly: Grasp the plug, not the cord, to disconnect. Turn clockwise to engage, counter-clockwise to disengage.

No Tilted Start: Never start the machine while tilted back. Tooling may eject and cause injury.



Safety Precautions

Safety Guidelines for WerkMaster/Virginia Abrasives Machines

Decals: Ensure all safety decals are legible and understood. Replace any damaged or missing decals immediately.

Machine Maintenance: Maintain machines in safe operating condition.

This includes:

All guards in place and secured.

All mechanical fasteners tightened.

All controls functioning properly.

Machine configured appropriately for the material (concrete, stone, wood, etc.).

Obstruction Avoidance: Prevent damage and injury by avoiding:

Protruding slab inserts, nails, screws, anchors, rebar, bolts, and debris.

Pipe extensions, machinery bases, or any objects that cause sudden shock to the grinding assembly.

Disc Inspection: Carefully inspect discs before installation. Do not use damaged discs to prevent injury and equipment damage.

Unattended Operation: Never leave machines running unattended.

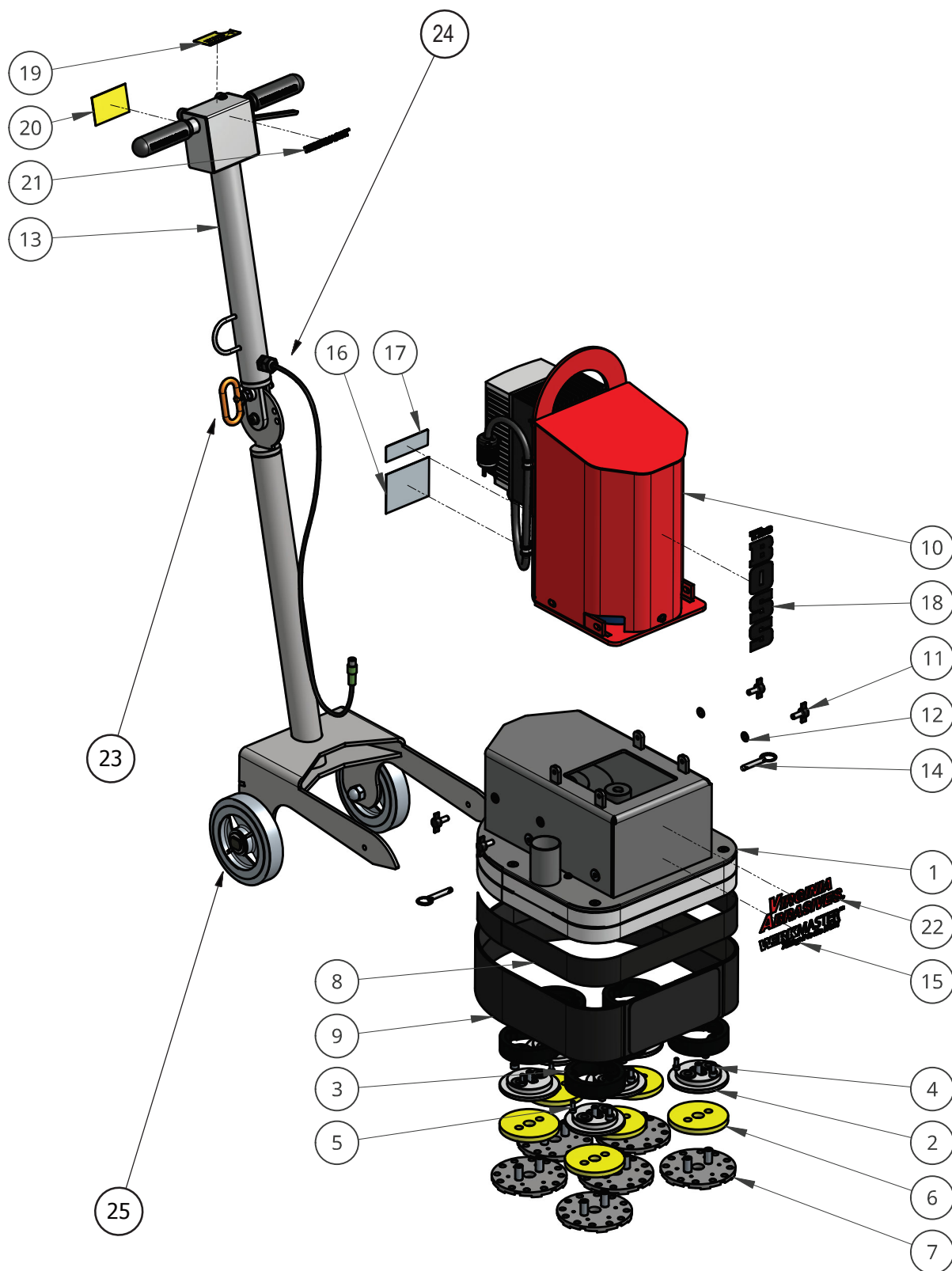
Explosion Hazard: Grinding concrete and sanding wood can create explosive dust mixtures. Operate only in well-ventilated areas, away from flames and combustibles. Wood dust can spontaneously ignite or explode. Dispose of sanding dust in a metal container away from combustibles. Do not dispose of it in a fire.

