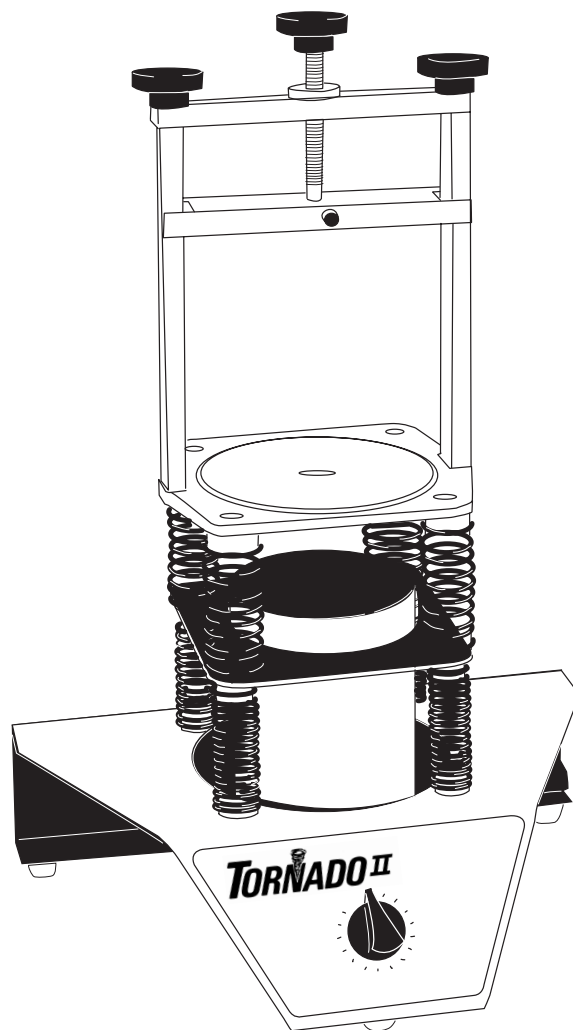


# ***TORNADO II***

## **PORTABLE PAINT SHAKER**

## **OPERATOR'S MANUAL**

**MODELS 51000 and 51200**



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

## 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.

## NEW MACHINE SETUP

1. Remove Shaker and parts from package. Place Shaker on a rigid, level surface, away from any edge, and well clear of obstructions.
2. Install bracket assembly to platform with side hole to the right.
3. Route power cord so that it will not be damaged and plug into grounded receptacle.
4. READ OPERATION INSTRUCTIONS and post it in a conspicuous place.

## 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.

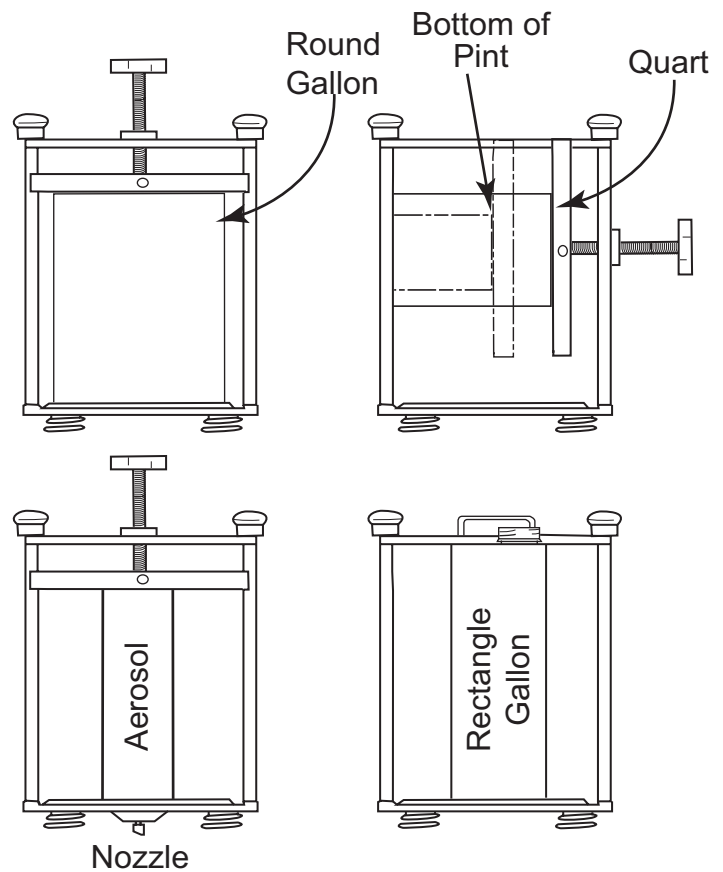
## GENERAL OPERATING INSTRUCTIONS

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 SPRING ADJUSTMENT" to determine this.

