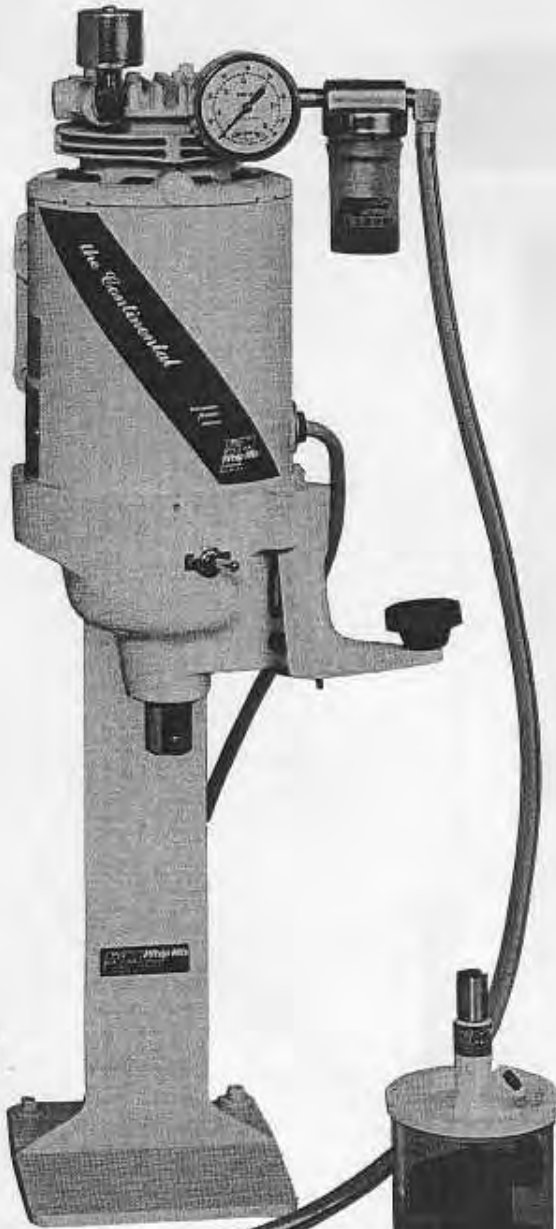


*The Continental  
Power-Mixer with Vacuum*



The Continental  
Power-Mixer with Vacuum

# Operating Manual



**WM** **Whip Mix**<sup>®</sup>  
CORPORATION  
361 Farmington Ave. • P.O. Box 17183 • Louisville, Kentucky 40217

# Use and Care of the Continental Unit

## A. INSTALLATION

Standard equipment packaged with the CONTINENTAL UNIT includes:

- 1 - Oiler Unit #6012
- 1 - Plastic Tubing and Connections #5700
- 1 - 4 oz. bottle of VV Lubricant #56
- 1 - Package of Mounting Bolts

Accessories included with the CONTINENTAL UNIT may vary. The complete accessory package includes:

- 1-300 ml VAC-U-MIXER #4450 with Teflon paddle for alginates
- 1-300 ml VAC-U-MIXER #4450 with steel paddle for gypsum and investments
- 1-500 ml VAC-U-MIXER #6500 for gypsum and investments
- 1-#4089 (38 mm O.D. x 55 mm high) Casting Ring with Crucible Former #4179
- 1-#4090 (44.5 mm O.D. x 55 mm high) Casting Ring with Crucible Former #4177

The CONTINENTAL UNIT is designed for operation in vertical position. If it is to be attached to a wooden wall or cabinet, lag bolts and washers are suitable for mounting. For a plastered wall the use of a wooden board long enough to span the wall studs is recommended. Upon order, a #6380 Bench Stand in colors to match can be furnished, which is to be fastened onto table or bench.

Please note that the drive shaft must point downward. Keep minimum distance of 9" between the end of the drive chuck and bench or table to allow access for the larger #6600 and #7600 VAC-U-MIXERS.

After mounting the unit, remove plastic plug on right side of pump and screw oiler top tightly into motor housing, with the hose nipple pointing downward. Pour WHIP MIX VV Lubricant #56 into oil jar and fill to the level mark on jar. Make sure that gasket is in place inside oiler top and oil wick will extend down into oil. Screw oil jar firmly into oiler top. Use only VV-56 Lubricant since other oils may harm the vacuum pump mechanism. Caution: do not overfill since oiler felts may become oil-soaked resulting in excessive oil being drawn into the vacuum pump with a possible reduction of pump efficiency.

Push open end of plastic tubing over hose nipple on oiler unit.

The muffler normally is installed to discharge vertically but if space is restricted it can be pointed horizontally to the left or even downward.



Plug cord into electrical outlet. Caution: Make sure available electrical voltage and cycles correspond with those on motor data plate.

## B. OPERATION

This unit is equipped with a low-speed (425 RPM) drive chuck for vacuum-mixing of plasters, stones, die materials, investments and alginates, with the VAC-U-MIXER (200 ml, 300 ml, 500 ml, 875 ml or 1200 ml size).

This unit is equipped with a manual switch in front of the motor housing, and with an automatic switch built into the drive chuck. Motor will start when the drive nut on the VAC-U-MIXER engages the drive chuck and is pushed upward; motor will stop upon disengaging; vacuum will also drop. If vacuum is desired without mixing, turn on manual switch. Be sure to align slot in drive nut with cross pin inside drive chuck. See page 4 for detailed instructions for the use and care of the VAC-U-MIXER.