No Modifications: Do not modify WerkMaster machines. Modifications void the warranty and can cause injury and damage.



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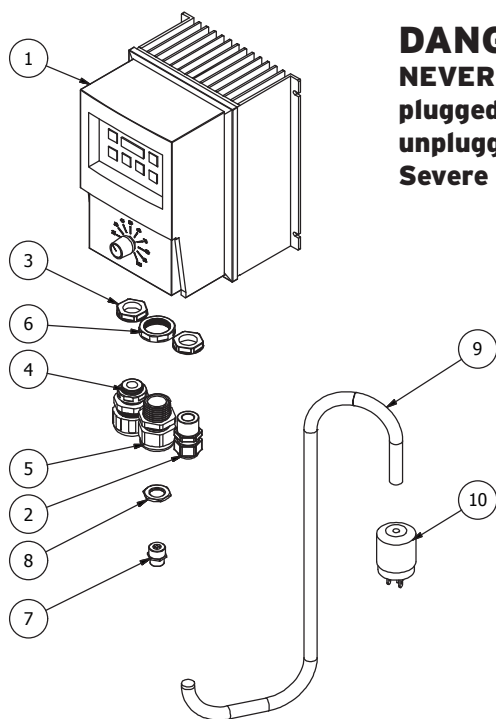
Item	Qty	Part number	Description
1	1	110-0184-04	1400E, Complete Lower Assembly
2	6	008-0522-BK	4in Ultra Flex Pad Driver Assembly w_M10 x 30mm Bolt (Black), Baffle
3	6	100-1405-00	4in Water Baffle
4	6	590-0374-00	Fastener, M8-1.25 x 16mm, Soc Cap, SS
5	12	590-0373-00	Fastener, M6-1 x 14mm, Soc Cap, SS
6	6	008-0562-00	Hard Foam, 4in x 0.375in
7	6	008-0581-02	5in P&G Plate Assembly
8	1	008-0544-00	1400E, Velcro, Hook, 2x40.25
9	1	008-0488-01	Rubber Urethane Dust Skirt - 1400E (Standard Velcro)
10	1	120-0111-00	1400E, 110V Motor Assembly
11	4	590-0342-00	Fastener, M8 x 20mm, Wing Head Thumb Screw, SS
12	4	590-0315-00	M8 Nylon Washer
13	1	130-0205-03	1400E, Complete Handle Assembly
14	2	580-0379-00	Quick Release Pin, 5_16 x 1_4, SS
15	1	580-0389-00	Decal, WerkMaster, TITTW
16	1	580-0417-01	Serial Plate, The Boss
17	1	580-0274-00	Date of Manufacture Decal
18	1	580-0418-00	Decal, The Boss
19	1	580-0421-00	Decal, Push button and then pull lever to start
20	1	580-0025-00	Sticker, Warning 3 x 2
21	1	580-0415-00	Decal, 4in, Handle, WerkMaster, Black
22	1	580-0601-00	Decal, Virginia Abrasives
23	1	580-0362-01	PULL 625X Pull Pin (Modified)
24	1	540-0185-00	Phoenix 4P Straight Cord
25	2	580-0091-00	Wheel, 6 in x 1 1_2 in, 3_4



Power and Connectivity

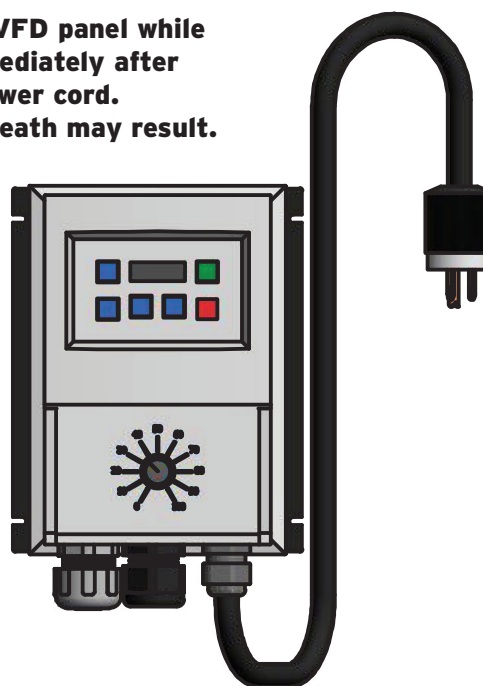
WerkMaster/Virginia Abrasives machines are outfitted with a variable-frequency drive (VFD) that allows the desired grinding speed to be selected. Along with controlling the speed of the machine, the VFD features include the following:

- Undervoltage protection (damages most single-phase motors)
- +/- 10% voltage protection
- 60 Hz and 50 Hz capability (international)
- Soft start (smaller generator requirements)
- Monitor pad speed display



