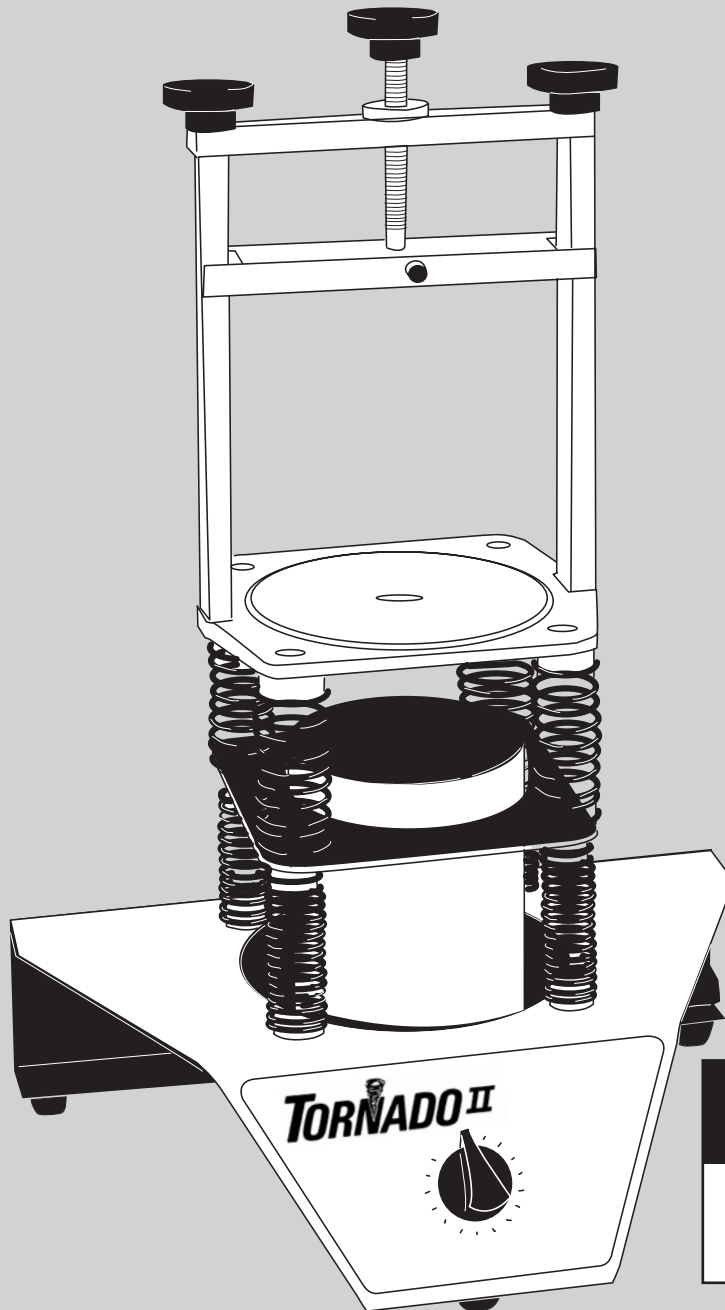




# PORTABLE PAINT SHAKER OPERATOR'S MANUAL



**Covers Model  
Numbers:**

**51000  
51200**

**FOR AEROSOL, PINT, QUART, RECTANGULAR GALLON  
AND ROUND GALLON CONTAINERS**

# TORNADO II™ PORTABLE PAINT SHAKER

## Welcome

Congratulations on your purchase of the Tornado II™ Portable Paint Shaker. Your model is designed to provide three-axis orbital action with complete mixing of gallons, pints, quarts or aerosols. Easy to use four-point clamping securely holds containers while minimal moving parts provide quiet operation. Through constant innovation and development, Hougen Manufacturing and Blair Equipment Company is committed to provide you with products to help you be more productive.