The 1/4 HP motor drives the Vacuum Pump, located on the top of the unit, and, through the gear housing on the lower end, the low speed drive chuck. The Vacuum Pump will produce a vacuum of 27" to 28" Hg (68 to 71 cm HG) at sea level. Deduct 1" for each 1000 feet elevation above sea level.

The electric motor is equipped with a thermal overload switch to protect it from overheating. This switch will reset automatically. **If thermal overload switch shuts down motor, immediately move manual switch to "OFF" position to prevent further cycling of the overload switch.** Then an immediate check should be made to locate the condition that caused the overload.

The built-in VIBRATOR is sturdy and dependable; use it in regular manner. All wear takes place on the #6103 Vibrator Rod rather than on the cam from which it operates. Therefore, replacement of the rod is required when loss of vibration is noted. To replace vibrator rod, release Vibrator Arm #6109 (see diagram page 6). Swing arm up and remove worn rod. In some instances it may be necessary to grasp rod with pliers and pull out with a twisting motion. Insert new rod in hole.

## C. MAINTENANCE

Regardless of the mixing equipment used it is most important to allow the CONTINENTAL UNIT to run for approximately one minute after each use. During spatulation under vacuum water vapor is drawn into the Vacuum Pump. If the Unit is shut off immediately this vapor condenses to water as the pressure returns to atmospheric. By running the Unit with the vacuum tubing open, air is pumped through, thus purging the water vapor from the pump. At the same time, air flow through the Oiler Unit carries oil vapor into the pump keeping it properly lubricated. If water accumulates in the Vacuum Pump rusting can occur and this, and the mixture of oil and water, can cause a loss of vacuum. If this happens refer to the service instructions on pages 8 and 9.

If at any time vacuum pressure drops for unknown reasons (other than leaks in connections or mixing units), unscrew gage (use wrench on boss on back of gage) and put 4 or 5 drops of VV Lubricant #56 in opening of motor housing. Then put gage back, screwing it in tightly. Turn on motor and let it run for one minute or more—vacuum pressure should be normal again. If this operation does not restore normal vacuum refer to service instructions on pages 8 and 9.

Keep clean VV Lubricant #56 in oil jar—to level mark—and replace when dirty (at least every 6 months). Use ONLY WHIP MIX VV Lubricant #56 in oil jar to maintain proper lubrication in vacuum chamber and prevent rusting of pump parts.

The CONTINENTAL UNIT does not require other oiling or greasing at any time. Lifetime sealed bearings on the motor, drive shaft, and reducing gears are designed for continuous operation and need no lubrication.

Quick, sure vacuum can only be obtained with no leaks; check oil jar and tubing connections occasionally for tightness. Vacuum will vary due to atmospheric conditions (barometric pressure); reading on vacuum gage may be high one day and lower on another.

The Vacuum Pump features a rust resistant rotor for long lasting trouble-free use. Its simple rotary vane design provides dependable, quick, high vacuum.

## D. CAUTION

**DO NOT INSERT ANY PADDLE ASSEMBLY INTO DRIVE CHUCK WITHOUT BOWL IN PLACE.**

RUN UNIT AFTER EACH USE FOR ONE MINUTE OR MORE TO PURGE WATER VAPOR AND LUBRICATE PUMP.

BEFORE PLUGGING IN UNIT CHECK ELECTRICAL SUPPLY CHARACTERISTICS WITH MOTOR CHARACTERISTICS.

DO NOT FILL OIL JAR ABOVE OIL LEVEL MARK.

USE ONLY THE VV-56 LUBRICANT THAT IS FURNISHED WITH YOUR UNIT. OTHER OILS MAY HARM THE VACUUM PUMP.

IF THERMAL OVERLOAD SWITCH SHUTS DOWN MOTOR, IMMEDIATELY MOVE MANUAL SWITCH TO "OFF" POSITION AND CHECK FOR CAUSE OF OVERLOAD.

THE ROTOR IS GLUED TO THE SHAFT OF THE MOTOR—**DO NOT ATTEMPT TO REMOVE IT.** SEND MOTOR TO THE FACTORY FOR ANY REPAIR WHICH INVOLVES REMOVAL OF ROTOR. OTHERWISE, DAMAGE TO OTHER PARTS OF MOTOR MAY RESULT. ALL OTHER PUMP PARTS CAN BE REMOVED FOR SERVICE AS NEEDED.

## E. SPECIFICATIONS

**MOTOR:** 1/4 HP SINGLE PHASE  
1725 RPM @ 60Hz, 115V, 4.4A  
1425 RPM @ 50Hz, 230V, 2.2A

**DIMENSIONS:**  
Weight: 24 lbs. (10.9kg) Width: 9 inches (22cm)  
Length: 16 in. (40cm) Height: 9 inches (22cm)

# The Vac-U-Mixer

The VAC-U-MIXER is available in the five sizes shown. It is designed to give dense, smooth, mixes of plaster, stone, investment, alginate, etc., by mixing UNDER VACUUM.



## LABORATORY MODELS

The #6500, 500 ml, and #6600, 875 ml, sizes are normally furnished with a nylon bearing in the lid for the paddle shaft. But, where repeated daily use or full capacity amounts of material are spatulated, heavy-duty LABORATORY MODELS with bronze bearings are available.