DANGER

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



PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	540-0424-00	1.5 HP, Lenze, SMV 120V 1PH With Potentiometer (ESV112N01SXC)
2	1	540-0070-00	Strain Relief, 1_2in NPT, Black Nylon
3	2	540-0071-00	Strain Relief, 1_2in NPT, Nylon Locknut
4	1	540-0156-00	1/2 Strain Relief NPT,water tight
5	1	540-0072-00	Strain Relief, 3/4"NPT, Nylon
6	1	540-0073-00	Strain Relief, 3/4"NPT, Nylon Locknut
7	1	540-0184-00	Phoenix Contact 4P Mating Receptacle
8	1	590-0201-00	Fastener, M16, Flat Nut (For Phoenix Contact), SS
9	1	540-0376-00	Cabtire,12-3C SJOOW Nonmarking Cable, 2.25Ft L,(1400E)
10	1	540-0204-00	Plug, 2P 3W, 15A, 115V



Changing Tools

To change tooling:

1. Unplug the power cord from the twist lock plug

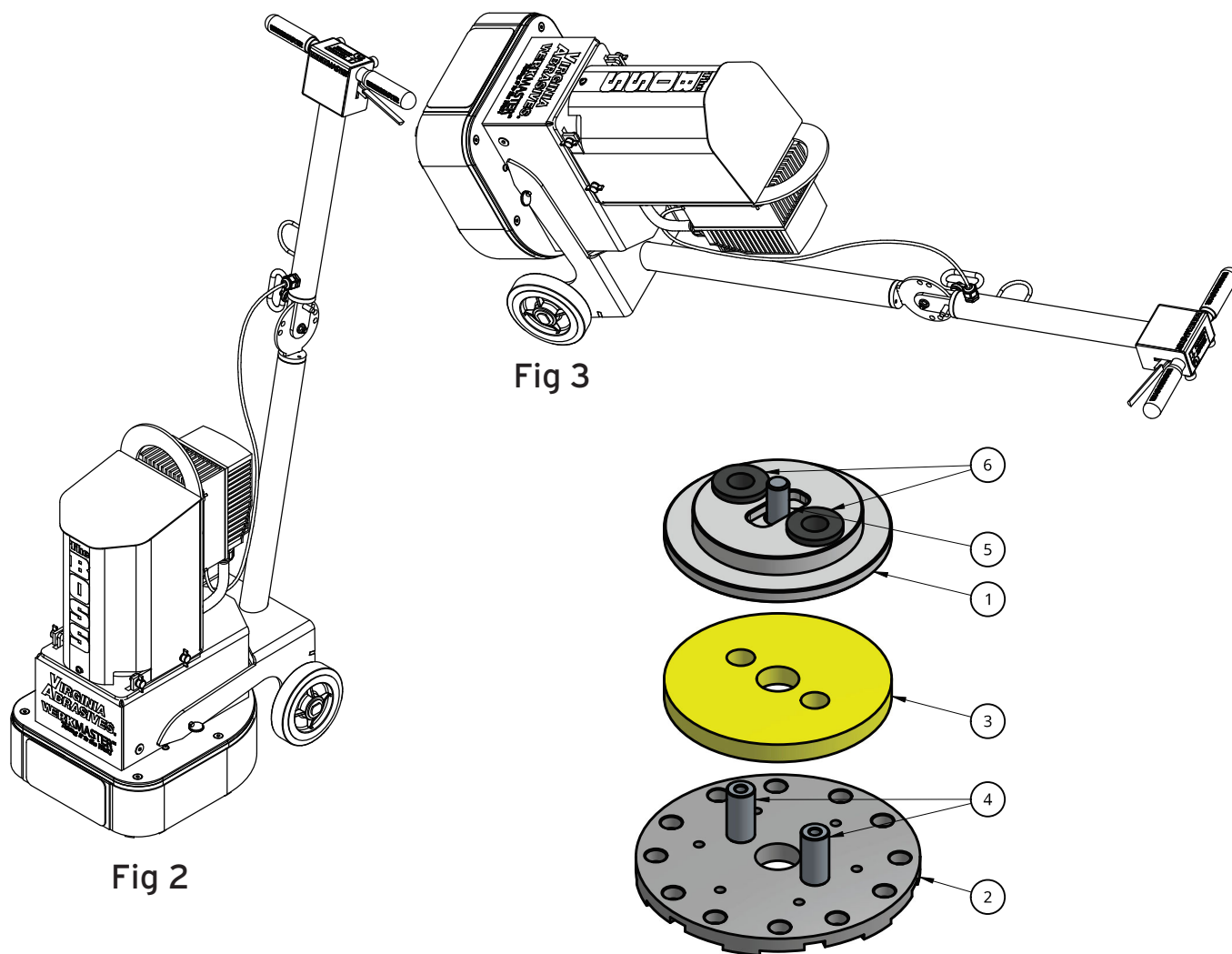
Ensure the handle is in its full upright position (Fig 2).