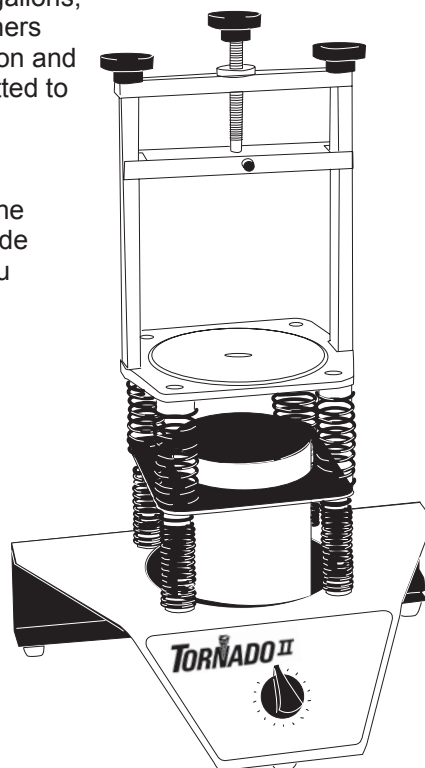
Before attempting to operate your new Portable Paint Shaker, please read all instructions first. These include the Operator's Manual and Warning Label on the unit itself. With proper use, care, and maintenance, your paint shaker will provide you with years of multiple-motion blending performance. Once again, thank you for selecting our product and welcome to Hougen Manufacturing and Blair Equipment Company.

## Specifications

Weight..... 24 lbs (10.9 kg)  
Dimensions..... 26" H x 15-3/8" W x 11-1/2" D  
(660mm H x 391mm W x 292mm D)  
Can/Paint  
Weight Limit..... 11 lbs (5 kg)

## Part Number

**51200** Hougen Tornado II™ Paint Shaker (115V)  
**51000** Blair Tornado II™ Paint Shaker (115V)



## UNPACKING YOUR NEW PAINT SHAKER

1. Open shipping carton and remove the literature and hardware packages.
2. **Read and Follow All Instructions** before attempting to operate your new Paint Shaker.
3. Complete and mail the Product Registration Card now. It is important that Hougen Manufacturing, Inc. and Blair Equipment Company have a record of product ownership.
4. Open hardware package and check contents.
5. Remove Shaker and parts from package. Place Shaker on a rigid, level surface, away from any edge and clear of obstructions.
6. Install bracket assembly to platform with side hole to the right.
7. Route power cord so that it will not be damaged and plug into grounded receptacle.

**Read All Operating and Spring Adjustment Instructions in the Operator's Manual and on the unit to avoid injury. Follow operating procedures.**