## OPERATION (MIXING)

The VAC-U-MIXER has been thoroughly tested and is ready for use upon unpacking.

1. BEFORE using - rinse bowl and lid assembly. Shake off excess water. This is most important whenever water and material are measured. Proportion water and material into bowl according to manufacturer's directions. Incorporate thoroughly with hand spatula; no dry powder or large lumps should remain.

VAC-U-MIXER	VOLUME (ml)	CAPACITY	
		Gypsum (grams)	Alginate (scoops)
#6400	200	25-100	1-2
#4450	300	25-150	1-3
#6500	500	50-350	2-5
#6600	875	50-800	
#7600	1200	100-1000	

2. Place lid on bowl and press together to help seat the bowl on "O" Ring (Rubber Gasket) in lid.
3. Connect vacuum by slipping metal nozzle at end of vacuum hose into opening on top of lid.
4. Holding bowl and lid together, insert the slotted drive nut into drive chuck for automatic start. After starting, move the manual switch to the "ON" position so the pump continues to run after the VAC-U-MIXER is disengaged.

Ideal spatulation time can be determined by a few experimental test runs, as this depends on the material and the consistency of mix as used by the individual operator.

## SUGGESTED MIXING TIMES (seconds)

MATERIAL	@ Low Speed 425 RPM
	Plaster, Stone, Die Material
Gypsum Investment	40-50
Phosphate Investment	60-90
Alginate	12-15

5. With motor still running, disengage VAC-U-MIXER from Drive Chuck. Vibrate mix to bottom of bowl and break vacuum by pulling out Trap Cap. Let motor run for approximately one minute to purge water vapor from pump and to re-oil.
6. Separate paddle from mix by vibrating as lid and paddle assembly is removed.
7. Pour mix as usual, taking care that no air bubbles are trapped when pouring.
8. Rinse VAC-U-MIXER parts thoroughly at once under running water - no need for drying before next use.

FOR ALGINATES disregard instructions 5, 6, 7 and 8. Instead, break vacuum immediately and use mix in conventional manner. It is still important to let vacuum pump run for approximately one minute to flush water vapor and re-oil. Allow excess material on paddle and bowl to set thoroughly before cleaning since the set alginate will peel away easily.

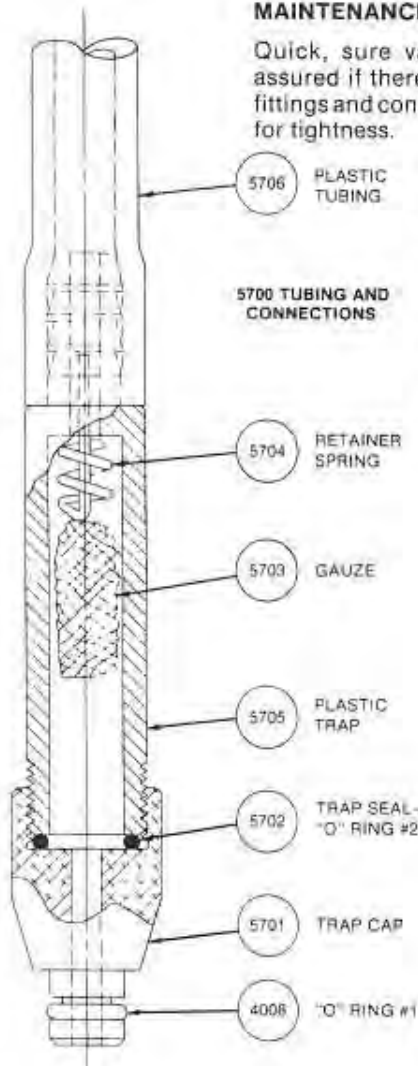
For mixing alginates special Flat Paddles are available for the 300 & 500 ml sizes that facilitate the removal of material from the paddle for filling the impression tray. The paddle of the 300 ml size is Teflon coated to promote easy cleaning.

**NOTE:** Phosphate investments and alginates can contaminate gypsum materials, seriously affecting their working properties. Therefore, it is strongly recommended that separate mixing bowls be used and marked to avoid this possibility.

### MAINTENANCE

Quick, sure vacuum can only be assured if there are no leaks; check fittings and connections occasionally for tightness.

Periodically, hole in Metal Trap Cap (at the end of the Plastic Hose) should be cleaned. When disassembling Plastic Trap, make sure that "O" Ring #2 is kept in place inside Metal Trap Cap. Replace gauze as it collects dirt and moisture.



LUBRIPLATE (lubricating grease) has been applied to the shaft and "O" Rings of the VAC-U-MIXER before leaving our plant. This should be sufficient for several weeks. Thereafter, LUBRIPLATE should be applied lightly several times a year. For this purpose, unscrew drive nut on top of paddle shaft, grasp paddle and pull from lid. Wipe off shaft and pull a piece of cloth through bearing. Apply LUBRIPLATE to "O" Rings #1 on shaft and top of bearing lid. After reassembling, wipe away excess grease. A tube of LUBRIPLATE has been included with shipment for this purpose.

"O" Rings provide leak-proof vacuum needed. Replacement will be necessary depending upon use. LUBRIPLATE applied lightly to the "O" Ring #1 on the end of the metal trap cap makes insertion and removal easier and increases the life of the "O" Ring.