Tilt the machine back (Fig 3).

Choose the appropriate tooling holder attachment - magnetic Plug 'N Go plate (2) for Metal Bond tools or Foam Hook and Loop Adapter plate for polishing resins and sandpaper.

Insert the 2 shear pins through the compression foam pad (3) into the rubber grommets on the pad driver (1). Attach the corresponding tooling to the plate.

2. Return the machine to the upright position (Fig 2).



Adjusting the Dust Skirt

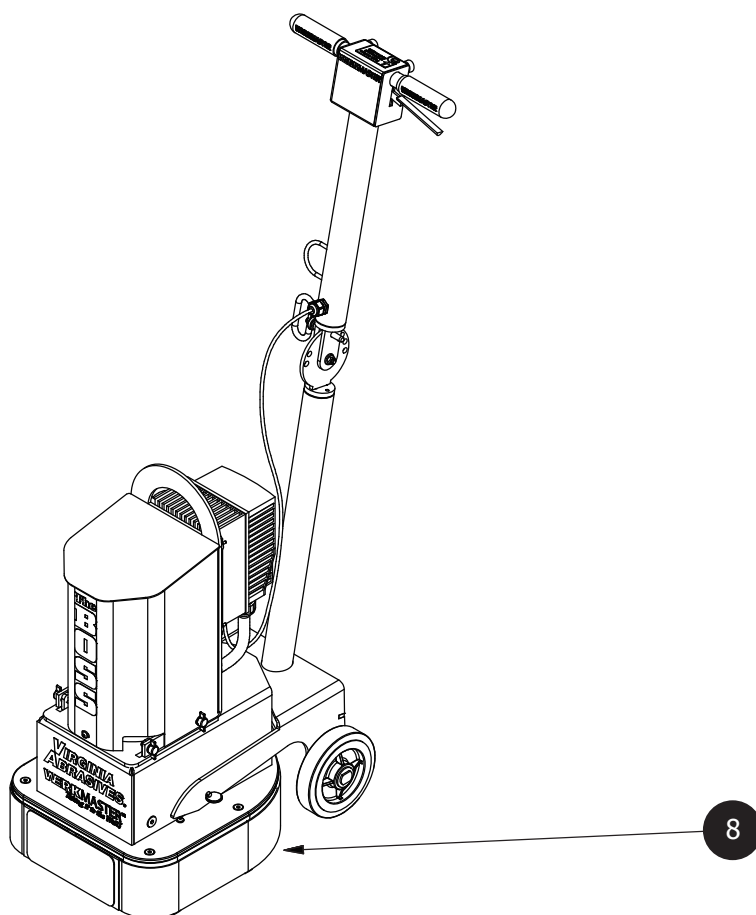
The dust skirt (8) serves as a seal for the bottom of the machine to act as a vacuum chamber helping the dust stay contained under the machine. If the skirt is too far from the ground, the dust containment is reduced.

To adjust the skirt:

1. Pull one end of the skirt off 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.
3. Pull the skirt snug. The two ends of the skirt should not touch. You may have a gap of up to ½ inch. Using the fabric connector cover the gap.

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.



Initial Startup And Operation

When the machine is first plugged in, a start-up screen (I) will flash STOP.

To start the machine, gently squeeze the activation lever (J) and press and release the START button (A).

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.

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

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 reduce its speed as a protective measure to try and alleviate the outstanding load. The current running speed will be displayed. This happens under demanding conditions and is normal.

If the machine is not able to maintain the minimum speed for more than 30 seconds the machine will turn off. This is a normal protective measure. To prevent this from reoccurring alleviate some of the load and then resume operation.

Let go of 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.

Rotation Pattern of Tooling Plates

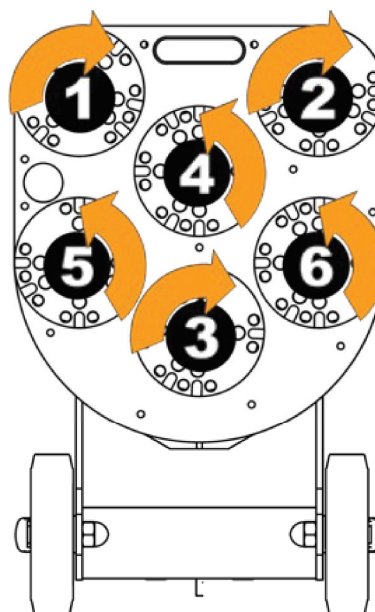
Bottom of WerkMaster/Virginia Abrasives with numbered tooling plates and clockwise and counterclockwise labeling.



Discs 1, 2, and 3 rotate clockwise



Discs 4, 5, and 6 rotate counter-clockwise



MAINTANANCE

WARNING

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

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 seals. This can compromise the bearing seals.