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

1. Installation:
  - a. 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.
  - b. Install the (2) shortest springs on the left front and right rear.
  - c. Install the (2) longer springs on the right front and left rear. Be sure the (4) cap screws are tight.
  - d. 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.

### **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 head cap 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.

### **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.
4. Start the machine again. Listen for clatter, and watch the mid-plate from the front to see which side moves the most. If necessary, stiffen the springs again 1/4 turn, loosen and retighten the screws to allow the springs to snap back. Repeat this procedure until the clatter disappears and the mid-plate moves uniformly.

### **CHECKING SPRING ADJUSTMENT**

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 mid-plate from the front. If one side moves substantially more than the other, the front spring that doesn't move enough and its diametrically opposed spring need to be backed off, and the spring set that moves more may need to be stiffened. Refer to "BACKING OFF SPRINGS" and "ADJUSTING SPRINGS." Adjust only one set at a time, then retest. Always be sure to allow springs to snap back by loosening and retightening the screws. When the mid-plate moves fairly uniformly, proceed to step 3.
3. Start the shaker and watch the can platform's movement from side to side. It should move 3/4" on both sides. You can use a ruler near the platform if you're not sure. If it moves more than 7/8" on both sides, stiffen all springs 1/8 turn each to reduce movement. If it moves less than 3/4", back off all springs 1/8 turn to increase movement. If it moves 3/4" or more, doesn't clatter, and has fairly uniform mid-plate movement, your shaker is properly adjusted.

Exploded view diagram of a mechanical assembly. The diagram shows the following components and their assembly relationships:

- Top Assembly:** Components 51069\*\*, 51031\*, 51071\*\*, 51030, 00878, 00970, 51029, 00876, 00971, and 51032 are shown at the top.
- Central Assembly:** Components 51040, 51041, 51027 (a set of three springs), 51042, 51035, 40108, 51034, 50038, 50037, 90028, 90027, 10553, 40038, 51036, 51037, 51038, 51039, 51040, 51041, 51042, 51043, 51044, 51045, 51046, 51047, 51048, 51049, 51050, 51051, 51052, 51053, 51054, 51055, 51056, 51057, 51058, 51059, 51060, 51061, 51062, 51063, 51064, 51065, 51066, 51067, 51068, 51069, 51070, 51071, 51072, 51073, 51074, 51075, 51076, 51077, 51078, 51079, 51080, 51081, 51082, 51083, 51084, 51085, 51086, 51087, 51088, 51089, 51090, 51091, 51092, 51093, 51094, 51095, 51096, 51097, 51098, 51099, 51100, 51101, 51102, 51103, 51104, 51105, 51106, 51107, 51108, 51109, 51110, 51111, 51112, 51113, 51114, 51115, 51116, 51117, 51118, 51119, 51120, 51121, 51122, 51123, 51124, 51125, 51126, 51127, 51128, 51129, 51130, 51131, 51132, 51133, 51134, 51135, 51136, 51137, 51138, 51139, 51140, 51141, 51142, 51143, 51144, 51145, 51146, 51147, 51148, 51149, 51150, 51151, 51152, 51153, 51154, 51155, 51156, 51157, 51158, 51159, 51160, 51161, 51162, 51163, 51164, 51165, 51166, 51167, 51168, 51169, 51170, 51171, 51172, 51173, 51174, 51175, 51176, 51177, 51178, 51179, 51180, 51181, 51182, 51183, 51184, 51185, 51186, 51187, 51188, 51189, 51190, 51191, 51192, 51193, 51194, 51195, 51196, 51197, 51198, 51199, 51200, 51201, 51202, 51203, 51204, 51205, 51206, 51207, 51208, 51209, 51210, 51211, 51212, 51213, 51214, 51215, 51216, 51217, 51218, 51219, 51220, 51221, 51222, 51223, 51224, 51225, 51226, 51227, 51228, 51229, 51230, 51231, 51232, 51233, 51234, 51235, 51236, 51237, 51238, 51239, 51240, 51241, 51242, 51243, 51244, 51245, 51246, 51247, 51248, 51249, 51250, 51251, 51252, 51253, 51254, 51255, 51256, 51257, 51258, 51259, 51260, 51261, 51262, 51263, 51264, 51265, 51266, 51267, 51268, 51269, 51270, 51271, 51272, 51273, 51274, 51275, 51276, 51277, 51278, 51279, 51280, 51281, 51282, 51283, 51284, 51285, 51286, 51287, 51288, 51289, 51290, 51291, 51292, 51293, 51294, 51295, 51296, 51297, 51298, 51299, 51300, 51301, 51302, 51303, 51304, 51305, 51306, 51307, 51308, 51309, 51310, 51311, 51312, 51313, 51314, 51315, 51316, 51317, 51318, 51319, 51320, 51321, 51322, 51323, 51324, 51325, 51326, 51327, 51328, 51329, 51330, 51331, 51332, 51333, 51334, 51335, 51336, 51337, 51338, 51339, 51340, 51341, 51342, 51343, 51344, 51345, 51346, 51347, 51348, 51349, 51350, 51351, 51352, 51353, 51354, 51355, 51356, 51357, 51358, 51359, 51360, 51361, 51362, 51363, 51364, 51365, 51366, 51367, 51368, 51369, 51370, 51371, 51372, 51373, 51374, 51375, 51376, 51377, 51378, 51379, 51380, 51381, 51382, 51383, 51384, 51385, 51386, 51387, 51388, 51389, 51390, 51391, 51392, 51393, 51394, 51395, 51396, 51397, 51398, 51399, 51400, 51401, 51402, 51403, 51404, 51405, 51406, 51407, 51408, 51409, 51410, 51411, 51412, 51413, 51414, 51415, 51416, 51417, 51418, 51419, 51420, 51421, 51422, 51423, 51424, 51425, 51426, 51427, 51428, 51429, 51430, 51431, 51432, 51433, 51434, 51435, 51436, 51437, 51438, 51439, 51440, 51441, 51442, 51443, 51444, 51445, 51446, 51447, 51448, 51449, 51450, 51451, 51452, 51453, 51454, 51455, 51456, 51457, 51458, 51459, 51460, 51461, 51462, 51463, 51464, 51465, 51466, 51467, 51468, 51469, 51470, 51471, 51472, 51473, 51474, 51475, 51476, 51477, 51478, 51479, 51480, 51481, 51482, 51483, 51484, 51485, 51486, 51487, 51488, 51489, 51490, 51491, 51492, 51493, 51494, 51495, 51496, 51497, 51498, 51499, 51500, 51501, 51502, 51503, 51504, 51505, 51506, 51507, 51508, 51509, 51510, 51511, 51512, 51513, 51514, 51515, 51516, 51517, 51518, 51519, 51520, 51521, 51522, 51523, 51524, 51525, 51526, 51527, 51528, 51529, 51530, 51531, 51532, 51533, 51534, 51535, 51536, 51537, 51538, 51539, 51540, 51541, 51542, 51543, 51544, 51545, 51546, 51547, 51548, 51549, 51550, 51551, 51552, 51553, 51554, 51555, 51556, 51557, 51558, 51559, 51560, 51561, 51562, 51563, 51564, 51565, 51566, 51567, 51568, 51569, 51570, 51571, 51572, 51573, 51574, 51575, 51576, 51577, 51578, 51579, 51580, 51581, 51582, 51583, 51584, 51585,

Part #	Description	Qty
00876	Hold Down Bar	1
00878	Pin Cup Locking	1
00970	Compression Spring	1
00971	Retaining Ring	1
00980	Hold Down Bar Assy	1
01287	Label (51000)	1
01328	Enclosure	1
01344	Base	1
01349	Power Cord	1
03824	Rubber Bumper	3
04327	Label (51200)	1
04353	Timer	1
04354	Knob	1
10553	Screw 1/4-20	2
10560	Washer #10	2
10660	Screw 1/4-20	4
10710	Screw #6-32	4
40038	Screw #10-32 X 5/8	2
40108	Screw 1/4-20	4
40374	Nut Hex #6	4
50037	Nut #10-32	6
50038	Washer #10	6
51027	Upper Spring Set	1
51028	Lower Spring Set	1
51029	Bar-Left Hand Side	1
51030	Bar-Right Hand Side	1
51031	Bar-Top	1
51032	Knob	2
51033	Strain Relief	2
51034	Cover-Flyweight	1
51035	Flyweight	1
51040	Screw 1/4-20	4
51041	Platform	1
51042	Screw 1/4-20	1
51043	Lock Nut	1
51047	Motor 115V	1
51060	Nut #10-32	2
51061	Clamp	2
51062	Motor Cord	1
51069	Clamping Screw Assy	1
51071	Retaining Bar Assy	1
51111	Mid Plate	1
90027	Washer 1/4" Flat	2
90028	Washer 1/4" Heli	2
90052	Lock Washer #6 Ext	4
90237	Washer #10 Flat	1

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