## Die-Mixer

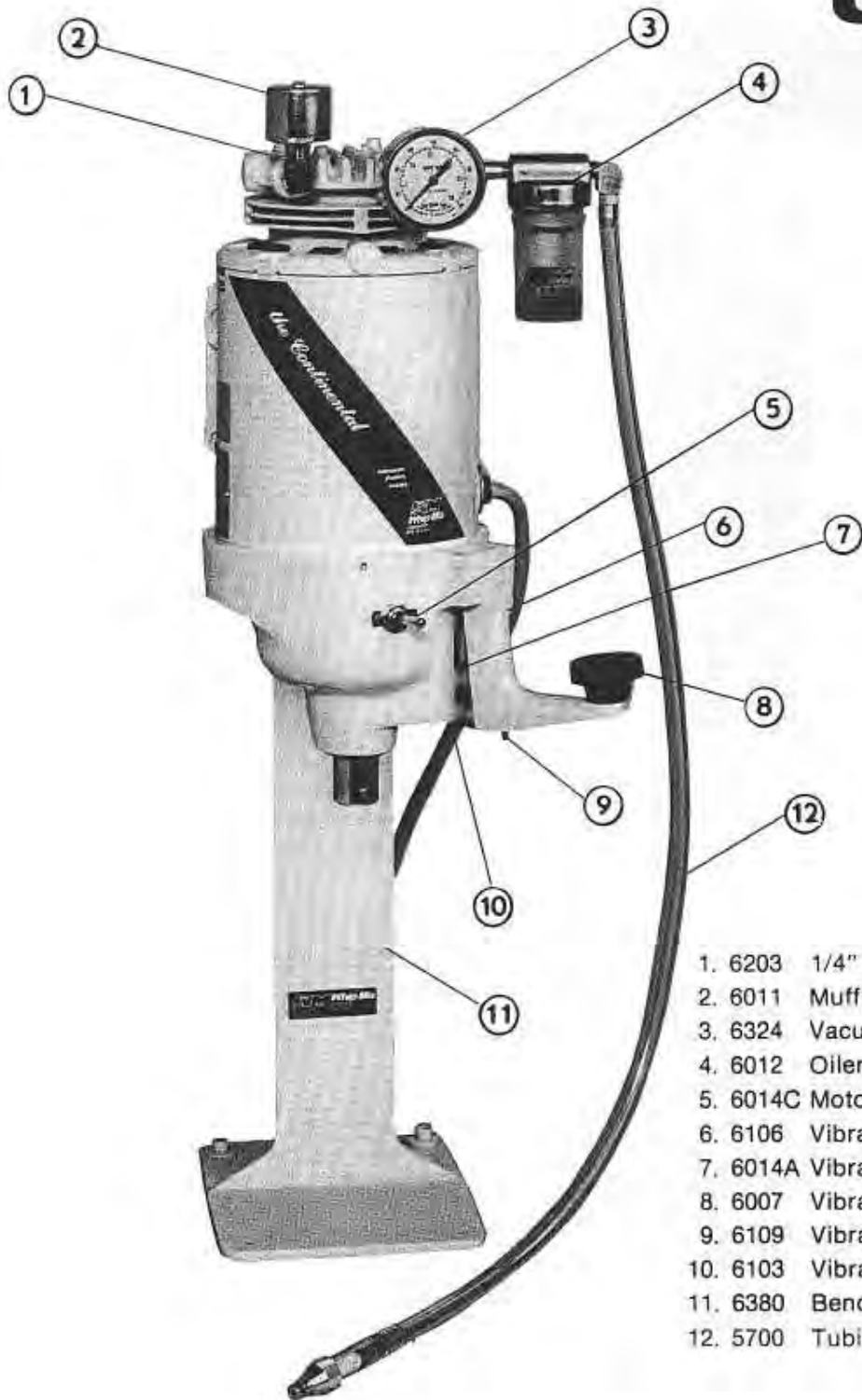
No. 7500

The DIE-MIXER is designed to mix 5-20 grams of die materials, investments or impression materials under vacuum. It is particularly suitable for individual dies.

Two extra plastic bowls are included. Additional bowls with air-tight lids are available to store the exact amount of powder until needed. Material can then be mixed at a moment's notice after adding water. The DIE-MIXER can be supplied with any drive nut, but low speed mixing is suggested with the slotted #6375 Drive Nut as shown.