- Wipe down the machine after every job.
- Gently remove dirt and debris from the pad driver.
- Check to ensure the pad driver bolts are tight. If loose, remove pad driver and apply blue thread locker (Loctite 243).
- 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.
- Inspect bearings seals around shaft for any wear or damage.
- Inspect the handle wires for damage.
- Blow off the VFD heat sink with compressed air.
- Using a soft scrub pad, remove any excess dirt build-up from the bottom plate and back side of the pad drivers
- 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.)
- Clean and lubricate wheels.
- Using an extremely light abrasive pad, remove any topical rust from the shafts.



Trouble Shooting

Machine will not start:

Check all power connections. Make sure the source power meets the machine's minimum power.

- 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.
- Press START button while activation lever is depressed.

VFD turns on but machine will not start:

Check the VFD display for error codes.

- If no error code is displayed, check if the control cable is plugged into the machine.
- If the VFD error code is "low voltage" 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.

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.

- If the pad turns independently, replace the secondary belt. Go to www.virginiaabrasives.com
- If all pad drivers turn but the motor fan does not turn, replace the primary belt. See Repair & Maintenance videos at www.virigniaabrasives.com or www.werkmaster.com.

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.

- 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.



Error Codes

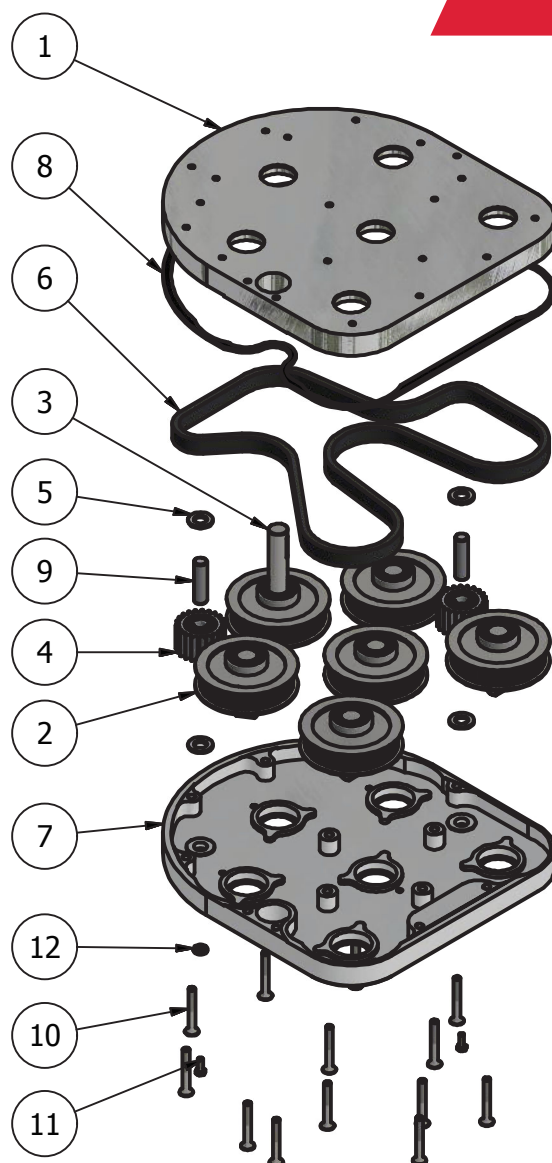
STATUS WARNING MESSAGES			
Status / Warning		Cause	Remedy
CL	Current Limit reached	Motor overload.	Press the reset button or unplug the machine for 30 seconds.
Err	Error	Invalid data was entered, or an invalid command was attempted.	
FCL	Fast Current Limit	Overload.	Verify drive/motor are proper size for application.
StoP	Output frequency $\leq$ Hz (outputs U, V, W inhibited)	Stop has been commanded from the keypad, terminal strip, or network.	Apply Start command.

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_PF	High Temperature fault	Drive is too hot inside.	- Reduce drive load - Improve cooling
F_cft	Forced Translation fault	An EPM from an old drive put in new drive causes to trip fault.	Press (M) mode button twice to reset.
F_F1	EPM fault	EPM missing or defective.	Power down and replace EPM.
F_F2	Internal faults		Contact WerkMaster technical support at 1.866.373.9375.
F_FH	High DC Bus Voltage fault	Mains voltage is too high.	Check mains voltage.
F_LF	Low DC Bus Voltage fault	Mains voltage too low.	Check mains voltage.
F_nid	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.	Contact WerkMaster technical support at 1.866.373.9375.
F_OF1	Output fault: Ground fault	Grounded motor phase. Excessive capacitive charging current of the motor cable.	Check motor/motor cable. Use shorter motor cables with lower charging current.
F_OF	Output fault: Transistor fault	Output short circuit. Severe motor overload due to - Mechanical problem - Drive/motor too small for application Failed output transistor.	Check motor/motor cable. - Check machine/system - Verify drive/motor are proper size for application Contact WerkMaster technical support at 1.866.373.9375.
F_PF	Motor Overload fault	Excessive motor load for too long. Severe motor overload due to - Mechanical problem - Drive/motor too small for application	Verify drive and motor are proper size for application. - Check machine/system - Verify drive/motor are proper size for application
F_SF	Single-Phase fault	A mains phase has been lost.	Check mains voltage.
F_LF	Start fault	Start command was present when power was applied.	Must wait at least two seconds after power-up to apply Start command.