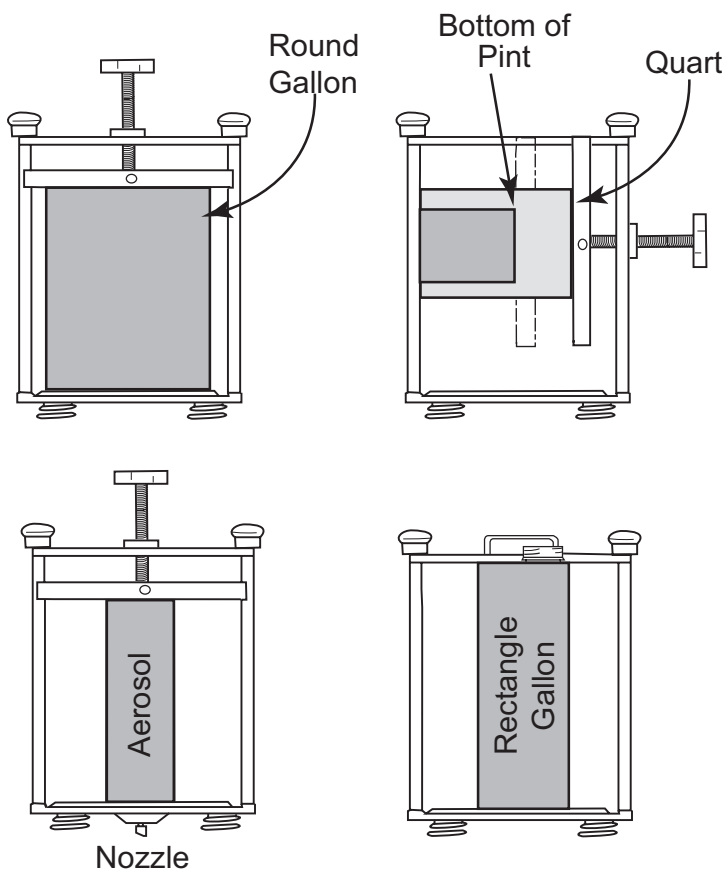
## INDEX

|                                |          |  |     |
|--------------------------------|----------|--|-----|
| Welcome                        | 2        | Rectangular Gallons                    | 4   |
| <b>Safety Instructions</b>     | <b>3</b> | Installation of Springs                | 4-5 |
| Adjusting Springs              | 3-4      | Parts Breakdown                        | 6-7 |
| Maintenance                    | 4        | Commercial/Industrial Limited Warranty | 8   |
| General Operating Instructions | 4        | Authorized Warranty Repair Centers     | 8   |

## SAFETY INSTRUCTIONS

1. Operate only in a well-vented area.
2. Do not shake cans that leak or are deformed.  
Periodically check for leakage during mix cycle.
3. Do not operate machine if electrical cords are cracked or frayed.
4. Disconnect from power source when working on machine.
5. Shaker must be placed on solid, level surface well clear of any obstructions.
6. Never leave any operating machine unattended.
7. This Paint Shaker is not explosion proof.

## CAN SETUP POSITIONING



### SPRINGS MUST BE ADJUSTED TO THE CAN TYPE AND WEIGHT

Springs may need to be adjusted when switching between different can types and weights. Failure to adjust springs will dramatically reduce spring life.

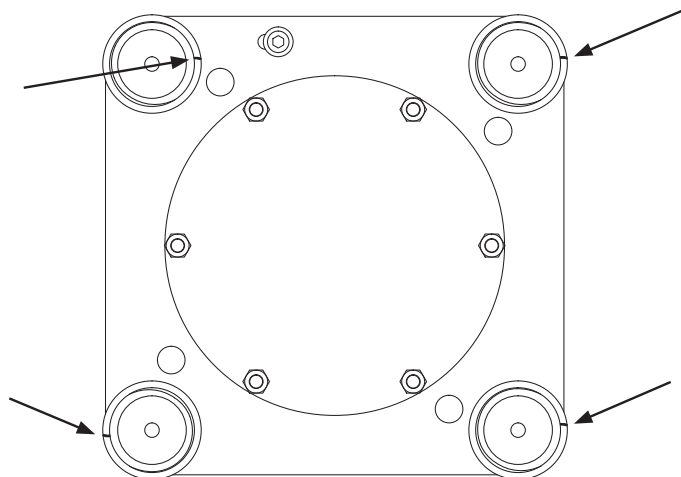
## ADJUSTING SPRINGS TOP SPRINGS ONLY

### CHECKING SPRING POSITION

Start the shaker and check the following:

1. If there is clattering noise, return to adjustment instructions. If no noise, proceed to step 2.
2. Watch the nut on top of motor cap in front of shaker. Nut should make an oval pattern from side to side. If correct, move to adjusting springs.

### ORIGINAL SPRING LOCATION



### CHECKING SPRING ADJUSTMENT

3. If oval pattern is tilted, remove top plate and loosen all springs. Rotate all springs clockwise 1/4 turn and repeat step one. Continue to check position until nut oval is side to side.

### ADJUSTING SPRINGS

1. Load a full gallon of paint on the shaker and start the machine. If the shaker makes a clattering noise, the springs are too loose and will require adjustment. If not, proceed.
2. From the front of the machine, watch the mid-plate's movement as the shaker operates. If the right side moves more than the left, the right front and left rear springs need to be stiffened. If the left moves more, the left front and right rear need to be stiffened. If both sides move the same, all four springs must be stiffened.
3. To stiffen springs, turn off the machine, grasp the spring with your hand, and screw the spring farther onto the end mount 1/4 turn. If you did this to the right front, you must also do this on the left rear. Remember, because the springs work in pairs, you must adjust them in pairs. Loosen the flat head cap screws on the springs that you stiffened, and the spring will snap back. Retighten the screws.