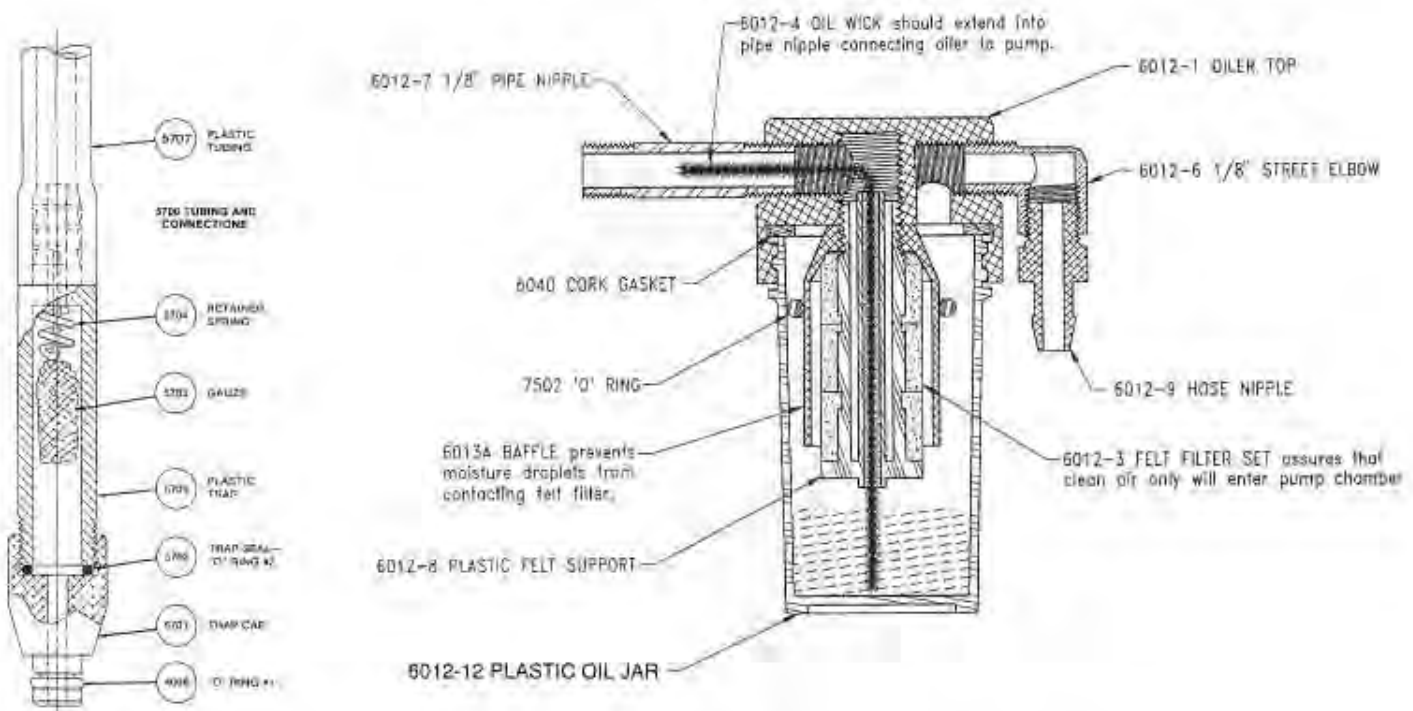


# Parts for the Continental Unit



- 1. 6203 1/4" Street Elbow
- 2. 6011 Muffler
- 3. 6324 Vacuum Gage
- 4. 6012 Oiler Unit
- 5. 6014C Motor Switch
- 6. 6106 Vibrator Arm
- 7. 6014A Vibrator Spring
- 8. 6007 Vibrator Knob
- 9. 6109 Vibrator Clip
- 10. 6103 Vibrator Rod
- 11. 6380 Bench Stand (Optional)
- 12. 5700 Tubing and Connections

## CROSS SECTION OF 6112 Oiler-Filter Unit



### TROUBLESHOOTING SWITCH OR DRIVE PROBLEMS

The two switches are wired in parallel so that either switch will start the motor. If the ON/OFF toggle switch fails, the unit can be operated by using the AUTOMATIC switch when a mixing bowl is inserted in the drive chuck. The opposite is true if the automatic switch fails. If both fail, the electric cord and the circuit breaker should be checked.

Use the following part numbers when ordering:  
Model A or B 6014A Motor Switch 6305-1 Auto Switch  
Model C or D 6014C Motor Switch 6305-1 Auto Switch

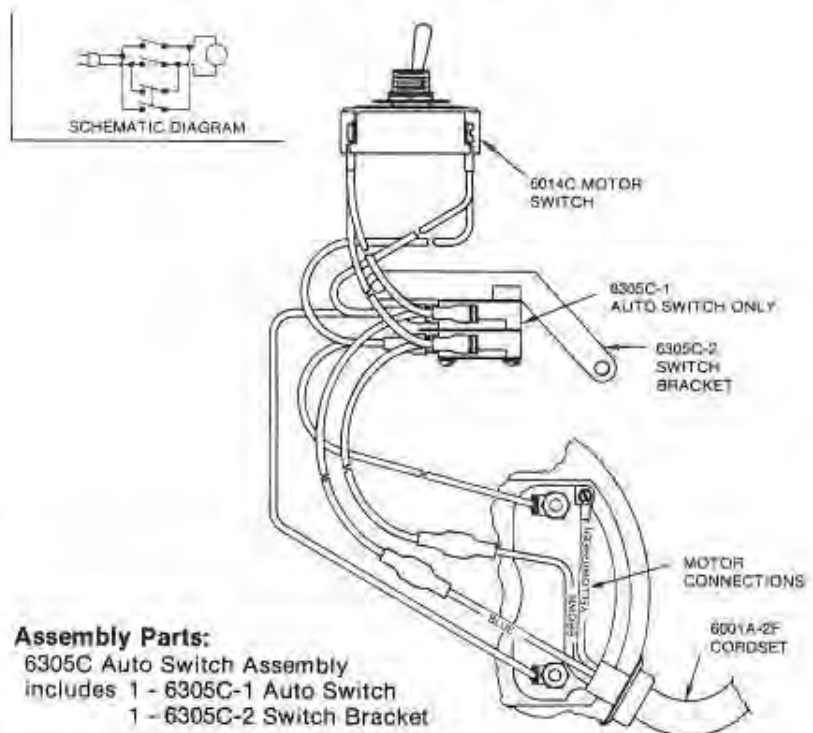
Gear failure can be identified if the drive chuck turns too slowly or slips when mixing. This will require replacement of the large nylon gear. Use part number 6304 (straight teeth) for a unit identified as a Model A or B and part number 6304A (diagonal teeth) for a Model C or D.