NOTE: The drive can only be restarted if the error message has been reset.



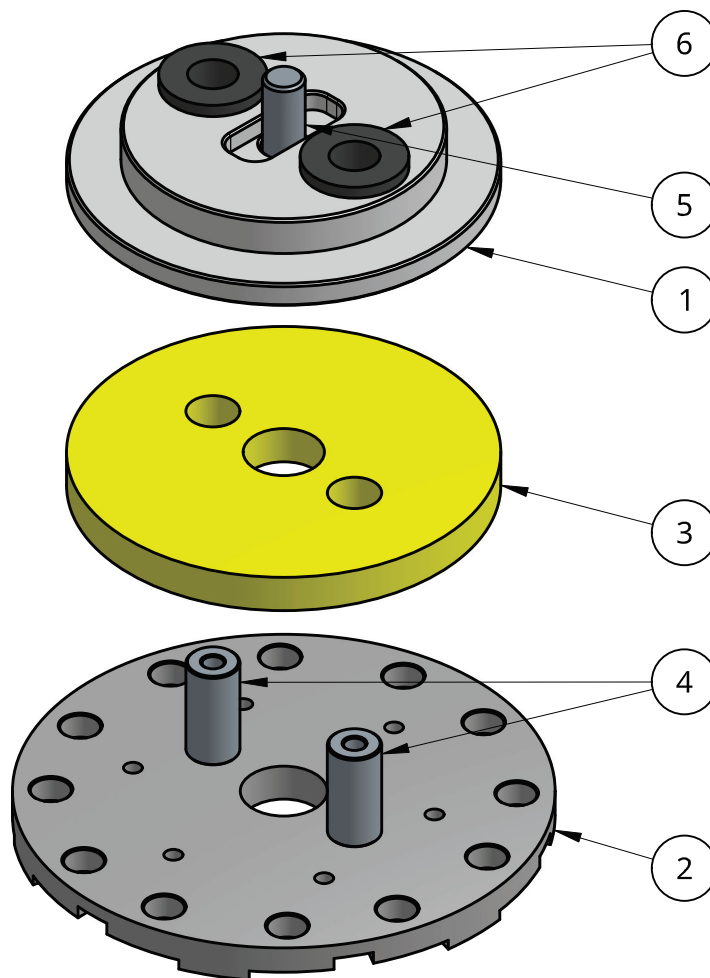
Exploded Views



PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	100-1139-02	1400E, Drive Train Upper Plate
2	5	110-0177-00	P42-8MGT-20 Sprocket, 6005 Short Shaft Assembly
3	1	110-0182-00	P42-8MGT-20 Sprocket, Long Shaft Assembly
4	2	110-0092-01	Raptor XT, P22-8MGT2-20, Idler Assembly
5	4	590-0151-00	Flat Washer, M14, SS
6	1	520-0060-00	Belt, TP1512-8MGT-20
7	1	100-1138-03	1400E, Drive Train Lower Plate
8	1	580-0355-02	1400E, Drive Train Gasket
9	2	580-0357-01	Pin, 15mmOD x 55mm
10	13	590-0338-00	Fastener, M8-1.25 x 60mm, Flat Soc Cap, SS
11	2	590-0246-00	Fastener, M6-1_0 x 16mm, Hex Cap, SS
12	2	590-0367-00	0.25in NEOPRENE 18-8 SS BONDED SEALING WASHER