## BACKING OFF SPRINGS

The spring must be fully installed, including the can platform, to do this.

1. Taking care not to gouge the spring wire, grasp the top of the spring with a pair of pliers so that the pliers jaw catches on the end of the spring coil. This will open the spring slightly so that it can be backed off of the mount; otherwise, the spring will not move.
2. Back each spring off 1/4 turn. Loosen the (4) flat headcap screws on the platform, and the springs will snap back.
3. Retighten the (4) screws and repeat this procedure until the end of each spring is 1/4" away from the platform.

**DO NOT** BACK THE SPRINGS ALL OF THE WAY OFF OF THE MOUNTS.

## MAINTENANCE

**NOTICE:** FAILURE TO FOLLOW MAINTENANCE PROCEDURES VOIDS WARRANTY.

1. Wipe paint spills immediately. Accumulations of paint may detract from your Shaker's performance and reliability.
2. Check and tighten all fasteners periodically.
3. Periodically examine cords and wiring for damage. Damaged cords must be immediately replaced.

## GENERAL OPERATING INSTRUCTIONS

1. Thread the clamping screw (P/N 51069) with the lock nut attached through the bar as shown. Install this into the hold-down bar by inserting it through the hole while simultaneously pushing in the locking pin.
2. Insert the can as shown, then turn the clamping screw until the hold-down bar securely clamps the can, making sure the nut remains free on the screw.
3. After the can is clamped, then turn the lock nut down the screw until it tightens against the bar.

**HINT:** To make sure that the nut is tight, simultaneously give both the nut and the screw an extra 1/4 turn.

4. The motor is started by rotating the timer switch. Turn past the desired time by 2 minutes, then set timer. Due to the varying states of unmixed paint, it is impossible to give specific mixing times for your paint, however, a little experience will soon show how quickly your particular paint can be mixed.

## SPECIAL INSTRUCTIONS FOR RECTANGULAR GALLONS

1. Remove the hold-down bar and clamping screw and set them aside.
2. Loosen both knobs (P/N 51032) and slide the right side of top bar toward the front of the machine (right end of the top bar is slotted).
3. Slide the can onto the platform with the top bar between the handle and the spout.
4. Center the can on the platform\* and secure the cap by tightening both knobs evenly and firmly until the can is clamped securely.

**\*NOTE:** FULL RECTANGULAR GALLONS OF PRIMER SHOULD NOT BE CENTERED, BUT PLACED TO THE LEFT SIDE OF THE PLATFORM.

## INSTALLATION OF SPRINGS

### TOOLS REQUIRED:

Channel-Lock pliers, 3/16" hex key and 5/32" hex key.

### GENERAL NOTES:

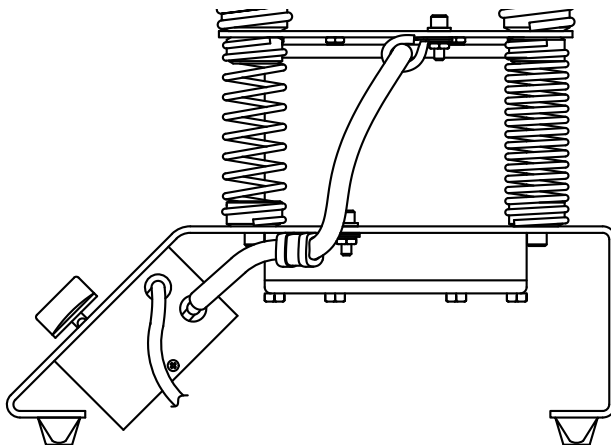
Springs are sold in sets of (4) lower (P/N 51028) and (4) upper (P/N 51027). When a spring fails, the other springs in the set are fatigued also. The sets are factory matched, and the entire set should be replaced.