To remove drive housing:

1. Unplug Continental Unit.
2. Remove the black nylon vibrator rod.
3. Remove the high speed drive chuck which is held on by a set screw. Loosen with 3/32" allen wrench.
4. Loosen the set screw above the ON/OFF switch with 3/32" allen wrench.
5. Loosen but do not remove the four motor through bolts. These go from the pump end of the motor all the way through the motor and into the drive housing. Do not completely remove these bolts as they hold washers which keep the pump in perfect alignment.
6. Lightly tap around the circumference of the housing, and it will come loose allowing access to the interior parts such as the plastic gear and switches.

Detailed replacement instructions are available free upon request.

## Wiring Diagram



### Assembly Parts:

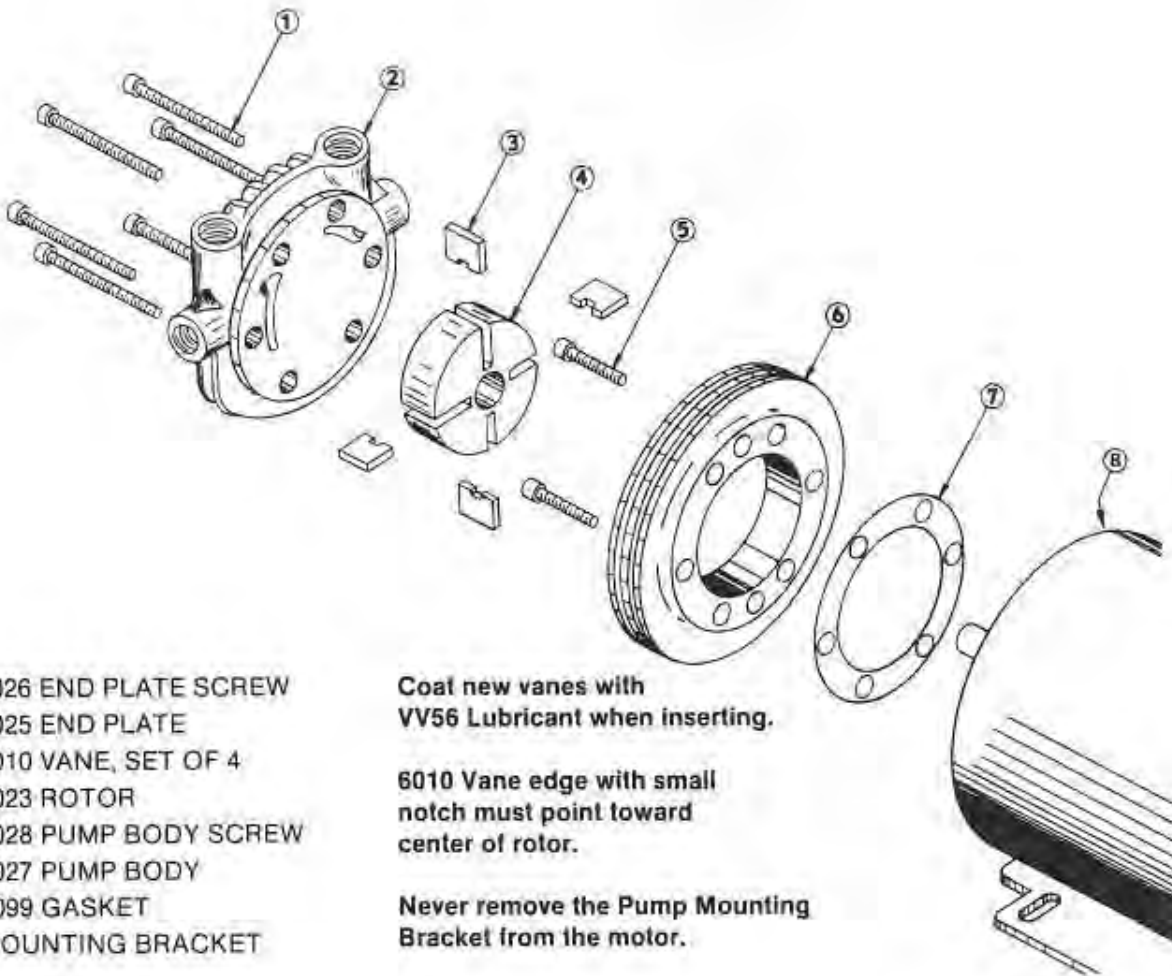
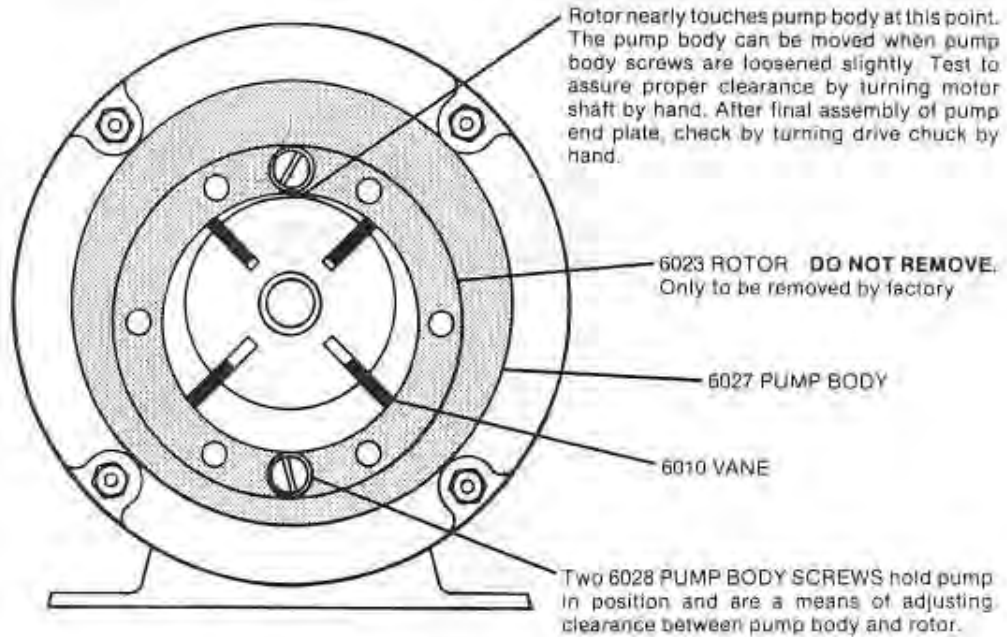
6305C Auto Switch Assembly  
includes 1 - 6305C-1 Auto Switch  
1 - 6305C-2 Switch Bracket