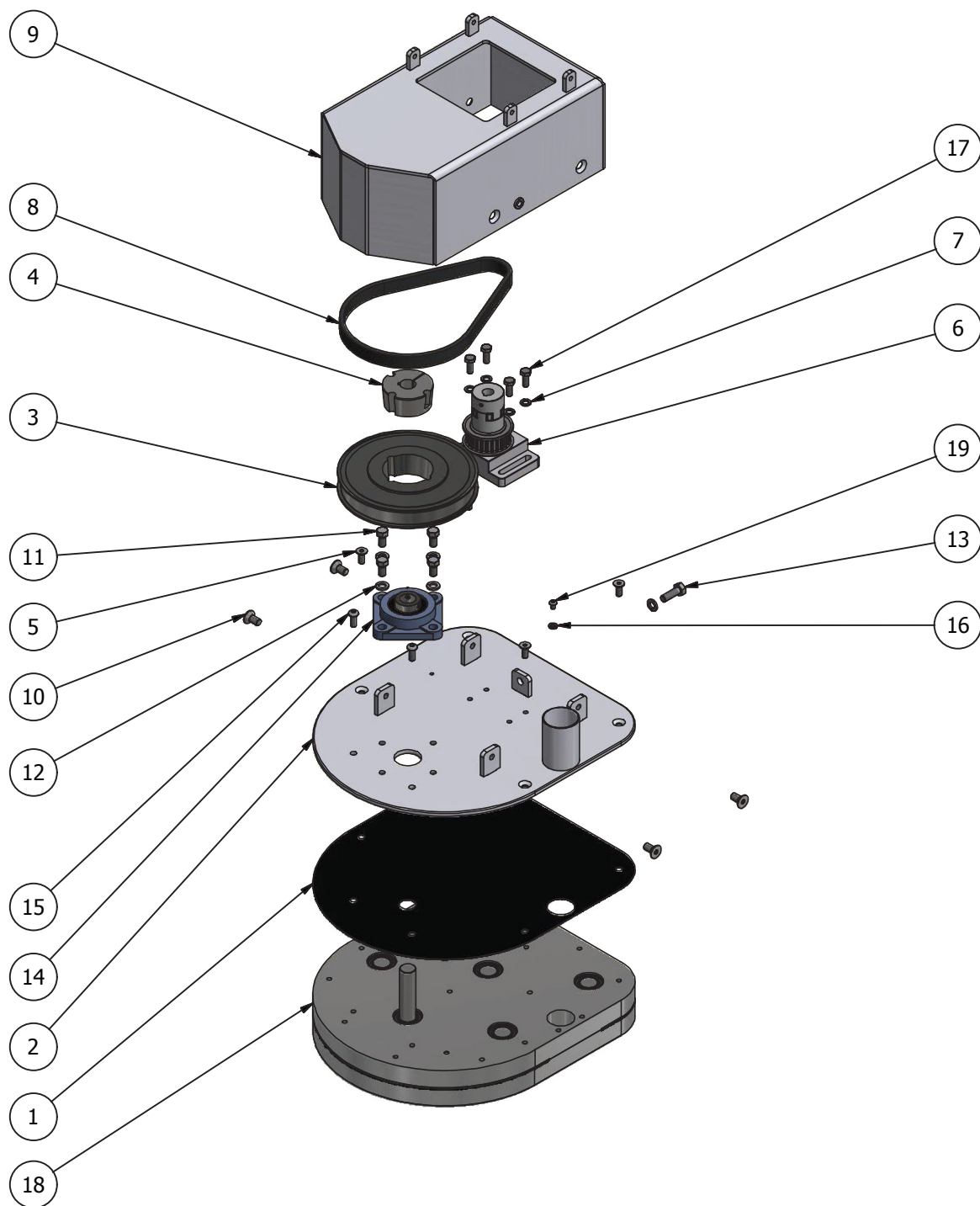
Exploded Views



Item	Qty	Part number	Description
1	1	008-0522-BK	4in Ultra Flex Pad Driver Assembly w_M10 x 30mm Bolt (Black), Baffle
2	1	008-0581-02	5in P&G Plate Assembly
3	1	008-0562-00	Hard Foam, 4in x 0.375in
4	2	008-0418-00	1/2" x 1" Shear Pin & 1/4-20 x 1" Screw Combo
5	1	590-0126-00	Fastener, M10-1.5 x 30mm, Hex Cap, SS
6	2	008-0206-00	1/2" P&G Shear Pin Grommet, 70 Duron, Black