Do not scratch or gouge the working part of the spring wire during installation or adjustment. This would cause premature failure.

The springs work in pairs. Two diametrically opposed springs are a pair, and each spring in a pair should be adjusted the same amount if adjustments are made.

### LOWER SPRING SET (PIN 51028)

1. Installation:
  - a. Attach the (2) springs with wide coil spacing to the frame on the right front and left rear, using (2) cap screws through the frame.



- b. Attach the (2) springs with narrower coil spacing to the frame on the left front and right rear, same as above. Be sure all (4) cap screws are tight.

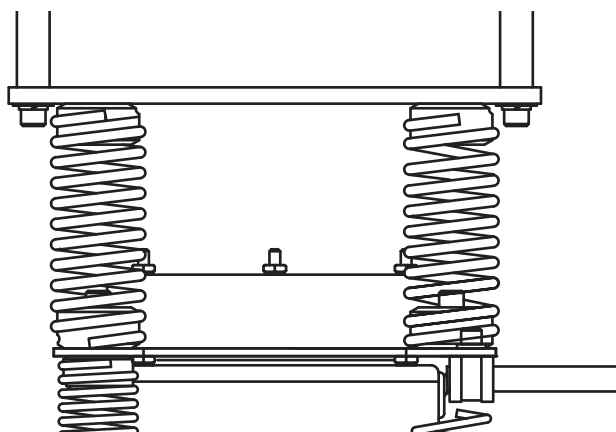
## 2. Adjustment:

Lower springs do not require adjustment. Upper springs may require adjustment if lower springs have been replaced. Refer to "CHECKING ADJUSTMENT" to determine this.

### UPPER SPRING SET (P/N 51027)

#### 1. Installation:

- A 3/16" hex key will fit through the threaded spring mount hole into the cap screw that's assembled inside the spring. The cap screw fits through the mid-plate and threads into the lower spring's top mount.
- Install the (2) shortest springs on the left front and right rear.
- Install the (2) longer springs on the right front and left rear. Be sure the (4) cap screws are tight.



- Install the can platform to the springs using (4) flat head cap screws. Be sure the (4) flat head cap screws are tight.

#### 2. Adjustment:

The upper springs are adjusted to obtain the proper shaking action. To do this, the springs are threaded onto the TOP spring mounts farther. This STIFFENS the spring and reduces movement. Springs as received from the factory may need to be adjusted stiffer. If your springs have already been adjusted and are too stiff (not enough shake) they must be backed off before proceeding.

## OTHER PRODUCTS OFFERED BY



### CUTTER KITS

#### Cut More Holes, in More Sizes...

...with tools that last **10X** Longer & cut **3X** Faster than twist drills or hole saws.

#### MASTER CUTTER KITS

New kits include **16 sizes** of Sheet Metal Hole Cutters, arbor, extra pilots & center punch. Available in fractional and metric sizes.-