### 6011C Wiring Harness

includes 1 - 6014C Motor Switch  
1 - 6305C Auto Switch Assembly with wires as shown ready to connect to motor and cordset.

# Vacuum Pump

View with  
6025 End Plate  
removed.



- 1 6026 END PLATE SCREW
- 2 6025 END PLATE
- 3 6010 VANE, SET OF 4
- 4 6023 ROTOR
- 5 6028 PUMP BODY SCREW
- 6 6027 PUMP BODY
- 7 6099 GASKET
- 8 MOUNTING BRACKET

Coat new vanes with  
VV56 Lubricant when inserting.

6010 Vane edge with small  
notch must point toward  
center of rotor.

Never remove the Pump Mounting  
Bracket from the motor.



# Troubleshooting

## **LOW VACUUM:**

Before removing pump end plate because of low vacuum, make sure that there are no leaks due to cracked oil jar lip or loose connections. Often, several drops of VV Lubricant # 56 put directly into the pump by removing the vacuum gauge will raise the vacuum.

During normal operation the Vacuum Pump will consistently produce a vacuum of 26" to 28" Hg at sea level. Deduct 1" for each 1000' elevation above sea level.

Turn unit on, place finger over end of vacuum line and check vacuum gauge reading.

**IF THE VACUUM IS NORMAL (OVER 26" Hg), THERE MAY BE A LEAK IN THE MIXING BOWL OR VACUUM CONNECTION. CHECK FOR:**

1. Worn or missing "O" Ring #1 on #5701 Metal Trap Cap. (Replace)
2. "O" Ring in lid worn or positioned unevenly in groove. (Replace or if uneven, remove and clean material out of groove, then reinsert "O" Ring.)
3. Cracked lid or bowl. (Replace)
4. Warped lid or bowl. (Replace)
5. Leak around paddle shaft due to worn bearing or worn "O" Rings on Shaft. (Grasp paddle in hand and unscrew drive nut with pliers (thread direction may be right or left.) Pull a rag through bearing to clean, grease shaft with LUBRIPLATE and reassemble. The fit of the shaft in the bearing should be tight. Any side play indicates a worn bearing — replace lid.)

**IF THE SAME LOW VACUUM OCCURS, CHECK FOR:**

1. Chipped or cracked lip on oil jar. (Replace)
2. Missing or broken #6040 Cork Gasket. (Replace)
3. Cracked #5705 Plastic Trap. (Replace)
4. Missing "O" Ring #2, located inside #5071 Metal Trap Cap. (Replace)
5. Loose fittings on Oiler-Filter Unit. (Replace)
6. Gummy pump, vanes not sliding in slots. (clean pump)
7. Worn #6010 Vanes. (Replace)

## **CLEANING VACUUM CHAMBER:**

When vacuum has dropped or motor appears locked the pump vacuum chamber should be cleaned. Generally this is caused by sticking vanes as a result of moisture in the vacuum chamber. Failure to run the motor for approx. 1 minute after each use is usually the cause. Unscrew oil jar and set aside. Remove 6 end plate screws and lift off the pump end plate. Remove the 4 vanes from the rotor and wipe them clean of dirt and moisture and clean the slots in the rotor. With a rag or towel clean the vacuum chamber and the end plate. Dip each vane in VV Lubricant and re-insert, making sure that the notched edge points toward the shaft (see drawing on page 8).

For checking, turn the shaft at the opposite end by hand and then replace the end plate. Fasten all 6 screws until almost tight; then tighten all screws evenly and check again for binding by turning the shaft by hand before starting the motor. If the vacuum is still low, vane replacement or resetting of clearance between pump body and rotor is indicated (see below).

## **VANE REPLACEMENT:**

Proceed in the same manner as outlined above for cleaning and insert new vanes instead. Replacement vanes are Part No. 6010 (set of 4).

## **SETTING CLEARANCE BETWEEN PUMP RING AND ROTOR:**

With end plate removed, loosen the two screws holding the pump body. Tap body slightly until it gently rubs the rotor. For checking, turn motor shaft by hand. After clearance has been corrected, tighten the holding screws. Reassemble pump end plate and check for binding by turning shaft again by hand before operating.