Exploded Views

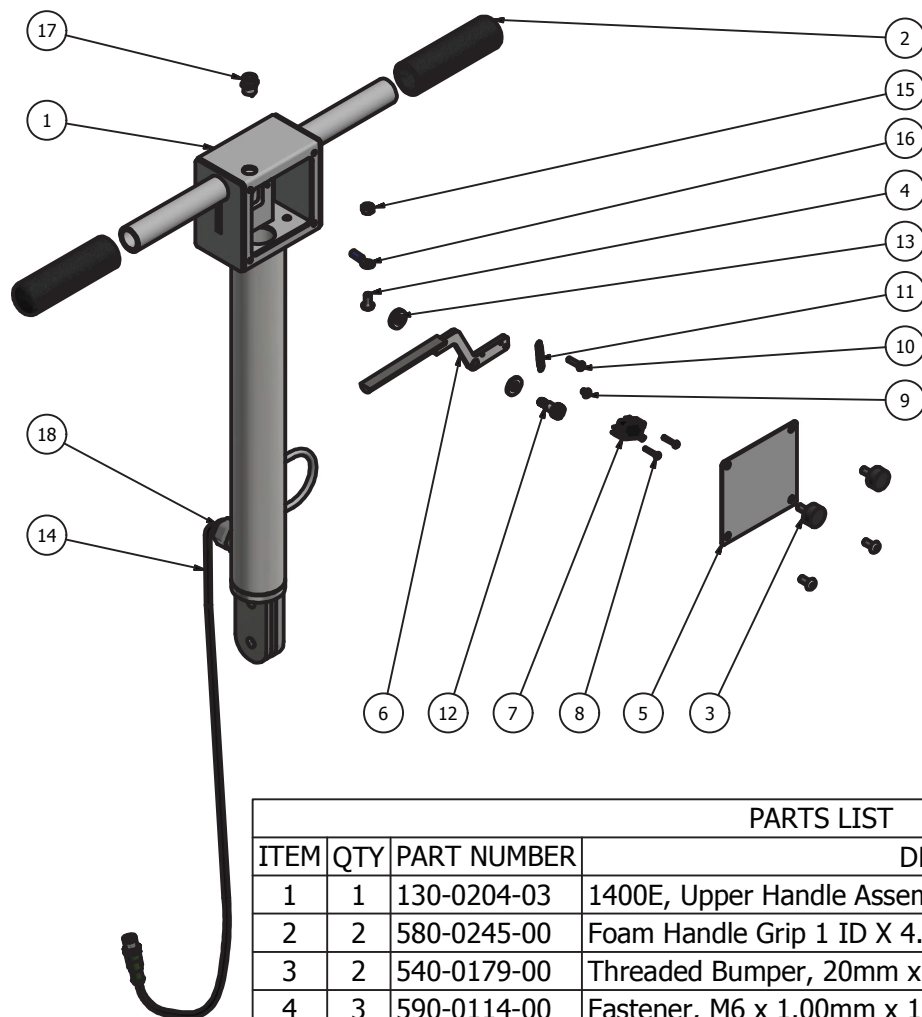


PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	580-0354-02	1400E, Drive Train Cover Gasket
2	1	110-0181-01	1400E, Cover Assembly
3	1	500-0301-00	Sprocket, P72-8MGT-20, Gates
4	1	500-0107-00	Bushing, TL, 2012x7/8", Martin
5	4	590-0193-00	Fastener, M8-1.25 x 20mm, Flat Soc Cap, SS
6	1	110-0208-00	1400E, PDS Assembly type 2
7	4	590-0141-00	Fastener, M8, Lock Washer, SS
8	1	520-0061-00	Belt, 720-8MGT-20
9	1	110-0185-03	1400E, Primary Housing Assembly
10	4	590-0329-00	Fastener, M10-16 x 20mm, Flat Soc Cap, SS
11	4	590-0124-00	Fastener, M10x1.5mm - x 20mm, Hex Cap, SS
12	5	590-0142-00	Lock Washer, M10, SS
13	1	590-0126-00	Fastener, M10-1.5 x 30mm, Hex Cap, SS
14	1	500-0306-00	UCF205-14- 7_8 Four-Bolt Flanged Pillow Block
15	2	590-0194-00	Fastener, M8-1.25 x 20mm, Button Soc Cap, SS
16	2	590-0140-00	Fastener, M6, Lock Washer
17	4	590-0362-00	Fastener, M8-1.25 x 20mm, Hex Cap, SS
18	1	110-0178-03	1400E, Drive Train Assembly
19	2	590-0278-00	Fastener, M6-1.0 x 8 mm, Button Soc Cap, SS



Exploded Views



PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	130-0204-03	1400E, Upper Handle Assembly
2	2	580-0245-00	Foam Handle Grip 1 ID X 4.5 L (Raptor XT)
3	2	540-0179-00	Threaded Bumper, 20mm x 10mm, M6 x 15mm
4	3	590-0114-00	Fastener, M6 x 1.00mm x 12mm, Button Soc Cap, SS
5	1	100-1255-00	1400E, Handle Access Plate
6	1	130-0209-01	1400E, Activation Lever Assembly
7	1	540-0234-00	Micro Switches, V7-6C17D8-263
8	2	590-0256-00	Fastener, M3-0.5 x 16mm, Soc Head Screw
9	1	590-0325-00	Fastener, M4-0.7 x 5mm, Pan Head Machine Screw
10	1	590-0257-00	Fastener, M4-.07 x 16mm, Pan Head Phill, SS
11	1	580-0112-00	Extension Spring
12	1	590-0316-00	Fastener, 8mmDia x 10mmL, M6 Thread, Shoulder Screw, Alloy
13	3	590-0315-00	Fastener, M8, Flat Washer, Plastic
14	1	540-0185-00	Phoenix Contact 4P Straight Cord
15	1	590-0133-00	Fastener, M6-1.0, Hex Nut, SS
16	1	540-0092-00	Vinyl Insul, Ring Terminal, 16-14 AWG, 1/4"
17	1	540-0418-00	Push Button Switch, 12v, 12mm L28 Plane, SS
18	1	540-0144-00	Strain Relief, 3_8in NPT, Black Nylon



Warranty Information

WerkMaster/Virginia Abrasives 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.

WerkMaster/Virginia Abrasives will, at its option, repair or replace, at the WerkMaster factory or at a point designated by WerkMaster/Virginia Abrasives, any part which shall appear to the satisfaction of WerkMaster/Virginia Abrasives inspection to have been defective in material or workmanship.

WerkMaster/Virginia Abrasives 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/Virginia Abrasives'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/Virginia Abrasives, 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/Virginia Abrasives or to modify the terms or limitations of this warranty in any way. 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.

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.

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