#### HOLCUTTER™ KIT

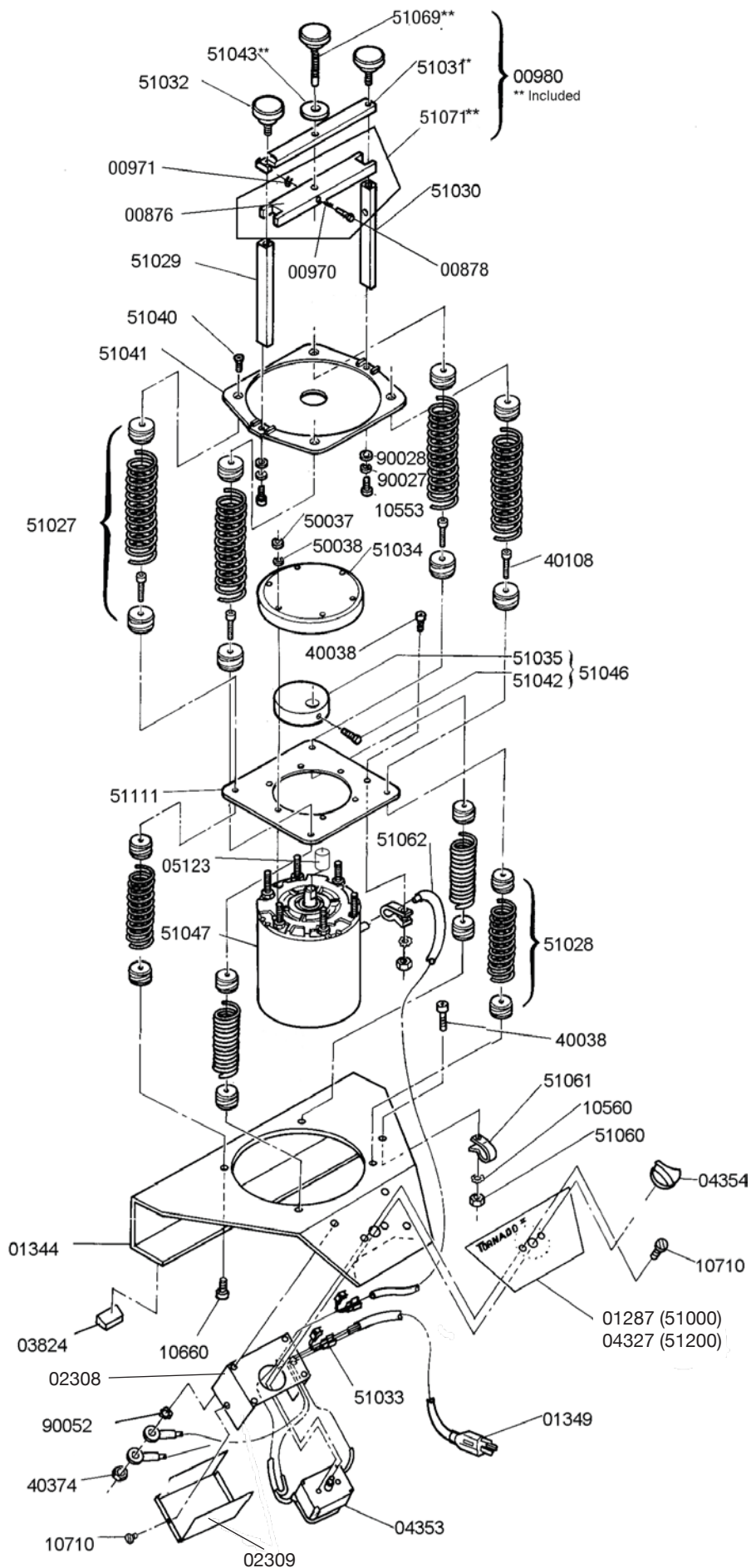
HSS Holcutters use a single arbor, with a patented Quad-Lead thread mounting system. For materials up to 1/8" (3.2mm) thick.



### STEP DRILLS



Step drills allow the convenience of drilling multiple size holes using one drill bit. These tools offer improved tool life because they are made of premium Cobalt M42 HSS and TiN coated. For us in sheet metal, aluminum, stainless steel and some plastics.