## **PUMP INTERIOR SHOULD ALWAYS BE WET WITH LUBRICANT:**

If pump chamber is dry when pump end plate is taken off, check to see that oil wick is properly located in the oiler unit. The wick must touch the lubricant in the oil jar and must also extend into the pipe nipple that connects the oiler unit to the pump (see drawing on page 8).

## **OIL SPATTER FROM MUFFLER:**

If too much lubricant is supplied to the pump, any excess will be pumped into the muffler. Generally, this will occur when the felt filter in the oiler unit has become wetted with lubricant or the oil wick extends too far into the pipe nipple. Oiler unit felts can be dried by squeezing out excess lubricant with a dry cloth. The oil wick may be pulled out about 1/8". Care should be taken to keep lubricant level low enough so that none will contact the felt filter.

## **RUSTY PUMP INTERIOR:**

Rust can form inside the pump when not enough lubricant reaches the chamber of the pump (see PUMP INTERIOR SHOULD ALWAYS BE WET WITH LUBRICANT) or when water vapor is drawn into the unit. This may be caused by failure to run motor after each use, by wet gauze in the plastic trap, or when the felt filter in the oiler unit has become wet. Any rust should be cleaned off all surfaces with very fine emery paper, and all surfaces oiled before reassembly.

## **MOTOR HUMS BUT WILL NOT TURN:**

Usually this occurs with a rust-bound rotor (see RUSTY PUMP INTERIOR). Turn starting switch off immediately to avoid damaging the motor.

# Parts for The Vac-U-Mixer

200 ml  
#6400



300 ml  
#4450



500 ml  
#6500



875 ml  
#6600



1200 ml  
#7600

STAINLESS STEEL PADDLE  
#7606  
STAINLESS STEEL BOWL  
#7602

**NOTE:** Two "O" Rings #1 are installed on paddle shaft of all sizes except the #7600 which requires "O" Rings #2.

# Accessories

## Vac-U-Timer

The Vac-U-Timer will accurately time your mixing and other laboratory operations.

- Minutes and seconds programmable up to 99 minutes/59 seconds with responsive touch-tone buttons.
- Easy to activate alarm and memory function.
- Velcro back easily affixes Vac-U-Timer to your mixing unit or any convenient surface.
- Timer automatically resets at the end of timing cycle.



## Vac-U-Care

### Maintenance Kit

When it comes to taking care of any kind of machinery or equipment, we all know a little maintenance goes a long way. So if your Whip Mix Combination Unit or Vacuum Power Mixer Plus Unit has yellow, oily tubing or your vacuum gauge is not reading as high as it should, it's time to order our simple do-it-yourself Vac-U-Care Maintenance Kit.



## Bench Stand

A Bench Stand #6380 is available for bench top mounting.



## Handy-Holder Bowl Support

For Hands-Free Vacuum Mixing

When your mixing unit is fitted with a Handy-Holder Bowl Support, your hands will be free to do other tasks such as measuring and preparing your next mix. Accommodates modified versions of the two most popular bowl sizes (500 ml and 875 ml).



The Handy-Holder is easy to install and is available separately to retrofit your existing Whip Mix unit.

The kit includes:

- 5700 Tubing and Connections
- 4 oz. VV#56 LUBRICANT
- 6010 Vanes (set of 4)
- 4008 "O" Ring #1 (pkg. 6)
- 4079 LUBRIPLATE (1 tube)
- 6011-7 Exhaust Trap
- 6012-15 Felt Set for Oilier Unit
- 6012-4 Wick
- 6040 Cork Gasket (1)

## Casting Rings and Crucible Formers

All Whip Mix CASTING RINGS are made of a special PYRONEL alloy metal. Even after repeated heatings they remain precision fitting and stable in size. They do not flake, corrode, or peel away, thus they have an unusually long life. Whip Mix CRUCIBLE FORMERS are made of durable plastic and are available in both round and oval shapes.

### WHIP MIX SELECTION GUIDE

	CASTING RINGS			CRUCIBLE FORMERS	
	Part Number	Size C.D. x Height	Mixing Amount (g) Phosphate / Gypsum	Diameter	Part Number
ROUND	4085	1-1/4" x 1-3/8"	60 / 50	1-1/4"	4081
	4086	1-1/4" x 1-5/8"	65 / 60		
	4087	1-1/4" x 1-7/8"	75 / 60		
	4088	1-1/4" x 2-3/16"	90 / 80		
	4181	1-1/2" x 1-9/16"	90 / 80	1-1/2"	4179
	4089	1-1/2" x 2-3/16"	120 / 100		
	4180	1-3/4" x 1-9/16"	120 / 100	1-3/4"	4177
	4090	1-3/4" x 2-3/16"	150 / 140		
	4214	2" x 1-7/8"	180 / 150	2"	4215
	8075-2	2-1/2" x 1-7/8"	275 / 220	2-1/2"	4390
4391	2-1/2" x 2-1/4"	300 / 260			
8076-2	3-1/4" x 1-7/8"	475 / 340			
8077-2	3-1/2" x 2-1/8"	625 / 460			
OVAL	4210	Oval 1-7/8"H	90 / 75	Small	4211
	4212	Oval 1-7/8"H	120 / 100	Large	4213