## 120V Paint Shaker

| Part # | Description            | Qty | Part # | Description         | Qty |
|--------|------------------------|-----|--------|---------------------|-----|
| 00876  | Hold Down Bar          | 1   | 51027  | Upper Spring Set    | 1   |
| 00878  | Pin Cup Locking        | 1   | 51028  | Lower Spring Set    | 1   |
| 00970  | Compression Spring     | 1   | 51029  | Bar-Left Hand Side  | 1   |
| 00971  | Retaining Ring         | 1   | 51030  | Bar-Right Hand Side | 1   |
| 00980  | Hold Down Bar Assy     | 1   | 51031  | Bar-Top             | 1   |
| 01287  | Label (51000 Blair)    | 1   | 51032  | Knob                | 2   |
| 04327  | Label (51200 Hougen)   | 1   | 51033  | Strain Relief       | 2   |
| 01344  | Base                   | 1   | 51034  | Cover-Flyweight     | 1   |
| 01349  | Power Cord (120V)      | 1   | 51035  | Flyweight           | 1   |
| 02308  | Enclosure - Upper Half | 1   | 51040  | Screw 1/4-20        | 4   |
| 02309  | Enclosure - Lower Half | 1   | 51041  | Platform            | 1   |
| 03824  | Rubber Bumper          | 3   | 51042  | Screw 1/4-20        | 1   |
| 04353  | Timer                  | 1   | 51043  | Lock Nut            | 1   |
| 04354  | Knob                   | 1   | 51047  | Motor (120V)        | 1   |
| 10553  | Screw 1/4-20           | 2   | 51060  | Nut #10-32          | 2   |
| 10560  | Washer #10             | 2   | 51061  | Clamp               | 2   |
| 10660  | Screw 1/4-20           | 4   | 51062  | Motor Cord          | 1   |
| 10710  | Screw #6-32            | 4   | 51069  | Clamping Screw Assy | 1   |
| 40038  | Screw #10-32 x 5/8     | 2   | 51071  | Retaining Bar Assy  | 1   |
| 40108  | Screw 1/4-20           | 4   | 51111  | Mid Plate           | 1   |
| 40374  | Nut Hex #6             | 4   | 90027  | Washer 1/4" Flat    | 2   |
| 50037  | Nut #10-32             | 6   | 90028  | Washer 1/4" Heli    | 2   |
| 50038  | Washer #10             | 6   | 90052  | Lock Washer #6 Ext  | 4   |
|        |                        |     | 90237  | Washer #10 Flat     | 1   |

## COMMERCIAL / INDUSTRIAL LIMITED WARRANTY

Hougen Manufacturing, Inc. warrants its Portable Magnetic Drills, Trak-Star Rail Drills, Hydraulic Rail Saw and Tornado II Paint Shakers for two (2) years, Electro-Hydraulic Hole Punchers for one (1) year, and it's Husqvarna Saw and other products for ninety (90) days from date of purchase against defects due to faulty material or workmanship and will repair or replace (at its option) without charge any items returned. This warranty is void if the item has been damaged by accident or unreasonable use, neglect, improper service, or other causes not arising out of defects in material or workmanship. No other expressed warranty is given or authorized. Hougen Manufacturing, Inc. disclaims any implied warranty of Merchantability or fitness for any period beyond the expressed warranty and shall not be liable for incidental or consequential damages. Some states do not allow exclusion of incidental or consequential damages or limitation on how long an implied warranty lasts and, if the law of such a state governs your purchase, the above exclusion and limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

To obtain warranty service, return the item(s), transportation prepaid to your nearest Factory Authorized Warranty Service Center, or to Hougen Manufacturing, Inc., 3001 Hougen Drive, Swartz Creek, MI 48473.

This warranty is in lieu of any other warranty, expressed or implied, including any warranty of merchantability or fitness for a particular purpose.

*Photographs and Specifications shown are accurate in detail at time of printing. Manufacturer reserves the right to make improvements and modifications without prior notice. Hougen, Rotabroach, and Hougen-Edge are proprietary trademarks of Hougen Manufacturing Inc.*

## AUTHORIZED WARRANTY REPAIR CENTER

For Warranty Service, return all products, transportation prepaid to:

**Hougen Manufacturing & Blair Equipment Company**  
3001 Hougen Drive  
Swartz Creek, Michigan 48473



**Hougen Manufacturing, Inc.**  
**Blair Equipment Company**  
P.O. Box 2005 • Flint, MI 48501-2005  
3001 Hougen Drive • Swartz Creek, MI 48473  
Phone (810) 635-7111 • Fax (810) 635-8277  
www.hougen.com • info@hougen.com  
© 2022 Hougen Manufacturing, Inc.